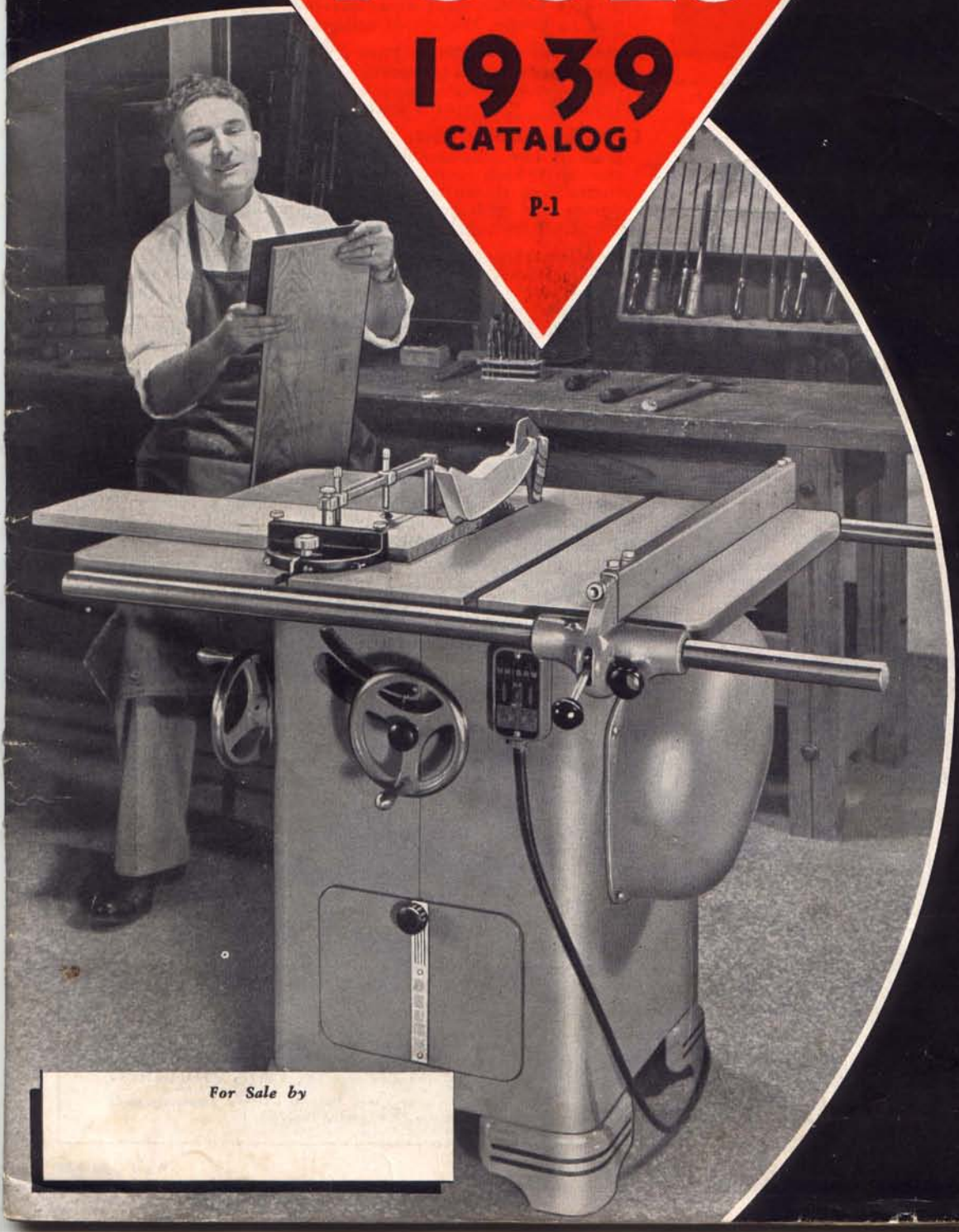
Delta

TRADEMARK REGISTERED U.S. PATENT OFFICE

POWER TOOLS

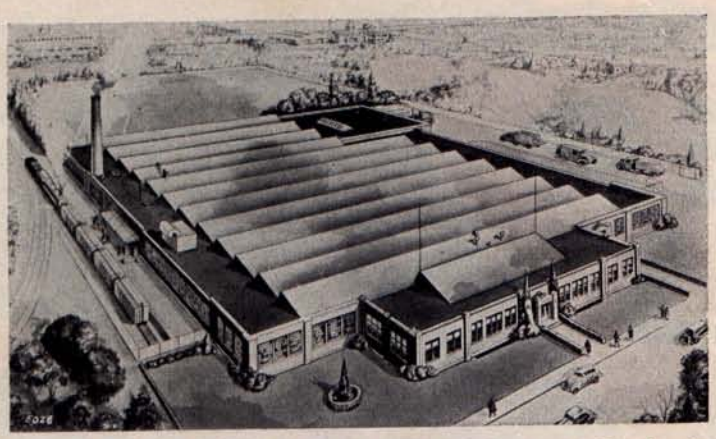
1939 CATALOG

P-1



For Sale by

HOW DELTA POWER TOOLS CUT COSTS FOR INDUSTRIAL USERS



Here is our modern main plant, in which Delta Power Tools are produced under the most modern conditions, with the finest of modern precision machinery.

Just a Few of the Thousands of Industrial Users Who Cut Costs with Delta Tools

The Owens-Illinois Glass Co.
Sikorsky Aircraft Corporation
General Electric Company
Underwood Elliott Fisher Co.
AC Spark Plug Company
Eastman Kodak Company
United States Bureau of Mines
Agfa Ansco
Frankford Arsenal
General Motors
Dodge Brothers
Hudson Motor
Chevrolet Motor Company
Fisher Body
Continental Motors
Packard Motor Car Co.
Chrysler Corporation
U. S. Rubber Products, Inc.
Fairbanks-Morse Company
Ramsey Accessories Mfg. Co.
Republic Steel Corporation
Graybar Electric Company
Truscon Steel Company
Firestone Tire & Rubber Co.
Mallinckrodt Chemical Co.
International Shoe Company
Caterpillar Tractor Company
The B. F. Goodrich Company
Goodyear Tire & Rubber Co.
Pittsburgh Plate Glass Co.
United Air Lines Trans. Corp.
Burd Piston Ring Company
Allis Chalmers Company
Kimberly-Clark Corporation
Pan American Airways
Minneapolis-Honeywell Reg. Co.
American Woolen Company
Ivor Johnson's Arms & Cycle
Wickwire Spencer Steel Corp.
E. I. Du Pont de Nemours & Co.
Iron Fireman
Stanolind Pipe Line Company
National Stamping Company
General Household Mfg. Co.
American Insulator Corp.
Sterling Manufacturing Co.
Quaker Oats Company
The Proctor & Gamble Co.
General Fire Extinguisher Co.
The Federal Glass Company
The Norris Manufacturing Co.
American Roller Bearing Co.
Bridgeport Thermostat Co.
Bassick Company
Mallory Electric Company
Chance-Vought Aircraft
Illinois Wire & Mfg. Co.
Folmer Graflex Corporation
Gleason Works
Geophysical Research Corp.
Arrow of Brooklyn
Holley Carburetor Company
Ralston Steel Car Company
Federal Glass Company
New York Wire Cloth Co.
American Thermometer Co.
Balder Electric Company
Killark Electric Company
Knapp-Monarch Company
McQuay Norris Mfg. Company
Ralston Purina Company
Sunnen Products Company
Zenith Carburetor Company
Detroit Lubricator Company
Gas Machinery Company
Crucible Steel Castings Co.
White Motor Company
Winton Engineering Company
Hoover Company
Warner & Swasey Company
Lincoln Engineering Company
Pet Milk Company
Chicago Southern Air Lines
Ohio Injector Company

Delta power tools have found their way into thousands of industrial and commercial shops all over the world. In some production shops, they form the only equipment. In others, they are used to relieve or supplement larger machines. In all types of shops, they are standing up and making performance records equal to machines that cost many times as much. There are definite reasons why these modern tools are so highly favored for industrial use, and some of these are given below:

Low First Cost: Manufactured under modern production conditions with the finest of high-production equipment—like the modern automobile—these tools cost less for the same production value than heavier tools made up either in small lots or on special order. While we do not claim that modern light power tools will replace heavier machines on every type of work, still there are many cases in which they will actually outperform heavier, more expensive equipment, due to their more modern design, the use of self-sealed ball bearings, etc.

Economical Operation: They require relatively smaller motors than those required by heavier, older machinery. In most cases the power required ranges from ⅛ to ¾ H. P.—rarely over 1½ H. P. This means lower power cost.

Low Maintenance Cost: Since the cost of the original machine is low, the cost of replacement parts is also low, thus cutting upkeep costs. In addition, our light power machines have shown remarkable stamina under production conditions, and with our use of sealed-for-life bearings, maintenance costs are practically nil.

Flexibility: Due to the low cost of the standard parts of these machines, they can be used to make up special-purpose machines at a considerable saving in cost. Many of the largest and most progressive shops in the country, for example, use standard Delta drill-press heads in special drilling machines of their own design. These heads cost only a fraction of what it would cost to produce them in the user's own shop. Complete machines, too, can be adapted to special operations by a few inexpensive changes in the user's own shop.

Portability: Since in most cases each light power tool is equipped with its own motor, it can be moved instantly to any place in the shop or production line where it will be most effective. This reduces the initial tooling cost in many production shops, and in many plants making a wide variety of products, enables the best layout to be used for any sequence of operations at the lowest possible expense.

Reduced Labor Costs: Since these tools are so portable and adaptable, in many cases it is possible to set one of these machines alongside a heavier machine on which the operation is slow and time-consuming. The operator may then perform one or several operations on the light machine while waiting for the completion of the cut or other operation on the heavier machine. And these additional operations are obtained *at no additional labor cost.*

Adaptability: Where changes in production requirements must be made quickly, the portability and flexibility of light power tools make them indispensable. For example, if a couple of extra spindles are required on a multiple drilling operation, two of our drill presses can be set up, one on each side of the regular multiple drill, and the extra spindles thus obtained at minimum cost. It is also possible to group a number of our drill presses, either temporarily or permanently, to make up a multiple drilling unit for special operations.

These are only a few of the reasons why it pays the industrial user to purchase DELTA power tools.

Prices shown in this catalog supersede those quoted previous to October 1, 1938. All prices subject to change without notice.

All prices F. O. B. Factory, Milwaukee.

Delta Manufacturing Co., 600-634 E. Vienna Ave., Milwaukee, Wis.

EXPORT DEPARTMENT, 38 Pearl St., New York, N. Y. **(Address all Canadian communications to Milwaukee Office).**

The right is reserved to make changes in design or equipment at any time, without incurring any obligations to install these on machines previously sold. Any sales tax imposed subsequent to the publication of this catalog will be additional to quoted prices.

Printed in the United States of America

Form C-39 9-38

WHY DELTA TOOLS GIVE MOST VALUE IN *EVERY* TYPE OF SHOP

● **BECAUSE** practically every worth-while improvement in light power tools during the past twelve years has been developed, introduced and in many cases patented by Delta. This is a plain statement of fact that can easily be verified. Many of these developments have been adapted by others—but it is only in the Delta machines that can be found the features that make Delta design a real **improvement.** Because of the patents on our original improvements, many imitations lack the features that make Delta designs superior in performance and utility

● **BECAUSE** Delta was responsible for the original development of the light power tool into a machine of real utility for the small workshop, the school, the laboratory, the contractor and the manufacturing plant.

● **BECAUSE** Delta tools have always been of high-grade design and construction. We have never made "cheap" tools, but from the first have concentrated on the manufacture of tools of the finest possible design—at the lowest possible price consistent with high quality. This policy has produced machines which, while they cost very little above "cheap" tools, are machines that are **inexpensive to own.**

● **BECAUSE** concentration on a single type of product has made possible the production of the finest light power tools it is possible to buy—and has made possible the growth of this company to the dominant position in the field. The Delta Manufacturing Company is the largest manufacturer making light power tools exclusively.

● **BECAUSE** no other manufacturer making light power tools has so wide a knowledge or experience in the field. The value of this is shown by a simple fact: There have been fewer changes in the design of individual machines of our make, during the life of the tools, than in those of any other maker. This is because the tools are **right** to start with—and this is due to five factors: widest knowledge and experience. Exceptionally careful design. Advanced engineering. Unusual production facilities. Thorough testing before introduction.

● **BECAUSE** the details of Delta design, developed by knowledge, research and experience, can be shown to be superior, feature by feature, over those of any other make. Other machines may **look** like Delta's, on casual inspection, but the hidden values of Delta design, as well as the more obvious advantages of the machines, make Delta machines, dollar for dollar, the best light power tools you can purchase for any purpose.

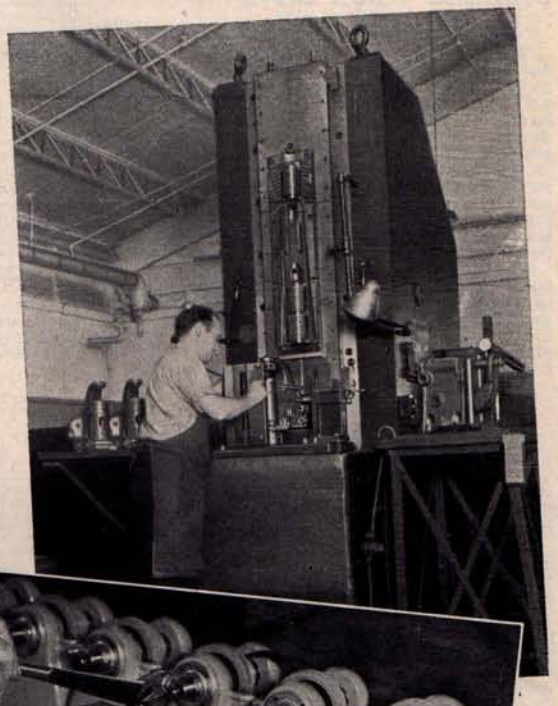
High Quality at Low Cost Is Result of Modern Design and Production Methods

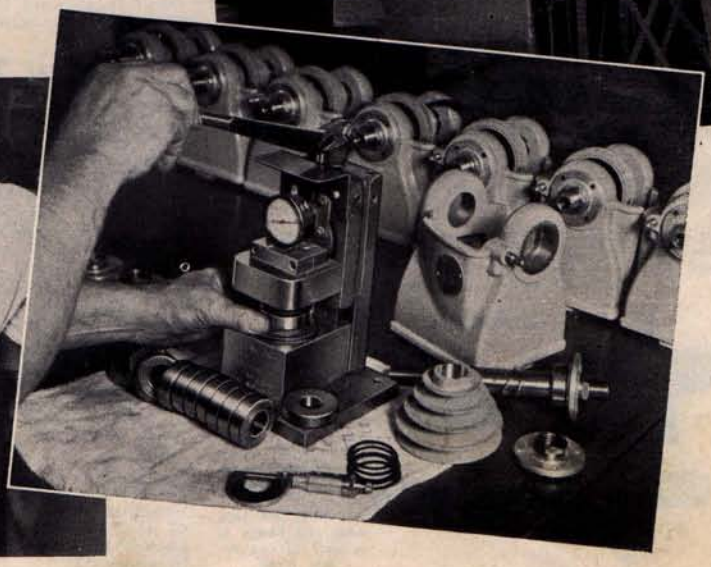
Exactly the same combination of advanced engineering and modern production methods that produces a high-grade automobile is used to produce Delta power tools. A modern plant, modern precision machinery, quantity production—plus wide experience, knowledge and skill—these are the reasons why you buy so much in Delta machines at such low cost.

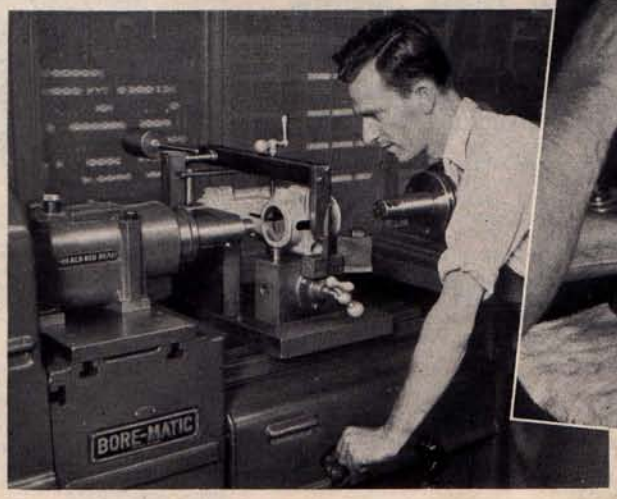
More than that, the details of Delta design and construction insure built-in values that may not be apparent on the surface. For example, many machines have ball bearings—but Delta machines are equipped with "sealed-for-life" ball bearings, which completely seal out dust and dirt, and completely eliminate lubrication problems. They are **not** merely shielded bearings. Further, all our ball bearings are mounted correctly and in accordance with the best ball-bearing practice, not—as in many machines—in such a manner as to distort the bearings before they are even put into service. We also go to additional expense to "pre-load" our bearings, in order to insure minimum deflection and maximum rigidity under load.

Still further, we do not consider that plain boring and reaming of ball-bearing seats is good enough for Delta machines—so we "diamond-bore" all bearing seats to insure absolute accuracy and precise alignment. Diamond-boring is used also for many other operations where precision fits are required.

This is only one example out of hundreds, in which the details of Delta design and construction insure a definitely BETTER machine





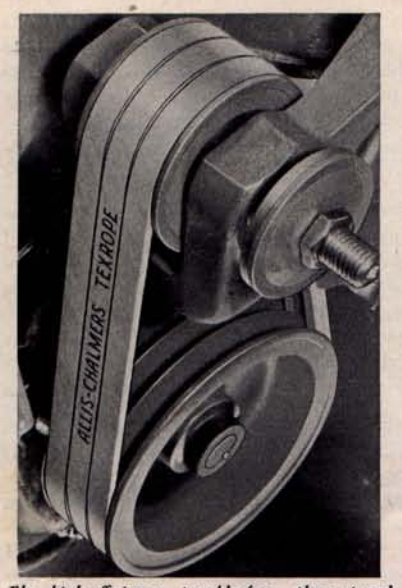


Right, a modern high-production precision vertical broaching machine in the Delta plant — one of many modern production machines used in the manufacture of our power tools.

Pre-loading ball bearings to precision limits, to insure minimum deflection of bearings and maximum rigidity of shaft under load. An "extra" operation — one of the many that make Delta tools definitely better

All ball-bearing seats and other bores where precision fits and accurate alignment are essential are "diamond-bored" on precision machines like the one shown at the left.

HIGHLY EFFICIENT **TEXROPE** DRIVE IS FEATURE OF NEW 10" UNISAW



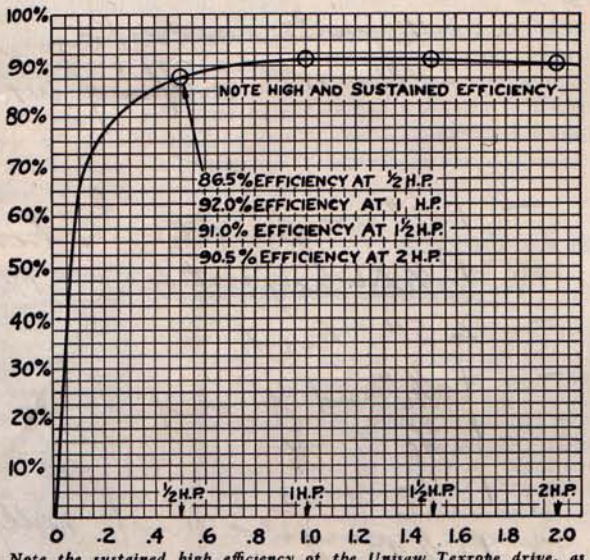
The high-efficiency, trouble-free, three-strand Texrope drive used on the new Unisaw.

Multiple V-Belt Drive Has Many Advantages

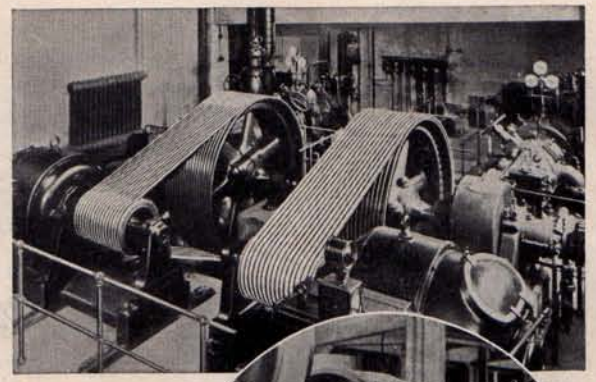
There is no lubrication problem; no gear case to fill with grease and to prevent from leaking. There are no destructive vibration periods to cause possible trouble. There is no danger of injuring the drive due to sudden stalling of the saw. There is no necessity to cut away vital parts of the table ribbing. Also, repair or replacement of parts, which may be troublesome in the case of the gear drive, is simple and inexpensive in case of the V-belt drive.

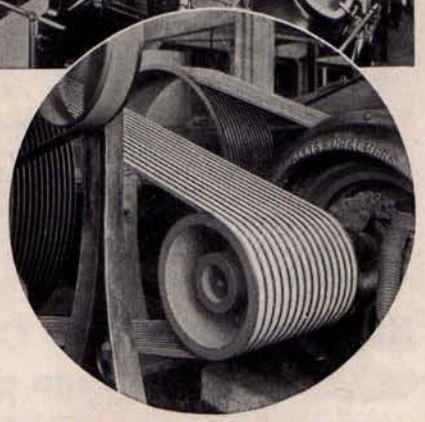
These are only a few of the reasons why, in our opinion, a **properly designed** multiple V-belt drive is greatly superior to a gear or chain drive for the purpose of driving a circular saw.

After thorough testing of every practicable drive, including gears and silent chains, it was finally decided to use the famous Allis-Chalmers multiple "Texrope" drive. Our tests showed that this—while more expensive than a gear drive—was by far the most satisfactory and trouble-free drive that could be adopted, and, in addition, that its efficiency was very high. The chart below, showing the results of tests made by an independent agency—the Research Foundation of the Armour Institute of Technology of Chicago—show that the efficiency of the drive is not only very high, but that it is sustained at a very high peak.



Note the sustained high efficiency of the Unisaw Texrope drive, as shown on this performance chart made from tests by the Research Foundation of Armour Institute of Technology.

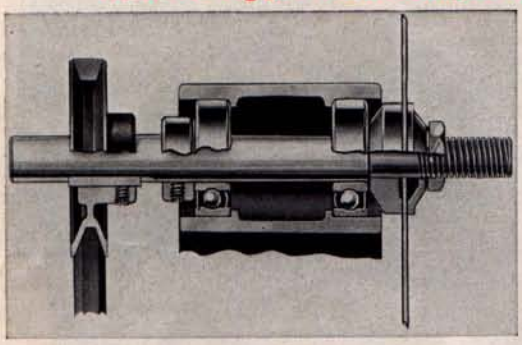




These Texrope drives, transmitting hundreds of horsepower, are of exactly the same type as used on the Unisaw.

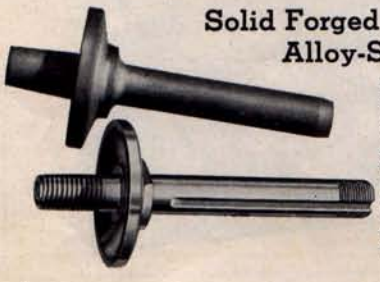
An indication of the very high efficiency and satisfactory service of the multiple-belt Texrope drive is given by the thousands of installations in use. Air compressors, rock crushers, paper beaters, mining machinery, power generating equipment—in thousands of installations where great power must be transmitted with high efficiency and minimum trouble—there you will find the same type of Texrope drive as on the Unisaw.

Finest Type of Design Used In Unisaw Arbor and Bearing Construction



This section shows an ordinary method of mounting a circular-saw arbor. The arbor is a straight ground shaft, with flange pressed on. The bearings are merely pressed onto the shaft and held by setscrewed collars.

Solid Forged Alloy-Steel Arbor



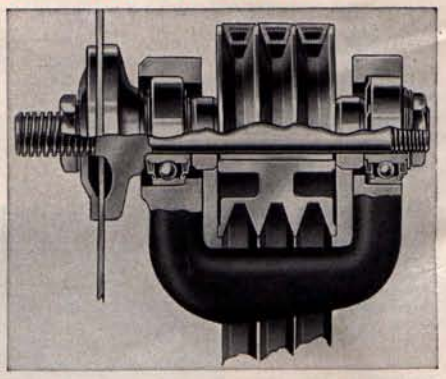
Rough forged arbor for the Unisaw at the top, and the finished arbor below. Note the special modified Acme thread used for the arbor nut, and note that the flange is a part of the arbor itself.

The heart of the circular saw is the saw arbor and the bearings on which it rotates. No pains have been spared to make the design and construction of the Unisaw arbor and bearings the finest on the market, and if the drawing at the right is studied it will be seen that this has been accomplished.

Contrast These Designs

The drawing at the left shows an ordinary method of mounting a saw arbor and its bearings. This construction merely uses a straight ground shaft, on which the bearings are held by a pressed fit, and secured by means of collars setscrewed to the shaft. This construction, while cheap to make, has several disadvantages. It is difficult to take apart and re-assemble, since the shaft must be driven out of the bearings (which is also likely to injure them), and it is not possible to pre-load bearings accurately.

Contrast this with the Unisaw design shown at the right. The bearings in this design are a light, accurate push fit on the arbor shaft. The outer races of the bearings fit into accurate diamond-bored seats in the housing, and are clamped sidewise on the shaft by lock nuts—and even the nuts are accurately machined to avoid the slightest distortion of the bearings. The bearings themselves are of the sealed-for-life type (not merely shielded) and are accurately preloaded in assembly.



Cross-section through Unisaw arbor and bearings. Note how the sealed-for-life bearings are clamped on the shaft by means of specially machined nuts. Note the evidence of care and painstaking design and workmanship throughout the entire construction—much more expensive, but worth it to you!

The Unisaw arbor, too, is not a mere ground shaft with a pressed-on flange, but a solid alloy-steel forging with the flange integral with the shaft. Even the arbor thread is specially designed for its purpose, being a modified Acme thread having a large flat surface so that it will accurately center the saws, cutter heads, etc. There is no finer design incorporated into any machine of this type, anywhere!

NEW! A PERFECTED 10-inch TILTING ARBOR SAW

The Result of Seven Years' Study, Experiment and Research!

✓ Check These Features

- Rigid, Scientifically Designed Housing
- No Useless Weight
- Highly Efficient "Texrope" Drive
- Powerful, Fully Enclosed Motor
- Perfected Raising, Lowering and Tilting
- Double-Face, Double-Lock Rip Fence
- Exclusive Precision Auto-Set Miter Gage
- Patented Tubular Ripping Extensions
- "Point-of-Use" Controls
- Solid Forged Alloy-Steel Saw Arbor
- "Sealed-for-Life" Ball Bearings
- Full 48″ Ripping Capacity
- Sawdust Receptacle in Base
- No Gears
- No Noise
- No Twisted Belts

Note

This machine incorporates a number of unusual and original features, many of which are covered by patents issued or pending. The design is protected by one or more of the following U. S. Patents:

1,896,924 1,902,270
1,938,548 1,938,549
1,963,688 2,007,887
2,020,222

Design Patents:
89,818 99,614

Canadian Patents:
340,750 346,174

Other Patents Pending.

Here is the new UNISAW—the result of seven years of study and experiment, of building model after model, of discarding designs that were "almost" perfect, of discovering and eliminating the flaws in existing designs, of testing and re-testing until finally a saw was produced that had none of the drawbacks of previous tilting-arbor saw designs!

The new UNISAW is completely self-contained, motor and driving mechanism being enclosed in a handsome, modern, tremendously strong steel cabinet. The saw table, without the side wings, is 20″ x 27″ in size, and will handle work up to 48″ wide and 3⅛″ thick. With the addition of the side wings, the table is 27″ x 36″ in size. Ripping extension bars front and rear are a standard part of the saw.

Saw blade tilts 45 deg. to right, operation being effected by a large handwheel to the left of the machine. The blade is raised and lowered by means of a similar handwheel at the front of the machine. Dado heads, moulding cutters and all other attachments for the 10″ tilting-table saw can be used on the new UNISAW.

No. 1450 10″ Tilting-Arbor Unisaw, with 20″ x 27″ table, Micro-Set rip fence, Auto-Set miter gage, extension rip-fence guide bars, motor pulley and belts. Without motor, switch or table side wings..... **$89.50**
Shipping Weight 302 Lbs. Code Word TILTA.

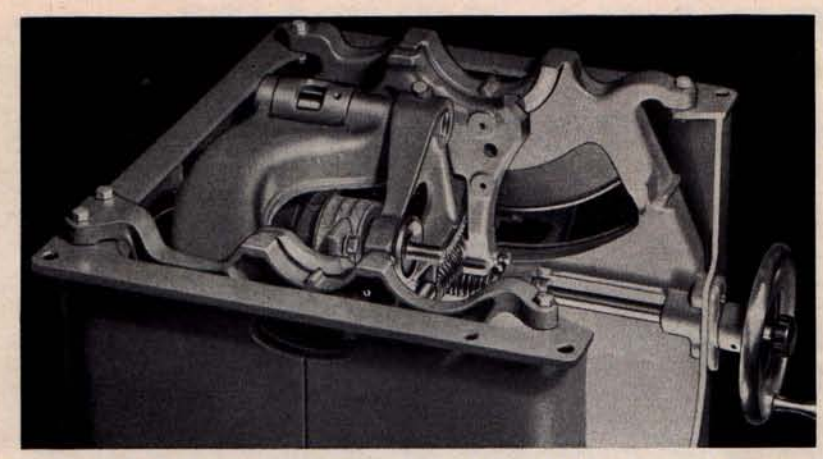
No. 1455 Side extension wings for table of No. 1450 saw, to make 27″ x 36″ table. Per pair..... **$11.00**
Shipping Weight 59 Lbs. Code Word TILTF.

No. 1457 Splitter-mounted guard for No. 1450 saw, with basket and kick-back fingers ..... **$ 2.90**
Shipping Weight 2¾ Lbs. Code Word TILTH.

No. 291 Extra V-belt for 1450 saw (3 required) each ..... **$ .75**
Shipping Weight 12 oz. Code Word BELTW.

See pages 8 and 9 for Repulsion-induction, 3-phase and Direct-current motors for the new Unisaw.

Many Exclusive Features in Unisaw

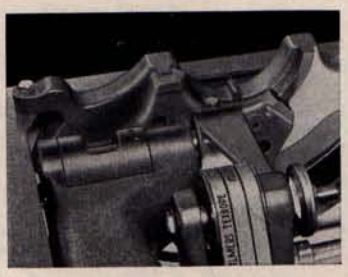


This photo shows one view of the massive mechanism of the new Unisaw. Note the exceptionally heavy design of the trunnions, the careful machining of the trunnion ways, the extremely massive construction of the saw-arbor bracket and the evidence of tremendous strength plus accurate machining throughout the whole design. Part of the front of the housing has been cut away to show interior construction.

Carriage Swings on Exceptionally Heavy Trunnions

The trunnions of the new Unisaw are mounted in an ingenious manner on the heavy gusset plate at the top of the extremely rigid and strong steel casing, in such a way as to afford complete adjustment. These trunnions are exceptionally large, heavy and strong, and are completely machined from fine-grained cast iron.

No die castings are used in this construction, because, while die-castings are in many cases actually better than cast iron for machine parts, in this case it was decided after considerable experiment and test that cast iron would offer the better material for the loads imposed.



The front trunnion carries the oilless bushing for the tilting shaft, and is provided with finely machined teeth to engage the tilting worm, as well as with adjustable stops for accurate setting at 90 and 45 degrees. Part of the reason for the exceptionally easy operation of the Unisaw is found in the careful design and construction of the trunnions.

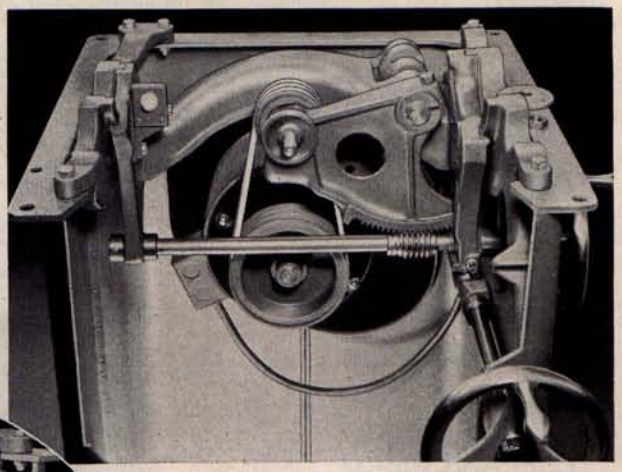
Design Assures Permanent Alignment

Our engineers have spent an unusual amount of thought and experiment in designing a tilting saw carriage which would have none of the drawbacks of other designs. This has resulted in many improvements, which, although not apparent on the surface, insure the consistent accurate performance of the machine.

The design of the parts has been studied to produce castings of simple, very strong design, with even metal thickness throughout, in order to overcome danger of warping, springing or mis-alignment. The result is a carriage built up of three husky sections made of fine-grained cast iron, carefully machined and doweled together to insure **permanent alignment.**

Front and rear carriage members, which swing on the trunnions, carry oilless bronze bushings for the raising and lowering worm shaft. These eliminate an annoying lubrication problem for the user. The rear member has provision to mount a bracket for the splitter, so that this will swing in line with the blade, and be easily removed if necessary.

We do not know of any machine that has a tilting carriage comparing with this one in strength, and permanency of alignment.



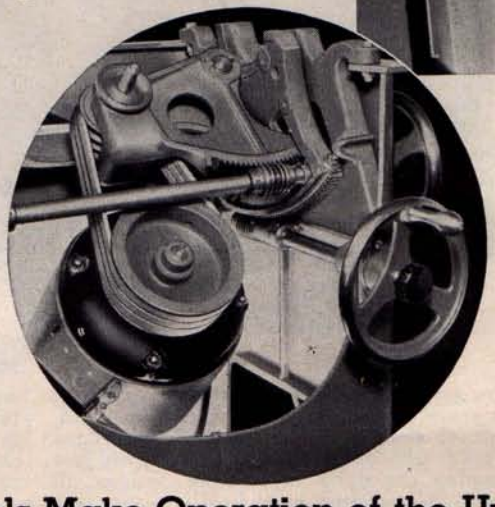
No Rods or Slides in Raising Mechanism

A common construction in the design of saw raising and lowering mechanisms consists of rods sliding through holes in the carriage.

We ourselves once used this construction in circular saws, but discarded it in favor of accurately machined slides, because we found that it had certain decided limitations. For example, the rods must be accurately fitted at the factory to assure correct alignment, and as soon as they start to rust, or to collect a resinous or pitchy deposit from the stock being sawed, they tend to stick and become difficult to operate.

Further, in many designs it is necessary that the motor be mounted so that the load on the rods or slides is off-center. This means that the rods or slides—and the holes or ways in which they operate—do not wear evenly, and the consequence is apt to be loss of alignment as the parts wear. If there is no provision for the takeup of wear, this condition will in time impair the accuracy of the machine.

Our construction eliminates this danger, and insures long, accurate, trouble-free service.



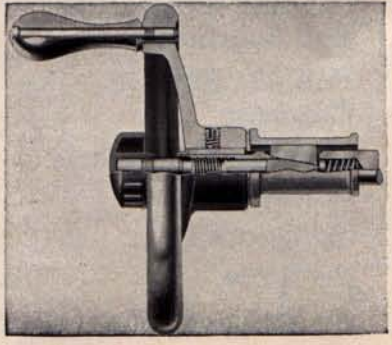
Ball-Bearing Arbor Bracket

The saw-arbor bracket in the Unisaw is a very heavy casting, with accurately machined teeth to fit the raising and lowering worm, and with accurate stop surfaces co-operating with the worm itself, to limit up and down travel. The casting itself is mounted on a very heavy keyed shaft, upon which it can be adjusted and locked to bring the saw-arbor flange into exact alignment.

The shaft is carried in two sealed-for-life ball bearings, mounted in diamond-bored seats, and, since it oscillates only slightly within these bearings, there is practically nothing to wear out. Not only that, but with this construction, all the other troubles of the slide construction are eliminated. There is no trouble due to rust; no trouble due to deposits on the slides—the construction is foolproof and trouble-free!

Thoroughly Studied Controls Make Operation of the Unisaw Fast, Safe and Easy

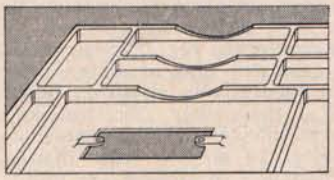
It is not enough to have raising, lowering and tilting mechanisms of great strength, fine design and accurate construction, although these are essential. It is also necessary that they be combined with controls that make the operation of the saw fast, simple, safe and easy, and this has been done on the new Unisaw. Notice the substantial handwheels with their large, easily grasped handles, located at a convenient height and at the proper location for the hands. Notice that there is no interference between controls....no close quarters to skin knuckles! Notice the locks for the mechanism, operated by large knobs in the center of the handwheels.... the final fine point in a fine design!

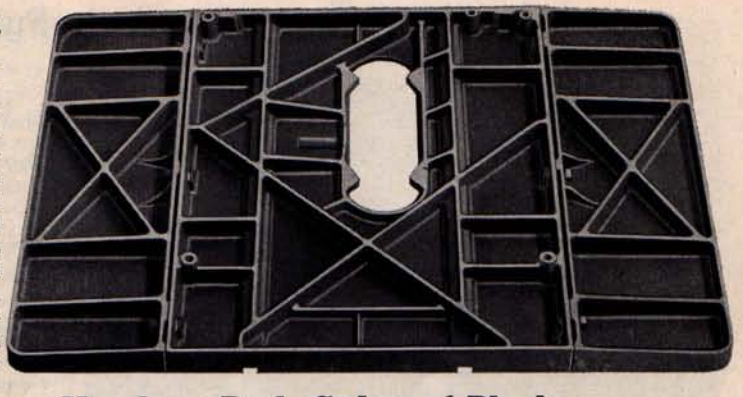


Offer Greater Value: More Convenience

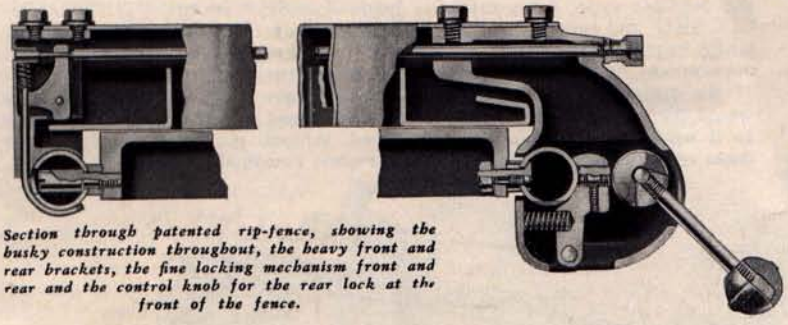
Table Designed for Maximum Strength

The design of a large saw table that will stay flat and true demands experience, knowledge and skill in design. Close inspection of the 20" x 27" table of the Unisaw (27" x 36" with side wings) will reveal that it is scientifically ribbed and designed with great care to prevent warping and springing. And — equally important — the clearances of the saw mechanism are such that none of these essential ribs are cut away. In some designs the clearances are so small that important ribs must be cut away as shown in the drawing at the left, which, in our opinion, seriously weakens the table and opens the way for warping and springing.





Massive Double-Lock Rip-Gage—Used on Both Sides of Blade



Section through patented rip-fence, showing the husky construction throughout, the heavy front and rear brackets, the fine locking mechanism front and rear and the control knob for the rear lock at the front of the fence.

While the design of the rip-gage on the Unisaw is of the same patented type so popular on our other saws, it is of completely new and more massive construction. The bar is of heavy steel, formed, braced and welded into one solid, rigid unit, **which will not warp.** The gage is carried by a new and very large, husky bracket riding on the front bar, and equipped with quick-acting cam lock and micrometer adjustment. The micrometer adjustment is of the rack-and-pinion type, and can be snapped into or out of engagement at will.

The rip-fence bar extends clear over the rear edge of the table—many inches past the rear of the saw blade. This is an important safety feature, as many operators regard a short fence as extremely dangerous. Not only that, but the fence is locked to both front and rear guide bars, (patented) the rear lock being operated from the front of the gage, so that the operator does not have to reach past the saw blade to lock the fence. And the fence can be used on BOTH sides of the blade.

Rips to Center of 48" Panel— with Built-In Extension Bars

The heavy, tubular guide bars on the Unisaw table are long enough so that the fence can be moved a full 24" to the right of the blade, enabling the saw to cut to the center of a 48" panel when desired. The guide bars also extend to the left of the table long enough to provide a 15" capacity to the left of the blade. This is a very valuable feature of the saw, in connection with the fence that can be used on both sides of the blade, as there are many operations in which it is very convenient to be able to use the fence, with a large capacity, on the left of the blade. In fact, on operations using double-faced moulding-cutter blades, it is essential to be able to use the fence on the left side of the saw, and a fence that cannot be used on both sides of the blade is useless for such operations. This capacity on both sides of the blade is available whether or not the side extension tables are used.

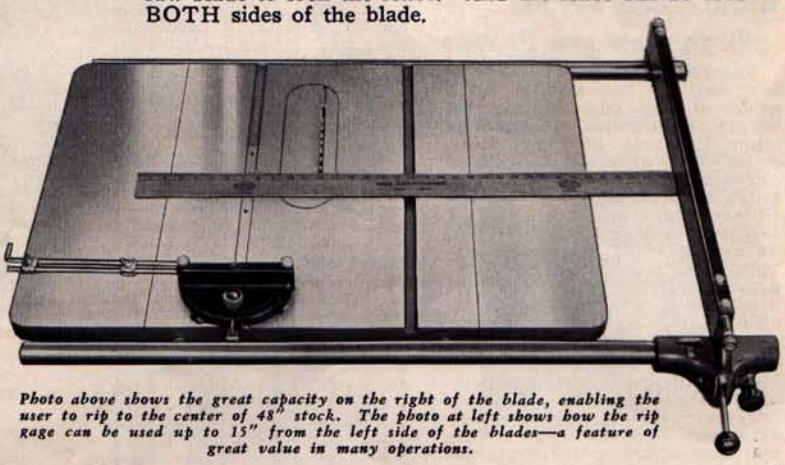
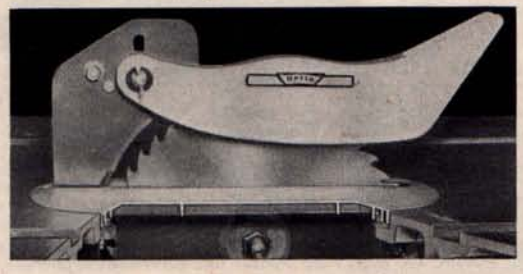


Photo above shows the great capacity on the right of the blade, enabling the user to rip to the center of 48" stock. The photo at left shows how the rip gage can be used up to 15" from the left side of the blades—a feature of great value in many operations.

Quickly Removeable Splitter: Adjustable Table Insert

By merely removing the table insert and loosening one screw, the splitter-type guard can instantly be removed for dadoing and similar operations where the guard cannot be used. The splitter is provided with kick-back fingers and with a basket to cover the blade, and can be used either with or without the basket as desired. The table insert is provided with four adjusting screws so that it can be made exactly level with the table surface (patented), and is removed or replaced in a second, since it is not screwed to the table.

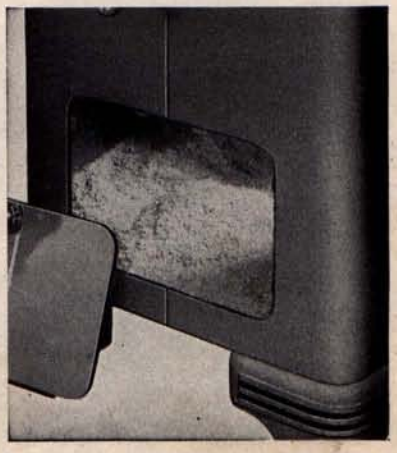


Left, the splitter-type guard, with basket and kick-back fingers (these are on the right of the splitter). It can be attached or removed in a jiffy, by loosening only one screw.

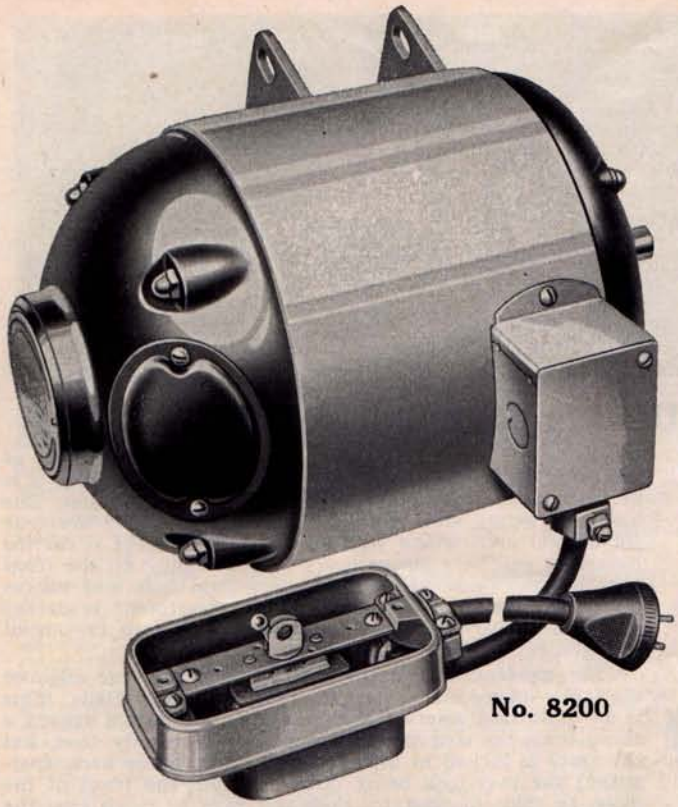
Cut-away view of insert shows two of the adjusting screws (patented), used to level the insert flush with table.

Sawdust Caught in Saw Base

There are two advantages of the modern "skyscraper" Unisaw cabinet design, in addition to its enormous strength combined with light weight. First, practically all of the sawdust produced in operation is caught in the base, from which it is removed through a large, convenient door in the front of the cabinet. Second, the cabinet can be connected to the shop blower system, if one is available, and, when fitted with the motor housing, dust removal is very effective. It is naturally impossible to make a circular saw completely free from sawdust, but the Unisaw is very much "cleaner" in action than most other saws.



Powerful, Economical Driving Motors



No. 8200

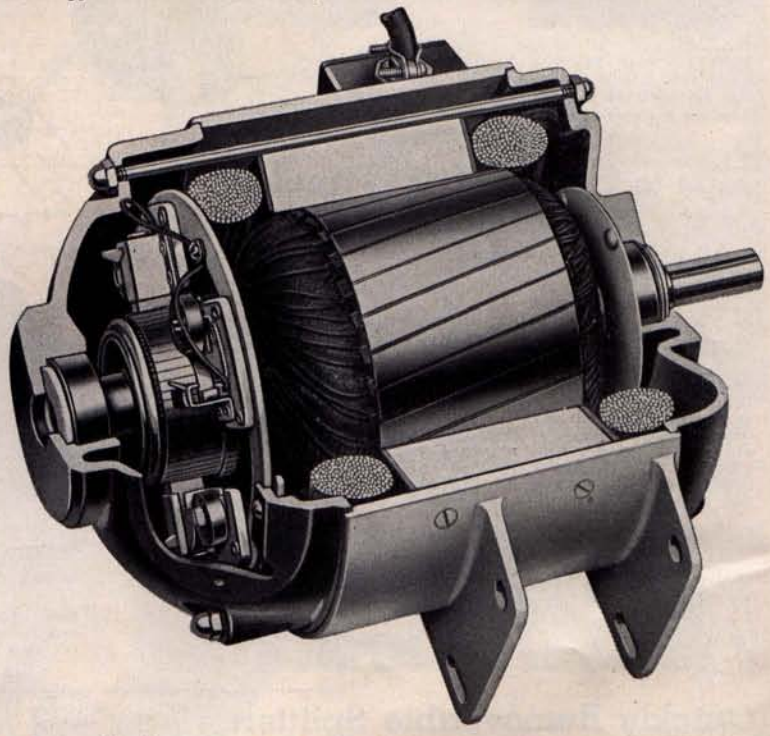
Fully Enclosed Motors, Built for Long, Trouble-Free, Low-Cost Service

In selecting a circular saw, the type of driving motor that must be used is fully as important as the saw itself. The motors designed for the Unisaw have been built with four main features in mind: First, they must be fully enclosed to exclude dust and dirt. Second, they must have very high reserve power. Third, they must be rugged and dependable even under abuse. Fourth, they must provide economical performance over a long life.

To combine all these features, it was considered necessary to eliminate from consideration the high-speed capacitor type of motor, built into a small frame. This type, while comparatively cheap to build, generally has poor starting torque, has inadequate electrical and mechanical clearances, generally has lower efficiency than a repulsion-induction or three-phase motor, is subject to greater wear than a standard-speed motor, and, due to the difficulty of cooling the motor in a small frame, connot be completely enclosed.

Unisaw motors, therefore, are of the Repulsion-induction and of the 3-phase type, built into the large-size 8½" frame, FULLY ENCLOSED, and *running at the standard speed of 1725 r.p.m.* These motors, while much more expensive to build, will prove more powerful, more economical, less troublesome and less expensive in the long run.

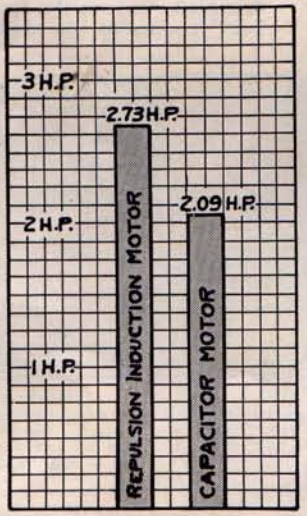
We deliberately ask our customers to pay more for these motors than they would have to pay for a small-frame, high-speed motor. We would not do so if we were not completely convinced, through our tests, that it is only these types of motors that will give complete satisfaction.



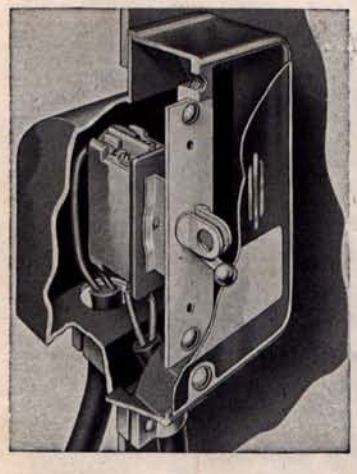
Rigid Tests Prove High Reserve Power

The chart at the right, showing one of the results of a series of tests made by the Research Foundation of the Armour Institute of Technology, show the difference between our 1-H.P. standard-speed Repulsion-Induction motor for the Unisaw and a small, high-speed 1-H.P. capacitor motor. It will be noticed that the repulsion-induction motor developed approximately 2¾-H.P. before breakdown, whereas the capacitor motor stalled at slightly over 2 H.P.

This is only one test out of many which prove the superiority — in performance, in efficiency, in ruggedness, economy and dependability—of the standard-speed motor built into the large frame, such as is used for the Unisaw.



Efficient, Safe Switch Equipment



Repulsion - induction motors for the Unisaw are completely wired, ready to attach to the machine; the user need do no splicing or wiring of any kind. The neat, compact switch box slips through an opening in the casing and is fastened securely in place as shown at the left. Lead-in wires are securely clamped to the box. The switch is a **heavy - duty double - pole** Cutler Hammer switch **which cuts off the current completely** from the motor when in the "Off" position. Switches furnished with most motors are of the cheaper single-pole type, which does **not** cut off the current from the motor. As an additional safety feature, the switch on the Unisaw may be padlocked to prevent unauthorized use.

Repulsion-Induction Motors for Tilting-Arbor Saw

Cat. No.	H.P.	R.P.M.	Curr.	Volts	Cycles	Frame	Shaft	Bearings	Price	Code	Ship. Wt.
8200	½	1725	AC	110/220	60	8½"	¾"	Ball	**$32.75**	EACEA	95
8210	½	1425	AC	110/220	50	8½"	¾"	Ball	**32.75**	EACEI	95
8250	¾	1725	AC	110/220	60	8½"	¾"	Ball	**38.75**	EACHA	100
8260	¾	1425	AC	110/220	50	8½"	¾"	Ball	**38.75**	EACHI	100
8300	1	1725	AC	110/220	60	8½"	¾"	Ball	**44.75**	EACIA	110
8310	1	1425	AC	110/220	50	8½"	¾"	Ball	**44.75**	EACIU	110

Motors for Unisaw furnished only for 60 and 50 cycle alternating current. See page 9 for 3-phase and direct-current motors.

Powerful 3-Phase and D.C. Saw Motors

Finest Motors for Permanent Installation

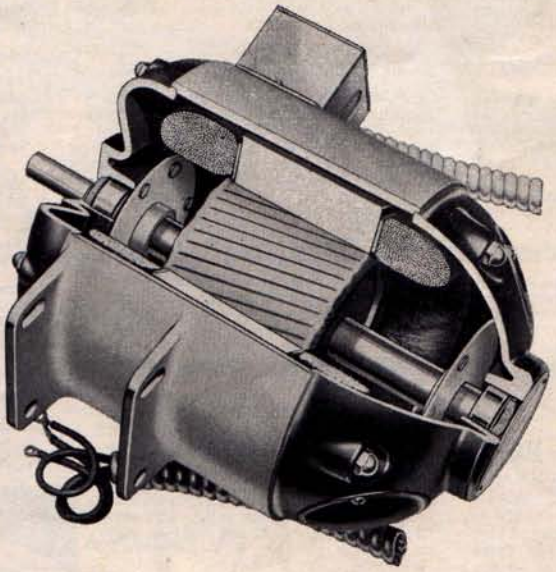
The selection of a motor for the circular saw is highly important, not only from the standpoint of the quality of the motor, but also from the standpoint of the proper type for the service demanded of the machine.

If a machine is to be permanently installed in an industrial shop, such as a furniture factory, cabinet shop, pattern shop, etc., or is to be installed in a school shop, a three-phase motor should by all means be specified. The first cost of such motors may be slightly higher than that of repulsion-induction motors, because of the necessity of having the three-phase motors permanently connected in conduit, and because of the necessity for a more expensive type of starting switch. But this extra cost is more than repaid by the greater overload capacity, lower maintenance cost, lower power cost and greater reliability of the three-phase type, which will stand more abuse than any other motor.

Three-phase motors are the simplest, most foolproof motors it is possible to purchase. There is nothing in the construction of motors of this type to wear or cause trouble. They are pure induction motors, having no starting windings, no rotor windings, no centrifugal switches, no commutators or brushes or short-circuiting devices.

Three-phase motors are not equipped with switches. Our motors are provided with a large-sized conduit box, in which there are nine leads so that the motor can be connected either for 220 or 440 volts (supplied also for 220/380 volts).

Our ¾ and 1-H.P. motors are of the fully enclosed type, completely protected from the entrance of dirt and shavings.



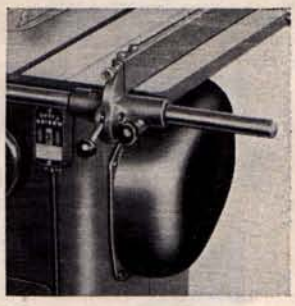
Study 3-Phase Motor Design and Construction

Study the illustration of the three-phase motor, shown cut open at the left, and it will be apparent why this motor is so simple and foolproof. While the material and mechanical specifications are of exactly the same rigid, high-grade type as shown for our motors on page 49, it will be seen that there is no commutator, short-circuiting device, etc., that there is nothing to give trouble and nothing to wear except the "sealed-for-life" New Departure ball bearings.

The speed of these motors is the standard 1725 in the 60-cycle and 1425 in the 50-cycle type. It will be noted that they are built in our 8½" diameter frame. The combination of standard speeds and large frame provides a much more powerful, satisfactory motor for industrial and school work than can be provided by small-frame motors running at high speed, even though the nominal horsepower may be the same.

Housing Covers Motor

The final detail in the complete enclosure of the motor in the Unisaw is provided by the motor cover shown in the illustration at the right. This completely covers the opening in which the motor swings, and provides an additional safety factor for the machine when used as school equipment. The cover is readily attached to the housing.



No. 1454 Motor Cover for housing of No. 1450 Unisaw. With screws.. Each **$5.35**
Shipping Weight 25 Lbs. Code Word TILTE.

Switch Equipment for 3-Phase Motors

Three-phase motors must be installed to meet electrical code requirements, and connected in conduit by a licensed electrician. Attached to the conduit box of our motor is a flexible conduit with leads sufficiently long to make proper connections easy. While your electrician can supply the correct three-phase starting switch for this motor, we carry in stock a switch with overload protection and padlock device so that it can be locked. We also carry in stock a mounting plate and the necessary fittings as shown above.

No. 1459 Parts for mounting No. 1320 switch on tilting-arbor saw cabinet **$2.00**
Shipping Weight 2 Lbs. Code Word TILTK.

No. 1320 Three-phase manual starter. Specify motor number for which it is to be used, when ordering... **8.20**
Shipping Weight 6 Lbs. Code Word SWIPH.

Note

It is very important to note that switches are not supplied with three-phase motors, due to the fact that they must be connected in conduit by an electrician. When ordering three-phase motors, therefore, the switch equipment must be ordered at the same time, or arrangements must be made to have the electrician supply it when installing the motor.

Note also that three-phase tilting-arbor saw motors can be supplied for other voltages and frequencies besides those listed here. Consult your dealer for your requirements.

Tilting-arbor saw motors are not interchangeable with standard motors, as they are fitted with special mounting brackets.

***1½ H. P. 3-Phase motors are of the open type.**

Three-Phase Motors for Tilting-Arbor Saw

Cat. No.	H.P.	R.P.M.	Curr.	Volts	Cycles	Frame	Shaft	Bearings	Price	Code	Ship. Wt.
8400	¾	1725	AC	220/440	60	8½"	¾"	Ball	**$43.75**	EICLA	90 Lbs.
8410	¾	1425	AC	220/440	50	8½"	¾"	Ball	**43.75**	EICLO	90 Lbs.
8450	1	1725	AC	220/440	60	8½"	¾"	Ball	**48.75**	EACMA	95 Lbs.
8460	1	1425	AC	220/440	50	8½"	¾"	Ball	**48.75**	EACMO	95 Lbs.
8500	1½ *	1725	AC	220/440	60	8½"	¾"	Ball	**51.75**	EACRA	100 Lbs.
8510	1½ *	1425	AC	220/440	50	8½"	¾"	Ball	**51.75**	EACRO	100 Lbs.

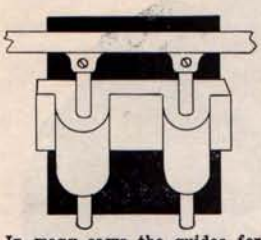
Direct-Current Motors for Tilting-Arbor Saw

Cat. No.	H.P.	R.P.M.	Curr.	Volts	Cycles	Frame	Shaft	Bearings	Price	Code	Ship. Wt.
8600	½	1725	DC	115	..	8½"	¾"	Ball	**$48.75**	EDCAB	88 Lbs.
8601	½	1725	DC	230	..	8½"	¾"	Ball	**48.75**	EDCAR	88 Lbs.
8650	¾	1725	DC	115	..	8½"	¾"	Ball	**55.75**	EDCEB	90 Lbs.
8651	¾	1725	DC	230	..	8½"	¾"	Ball	**55.75**	EDCEE	90 Lbs.
8700	1	1725	DC	115	..	8½"	¾"	Ball	**63.75**	EDCOB	100 Lbs.
8701	1	1725	DC	230	..	8½"	¾"	Ball	**63.75**	EDCOP	100 Lbs.

When You Purchase a Circular Saw

You Want Accuracy; Long Life; Conveniece; Safety; Value

And You Get More of These in Our Saws!

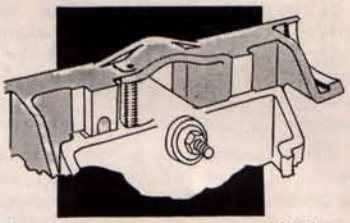


In many saws the guides for the table or saw raising and lowering mechanism are merely rods sliding through holes. Not adjustable for wear.

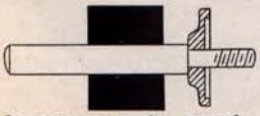
Gibbed, Machined Ways Adjustable for Wear

You will find many saws on the market today in which the guiding mechanism for the raising and lowering of the table or saw consists of round rods sliding through holes in the frame or bracket. This method, while cheap to manufacture, is one that we discarded years ago in favor of more rigid, more accurate and more substantial guiding means.

Brackets that are raised and lowered on our saws slide on large, accurately machined ways, dovetailed or grooved, and provided with gibs and adjusting screws just as in other high-grade machine tools. This not only provides a rigid, accurate, substantial mounting, but also permits adjustment for wear after long use if this ever becomes necessary.



In our saws guides are completely machines, grooved or dovetailed and provided with adjustable gibs as in other high-grade machine tools.

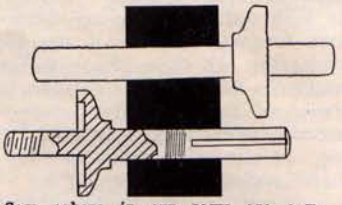


In many saws the saw-arbor flange is merely pressed onto the shaft and in some cases is not machined to insure true-running.

In addition, many small saw shafts are carried in bronze bearings, requiring constant lubrication. Where ball bearings are used, they are often poorly mounted or of shielded type which require lubrication.

Solid-Forged Steel Arbors

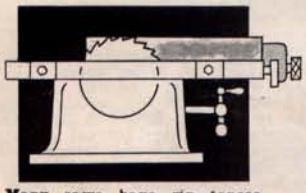
Most small and medium-size saw arbors consist of a steel shaft with one end shouldered and threaded, onto which the inner saw flange is pressed. Often this flange is not even machined after it is pressed on. On our 10" saws the entire arbor, including the flange, is machined out of a solid alloy-steel forging. This not only prevents any possible loosening of the flange, but insures proper bearing mountings, true running saws and enormous strength.



Saw arbors in our saws are completely machined out of solid-steel forgings—no loose flanges. They are mounted in sealed-for life ball bearings, which never require lubrication.

Ball or Timken Bearings—Properly Mounted

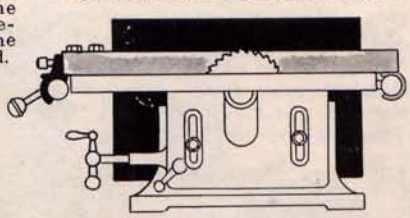
The solid alloy-steel arbors of our 10" saws are carried either in genuine Timken tapered-roller bearings or in "Sealed for-Life" New Departure ball bearings (not merely shielded bearings). There are no lubrication problems with these ball bearings, and they require no attention whatever during their entire life. All our bearings are mounted in accordance with the best ball-bearing practice — not merely mounted in the cheapest possible way, which sometimes injures the accuracy of the bearings even before they are used.



Many saws have rip fences which barely reach beyond the rear of the saw. Many woodworking experts regard this as a very dangerous type of fence. Most fences, also, cannot be used on both sides of blade.

Full-Length Fences—Locked Front and Rear

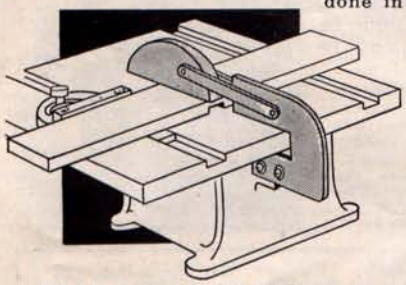
Some circular saws have rip fences which barely extend beyond the rear teeth of the saw blade, and which can be locked only at the front. In the opinion of many expert woodworkers such short fences are very dangerous, due to the release of pressure behind the blade, which tends to throw the work or the hand into the rear saw teeth. Our saw fences extend completely across the table from front to rear, so that this danger is completely eliminated. They are locked front and rear, so that they are practically solid with the table.



Our rip fences run completely across the table from front to rear. Not only that, but they can be locked so firmly to the front and rear guide bars that they become as rigid as the table itself.

And Used on BOTH Sides of the Blade

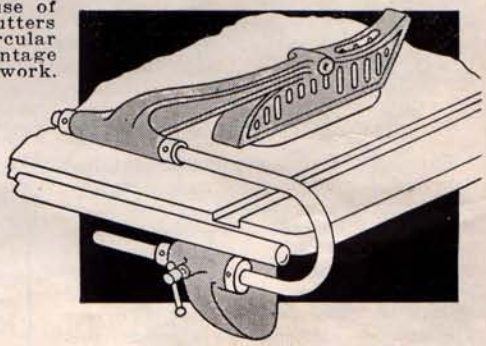
Our fences have a further advantage of great importance. They can be used on both sides of the blade—which cannot be done in many saws. This feature is essential to the use of double-faced moulding cutters and cope heads in the circular saw, and is of great advantage in a wide variety of other work.



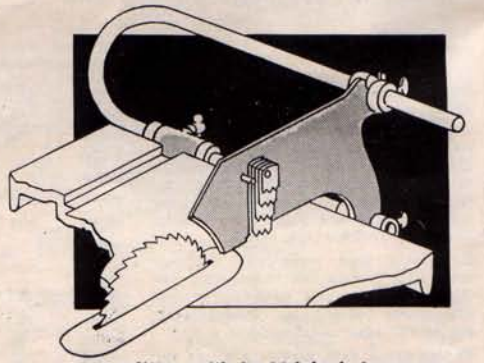
Many saws have guards similar to the type shown above. This guard must be removed completely every time a dado cut is made or a moulding cutter used. The basket guard also cannot be used without the splitter. The mounting is often a weak and flimsy one.

Guards That Really Protect the User

Most small circular saw guards are flimsy in design and construction and are actually more of a nuisance than a real safety feature. Notice that our No. 863 and No. 1165 guards are NOT mounted on a splitter, where they must be removed completely for most cross-cutting and for all dado and moulding work. They are mounted in a solid, substantial manner so that they cannot chatter or vibrate into the saw, yet they are instantly moved out of the way for dado and similar work **without removing them from the machine.** Notice also that they may be used either with the splitter or without—and that the splitter may be used alone. We believe that this is the finest guard ever designed for saws of this type.



Our very substantial guard is carried on a strong, heavy support rod and a heavy, rigid bracket.



The splitter, with its kick-back fingers can be used alone. The guard basket can also be used without the splitter—or basket guard and splitter can be used together to suit any type of work. Instantly out of the way, and instantly back in place.

And Many Other Features that Mean More Satisfaction for You!

Consider the "Auto-Set" miter gage, widely imitated by others, but the only miter gage offering you **individually** adjustable stops, to assure you of absolute accuracy in setting. And the adjusting screws in the table insert, which enable you to set the insert exactly level with the table. Consider the "hidden values"—the extra machining for accuracy (like the machining of the table-insert opening, instead of leaving this just rough)—the diamond-boring of the ball-bearing seats for absolute accuracy.

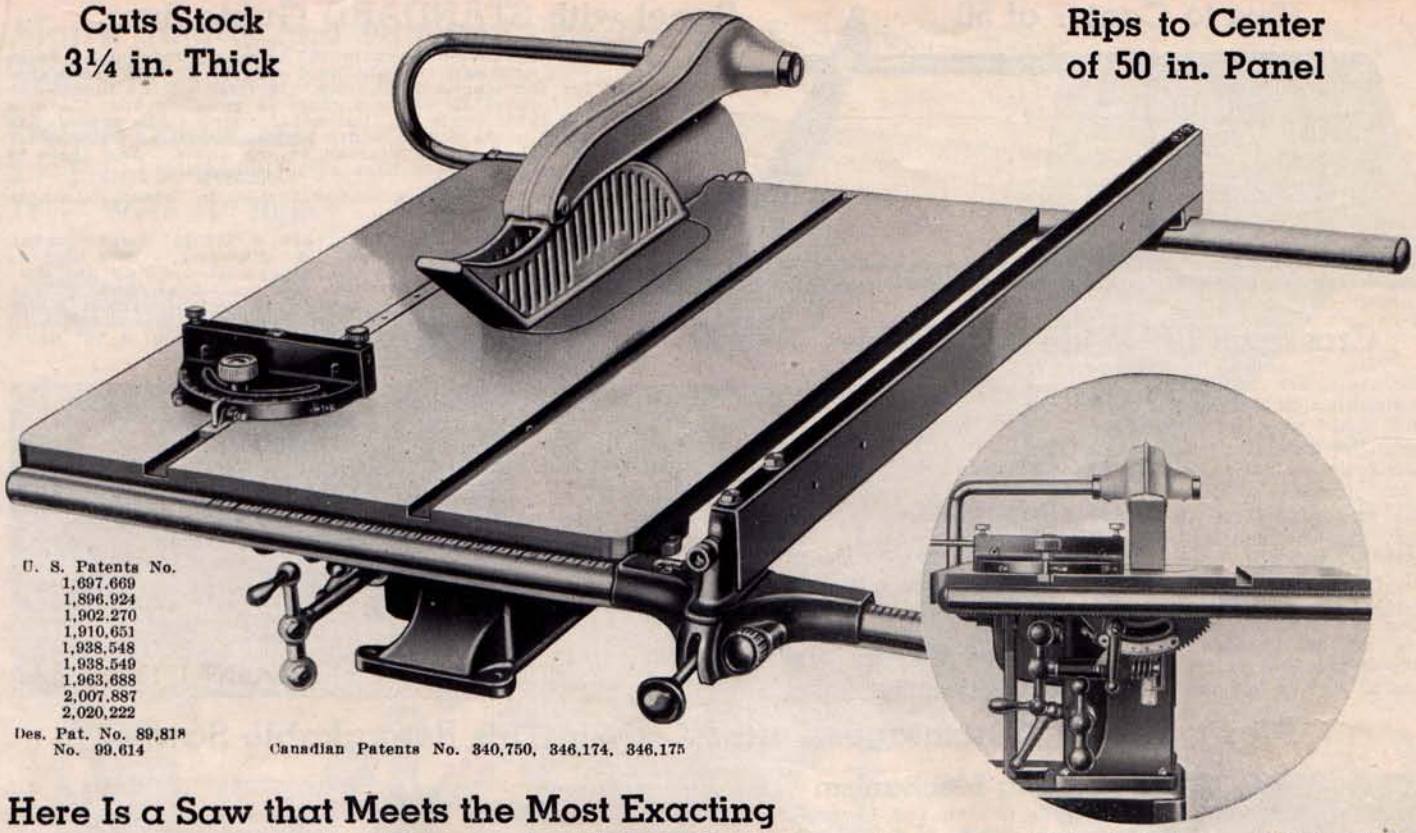
Consider the extra convenience of the controls—like our adjustable clamp handles and our graceful, large-size operating cranks. Consider the advantage of being able to mount our tilting-table saws on a neat, compact stand together with a jointer and to be able to run them both from below with one motor.

Contrast the details of design shown above and on the following pages with those you will find in any similar saw anywhere. We believe you will then realize the **extra value** built into these saws!

Best 10-Inch Tilting-Table Saw Made

Cuts Stock 3¼ in. Thick

Rips to Center of 50 in. Panel



U. S. Patents No.
1,697,669
1,896,924
1,902,270
1,910,651
1,938,548
1,938,549
1,963,688
2,007,887
2,020,222
Des. Pat. No. 89,818
No. 99,614

Canadian Patents No. 340,750, 346,174, 346,175

Here Is a Saw that Meets the Most Exacting Demands of the Craftsman, for any Work Up to 3¼" Thick

This fine saw is a real man-size machine, with its husky 20 by 27-inch table, its sturdy tubular rip-fence guide bars—and all the features that have won such a reputation for the 8-inch saw—PLUS greater capacity and added conveniences.

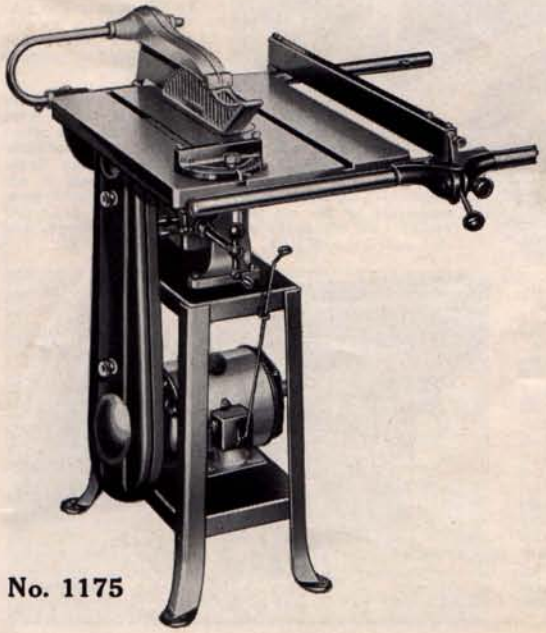
Designed for craftsmen who need and demand the best there is in workshop equipment, this 10-inch circular saw was built with just one thought in mind: To produce a saw that would offer more accuracy, more capacity, more conveniences, more built-in VALUE than any similar saw on the market, regardless of price!

That this object has been achieved will be recognized by every mechanic and craftsman as soon as the No. 1160 circular saw is examined with care. From the heavy-walled tubes that form the rip-fence guide bars—a full 1⅜ inch in diameter, and stronger to resist bending and torsional stresses than any other section of equal weight—to the hidden but important solid-forged alloy-steel arbor with its self-sealed New Departure ball bearings, every detail has been worked out to give the utmost satisfaction to the user.

The "Micro-Set" rip fence is carried on a heavy casting at the front, locked to the front guide bar by a neat cam lever with a Bakelite ball handle. The rear lock is operated from the front also, so that the hands never need be near the blade when locking the fence. And it is impossible for this fence to move or spring. The miter gage is the famous "Auto-Set" miter gage, with INDIVIDUAL adjustments for 45 and 90-degree settings.

Crosscuts Stock 12 Inches Wide

From the saw blade to the front edge of the table the table surface measures 12½" wide, so that stock a full 12" wide and 3¼" thick can be cut easily, with full bearing on the table surface for both the work and the miter gage. And, in providing adequate surface in front of the blade, *this has not been done at the expense of the rear surface, for there are 5" of table behind the blade to support the work as it leaves the saw.*



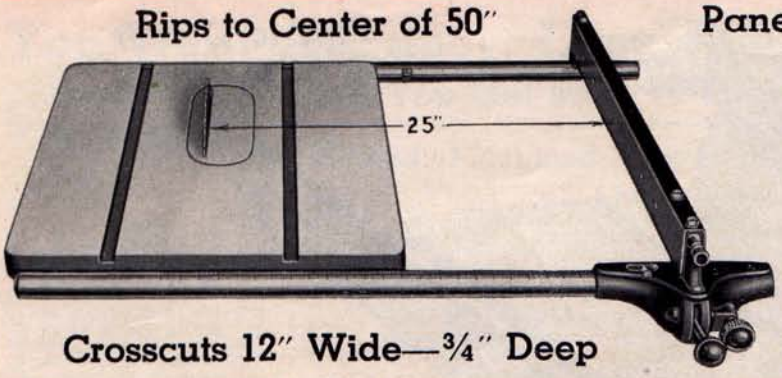
No. 1175

No. 1160	10" Ball-bearing Circular Saw, with "Auto-Set" Miter Gage, "Micro-Set" Rip Gage, graduated front rip-gage guide bar and plain rear guide bar. Without motor, belt, motor pulley or saw guard..... Shipping Weight 190 lbs. Code Word TENSE.	**$55.85**
No. 560	V-belt (56" inside circumference)..... Shipping Weight 1 lb. Code Word EICVB.	**1.00**
No. 5500	5" V-pulley for motor, ¾" bore..... Shipping Weight 1½ lbs. Code Word PULOH.	**.75**
No. 891	Steel stand (Top 7⅞"x15⅞"; 24" high)..... Shipping Weight 30 lbs. Code Word LABST.	**6.85**
No. 530	V-belt (53⅝" inside circumference) ..... Shipping Weight 1 lb. Code Word BELTD.	**1.00**
	(Note: No. 530 belt must be used with 10" saw on No. 891 stand. No. 560 belt is used with 10" saw on No. 1168 stand.)	
No. 1173	Belt Guard for No. 1160 saw on No. 891 stand..... Shipping Weight 36 Lbs. Code Word TENBG.	**7.85**
No. 1175	10" Circular-Saw Unit, consisting of No. 1160 Circular Saw, No. 530 V-belt, No. 5500 V-pulley and No. 891 Steel Stand. Without motor, switch rod or saw guard. Shipping Weight 250 lbs. Code Word TENSQ.	**$64.45**

No. 9000 or 8050 (old No. 820 and 1120) motors recommended for this machine for ordinary use. For heavy duty specify No. 9100 (old No. 924) No. 9200 (old No. 1094) No. 9400 (old No. 922) or No. 9500 (old No. 1512) ¾-H.P. and 1-H.P. motors. See pages 50-51.

Some Features of 10-inch Circular Saw

Rips to Center of 50"



Panel with STANDARD Guide Bars

Most saw tables—even in 10" size—are too small. So in designing this saw, we produced a 20 by 27-inch table surface for the standard machine. In front of the blade—the "Zone of Service" where surface is most needed, there is 12½" of table space, so that a 12" board to be crosscut is supported in its whole width by the table, and the miter gage also has ample bearing on the table. And there is ample surface—5"—in back of the blade also!

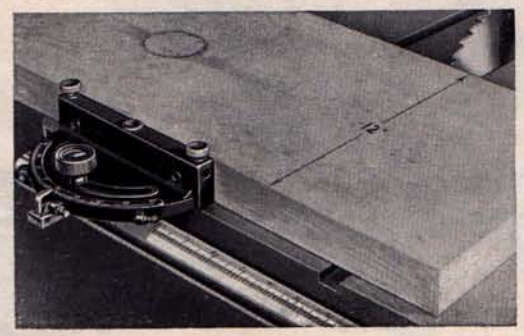
The table itself is an exceptionally heavy, strongly ribbed casting.

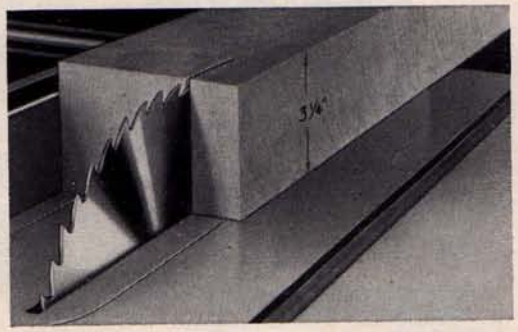
The rip-fence guide bars are a typical improvement. They are heavy walled tubes, 1⅜" diameter, chosen because tubes, as every mechanic knows, resist bending and torsional stresses better than any bar section of equal weight. They therefore hold the fence rigid and in perfect alignment under all circumstances. And, with the STANDARD guide bars, the saw will rip to the center of a 50" panel without the necessity of changing guide bars.

Crosscuts 12" Wide—¾" Deep

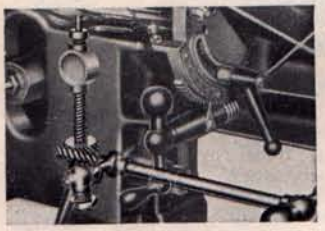
Brackets are furnished with the machine so that an auxiliary wood table may be added between the bars if desired, thus making the actual table surface 27 by 34 inches.

As the photos at the right show, the saw will rip through a 3¼" plank with ease, and it will crosscut 3¼" by 12" lumber equally well. This extra capacity is one of the many superior features of this machine, which make it the best value ever offered at such a low price.





Many Design Advantages Found Only in This Remarkable Saw

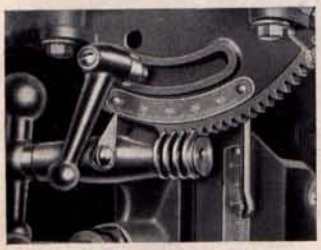


Raising Mechanism

Table raising and lowering is done by means of a helical gear on a shaft operated by a comfortable, free-handle ball crank. The gear meshes with another running on the ball-bearing raising screw, elevating or lowering the table with ease and speed. The pitch of the screw is chosen to provide a fast movement, while at the same time it is fine enough for close adjustment of depth.

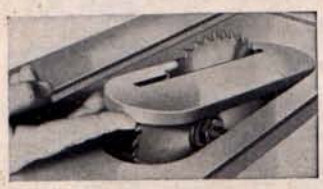
Machined Ways

There are cheaper ways of fitting the table to the base than that employed on this saw, but none of these was thought satisfactory enough for a good machine....so the table is elevated and lowered on machined ways, the front one being gibbed for adjustment if this should ever be necessary.



Worm-Gear Tilting

The table is positively tilted by means of a worm and rack, the worm operated by means of another comfortable ball crank. Accurate and convenient etched scales are provided for height and tilting adjustments, each provided with an adjustable pointer for accuracy. The adjustable height pointer is especially useful for dado and similar work.



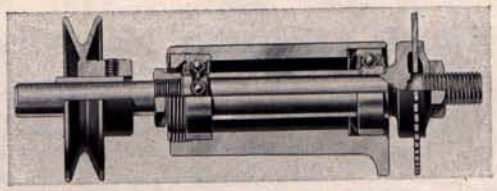
Quick-Acting Inserts

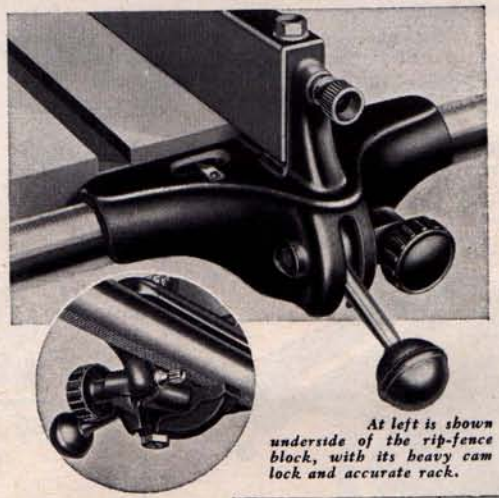
Table inserts are fitted in machined openings in the table—not rough cast holes. They are instantly snapped in or out with a touch of the finger—no screws to loosen. And (U. S. Pat. No. 2,020,222) they are provided with adjusting screws so they may be made to lie exactly flush with the table.

Rear Rip-Fence Lock

The patented construction not only provides a rigid rip fence, locked to the guide bars at front and rear, but in this saw all the fence controls are at the front—no reaching over the saw blade to loosen or tighten the rear lock. More convenience and safety!

Study the cross-section of the arbor at right. The arbor is a solid forging of alloy steel, carried on double-sealed ball bearings and lubricated for the life of the bearings. (Note that this housing assembly cannot be furnished separately.)



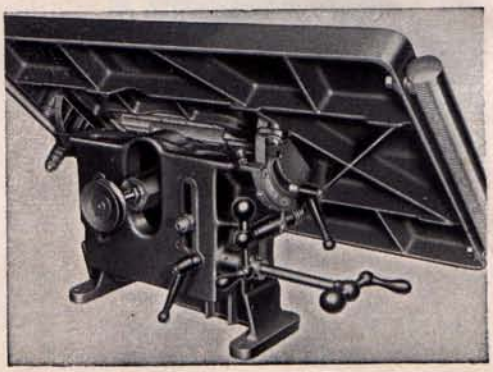


At left is shown underside of the rip-fence block, with its heavy cam lock and accurate rack.

The Micro-Set Rip Fence on this saw is a marvel of convenience and strength. The massive casting riding on the graduated front bar carries the fence itself, and in it is housed the "Micro-Set" pinion, which snaps into or out of engagement with the rack on the underside of the bar at a touch of the finger. The pinion carries on its outer end a large knob for the fine adjustment.

Observe the convenient cam and lever lock, with its comfortable Bakelite knob. A flip of the finger and the fence is unlocked. A light pressure of the hand and it is re-clamped—and SELF-ALIGNED.

Photo at right shows the table tilted to 45 deg. Notice the scientifically ribbed and very heavy table, swinging on massive trunnions. This is a more expensive construction, but is the only one that permits the safety of a very narrow opening around the saw blade, since the table tilts in the plane of the table surface.

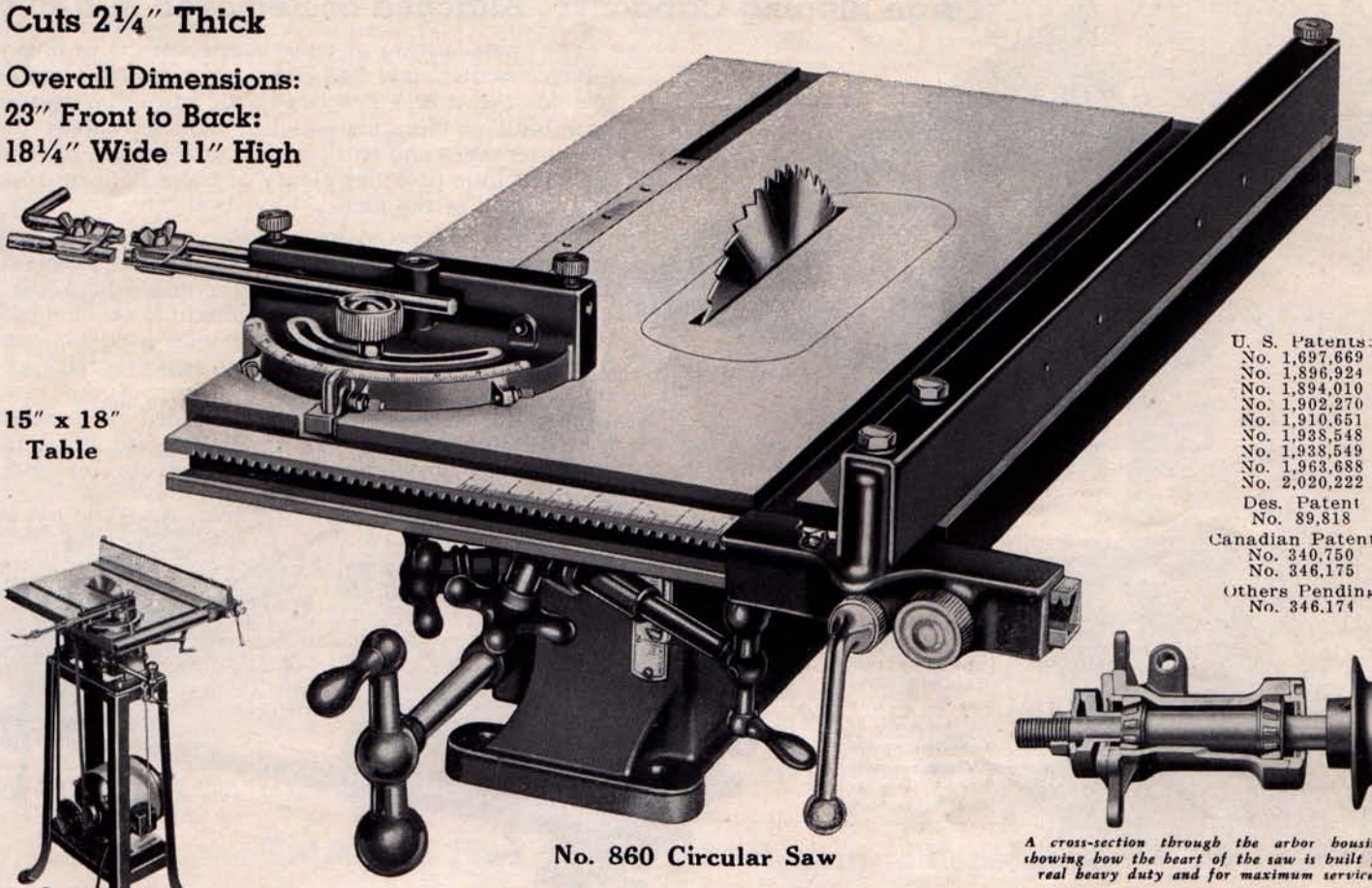


8-inch Timken-Bearing Circular Saw

Many Unique and Patented Construction Features
Cuts 2¼″ Thick

Overall Dimensions:
23″ Front to Back:
18¼″ Wide 11″ High

15″ x 18″ Table



U. S. Patents:
No. 1,697,669
No. 1,896,924
No. 1,894,010
No. 1,902,270
No. 1,910,651
No. 1,938,548
No. 1,938,549
No. 1,963,688
No. 2,020,222
Des. Patent
No. 89,818
Canadian Patents:
No. 340,750
No. 346,175
Others Pending
No. 346,174

No. 860 Circular Saw

A cross-section through the arbor housing, showing how the heart of the saw is built for real heavy duty and for maximum service.

No. 878 Unit

Read All of These Points: They Are Important to You

1. The great capacity in front of the saw blade — where you need it most for cross-cutting wide boards—together with the tremendous ripping capacity offered by the rip-gage extension, are fully covered by our patents. Only in this circular saw can you obtain these patented advantages of construction and design—concrete evidence of its superiority. (Pat. No. 1,938,549).

2. The rip-gage extension, which gives the user all the advantages of a four-foot table, without the weight and expense, is fully protected by the above patents. You cannot obtain these advantages in any other manner. (Pat. No. 1,896,924 and No. 1,938,548).

3. An original design, the wonderful "Auto-Set" miter gage is also fully patented. Both the massive design and the automatic stops which make this the most convenient gage ever offered on any circular saw, are protected by patent. (Pat. No. 1,902,270). (Des. Pat. No. 89,818). (Can. Pat. No. 340,750).

4. If you insist on absolute accuracy in your work you can obtain it only with a clamp attachment for the miter gage, which absolutely prevents any creep of the work away from the blade. The clamp attachment is fully protected by patent. (U. S. Pat. No. 1,894,010). (Can. Pat. No. 340,752).

5. The patented rip-gage has a number of important advantages, amongst which are its self-alignment, its graduations and adjustable pointer, its rear clamp and its micrometer adjustment, disengaged at will, with fine teeth to permit a real close adjustment for accurate work. (U. S. Pat. No. 1,963,688).

6. The patented table trunnion construction has a number of superior features; it permits the use of a very narrow table slot for the blade, and avoids the necessity of removing the table insert when the table is tilted. When the table is raised and tilted the rip-gage is not thrown out of alignment with the saw blades. (U. S. Pat. No. 1,697,669 and 1,910,651).

No. 860 8-inch Circular Saw, with 8″ blade, "Auto-Set" Miter Gage, "Micro" Adjustment Rip Gage and Arbor Pulley, complete as shown in photo above.... **$32.85**
Shipping Weight 91 lbs. Code Word NECSA.

No. 5500 5″ Motor Pulley, drives saw at correct speed. Made with ½″, ⅝″ or ¾″ bore. Specify bore wanted. ½″ bore furnished unless otherwise specified ..... **.75**
Shipping Weight 1½ lbs. Code Word PULOH.

No. 560 V-Belt, 22⅞″ center to center..... **1.00**
Shipping Weight 1 lb. Code Word EICVB.

No. 862 Circular Saw, complete with No. 866 Extension Attachment but without standard-rip gauge bar or standard guide bars.... **39.95**
Shipping Weight 110 lbs. Code Word NECWX.
No. 9000 or 8050 Motor recommended for this machine.
See pages 50-51 for Motor and Switch-rod prices.

No. 878 Circular-Saw Unit

The No. 860 Circular Saw mounted on its individual stand is a very popular unit. It is especially convenient in the profession and school shop, as it is completely portable.
Our No. 9000 ½ H.P. Repulsion-Induction Motor is recommended for use with this unit. Use No. 851 switch rod.

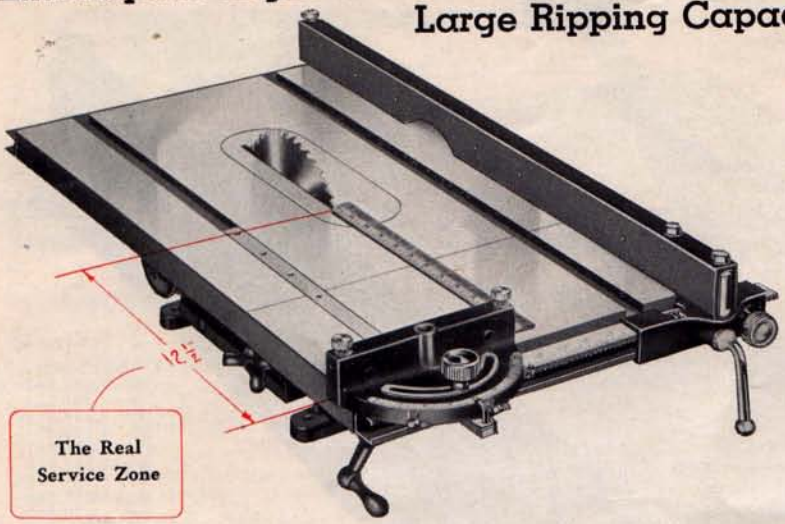
No. 878—8″ Timken-Bearing Circular Saw Unit Includes:

No. 860	Circular Saw	**$32.85**
No. 5500	V-Pulley, ¾″ bore	**.75**
No. 560	V-Belt, 22⅞″ center to center.....	**1.00**
No. 329	Steel Stand (without chute), with bolts & directions. (Stand 29″ high, Top 7″x12½″)	**5.75**
	Total	**$40.35**

Shipping Weight 122 lbs. Code Word NECUN.

Extensions Increase Capacity of 8″ Saw

Extra Space Right Where It Is Needed—in Front of the Saw Blade: Large Ripping Capacity: Attached or Removed in a Jiffy

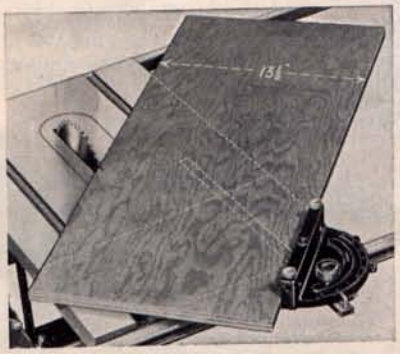


The cross-cutting of wide boards on the ordinary 8-inch circular saw has always presented a problem for the user. Practically all saws—no matter how built or designed—lacked a firm support for the miter gage and work when cutting wide boards. This machine provides plenty of room both in front and in back of the blade.

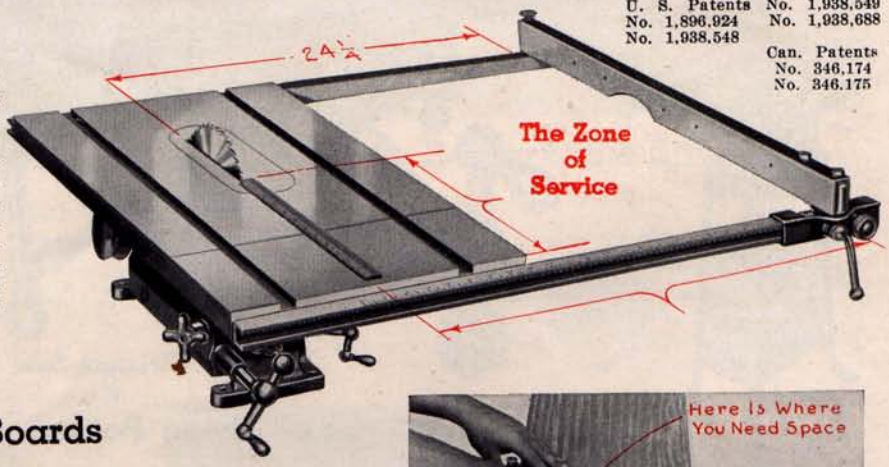
The No. 866 extension attachment was the first economical and practical solution of this problem. Economical because it enabled the man who needed extra capacity on this table to obtain it economically, without penalizing the user who used his saw only for small work; practical because the table extension provided the room in **front** of the saw, where it is needed. Side wings added to increase the width of the table are of no value for this purpose, as the problem of adequate room for wide boards still remains.

U. S. Patents No. 1,938,549
No. 1,896,924 No. 1,938,688
No. 1,938,548

Can. Patents
No. 346,174
No. 346,175



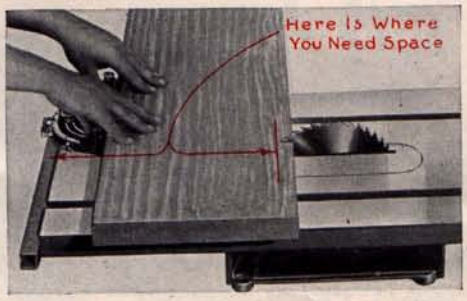
Here is a panel 13½″ wide being accurately mitered on the 8″ circular saw with front-table extention in place, a job that would be impossible on the ordinary saw with limited room in front of the saw blade.



Makes Cross-Cutting of 12″ Boards As Easy as 1″ Strips

The photos show how simple the cross-cutting of wide boards becomes when the extension is in use, and how both work and miter gage are fully supported by the table during the whole cut. The real utility of this extension becomes even more apparent when a wide board must be mitered accurately—a job that cannot be done at all on many saws. As the photo above shows, the mitering of a panel 13 or 14 inches wide would be practically impossible without the extension, because neither work nor gage would have any support, and accurate work would thus be out of the question.

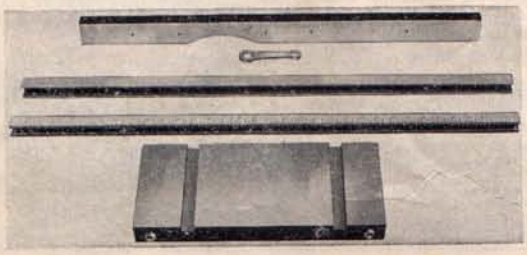
Next to cross-cutting, the next most important problem for the 8″ saw user is that of ripping large panels and similar work. He usually either must do this "by eye," or else build some kind of extension table—both usually unsatisfactory.



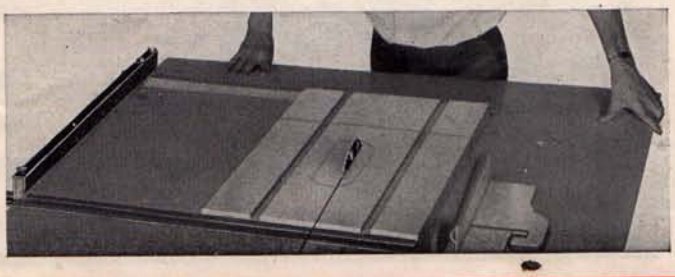
Boards 12″ wide can be crosscut on the 8″ saw with the extension front table in place just as easily as the narrowest strips. As the photo shows, the board is fully supported by the table, and there is ample room for the miter-gage to guide the work accurately.

All this is eliminated by the use of the extension guide bars (patented). They are attached or removed in an instant, or may be left permanently in place. They fit either the regular table or the extension table, thus giving the user exactly the type of saw he wants at will. A longer rip-gage body is used with the extension table.

With the extension bars in place panels as wide as four feet can be ripped down the center with accuracy and speed, and the work is accurately guided and adequately supported during the operation.



No. 866 Extension Attachment, with front-table extension, 32″ rip-gage guide bars, long rip fence bar only, screws and bolts..... **$8.85**
Ship. Weight 22 lbs.
Code Word NECXT.



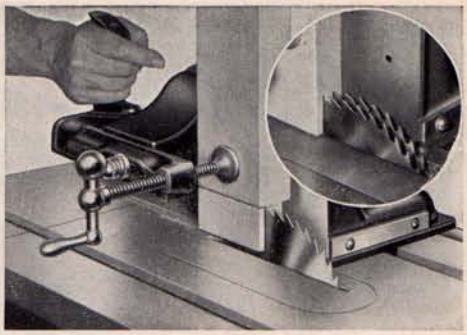
Attachments Make Saw Operations Safe

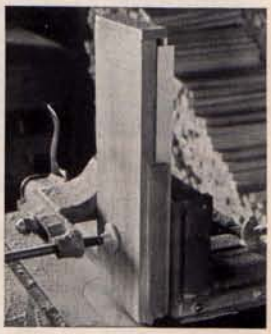
Fast, Easy and Accurate

Tenoning is the one operation on the ordinary circular saw that is dangerous to the operator. The guard cannot be used, because the stock is fed vertically to the blade. And, especially if the stock is narrow, there is the ever-present possibility that it may catch at the bottom and fall over toward the blade, carrying the hand with it.

Every possibility of risk is done away with when using our new Tenoning Attachment. This consists of a massive casting, which may be fastened to the base plate of the No. 1186 Sliding Jig, and this, in turn, is guided by the miter-gage grooves in the saw table. The stock to be tenoned is clamped by means of a quick adjustment against an accurately machined surface so that it is exactly vertical and parallel to the saw blade—no chance for twisted tenons—and the whole attachment is fed to the blade by means of a convenient handle at the rear. The work is fed to the saw with one hand—far removed from the revolving blade. There is no need for the hands to be anywhere near the saw blade at any time, and thus every possibility of accident is removed from the operation.

The circular saw is an ideal tenoner for the small shop, and the only reason it is not more used for this is simply because of the possibility of accident in the hands of an inexperienced operator. Our new attachment removes this danger, and enables much repetition work—such as the making of tenons, dado cuts on end grain, housings, etc., on sash and cabinet work to be made not only fast and accurate, but safe.





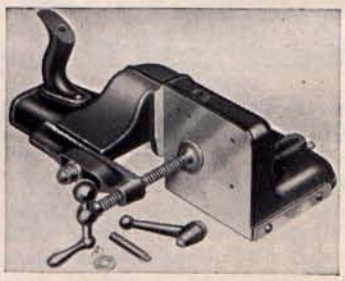
One hand — which never comes near the saw blade—operates this efficient, accurate tenoning jig, making tenoning on the saw as safe as any other operation. Insert photo shows how two blades with spacing collar are used to cut tenon in one operation.

Unretouched photo at right shows tenoning jig in use in novelty factory. Six short rails are held in box jig.

The Ideal Tenoner for School and Production Use

For school work especially, where the instructor cannot find time to supervise every cut on the circular saw, this attachment will prove indispensable, since he knows that the cuts will not only be square and parallel, but made safely.

The attachment will take stock up to 2¾" thick, any width within the capacity of the saw, and tenons to 2" long on an 8" saw. With the use of No. 1171 spacing collars and an extra saw blade, ¼" or ⅜" tenons can be cut at one pass.



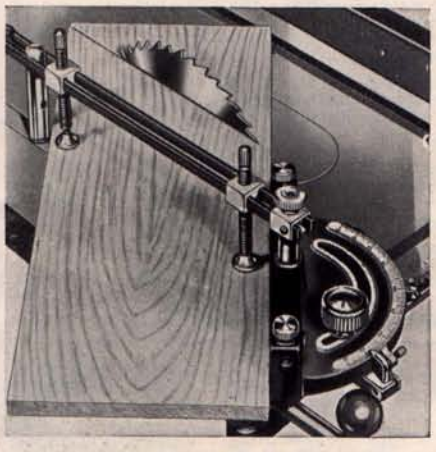
At left, rear view of tenoner mounted on base plate of No. 1186 sliding jig. No. 1172 is similar, but the miter-gage head is not furnished. View at right shows No. 1170 tenoner as furnished without base plate, for use in connection with No. 1186 jig.

No. 1170 Tenoner for use with No. 1186 Sliding Jig. Consists of all parts as shown at left, without base plate **$7.75**
Shipping Weight 20 lbs. Code Word TENJG.

No. 1172 Tenoner complete with base plate (without miter gage head) **11.25**
Shipping Weight 32 lbs. Code Word TENBP.

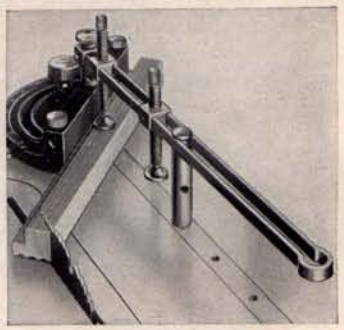
No. 1171 Spacing collar set (one ¼" and one ⅜" collar) ..... **.75**
Shipping Weight 10 oz. Code Word TENCO.

Craftsmen Find Clamp Attachment Indispensable



Hundreds of experienced craftsmen now using our Miter-Gage Clamp Attachment (U. S. Pat. No. 1,894,010) would not attempt to make any accurate cut without it. It eliminates completely the tendency of the stock to creep away from the blade, especially on wide miters, it enables cuts to be made absolutely accurate, and it makes cross-cutting and mitering work absolutely safe, since there is no necessity for the hands to be brought near the blade.

The attachment consists of a clamp bar, instantly attached to or detached from the miter-gage bar. Sliding on the clamp bar are two clamp screws, which may be set at any point along the bar to suit the work. When tightened down against the work, gage and work are made practically one solid piece, so that there is not the slightest possibility of the work creeping away from or toward the blade. The screws may be used to hold one piece or any number of pieces. The attachment is especially useful when cutting compound angles, with the table or saw tilted.



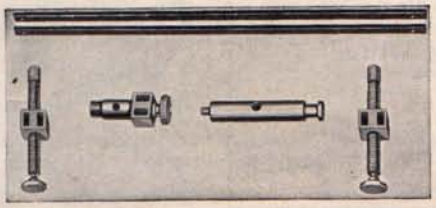
Invaluable for cutting accurate narrow miters as well as wide ones, and for all cutting-off operations where accuracy is of first importance.

Perfect Safety

The clamp attachment assures perfect safety in cross cutting and mitering, because the gage, carrying the clamped work, can be slid into the cut with one hand, back of the miter gage. The hand need never be in front of the miter gage or near the blade—and it is only on this gage with clamp attachment that this is true. With every other gage it is necessary to have one hand in front of the gage to hold the work.

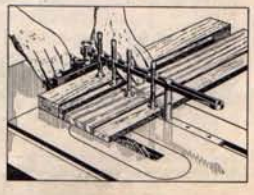
Insures Accuracy; Supports Work; Prevents Waste

With this attachment, there is no spoilage due to slippage, which ruins many a job that is almost complete. You know the cut will be accurate, once it is clamped. For large, heavy boards, also, it is of tremendous value. Instead of trying to keep the work pressed against the miter-gage head and at the same time support the overhanging end, the clamp holds the board square, and all the user has to do is to support the end easily and naturally, while sliding it, toward the saw blade. Once used, you will never be without it. Also used for cutting tubes and bars with abrasive wheels.

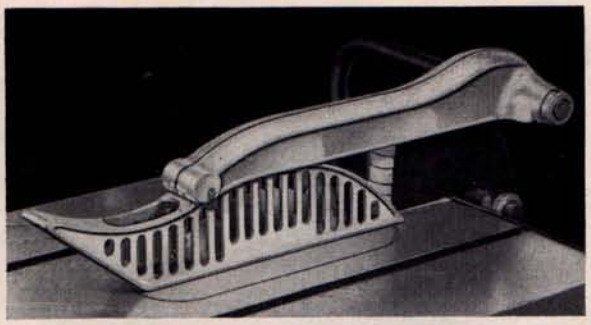


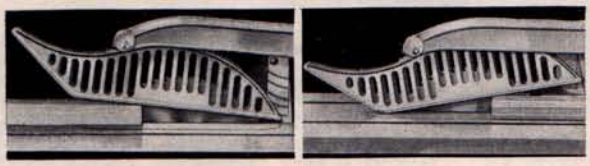
No. 865 Miter Gage Clamp Attachment, consisting of Clamp Bar, two Sliding Clamp Screws, Front and Rear Posts, to fit No. 864 Miter Gage only..... **$1.95**
Shipping Weight 2¼ lbs. Code Word NECLA.

No. 873 Extra Clamp Screw and Block for Clamp Attachment ..... **.45**
Shipping Weight 4 oz. Code Word NECCS.
U. S. Pat. No. 1,894,010; Can. Pat. 340,752/1934.



Approved Guards Safeguard Operation





At left is shown work at start of cut, showing how back of basket covers rear of blade. At right is seen work leaving blade, with front of basket covering front of blade.

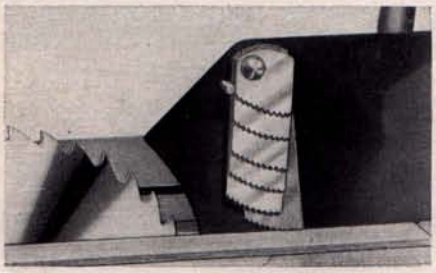
You Need This Protection

These Circular-Saw Guards (U. S. Pat. No. 2,007,877) have been praised by all authorities as the only guards that really protect the saw user, while at the same time they do not interfere with his work. No other guards that we know of offer all the features of these, which meet the very exacting requirements of many Industrial Commissions.

The basket pivots as shown at the left, so that the work is covered at all times, while affording a clear view of the cutting line. The basket support swings on the arm to accommodate work of any thickness within the capacity of the saw.

Ordinary guards—supported on so-called "splitters"—must be removed entirely when dadoing, grooving etc., and are seldom replaced. These guards, on the contrary, may be swung completely back and out of the way in a second's time, and as quickly swung back when needed. They need never be removed for any reason.

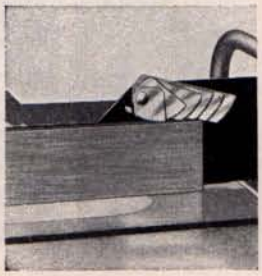
A Splitter to Suit the Saw Kerf: "Anti-Kickback" Adjusts Itself to Work

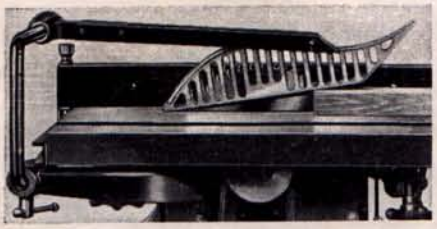


Above is seen the anti-kickback device in use when ripping a thin strip, while the photo at the right shows a 3¼" piece being ripped. At any thickness, the fingers automatically grip a piece that has any tendency to kick back.

The splitter shown is the only practical type. It comes in three thicknesses to suit saws of different sets, it may be attached or detached in a moment, may be used either with or without the basket, and it floats to accommodate itself to the kerf.

The new "Anti-Kickback" attachment, an integral part of the splitter for the 10" saw, prevents the work being kicked back against the operator if the kerf pinches on the saw blade. It is invaluable when sawing poorly seasoned or warped wood. The kickback fingers take all work from the thinnest strips up to the full capacity of the blade, and adjust themselves to the work without any attention on the part of the operator.



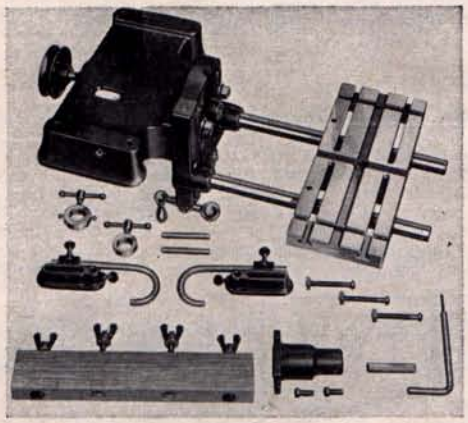


Work entering guard on No. 860 8" saw. This guard while slightly different in construction details, has all the features of the larger guard.

The illustration at the left shows the swing guard for the No. 860 saw, which is identical in principle with the larger guard, with only slight changes in construction details. It has all the features of the No. 1165 guard; the basket pivots to guard the work at all times, the basket swings to suit the work thickness, and it may be swung back out of the way when not in use.

The same type of splitter is available, but no anti-kickback attachment is available for this guard.

No. 863	Swing Guard for No. 860 Circular Saw, complete with bracket, support rod, pivot arms, guard basket, collars and screws	**$4.85**
	Shipping Weight 9 lbs. Code Word NECGA.	
No. 867	Splitter Attachment for No. 860 Circular Saw, consisting of three splitters and two collars for support rod.....	**$2.25**
	Shipping Weight 2½ lbs. Code Word NECSB.	
No. 1165	Swing Guard for No. 1160 Circular Saw, with bracket, support arm, pivot bracket, basket, collars and screws..	**$11.50**
	Shipping Weight 19 lbs. Code Word TENSK.	
No. 1166	Splitter Attachment for No. 1160 Circular Saw, consisting of three splitters, anti-kickback and collars for support arm	**$3.75**
	Shipping Weight 5 lbs. Code Word TENSL.	



For complete specifications and details of the No. 458 Mortising and Routing Attachment, send for Bulletin MR-6-36

Many Operations Possible with Mortiser

The addition of the No. 458 Mortiser and Router to your No. 860 Circular Saw enables you to perform many difficult operations with ease. Boring, routing, mortising, grooving, counter-boring, inlaying, sanding and many other operations are performed on this attachment with accuracy and speed.

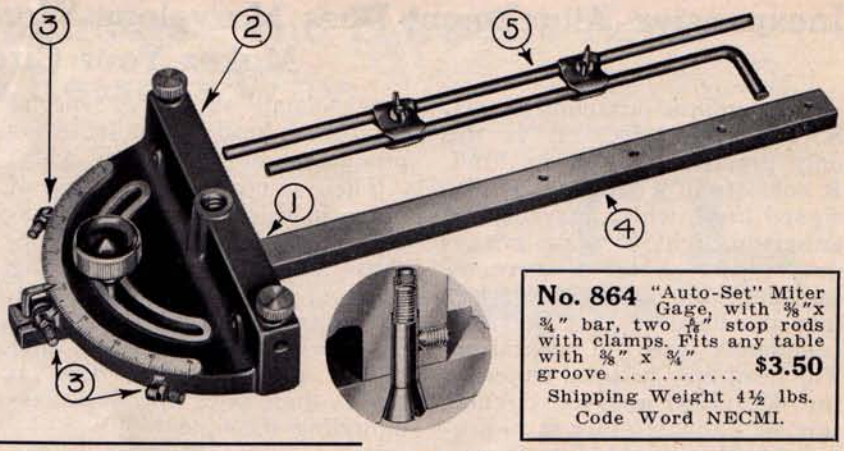
It may be mounted under the base of the No. 860 saw; it may be combined on the same stand as the band saw; it may be used alone on stand or bench—there is no end to the convenient ways in which it can be used. **Not adapted to the No. 1160 10" saw.**

No. 458	Mortiser and Router only, includes everything shown in the photo.....	**$26.25**
	Shipping Weight 42 lbs. Code Word MORBO.	
No. 453	V-Belt for above; Center to center distance, 17⅜"	**$ .90**
	Shipping Weight 1 lb. Code Word MORBL.	
No. 583	V-Belt for circular saw, when Mortiser is used with Unit No. 368 (No. 560 belt is then too short). Center to center distance 24"	**$1.10**
	Shipping Weight 1 lb. Code Word FORBL.	
No. 461	Foot-Power Feed for No. 458 Mortiser fits our Steel Stands	**$4.25**
	Shipping Weight 8 lbs. Code Word MORFE.	

Auto-Set Miter Gage Adds Convenience

The first automatically indexed miter gage ever offered, and the only one with individually adjustable index stops, the "Auto-Set" Miter Gage offers the following unique advantages:

1. Unique tapered pivot insures close fit for entire life of gage, thus preserving accuracy.
2. Massive body, heavier than many gages on production machines, gives full support and will not spring. (Des. Pat. No. 89,818).
3. Individual automatic stops (U. S. Patent No. 1,902,270; Canadian Patent No. 340,750) make precision job of cross and miter-cutting. Only miter gages made under our patents have individual index adjustment, a necessity for absolute accuracy.
4. Heavy ⅜" by ¾" bar, very rigid and strong, 17" long.
5. Full ⅛" diameter stop rods, with two heavy clamps, not flimsy wires that are useless for accurate repetition work.



No. 864 "Auto-Set" Miter Gage, with ⅜"x ¾" bar, two ⅛" stop rods with clamps. Fits any table with ⅜" x ¾" groove **$3.50**
Shipping Weight 4½ lbs.
Code Word NECMI.

Combination Blades

Our 8" Combination Saw Blade is a double-purpose blade, which rips and cross-cuts equally well. It serves a very useful purpose for general work, where the user does not wish to change blades frequently. Teeth have proper set for free cutting. Made of high-grade steel, properly tempered and tensioned.

No. 325 8" Combination Rip and Cross-cut Blade, for No. 860 Circular Saw, ⅝" arbor hole.. **$3.00**
Shipping Weight 1½ lbs. Code Word EICBL.

No. 1015 10" Combination Rip and Cross-Cut Blade for No. 1160 or 1450 Circular Saw. ⅝" arbor hole **$3.75**
Shipping Weight 2 lbs. Code Word TENSP.

No. 1017 10" Special Rip Blade for No. 1160 or 1450 Circular Saw **$3.75**
Shipping Weight 2 lbs. Code Word TENSS.

Hollow-Ground Blades

Ideal for fine and accurate work. The teeth have no set, and the work comes from the saw ready to put together, unless of such fine character that it requires jointing. This blade is intended for fine work only; it is not suitable for rough cutting. Properly used and cared for it will do the highest grade of work.

No. 326 8" Hollow-Ground Blade for No. 860 Circular Saw. ⅝" arbor hole..... **$5.50**
Shipping Weight 1½ lbs. Code Word EICSP.

No. 1016 10" Hollow-Ground Blade, for No. 1160 or 1450 Saw, ⅝" hole **$6.50**
Shipping Weight 2 lbs. Code Word TENSR.

No. 1018 10" Special Crosscut Blade for 1160 or 1450 Circular Saw **$3.75**
Shipping Weight 2 lbs. Code Word TENST.

Abrasive Cutting Wheels for Metal, Tile, Brick, etc.

Abrasive Cutting Wheels will cut freely and fast all of the materials listed below, and many other materials. All are 3/32" thick, 8" diameter, and have ⅝" arbor hole only. Bonded with genuine synthetic resin; should not be confounded with shellac-bond wheels.

No. 223 8" Cutting Wheel, 3/32" thick, ⅝" hole, for cutting vitrified brick, cast iron, sand cores, slate and plain or glazed tile..... **$1.75**
Shipping Weight 1½ lbs. Code Word BAKEC.

No. 225 8" Cutting Wheel, 3/32" thick, ⅝" hole, for cutting monel metal, steel tubing, hardened steel, stellite, stainless steel, aluminum tubes, etc..... **$1.75**
Shipping Weight 1½ lbs. Code Word BAKED.

No. 227 8" Cutting Wheel, 3/32" thick, ⅝" hole, for cutting porcelain, hard rubber, brass tubing, copper, brass and bronze **$1.75**
Shipping Weight 1½ lbs. Code Word BAKEF.

No. 228 8" Cutting Wheel, 3/32" thick, ⅝" hole, for cutting soft steel and wrought iron **$1.75**
Shipping Weight 1½ lbs. Code Word BAKEH.

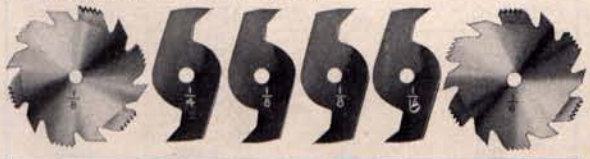
No. 230 Abrasive Wheel Guard, with bracket and arm, to fit No. 860 Circular Saw..... **$4.25**
Shipping Weight 12 lbs. Code Word BAKEJ.

No. 231 Top Guard casting only. Used wherever saw is already fitted with circular-saw guard. Fits only No. 318 or No. 860 Circular Saw..... **$2.50**
Shipping Weight 7 lbs. Code Word GURDA.

Cutting a steel bar with the abrasive wheel, showing No. 230 Guard.

Dado Head and Inserts

For cutting of grooves varying in width from ⅛" to 13/16" and up to 1¼" deep, either with or across the grain. Made of the finest steel, carefully hardened and tempered. Includes special ⅛" inside cutter. Fits 860, 1160 and 1450 saws.



No. 333 6" Dado Head, consisting of two outer blades, ⅛" thick, two inside cutters ⅛" thick, one inside cutter ¼" thick and one ⅛" thick. To cut grooves from ⅛" to 13/16", advancing by 1/16". With ⅝" holes to fit No. 860 and 1160 Circular Saw..... **$10.75**
Shipping Weight 3½ lb. Code Word EICDA.

No. 874 Table Insert for No. 860 Circular Saw ..... **.90**
Shipping Weight 1½ lbs. Code Word NECDA.

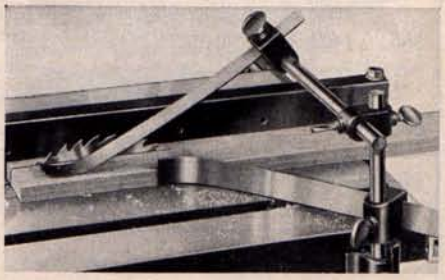
No. 1161 Insert for No. 1160 Saw..... **$1.10**
Shipping Weight 1½ lbs. Code Word TENSF.

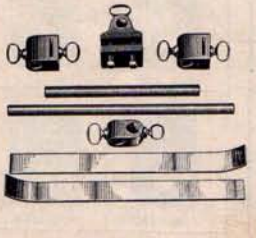
No. 1452 Insert for No. 1450 Saw..... **$1.25**
Shipping Weight 1¾ lbs. Code Word TILTC.

Hold-Downs

This attachment consists of a clamp which fits either side of the saw table, and which carries adjustable springs to bear on the work. One spring is adjusted to press the work to the fence and the other to press it down to the table.

With this attachment the fingers need never come near the revolving blade at all, as the springs perform the work ordinarily done by the hands. All the hands have to do is to push the work past the blade.





No. 871 Hold-Down for No. 860 and 1160 Saws, with clamp, brackets and springs **$2.60**
Shipping Weight 4½ lbs. Code Word NECHO.

Note: To adapt No. 983 shaper hold-down to fit circular saw, order the following parts:

NCS-315-S Clamp bracket .....each **.75**

DP-331 Short rod (½"x6 3/16").each **.20**

NCS-316 Long Rod (½"x11⅛").each **.25**

Cutter Makes Hundreds of Moulding

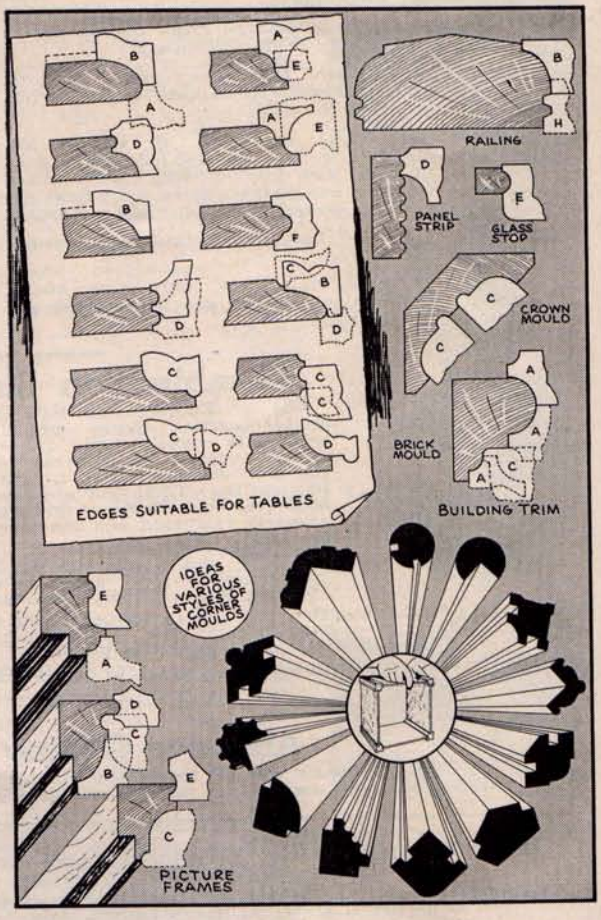
Inexpensive Attachment Does Marvelous Work— Makes Your Circular Saw a Moulding Machine!

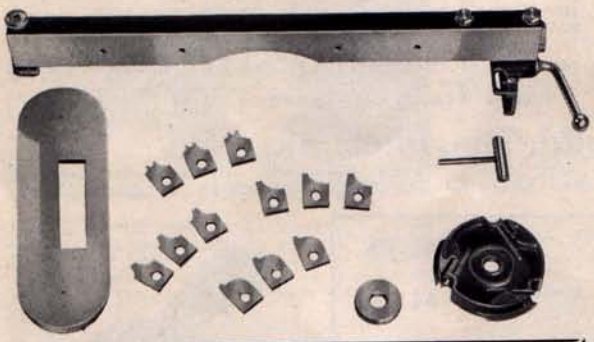
This unique attachment (U. S. Pat. No. 1,830,813) is the only practical tool of its kind. It consists of a strong, well-designed head, which may be had either in light-duty or heavy-duty types. A set of three interchangeable knives is locked into the head so that they are completely safe in operation. The head may be used either on the 860, 1160 or 1450 circular saw, or on most other saws provided with a double-face fence.

A perfect moulding may be produced with one pass over the knives, or, if the cut is a deep one, in two or more passes. The attachment is such a practical one that it is used in hundreds of production shops, yet it is priced within the reach of every small shop. A special solid-steel head is available for production or heavy-duty work.

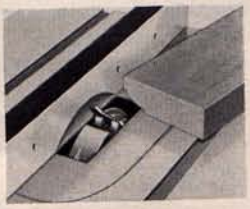
There is nothing to get out of order in this tool, and it is extremely safe in operation because only the actual cutting edges of the knives are exposed, and even this is covered when the work is being run. Enthusiastic users tell us that it makes their saws into first-class moulding machines!

As seen at the right, the knives may be used singly or in combination to produce almost any type of exterior, interior or cabinet moulding. This illustration shows only a few of the hundreds of moulding shapes that have been produced with this wonderful tool.





The New Heavy-Duty Steel Cutter Head is shown above. This type of head should always be used for heavy work and for production use, in preference to the lighter head designed for home-workshop use.



At the standard speed of the 860 or 1160 saw, the three knives of the attachment produce over 10,000 cuts per minute. This explains the smoothness of the cut, which cuts down the amount of finishing required. The knife shapes (originated by us) are so designed that hundreds of shapes can be made with only four sets of knives. Additional knives are available as below. Style A, B, C and D are used in combination and singly to produce hundreds of mouldings, dowels, etc. Style F is for screen mouldings. Style H is a glue joint cutter. Style J is straight, for tenons, rabbetts, etc.

Light-Duty Moulding Cutter Sets

No. 858 Moulding Cutter Set, to fit 5/8" arbor of No. 860 circular saw. Complete with four sets of high-speed cutters, styles A, B, C and D, oval table insert, micro-guide fence, collar, wrench and complete instructions **$15.55**
Shipping Weight 10 lbs. Code Word MOLDY.

No. 262 Moulding Cutter Set for other makes of circular saws with arbor up to 7/8" diameter. Price includes boring up to 1/2", 5/8", 3/4" or 7/8" diameter. Does not include table insert or guide fence. Specify bore wanted **$11.90**
Shipping Weight 3 lbs. Code Word MOUHJ.

No. 1169 Moulding cutter set for No. 1160 and 1450 Circular Saws. Same as No. 858, but without fence (wood facings are used on standard fences of these saws when moulding cutter is used).... **$12.50**
Shipping Weight 8 lbs. Code Word TENMC.

No. 868 Moulding Cutter Fence, 20 3/4" long, complete as shown above for No. 860 saw **$3.50**
Shipping Weight 7 lbs. Code Word NECFE.

No. 872 Moulding Cutter Insert only, to fit No. 860 circular saw ..... **$ .95**
Shipping Weight 1 1/2 lbs. Code Word NECIO.

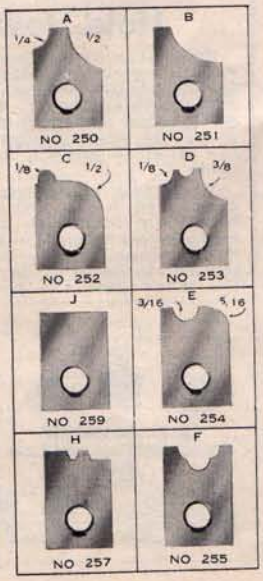
No. 1162 Moulding Cutter Insert for No. 1160 saw **$1.10**
Shipping Weight 1 1/2 lbs. Code Word TENSG.

Heavy-Duty Moulding-Cutter Sets

No. 267 Heavy-Duty Moulding Cutter Set. Same as No. 262, but with heavy-duty steel cutter head **$13.65**
Shipping Weight 5 lbs. Code Word MOUHK.

No. 859 Heavy-Duty Moulding-Cutter Set for No. 860 Circular Saw. Same as No. 858, but with heavy-duty steel cutter head..... **17.30**
Shipping Weight 12 lbs. Code Word MOUHL.

No. 1158 Heavy-Duty Moulding-Cutter Set for No. 1160 and No. 1450 Saws. Same as No. 1169, but with heavy-duty steel cutter head..... **14.25**
Shipping Weight 10 lbs. Code Word MOUHM.



Extra Sets of Cutter Blades

Cutters come in sets of three matched blades. Being made of high-speed steel (not carbon steel) they will cut thousands of feet of moulding before dulling, although they are inexpensive enough to be replaced like a razor blade.

Cat. No.	Style	Code Word	Per Set
250	A	MOULA	$2.25
251	B	MOULB	2.25
252	C	MOULC	2.25
253	D	MOULD	2.25
254	E	MOULE	2.25
255	F	MOULF	2.25
257	H	MOULH	2.25
259	J	MOULJ	2.25

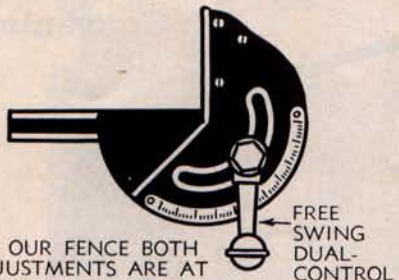
Shipping Weight per set 4 oz.

No. 249 Moulding Cutter Head only, with screws, to fit 5/8" arbor. Does not include collar, wrench or cutters..... **$2.10**
Extra for boring 1/2", 3/4" or 7/8" ..... **.75**
Shipping Weight 18 oz. Code Word MOUHA.

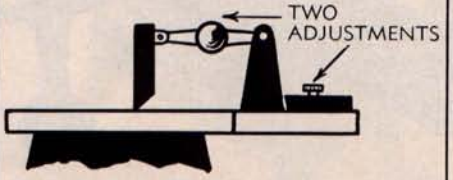
No. 265 Heavy-Duty solid-steel head only, to fit 5/8" arbor. Without wrench or cutters **$3.85**
Not furnished in 1/2" bore.
Extra for boring 3/4" or 7/8" ..... **.75**
Shipping Weight 3 lbs. Code Word MOUST.

You Get Much More for Your Money

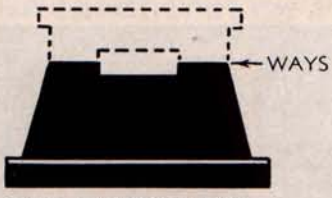
When You Buy Our Jointers—and Here Are Some of the Reasons Why



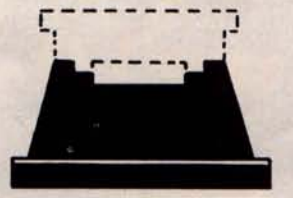
ON OUR FENCE BOTH ADJUSTMENTS ARE AT THE FRONT, IN ONE SIMPLE POSITIVE CONTROL



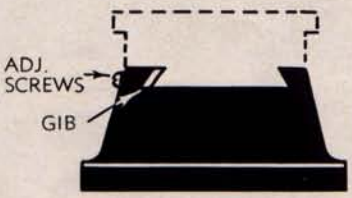
ON OLD-TYPE FENCES ADJUSTMENTS ARE AT THE BACK OF THE FENCE, AND ARE CLUMSY TO HANDLE



SOME JOINTERS HAVE PLAIN MACHINED WAYS TO CARRY THE TABLES



SOME HAVE PLAIN RABBETED WAYS, WITH NO TAKEUP



OURS EMPLOY THE FINEST TYPE OF MOUNTING, WITH DOVE-TAILED WAYS AND GIB FOR TAKEUP

If we told you that we probably have more experience in manufacturing GOOD small jointers than anyone else in the world, it would be true, so far as we know—but it wouldn't mean very much. Even the "oldest manufacturer" in any field can go to sleep on his feet, and when he does, his past experience means nothing to the purchaser of his machines.

But when, in addition to years of experience in building GOOD jointers, a manufacturer is alert to every opportunity of improving his machines, of building into them even greater value, of making them more accurate, of increasing their convenience, of giving you more for your money—then his vast experience IS of importance to you.

When you buy one of our 4″ or 6″ jointers, you buy the result of years of experience in building GOOD machines. You buy the result of years of experience in accurate workmanship, in advanced engineering. You buy the result of years of research, study and contact with thousands of jointer users. You buy—so far as it is humanly possible for us to insure it—thorough SATISFACTION!

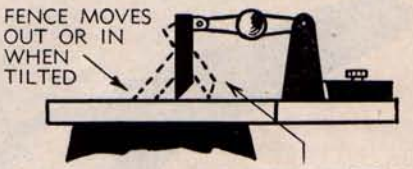
Study the Drawings

The illustrations on this page point out some of the differences between our jointers and others. But this is only a part of the reason for the superiority of our machines. There are other reasons, unseen, but important. Take machining, for example. We are not content merely to rough-bore and ream the seats for the ball bearings, although this might be "good enough". We diamond-bore these seats, to insure absolute **accuracy.**

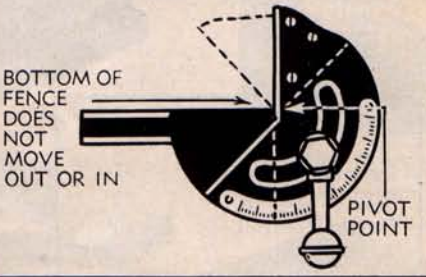
The tables of our jointers are first rough-machined, singly. The machine is then carefully assembled with the tables mounted on the base, and both tables are then carefully and accurately finish-ground. This insures that the tables will be perfectly aligned, and, although it involves a number of additional operations, we consider it necessary for accuracy and for your satisfaction. Similarly with all other operations. You will find no skimping—no shoddy workmanship in our jointers.

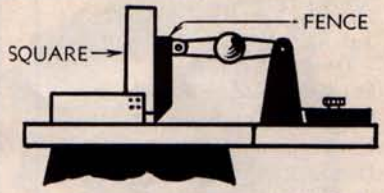
Study the drawings and the illustrations on the following pages, and you will readily see why you should have one of these jointers in your shop.

HOW OLD-TYPE FENCES PIVOT

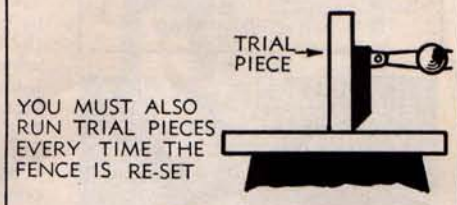


HOW OUR FENCE PIVOTS

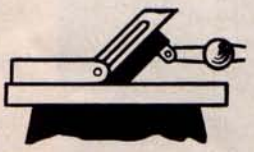




WITH OLD-TYPE FENCES YOU MUST RE-SQUARE THE FENCE EVERY TIME IT IS TILTED

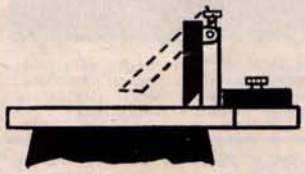


YOU MUST ALSO RUN TRIAL PIECES EVERY TIME THE FENCE IS RE-SET



YOU MUST ALSO USE A BEVEL GAUGE EVERY TIME YOU SET FOR 45 DEGREES

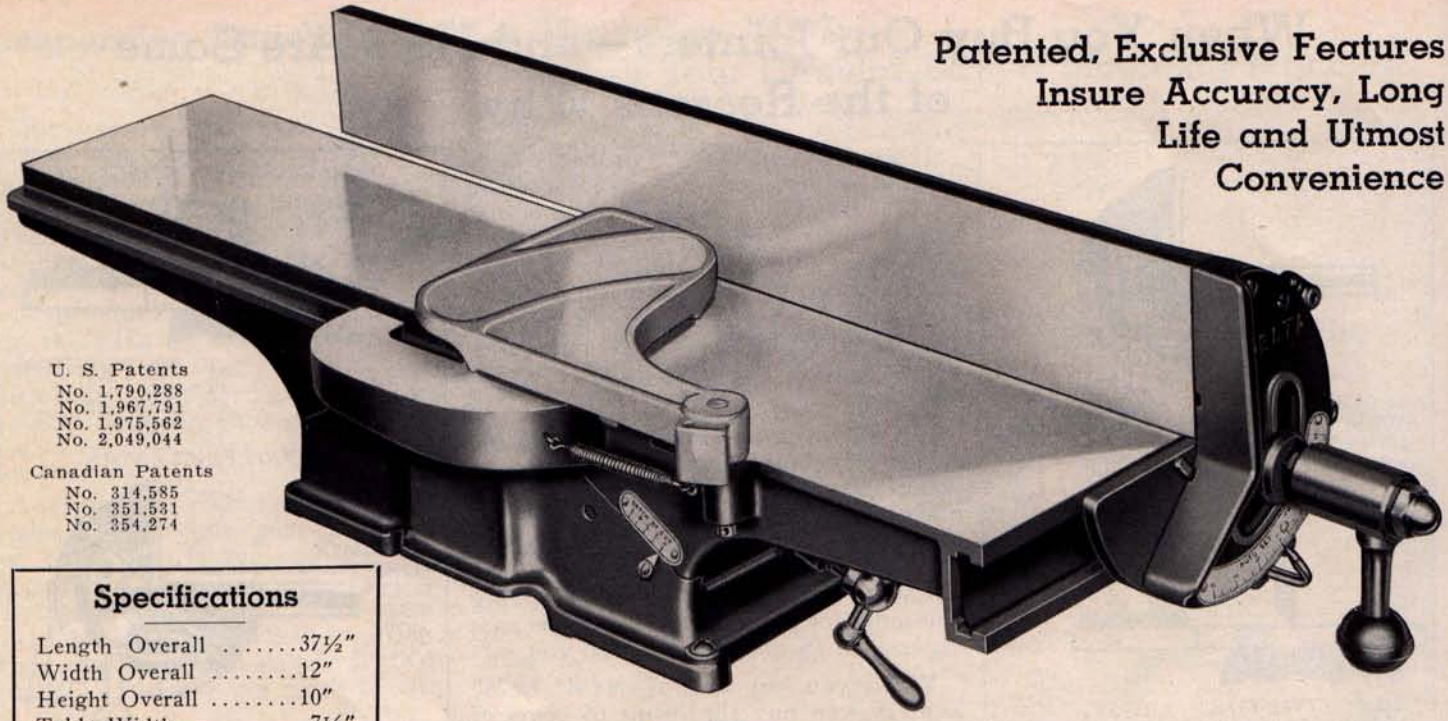
WITH OUR PATENTED FENCE YOU DO THESE THINGS JUST **ONCE**—NEVER AGAIN!



AND ON MANY FENCES OF THIS TYPE THE FENCE WILL TILT ONLY OUT

You Cannot Buy a Better 6-inch Jointer

Patented, Exclusive Features Insure Accuracy, Long Life and Utmost Convenience

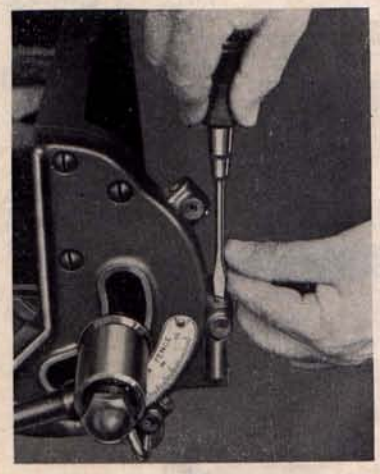


U. S. Patents
No. 1,790,288
No. 1,967,791
No. 1,975,562
No. 2,049,044

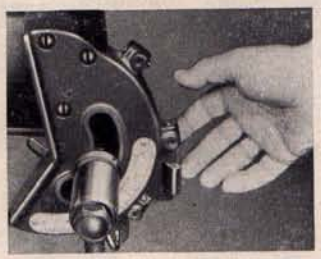
Canadian Patents
No. 314,585
No. 351,531
No. 354,274

Specifications

Length Overall .....37½"
Width Overall .....12"
Height Overall .....10"
Table Width ..... 7½"
Capacity .....½"x6"
Heavy Cast Base and Tables
Tables Carried on Gibbed Dovetail Ways.
Patented Tilting Fence.
Patented Automatic Stops.
Free-Swing Dual Control.
Depth-of-cut and Tilt Scales.
Double-Seal Ball Bearings Lubricated for Life.
Front Safety Knife Guard.
Safety-Type Head with 3 High-Speed Steel Knives.



Since the stops are individually adjustable they are set with the utmost precision. Note the Dual-Control handle slid IN to engage the fence tilting lock.



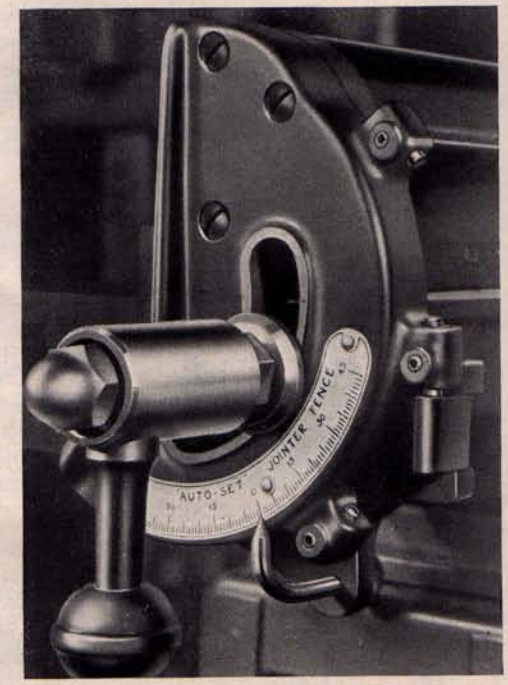
A touch of the finger moves the stop link into or out of engagement with the individually adjustable stop screws enabling the fence to be stopped with accuracy at 45, 90 or 135 degrees.

Compare the features of this machine, point by point, with those of any similar machine on the market—at any price—and you will see why this machine has become the standard 6" jointer for shops of all types, from the novelty factories to the experimental departments of large furniture manufacturers. Nowhere else but in this jointer can they get so much accuracy, so much durability, so much built-in convenience and handiness—at such moderate cost.

The fence tilts on our patented bracket, insuring sure, free action, and **unvarying accuracy** of the stop settings—something very difficult to achieve in machines without our principle. The swinging stop, with its individually adjustable stop screws at the 45, 90 and 135-degree positions, insures that, once the stop screws are accurately set, the double-tilting fence will invariably return to the same accurate setting after tilting. Once set, the fence is always set for these most frequently used positions.

And the dual-control handle: Slid in, it engages the tilting lock and a twist of the wrist tilts the fence. Slid out, it engages the bracket lock, enabling the whole fence to be moved across the table. In the center, it swings free, completely out of the way of the operator.

Saves Its Small Cost in A Short Time in Any Shop



A closeup of the front of the husky 6-inch jointer fence. When the handle is slid in toward the fence, it tightens or loosens the quadrant for tilting. When slid out it engages the bracket lock and the fence may be moved bodily across the table.

No. 654 Patented 6" Ball-Bearing Jointer, with set of three High-Speed Steel Knives, 2-Way Tilting and Graduated Fence with Dual Control, 2¾" arbor pulley and front safety guard. With out motor, belt or motor pulley.. **$48.85**
Shipping Weight 120 lbs. Code Word SIXJO.

No. 560 V-belt 22¾" center to center, (Use No. 510 Belt for combination units) **$1.00**
Shipping Weight 1 lb. Code Word EICVB.

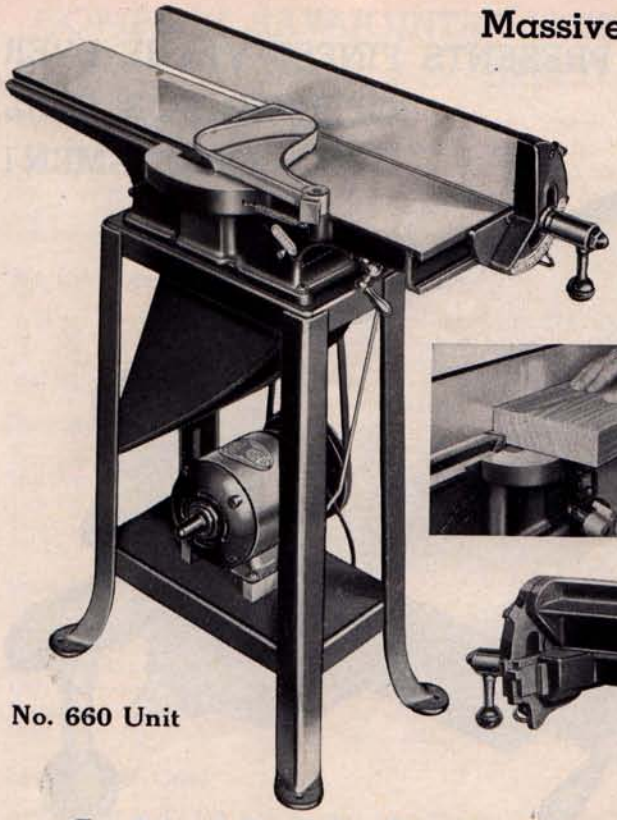
No. 5700 V-pulley, drives jointer at correct speed (4200 R.P.M.). ½" bore furnished unless otherwise specified **$1.20**
Shipping Weight 2 lbs. Code Word PULOL.

No. 659 Extra set of three high-speed steel knives..... **$3.30**
Shipping Weight 6 oz. Code Word SIXKI.

Note: For regular use, specify No. 900 motor and No. 851 switch rod. For school and production use, specify No. 920 three-phase motor. See pages 35 to 37 for prices.

Many Superior Features In This Jointer

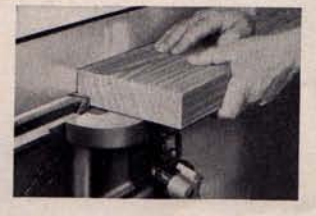
Massive Design and Precision Construction Insure Accuracy of Your Work



No. 660 Unit

Note, in the photos, the massive construction of this 6-inch Jointer. See the heavy, well-ribbed base, designed to hold the tables in alignment even if the bench surface is slightly twisted. Note the extremely rigid design of the fence as shown in this rear view, a design which prevents the fence from springing sidewise as the work is fed through. Note also the heavy construction of the fence bracket and slide as seen at the left of the table and you will understand just why this jointer will produce such accurate work.

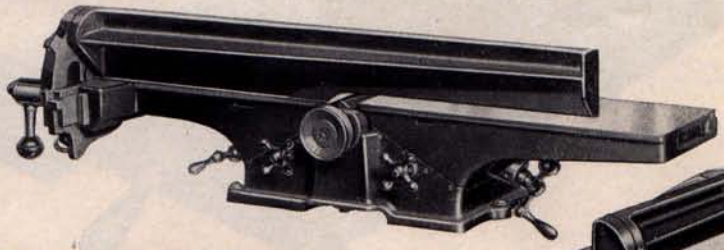
Careful machining, in addition to massive design, aids in producing precision work. The tables are not only ground flat and true individually, but, after assembly, they are ground at the same time on a larger grinder, so that there is not the slightest chance of any lack of alignment.

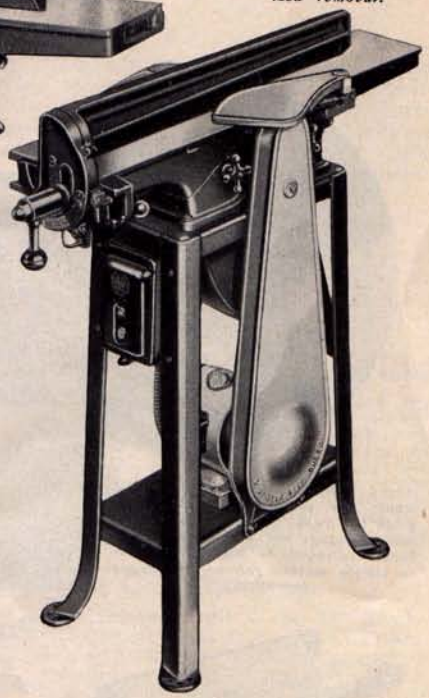


Left: Rabbets a full ½" deep can be cut at one pass. The guard is instantly removed for rabbeting, and just as quickly replaced.

Below: Rear view of jointer, showing the rugged construction of the base, tables and fence. Note hand knobs for locking table adjustments.

The flap guard can be locked with a padlock to prevent unauthorized removal.





An Ideal Tool for Production and School Shops

Mounted on the sturdy No. 656 steel stand, the 6-inch Jointer makes a machine that is ideal in every way for the production or school shop. Since it can be run from the nearest lamp socket, it can be taken right to the job, and run wherever there is electric light.

Cabinet makers, boat builders, furniture and novelty makers — every woodworker whose work demands a machine that can be taken right to the job or bench will find that this machine is the ideal one for the purpose. Built-in steel chute on the heavy steel stand carries off shavings.

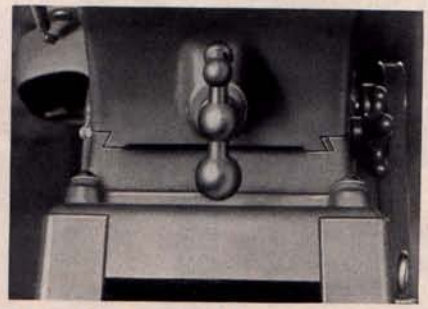
As shown in the photo at right, a guard is available to cover the rear of the knives when rabbeting—an absolute necessity in the school shop, and in the production shop where machines may be set in close quarters. The flap guard follows the fence as it is moved across the table, and thus no portion of the cutting knives is exposed at any time.

A belt guard is also available. These two additional guards, together with the fact that the front guard can be locked in place, make this as safe a jointer for school use as has ever been built.

This jointer, equipped with the knife guards shown, has the full approval of the Wisconsin Industrial Commission, whose safety requirements are very strict.

Table Guided on Dovetailed Ways

Your jointer tables must not only be accurate to start with; they must retain that accuracy throughout their life. This is insured, in this jointer, by the fact that the tables slide on dove-tail ways, gibbed so as to be adjustable for wear, if wear ever develops. This construction is naturally more costly to produce than the ordinary type, but is much more accurate and satisfactory for the user.



View of the underside of the table, showing the dovetail ways on which the tables move. Notice the gib at right to permit adjustment for wear

No. 660 6-inch Jointer Unit Includes:

No. 654	6-inch Ball-Bearing Jointer, including front guard.....	**$48.85**
No. 560	V-belt, center to center distance 22¾".....	**1.00**
No. 5700	7" V-pulley, drives jointer at correct speed (4200 R.P.M.) ½" bore	**1.20**
No. 656	Steel stand for 6-inch Jointer (8" wide, 15⅞" long, 29⅛" high)..	**6.85**
	Shipping Weight of Stand 31 lbs Code Word SIXST.	
	Total (Less motor, guard and switch rod)..... Shipping Weight 154 lbs. Code Word SIXUN.	**$57.90**

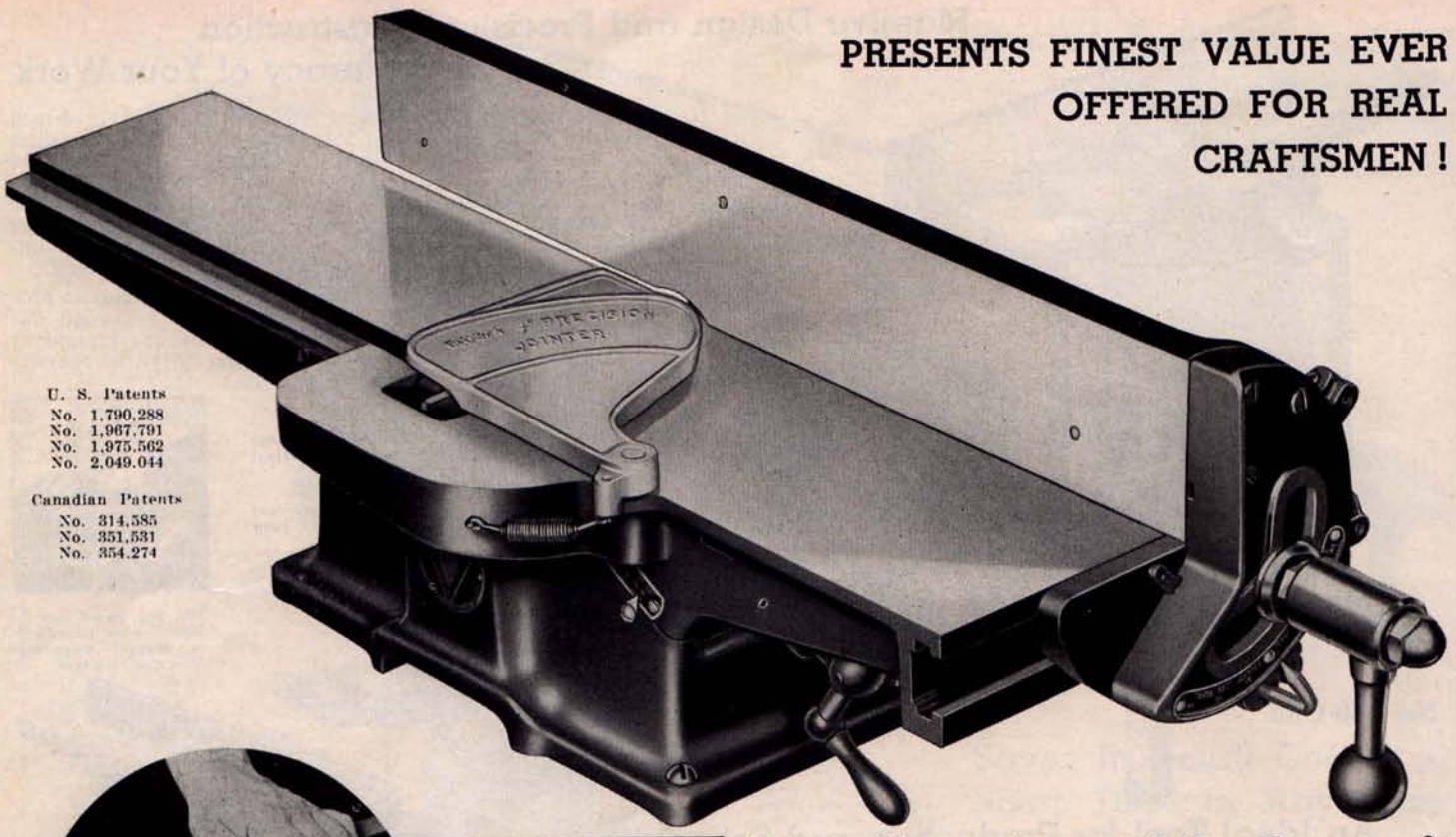
Note: Photo above shows machine with three-phase motor and switch. Write for bulletin M-10 for details of three-phase installation.

For regular use, specify No. 900 motor and No. 851 switch rod. See pages 35-37 for prices.

No. 661	Belt guard for 6-inch Jointer, with stud screws, etc..... Shipping Weight 33 lbs. Code Word SIXGA.	**$7.85**
No. 662	Rear knife guard for 6-inch Jointer, with spring..... Shipping Weight 2 lbs. Code Word SIXRE.	**3.75**

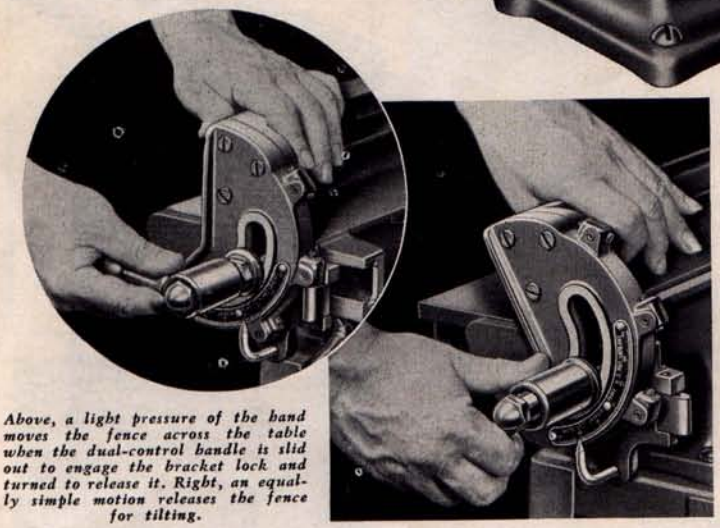
Precision 4-inch Ball-Bearing Jointer

PRESENTS FINEST VALUE EVER OFFERED FOR REAL CRAFTSMEN!



U. S. Patents
No. 1,790,288
No. 1,967,791
No. 1,975,562
No. 2,049,044

Canadian Patents
No. 314,585
No. 351,531
No. 354,274



Above, a light pressure of the hand moves the fence across the table when the dual-control handle is slid out to engage the bracket lock and turned to release it. Right, an equally simple motion releases the fence for tilting.

Every Convenience of the Famous 6″ Jointer, for Those Who Require Only 4″ Capacity

The precision construction, built-in convenience and all around-handiness and accuracy of the No. 654 6″ jointer—never before available in a jointer of this size—have led to an increasing demand for the same convenience and precision in a jointer of 4″ capacity, and the result is the new No. 290 jointer—the last word in tools of its size.

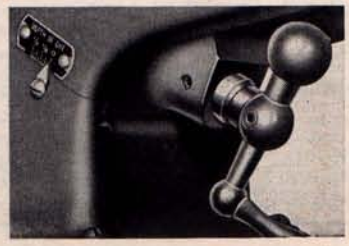
Every convenience and advantage of construction that have made the 6″ jointer the standard in its class is incorporated in this new machine.

It is provided with the patented fence that insures sure, free action and unvarying accuracy of the settings. It has the patented swinging stop with its individually adjusted stop screws at the 90-degree and both 45-degree positions; it has the dual-control handle that makes control of the fence so convenient. The entire machine follows the same massive design that has made the 6″ jointer such a conspicuous success.

For those who require a machine for edge jointing and similar work up to ¼″ by 4″, this machine will quickly prove its superiority over any other of similar size. Tables are extra long—front table 11⅝″, rear 14¼″ and 27⅛″ long overall, to aid in producing accurate work.

Precision Construction

Precision machining, in addition to massive design, aids in producing precision work on this machine. The tables are guided on dovetail ways, gibbed as in the most expensive machinery. Tables are ground flat and true individually, and then again after assembly, to insure perfect alignment. Nothing omitted that would add to precision or convenience.



No. 290	4″ Ball-bearing Jointer, with Two-Way Tilting and Graduated Fence with Dual-Control Handle, set of three high-speed steel knives, arbor pulley and front safety guard. Without motor, belt or motor pulley.....	**$29.90**
	Shipping Weight 75 lbs. Code Word JOIBM.	
No. 5650	6½″ V-pulley, ½″ bore.....	**1.10**
	Shipping Weight 1½ lbs. Code Word PULOQ.	
No. 560	V-belt, cent. to cent. distance 22¾″..	**1.00**
	Shipping Weight 1 lb. Code Word EICVB.	
No. 304	Steel stand, with chute.....	**6.25**
	Shipping Weight 31 lbs. Code Word JOIST.	
No. 292	4″ Jointer Unit, consisting of No. 290 Jointer, No. 560 V-belt, No. 5650 6½″ V-pulley and No. 304 Steel Stand. Without motor or switch rod.....	**$38.25**
	Shipping Weight 110 lbs. Code Word JOIBO.	

Many Advantages in Our Combinations

COMPACT SAW-JOINTER UNITS SAVE SPACE, MONEY AND TIME—THEY SPEED UP YOUR WORK!

First introduced by us a number of years ago, the combination saw-and-jointer unit has steadily gained in popularity. The convenience of this combination is so outstanding and its popularity is now so great that others have attempted to make similar combinations. But **none** of these combinations combine all the advantages that have made ours such a favorite.

No Interference

There is absolutely no interference between the saw and jointer in our combination units. Either machine may be used singly, or both may be used together, by one man or two (see photo at right), with ease and facility.

Space-Saving

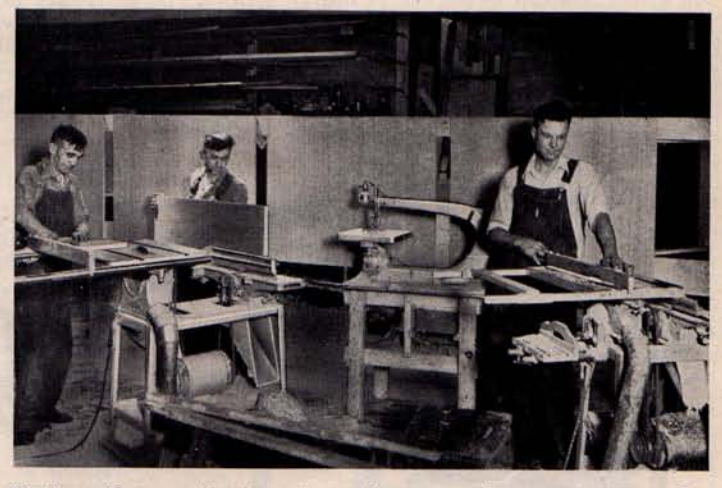
Both machines in our combinations are driven from below, **from the same motor.** In some other combination units the motor or motors must be mounted behind the machines, which makes a large, awkward stand necessary. This not only reduces portability, but also wastes shop space.

Portability

In spite of their large capacity, our combination units are so compact that they are used as portable power units for many outside jobs, as well as being used anywhere in the shop where they will best suit the job. Many contractors load them on a truck and take them right to the job. They are more portable than most old-fashioned "saw rigs", although of larger capacity.

Low Power Cost

Since both machines are driven from the same motor, not only is the cost of an additional motor saved, but the running cost is generally lower than with two separate motors.

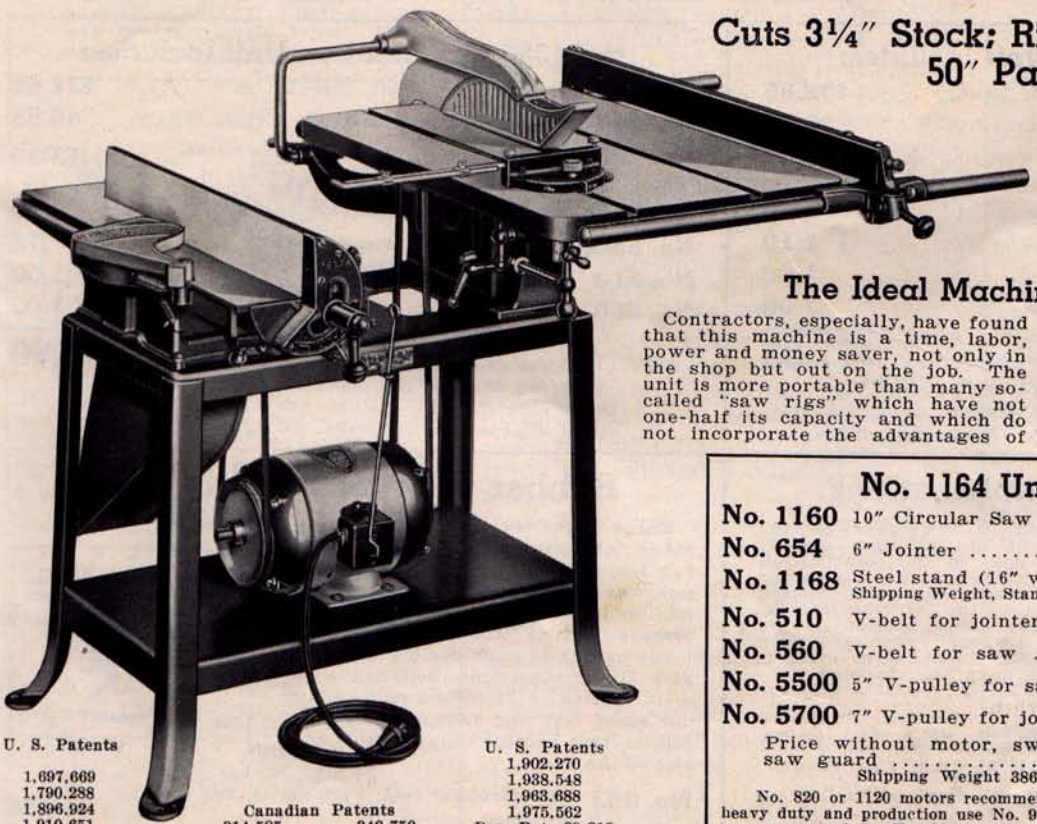


Starting with one combination unit several years ago, this concern now uses three of the combinations. The machines have proved exceptionally satisfactory, and the superintendent says: "We just don't know what we'd do without them!"

Maximum Efficiency

The extreme handiness of being able to rip stock to width and then joint it without moving more than a step must be experienced to be appreciated. Users who own these combination units claim that they can perform 80% of all common woodworking operations on their machines, and at savings of from 25% to 50% in time. You must use one of our combination units to understand why they are so popular!

NO. 1164 10-INCH SAW — 6-INCH JOINTER UNIT



Cuts 3¼" Stock; Rips to Center of 50" Panel; Joints ½"x6" Wide

This is the ideal machine for the contractor, for the novelty or furniture shop, for the small cabinet shop—in fact, in practically any type of woodworking shop it will take the place of machines consuming much more power and with but a fraction of its versatility. Hundreds of installations all over the world testify to its practicality and value.

The Ideal Machine for Contractors

Contractors, especially, have found that this machine is a time, labor, power and money saver, not only in the shop but out on the job. The unit is more portable than many so-called "saw rigs" which have not one-half its capacity and which do not incorporate the advantages of the jointer. With its 10" blade, very large table and 36" guide bars, it has a capacity greater than many machines costing much more.

It can be trucked to the job, if necessary, and can be operated wherever electric light is available.

No. 1164 Unit, Consisting of:

No. 1160	10" Circular Saw	**$55.85**
No. 654	6" Jointer	**48.85**
No. 1168	Steel stand (16" wide, 30" long, 26¾" high). Shipping Weight, Stand Only, 73 lbs. Code Word TENSO.	**11.85**
No. 510	V-belt for jointer	**1.00**
No. 560	V-belt for saw	**1.00**
No. 5500	5" V-pulley for saw, ¾" bore	**.75**
No. 5700	7" V-pulley for jointer, ¾" bore	**1.20**
	Price without motor, switch rod or circular saw guard. Shipping Weight 386 Lbs. Code Word TENSI.	**$120.50**

No. 820 or 1120 motors recommended for this machine for ordinary use. For heavy duty and production use No. 922, 924 or 1094 ¾-H. P. and 1 H. P. motors are recommended. Use No. 851 Switch Rod. See pages 35-37.

U. S. Patents
1,697,669
1,790,288
1,896,924
1,910,651
1,967,791

Canadian Patents
314,585
340,750
346,174
351,531

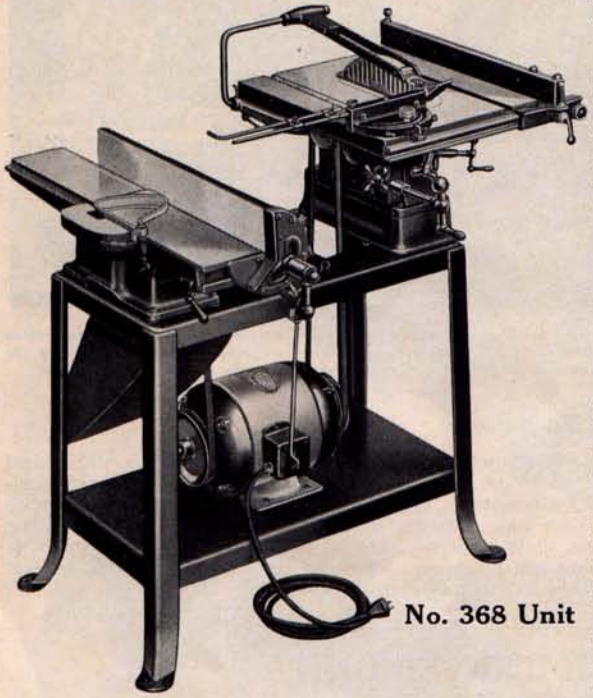
U. S. Patents
1,902,270
1,938,548
1,963,688
1,975,562
Des. Pat. 89,818
Des. Pat. 99,614

Combination Saw and Jointer Units

8-Inch Saw—4-Inch Jointer Combination

The combination of circular saw and jointer, first introduced by us, is one of the most useful in the shop. Eighty percent of the common woodworking operations can be performed on this unit alone, and it is demonstrating its usefulness in hundreds of shops everywhere. It is the utmost in convenience to be able to rip a board and then joint it without moving a step.

The units can be used wherever it is most convenient, since the motor runs from any light socket, or it may be loaded on a truck for transportation to an outside job. Units are available with the new No. 290 4" jointer, with the 654 6" jointer, and with either the No. 860 8" circular saw or the No. 1160 10" circular saw. On all of these combinations ripping, cross-cutting, dadoing, tenoning, moulding, jointing and edging can be done easily and conveniently.

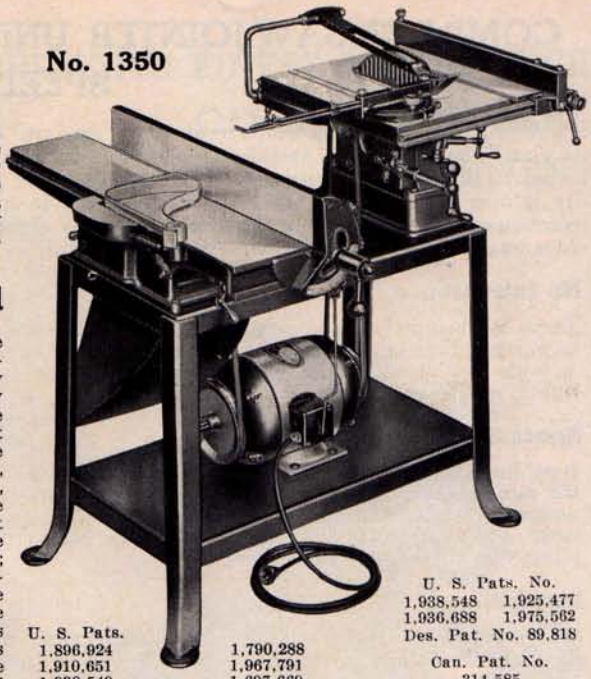


No. 368 Unit

Further Improved

The convenience of the 8" saw—4" jointer combination has been greatly increased by the new stands on which they are mounted, which permit the machines to be mounted further apart, facilitating adjustments, etc. Mounted on these new stands, there is not the slightest interference between the machines; either may be used separately, or both may be used together. Stands are of heavy welded steel, as strong and rigid as though formed of one piece; **they are not bolted together.**

No. 1350



U. S. Pats.
1,896,924
1,910,651
1,938,549
1,902,270
1,790,288
1,967,791
1,697,669
2,049,044

U. S. Pats. No.
1,938,548 1,925,477
1,936,688 1,975,562
Des. Pat. No. 89,818

Can. Pat. No.
314,585
340,750

No. 1350 8-In. Saw — 6-In. Jointer Combination

The combination of the 6" jointer and 8" circular saw offers an ideal unit for the shop which requires larger jointer capacity than that offered by the No. 365 or 368 combinations, and yet which require a circular saw of 8" diameter only. It is an ideal machine for the assembly or sample department in the furniture factory, for the novelty shop and for the serious home craftsman who requires a real machine and not a toy.

While naturally heavier than the 4" jointer units, it is compact and portable enough to be taken to the job if required, and, since it takes its power from the light socket, can be operated wherever electric light is available.

When equipped with the extension table and rip bars, it has a capacity equal to machines costing many times as much, yet it requires only ½ H. P.—a further economy.

No. 368 Combination Unit Includes:

No. 860	8" Timken-Bearing Circular Saw.....	**$32.85**
No. 290	4" De-Luxe Jointer, with guard.....	**29.90**
No. 361	Steel Stand, with chute and raising block	**11.25**
	Shipping Weight, Stand and Block Only, 75 lbs Code CROSX.	
No. 5500	5" V-pulley for saw, ¾" bore.....	**.75**
No. 5650	6½" V-pulley for jointer, ¾" bore.....	**1.10**
No. 560	V-belt for saw	**1.00**
No. 510	V-belt for jointer	**1.00**
	Total (less saw guard and motor.....	**$77.85**

Shipping Weight 243 lbs. Code Word COMBG.

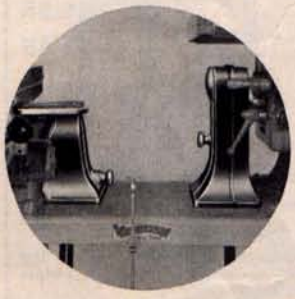
Use No. 820 or 1120 motor, and No. 851 switch rod. See pages 35-37.
Stand dimensions: 14" wide, 27½" long, 26⅜" high.

No. 1350 Combination Unit Includes:

No. 860	8" Timken-bearing Circular Saw.....	**$32.85**
No. 654	6" Ball-bearing Jointer	**48.85**
No. 1356	Steel stand, with chute and raising block	**13.25**
	Shipping Weight, stand and block only, 78 lbs. Code CROSU.	
No. 5700	V-pulley for jointer, ¾" bore.....	**1.20**
No. 5500	V-pulley for saw, ¾" bore	**.75**
No. 510	V-belt for jointer	**1.00**
No. 560	V-belt for saw	**1.00**
	Total (less saw guard, motor and switch rod).	**$98.90**

Shipping Weight 292 lbs. Code Word COMBE.
Use motor No. 820 or 1120. Switch rod No. 851.
Stand dimensions: 16" wide; 30" long; 26⅜" high.

Belt Guards for Combinations



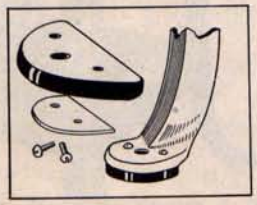
Adding still further to the safety of the 10" saw and 6" jointer used in the combination units, guards are now offered for the portions of the belts exposed above the top of the stands. Since the lower portion of the stands are easily enclosed with wire mesh, these guards make it easy to have the machine conform to all industrial safety requirements.

No. 1176 Belt Guard for No. 1160 Circ. Saw **$3.75**
Ship. Wt. 10 lbs. Code Word TENSV.

No. 1177 Belt guard for No. 654 Jointer **2.10**
Ship. Wt. 7 lbs. Code Word TENSW.
(For use on No. 1168 stand only)

Rubber Feet for Steel Stands

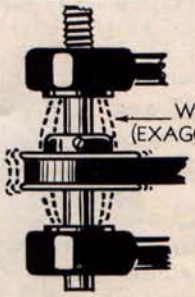
These feet for steel stands and bench legs will make your machines run smoother and quieter, an advantage where noise must be kept to the minimum. They are of the correct composition to stand hard usage, while having enough flexibility to absorb slight vibrations. Supplied with metal plates to fit in the recesses of our stand feet, and drilled and tapped for machine screws inserted from the top of the feet.



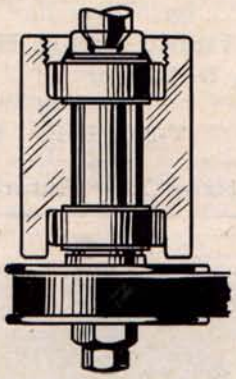
No. 353 Set of rubber feet, with plates and screws .. .. **$ .95**
Shipping Weight 10 oz. Code Word RUBFE.

Here Are Some of the Reasons Why

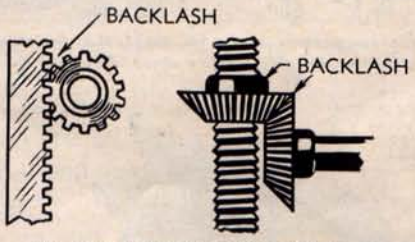
You Get So Much More for Your Money When You Purchase Our Shaper



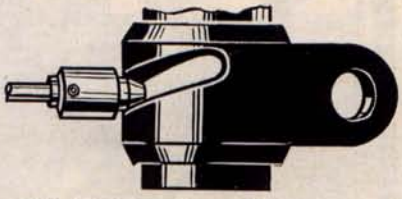
IF SPINDLE BEARINGS ARE FAR APART, "WHIP" DEVELOPS AT HIGH SPEEDS.



OUR DRIVE, WITH SHORT, STIFF SPINDLE AND VERY CLOSELY-SPACED BEARINGS, ELIMINATES ALL SPINDLE WHIP AND PRODUCES CHATTERLESS WORK.



IN MANY RACK-AND-PINION OR SCREW-ACTUATED SPINDLE-RAISING MECHANISMS, BACKLASH MAKES ACCURATE SPINDLE SETTING HARD TO DO QUICKLY AND POSITIVELY.



OUR TAPERED-SURFACE HELICAL GROOVE, WITH ITS SPRING-LOADED CONICAL SLEEVE, ELIMINATES ALL BACKLASH AND MAKES ADJUSTMENT EASY, FAST AND POSITIVE.

There are a number of reasons obvious to the experienced machine buyer why our shaper is used in hundreds of industrial, school and contractor's shops. Among these are its low cost—the wide range of the work it will handle—its availability in either bench or stand models—its thorough guarding—the low cost and wide variety of its cutters — the wide range of the work it will handle—its long life—its low power consumption.

But there are other reasons, hidden in the design of the machine, but none the less responsible for thorough satisfaction it is giving to users. Some of these are shown graphically on this page—others are inherent in the careful, painstaking machining of the parts (like the diamond-boring of the bearing seats). Others, again, require use of the machine to be appreciated.

Four Simple Operations Instead of Six Awkward Ones

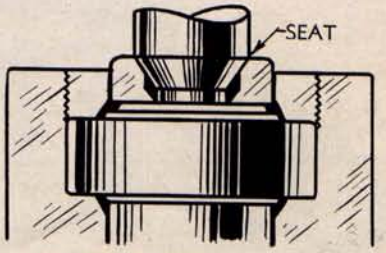
For example, most shapers are fitted with fences on which only one-half is adjustable. As the drawing at the right shows, when setting up straight work, four operations must be performed before the work is ready to run. In ninety cases out of a hundred, some re-setting of the fence is necessary when the last setting is reached—and with the ordinary shaper fence *the complete setting must be done over again,* because the whole fence must be moved to correct the inexact setting. With our fence, the rear half is adjusted in a few seconds, *without disturbing the other settings,* and the work is ready to run. A simple, exact procedure instead of an awkward, inexact one.

The difference in operation is even more pronounced whenever work must be done which requires the cutting away of the whole face of the work.

To do this on a fence with only the front half adjustable requires six operations, and requires the "juggling" of the whole fence and the front half until the setting is exact—a very clumsy operation.

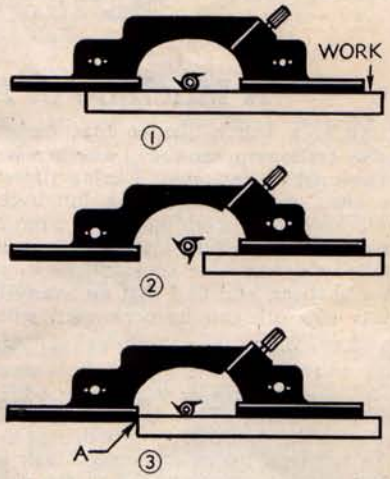
On our fence, the settings for this kind of work are done in four simple, fast, easy operations, with no juggling —no guesswork.

Study the construction and operation of this shaper point by point. Contrast it with others at anywhere near its low cost, and you will see why many users call it "the most satisfactory small shaper on the market today!"

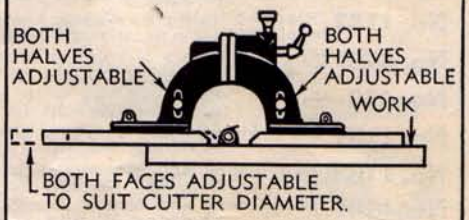


ACCURATELY GROUND CONICAL SPINDLE SEATS INSURE TRUE-RUNNING SPINDLES.

ON MOST SMALL SHAPERS ONLY THE FRONT HALF OF THE FENCE IS ADJUSTABLE.



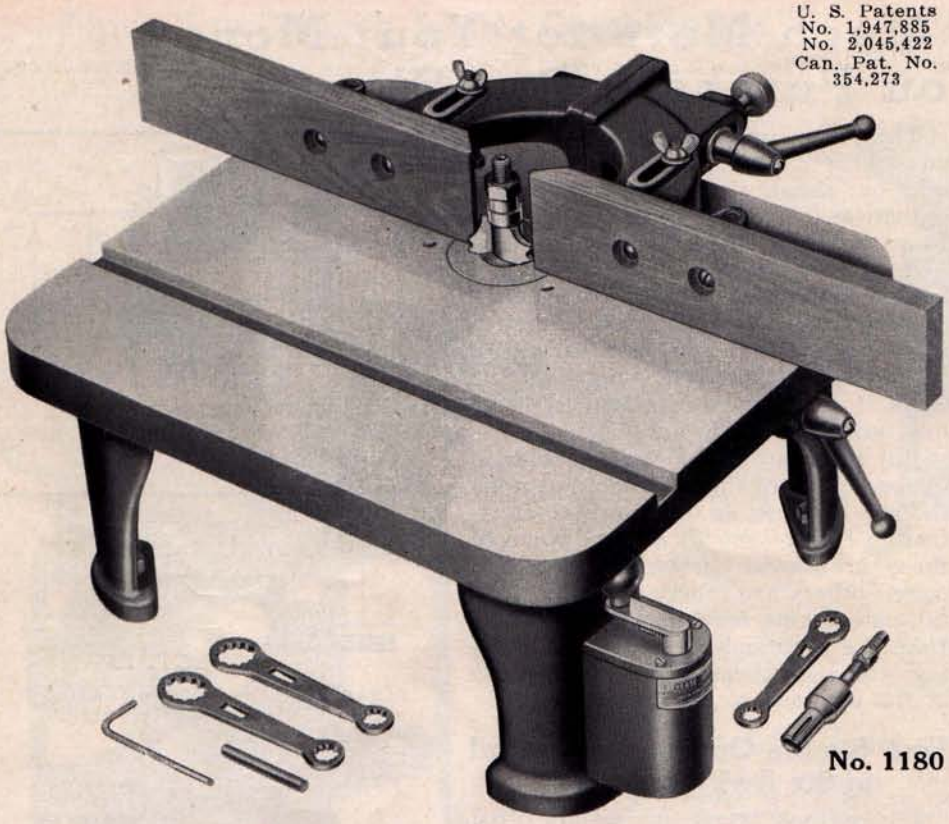
THREE STEPS (SHOWN ABOVE) ARE NECESSARY IN SETTING FENCE. ON ORDINARY FENCE, IF FIRST SETTING IS NOT EXACT, AND WORK STRIKES AS AT A, **ALL THREE STEPS** MUST BE DONE OVER AGAIN.



ON OUR PATENTED FENCE, IF FIRST SETTING IS NOT EXACT, **EITHER** HALF OF FENCE IS MERELY ADJUSTED TO SUIT, WITHOUT DISTURBING ANY OTHER SETTING.

A Shaper for Professional Craftsmen

U. S. Patents
No. 1,947,885
No. 2,045,422
Can. Pat. No.
354,273



No. 1180

Specifications

Overall Dimensions
25" Wide, 10¼" High
15½" Front to Back
18" by 15½" Table
25" Long Fence

Speed 10,000 R.P.M.

5/16" and ½" Spindles

Spindle Carried in Double-Seal Ball Bearings
(Requiring no lubrication for life of bearings)

Spindle Travel ¾"

No-Backlash Spindle Adjustment

Spindle Height Lock

⅜"x¾" Table Groove for Sliding Jig

Tapered Starting Pin

Leg Drilled for Reversing Switch

V-Belt Drive and Many Other Features

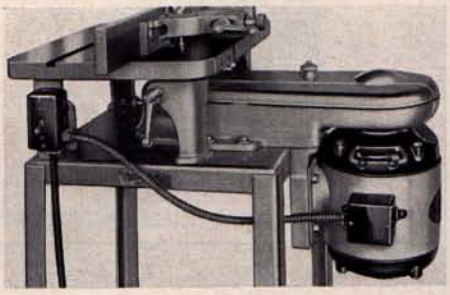
A Machine of Astonishing Versatility

Here is a bench shaper that embodies all the craftsman requires, whether he be professional or amateur. During the short time since it was introduced, hundreds of professional woodworking shops, from novelty shops to furniture manufacturers, have installed this machine as auxiliary to their larger shapers, and find that an astonishing variety of work can be performed with it.

It will make hundreds of mouldings using either ½" hole or $\frac{5}{16}$" hole cutters. It will shape, form or mould the edges of almost any form of work that can be handled on a larger shaper; it will handle all of the window, storm and screen sash work of the average shop, and all of the cabinet work as well.

For ordinary work No. 6900 (old No. 915) reversible ½-H.P. motor is recommended. This is carried by a special bracket on the rear of the stand, carrying a guard which completely encloses belt and motor pulley. The front of the belt and the spindle pulley are enclosed by a separate guard, instantly removeable. Reversing switch for 6900 motor mounted on front shaper leg.

For production work No. 8100 (old No. 1075) 1-H.P. motor is recommended. This has a built-in reversing switch, and is provided with a snap-switch for mounting on the shaper leg as shown at the left. Both motors are 3450 r.p.m., and drive the spindle from a flat, flanged pulley which permits the spindle to be raised or lowered without strain or twist on the belt.



For heavy production work the 1 H.P. motor with built-in switch, as shown above, should be used.

No. 1180	Ball-Bearing Reversible Shaper, with Fully Adjustable Fence, $\frac{5}{16}$" and ½" Spindles, Table Insert, Starting Pin, Wrenches and Spindle Pulley. Without Motor or Motor Pulley, Reversing Switch, Cutters or Collars ..... Shipping Weight 57 lbs. Code Word SHAPR.	**$28.85**
No. 1185	Special flanged motor pulley, 5⅜" diam., ⅝" or ¾" bore, with keyway, for standard 60-cycle 3450 r.p.m. motor (specify bore).. Shipping Weight 2½ lbs. Code Word SHAPU.	**1.55**
No. 1187	Flanged pulley as above, but 5⅞" diam., ⅝" or ¾" bore, for 50-cycle 2850 r.p.m. motor. Ship. Wt. 2½ lbs. Code Word SHAPI.	**1.55**
No. 410	Special flexible V-belt for shaper (do not use ordinary V-belt). Shipping Weight 10 oz. Code Word BELTB.....	**.85**
No. 430	Special V-belt for use with No. 1197 motor bracket and 1-H.P. motor. (Shipping Weight 10 oz. Code Word FORSL.....	**.90**
No. 1181	Steel stand (Top 16¼"x18¼"x26⅝" High)..... Shipping Weight 51 lbs. Code Word SHAST.	**8.25**
No. 1183	Belt Guard and Motor Bracket for ½-H.P. Motor..... Shipping Weight 28 lbs. Code Word SHABG.	**5.75**
No. 1197	Belt Guard and Motor Bracket for 1-H.P. motor..... Shipping Weight 30 lbs. Code Word SHAPV.	**7.35**
No. 1188	Shaper Unit, consisting of No. 1180 Shaper, No. 1181 Stand. No. 1183 Belt Guard and Motor Bracket, No. 1185 Flanged Pulley and No. 410 V-Belt. Without motor or reversing switch, cutters or collars ..... Shipping Weight 176 lbs. Code Word SHAUN.	**45.25**
No. 1199	Shaper Unit; same as No. 1188 but with No. 1197 Motor Bracket and No. 430 V-belt. Ship. Weight 178 lbs. Code Word SHAPW.	**46.90**

No. 1188

End-Grain Shaping Is Fast and Easy

Shaping of Short and Narrow Pieces Is Now a Safe Operation

Striving always for completely safety in the operation of machines, our engineers have solved the problem of safe end-grain work, even on short and narrow pieces, by the design of the Sliding Jig for the shaper.

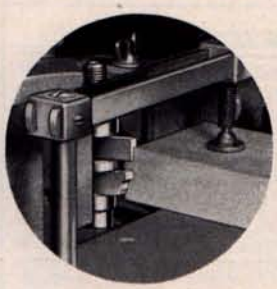


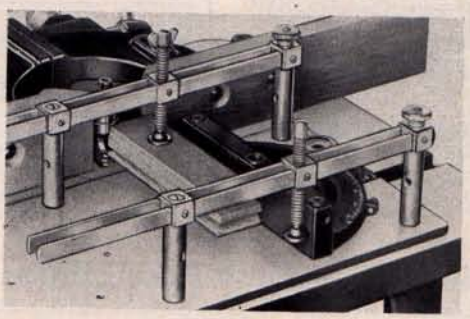
Photo at left shows how the jig is used on a sash operation, insuring absolutely accurate cuts. The photo at the right, below, shows how even a short, narrow block may be shaped safely by the use of the jig.

U. S. Pat. No. 2,085,235

The jig consists of a ground plate, fitted with a key to slide in the groove in the shaper table. The plate carries the well-known Auto-Set miter gage head, which may be set at any angle and automatically stopped at 90 and 45 degrees.

Carried on top of the plate are two clamp rails, with screw clamps that may be slid to any position along the rails. When the work is clamped against the miter-gage head and against the plate, the whole jig is slid past the cutters.

The hands never come close to the cutters, and the work cannot slip. This means not only perfect safety but also much more accurate work.



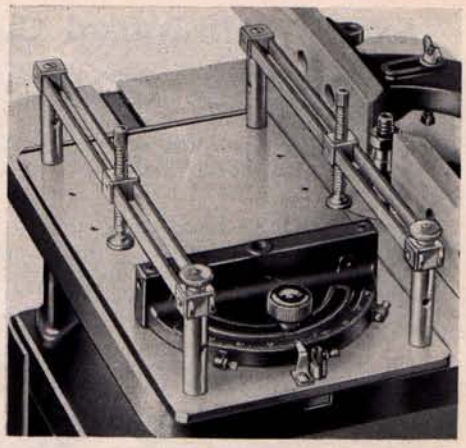


Photo above shows the jig for end-grain shaping from the right side of the machine, showing the stop and pointer on the miter-gage head.

No. 1186 Sliding Shaper Jig, with ground base plate, fitted with miter-gage head and swinging stop link, four clamp-rail posts, two clamp rails and two clamp screws. To fit No. 1180 shaper **$8.50**
Shipping Weight 13½ lbs. Code Word SHJIG.

No. 873 Additional clamp screw, with block, each..... **.45**
Note: This sliding jig may be adapted to many other machines and for many other operations. Key on base plate is ⅜" by ¾".
Shipping Weight 4 oz. Code Word NECCS.

Work Cannot Slip

The shaping of end grain work, especially when short or narrow pieces must be worked, as when "returning" the end of a moulding, has always been dangerous, because the narrow end, not having much bearing against the fence, is apt to be caught by the cutters and thrown out. This cannot happen when the sliding jig is used, because the work cannot slip and become caught.

For school work, or where inexperienced operators must be used, this feature of the jig is invaluable.

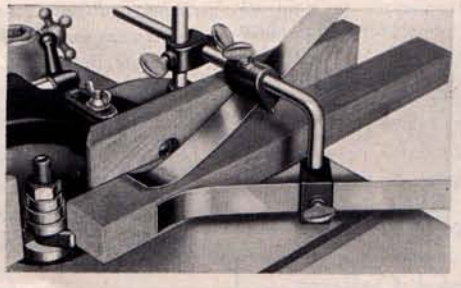
Fully Adjustable Shaper Fence Is Marvel of Convenience

Not only thoroughly safe to use, but unequaled in ease of operation, convenience of design and accuracy of adjustment, the No. 982 shaper fence (U. S. Pat. No. 1,947,885) is the best type available to the user of small shapers. For ordinary shaper work the two faces of the fence are set in line, while for jointing or for work where all the edge of the material is cut away, one face of the fence may be adjusted forward to support the stock as it leaves the cutter.

Each section of the fence may be adjusted forward or backward independently —and locked by a clamp lever which may be set at any angle to suit the operator.

The No. 982 Safety Shaper Fence is standard equipment on the No. 1180 Shaper, and is designed to fit the No. 970 and No. 995 drill presses also. It can be used on any type of shaper, and is actually more massive and much more convenient than many fences supplied on many heavy production shapers.

Spring hold-downs are available for use with the fence, which add much to the convenience of operation. They hold the work not only against the fence but also against the table. They can be used on either end of the fence, and are provided with universal brackets and long, flexible springs that accommodate work up to 3½" thick.



No. 982 Patented Shaper Fence to fit No. 970 and 995 drill presses, complete with wood facings, bolts and wingnuts, similar to standard fence on 1180 shaper **$7.50**
Shipping Wt. 12 lbs. Code Word NESSF.

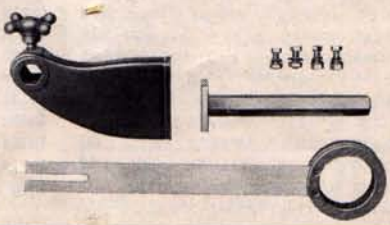
No. 983 Set of Shaper Hold-Downs, with straight and bent posts, two springs, two spring brackets, and one post bracket, for use with No. 982 shaper fence **$2.00**
Shipping Wt. 2 lbs. Code Word NESHD.

Demountable Guard Protects User on Curved and Circular Work

Shaping a curved rail with the No. 982 guard in place. Note how completely the knives are covered.

While no more thoroughly guarded shaper than the No. 1180 is available today, with its complete belt guards and safety fence, the fence cannot be used on circular or curved work. For this, the No. 987 Shaper Guard should be used. This guard is not standard equipment, but may be purchased as an extra. It fits not only the No. 1180 shaper, but also the No. 989 and 999 drill presses, when these are used as shapers with the ⅝" cutters.

The guard is fully adjustable, and completely protects the operator from accidental contact with the revolving cutters, besides acting as a hold-down for the work. It is instantly removable, and does not interfere with the work.



No. 987 Shaper Safety Guard for curved work, complete with bracket for shaper table, adapter bracket for drill-press wood table (not shown), hexagon post, spring bar with guard ring and screws **$4.35**
Shipping Weight 8 lbs. Code Word NESGA.

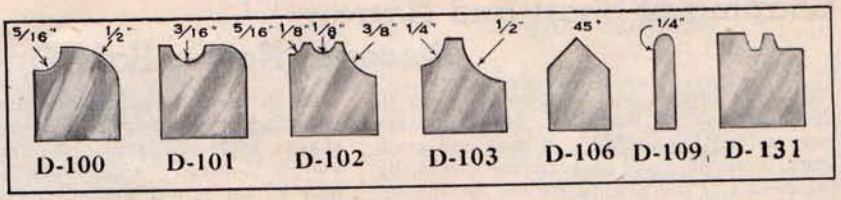
Shaper Cutters: Sash and Universal

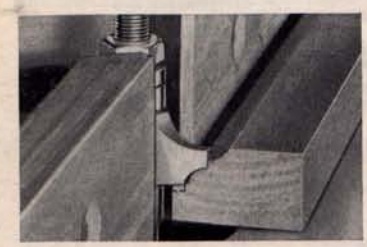
Standard Universal Cutters

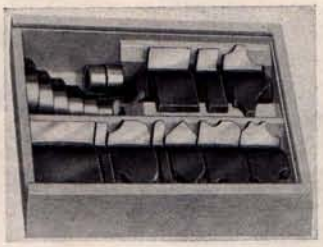
Literally hundreds of moulding shapes can be produced with the standard moulding-cutter shapes originally developed by us. They are now available in a high-grade three-lip shaper cutter, together with other shapes that further add to their convenience and utility.

Made of chrome-vanadium steel and hardened in oil, these cutters can be re-sharpened again and again merely by grinding across the faces of the cutting lips. Since they have involute relief, the sharpening does not change their shape, and the relief permits a true shaving cut while leaving a strong, well-supported edge on the cutter.

Collars for use with these cutters are **ground** to size, not merely rough-turned, so that they run perfectly true and will not score the work.







List of Standard Cutters and Collars

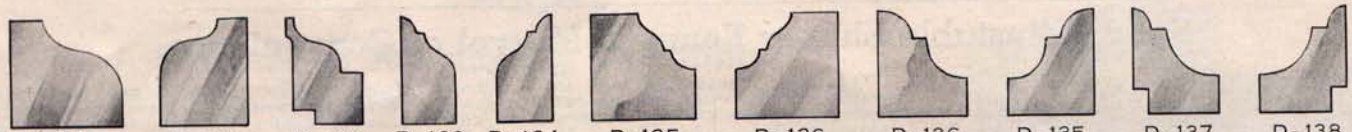
D-100.	Cutter as shown	$1.10	
D-101	Cutter as shown	1.10	
D-102	Cutter as shown	1.10	
D-103	Cutter as shown	1.10	
D-104	Straight cutter, 1" wide	1.10	
D-105	Straight cut'r, 1½" wide	1.50	
D-106	45-deg. cutter	1.10	
D-107	Straight cut'r, ½" wide.	1.10	
D-108	Straight cut'r, ¼" wide.	.85	
D-109	Round-nose, ¼" wide	.85	
D-142	⅜" Spacing collar	.15	
D-143	⅞" Spacing collar	.15	
D-144	1" Spacing collar	.15	
D-145	1⅛" Spacing collar	.15	
D-146	1¼" Spacing collar	.15	
D-147	1⅜" Spacing collar	.20	
D-148	1½" Spacing collar	.20	
D-149	1¾" Spacing collar	.20	
D-152	Wood box with slide lid.	.35	

Note: Above collars ⅜" thick. Approx. Ship. Wt., collars & cutters, 5 oz. ea.

D-131 Glue joint cutter ..... each $1.35
(Not included in above set)

No. 1182 Set of Standard Shaper Cutters, consisting of one each cutters No. D-100, D-101, D-102, D-103, D-104, D-105, D-106, D-107, D-108, D-109 and Spacing Collars D-142 to D-149 inclusive, packed in neat slide-top wood box..... **$11.90**
Shipping Weight 3½ lbs. Code Word SHACU.

Sash and Cabinet Cutters Offer New Possibilities for Pleasure and Profit



Above is shown special sash cutter D-128, with stub spindle, making cope cut on sash rail.

Here is a cutter development that offers unusual possibilities, not only for the man who likes to turn his home shop to the making of things useful as well as ornamental, but for the professional shop as well. With these cutters all the difficult cope and reverse mould shapes used on regular professional sash and cabinet work can be accomplished with ease.

With these, the owner of the No. 1180 shaper or any other shaper having a ½" spindle to which they can be adapted, is practically independent of the mill. He can make his own sash mouldings, door mouldings, doors for buildings or cabinet work, cabinet mouldings of all kinds, and all types of building trim, such as brick moulds, base moulds, back bands, etc., straight or circular. There is practically no limit to the amount of mill work he can do with both sets of cutters on hand. Sash cutters are designed for sash using 1⅛" to 1¾" stock. They can be used for many other purposes besides those briefly mentioned above.

Making a combination rabbet and ogee cut on sash stock, using a spacing collar between cutters.

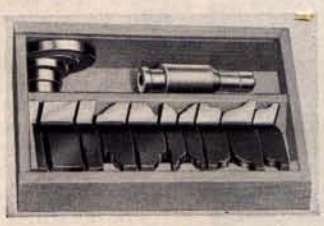
Sash and Cabinet Cutters and Collars

D-120	Ogee cutter	$1.10	
D-121	Female sash cutter	1.10	
D-128	Male sash cutter (cope).	1.10	
D-123	Cabinet cut'r, r. h. male	1.10	
D-124	Cabinet cut'r, l. h. male	1.10	
D-125	Cabinet cut., r. h. female	1.10	
D-126	Cabinet cut., l. h. female	1.10	
D-127	⅜"x1 1/32" straight cut...	.85	
D-129	⅜"x2 7/32" straight cut...	.85	
D-130	Str. sash cut., ¾" wide.	1.10	
D-132	⅜"x1 5/32" collar	.15	
D-134	¼"x1 5/32" collar	.15	
D-135	Cove & bead, l. h. cut'r.	$1.10	
D-136	Cove & bead, r. h. cut'r..	1.10	
D-137	Cove & bead, r.h. cope cut.	1.10	
D-138	Cove & bead, l.h. cope cut.	1.10	
D-139	¼"x2 7/32" straight cut....	.85	
D-140	⅛"x1 5/16" Spacing collar.	.15	
D-141	⅜"x1 5/16" Spacing collar.	.15	
D-150	5/16"x1⅜" Spacing collar.	.20	
D-151	¼"x1⅞" Spacing collar.	.20	
D-154	Wood box with slide cov.	.35	
1190	Stub spindle, with Screw and Allen wrench.....	1.15	

No. 1184 Set of Sash and Cabinet cutters, consisting of D-108, D-120 and 121, D-123 to D-128 inclusive, D-130 Plain cutter, Spacing Collars D-140, D-141, D-150 and D-151, with No. 1190 Stub spindle and wrench, packed in neat slide-top wood box..... **$11.90**
Shipping Weight 3 lbs. Code Word SHACB.

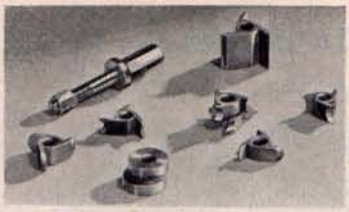
Cove-and-Bead Cutters

At the request of many users, we have added a set of cutters for the popular cove-and-bead moulding on sash, doors, etc. The cutters for the straight mouldings are D-135 and 136, shown above, and the right and left-hand cope cutters are D-137 and 138. Prices of individual cutters, together with the D-139 straight cutter and D-132 and 132 collars, required for sash work, are shown in table at left. Price of complete set shown below.



No. 1178 Set of cove-and-bead cutters, consisting of cutters D-129, D-135 to 139 inclusive, D-132 and D-134 spacing collars. With stub spindle..... **$7.55**
Shipping Weight 2 lbs. Code Word SHAPY.

Small Shaper and Drill Press Cutters



These shaper cutters are precision products, made of high-grade chrome-vanadium steel, hardened throughout in oil, accurately formed and relieved. They are available either singly or in sets of 24, with collars and adapter, as illustrated at right.

Like the larger ½" hole cutters intended for use on the shaper only, these $\frac{5}{16}$" hole cutters—designed for use on shaper or drill press, are made of chrome-vanadium steel, which combines toughness with deep-hardening qualities. They are hardened and tempered in oil like all fine tools, so that they will not only stand up in service, but so that they can be re-sharpened without loss of cutting qualities. Cutters made of common machine steel may look like these, but they will not stand up, and, since they are merely case-hardened, they cannot be re-sharpened without ruining them.

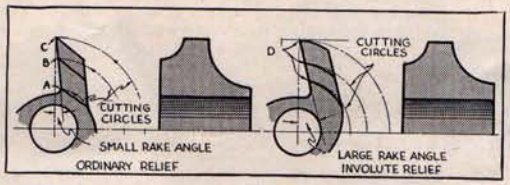
One of the greatest advantages of our cutter design is the involute relief of the cutting edge, shown in the diagram below. While this requires special machinery to produce, it is important because it insures adequate clearance at the cutting edge, without at the same time weakening the edge as ordinary straight grinding does. The larger rake angle of our cutters also gives the cut more of a true shearing action, instead of a scraping one.

5/16" Cutters—Sizes and Shapes

	No.	Diam.	Width	Radius
D1 - D4	D-1	.950	.177	.125
	D-2	.950	.264	.187
	D-3	.950	.354	.250
	D-4	.950	.442	.312
D10 - D13	D-10	1.02	.177	.125
	D-11	1.06	.264	.187
	D-12	1.09	.354	.250
	D-13	1.13	.442	.312
D20 - D21	D-20	.994	.221	.125
	D-21	1.03	.442	.250
D30 - D31	D-30	1.18	.282	.125
	D-31	1.24	.344	.156
D40 - D41	D-40	1.09	.303	093
	D-41	1.16	.388	.125
D50 - D51	D-50	1.13	.194	.093
	D-51	1.20	.260	.125
D60 - D63	D-60	.950	.125	
	D-61	.950	.156	
	D-62	.950	.187	
	D-63	.950	.250	
D70 - D-71	D-70	1.12	.177	
	D-71	1.21	.282	
D-80	D-80	1.25	.442	1/16-3/8

All Cutters listed above ($\frac{5}{16}$" hole)..... **$ .60**

D-69 Blank Cutter, similar to above, 1½" diam. 1" wide. Each. **$ .85**



In the ordinary cutter, shown at left, points B & C must be left weak, to get adequate clearance at A. Note the small rake angle in this cutter. Notice how the involute relief of our cutters provides strong cutting edges at D, and the large rake angle which makes the edges cut instead of scraping.

No. 978 Adapter for $\frac{5}{16}$" hole cutters. Fits No 974 drill-press spindle. Each ..... **$ .90**
Ship. Wt. 8 oz. Code Word NESSA.

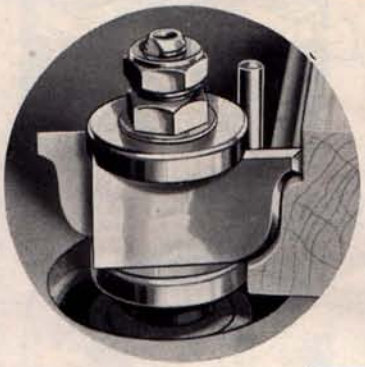
No. 979 Set of six depth collars, $\frac{5}{16}$" hole ..... **$ .75**
Ship. Wt. 8 oz. Code Word NESDC.

No. 980 Complete Set of Cutters listed above, including D-69, 24 cutters, $\frac{5}{16}$" hole, with No. 978 adapter and No. 979 collars, packed in wood box **$15.95**
Ship. Wt. 2 lbs. Code Word NESSC.

NEW Safety Cutter Head and Blank Knives Increase Shaper Range

Special mouldings that cannot be made with the standard shaper cutters, special cope cuts—all the work that the experienced shaper operator wants to do can be done with the No. 1192 Cutter Head and blank knives. The head is an innovation. It is accurately machined so as to eliminate vibration; grooves are carefully milled to close tolerances to insure both knives being clamped with the same pressure and a spherical equalizing washer is used under the head. When a setup has been made, it can be kept for future use, as the whole head may be removed from the machine. Head is bored for ½" spindle only.

Blank knives are 2½" long, self-hardening and sandblasted so that cutter design may be drawn directly on them.



No. 1192 Safety Cutter Head for blank beveled knives, with tightening block, but no knives. For ½" spindle only **$3.95**
Ship. Wt. 1½ lbs. Code Word SHAPB.

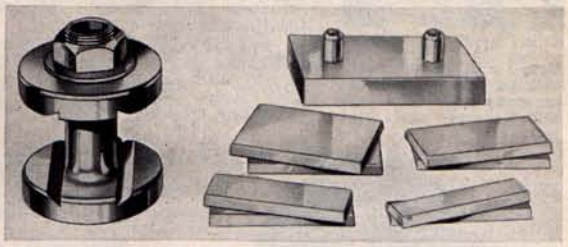
No. 1193 ½" wide blank knives, set of two. Code SHAPC.... **2.30**

No. 1194 ¾" wide blank knives, set of two. Code SHAPD.... **2.30**

No. 1195 1" wide blank knives, set of two. Code SHAPE.... **2.30**

No. 1196 1½" wide blank knives, set of two. Code SHAPF.... **3.00**

Average shipping weight per set 6 oz.

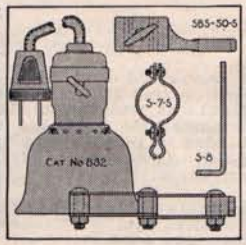


Versatile Lamp Attachment Has Many Uses

To bring light to your work just where it is needed, in volume enough for accuracy in following layouts, yet not bright enough to glare, there is nothing quite the equal of the No. 882 lamp attachment. Swung on the built-in brackets on drill press, band saw, scroll saw or other machine, it brings the light just where it is needed, yet can be swung out of the way at a touch of the finger. It furnishes every machine with its own individual illumination, and makes it independent of the shop lighting system.

It can be used as a workbench light, and provided with additional links to place it wherever wanted over a wide bench. It can be used as a sewing-machine light, as an illuminant for laboratory instruments and for many other purposes.

While most of our machines have cast-in brackets for the attachment, a neat bracket supplied with it enables it to be attached to practically any machine. Brackets are available as below to adapt it to older drill presses and band saws. Heavy, solid shade will not overheat, and the 25-watt lamps used provide plenty of light at low cost.



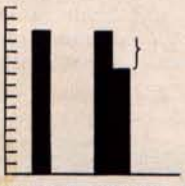
No. 882	Lamp attachment, with shade, socket and cord, four flat links, three bolts, spacer and attachment bracket Shipping Weight 1½ lbs. Code Word LAMPA.	**$1.60**
S-3-S	Extra support links, with spacer, screw and nut, per pair	**.15**
S-7-S	Lamp Attachment Clamp for 700 scroll saw, each....	**.20**
S-8	Lamp Attachment Bracket for 970 drill press, each.	**.15**
SBS-50-S	Lamp Attachment Bracket for 785 and 385 band saws, each	**.35**

Here Are Some of the Reasons Why

Our Modern High-Speed Scroll Saws Give You Better Performance . . . Longer Life . . . Faster Output

What Do You Want in Your Scroll Saw?

Experienced scroll-saw users know that there are several features essential in a scroll saw. It must be capable of using all types of blades efficiently. It must operate with minimum blade breakage. It must operate with minimum vibration at all speeds, and it must have a selection of speeds to suit various types of work. Only by purchasing a machine that offers ALL these features can you obtain full satisfaction. When selecting your scroll saw, ask yourself these questions:

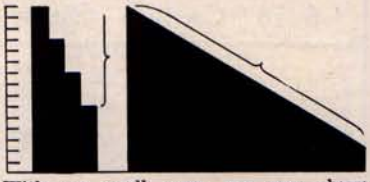


Some scroll saws offer you only one speed. Some have only two speeds of very limited range.

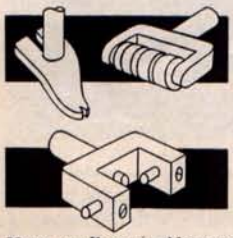
A Wide Range of Speeds—or Only One or Two?

Some scroll saws can be operated at only one speed. Some have only two. From our wide experience as the originators of the modern type of high-speed scroll saw, we know that it is not possible to get proper efficiency in cutting a wide range of materials, using a wide variety of blades, with only one or two speeds. If only one or two speeds are available, they must be a compromise between the correct speed for fine, delicate work and the correct speed for heavy work. And compromises are not good enough.

In our scroll saw, you can have your choice of either four well-selected speeds, suitable for a wide variety of work, or a drive that gives you ANY speed from 650 to 1700 r.p.m. You can select the speed you **need;** not a speed that "will have to do."



With our scroll saws, you may choose either four well-selected speeds or an infinitely variable range of speeds that will enable you to cut any material with maximum efficiency.



Many scroll-saw guides are elementary in design and suitable for only one blade. Others, which accommodate more blades, are clumsy and awkward to adjust.

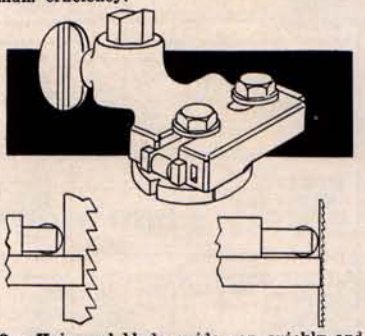
Others, while more effective than the first two, can take only a few sizes of blades with proper efficiency and are not completely adjustable.

Elementary, Limited Guides—or Guides that Are Efficiently Adjustable?

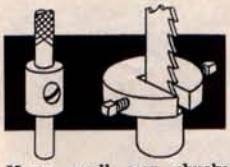
Some scroll saws are furnished with a guide that we regard as suitable only for one size of blade. Some are equipped with guides that are awkward to adjust and hard on blades. Some have roller guides which will take only a few sizes of blades efficiently.

Our patented Universal guides are the only guides we know of which will take all commercial sizes of blades and guide them properly and efficiently. This because the principle is entirely different from any other. You select a slot in the hardened-steel disk which is of the correct width for the blade—set it easily and quickly to the bottom of the blade teeth, (NOT to the bottom of the slot) then set the roller support to back it up. That is all there is to it—but the blade is guided properly and efficiently, as it can be in no other way. And the roller support is especially designed for high-speed reversing, so that it actually rolls, and does not drag on the blade.

You can use any blade in this guide, from the heaviest saber blade we list to the finest marquetry blade and adjust the guide to get the best work out of the blade.



Our Universal blade guide can quickly and easily be set to take any scroll-saw blade, set to exactly the correct tooth depth and properly supported by a high-speed roller.

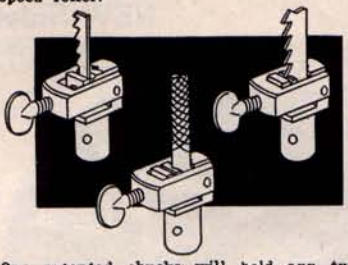


Many scroll saw chucks will not take saber blades or round-shank files. To hold these you must have extra chucks.

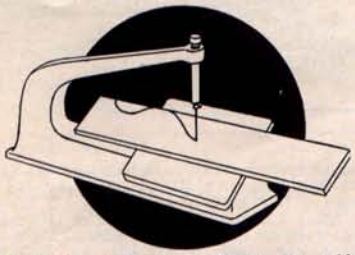
Chucks that Require "Extras"—or Chucks that Are Completely Universal

Many scroll-saw chucks or vises will hold only one type of blade—a jeweler's blade. If you want to use saber blades you must use an extra chuck, first removing the standard one. On many saws, you must use still another extra chuck if you want to use round-shank files or sanding attachments in the machine.

The patented chucks in our machine are completely universal. They will take jewelers' blades, pin blades, saber blades, round-shank files up to ¼" and any other tool with ¼" shank—without any "extras". And they hold saber blades in the only efficient manner—between V-jaws gripping the edges of the blade; not the flat.



Our patented chucks will hold any type of blade, as well as files and round-shank tools, without extras.

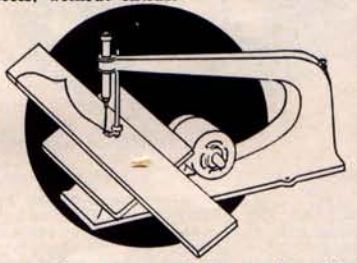


On many scroll saws where the table tilts only to right or left, long work cannot be bevel cut because it will strike the rear of the machine.

A Machine that Will Bevel-Cut Only Short Lengths—or One that Is Unlimited?

Most scroll saws have tilting tables—but what the prospective purchaser does not always realize is that the ordinary tilting table has one limitation. The table tilts to right or left as you face the machine, which means that if you want to rip or cut a piece of stock at an angle, you can feed the stock through the saw only until it strikes the saw overarm.

On our scroll saw, the table not only tilts normally to right or left, but, if you want to make a long cut on a bevel, you merely rotate the table bracket through 90 degrees, turn the chucks so that the blade cuts sidewise, and go ahead with your cut—because the table now tilts to the front, where there is no limit to the length of stock that can be cut.



The table on our scroll saw can be rotated and tilted to the front, so that work of any length can be bevel cut when required. Chucks are quickly turned for sidewise cutting.

Make These Comparisons Yourself . . . . . .

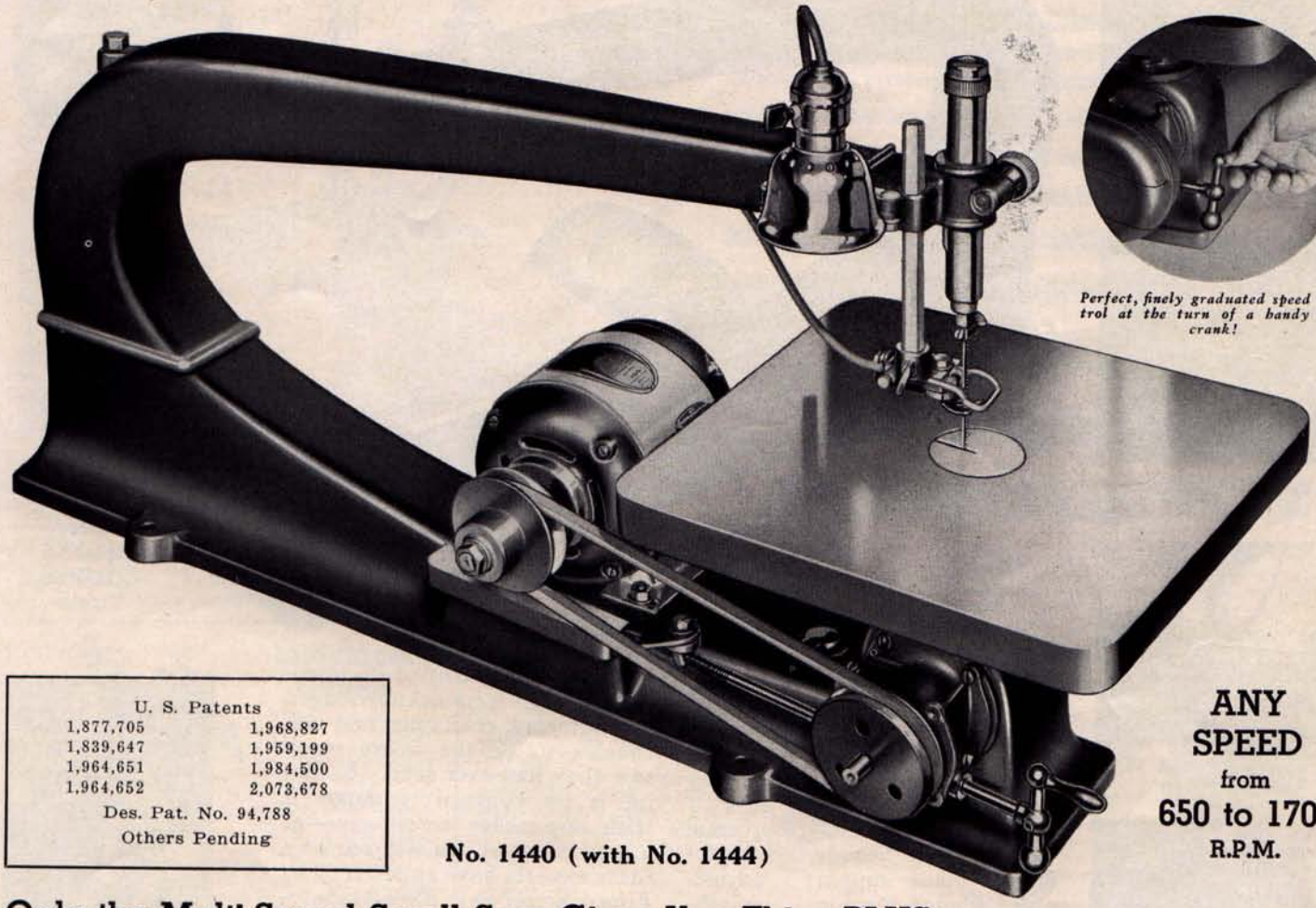
There are many other features in our scroll saws that insure you of longer life, better performance, more convenience and faster output. Our scroll saws are equipped with Timken tapered-roller bearings, automatically lubricated from the splash system in the crankcase. Many other machines that **look** like ours have only plain bronze bearings. Our scroll saws are equipped with a continuous-flow air pump with intake and outlet valves, built into the crankcase and driven directly from the crankshaft. It is NOT built into the upper plunger, because when this is done, your fine, delicate blades must act as connecting rods to drive the pump, imposing an additional strain on them. In addition, a pump built into the upper plunger cannot be used for saber-blade work.

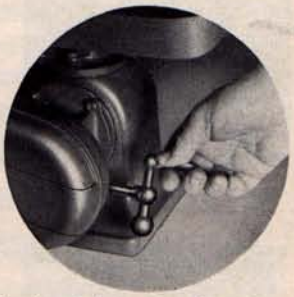
The spring hold-down on our guide tilts with the table so that it is effective on bevel cuts as well as on straight cuts—a feature missing in many other machines. The upper guide is removed in a flash for inserting blades in pierced work, and is automatically re-set as soon as replaced. The tension adjustment for the blades is fast and simple in action, with no complicated gadgets.....and so on.

Compare all these things, point by point, with any other machine, and you will realize just why these scroll saws offer you so much more value than any other.

NEW! De-Luxe Multi-Speed Scroll Saw

A Thousand Speeds at a Touch of Your Finger!





Perfect, finely graduated speed control at the turn of a handy ball crank!

U. S. Patents

1,877,705	1,968,827
1,839,647	1,959,199
1,964,651	1,984,500
1,964,652	2,073,678

Des. Pat. No. 94,788

Others Pending

No. 1440 (with No. 1444)

ANY SPEED from 650 to 1700 R.P.M.

Only the Multi-Speed Scroll Saw Gives You This—PLUS All the Advantages of the Original High-Speed Scroll Saw!

Now—for the first time—you can have all the advantages of the modern high-speed scroll saw made by the makers of the original high-speed, high-capacity 24" scroll saw, together with **perfected** control of speed! Here are combined in one machine all the points that have made our scroll saws the best of their kind —PLUS modern, up-to-the-minute efficiency in speed selection!

No. 1440 "Multi-Speed" Scroll Saw, with one saber blade 3 jewelers' blades, puzzle jaw for upper chuck and light attachment. Without arbor pulley. Without motor, motor pulley, belt or belt guard. **$28.80**
Shipping Weight 116 lbs. Code Word MULTA.

No. 1444 Standard accessory group for Multi-Speed Scroll Saw, consisting of:

No. 1446 Variable-speed motor pulley, pulley only, ½" bore **3.75**
Shipping Weight 2 lbs. Code Word MULTH.

No. 1447 Motor base, with bracket, screw and handle **3.50**
Shipping Weight 10 lbs. Code Word MULTI.

No. 331 Special V-belt for variable-speed pulleys only ..... **.80**
Shipping Weight 8 oz. Code Word MULTG.

No. 1443 Special arbor pulley for scroll saw, ½" bore **1.00**
Shipping Weight 1 lb. Code Word MULTD.

Price of No. 1444 group complete..... **$9.05**
Shipping Weight 14 lbs. Code Word MULTE.

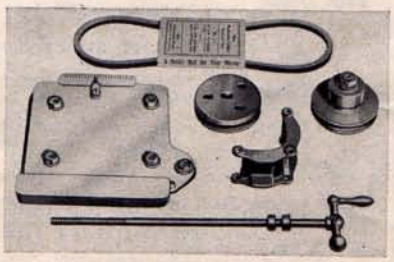
No. 1445 24" Multi-Speed Scroll Saw Unit, consisting of No. 1440 Scroll Saw. No. 1444 accessory group and No. 716 steel stand with hook bolts. Without motor or belt guard **$46.50**
Shipping Weight 182 lbs. Code Word MULTF.

No. 1442 Belt and pulley guard for No. 1440 Scroll Saw only ..... **$ 5.90**
Shipping Weight 7 lbs. Code Word MULTC.

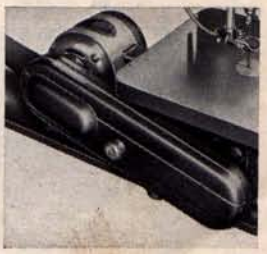
Here is Why You Need These Speeds

A two-speed scroll saw not only fails to give you fast enough speeds for fast, fine cutting, and speeds low enough for many jobs, but also has a very limited speed range. A four-speed scroll saw, while the range of speeds is wider, does not enable the most efficient speed to be selected for many materials. With the new Multi-Speed Scroll Saw, you can select ANY speed from 650 to 1700 r.p.m. controlling the speed within 1 or 2 r.p.m. if necessary. High speed for fast, fine work—low speed for heavy work—and ANY speed in between!

Note: No. 6000 (old No. 1100) motor recommended for this saw.

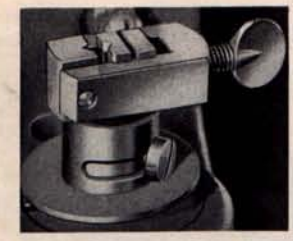


No. 1444 Standard accessory group for Multi-Speed Saw model.

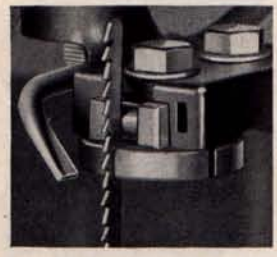


No. 1442 belt-pulley guard for Multi-Speed Scroll Saw.

Designed for Fast, Accurate Work

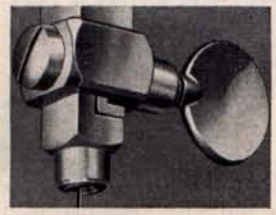


Lower chuck of steel. Light but strong and holding all blades.



Highly efficient disk blade guide and roller support.

Work up to 2" thick may be cut on this saw.

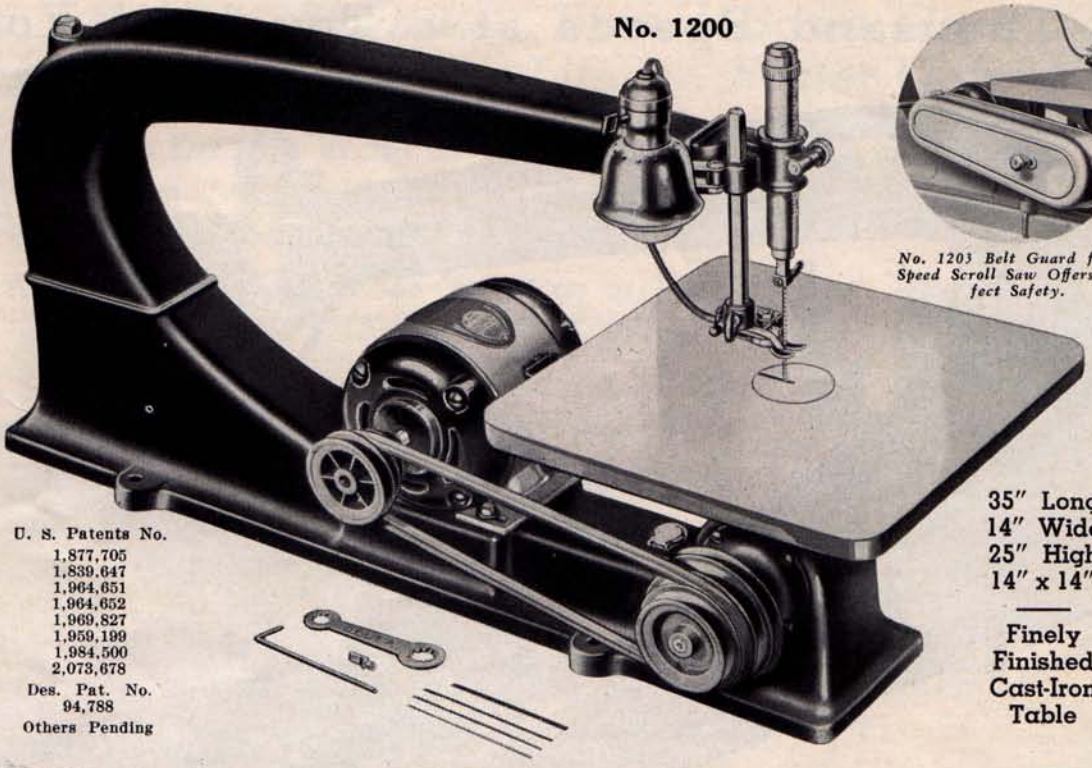


Where very fine blades are used constantly, the self-centering chuck jaw is used.

Tension of spring can be adjusted to suit blade, and graduations on tube and adjustment.

The spring hold-down functions even when the table is titled; an important feature.

No. 1200



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1,964,652
1,969,827
1,959,199
1,984,500
2,073,678
Des. Pat. No. 94,788
Others Pending

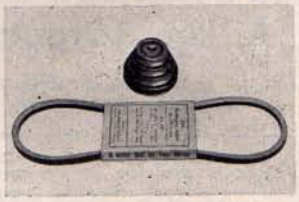
No. 1203 Belt Guard for 4-Speed Scroll Saw Offers Perfect Safety.

35" Long
14" Wide
25" High
14" x 14"

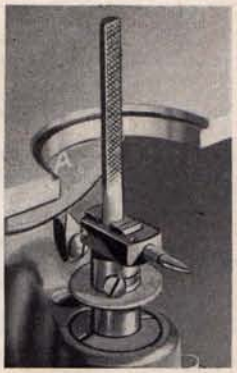
Finely Finished Cast-Iron Table

Timken-bearing crankshaft . . shaft-driven blower pump which makes air available even for saber blades . . universal tilting table tilting for sidewise cutting as well as for straight cuts . . the finest completely universal blade guide made . . high-speed blade support . . adjustable blade tension . . splash-lubricated drive . . tilting spring hold-down . . these are only a few of the things that make our 24" scroll saws the finest tools of their type ever offered to the craftsman.

From the moment of its introduction, this was acknowledged by engineers, craftsmen and mechanics to be the finest scroll saw they had ever seen. Examine it for yourself; compare it with any other scroll saw—at any price—and you will see why these experts have called it "The Finest Scroll Saw Ever Made".



Above: section through pump. Right: No. 1207 accessory group.



Files, also, are held in the V-jaws of the lower chuck.

No. 1200 24" 4-Speed Scroll Saw, with one saber blade, 3 jewelers' blades, four speed cone pulley on arbor, puzzle-blade jaw and light attachment. Without motor, motor pulley or belt **$29.90**
Shipping Weight 117 Lbs. Code Word LUXSA.

No. 1207 Standard accessory group for 4-Speed Scroll Saw, consisting of:

No. 718 Cone pulley for motor, ½" bore; provides speeds of 650, 1000, 1300 and 1750 r.p.m..... **$ .75**
Shipping Weight 18 oz. Code Word CONPA.

No. 340 V-belt (13" cent. to cent.)..... **$ .80**
Shipping Weight 8 oz. Code Word BELUX.

Price of No. 1207 group complete..... **$ 1.55**
Shipping Weight 1¾ Lbs. Code Word LUXAC.

No. 716 Steel Stand (Top 7"x33"; 31½" high)..... **$ 8.25**
Shipping Weight 50 Lbs. Code Word LASAS.

No. 1206 4-Speed Scroll Saw Unit, consisting of No. 1200 Scroll Saw, No. 1207 accessory group, No. 716 steel stand with hook bolts. Without motor or belt guard.... **$40.10**
Shipping Weight 170 Lbs. Code Word LUXUN.

No. 1203 Belt and pulley guard for No. 1200 4-speed Scroll Saw ..... **$ 6.85**
Shipping Weight 7 Lbs. Code Word LUXBG.

For either of these models, use Motor No. 800 or 1100, or No. 920 for three phase installation.

No. 1206 4-Speed Scroll Saw unit. A similar Multi-Speed unit is available.

Accessories for the Scroll Saw

Jeweler's and Puzzle Blades

These blades are the finest obtainable: 5" long and accurately spaced, hardened, set and carefully tempered. Nos. 70028, 10025 and 10035 are especially made for jig saw puzzle work. The other blades can be used in wood, metal and many other materials. For cutting thin metal, use No. 20125-20J and No. 28250-20J. Gross price applies only to lots of 1 gross or more of each kind.

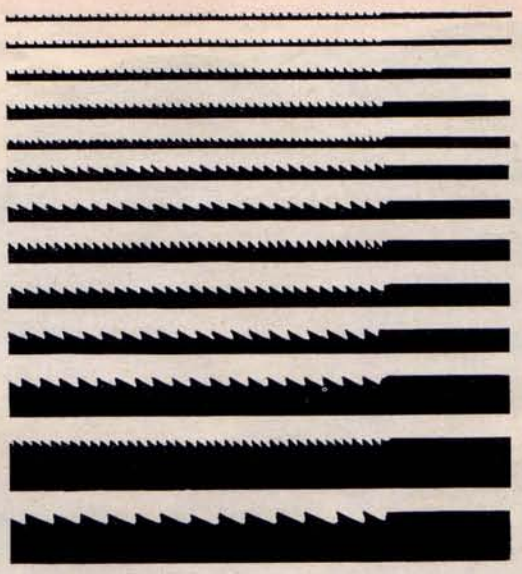
No. of Blade	Thickness & Width	No. Teeth per inch	Code Word	Price per Doz.	Price per Gross
No. 70028-21J	.007" x .028"	21	JIGSD	$0.40	$3.00
No. 10025-21J	.010" x .025"	21	JIGSB	.40	3.00
No. 10035-21J	.010" x .035"	21	JIGSC	.40	3.00
No. 16054-30J	.016" x .054"	30	JEWBA	.40	3.00
No. 16054-21J	.016" x .054"	21	JEWBL	.40	3.00
No. 20072-15J	.020" x .072"	15	JEWBB	.40	3.00
No. 20085-12J	.020" x .085"	12	JEWBC	.40	3.00
No. 20125-20J	.020" x .125"	20	JEWBD	.50	4.00
No. 20125-15J	.020" x .125"	15	JEWBE	.50	4.00
No. 20125-10J	.020" x .125"	10	JEWBF	.50	4.00
No. 28187-10J	.028" x .187"	10	JEWBG	.90	10.60
No. 28250-20J	.028" x .250"	20	JEWBH	1.00	11.25
No. 28250-7J	.028" x .250"	7	JEWBK	1.00	11.25

Approximate Weight 2 oz. per package.

Sabre Blades for Wood

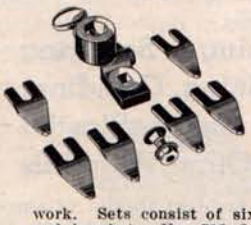
No. of Blade	Thickness & Width	No. Teeth per inch	Code Word	Price per ½ Doz.
No. 703	.025" x .187"	9 per inch	SABLA	$0.75
No. 704	.035" x .250"	7 per inch	SABLB	.75

Shipping Weight per package of six approximately 5 oz.



Close to 80 per cent of all scroll saw work, except the finer work in wood and metal, can be done with sabre blades, due to the fact that the free end is properly backed up and supported close to the point where the cutting strain takes place. Made of the best steel, accurately hardened and set. These blades are 4½" long over all.

Individual Guides



These guides supplement the regular guide and hold-down, and are used where close following of a line or pattern is important. Ideal for puzzle and marquetry work. Sets consist of six hardened-steel guides and bracket. No. 712 fits No. 700 scroll saw. No. 1202 fits No. 1200 and 1440 scroll saws.

No. 712 Set of 6 guides, with blower-nozzle bracket.... **$1.35**
Shipping Weight 15 oz. Code Word SAGID.

No. 1202 Set of 6 guides and bracket **1.55**
Shipping Weight 18 oz. Code Word LUXGA.

Self-Centering Chuck

Fits lower plunger of all our scroll saws. A boon to craftsmen who specialize in puzzle and marquetry work. Fine blades are automatically guided to center of chuck and locked securely with thumb screw, saving much time on interior cuts.

No. 715 Self-centering lower jaw for No. 700, 1200 and 1440 scroll saws **$0.75**
Shipping Weight 5 oz. Code Word LACHU.

Lower Saber-Blade Guide

Supports saber blade directly beneath table. Enables perfect straight-line work to be done, when used in conjunction with the upper guide, as blade is supported above and below table.

No. 1204 The Lower Guide for No. 1200 and 1440 scroll saws, with post, nut and thumb-screw..... **$0.85**
Shipping Weight 10 oz.
Code Word LUXLS.

Machine Files for Scroll Saws

No. 726 (Square). ¼" Shank. Code FILEA. Each ..... **.60**

No. 727 (Crochet, ¼" Shank. Code FILEB. Each ..... **.60**

No. 728 (½-Rd.). ¼" Shank. Code FILEC. Each ..... **.60**

No. 729 (Round). ¼" Shank. Code FILED. Each ..... **.60**

No. 730 (3-Sq.). ¼" Shank. Code FILEE. Each ..... **.60**

No. 731 (Pillar). ¼" Shank. Code FILEF. Each ..... **.60**

Approximate Shipping Weight 4 oz.

No. 740 Set of 6 Assorted Files, ¼" Shank **$3.30**
Shipping Weight 8 oz. Code Word FILEX.

No. 751 (⅛" Sq.) Code SAFIL. Ea. **.50**

No. 752 (Crochet). Code SAFIM. Ea. **.50**

No. 753 (½ Round). Code SAFIN. Ea. **.50**

No. 754 (Round). Code SAFIO. Ea. **.50**

No. 755 (3-Square). Code SAFIP. Ea. **.50**

No. 756 (Pillar). Code SAFIR. Ea. **.50**

No. 757 (Lozenge). Code SAFIS. Ea. **.50**

No. 758 (Knife). Code SAFIT. Ea. **.50**

Approximate Shipping Weight 3 oz.

No. 760 Set of 8 Assorted ⅛" Shank Files **$3.65**
Shipping Weight 6 oz. Code Word SAFIV.

Unique Sanding Attachment

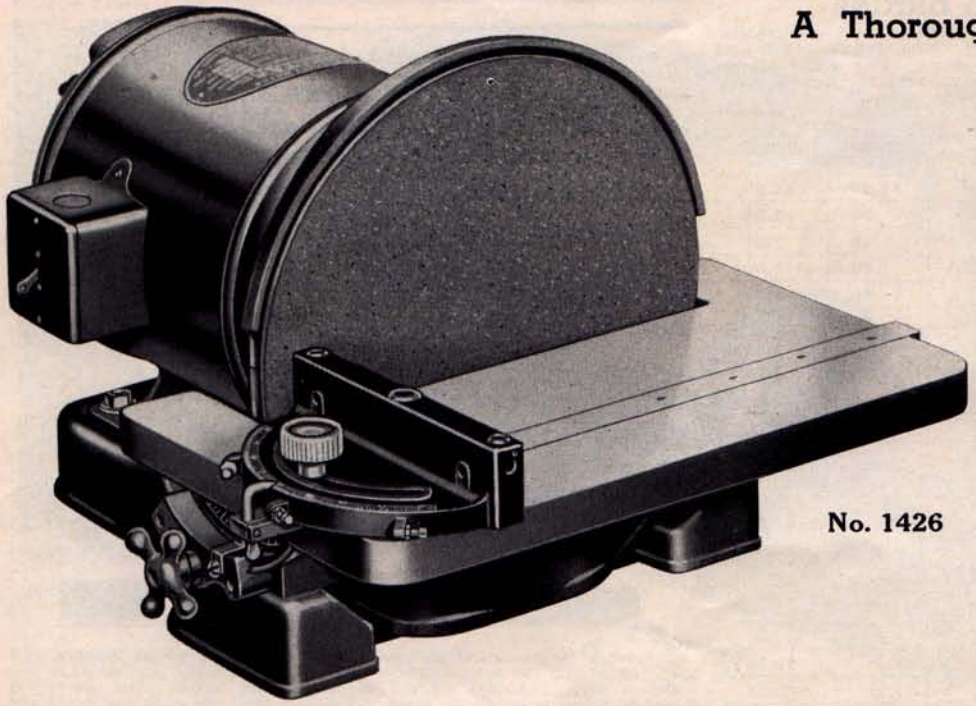
Built to sand both concave, convex or flat surfaces, this attachment saves hours of hand labor. It does away with the annoyance of makeshift devices using pieces of sandpaper. Knurled knob expands body of attachment, and tightens garnet sleeve securely. ⅛" wide, ½" thick and 2½" long on body. Shank ¼" diameter, fits lower chuck on both No. 700 and 1200 scroll saws.

No. 711 Sanding Attachment fits 24" Scroll Saw with 1 Sleeve **$1.35**
Shipping Weight 8 oz.
Code Word SANAT.

No. 841 Extra Garnet paper sleeves (medium). Code word SASLK.
½ doz. ..... **.60**
Shipping Weight 6 oz. approx.

No. 842 Extra Garnet Paper Sleeves (Fine) Code word SASLM.
½ doz. ..... **.60**
Shipping Weight 8 oz. approx.

NEW 12" Ball-Bearing Disk Sanders



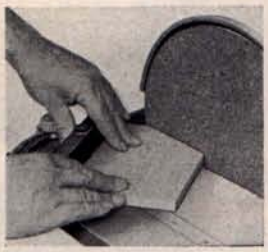
No. 1426

A Thoroughly Engineered Machine for High-Grade Work

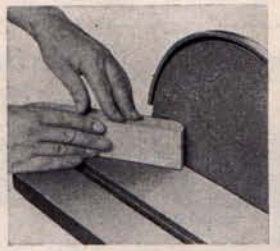
Designed to meet every requirement for accurate sanding, this new Disk Sander is not just another sander, but a high-grade machine tool for equally high-grade work. From its completely machined, true-running 12" disk to its large-surface table and its husky spindle, carried on self-sealed ball bearings, it is designed for long life, low power consumption and accurate, dependable results.

The direct-motor-drive model can be used with any of our standard ½-H.P. motors in 8½" frame. The disk in this model fits directly onto the end of the motor shaft, and makes the unit completely self-contained. The belt-drive model makes it possible to use any available motor; to use motors built for odd voltages or frequencies, or to vary the speed to suit individual jobs.

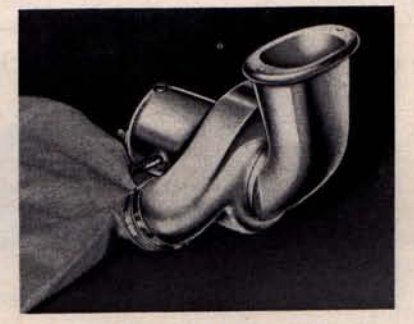
Disk is specially machined to insure proper adhesion of abrasive disks, and the use of "Distic" for applying disks adds the last touch of convenience to the machine. There is no need for messy gluing of disks, no removal of the disk from the machine, no waiting overnight for the new abrasive disk to dry. Abrasive disks can be renewed every few minutes if the operation makes it necessary.



Plain and compound miters are easily sanded with the aid of the miter gage.



Accurate work to layout lines accomplished with ease on this precision machine.



For Finishing, Squaring Mitering, Fitting, Grinding; On Wood, Metal, Plastics and Many Other Materials

From the pattern shop to the production line in the plant, this machine is adaptable to a very wide variety of operations. In addition to its usefulness for accurate sanding, it can be used for finning and finishing plastics, bone, celluloid and similar materials; it is used for light grinding and finishing in the metal shop, or for squaring, plain and compound miters, disk and curved-work finishing—for all work where accurate finishing to a line or layout is important.

Sawdust Blower Is Practical, Efficient

Owing to the efficient design of the housing in this sander, an exhaust blower for sawdust removal is really practical. No. 1429 blower applied to this sander makes it completely portable, independent of the shop blower system, and removes one of the drawbacks of the ordinary disk sander. The motor of this blower is of the universal type and will operate on 110 volts A. C. or D. C. Supplied only for 110-volt current.

Condensed Specifications

Overall dimensions: motor-drive model, 16¼" wide, 13½" high, 22¾" front to rear. Belt-drive model, 16¼" wide, 13½" high, 17" front to rear.

Table 9¾"x16¼". Polished surface, with ⅜"x¾" slot for No. 864 miter gage.

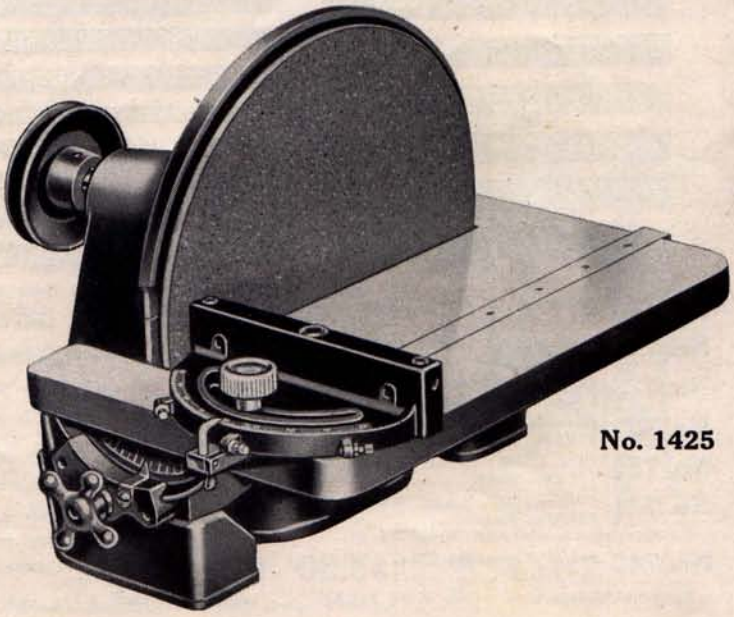
Table tilts 45 degrees for front. Carried on rigid, well-designed trunnions, with large, convenient trunnion-lock knobs. Tilt scale on front trunnion, with adjustable pointer.

12" disk, flat and true running, for accurate work. Specially machined to insure proper adhesion of abrasive disks.

Husky shaft for belt-drive machine carried on self-sealed ball bearings. No lubrication required for life of bearings.

Sawdust blower available, making machine adaptable for locations where usual disk-sander dust is objectionable.

No. 1425	Belt-Drive Disk Sander, with disk, drive shaft and 4" arbor pulley. Without miter gage..... Shipping Weight 75 Lbs. Code Word DISKO.	**$24.85**
No. 1426	Direct-motor drive Disk Sander, with disk, base and table. Without miter gage or motor..... Shipping Weight 60 Lbs. Code Word DISKP.	**18.85**
No. 1427	12" Garnet disks, medium grit. Packed in cartons of 6. Per package ..... Shipping Weight 3 Lbs. Code Word DISKR.	**1.40**
No. 1428	12" Aluminous-oxide disks for metal, medium grit. Per package of 6 ..... Shipping Weight 3 Lbs. Code Word DISKS.	**1.60**
No. 1429	Sawdust blower and adapter for No. 1425 sander. Complete with bag, adapter, switch, cord and plug. For 110 volt, A. C. or D. C. only..... Shipping Weight 15 Lbs. Code Word DISKT.	**29.90**
No. 149	"Distic" for applying disks, per stick..... Shipping Weight 1 lb. Code Word DISIC.	**.70**



No. 1425

6" Belt Sander Offers Unusual Value

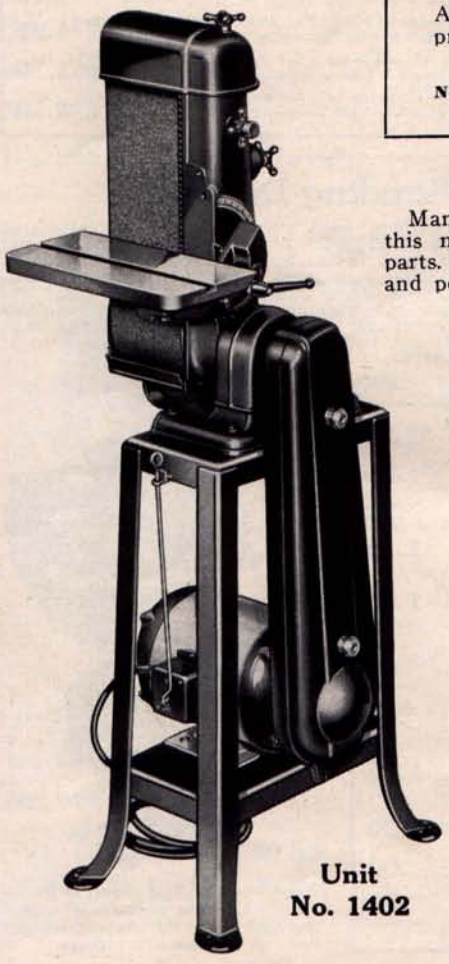
Here is a 6" belt-type sanding machine that is heavy and husky enough to do any of the dozens of sanding, polishing and finishing operations to be found around the average shop—amateur or industrial, and yet which is portable enough to be used just where it is wanted.

Every feature of its design has been studied to overcome the disadvantages usually found in machines of this type. The frame is heavy and substantial, the adjustments are convenient and positive in action, attachments are quickly installed or removed, it may be used either vertically or horizontally as required, it can be adapted for use on wood, metal, plastics and many other materials—it is the ideal type of small all-around finishing machine for the shop.

No. 1400

Used Vertically or Horizontally

This machine may be set horizontally, as shown in the photo at top of page, and equipped with a wood fence for edge or face sanding, if required. Or it may be used vertically, in connection with the 7½" x 14¾" tilting table as shown below, for a wide variety of operations in both wood and metal.



Unit No. 1402

Specifications

Overall dimensions: 28" long; 13" wide; 8½" high horizontal; 26¼" high vertical.

Completely ball-bearing equipped. Double-seal bearings, lubricated at the factory for life.

Completely enclosed and guarded in accordance with all safety requirements.

Exceptionally heavy main drive shaft, carrying large diameter drum (5½"). Large driving pulley to transmit power.

No rubber covering required on drums, thus eliminating one source of replacement expense.

Adjustable deflector on drum hood catches practically all sawdust. Hood is provided with suction spout.

Machine operates vertically as well as horizontally.

Cloth-backed belts, 6" wide by 48⅝" long. Aluminum-oxide belts for metal finishing.

Tilting table, 7½" by 14¾", with ⅜" by ¾" groove for miter gage, is available for use in vertical position.

Adjustable fence for edge sanding and adjustable back stop for flat sanding are available for use in horizontal position.

Welded steel stand available to make machine completely portable.

Belt Guard available to complete guarding of machine.

Note: No. 9100 (old No. 924) or No. 9400 (old No. 922) motors recommended for this machine. Use No. 851 switch rod.

Adapted for Many Industrial Finishing Operations

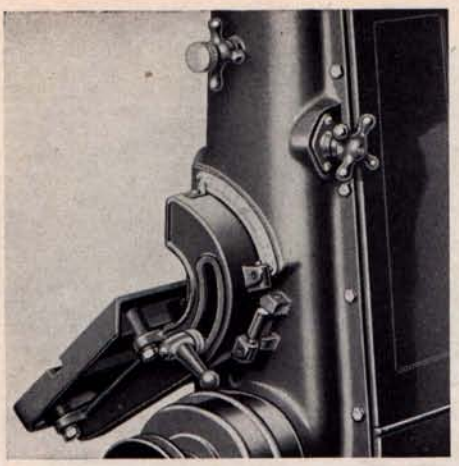
Many machine and manufacturing shops use this machine for polishing and sizing metal parts. Die-casters, also, use it as a finishing and polishing machine, with a great saving in power cost over larger machines. For finishing, finning and surfacing plastic parts, also, it has found wide acceptance. Adaptable for practically any small industrial finishing operation.

Completely Enclosed and Thoroughly Guarded

No more completely enclosed or thoroughly guarded sander is available, regardless of size or price. Only the portion of the sanding belt that is being used is open, the ends and bottom of the belt, as well as the drums, being completely covered. The guard covering the end drum may be removed in a moment, for use in finishing long materials, or for sanding curved work. This complete enclosure also increases the efficiency of the dust-removal system.

No. 1400	Belt Sander only, as shown above, but without fence, back stop or table. With one No. 80 grit lapless garnet belt. Without belt or motor pulley. Shipping Weight 110 Lbs. Code Word SANDA.	**$32.85**
No. 560	V-belt (56" inside circumference) Shipping Weight 1 Lb. Code Word EICVB.	**1.00**
No. 5500	5" diameter motor pulley, ¾" bore. Shipping Weight 1½ Lbs. Code Word PULOH.	**.75**
No. 1401	Tilting table for No. 1400 Sander. Shipping Weight 20 Lbs. Code Word SANDB.	**6.85**
No. 1403	Back Stop, complete with bracket. Shipping Weight 4 Lbs. Code Word SANDD.	**1.85**
No. 1410	Wood Fence (3¼" by 17½") with brackets. Shipping Weight 5 Lbs. Code Word SANDL.	**2.60**
No. 1406	Steel Stand (Top, 7⅞" by 15⅞" by 24¼" High). Shipping Weight 30 Lbs. Code Word SANST.	**6.50**
No. 1402	Belt-Sander Unit, consisting of No. 1400 Sander, No. 560 V-belt, No. 5500 5" V-Pulley ¾" bore, and No. 1406 Steel Stand. Without fence, backstop or table. Without motor, belt guard or switch rod. Shipping Weight 144 Lbs. Code Word SANDC.	**41.10**
No. 1411	Belt guard for Sander, complete with screws. Shipping Weight 35 Lbs. Code Word SANDM.	**8.95**

Sanding Belts, Drums and Accessories



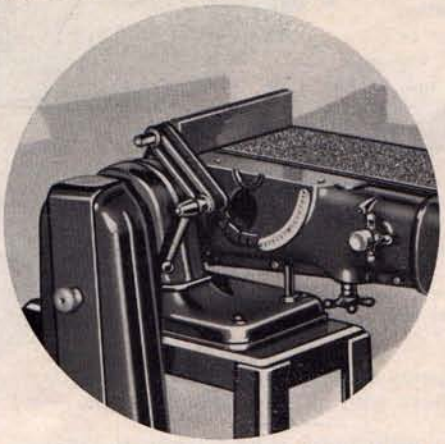
A close-up view of the heavy trunnion that carries the tilting table, showing the swinging stop link and adjustable stop screws. A tilting scale and adjustable pointer are also provided.

Sawdust Blower

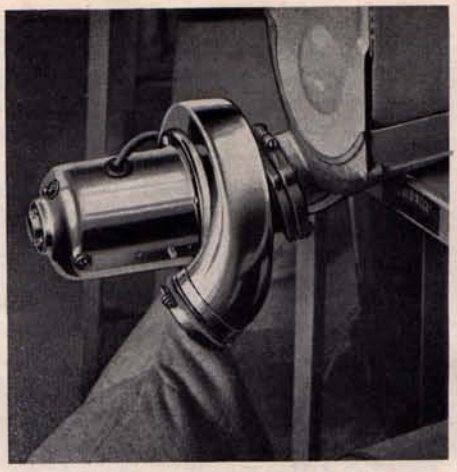
Due to the complete enclosure of the No. 1400 belt sander, an exhaust blower for the sawdust is really practical. By actual test, 90% of the sawdust made by the sander is drawn into the cloth bag. The motor of the No. 1420 blower is of the universal type, and will operate on either 110 volts A. C. or D. C. Note that it can be supplied for 110-volt current only. It is of special value for the production and school shop.

Ball-Bearing Equipped

The No. 1400 6" Belt Sander is completely ball-bearing equipped. And the bearings used are the New Departure double-seal ball bearings that have proved themselves through years of service in our machines. They are lubricated at the factory for their entire life and require no further attention.



View from rear, showing adjustable back stop and its bracket. This is available for use in sanding flat work, to prevent it from being carried along with the belt.



The No. 1420 exhaust blower attached to the discharge spout of the belt sander. With this attachment 90% of the dust created is discharged into the bag instead of into the air.

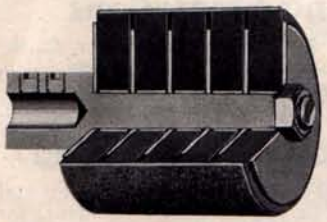
No. 1420 Exhaust Blower for No. 1400 Belt Sander, complete with mounting adapter, cloth bag, built-in switch, cord, and plug. For 110 v. A. C. or D. C. only..... **$29.50**
Ship. weight 11 lbs. Code word SANDV.

Abrasive Belts for No. 1400 Belt Sander

Abrasive belts listed at the right and supplied for the No. 1400 sander are of the highest quality. The garnet belts for wood finishing are far superior to ordinary sandpaper belts; they cut faster and last longer. The aluminum-oxide used on the belts supplied for metal finishing and polishing are also superior to emery belts. Aluminum-oxide is extremely hard and tough and does better and faster work than emery, besides having longer life.

Belts are 6" wide and 48 $\frac{5}{16}$" long. Furnished in two garnet grits for wood finishing and in two aluminum-oxide grits for metal.

No. 1412	6" Diagonal-lap garnet belt for wood. 80 grit (fine) cloth-backed. Fits No. 1400 sander. Ship. wt. 1 lb. SANDN...	**$1.10**
No. 1413	6" Diagonal-lap garnet belt. No. 40 grit (coarse) cloth-backed. Fits No. 1400 sander. Ship. wt. 1 lb. SANDO	**1.25**
No. 1414	6" diagonal-lap al. oxide belt for metal, 100 grit (fine) cloth-backed. Fits No. 1400 sander. Sh. wt. 1 lb. SANDP	**1.10**
No. 1415	6" Diagonal-lap al. oxide belt for metal. 50 grit (coarse) cloth-backed. Fits No. 1400 sander. Sh. wt. 1 lb. SANDQ	**1.10**



Patented Rubber-Cushion Sanding Drums

Our rubber-cushioned sanding drums (U. S. Pat. No. 1,906,190) employ a principle that insures every part of the drum being evenly expanded. Many sanding drums expand more at the center than at the ends, which means that perfectly flat work is difficult to produce with them. Others, having fasteners for the sandpaper on their surface, will "bump" every time the fastening passes over the work.

In our drum, each rubber section is separated from its neighbor by non-corrosive bakelite washers, with metal bushings next to the arbor. The disks are expanded perfectly uniformly, produce perfect work and run dead true. No. 840 drum has ½" diameter stem to fit ½" hollow spindle or chuck. Others have ½" bore. See page 47 for drums with No. 2 Morse taper shank to fit No. 930 lathe.

For narrow sanding drums for use in hand drills, flexible shafts, etc., see page 38.

No. 830	3" diam. x 3" long Sanding Drum, with one sleeve. Fits any ½" diameter shaft. Shipping Weight 2 lbs. Code Word SADRA.	**$2.50**
No. 831	3" x 3" sleeves, coarse garnet. Code Word SASLA. Per package of 6.....	**.90**
No. 832	3" x 3" sleeves, medium garnet. Code Word SASLB. Per package of 6.....	**.90**
No. 833	3" x 3" sleeves, al. oxide (for metal). Code Word SASLC. Per package of 6..... Shipping Weight, 3" sleeves, 8 oz. per package.	**1.15**
No. 835	1¾" diam. x 2" long Sanding Drum, with one sleeve. Fits any ½" diam. shaft. Shipping Weight 1¼ lbs. Code Word SADRB.....	**1.60**
No. 836	1¾" x 2" sleeves, medium garnet. Code Word SASLE. Per package of 6.....	**.75**
No. 837	1¾" x 2" sleeves, fine garnet. Code Word SASLF. Per package of 6.....	**.75**
No. 838	1¾" x 2" sleeves, al. oxide (for metal). Code Word SASLG. Per package of 6..... Shipping Weight 1¾" sleeves, 4 oz. per package.	**.90**
No. 840	$\frac{11}{16}$" diam. x 2½" sanding drum, with one sleeve. With ½" shank to fit hollow spindle or chuck ..... Shipping Weight 8 oz. Code Word SADRC.	**1.25**
No. 841	$\frac{11}{16}$" x 2½" sleeves, medium garnet. Code Word SASLK. Per package of 6.....	**.60**
No. 842	$\frac{11}{16}$" x 2½" sleeves, fine garnet. Code Word SASLM. Per package of 6.....	**.60**
No. 847	$\frac{11}{16}$" x 2½" sleeves, al. oxide (for metal). Code Word SASLO. Per package of 6..... Shipping Weight $\frac{11}{16}$" sleeves, 4 oz. per package.	**.75**

Note: Order sanding sleeves as "1 No. 831" where one package is wanted. Do NOT order "6 No. 831 sleeves," as this means 6 packages.

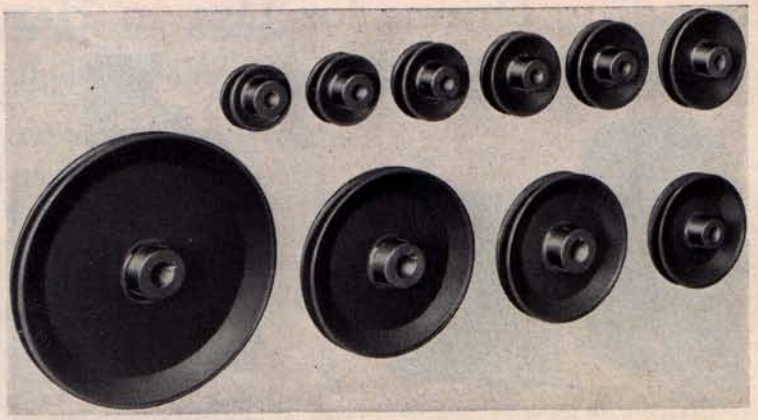
Pulleys and Line-Shaft Equipment

Pulleys for V-Belts

Our V-Pulleys are designed for belts measuring ½" wide, $\frac{8}{32}$" thick and angle of 38°. The width, angle and general shape are all scientifically designed, and the result of many years' experience with V-Belt Drives. All are of the Safety Disk Type—no spokes—and can be had with ½", ⅝" or ¾" bores. ⅝" and ¾" bores have $\frac{3}{16}$" keyway.

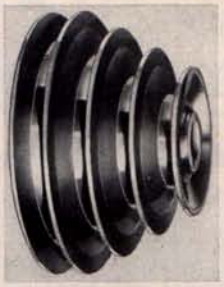
All have $\frac{5}{16}$" hollow-head set-screw. These are not ordinary stamped pulleys. They run true and are balanced perfectly. ½" bore furnished unless otherwise specified.

Cat. No.	Outside Diam.	Code Word	Price Each
5200	2"	PULOA	.35
5225	2¼"	PULOB	.40
5250	2½"	PULOC	.45
5275	2¾"	PULOD	.45
5300	3"	PULOE	.50
5350	3½"	PULOF	.55
5400	4"	PULOG	.55
5450	4½"	PULOO	.65
5500	5"	PULOH	.75
5550	5½"	PULOP	.85
5600	6"	PULOJ	.90
5650	6½"	PULOQ	1.10
5700	7"	PULOL	1.20
5800	8"	PULOK	1.50
6100	10"	PULOM	2.00
6200	12"	PULON	2.75



Please note that Nos. 6100 and 6200 V-pulleys can be furnished in ¾" bore only. All other sizes can be furnished in ½", ⅝" and ¾" bores. For boring to other sizes, up to 1" add 25c to catalog price.

Cone Pulleys for V-Belts



Made for the same size V-belts as plain pulleys listed above, these cone pulleys are useful for a wide variety of drives. Pulleys may be used in pairs as listed in table below and will provide the speeds listed in the third column when used with 1725 r.p.m. motor.

All cone pulleys available in ½", ⅝" and ¾" bores. ½" furnished unless otherwise ordered.

Driver	Driven	Speeds with 1725 r.p.m. motor			
718	718	900	1500	2200	3450
720	720	1200	1545	1980	2575
718	720	650	1000	1300	1725
720	718	1725	2400	3400	5000
932	932	900	1400	2200	3400
985	985	590	1275	2450	5000

No. 718 Four-step cone pulley (small).....each $ .75
Shipping Weight 1¼ lbs. Code Word CONPA.

No. 720 Four-step cone pulley (large).....each 1.10
Shipping Weight 1¾ lbs. Code Word CONPB.

No. 932 Four-speed cone pulley .....each 1.25
Shipping Weight 2½ lbs. Code Word DUBLC.

No. 985 Four-speed cone pulley .....each 1.30
Shipping Weight 2½ lbs. Code Word NEWPU.

V-Belts

Designed to make complete and perfect contact with the sides of the V-groove, these belts will transmit maximum horsepower with minimum slip. Cords are saturated with pure liquid rubber and imbedded in special rubber stock which resists fatigue and carries off heat.

NOTE: When ordering belts for which number is not known, measure around outside diameters of pulleys, then select belt of nearest outside circumference in the table. Do not use inside circumference.

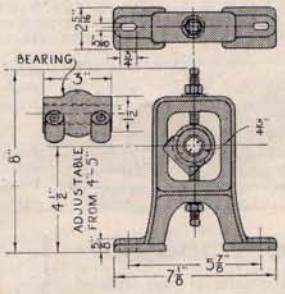
Cat. No.	Outside Circumference	Inside Circumference	Width	Thickness	Angle	Code Word	Price Each
284	30 $\frac{7}{16}$"	29 ¾"	½"	$\frac{9}{32}$"	38°	BELTA	.75
**331	35 $\frac{1}{16}$"	33 $\frac{5}{8}$"	½"	$\frac{9}{32}$"	38°	MULTG	.80
340	35 $\frac{3}{16}$"	35"	½"	$\frac{9}{32}$"	38°	BELUX	.80
355	38 $\frac{5}{16}$"	37"	½"	$\frac{9}{32}$"	38°	FORVB	.80
387	40 $\frac{1}{16}$"	38 ¾"	½"	$\frac{9}{32}$"	38°	FORDP	.85
410	41 $\frac{13}{16}$"	41"	½"	$\frac{9}{32}$"	38°	BELTB	.85
430	44"	42 ½"	½"	$\frac{9}{32}$"	38°	FORSL	.90
453	47 $\frac{3}{16}$"	45 ¾"	½"	$\frac{9}{32}$"	38°	MORBL	.90
501	51 $\frac{5}{8}$"	51 ¼"	½"	$\frac{9}{32}$"	38°	MORUV	1.00
510	52 $\frac{1}{8}$"	51 $\frac{5}{8}$"	½"	$\frac{9}{32}$"	38°	JOIVB	1.00
520	54 ¼"	52 $\frac{5}{8}$"	½"	$\frac{9}{32}$"	38°	BELTC	1.00
530	55"	53 $\frac{3}{8}$"	½"	$\frac{9}{32}$"	38°	BELTD	1.00
560	58 $\frac{3}{8}$"	57 ½"	½"	$\frac{9}{32}$"	38°	EICVB	1.00
568	59 ¼"	58 $\frac{5}{8}$"	½"	$\frac{9}{32}$"	38°	FORVD	1.00
583	60 ¾"	59 $\frac{5}{8}$"	½"	$\frac{9}{32}$"	38°	FORBL	1.10
588	61 $\frac{5}{8}$"	60 ½"	½"	$\frac{9}{32}$"	38°	FORVC	1.10
595	61 $\frac{3}{8}$"	60 ¾"	½"	$\frac{9}{32}$"	38°	BABEL	1.25
618	64 $\frac{7}{8}$"	63 ¼"	½"	$\frac{9}{32}$"	38°	BELTL	1.25
644	66 $\frac{3}{8}$"	64 ½"	½"	$\frac{9}{32}$"	38°	BELTF	1.25
670	69 $\frac{1}{8}$"	67 $\frac{7}{8}$"	½"	$\frac{9}{32}$"	38°	BELTU	1.30
*673	74 $\frac{1}{8}$"	73 ½"	½"	$\frac{5}{16}$"	38°	PREBL	1.00
750	76 ¾"	76 ¼"	½"	$\frac{9}{32}$"	38°	JOBAS	1.85

* This belt $\frac{5}{16}$" wide, for No. 620 drill press.
** Special belt for variable-speed scroll-saw.

Shaft Hangers

This sturdy, practical Line Shaft Hanger is self-aligning in every direction, and is adjustable up and down from 4" to 5" height. Once properly adjusted it will give years of quiet, trouble-free service. Oil wells hold a large supply of lubricant. Made for ¾" shafting only.

No. 370 Line-Shaft Hanger, as shown on left $2.50
Shipping Weight 6 lbs. Code Word LIHAN.



Couplings

Flexible couplings are necessary where motors are connected directly to the end of line shafts or to the shafts of machines. One side bored ¾" to suit line shaft. The other side may be bored ½", ⅝" or ¾". Be sure to specify size.

No. 379 Flexible Coupling, as shown, each $1.10
Shipping Weight 1½ lbs. Code Word LICOP.

¾" Line Shafting

Ground and polished to precision limits, this accurate shafting must not be confused with the cheap cold-rolled shafting sometimes offered. Carried in stock in 1', 2', 3', 4', 5', 6', 8' and 10' length. Net weight per foot 1½ lbs.

No. 372 ¾" Ground Line Shafting, per foot $0.35
Ship. Wt. per ft. 2½ lbs.
Code Word LISHA.

Speed Table

This table will enable you to select the proper pulleys for the approximate speeds listed. Machine pulley speeds are based on a motor speed of 1725 R.P.M.

Mot. Pulley Size, In.	Pulley on Machine: Size, In.											
	2	2¼	2½	2¾	3	3½	4	5	6	7	8	10	12
2	1725	1498	1325	1187	1075	905	781	614	505	425	371	295	245
2¼	1828	1725	1525	1360	1235	1040	897	684	577	490	426	327	282
2½	2120	1875	1725	1542	1402	1180	1019	794	655	556	483	372	319
2¾	2330	2120	1880	1725	1562	1317	1148	887	732	624	542	416	356
3	2550	2260	2040	1860	1725	1452	1252	980	807	685	596	458	392
3½	2990	2650	2380	2165	1985	1725	1489	1162	958	815	708	543	466
4	3800	3300	2920	2605	2360	2000	1725	1345	1100	940	820	650	540
5	4875	4230	3750	3350	3040	2560	2205	1725	1425	1210	1050	835	695
6	5900	5140	4550	4060	3700	3105	2680	2095	1725	1480	1250	1010	840
7	6950	6050	5340	4775	4350	3650	3160	2460	2025	1725	1500	1190	990
8	8000	6950	6150	5490	5000	4200	3600	2825	2320	1985	1725	1350	1135
10	10000	8750	7750	6920	6300	5300	4575	3560	2940	2500	2160	1725	1430
12	12000	10500	9350	8350	7560	6400	5500	4300	3540	3020	2620	2080	1725

¾" Shaft Collars

These Shaft Collars are of steel, with ¾" bore to fit line shaft. Equipped with special $\frac{5}{16}$" x $\frac{5}{16}$" Hollow-Head Set-Screw. Used to keep shaft in proper position lengthwise, also at side of loose pulley.

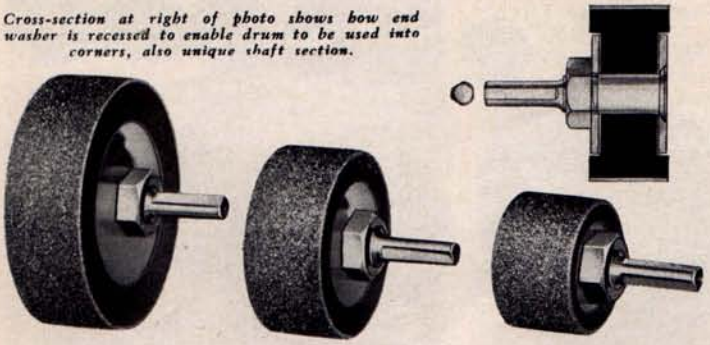
No. 374 ¾" Shaft Collar, each $0.30
Shipping Weight 4 oz. Code Word LICAL.

For Belts and Pulleys for Tilting-Arbor Saw, see Pages 4-9.

High-Grade Accessories for the Shop

Sanding Drums for Use in Hand Drills, Flexible Shafts, Etc.

Cross-section at right of photo shows how end washer is recessed to enable drum to be used into corners, also unique shaft section.



Designed for use where narrower-faced sanding drums than our Nos. 830, 835 or 840 (see page 36) are required, these new drums have several advantages over ordinary drums of the same type.

Painstaking attention to every point that might add to the usefulness of the tool and the convenience of the user is reflected in such details as the recessed mounting of the end washer, as shown in the cross section. This enables the drum to be used right up into corners, which cannot be done if the outside washer is not recessed.

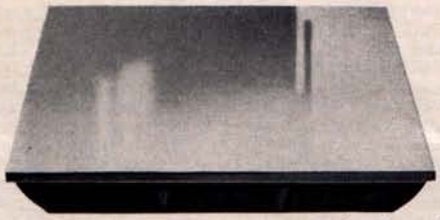
Another detail is the shape of the shank. This permits the sanding drum to be used in all 1/8" collets, in all 1/2" and 3/8" three-jaw chucks and in most 1/4" three-jaw chucks.

The drums themselves are of live flexible rubber, which is expanded to hold the abrasive sleeves by tightening the spindle nut. Sleeves are of aluminous oxide and cut accurately and fast.

Especially adapted for use in flexible shafts, portable electric hand drills, drill presses, lathe, polishing heads, etc.

No. 679	1½" dia. x 1" face Sanding Drum, with 1/8" shank, with one abrasive sleeve. Shipping Weight 6 oz. Code Word SANAA.	$ .75
No. 682	1½" dia. x 1" sleeves, No. 40 grit. Per package of six. Shipping Weight 4 oz. Code Word SANAD.	$ .55
No. 683	1½" dia. x 1" sleeves, No. 80 grit. Per package of six. Shipping Weight 4 oz. Code Word SANAE.	$ .55
No. 680	2 3/16" dia. x 1" face Sanding Drum, 1/8" shank, with one abrasive sleeve. Shipping Weight 8 oz. Code Word SANAB.	$ .85
No. 684	2 3/16" dia. x 1" sleeves, No. 40 grit. Per package of six. Shipping Weight 5 oz. Code Word SANAF.	$ .55
No. 685	2 3/16" dia. x 1" sleeves, No. 80 grit. Per package of six. Shipping Weight 5 oz. Code Word SANAG.	$ .55
No. 681	3" dia. x 1" face Sanding Drum, 1/8" shank, with one abrasive sleeve. Shipping Weight 12 oz. Code Word SANAC.	$1.10
No. 686	3" dia. x 1" sleeves, No. 40 grit. Per package of six. Shipping Weight 7 oz. Code Word SANAH.	$ .70
No. 687	3" dia. x 1" sleeves, No. 80 grit. Per package of six. Shipping Weight 7 oz. Code Word SANAI.	$ .70

This Surface Plate Offers Features Formerly Found Only in High-Priced Plates



Underside of surface plate is shown at left. Note the heavy ribbing of this massive plate and the clamping ledge all around the squared sides.

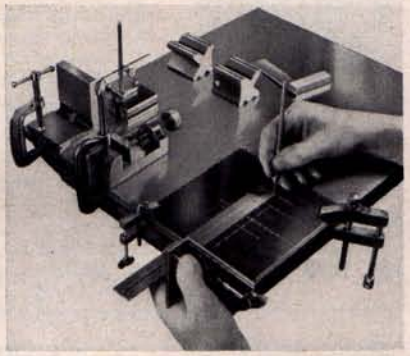
To make a surface plate for layout work 100% useful and convenient, four things are essential. A true surface to start with, a properly ribbed casting to insure that the surface will stay true, ledges at the edges of the plate for clamping purposes and edges that are machined square with each other and with the face.

Formerly these advantages could only be obtained in a high-priced, hand-scraped precision plate, and the user was forced either to purchase a plate of this type or else buy a plate that was more or less of a makeshift, without ledges or squared edges.

Our new No. 640 surface plate is a heavy (55-lb. net weight) casting of fine-grained semi-steel, 15"x18" on the surface and 3" high. The plate is first rough-machined, then carefully seasoned and finish-ground. The edges are carefully machined square with the surface and with each other—of great importance to convenient layout—and the edge has a wide ledge all around, outside the massive ribbing, to which the angle plates, V-blocks, etc., can be clamped whenever necessary.

Notice the massive design and the heavy ribbing to resist warping. These plates can easily be made into precision plates by simply scraping to a master plate or to each other.

No. 640	Surface Plate for layout work, with surface ground and side edges machined square. Ship. Wt. 65 Lbs. Code Word SURFA.	**$12.90**



This photo shows how angle plates, vises, etc., can be clamped to the No. 640 surface plate, and how convenient the squared edges are for laying out work clamped to the plate.

Gray Machine Enamel

Hundreds of users have purchased the attractive gray enamel with which we paint our machines, in order to paint benches, other tools and accessories in their shops to match. A number of industrial users have also standardized on our gray enamel for the machines in their shop. For the convenience of our customers we are now cataloging our standard enamel in three shades of gray. Light gray, which is the standard gray familiar to all woodworking machine customers; medium gray, which is the color of the latest Delta machines and standard dark machine-tool gray.

No. 101—Light Gray Machine Enamel

1 quart	$1.15
½ gallon	2.10
1 gallon	4.10

Code Word PAINA.

No. 102—Medium Gray Machine Enamel

1 quart	$1.15
½ gallon	2.10
1 gallon	4.10

Code Word PAINB.

No. 103—Dark (Machine-Tool Gray) Enamel

1 quart	$1.45
½ gallon	2.75
1 gallon	5.40

Code Word PAINC.

Shipping weights: 1 qt., 5 lbs.: ½ gal., 8 lbs.: 1 gal. 14 lbs.

Note: Paint is not mailable. Shipment must be made by express or freight.

Keep Your Tools Bright with "Rust-Go"

"Rust-Go" is a rust and grease-remover designed to remove instantly all traces of oxidation from the surface of polished iron and steel. It not only leaves a chemically clean surface, but destroys the chlorides which are primarily the cause of rust on tools and machines.

It will make your treasured tools, machine tables and other polished surfaces and parts clean and bright. It will clean your golf clubs, guns, skates, instruments, etc., from the rust spots and oxidized finger marks that mar their appearance and efficiency. It eliminates the tedious job of polishing with abrasive, reducing it to a simple rubbing with a cloth. Get a bottle at your dealer's today. Sold only through your dealer.

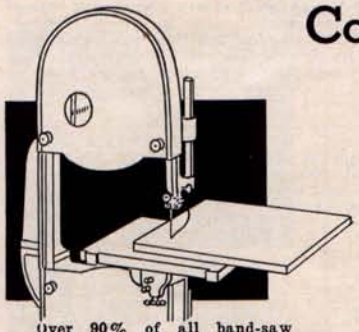
No. 100 "Rust-Go"

½ pint bottle	$ .50
½ gallon bottle	2.40
1 gallon bottle	4.50

"Rust-Go" is not mailable and is not shipped direct. Your local dealer has it in stock and can supply you with the ½-pint size.

Here Are Some Practical Reasons Why

Our Band Saws Offer Better Value; More Convenience; Greater Safety; Higher Efficiency



Over 90% of all band-saw work is done on the outside of the table as shown above. A 14" machine will handle this work just as effectively as a machine four times its size.

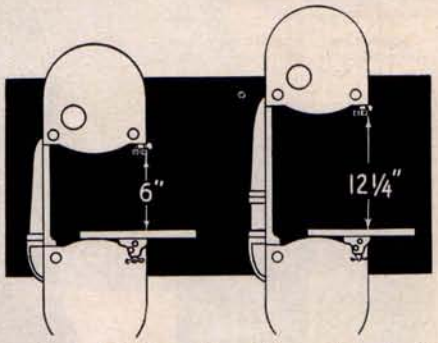
If greater throat capacity is required for work of unusual swing, then an additional capacity of one or two inches is seldom of practical value.

Why a 14" Band Saw Is the Most Practical Medium-Size Machine

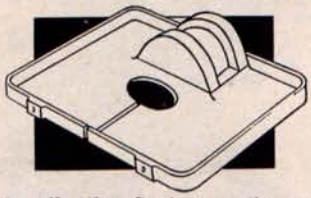
The capacity of the No. 890 band saw—14"x6"—was selected after the whole field of band-saw work had been thoroughly studied and after hundreds of band-saw users had been consulted to determine the most useful capacity for a medium-sized machine.

Since over 90% of all band-saw work is done on the **outside** of the table, on the side away from the frame, the 14" capacity is fully as effective as that of any other band saw, no matter how large. In the comparatively few cases where the "swing" of the work required a larger throat capacity, it was found that a band saw of from 20" to 24" swing was required, and that the addition of one or two inches to the throat was of no practical value.

Similarly, since over 90% of all band-saw work is done on stock less than 6" thick, to provide greater capacity than this is merely to penalize the user who does not require it. So our standard machine is provided with a raising attachment which permits the user who requires 12" capacity to obtain it economically, while the user who never requires this capacity is not penalized by higher cost.



Our standard band saw has a 6" capacity under the guide. If capacity up to 12¼" is ever required for special work, it is economically obtained with our height attachment.



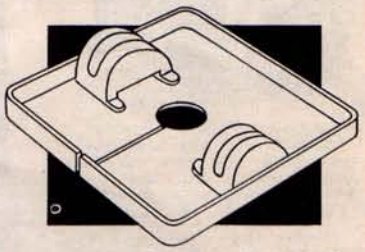
On all other band saws the saw entering slot runs to the front of the table. This forces the use of a single trunnion as above, or a slotted trunnion which makes a less rigid construction.

How Double Table Trunnions Provide Greater Rigidity—More Convenience

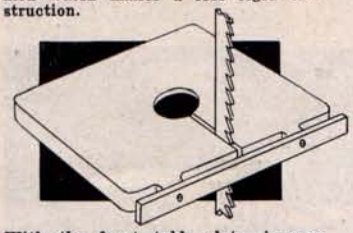
In our tables, the slot for entering the blade runs to the side of the table (patented). In all other machines the slot runs to the front. This older type has several disadvantages: The use of the front slot practically forces the use of a single trunnion, mounted at one edge of the table. This means loss of support to the front of the table—less rigidity. Even if double bearing surfaces are used on the trunnion, there is still only one trunnion. If two trunnions are used, the front one must be slotted to permit the passage of the blade, which weakens the trunnion.

The second disadvantage is that if a front guide bar is fitted to carry a rip gage, the bar must be unscrewed and removed every time a blade is changed.

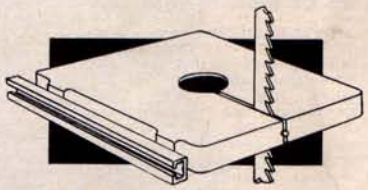
With our patented construction, on the contrary, the table is solidly supported on two widely spaced trunnions. Since the entering slot is at the side of the table, the rip-gage bar need never be removed to change blades. It is obvious that this saves time and means much greater convenience in use.



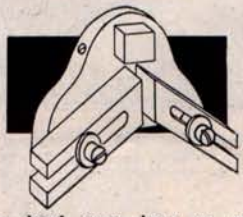
Our patented system of construction permits the use of two solid, widely spaced trunnions, which gives the table maximum rigidity at any angle, better clamping and increased accuracy.



With the front table slot, rip-gage guide bar must be removed every time the blade is changed.



With our patented side slot, there is no necessity ever to remove the rip-gage guide bar.



Many band saws have no guides under the table to support the blade after it goes through the work. This means less accuracy, as the blade is easily twisted or moved sidewise.

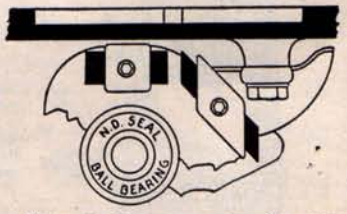
Other saws have only wood blocks with steel blade support pin to serve as "guides" under the table.

Fully Adjustable, Micrometer Guides Make Adjustments Fast and Accurate

On most medium-sized band saws and on many larger ones, the guides are not what we consider fully adjustable. That is, the blade support moves with the bracket carrying the blade guides, so that the adjustment of the blade support automatically means that the guides must be re-adjusted and vice versa. This means that the two adjustments must be "juggled" in order to obtain an exact setting. And, since the exact setting of the guides is a large factor in good work and long blade life, we regard such mountings as highly unsatisfactory.

In our guides—completely described and illustrated on the following pages—the guides are adjusted to the thickness of the blades and set to the tooth depth without affecting the adjustment of the blade support. Similarly, the blade support can be set precisely without disturbing the guide adjustment. And both adjustments are "set to a hair" with micrometer adjustment screws.

Some band saws have guides above the table only. Some have guides above the table and blocks for cleaning the blade (not guides) below. In our machines, exactly the same high-grade guide design is used above and below the table—and the lower guide comes within ¾" of the bottom of the work, to give maximum support to the blade. In addition the adjustments are brought out to the front of the table, so that the operator's hands need never be near the saw blades while the machine is in motion.



Not only have our saws the same high-grade guides under the table as above, but the lower guides come within ¾" of the bottom of the work.

These Are Only a Few of the Less Obvious Reasons Why . . . . .

It is naturally impossible in limited space, to show you all the reasons why these band saws have become so popular in hundreds of shops. We have shown only a few reasons, and others are illustrated on the following pages. We could point out the additional safety of our solid-surface guards, mounted rigidly on the frame of the machine (not on the tilting bracket or other moving part). These guards completely cover the wheels front and rear. In many band saws the guards are of an open pattern which are not regarded as adequate by many safety authorities, and in others the rear of the wheel is not enclosed.

We could tell you about the sturdy tilting mechanism, which slides in a bracket cast as a part of the overarm itself so that it cannot get out of line. We could tell you about the use of "sealed-for-life" New Departure ball bearings throughout the machine, so that lubrication or other bearing attention is never required. We could point out the care and accuracy used in machining and assembling the parts—the design of the wheel rims, which require no cementing on of the rubber tires, and many other things.

New Departure "sealed-for-life" ball bearings are used throughout.

We honestly have tried to make our band saws the finest machines of their type on the market today, and if you will study the features of their design point by point, we are confident you will agree that these band saws represent more value for the money than you can find anywhere else.

Improved No. 890 14-inch Band Saw

Upper wheel completely enclosed, having rear guard as well as removable front guard, complying with school and industrial requirements.

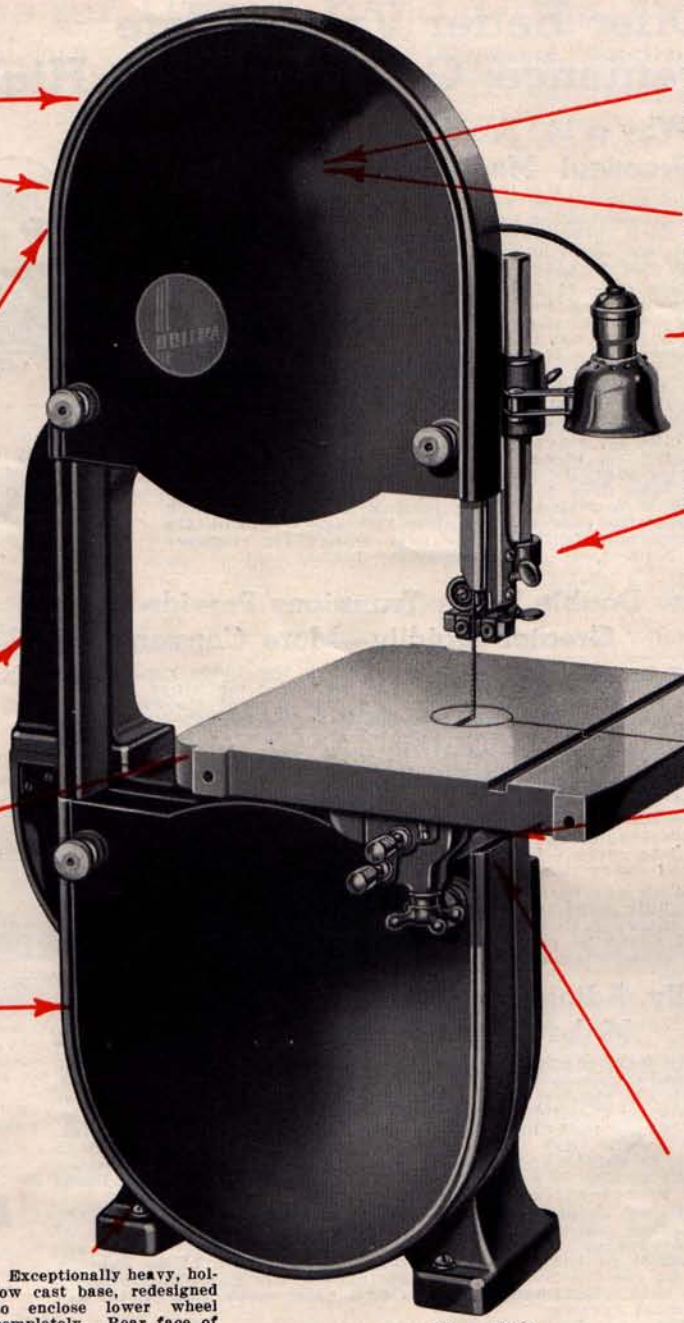
Upper-wheel adjustment has quick index to show blade tension. See photo below.

Hollow-cast upper arm of great stiffness and strength. Removeable to permit use of height attachment which increases capacity of machine to 12¼" thick.

Massive table, 14" x 14", swinging smoothly on double trunnions (patented). Makes very rigid table mounting, and permits removal of blade without disturbing rip-gage bars. Table tilts 45 deg. to right and 10 deg. to left. Positive stops. ⅜"x¾" groove for miter gage.

Lower wheel completely guarded front and rear: mounted on ball bearings sealed on both sides and lubricated for the entire life of the bearing. Neither grit nor improper lubricant can enter these bearings, which increases their life three or four times over old-style bearings.

Unit No. 892



Exceptionally heavy, hollow cast base, redesigned to enclose lower wheel completely. Rear face of pleasing design, easily cleaned.

No. 890

Heavy pressed-steel safety disk wheels rimmed to make tire renewal easy: no cement required. Carried on double-seal ball bearings, wheels are practically frictionless, which means minimum power consumption and permanent alignment.

Bearings in upper wheel also lubricated and sealed at factory to insure trouble-free service for the entire life of the bearing—a feature pioneered by us.

Light attachment available (extra) which permits machine to be used wherever most convenient for the job in hand and assures plenty of light on the work.

Finest type of guide ever offered. Each adjustment independent of others, and each made with micrometer accuracy. Guide pins can be set to blade teeth without disturbing the setting of the blade support, and blade support without altering adjustment of guide pins. High-grade reversible double-seal ball-bearing blade supports. (Patent pending.)

U. S. Pat. No. 2,032,233
U. S. Pat. No. 2,040,718

Lower guide of same construction as upper one, with added safety feature that all controls are brought out to front of table as shown in the photo below, so that operator's hands never come near blade—an important safety feature (pat. app. for). Guide comes within ¾" of table top.

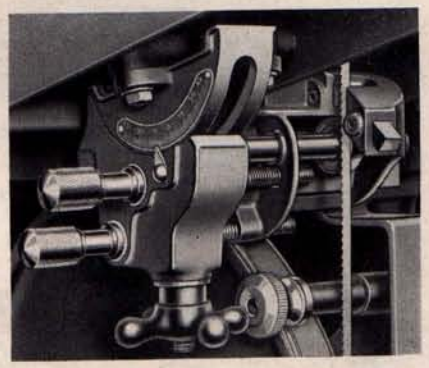


Photo above shows how the controls of the lower guide are brought to the front of the table—at the operator's finger tips.

Height 41¼"; Width 16¼"; Front to Back 24¾"; Weight 152 Lbs.

This band saw has become the standard 14" saw used in industrial and school shops everywhere. It offers every advantage found in larger machines, plus a decided saving in first cost, in maintenance cost, and in power cost. Hundreds of shops have installed them as auxiliaries and as regular production units.

Both wheels are completely enclosed. Controls for the lower guide adjustments are brought out to the front of the table, so that the operator can make final adjustments while the machine is running without having his hands anywhere near the blade—an important safety feature. There are new heavy-duty trunnions, spaced far apart to give the utmost rigidity to the table (a patented feature). There are many other refinements.

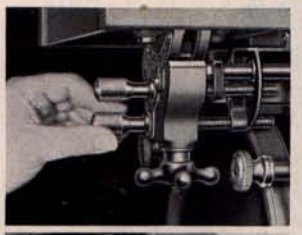
See this saw yourself, and you will know why it is the choice of all good professional craftsmen....who know *good* tools.

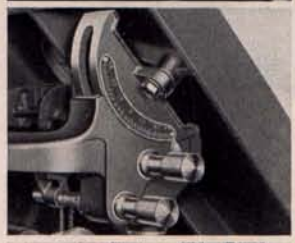
No. 890	14" Band Saw, with upper and lower wheel guards and arbor pulley, but without Light Attachment ..... Shipping Weight 152 lbs. Code Word LABAN.	**$48.85**
No. 5275	2¾" V-pulley, ½" bore..... Shipping Weight 11 oz. Code Word PULOD.	.45
No. 568	V-belt, 24⅛" center to center..... Shipping Weight 1 lb. Code Word FORVD.	1.00
No. 891	Steel stand, Top 7⅞"x15⅞"; 24" high.. Shipping Weight 30 lbs. Code Word LABST.	6.85
No. 892	14" Band-Saw Unit for woodworking, consisting of No. 890 band saw, No. 5275 V-pulley, (2¾" dia., ½" bore), No. 568 V-belt, and No. 891 steel stand. Without motor, belt guard, switch rod or light attachment ..... Shipping Weight 183 lbs. Code Word LABUN.	**$57.15**

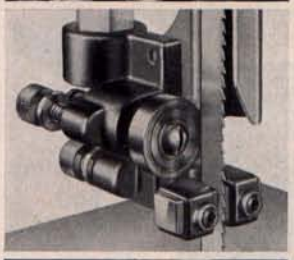
No. 900 motor and 851 switch rod recommended. See pages 35-37.

Finest 10-inch Band Saw Ever Made

Built for the Craftsman Who Demands the Finest for His Shop







No. 777

Specifications

Overall Dimensions: 33½" high; 11¾" wide; 23" front to back.

Capacity: 10" blade to upper arm; 6" under guide.

Table: Heavy cast iron, swinging on double trunnions. 11" by 11¾" surface. (U. S. Pat. No. 2,040,718. Others pending.)

Accurate, true-running balanced disk wheels, carried on self-sealed New-Departure ball bearings. Lubricated at factory for their entire life. Heavy, accurately ground main shaft.

Micrometer-adjustment upper guide. Each adjustment independent of others, and each made with precision.

Micrometer lower guide, with adjustments brought out to front of table. Operator's hands never come near blade. An exclusive feature.

Upper wheel tilting device and tension scale similar to that used on 14" band saw.

Both wheels and blade thoroughly guarded; only portion of blade actually used for cutting is ever exposed.

Welded stand available to make machine a self-contained unit.

⅓-H.P. motor sufficient for all average work.

Massive Frame

The frame of this machine is of exceptionally heavy and rugged design. It follows closely the construction of our 14" band saw which has been so extremely popular.

Double-Seal Ball Bearings

Machine is completely equipped with double-seal ball bearings—the finest type made—which insure complete absence of bearing trouble, and require no attention during their entire life. They are lubricated at the factory, and need never be re-lubricated. Blade supports are of the same type.

Patented Table Design

The table, which is of cast iron 11" by 11¾" in size, and is heavily ribbed and smoothly ground, swings on two widely-spaced trunnions, one in front and one in back. This is made possible by our patented construction, and makes a table that is very much superior to the usual design.

Micrometer Adjustments

Adjustments of the upper and lower guide are of the same micrometer type that have been so popular on the No. 890 14" band saw. Guide and blade-support adjustments are independent of each other, and all adjustments are made with the utmost precision. Lower-guide adjustments are brought out to the front of the table, so that the operator's hands need never come near the blade for any reason whatever—an important safety feature.

Complete Guarding

Upper and lower wheel guards on this saw are of the same design as those on the 14" saw, completely enclosing wheels and blade.

Many Other Features

The massive design, advanced engineering, thoroughly studied design and accurate construction of this machine make it the finest 10" band saw ever offered to the craftsman. Its capacity under the guide make it the equal of many machines of larger throat capacity. Examine it; compare it with others, and its superiority will be apparent at once.

U. S. Pat. Nos.
2,032,233
2,040,718
2,108,086

Completely Ball-Bearing Equipped

No. 768

No. 768 10" Ball-Bearing Safety Band Saw, with guards, blade and 5" arbor pulley. Without belt or motor..... **$29.90**
Shipping Weight 100 lbs. Code Word BANDA.

No. 5275 V-pulley, 2¾" dia. by ½" bore... **.45**
Ship. Wt. 11 oz. Code Word PULOD.

No. 560 V-belt, 22¾" center to center.... **1.00**
Ship. Wt. 1 lb. Code Word EICVB.

No. 329 Steel stand (Top 7" x 12½"; 29¼" high) **5.75**
Shipping Weight 31 lbs. Code Word EICST.

No. 777 10" Ball-bearing Safety Band-Saw Unit, consisting of No. 768 Band Saw, No. 5275 2¾" pulley, ½" bore, No. 560 V-belt and No. 329 Steel stand **$37.10**
Shipping Weight 140 lbs. Code Word BANDL.

No. 800 or 900 motor recommended for this unit and No. 851 switch rod.

Blades for No. 768 Band Saw, 74" Long

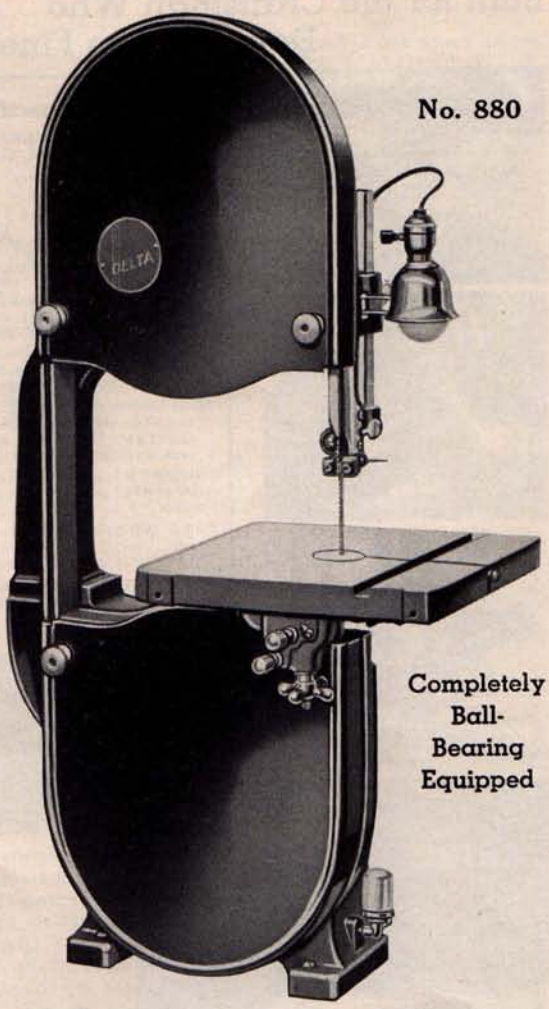
(Cannot be used on No. 785 Saw)

Cat. No.	Width	Cut Radius	Code	Price Each
770	⅛"	¼"	BANDC	$1.10
771	⅛"	½"	BANDE	1.10
772	¼"	¾"	BANDG	1.10
773	⅜"	1"	BANDH	1.10
774	¼"	¾"	BANDI	1.60

Shipping Weight 9 oz. each.
(No. 774 blade is for soft metals)

A NEW 14" Metal-Cutting Band Saw

For Cutting Templates: for Experimental Work: Sheet-Metal Sawing: Sawing Jig & Fixture Parts: Fitting Light Structural and Extruded Sections: Trimming Gates in Iron, Brass and Aluminum: Sawing Plastics and Many Other Jobs



No. 880

Completely Ball-Bearing Equipped

Condensed Specifications

Overall height 41¼"; width 16¼"; front to back 24¾"; weight 151 lbs. net. Shipping weight 175 lbs.

Speeds: With 1725 r.p.m. motor, 125, 175, 250 and 340 feet per minute. With 1140 r.p.m. motor, 80, 115, 160 and 220 ft. per minute. One 2200 ft. per min. speed for wood.

Capacity: Blade to frame 14". Capacity under guide 6"; with height attachment 12¼".

Heavy hollow-cast base, designed to enclose rear of wheel completely. Back designed for easy cleaning. Oil reservoir for gear lubrication, with cup for easy filling.

Gear unit self-contained. Spiral-drive pinion and intermediate gear; final drive spur gear and pinion. All shafts carried on New Departure self-sealed bearings, requiring no lubrication.

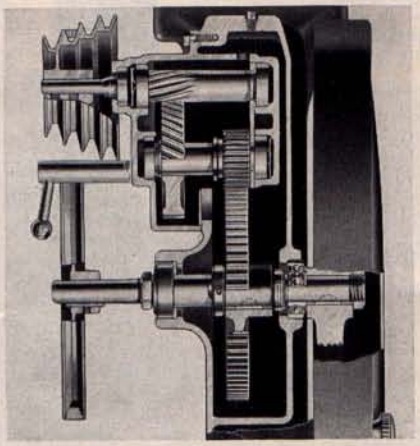
Gear engaged or disengaged with half-turn of lever. With gear disengaged, band saw can be used for all woodworking operations.

Other Specifications same as No. 890 band saw shown on page 40.

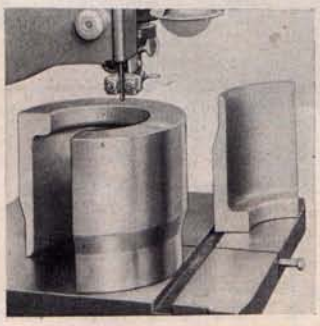
This new back-geared model of the 14" band saw is the perfect all-around tool for the general machine shop, toolroom or experimental shop, where many different materials must be cut. It is equally at home in the foundry, in the die-casting shop, in the ornamental-metal or display shop, or in the pattern shop. A flip of a lever changes it from a slow-speed metal saw to a high-speed wood saw.

Gear drive is simple, foolproof and substantial, and, with its helical drive gears and self-sealed ball bearings, is engineered for long, trouble-free service.

Let us show you how this machine will save money in YOUR shop.



Saves Its Cost in Any Shop on the First Few Jobs



It is no exaggeration to say that this machine will pay for itself in a very short time in any shop. One foundry reports saving of 60% on trimming costs, in trimming gates on castings as shown at the right. A machine-shop superintendent says that it saved its cost on the first few jobs, in cutting draw-die segments as shown at the left. No shop that has instalied one of these machines would be without one thereafter—and many shops have purchased several units.

Table Tilts Both Ways

No. 881

No. 880 14" back-geared Metal-cutting Band Saw, complete with wheel guards, 8" arbor pulley for wood, cone pulley for metal and one metal cutting blade. Without light attachment, belts, belt guard, stand, motor or motor pulley..... **$79.50**
Shipping Weight 175 lbs. Code Word LABMA.

No. 891 Steel stand **6.85**
Shipping Weight 30 lbs. Code Word LABST.

No. 718 Four-step motor pulley, ½" bore..... **.75**
Shipping Weight 1½ lbs. Code Word CONPA.

No. 387 V-belt (for metal-cutting drive)..... **.85**
Shipping Weight 1 lb. Code Word FORDP.

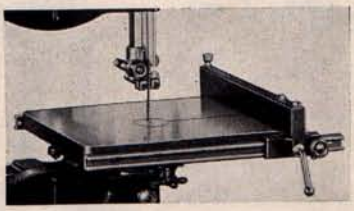
No. 568 V-belt (for wood-cutting drive)..... **1.00**
Shipping Weight 1 lb. Code Word FORVD.

No. 881 14" Metal-Cutting Band-Saw Unit, complete with No. 880 Band Saw, No. 891 Stand. No. 718 cone pulley, Nos. 387 and 568 V-belts. Without light attachment, belt guard, motor or switch rod..... **$88.95**
Shipping Weight 210 lbs. Code Word LABMB.

⅓-H. P. repulsion-induction or three-phase motor recommended for average work. For heavy work use ½-H. P. r-i, or 3-ph. motor. Specify No. 851 switch rod. Use 1725 r.p.m. motor for speeds down to 120 f.p.m. Use 1140 r.p.m. motor for speeds down to 80 feet per minute.

Band-Saw Blades and Accessories

Rip Gages for 14-inch Band Saw



Two rip-gage attachments are available for use with any of our 14" band saws for wood or metal. No. 893 has 18" guide bars, and No. 895 has 32" guide bars, the only difference being in the capacity. Bars are fastened to front and rear edges of table with screws, and, due to patented construction of table, need not be removed to change blades. Fence has the same "Micro-Set" adjustment as the No. 860 circular-saw fence.

No. 893 Rip-Gage Attachment for No. 890 14" Band Saw, with 18" front and rear guide bars, "Micro-Set" fence and screws for attaching guide bars **$4.25**
Shipping Weight 10 lbs. Code Word LABGA.

No. 895 Rip-Gage Attachment for No. 890 14" Band Saw, same as above but with 32" guide bars instead of 18" **4.95**
Shipping Weight 12 lbs. Code Word LABGB.
U. S. Patent No. 1,963,688.

Band-Saw Blades

Made of high-grade Swedish steel, accurately set, spaced and jointed, these blades will stand up under hard work. Standard blades for 14" band saws are 93" long; special blades for use with height attachment are 105" long.

14-inch Band-Saw Blades; 93-inch

Cat. No.	Width	Cut Radius	Code	Price Each
1032	1/8"	1/4"	BLABA	$1.25
1033	3/16"	1/2"	BLABB	1.25
1034	1/4"	3/4"	BLABC	1.25
1036	3/8"	1"	BLABD	1.25
1038	1/2"	1 1/4"	BLABE	1.50
1040	3/4"	1 3/4"	BLABF	1.50

Shipping Weight 15 oz. each.

14-inch Band-Saw Blades; 105-inch

Cat. No.	Width	Cut Radius	Code	Price Each
1045	1/8"	1/4"	BLABJ	$1.50
1046	3/16"	1/2"	BLABK	1.50
1047	1/4"	3/4"	BLABL	1.50
1048	3/8"	1"	BLABM	1.50
1050	1/2"	1 1/4"	BLABO	1.75
1052	3/4"	1 3/4"	BLABP	1.75

Shipping Weight 18 oz. each.

Metal-Cutting Blades; 93-inch

Cat. No.	Width	Teeth per in.	Code	Price Each
1060	1/2"	14	BLMET	$1.85
1062	1/2"	18	BLMEU	1.85
1064	1/2"	24	BLMEX	1.85

Shipping Weight 1 1/2 lbs. each.
NOTE: These are hard-edge blades for cutting all metals.

Blades for No. 785 Saw 66" Long

(Will not fit No. 768 10" band saw)

Cat. No.	Width	Cut Radius	Code	Price Each
732	1/8"	1/4"	BABLK	$1.00
733	3/16"	1/2"	BABLL	1.00
734	1/4"	3/4"	BABLM	1.00
736	3/8"	1"	BABLP	1.00
781	1/4"	3/4"	BAMEU	1.50

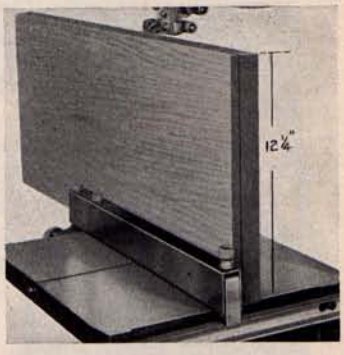
Shipping Weight 8 oz. each.
(No. 781 Blade is for soft metals.)

Blades for 12" Saw 78" Long

Cat. No.	Width	Cut Radius	Code	Price Each
532	1/8"	1/4"	BABLA	$1.10
533	3/16"	1/2"	BABLB	1.10
534	1/4"	3/4"	BABLC	1.10
536	3/8"	1"	BABLE	1.10
381	1/4"	3/4"	BAMET	1.50

Shipping Weight 9 oz. each.
No. 381 Blade is for cutting soft metals.

Cut Up to 12¼" Thick With This Inexpensive Attachment

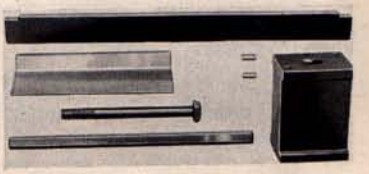


With this inexpensive attachment, the capacity under the guide can be increased to 12¼" at any time.

In designing the 14" band saw, investigation among hundreds of shops showed that a 14" throat capacity was the ideal size for a small machine, since this would handle over 90% of the work of the average shop. And, if a larger size was required, one or two inches more capacity was not enough —at least a 20" machine would be required.

Similarly, it was found that 99% of the work in the average shop required a capacity under the guide of 6" or less. On some very special work a capacity of over 6" was required, but to build a machine with a capacity over 6" would mean that the user who did not require this capacity would be penalized by paying a higher price for his machine.

The solution lies in the design of our height attachment. This enables the man who requires capacity under the guide up to 12¼" thick to obtain it very economically by purchasing the attachment and equipping his machine with a longer blade. At the same time the user who requires only 6" capacity is not penalized. The attachment is very simple, consisting of a 6" extension block which fits under the upper arm and raises it 6" an extension wood guard and an extension telescoping front blade guard, with the necessary bolts, etc. It can be added to the saw at any time. 105" blades are used with this attachment.



No. 894 Height attachment for all 14" band saws, with cast block, dowels, bolt, extension front blade guard and wood back blade guard..... **$6.00**
Shipping Weight 14 lbs. Code Word LABHA.

Belt Guard for 14-in. Band Saw

This belt guard, which completely encloses the belt on the 14-inch band saw front and rear, is designed to conform to all safety-code and industrial-commission requirements. When applied to the No. 892 and 881 band-saw units, with their front and rear wheel and blade guards, these units are made thoroughly safe, even for inexperienced help in the industrial shop or for students in the school shop.

The guard is heavily made of cast iron, and is fastened to the steel stand with screws. The front of the guard is hinged to provide ready access to the belts and pulleys, or for operating the gear lever on metal-cutting band saw No. 881. Fastened by tightening one conveniently operated clamp knob. Fits both No. 892 and 881 band saw units.

No. 883 Belt guard for 881 and 892 band-saw units, with screws to fasten to stand..... **$9.60**
Ship. Weight 30 lbs. Code Word LABAB.

NEW! 12-inch Ball-Bearing Lathe

Accurate; Rigid; Safe; Dependable; Here is the BEST All-Around Lathe for Real Shop Work

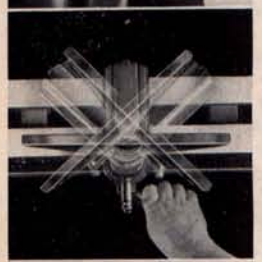
—And at an Economical Price!

Swings 12″ Over Bed: 37″ Between Centers

Here is a lathe that was designed with only one purpose in mind—to provide the biggest amount of real lathe for the least amount of money. And when you study the design you will see that it provides just that. No unnecessary frills; no skimping on hidden details; nothing added merely for "looks" and nothing essential omitted for "cheapness".

Designed by engineers with years of experience in making tools for your rquirements, built by real mechanics who know and appreciate good machines, it is an honest, solid, dependable lathe for REAL craftsmen—the lathe you want for YOUR shop. whether it is a home shop, a school shop or an industrial shop. See it—try it—and we know you'll agree!

Read the specifications below, and a few of the highlights at the left:



★ Self-Indexing:

Here is the built-in indexing device first applied to lathes by us—made still more convenient in action.

★ Self-Lubricating:

New Departure self-sealed ball bearings, which require no lubrication during their entire life, eliminate any necessity for bearing attention.

★ Universal Tool Support:

Quick as a flash in action, solid as a rock in use, locked by a convenient lever on the front of the base—you'll like this tool support!

★ 4 or 16 Speeds:

Four speeds—all that are necessary for woodturning. But, if you want sixteen speeds, for speed lathe work in metal, a simple countershaft arrangement gives them to you.

★ Efficient Drive:

A simple, dependable, V-belt drive—over 90% efficient—provides plenty of power for all your work.

★ Safety Headstock:

Pulley and belt are completely covered from front and top of lathe—it's practically impossible for fingers to be caught. And belt drive can be taken either from below or rear—an added convenience.

OVERALL DIMENSIONS WITH REGULAR TOOL REST: Length 57″, Width 10½″, Height 13¾″. Width with slide rest 15″.

BED: Heavy, substantial, fine-grained cast iron, heavily ribbed to provide utmost rigidity and accuracy. 53½″ long, 8½″ wide, 4⅞″ high. Machined and polished ways 2″ wide front and back.

HEADSTOCK: Rigid substantial cast-iron body, adapted to take V-belt drive from either bottom or rear. Fitted with belt guard completely covering top of headstock pulley and belt; guard instantly removable to facilitate changing belt on pulley cones. With built-in indexing mechanism having two rows of holes—8 holes and 60 holes—in cone pulley, to provide maximum number of index divisions. Index pin mounted to engage either row of holes.

SPINDLE: Full 1¼″ diameter spindle, with ⅝″ hole through center to facilitate repetition work. Nose machined No. 2 Morse taper for centers. Nose threaded 1″ diameter 8 threads per inch for chucks and faceplates. Rear end of spindle with 1″—8 thread left-hand thread for outboard work. Spindle carried on two heavy-duty double-seal New Departure ball bearings, preloaded to insure maximum rigidity and accuracy. Spindle quickly removable to facilitate belt removal or installation. Speeds: 900, 1400, 2200, 3400 r.p.m.

TAILSTOCK: Substantial, fine-grained cast-iron body, with sub-base and provision for set-over of tailstock for center alignment and taper turning. Tailstock locked to bed with hand lever conveniently located at front. Tailstock sleeve operated with large ball-end crank handle, and locked with ball-end lever actuating lock cams. Sleeve machined for No. 2 Morse-taper centers. Centers self-ejecting.

TOOL REST: Lathe equipped with quick-acting, universal tool-rest base, locked to bed by convenient handle at front of base. 4″ and 12″ tool rests, adjustable in tool-rest base by means of lock screw with ball-end lever.

ACCESSORIES: 4″ and 12″ tool rests, 3″ faceplate, drive center for wood, tail center for wood, headstock wrench, Allen wrench and belt for lathe-stand installation.

No. 1460	12″ Ball-Bearing Lathe, complete with No. 644 belt, 3″ faceplate, No. 2 Morse-taper drive and tail centers, 4″ and 12″ tool supports, spindle wrench and Allen wrench ..... Shipping Weight 135 lbs. Code Word CASTL.	**$46.85**
No. 932	Four-speed motor pulley, ½″ bore ..... Shipping Weight 2½ lbs. Code Word DUBLC.	**1.25**

Four and Sixteen-Speed Lathe Units

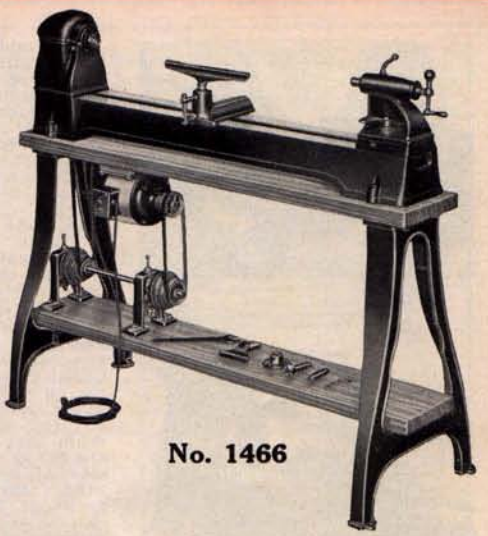
No. 1465

More for Your Money in These Fine Lathes

Whether you want to equip a school shop to handle more pupils at less cost ....a commercial or industrial shop....a pattern or cabinet shop..or a real home workshop—you get more for your money in these fine lathe units.

Made in two types, one a four-speed unit providing a range of speeds from 900 to 3400 r.p.m.—sufficient for all woodturning work—and the other a sixteen-speed unit which, through a simple, inexpensive countershaft drive, provides a range of sixteen speeds carefully graduated from 350 to 3160 r.p.m.

With this drive, a wide range of work can be done in metal as well as in wood.



No. 1466

No. 1465 Four-Speed Unit:

No. 1460	12" Ball-bearing lathe	**$46.85**
No. 1463	Stand for lathe, complete.....	**22.85**
No. 932	Motor pulley, ½" bore.....	**1.25**
	Price, without motor or switch rod...	**$70.95**

Shipping Weight 253 lbs. Code Word CASTR.

No. 1463 Lathe stand only, complete with legs, top, shelf and bolts..... **$22.85**
Shipping Weight 118 lbs. Code Word CASTP.

(No. 900 motor and No. 848 switch rod recommended for Units No. 1465 and 1466)

No. 1466 Sixteen-Speed Unit:

No. 1460	12" Ball-bearing lathe	**$46.85**
No. 1463	Stand for lathe, complete.....	**22.85**
No. 1464	Countershaft unit, complete.....	**10.15**
	Price, without motor or switch rod....	**$79.85**

Shipping Weight 278 lbs. Code Word CASTS.

No. 1464 Countershaft unit, consisting of two No. 370 hangers, 1 No. 378 shaft, 1 No. 718 pulley, ½" bore for motor, 1 No. 720 pulley, ¾" bore for shaft, 1 No. 932 pulley, ¾" bore for shaft, 1 No. 284 V-belt, 1 No. 644 V-belt, 2 No. 374 collars, bolts and nuts..... **$10.15**
Shipping Weight 25 lbs. Code Word CASTQ.

No. 930 11-Inch Timken-Bearing Lathe

Swings 11" x 37" Between Centers

Speeds: 900, 1400, 2200, 3400 r.p.m.

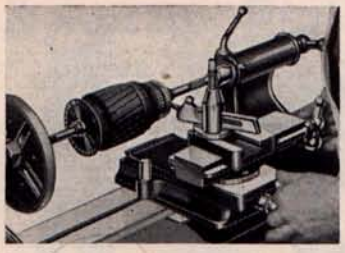
Long a favorite with home craftsmen who want a good lathe at a moderate price, the No. 930 11" lathe offers exceptional value. It has a rigid, strong steel bed.....self-indexing headstock.....four speeds from 900 to 3400 r.p.m.....37" capacity between centers....No. 2 Morse taper centers in head and tailstocks.... Timken bearings in headstock for long wear....a full 1¼" diameter hollow spindle threaded for inboard and outboard chuck and faceplate work.

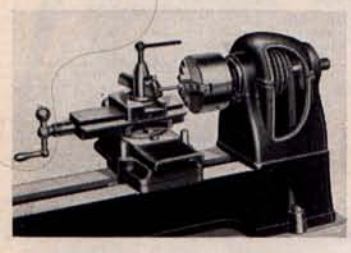
Thousands of these lathes are in daily use in shops all over the world....you can't go wrong on this splendid machine!

No. 930	11" Lathe with accessories as shown, less belt and motor pulley ..... Shipping Weight 82 lbs. Code Word DUBLA.	**$29.90**
No. 932	Motor pulley, ½" bore ..... Shipping Weight 2 lbs. Code Word DUBLC.	**$1.25**
No. 588	V-belt, 25 13/16" cent. to cent..... Shipping Weight 8 oz. Code Word FORVC.	**$1.10**
No. 950	Four-speed 11" lathe unit, with No. 1463 stand, motor pulley and belt. Without motor or switch rod..... Shipping Weight 190 lbs. Code Word DUBUN.	**$55.10**
No. 952-A	Sixteen-speed 11" lathe unit, with No. 930 lathe, No. 1463 stand, No. 1464 countershaft and No. 588 belt. Without motor or switch rod ..... Shipping Weight 225 lbs. Code Word DUBUT. Use No. 900 motor and No. 848 switch rod.)	**$64.00**

No. 950

Equipment for Light Metal Turning





The addition of a compound slide rest to your No. 930 or No. 1460 lathe will enable you to do many jobs of light metal turning on these lathes. It will true commutator armatures, turn down shafts and spindles, handle a wide range of model work — in fact, all the jobs that ordinarily can be done on a toolroom speed lathe can be done with this inexpensive combination.

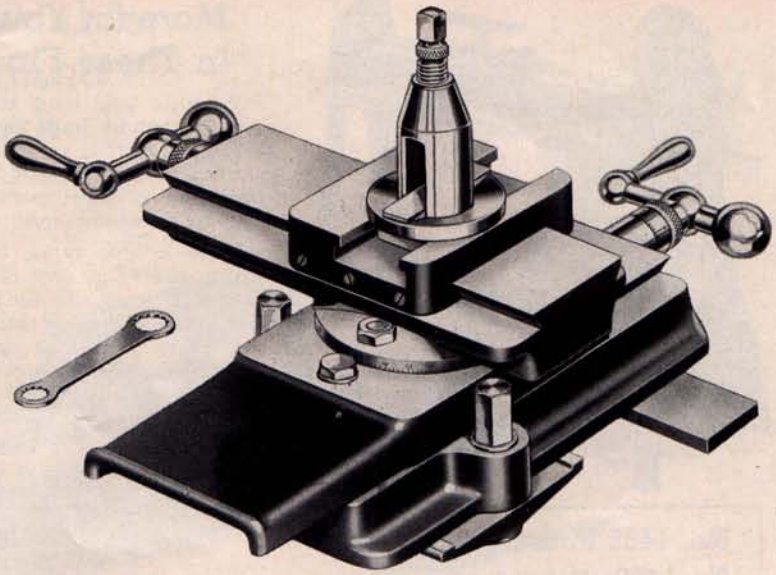
This slide rest is a high-grade accessory, heavily and accurately built, with dovetail slides and a graduated compound base rotating through 360 degrees. Feed screws are covered to protect them from dirt and chips, and are fitted with micrometer sleeves, accurately graduated. Alignment bar on front of 11" lathe model can be set for permanent alignment with centers. This is a high-grade slide rest at a reasonable price.

Should be used only with No. 952-A or No. 1466 sixteen-speed units, or other lathes with speeds low enough for metal turning.

No. 965 Compound slide rest, for 11" lathe, with tool post, rocker washer, alignment bar and wrench. Without toolholder or tools **$19.50**
Shipping Weight 35 Lbs. Code Word DURST.

No. 1462 Compound slide rest for 12" lathe, same as No. 965, but with sub-base. Without alignment bar **$20.85**
Shipping Weight 38 Lbs. Code Word CASTO.

No. 1467 Sub-base, clamp and bolts only; to convert No. 965 slide rest into No. 1462 ..... **$2.30**
Shipping Weight 5 Lbs. Code Word CASTT.



Boring Bars and Holder

This unique boring bar holder holds both round bars and square ¼" tool bits. Two holes through holder enable bars and bits to be placed to work on jobs that are awkward for ordinary tool holders. Made of tool steel and case hardened in colors. No. 962 set comes with ⅛", 3/16" and ¼" dia. boring bars, hardened and ground.

No. 962 Boring-bar holder, with ⅛", 3/16" and ¼" bars.... **$3.00**
Ship. Wt. 12 oz. Code Word DUBBO.

No. 966 Set of three boring bars, ⅛", 3/16" and ¼" **$1.15**
Ship. Wt. 8 oz. Code Word DUBOR.

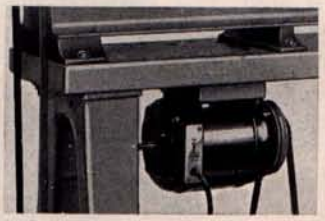
Feet for Your Lathe

Used only for metal turning, to permit the chips to drop clear of the Bed. Not necessary for wood turning.

When feet are used. V-belt No. 618 is required from motor to lathe.

No. 961 Set for four Lathe Feet... **$1.95**
Ship. Wt. 9 Lbs. Code Word DUBFE.

No. 618 V-belt **$1.25**
Ship. Wt. 10 oz. Code Word BELTL.



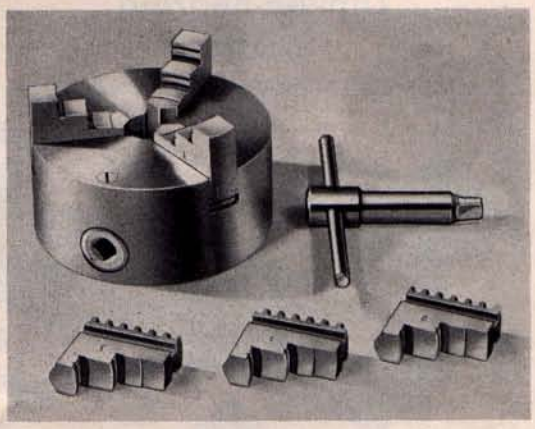
Universal Chuck Fits Every Need of Small Lathe

High-grade self-centering universal chuck, with heavy cast-iron body and two sets of hardened-steel jaws, adaptable for either 11" or 12" lathes. For use with No. 930 or 1460 lathes, order chuck with No. 963-A back plate. For use with other lathes order back plate No. 964. Back plates must be turned to fit chuck while mounted on lathe on which they are to be used, in order to insure accuracy. Diameter of chuck, 4". Maximum capacity, 4".

No. 963 Three-Jaw Universal Chuck, with inside and outside hardened-steel jaws, and wrench. Without back plate. **$13.85**
Shipping Weight 6 Lbs. Code Word CHUNP.

No. 963-A Back plate for No. 963, turned and threaded to fit spindle of No. 930 lathe, but not fitted to chuck... **1.75**
Shipping Weight 2 Lbs. Code Word CHUPI.

No. 964 Back plate for No. 963, completely unfinished. For lathes of other make ..... **.70**
Shipping Weight 2 Lbs. Code Word CHUPL.



No. 955—9 Inch Timken-Bearing Lathe

The 9" lathe offers real value to the man who wants to equip his shop at the lowest cost consistent with the purchase of quality tools. Built to the same standards of accuracy and construction as the 11" lathe, the No. 955 offers husky Timken tapered-roller bearings in the headstock, with the index mechanism. Arbor extensions on each end of spindle are ½" diameter, enabling many standard accessories to be used. Tailstock in screw-feed, with ball crank and quill lock. Bed and tool rest are similar to No. 930 lathe. Speeds: 900, 1400, 2200 and 3400 r.p.m. Swings work 9" diameter over bed and 37" between centers.

No. 955 9-inch Four-Speed Timken Bearing Lathe, including 3" faceplate, spur center, cup center, 12" tool-support, tool-support wrench and special Allen wrench, as shown, 4" tool support and tool support base **$19.85**
Shipping Weight 70 Lbs. Code Word NEWLA.

No. 932 Four-speed Motor Pulley (½" Bore)..... **$1.25**
Shipping Weight 3 Lbs. Code Word DUBLC.

No. 568 V-belt, 24 1/8" center to center..... **$1.00**
Shipping Weight 10 oz. Code Word FORVD.

No. 960 9-inch Four-speed Lathe Unit, including No. 955 Lathe, No. 947 Lathe Stand, No. 932 four speed pulley, ½" Bore and No. 568 V-belt, similar to No. 950 unit shown on page 45 ..... **$43.95**
Shipping Weight 185 Lbs. Code Word NEWUN.

Use No. 800 or 900 motor, and No. 854 switch rod when lathe stand is used.

See page 48 for accessories.

Accessories for 11-in. and 12-in. Lathes

No. 163 3" by 3" sanding drum with No. 2 Morse taper shank to fit 11-inch Lathe. The combination of our patented sanding-drum construction with the taper shank makes an exceptionally true-running drum. (U. S. Pat. No. 1,906,190)..... **$2.65**

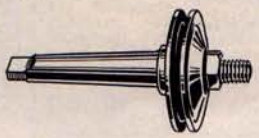
Shipping Weight 2½ lbs. Code Word SATAP.

See page 51 for sleeves.

No. 164 1¾" by 2" sanding drum, with No. 2 Morse taper shank to fit 11-inch Lathe. Same construction as No. 163. Fits any lathe with No. 2 Morse taper hole in spindle. (U. S. Pat. No. 1,906,190) **$1.95**

See page 51 for sleeves. Shipping Weight 1¾ lbs. Code Word SATAQ.

No. 165 Grinding wheel arbor with No. 2 Morse taper shank. Holds all grinding wheels up to ¾" thickness with ½" hole as well as buffing wheels, wire brushes, etc. See page 48. A very high grade arbor **$1.25**

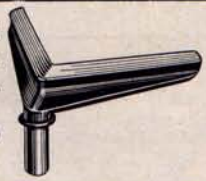


Shipping Weight 1 lb. Code Word ARTAP.

No. 166 Keyless Chuck with No. 2 Morse taper shank to fit headstock or tailstock of 11-inch Lathe. Invaluable for drilling in lathe. Holds drills up to $\frac{17}{32}$"..... **$3.40**

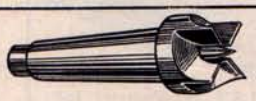
Shipping Weight 2½ lbs. Code Word CHTAP.

No. 695 Right-angle tool support. Fits both 9-inch and 11-inch Lathes. Has 1" diameter shank to fit No. 696 and No. 941 bases, and 697 floor stand. Extremely useful for faceplate work... **$1.50**



Shipping Weight 3 lbs. Code Word TOSRA.

No. 933 Drive Center for 11-inch Lathe. With No. 2 Morse taper shank. Has replaceable center pin and four accurately milled teeth. Can be used on any lathe with No. 2 Morse taper hole in headstock spindle **$1.00**



Shipping Weight 10 oz. Code Word DUBLD.

No. 934 Cup center for 11-inch Lathe. With No. 2 Morse taper shank. Has replaceable center pin. Hardened and polished. Fits any tailstock with No. 2 Morse taper hole ..... **$ .90**

Shipping Weight 10 oz. Code Word DUBLE.

No. 935 Adapter for 11-inch Lathe. Has No. 2 Morse taper shank on one end with ½" diameter on the other. Enables all lathe attachments with ½" bore to be used on 11-inch Lathe..... **$ .85**

Shipping Weight 10 oz. Code Word DUBLF.

No. 936 3" Faceplate for 11-inch Lathe. 3" in diameter for small and medium faceplate work. Faced true and provided with four screw holes. Threaded to fit headstock spindle of No. 930 Lathe. R. H. thread only.... **$1.00**

Shipping Weight 1 lb. Code Word DUBLG.

No. 937 6" Faceplate for 11-inch Lathe. 6" in diameter for large faceplate work. Has special form of thread so it can be used either on front or rear of lathe spindle; fits both right and left-hand thread.... **$2.25**

Shipping Weight 3 lbs. Code Word DUBLH.

No. 938 Hand wheel for 11-inch Lathe. 5" in diameter, fits left-hand, end of lathe spindle (left-hand thread only). Useful for quick stopping of lathe, for indexing, etc. Most professional woodturners prefer a hand wheel on their lathes **$1.95**

Shipping Weight 1½ lbs. Code Word DUBLI.

No. 941 Tool-support base for 11-inch Lathe only. Note that this base is higher than the No. 696, shown on page 46, and that it will not fit the 9-inch Lathe. V-shaped hole for ½" to 1" shank. Clamp-plate spring, washers and nut included. $3\frac{5}{16}$" high..... **$1.10**

Shipping Weight 4½ lbs. Code Word DUBLK.

No. 951 Sanding disk for 11-inch Lathe. 8½" in diameter, and threaded to fit headstock spindle of No. 930 Lathe only. Will not fit 9-inch Lathe. With one garnet disk. R. H. thread only..... **$2.25**

Shipping Weight 2¼ lbs. Code Word DUBLM.

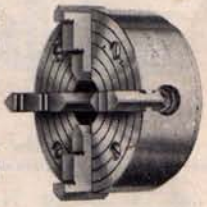
No. 939 60-degree plain center for metal turning. With No. 2 Morse taper shank for 11-inch Lathe only. Hardened and ground..... **$1.00**

Shipping Weight 12 oz. Code Word DUBLO.

No. 940 Screw center. No. 2 Morse shank for 11" lathe only. Replaceable screw, 1½" long **$1.25**

Shipping Weight 14 oz. Code Word DUBLJ.

No. 943-A 4-Jaw Independent Chuck. Very heavy cast-iron body with hardened steel jaws. Chuck diameter 4". Maximum capacity 4½". Each jaw independently adjustable. Without back plate **$7.95**



Shipping Weight 5 lbs. Code Word DUCHO.

No. 943-B Back plate for No. 943-A chuck, machined to fit No. 930 lathe **$1.50**

Shipping Weight 2 lbs. Code Word DUCHI.

No. 948 Steady rest for 11" lathe, prevents vibration of slender work. Indispensable for long turnings. Capacity, 2¼" diameter. Heavy cast-iron body, with steel shoes... **$3.50**

Shipping Weight 7 lbs. Code Word DUBRE.

No. 144 Screw-on grinding-wheel arbor for 11" lathe. Makes efficient grinding or buffing head of lathe. Right-hand..... **$1.25**

Shipping Weight 1 lb. Code Word ARBOS.

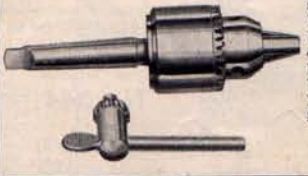
No. 145 Screw-on arbor. Left-hand.... **$1.25**

Shipping Weight 1 lb. Code Word ARBOT.

No. 697 Floor stand for tool supports, for turning faceplate work on left end of spindle. Very heavy cast tripod legs, heavy pipe support and cast tool-support socket. Fits No. 690, 692 and 695 tool supports. Invaluable for large-diameter faceplate work. Knocked down.... **$8.50**

Shipping Weight 44 lbs. Code Word TOSTA.
(Can be used on both 9" and 11" Lathes)

No. 968 Geared chuck with No. 2 Morse taper shank to fit headstock or tailstock of No. 930 lathe or any No. 2 Morse taper socket. ½" capacity, knurled sleeve. With key. **$6.95**
Ship. Wt. 2½ lbs.
Code Word CHGEA.



Turning Tools: 9-in. Lathe Accessories

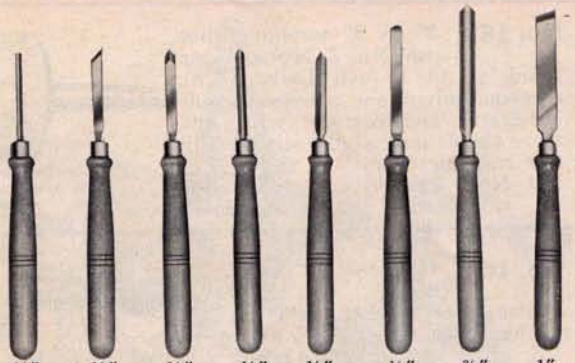
Alloy-Steel Woodturning Tools

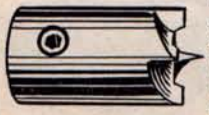
Our wood-turning tools are made of very high-grade Alloy Steel, which will not lose its edge even if the tools become so hot that they turn blue. They are sharpened ready for use. They are fitted with extra-long hardwood handles (1¼" diameter x 10½" long). The overall length of each tool is approximately 15". They should not be confused with ordinary carbon-steel tools, as they are superior in every way.

No. 121 1" Skew Chisel. Code word SKERE **$1.35**
No. 122 ¾" Gouge. Code Word GOUGU **1.35**
No. 123 ¼" Gouge. Code Word GOUSA ..... **.90**
No. 124 ½" Skew Chisel. Code word SKEWO ..... **.80**
No. 125 ⅛" Parting Tool. Code word PARTO ..... **$ .80**
No. 126 ½" Gouge. Code word GOUGO **1.00**
No. 127 ½" Spear Point. Code word SPEAR ..... **.80**
No. 128 ½" Round-Nose. Code word RONOS ..... **.85**

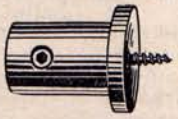
Shipping Weight 1¼ lbs. each.

No. 130 Set of Eight Turning Tools, styles and sizes as above.... **7.50**
Shipping Weight 6 lbs. Code Word TOSET.

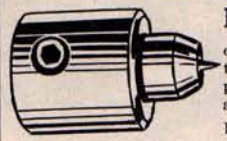




No. 138 High grade drive center for lathe with ½" diameter spindle. Replaceable center pin and four accurately milled teeth. Fits any ½" shaft, Each ..... **$ .80**
Shipping Weight 8 oz. Code Word SPURO.



No. 140 Screw center plate for ½" diameter spindle. Excellent for turning work too small for regular faceplate. 1½" diameter body. Fits any ½" shaft. Each ..... **$ .80**
Shipping Weight 12 oz. Code Word SCREC.

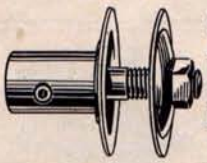


No. 141 Hardened and well-made cup center for ½" diameter tailstock of lathe. With replaceable center point. Fits any ½" shaft. Each ..... **$ .70**
Shipping Weight 8 oz. Code Word CUPPO.

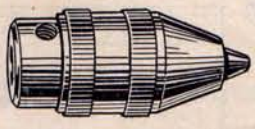
No. 111 5" diameter, high - quality, fast cutting emery wheel. Grit 60. ½" wide. With ½" hole to fit No. 118 and No. 165 grinding-wheel arbors..... **$1.25**
Shipping Weight 1¼ lbs. Code Word GRIND.

No. 113 6" diameter buffing wheel, for polishing plated parts and buffing or cleaning metal work of all kinds. Two sections, 6" dia. with ½" hole..... **$ .65**
Shipping Weight 8 oz. Code Word BUFFO.

No. 116 6" diameter wire wheel for scrubbing rust from metal, removing burrs, etc. Two sections, 6" dia. with ½" hole to fit arbor **$1.50**
Shipping Weight 1 lb. Code Word WIRRO.



No. 118 Grinding wheel arbor. Rugged and strong, to carry grinding wheels, buffing wheels, wire wheels, etc., with ½" hole. Flanges machined true. Fits any ½" shaft ..... **$ .85**
Shipping Weight 1 lb. Code Word ARBOR.



No. 120 High-grade and accurately made keyless drill chuck. Holds drills up to 33/64". Fits any ½" shaft. Each **$1.75**
Shipping Weight 1½ lbs. Code Word CHUKO.

No. 192 Special extension Allen wrench for $\frac{5}{16}$" diameter Allen hollow-head setscrews as supplied on all our pulleys. Especially useful for tightening cone pulleys. 6" long. Each ..... **$ .25**
Shipping Weight 8 oz. Code Word AWREN.

No. 690 Narrow tool support, 4" wide. Has 1" diameter turned shank to fit No. 696 and No. 941 tool-support bases. Very strong and well made. No interference with hands or tools when turning **$0.75**
Shipping Weight 1¾ lbs. Code Word TOSUP.

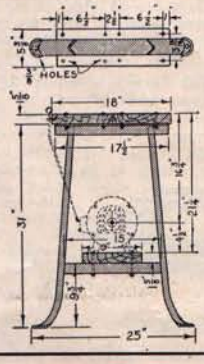
No. 143 3" diameter face-plate. Handles both small and large work. Fits any ½" shaft, and is provided with two Allen setscrews. Four holes for wood screws to fasten work **$0.75**
Shipping Weight 14 oz. Code Word FACEO.

No. 958 Steady rest for 9" lathe only. Prevents spring and vibration of long stock. Heavy cast-iron base with steel support fingers. Complete with clamp plate, stud, washer, spring and nut **$3.50**
Shipping Weight 6 lbs. Code Word NEWRS.

No. 696 Tool-support base. Has V-shaped hole for ½" to 1" dia. shanks. Clamp plate, spring, washer, bolt and nut included. Fits 9" lathe only **$1.10**
Shipping Weight 4 lbs. Code Word TOSUB.

No. 694 24" Tool support: extra-wide for long turnings. 24" long with two 1" diameter shanks. Requires extra base No. 696 or No. 941, to suit lathe... **$2.15**
Shipping Weight 7 lbs. Code Word TOSUL.

No. 692 Wide tool support, 12" long. Has 1" diameter shank to fit No. 696 and 941 tool-support bases. Designed for minimum interference with tools and hands.... **$1.10**
Shipping Weight 3 lbs.
Code Word TOSUM.



Bench Legs

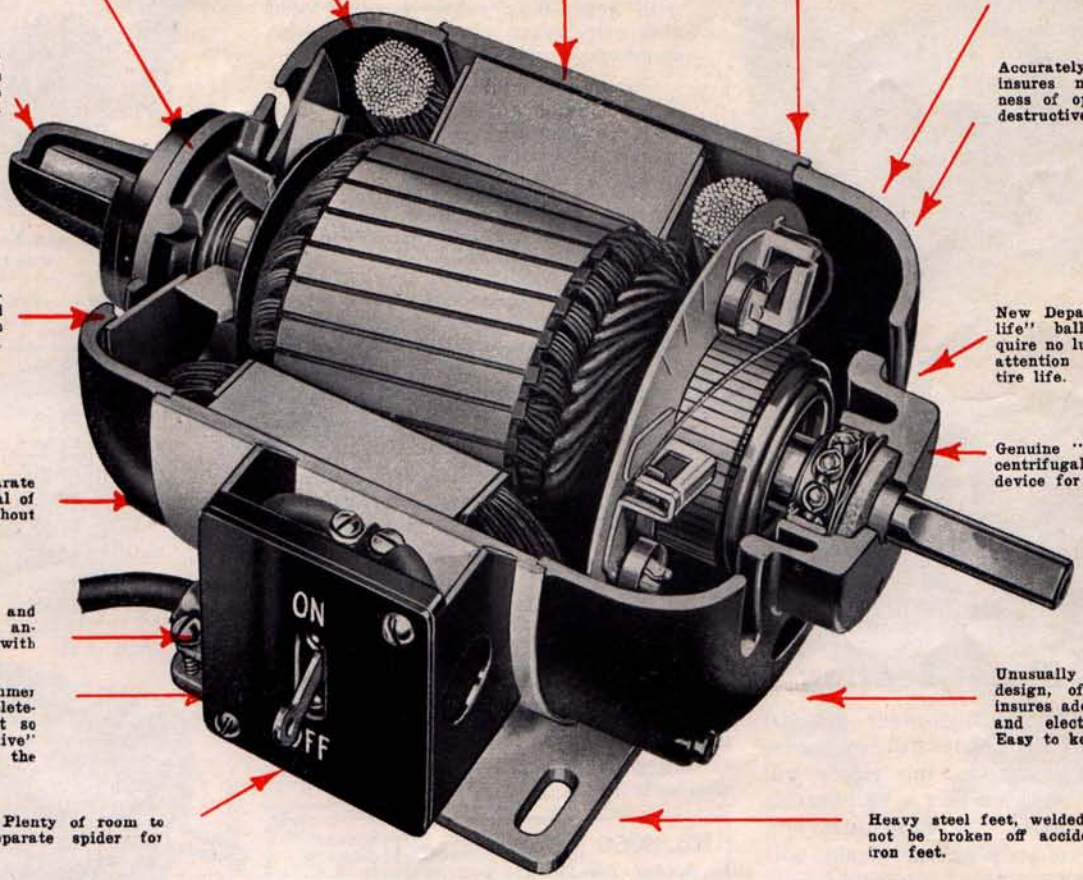
Take all the grief and hard work out of building a substantial bench. Strongly made and beautifully designed of welded steel, these legs should not be confused with cheap bolted bench legs which will not make a rigid bench. With these, all that is needed for a perfect bench is three 2" planks, 9½" wide, of good select stock. Bolt them to the legs and you have a bench that will astonish you with its rigidity. Shelf and top heights suit all our standard belt lengths.

No. 344 Steel bench leg only, as shown, Each **$3.25**
Shipping Weight 21½ lbs.
Code Word LEGSO.

No. 151 Sanding disk for 9" lathe, 8½" diameter. ¼" bore to fit 9" lathe headstock or motor shaft. With one garnet disk. For extra disks see page 49 ..... **$2.10**
Shipping Weight 2¼ lbs.
Code Word DISSA.

You Get Much More for Your Money

When You Purchase These Rugged, Dependable Motors —Built for Long, Trouble-Free Service



Powerful, well-designed fan and scientific baffling keep motor cool under load.

Field windings of highest grade enameled wire, carefully wound, insulated and tested.

Heavy, unbreakable welded-steel casing, of original design for heavy-duty service.

Oversize air passages throughout motor insure proper cooling, and keep motor power at maximum.

Large opening over commutator to provide utmost convenience in making connections or renewing brushes.

Entirely new type of shaft protector covers extra shaft and affords maximum safety (Pat. pending.)

Accurately balanced rotor insures maximum smoothness of operation; prevents destructive vibration.

Finest of enameled, cotton-covered wire and highest grade insulation used for rotor windings.

New Departure "sealed-for-life" ball bearings. Require no lubrication or other attention during their entire life.

Genuine "Master" patented centrifugal short-circuiting device for commutator.

Switch mounted on separate spider to permit removal of conduit-box cover without disturbing switch.

Heavy-duty 8-foot cord and soft-rubber plug. Cord anchored to conduit box with heavy clamp.

Heavy-duty Cutler-Hammer two-pole switch. Completely cuts off all current so that there are no "live" leads into motor when the switch is "off".

Unusually generous frame design, of modern design, insures adequate mechanical and electrical clearances. Easy to keep clean.

Oversize conduit box. Plenty of room to make connections. Separate spider for switch.

Heavy steel feet, welded to frame. Cannot be broken off accidentally like cast-iron feet.

As the typical cross-section above shows, our motors are designed and built in accordance with the very best practice in motor design. They are comparatively low in cost—but they are NOT built down to a price; quality must be maintained in every particular, and we believe that they are the finest motors obtainable at anywhere near their price.

Casings are of heavy welded steel, with steel feet welded on. These cannot be broken off by accidental impact, as may happen with cast-iron feet on cast end brackets.

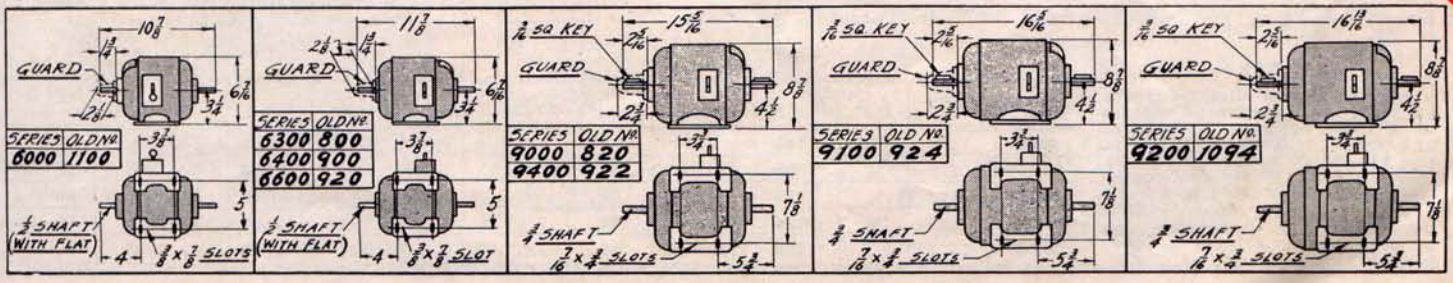
These motors will deliver more than their full rated horsepower on all machines for which they are specified. Their overload capacity, due to their generous design and fine construction, is far greater than many similar motors—the overload capacity in most types being 250% of rated horsepower or over.

Our motors in 8½" frame, rated at ½-H.P. and over, should not be confused with high-speed motors of the same rating built into small frames. Our motors are all of standard speed (1725 r.p.m.) for regular installations. We do not consider that a small-frame, high speed motor is the equal of a standard speed motor built into a large frame, or that it offers any real saving to the customer even though the original price may be lower.

Note that our switches are of heavy-duty two-pole construction (Cutler-Hammer) and are mounted on a separate spider in the extra-large-size conduit box. This switch not only cuts the current completely from the motor when the switch is "off" (which a cheap single-pole switch will not do), but also permits the removal of the conduit box cover for wiring, inspection, etc., without disturbing the switch. This is required by many electrical codes.

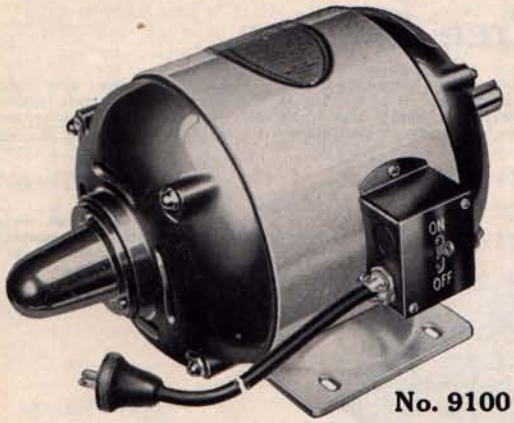
Study the features illustrated above. Compare the design and construction of these motors with others and you will realize why they offer such extraordinary value for their comparatively low cost.

Motor Mounting Dimensions



Powerful Motors for Industrial Use

Highest Value in These 1/3 to 1 H.P. Ball Bearing Repulsion-Induction Motors

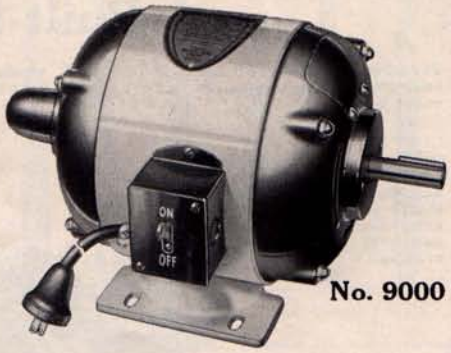


No. 9100

These motors are completely described on page 35, on which the sectional illustration shows the many features that make our repulsion-induction motors such outstanding value. Note that all of these motors are equipped with heavy-duty rubber-covered cord and soft-rubber plug, together with double-pole switch.

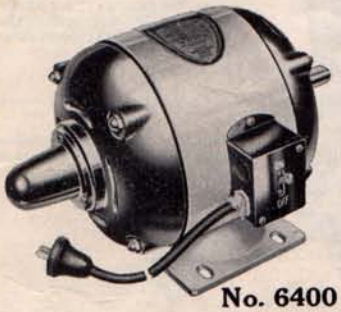
Our motors built into 8½" diameter frame should not be compared with high-speed motors rated at the same power, but built into 6" frames for special service.

Made for use on either 110 or 220-volt lines, they are normally supplied connected for 110 volts.



No. 9000

Design and Letters Patent Pending



No. 6400

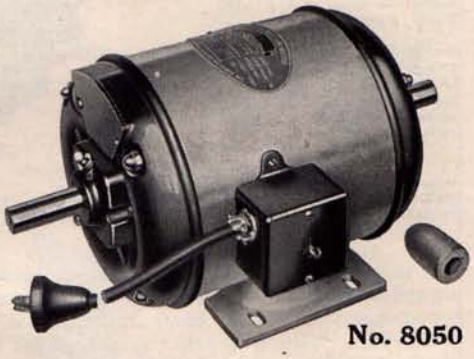
New No.	Old No.	H.P.	R.P.M.	Volts	Cycles	Frame	Shaft	Bearings	Price	Code	Ship. Wt.
6400	900	⅓	1725	110/220	60	6"	½"	Ball	**$19.95**	SACCA	34 lbs.
6410	901	⅓	1425	110/220	50	6"	½"	Ball	**19.95**	SACCD	34 lbs.
6420	906	⅓	1425	110/220	25	6"	½"	Ball	**29.85**	SACCF	34 lbs.
9000	820	½	1725	110/220	60	8½"	¾"	Ball	**31.85**	NACAA	68 lbs.
9010	821	½	1425	110/220	50	8½"	¾"	Ball	**31.85**	NACAC	68 lbs.
9020	829	½	1425	110/220	25	8½"	¾"	Ball	**33.85**	NACAE	68 lbs.
9100	924	¾	1725	110/220	60	8½"	¾"	Ball	**37.85**	NACBA	80 lbs.
9110	925	¾	1425	110/220	50	8½"	¾"	Ball	**37.85**	NACBC	80 lbs.
9200	1094	1	1725	110/220	60	8½"	¾"	Ball	**43.85**	NACDA	85 lbs.
9210	1095	1	1425	110/220	50	8½"	¾"	Ball	**43.85**	NACDE	85 lbs.

½-H.P. Sleeve-Bearing Repulsion-Induction Motors

Built to the same high-grade material specifications as our regular ball-bearing repulsion-induction motors, this motor will give splendid service where a ball-bearing motor is not required. It is fitted with 8-ft. cord and soft-rubber plug, with double-pole switch, but switch is not mounted on separate spider in box. Equipped with plain bronze bearings with wick oiling system. Furnished with plain wood shaft protector instead of non-rotating type.

Should not be used for vertical installation or with No. 1426 Disk Sander.

No. 8050 (Old No. 1120) Sleeve-bearing Repulsion-Induction Motor, for 110-220 volt, 60-cycle A. C. 1725 R.P.M. With switch, cord and plug **$24.85**
Shipping Wt. 65 Lbs. Code Word EACBA.



No. 8050

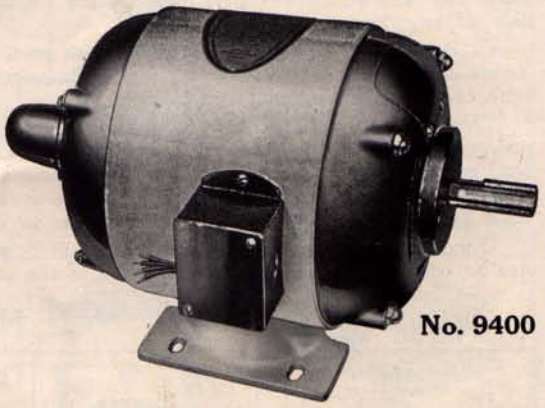
1/3 to 1 H.P. 3-Phase Heavy-Duty Motors

Three-phase motors are particularly adapted for industrial and school installations, and should be specified for all heavy-duty, continuous production applications, especially where large gangs of machines are installed (which should not be operated from lighting circuits).

When so used, three-phase motors will save from 30 to 40 per cent of the power consumed by split-phase and similar motors, besides delivering greater power and lowering maintenance costs.

Identical in material specifications with our repulsion-induction motors, they are not supplied with switch, cord or plug, as they must be connected in conduit.

Note that ½-H. P. three-phase motors in 6" frame cannot be used on 17" drill press.



No. 9400

NOTE

We can supply direct-current and alternating-current motors in a wide variety of voltages and frequencies in addition to the standard motors listed on these pages. Write for quotations on motors not listed here.

Three-phase motors cannot be furnished with switch, cord or plug, as they must be connected by an electrician.

New No.	Old No.	H.P.	R.P.M.	Volts	Cycles	Frame	Shaft	Bearings	Price	Code	Ship. Wt.
6500	802	⅓	1725	220	60	6"	½"	Ball	**$18.85**	SACDA	31 lbs.
6600	920	½	1725	220	60	6"	½"	Ball	**23.85**	SACHA	33 lbs.
6610	921	½	1425	220	50	6"	½"	Ball	**23.85**	SACHF	33 lbs.
9400	922	¾	1725	220	60	8½"	¾"	Ball	**38.85**	NACHA	80 lbs.
9502	1512	1	1725	220/440	60	8½"	¾"	Ball	**44.85**	NACKC	85 lbs.

Motors Built for Dependable Service

1/4 and 1/3-H.P. "Double-Duty" Split-Phase Motors

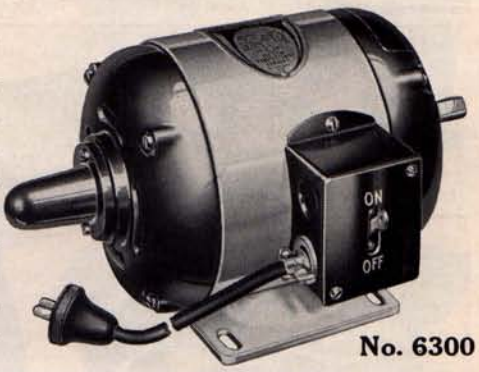
These ¼ and ⅓-H.P. Split-Phase Motors are built to exactly the same material specifications and exacting standards of workmanship as the motors described on the previous pages. They represent exceptionally high value at low cost.

All, with the exception of Nos. 6000, 6010 and 6020, (which have wick-lubricated bronze bearings) they are equipped with New Departure "sealed-for-life" ball bearings. Fitted with fool-proof starting winding switch, and with double-pole on and off switch, cord and soft-rubber plug.

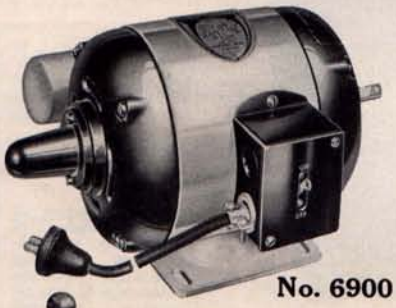
All have double shafts, ½" diameter x 1½" long, with the extra shaft covered by our new non-rotating shaft protector (Pat. Pend.)

New No.	Old No.	H.P.	R.P.M.	Volts	Cyc.	Bearings	Price	Code	Ship. Wt.
6000	1100	¼	1725	110	60	Bronze	**$ 8.50**	SACAA	27 lbs.
6010	1101	¼	1425	110	50	Bronze	**8.50**	SACAD	27 lbs.
6020	1108	¼	1425	110	25	Bronze	**12.85**	SACAG	27 lbs.
6300	800	⅓	1725	110	60	Ball	**13.85**	SACBA	31 lbs.
6310	798	⅓	1425	110	50	Ball	**13.85**	SACBD	31 lbs.
6320	795	⅓	1425	110	25	Ball	**19.85**	SACBG	31 lbs.

Only ⅓ or ½-H.P. motors in 6" frame should be specified for use on 14" drill presses. Do not order ¼-H.P. motors for this service. Do not specify bronze-bearing motors in vertical installations. Write for prices on other voltages, etc.



No. 6300



No. 6900

Reversing switch at left is standard on Nos. 6900 and 6910 motors. Can also be used on any standard split-phase motor having both ends of starting winding brought out. Cannot be used on our regular repulsion - induction motors.

High-Speed Reversible ½ and 1-H.P. Shaper Motors

Specially designed for use on No. 1180 shaper, these motors are intended for high-speed work. They are made in three types; a capacitor-type motor in 6" frame, intended for light shaper duty, a heavy powerful repulsion-induction motor, reversible at will and a 1-H.P. heavy-duty three-phase motor. Speeds of all motors are 3450 r.p.m. Shaft size, ½-H.P. motor is ½"; 1 H.P. motors have ¾" shafts. ½ H.P. motor fitted with reversing switch shown at left. 1 H.P. repulsion-induction motor fitted with reversing mechanism on brush ring.

1-H.P. motors should always be specified for production work on the shaper. They should be connected to 220-volt power line wherever possible.

No. 8100

No. 6900 (Old No. 915) ½-H.P. 3450 R.P.M. Ball-Bearing Capacitor Motor, for 110v. 60-cycle. A. C. only. With special 4-wire cord, reversing switch, 8-ft. 2-wire cord and plug, connected ready for use. Complete **$24.85**
Shipping Weight 42 Lbs. Code Word SACLA.

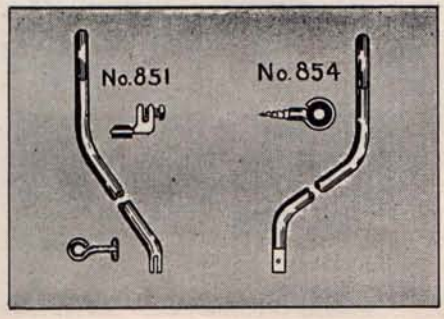
No. 6910 (Old No. 916) ½-H.P. 2850 R.P.M. Ball-Bearing Capacitor Motor, with reversing switch, 4-wire cord, 2-wire cord and plug. Same as No. 915 but for 110v, 50-cycle A. C..... **$24.85**
Shipping Weight 42 Lbs. Code Word SACLI.

No. 6920 (Old No. 917) ½-H.P. 3450 R.P.M. Ball-Bearing Capacitor Motor, same as No. 915, but without reversing switch or 4-wire cord. With plain 2-pole toggle switch and 8-ft. cord and plug. **$22.75**
Shipping Weight 41 Lbs. Code Word SACMA.

No. 1116 Reversing switch only, for use on No. 917 motor, or with any standard split-phase motor. With four wire cord, connected..... **$ 3.95**
Shipping Weight 2 Lbs. Code Word SWREV.

No. 8100 (Old No. 1075) 1-H.P. Ball-Bearing, 3450 R.P.M. Shaper Motor. With built-in reversing mechanism, on-and-off switch connected to motor with BX cable, 9-ft. cord and rubber plug. Single shaft, ¾" diameter. For 110-220 v. 60-cyc. A. C..... **$48.85**
Shipping Weight 85 Lbs. Code Word EACCA.

No. 9532 1-H.P. Three-phase Ball-Bearing, 3450 R.P.M. Shaper Motor. Not furnished with reversing switch, on-and-off switch or cord and plug, as it should be connected to 220 or 440 v. 60-cycle line by licensed electrician **$42.85**
Shipping Weight 85 Lbs. Code Word NACKS.



Switch Rods for Finger-Tip Motor Control

No. 848 Switch Rod for Motor in Units No. 90 and 652. With screw eye, also fits No. 6300 motor in units No. 950 and 960... **$0.45**
Code Word RODSA.

No. 849 Switch Rod for Motor in Units No. 360, 668 and 747, with clamp..... **.45**
Code Word RODSB.

No. 851 Switch Rod for Motor in Units No. 296, 668, 747, 766, 365, 368, 878, 892, 1350 and 1164. With clamp and loop..... **.45**
Code Word RODSD.

No. 854 Switch Rod for Motor in Units 950 and 960, with screweye ..... **.45**
Code Word RODSO.

No. 855 Switch Rod for Motor in Unit No. 714. Similar to rod No. 848, but with clamp instead of screweye..... **.45**
Code Word RODSP.

No. 856 Switch Rod for Motor in Units No. 878 and 1350. Same as No. 854 with clamp instead of screweye..... **.45**
Code Word RODSQ.

Shipping Weight 1½ Lbs. Each Set.

Efficient Motor-Driven Tool Grinders

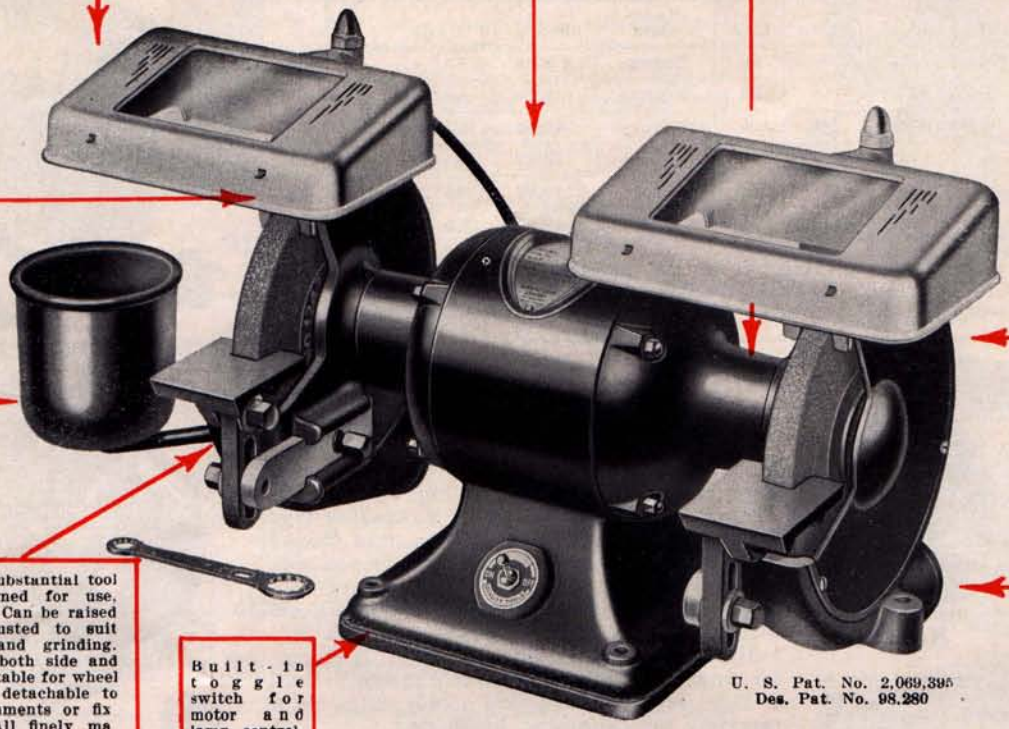
New Twin-Lite Lamp Attachment and Safety Shield Floods the wheel and work with light from both sides, permitting much more accurate grinding and making the grinder independent of the shop lighting system. Quickly replaceable bulbs (two in each shield), thoroughly ventilated and fitted with polished reflectors. Shield has double-thickness safety glass panel, held with spring clips and instantly replaceable. Rigid construction and unobstructed view of work.

Flexible cable to bayonet lamp sockets. Cables vulcanized in rubber to prevent shocks.

Precision double-seal New Departure ball bearings on all grinders. NO OILING REQUIRED FOR ENTIRE LIFE OF BEARINGS, and no trouble due to entrance of abrasive dust. Plenty of working space between wheel guard and motor housing: no interference with work when grinding.

Adjustable spark guard at top of wheel. Can be adjusted downward to preserve safety as wheel wears.

Substantial cast-iron water pot, 4¼" diam. by 4¼" long, mounted on swing bracket.



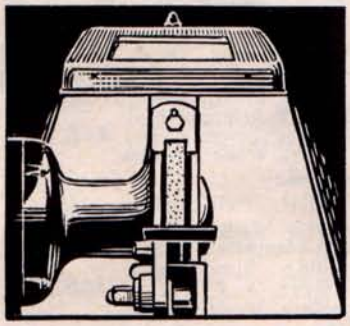
Very efficient wheel guards. Only the actual grinding section of the wheel is exposed. Built-in dust chute scientifically designed to discharge abrasive dust to rear of machine. Practical, safe and efficient.

Very efficient and substantial tool support—really designed for use, and not a makeshift. Can be raised and lowered or adjusted to suit any type of free-hand grinding. Permits grinding on both side and face of wheel. Adjustable for wheel wear, and instantly detachable to permit special attachments or fixtures to be used. All finely machined—not rough castings.

Built-in toggle switch for motor and lamp control

U. S. Pat. No. 2,069,395
Des. Pat. No. 98,280

Highest-grade 7" Aloxite wheels on all models, precision balanced to 1/100 inch ounce. Precision balancing is an expensive operation, but essential to insure accurate work and vibrationless running.



The Lamp Attachment throws a flood of light on the face and on BOTH SIDES of the wheel, making close work easy and fast. Des. Pat. No. 98,280.

View of the underside of the lamp attachment, showing the bayonet-type bulbs No. 1280, polished reflectors, neat, safe wiring and strong construction.

No. 1240 Ball-Bearing Single-Phase Grinder

From double-seal ball bearings to Twin-Lite safety-glass shields, these new grinders offer the utmost in efficiency, convenience and safety. New standards of grinder design have been set with every model. Wheels are balanced to within 1/100 inch-ounce to insure vibrationless performance and accurate tool grinding....the Twin-Lite Safety Shields provide perfect vision and complete illumination on both sides and the face of the wheel....ball bearings are lubricated for their entire life....accurate tool supports, adjustable spark guards, swinging water pot—every feature has been considered to make these the most efficient grinders yet developed for all-around work.

You will recognize in them honest value, and tools built for a life-time of trouble-free operation.

No. 1240 Motor-Driven Bench Grinder, for 110v, A. C. 60 cycle current, complete with ¾"x7" 60-J and 60-K Aloxite wheels, two Lamp Attachments, Water Pot and Bracket, Tool Rests, Wheel Guards, Toggle Switch, Cord and Plug, without bulbs..... **$45.90**
Shipping Weight 88 lbs. Code Word GRINA.
(For 110v, 60 cyl. Single Phase A. C. only. 3450 R.P.M. unless 1750 is specified.)

No. 1245 7" Aloxite wheel, balanced within 1/100 oz.-inch, 60 grit, Grade J, ⅝" Hole..... **$3.25**
Shipping Weight 2 lbs. Code Word GRINJ.

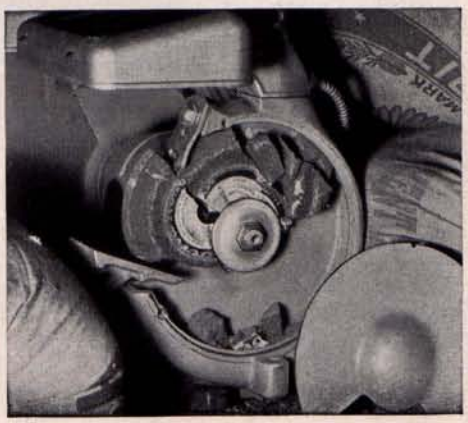
No. 1247 7" Aloxite wheel, balance, within 1/100 oz.-inch, 60 grit, Grade K, ⅝" Hole..... **3.25**
Shipping Weight 2 lbs. Code Word GRINK.

No. 1250 Lamp Attachment and Safety Shield (one only) with sockets, reflectors and armored cable, but without lamp bulbs.....each **5.75**
Shipping Weight 3 lbs. Code Word GRILT.

No. 1280 Lamp Bulb for Safety Shield, each..... **.40**
Shipping Weight 8 oz. Code Word GRILB.

Safety Plus!

To test the strength and completeness of the guarding of these grinders, a number of wheels were deliberately smashed with a rifle bullet while the grinder was running at speeds from 3400 to 8000 R.P.M. Photo at the right shows one wheel that was smashed at the highest speed—and it can be plainly seen what happened to the guard—nothing! The spark guard was slightly bent, and that was all. That's safety plus! Why take chances with inferior grinders?



Precision Pedestal Tool Grinders

The Finest, Safest and Most Accurate Grinder Made—Regardless of Price!

Specifications: Pedestal Models!

Heavy, well-proportioned cast-iron base, 14½ by 15½ in., with column, 12 by 18-in. tool tray and two 2 by 4-in. water pots.

Motor equipment: Either ½-H.P. single-phase 110v. 60-cycle a.c. ball-bearing motor or ½-H.P. three-phase, 220v. 60-cycle motor, 1750 or 3450 R.P.M. Ask for prices on other voltages.

Single-phase motors may be equipped with plain toggle switch or with push-button overload relay switch. Three-phase motors have push-button relay switch as standard equipment, but no cord or plug.

Twin-Life Safety Shields standard on all models. Fitted with safety glass, and equipped with bakelite sockets for bayonet-base bulbs, which light wheels on both sides and face. Provide perfect safety from flying chips and dust, and efficient light just where it is needed without glare in the operator's eyes.

Lights wired to switch so they light when grinder is operated and are switched off automatically. Bulbs extra. Armored cable to lamps, vulcanized in rubber. Polished reflectors and ventilated lamp housings. Balanced 60J and 60K Aloxite wheels, ¾" face by 7" diameter, ⅝" hole. Absolutely true running to prevent vibration and permit accurate tool grinding.

Tool rests are 39" from floor, and fully machined—not rough castings difficult to adjust—and are fully adjustable vertically and horizontally. Designed so that full advantage may be taken of side of wheels as well as face. Instantly removable.

Heavy cast-iron wheel housings with steel end plates. Designed to meet the specially strict requirements of the Wisconsin Industrial Commission. Chute discharges abrasive dust to rear. Spark guard at top of wheel adjustable for wheel wear.

Extended motor end housings provide plenty of room around wheel for handling odd-shaped work—one of the drawbacks of ordinary grinders.

No. 1242 Motor Driven Pedestal Grinder, ½" H.P., for single-phase 110v. 60-cycle A.C. with Toggle Switch, ¾"x7" balanced Aloxite wheels, Tool Rests, Wheel Guards, Tool Tray, Two Water Pots, Twin-Lite Safety Shields, wired to switch, Armored Cables to Safety Shields, Wheel Wrench, Allen Wrench, 8-foot Cord and Soft-Rubber Plug. Without Lamb Bubs **$69.50**
Shipping Weight 194 lbs. Code Word GRINC.

No. 1268 Motor Driven Pedestal Grinder, ½ H. P., for single-phase 110-v, 60-cycle A. C. Similar to No. 1242, but with push-button overload relay switch, as illustrated. Without Lamp Bulbs..... **$77.85**
Shipping Weight 194 lbs. Code Word GRINT.

No. 1246 Motor Driven Pedestal Grinder, for three phase 220-v, 60-cycle A. C. Equipment same as No. 1242, but with three-phase push-button overload relay switch. Without cord, plug or lamp bulbs..... **$83.50**
Shipping Weight 194 lbs. Code Word GRING.

No. 1245 7" Aloxite wheel, balanced within 1/100 oz.-inch, 60 grit, Grade J. ⅝" Hole **$3.25**
Shipping Weight 2 lbs. Code Word GRINJ.

No. 1247 7" Aloxite wheel, balanced within 1/100 oz.-inch, 60 grit, Grade K. ⅝" Hole **$3.25**
Shipping Weight 2 lbs. Code Word GRINK.

Note: All above grinders are supplied in 1750 or 3450 R.P.M. Please specify speed required. 3450 R.P.M. supplied if 1750 not specified.

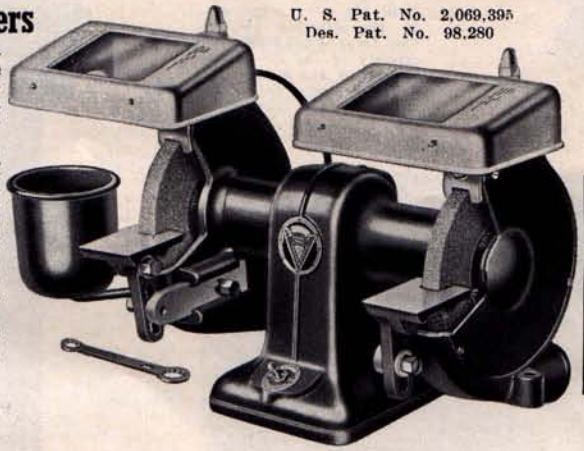
Belt Drive Grinders and Buffers

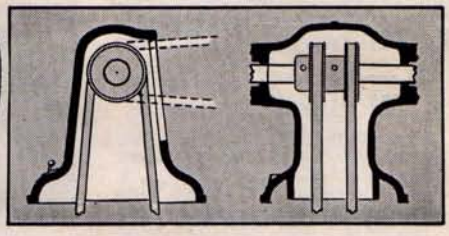
Here, for the first time, is a belt-drive grinder that is a real machine tool and not a toy. From its substantial cast-iron housing to its precision double-seal ball bearings, it is a tool worthy of the finest shop.

It is especially applicable to use in districts where the current is not of standard voltage or frequency, and where special motor grinders are expensive if available at all. With this grinder, any motor may be used. It may be driven either from below or from the rear from any motor or shaft, and is 100% flexible.

Housing is designed so that either single or double-belt drive may be employed as shown at the right. Wheels are 7" diameter with ⅝" holes, carried on a heavy alloy-steel arbor ⅞" in diameter at the center.

U. S. Pat. No. 2,069,395
Des. Pat. No. 98,280





Above is shown the No. 1282 buffing head, offering high-grade engineering and construction at the price of a cheaply made tool.

Identical in design with the belt-drive grinder, but with the wheels, light attachments, tool rests and switch omitted, the buffer shown at the left offers superlative value at a moderate price. For buffing, polishing, scratch brushing and other operations where guards, rests, etc., are not required, it provides a simple, substantial, long-life machine that fills every requirement.

A No. 387 V-belt is standard equipment on both the belt-drive grinder and the buffer.

No. 1248 Belt-Drive Bench Grinder, complete as illustrated, with balanced wheels, Twin-Lite Safety Shields, water pot and swinging bracket, toggle switch wired to lamps, wrenches, pulley and belt, but less motor pulley and lamp bulbs **$28.85**
Shipping Weight 58 lbs. Code Word GRINH.

No. 1282 Belt-Drive Buffing Head, same as No. 1248, but less wheels, guards, safety shields, tool rests and switch. With belt and arbor pulley..... **$11.85**
Shipping Weight 22 lbs. Code Word GRIBU.

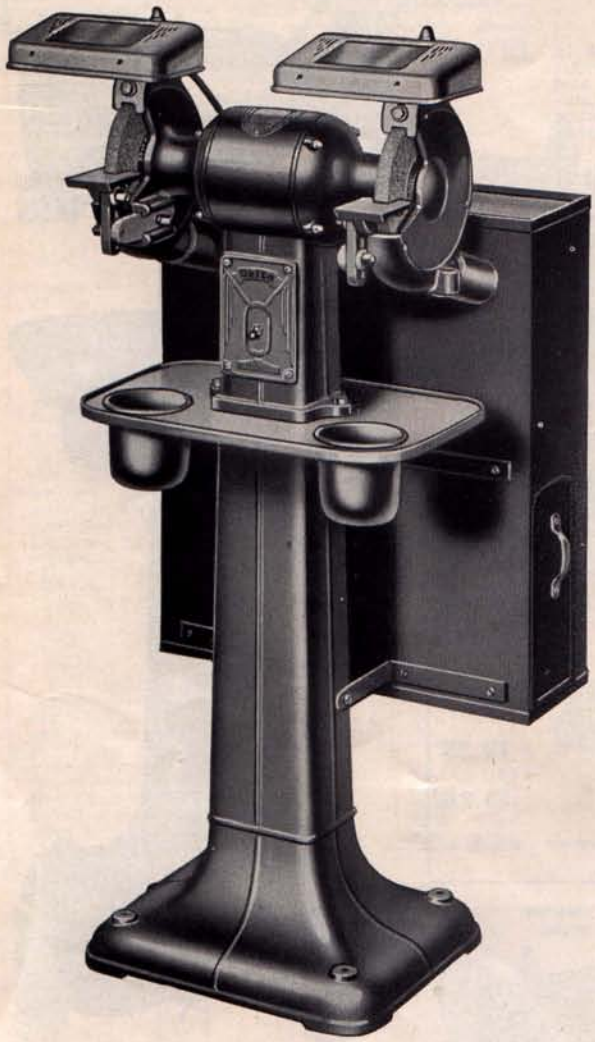
No. 387 V-Belt for above machines..... **.85**

No. 5500 5" Motor pulley, ½" bore..... **.75**

Note: With the above motor pulley a 1750 R.P.M. motor is recommended. Machine should not run over 3400 R.P.M. Nos. 6300 and 6400 motors are suitable for average work. For heavy work use No. 9000 or 8050 motor and double-belt drive.

NEW! Collector Reduces Dust Hazard!

Novel Unit Requires No Extra Power: No Connections to Blower System!



Advantages of Dust Removal Applied to Small Tool Grinders for First Time

Now, for the first time, you can obtain a dust-collector system for the small tool grinder which eliminates the objections that formerly prohibited the application of this highly important feature in grinding operation!

Here is a unit that can be attached to any of our **pedestal** grinders....which requires no extra power to operate....which need not be connected to a shop blower system ....which is simple and inexpensive. No blower is required. Instead, there is a scientifically designed housing, fitted with an interior baffle plate which traps all the relatively heavy particles of abrasive and metal dust and deposits them in the bottom of the housing. The fine dust—so fine that it can barely be seen—is trapped by highly efficient dust filters developed for air conditioning. The area of these filters is so large, and the velocity of the air passing through them so low, that virtually all of the dust is trapped in the filters instead of being discharged into the air.

No Installation Problem

Since the unit is Self-Contained, it need not be connected to a shop dust removal or suction system. There is thus no problem of installation—no expense for piping or ducts.

No Extra Power Required

Since no blower is necessary, there is no extra expense for power to operate the dust-removal system. The unit is silent, neat, compact and inexpensive.

Grinder Used Anywhere

Since there is no blower, no piping, no permanent wiring or ducts, the grinder remains completely portable and can be placed anywhere in the shop to suit the work.

No Service Problem

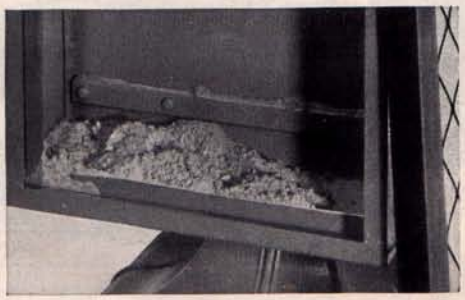
There are no moving parts and nothing else to get out of order. All that must ever be done to service the unit is to replace an inexpensive standard dust filter.

Left, view of pedestal grinder with dust-collecting unit attached. Note that there are no connecting pipes, no blower and no extra wiring. Grinder remains as completely portable as before and can be placed anywhere to suit the work.

Right, rear view of dust-collecting unit on grinder, showing the dust filter. Note the very large area of the filtering surface. This large area lowers the velocity of the air passing through it and permits the filter elements to collect the maximum amount of the fine, invisible dust particles.

This Dust Ordinarily Is Discharged into the Air — to Get into the Workers' Lungs

The photo at the right shows a few weeks' deposit of abrasive and metal dust caused by a busy toolroom grinder. This would ordinarily be discharged into the air and onto the floor of the room. This does NOT show the fine dust caught by the filter!



Now You Can Avoid This—at Small Cost!

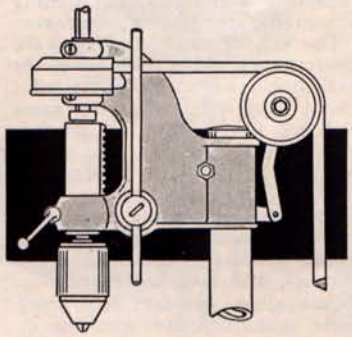
This new motorless dust-removal unit offers you—for the first time—the opportunity of equipping your tool grinders with an efficient means of reducing grinder-dust hazards in your shop at small cost. Safety experts and industrial engineers agree that elimination of dust hazards is of great importance in promoting workers' efficiency and health. **[Note: Before ordering, check to see that installation of this unit will conform to local industrial commission requirements.]**

No. 1292 Dust-Collector Unit to fit any of our Pedestal-Grinder Models. Complete with replaceable air filter, mounting brackets and screws **$28.75**
Shipping Weight 50 Lbs. Code Word DUSTO.

No. 1293 Air Filter for No. 1292 Unit. .....Each **2.30**
Shipping Weight 5 Lbs. Code Word DUSTY.

Before You Purchase Any Drill Press

Make Sure It Has BOTH a Self-Aligning Drive and a Free-Floating Spindle



The first successful ball-bearing drill press in the small-tool field was our No. 620 drill press shown at the left. This was a four-bearing drill press. One ball bearing was used above the spindle pulley and one below. Two ball bearings were used to carry the spindle in the quill. Since in this design none of the belt pull was transmitted to the spindle, we called this type of drive "free-floating".

Our engineers soon found that this type of design, while excellent for its original purpose, had certain decided limitations. In the course of years of experiment and study incidental to the introduction of 14" sensitive drills for industrial use (in which we were the pioneers), we tested dozens of different ball-bearing combinations in dozens of different designs—and finally evolved the present patented three-bearing design used in our 14" drill presses.

Our exceptionally wide experience has convinced us that this three-bearing design is far superior to any four-bearing drill press using the type of design that we formerly used on our now-obsolete No. 620 drill press. And the experience of thousands of users bears out our own experience.

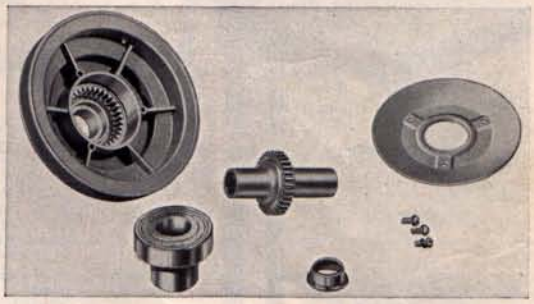
Only Our Patented Design Gives You BOTH of These Features!

With the latest and most modern machine equipment, including "diamond-boring" machines as used in our shops, it is an easy matter to bore drill-press bearing housings, quill seats, etc., to close tolerances. But the design of a high-speed telescoping drill-press spindle drive requires more than precision machining—it requires a design that will *stay* in alignment. And there are a number of factors that make this problem more difficult than it looks.

First, the comparatively long range of telescoping of the spindle and quill; second, the high speed at which the spindle rotates; third, the fact that the quill and spindle must be locked or clamped in various locations; fourth, the fact that the spindle is often subjected to severe side thrusts, and so on. When all these factors are considered, it is obvious that the slightest variation in alignment is likely to produce difficulties.

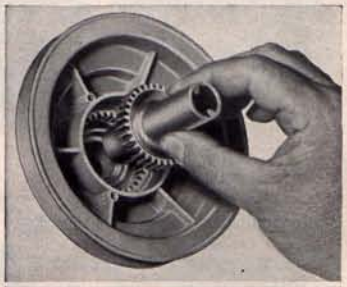
The mis-alignment encountered in service may be small — perhaps not more than .002"—but we consider that even this slight amount is sufficient to cause trouble in high-speed spindles, and it is this trouble that our patented type of drive is designed to prevent.

In a four-bearing drill press similar to our now obsolete No. 620 machine, you may have a so-called "free-floating" design, in which the belt pull is not transmitted to the spindle. But you do NOT have the self-aligning features of our improved drive (designed to overcome the troubles of the four-bearing type) because these features are *patented*.



This photo shows the drive pulley with its internal gear, the floating sleeve with its spur gear, the huge ball bearing that carries the pulley and the lower pulley cover plate.

How the floating sleeve is engaged with the internal gear in the pulley is shown in the first photo. This forms a clutch which permits the sleeve to float in all directions but one.



The floating sleeve engaged with the pulley. This forms a positive driving medium for the spindle, but at the same time takes up any minute variations in alignment that may occur in service.

The pulley is carried on a large sealed-for-life ball bearing, requiring no lubrication, and with a load capacity far in excess of any pull ever placed on it by the belt.

There is no power-wasting fan action in this pulley, because the plate that secures the bearing in place also completely covers the pulley ribs—the final detail of a high-grade design.

The Spindle Drive STAYS Aligned!

From the outside, our driving pulley looks like any other simple pulley. But, as the photos show, it is actually radically different. The pulley itself is carried on a huge sealed-for-life ball bearing, of special deep-groove tight-fitting design, with enormous reserve capacity above that required to take the belt pull, and requiring no lubrication or other attention. This bearing is mounted by means of a special extension of the inner race so that it cannot be sprung. This is very important.

The actual drive of the pulley is transmitted to the spindle through a floating sleeve, with spur-gear teeth cut around its hub. These teeth mesh with an internal gear in the pulley so that the sleeve can "float" in **all** directions except the driving direction. This floating sleeve drives the spindle through splines fully 3¼" long.

The underside of the pulley is covered with a heavy pressed-steel plate, which not only secures the bearing in the pulley, but which also covers the pulley ribs and prevents power-wasting "fan action" and keeps out dirt when the drill head is operated upside-down.

Study the action of the floating sleeve and you will see that you not only get a true "free-floating" drive, but that you also get complete freedom from misalignment troubles due to wear or any other service conditions. This drive **stays** aligned!

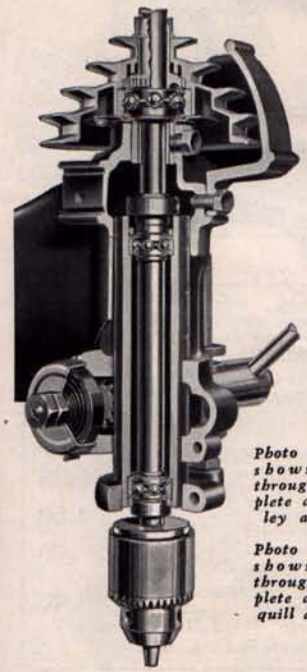
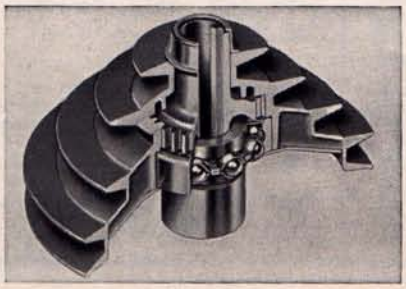
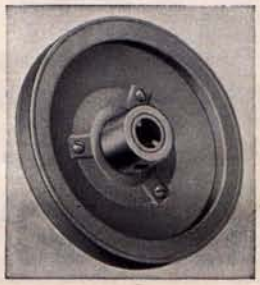
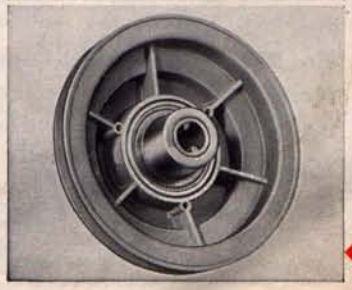


Photo at right shows section through complete drive-pulley assembly.

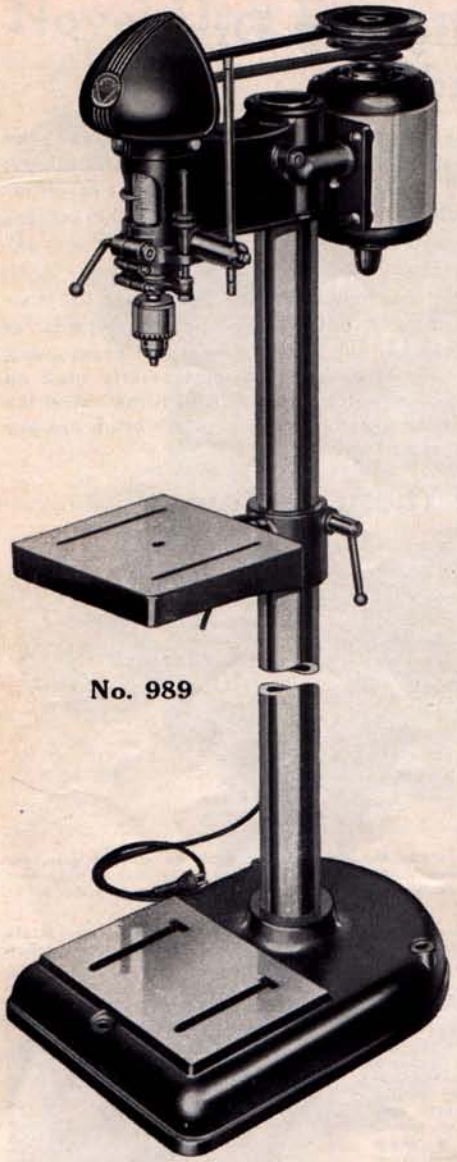
Photo at left shows section through complete drive and quill assembly.







Bench and Floor Model Drill Presses



No. 989

This Drill Press Cuts Costs for Thousands of Industrial Shops. It Will Save Time and Money in YOUR Shop!

There are many reasons why this drill press is the one that you should buy for all drilling up to ½" in metal, whether it is to be used for industrial, school or home shop. The experience gained during our development of drill presses of this type for industrial purposes insures that it is the finest machine of its kind you can buy.

For industrial use, the advantages of low initial investment, plus very low maintenance and power cost, are so obvious that thousands of industrial shops use these tools for these reasons alone. But there are additional advantages that make them the ideal machines for production use. They are completely portable, so that they require no installation expense and can be set anywhere in the shop to suit changing production conditions. They can be used to supply additional spindles on multi-spindle machines. They can be set up alongside other machines so as to employ the operator's idle time. They can be used to make up complete, self-contained drilling units which actually cost less than conventional jigs. The heads can be used to make up special drilling units at a fraction of the cost of special machines for the same job.

In the school shop, they offer the same advantages of low first cost, low maintenance and power cost, portability and adaptability. They can be used for drilling and boring in metal or wood, for shaping, routing, surface grinding, mortising and sanding, and the design of the interchangeable spindles insures minimum overhang under the quill bearings, and thus better work.

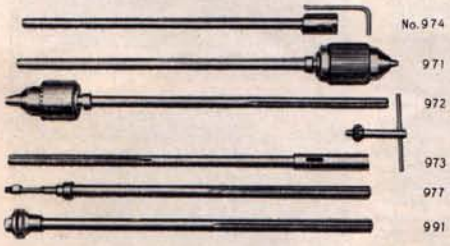
For the home shop, the fact that thousands of these machines are used in industrial and school shops is evidence that they offer maximum value. And its versatility—the dozens of jobs that can be done on it—makes this drill press a favorite with all craftsmen who know **good** tools

"Sealed-for-Life" Bearings Eliminate Lubrication

No lubrication is ever required on these drill presses. The New Departure bearings used throughout are lubricated and sealed at the factory, and require no further attention during their entire life. Both floor and bench-type machines are equipped with Jacobs' geared chucks of full No. 60 to ½" capacity. These should not be confused with lighter chucks of from ⅛" to ½" capacity. All chucks are balanced for high-speed work. Spindles have deep double splines, which insure proper balance and long wear due to their wide area of contact.

Condensed Specifications

Overall height:
Floor model..68" Bench model..36½"
Column diameter, both models....2¾"
Table travel:
Floor model..43" Bench model..11½"
Spindle travel, both models..... 4"
Drills to center of 14" circle.
Max. Distance, table to spindle:
Floor model.41¾" Bench model.11½"
Chuck to base:
Floor model..47" Bench model..17"
Table size, both models, 10" x 10"
Speeds, both models: 590, 1275, 2450, 5000 r.p.m.



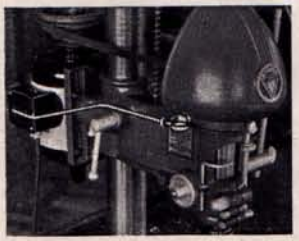
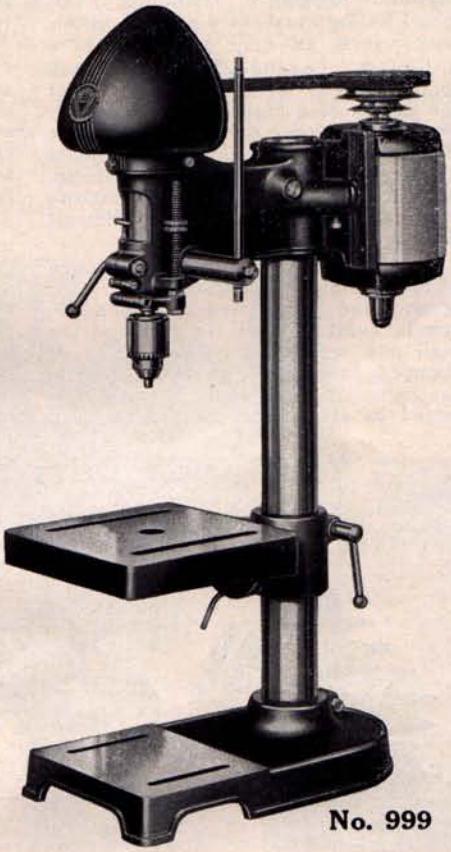


Photo at left shows how switch rod brings control of machine to finger tips of operator. This makes a very neat and simple method of motor control, without extra wiring and with minimum installation expense. There are no hanging loops of wire.



No. 999

No. 989 Floor-type 14" Drill Press, with ½" Jacobs geared chuck, No. 387 V-belt and No. 985 motor pulley. Without motor or switch rod..... **$41.85**
Shipping Weight 145 Lbs. Code Word NEWJC.

No. 387 Extra Belts for above..... **.85**
Ship. Weight 1 Lb. Code Word FORDP.

No. 985 Motor pulley, ½" bore..... **1.30**
Ship. Wt. 2½ Lbs. Code Word NEWPU.

No. 971 Spindle with Keyless Chuck, cap. 0-½".. **3.45**
Ship. Wt. 3½ Lbs. Code Word NESPA.

No. 972 Spindle with Jacobs chuck, cap. No. 60-½" **6.95**
Ship. Wt. 3½ Lbs. Code Word NESPB.

No. 970-B Complete head only for No. 989 and No. 999 drill press, with ½" Jacobs geared chuck, No. 387 belt and No. 985 motor pulley. Speeds 590, 1275, 2450 and 5000 r.p.m..... **29.50**
Shipping Weight 57 Lbs. Code Word HEADH.

No. 970-C Complete head, same as No. 970-B, but with No. 1 Morse-taper spindle..... **26.00**
Shipping Weight 57 Lbs. Code Word HEADI.

No. 999 Bench-type 14" Drill Press, with ½" Jacobs geared chuck, No. 387 V-belt and No. 985 motor pulley. Without motor or switch rod..... **$35.95**
Shipping Weight 110 Lbs. Code Word BENJC.

No. 973 Special spindle with No. 1 Morse-Taper hole. Ship. Wt. 2 Lbs. Code Word NESPC. **3.45**

No. 974 Special spindle with ½" hole for router bits, etc..... **2.20**
Shipping Weight 2½ Lbs. Code Word NESPD.

No. 977 Special spindle for ½" hole shaper cutters Ship. Wt. 2 Lbs. Code Word NESPF. **1.95**

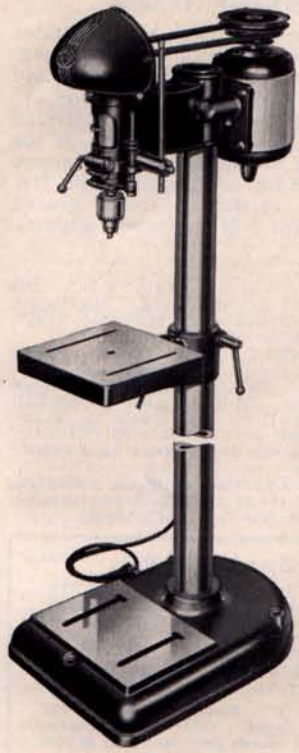
No. 991 Special spindle for cup wheels..... **2.20**
Ship. Wt. 2 Lbs. Code Word NESPG.

No. 1010 Collar for drill-press column..... **.60**
Ship. Wt. 1 Lb. Code Word NESCC.

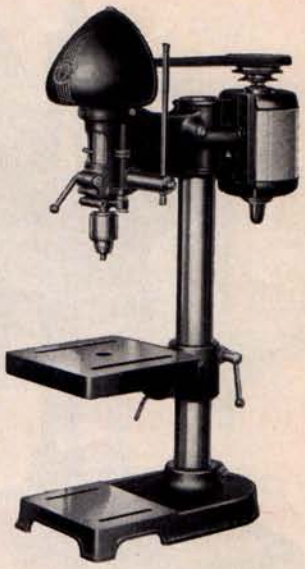
No. 853 Switch rod for all 14" drill presses, with loop. To fit new style motors..... **.45**
Shipping Weight 1½ Lbs. Code Word RODST.

For suitable motors (Series 6300, 6400, 6500, etc., see pages 50-51.) **For old style motors, use switch rod No. 851.**

14-in. "Slo-Speed" Drills for Metal Work



Four Models, with Geared Chuck or No. 1 Morse-Taper Spindle



Identical in design and construction with the well-known Triple-Duty machines, except for the speed range, they will be found to give exactly the same efficient, economical service. Their range of speeds enables them to be used in any general shop with ordinary carbon-steel drills from No. 60 up to $\frac{17}{32}$" with the utmost efficiency. For very small hole drilling at high speed the standard Triple-Duty models are recommended.

Speeds: 390, 745, 1280, 2050 R.P.M.

Either of the two "Slo-Speed types, the bench or the floor model, can be supplied with keyless chuck, geared chuck or spindle for No. 1 Morse taper shanks. Floor model may be fitted with special 14¾" by 20" production table (see below) with oil trough and drain hole, if desired. No. 6400 ball-bearing repulsion-induction motors, 1725 R.P.M. are recommended for use with this machine for general work. For steady production work, and school installations, No. 6600 ½-H.P. three-phase motors are recommended.

(Slo-speed drill presses take belt No. 430. See page 37 for price. No. 853 switch rod should be used. See page 56).

No. 1286 Floor-Type, Slo-Speed Drill Press, as above, but with No. 1 Morse Taper Spindle (without motor) **$40.05**
Shipping Weight 147 lbs. Code Word SLOFB.

No. 1289 Floor-Type Slo-Speed Drill Press, as above, but with ½" capacity geared chuck and spindle (without motor) **$43.55**
Shipping Weight 149 lbs. Code Word SLOFC.

No. 1300 Bench-Type Slo-Speed Drill Press, as above, but with No. 1 Morse Taper Spindle (without motor) **$35.05**
Shipping Weight 101 lbs. Code Word SLOBF.

No. 1302 Bench-Type Slo-Speed Drill Press, as above, but with ½" capacity geared chuck and spindle (without motor) **$38.55**
Shipping Weight 102 lbs. Code Word SLOBG.

The No. 990 tapping attachment on a 14" drill press.

Tapping Attachment for Production Work

These high-speed tapping attachments for the 14" drill presses are constructed with the utmost precision, and are very smooth and sensitive in operation. Ball bearings are used for accuracy, rigidity and long life. A balanced, heat-treated gear reversing mechanism distributes the pull among three gears, maintaining strain and wear at the minimum, and eliminating torsion. **Attachment idles in "forward" position, thus reducing wear to the minimum.**

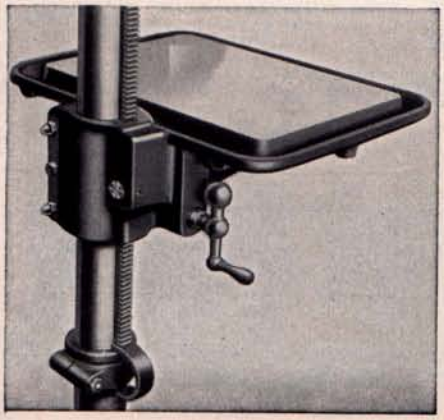
The cone clutch engages with an extremely smooth action, and is protected so that no oil can reach its surface to interfere with the instant reaction to tapping pressure which is essential for precision tapping.

Housings are of aluminum, designed to clamp around the quill of the drill press, thus eliminating a great deal of the tap breakage encountered with taper-shank drive.

Both attachments furnished with "Tru-Grip" tap holder. No. 990 is furnished with four collets to take taps from No. 2 to ¼". No. 996 is furnished with seven collets to take from No. 8 to ½". (If interested in tapping attachment for 17" Drill Press, please write for Bulletin T-9-36.)

No. 990 Tapping Attachment to fit 14" drill press. Capacity No. 2 to ¼" in brass and cast iron; No. 2 to $\frac{5}{16}$" in steel. Complete with four collets to take No. 2, 3, 4, 5, 6, 7, 8, 9, 10 and ¼" taps and wrenches **$44.85**
Shipping Weight 6 lbs. Code Word NEWTA.

No. 996 Tapping Attachment to fit 14" drill press. Capacity No. 8 to ½" in brass; No. 8 to ⅜" in cast iron; No. 8 to $\frac{5}{16}$" in steel. With seven collets to fit No. 8, 9, 10, ¼", $\frac{5}{16}$", ⅜", $\frac{7}{16}$" and ½" taps, and wrenches **$60.00**
Shipping Weight 10 lbs. Code Word NEWTB.



NEW! Production Table for 14-Inch Drill Presses

Interchangeable with the standard table, the smoothly ground 11x14-inch surface of this table offers no obstruction to the movement of work, jigs or fixtures. This heavy cast-iron table is provided with a 1½" oil-drain trough all around, and is tapped for drain piping to carry off cutting compound.

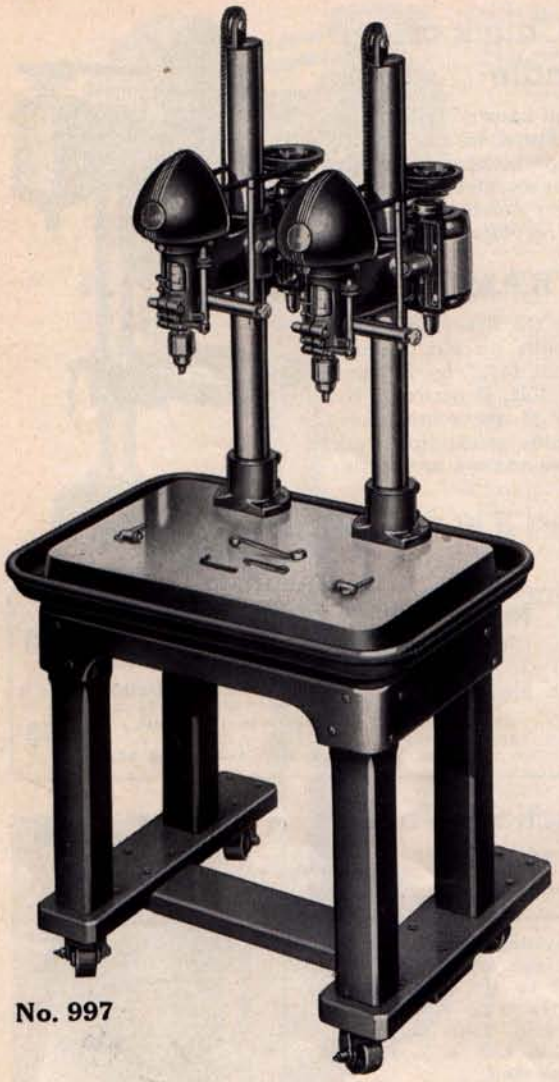
The raising and lowering mechanism (which may be added to the table at any time) permits raising and lowering with the minimum of exertion on the part of the operator. Rack and ball-thrust bearing fitted with safety hook, preventing accidental dropping of the table.

No. 1008 Raising Mechanism only for No. 1009 Production Table. Complete with rack, safety hook, collar and thrust bearing **$8.50**
Shipping Weight 9 lbs. Code Word NEWRA.

No. 1009 Production Table only, for 14-inch drill press. Without raising mechanism, rack, safety hook, collar or bearing **$13.50**
Shipping Weight 60 lbs. Code Word NEWOP.

No. 1006 Production Table Assembly, complete with raising mechanism, rack, safety hook, thrust bearing and collar..... **$22.00**
Shipping Weight 70 lbs. Code Word NEWPT.

14-inch Manufacturing Drill Presses



No. 997

Economical Drills for Production Work

Our two and four-spindle 14" drill presses are used in many high-production shops, where they offer many outstanding advantages for drilling and tapping operations. They are economical in first cost as compared to larger multi-spindle machines for the same work. They are very economical in power consumption and in maintenance—in fact, there is practically no maintenance required. They are adaptable to a very wide range of manufacturing.

They are identical in design and construction with our standard 14" single-spindle bench models described on page 56, with the exception of the base and the mounting of the columns. They can be furnished either with No. 60 to ½" capacity Jacobs geared chucks or No. 1 Morse taper spindles.

Specifications

Overall dimensions: 24" x 34", 45" high. Table surface 16½" x 28". Oil troughs 1¾" x 1¾", drilled and tapped at rear for ½" drain piping. Maximum distance, chucks to table, 25½". Center to center distance of spindles 11½". Capacity of geared chucks, No. 60 to ½". Drills to center of 14" circle.

Speeds: High-speed models: 590, 1275, 2450 and 5000 r.p.m. Speeds, Slo-speed models: 390, 745, 1280 and 2050 r.p.m.

Spindle carried in New Departure "sealed-for-life" ball bearings, lubricated for life of bearings; no further lubrication necessary. Spindle pulleys of full "free-floating" design (see page 55); takes all belt pull so that none is transmitted to spindle, and automatically compensates for service mis-alignments. Double-splined spindles, with large radial spline faces for long wear and sensitive action.

Interchangeable spindles. Graduated quills with adjustable depth pointers. Threaded stop rods with knurled nuts. Straight feed lever standard equipment. Heads counterweighted for fast, easy adjustment. (Stands not furnished).

"High Speed" Models

No. 997 14" Double-Spindle Drill Press, with ½" geared chucks, counterweights, chains and ball-bearing chain rollers. Without motors or switch rods **$127.75**
Crated, F. O. B. Factory.
Ship. Wt. 467 Lbs. Code Word TWOSP.

No. 998 14" Double-Spindle Drill Press, as above but fitted with No. 1 Morse taper spindles instead of geared chucks **$119.95**
Crated, F. O. B. Factory.
Ship. Wt. 462 Lbs. Code Word TOMOR.

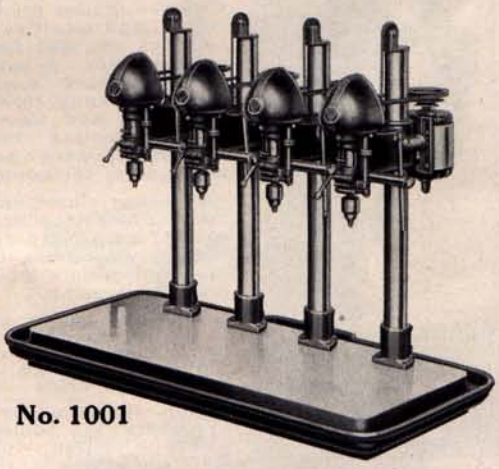
"Slo-Speed" Models

No. 1297 14" Double-Spindle "Slo-Speed" Drill Press, similar to No. 997, but speeds 390, 745, 1280 and 2050 R.P.M. Fitted with ½" geared chucks, without motor. **$131.95**
Crated, F. O. B. Factory.
Ship. Wt. 472 Lbs. Code Word SLOTP.

No. 1298 14" Double-Spindle "Slo-Speed" Drill Press, similar to No. 998, but speeds 390, 745, 1280 & 2050 R.P.M. Fitted with No. 1 Morse taper spindles, without motor. **$124.15**
Crated, F. O. B. Factory.
Ship. Wt. 467 Lbs. Code Word SLOTQ.

Heads and Columns for Special Setups

The columns of our multi-spindle drills are mounted to the bases with flanges, which makes these heads specially adaptable for special drilling and tapping setups on customers' own tables or machines. Heads complete with columns and flanges may be bought separately. Ask for prices.



No. 1001

Four-Spindle Manufacturing Drill Presses

Identical in design with the two spindle models, except for the dimensions of the base, this is a very popular, economical machine for production work. Base dimensions are 26" x 57" overall, with 2" oil trough, tapped at rear for ½" oil-drain pipe. Table surface is 20¼" x 51".

As an example of the endurance of these machines, two of these units have been in use in our own shop for over four years, running an average of 14 hours a day, five to six days a week. The machines have never been lubricated; they have never been "down" for repair; there have been no replacements whatever except for inexpensive V-belts. They "stand up and take it"!

No. 1001 14" Standard high-speed four-spindle drill press, with ½" geared chucks, counterweighted heads, belts and motor pulleys. Without motors..... **$265.00**
Shipping Weight 990 lbs. Code Word FOURA.

No. 1002 14" Standard high-speed four-spindle drill press, same as No. 1001, but with No. 1 Morse-taper spindles..... **$249.40**
Shipping Weight 990 lbs. Code Word FOURB.

No. 1003 14" Slo-speed four-spindle drill press, with ½" capacity geared chucks, counter-weighted heads, belts and motor pulleys. Without motors **$273.40**
Shipping Weight 990 lbs. Code Word FOURC.

No. 1004 14" Slo-speed four-spindle drill press, same as No. 1003, but with No. 1 Morse taper spindles **$257.80**
Shipping Weight 990 lbs. Code Word FOURD.

No. 6600 three-phase motors recommended for this unit.

Production-Type Table for 17" Drill Press

Interchangeable with the standard tilting table on the new 17" drill press, and fitting the same bracket, this table is intended for use where jigs are used constantly, and where the tilting feature is not desired. The table is a very heavy gray-iron casting, with deep ribs. It is 16 by 20½ in. overall, with a 12½ by 17-in. table surface, machined flat and true. It is provided with a 1½" oil trough all around to carry off coolant, and is provided with tapped drain holes at the rear to facilitate piping to pump or tank.

No. 1372 Production table for 17" drill press, to fit standard bracket on floor machine **$13.85**
Shipping Weight 70 lbs. Code Word DRILC.

Finest Small Drill Press Ever Offered

An Industrial Drill Press at the Price of a Home-Workshop Machine

The owner of the small shop who does not require the capacity of a large machine, yet who wants the highest quality in his tools will find in the No. 645 drill press the answer to all his requirements.

It will, of course, perform all the drilling in metal that is to be done around the shop—and it takes drills up to $\frac{17}{32}$" in diameter. In addition to this, it will take all standard wood bits with ½" shanks, and can be used for boring holes up to 2" in diameter with standard multi-spur bits.

With the addition of the No. 976 mortising attachment, it becomes an efficient mortising machine, making square-end mortises from ¼" to ½" width, and of any length, with ease and speed.

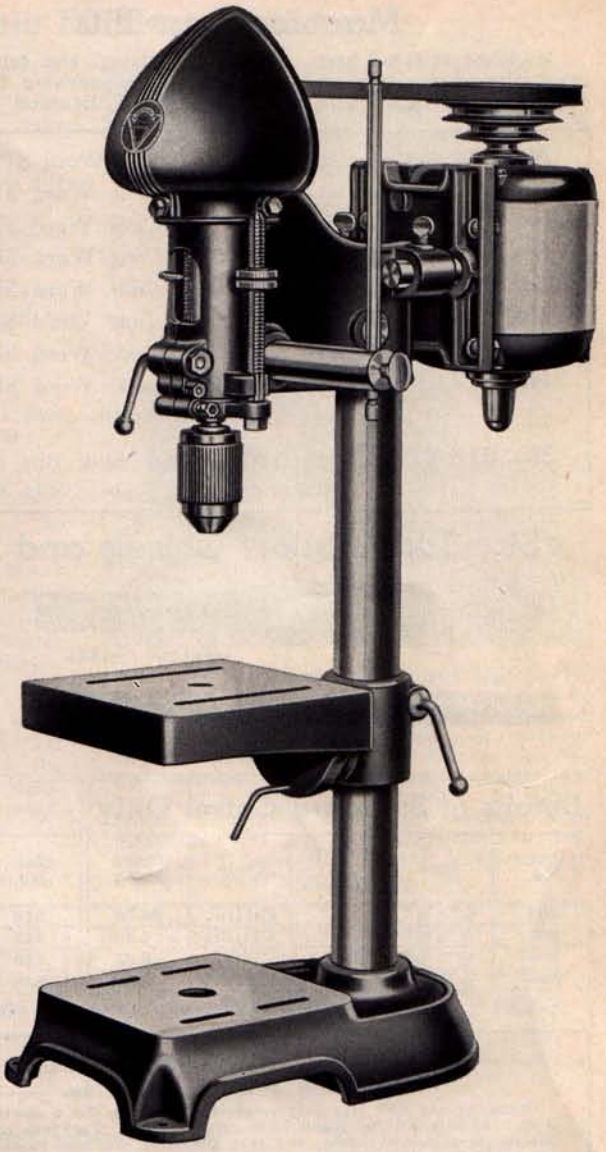
Standard router bits with ½" shanks are held in the No. 974 router spindle, and permit much intricate work to be done which would otherwise take hours of tedious hand labor. Expert craftsmen find numerous uses for this feature.

Sanding, too, is done with the utmost facility, using the No. 835 or 840 drum sanders, preferably held in the No. 974 spindle. These sanders smooth the edges of straight and curved work with a quickness and sureness that is a revelation to those accustomed only to the tediousness of hand finishing.

And many craftsmen whose hobbies include metal working, will find that the accurate construction and convenient adjustments of this drill press enable it to be used for many jobs of surface grinding, using a No. 992 cup wheel on the No. 991 spindle.

All of the spindles used for the No. 970 drill press may be used on this machine also. The standard machine is fitted with a high-grade keyless chuck of our own design, thousands of which are giving every satisfaction to craftsmen everywhere.

Study the features of this machine. Its massive design, its precision construction, the tilting table with its locating pin, the graduated quill and adjustable pointer for depth boring and drilling, the stop rod and nuts for repetition drilling. Study the floating spindle pulley (originally developed by us) that eliminates belt pull and strain on the spindle—the self-sealed New Departure ball bearings used throughout, and which require no lubrication for their entire life, and you will see why we say that this is the ideal machine for the small shop—for the craftsman who demands the best even in a smaller machine.



Specifications

Overall dimensions with motor: 34½" high, 11¾" wide, 19" front to back. 8" x 8" slotted, finely machined cast-iron table. 6¼" x 7½" table surface on base.

Maximum distance, chuck to table 10⅛"; chuck to base 14". Spindle travel, 4". Column diameter, 1⅞". Chuck capacity $\frac{17}{32}$". Drills to center of 11" circle.

Full-floating, automatically aligned spindle pulley. "Sealed-for-life" ball bearings throughout; lubricated for life of bearings.

Graduated quill. Adjustable depth pointer. Stop rod and knurled nuts Tilting table with index pin.

All interchangeable spindles for 14" drill press can be used on this machine.

Manufacturers, too, find this drill press a time and money saver, as shown by this special 12-head setup in the plant of the Master Electric Company at Dayton, Ohio, where the famous "Master" electric motors are manufactured. These machines are built for the hardest work—but priced for the smallest shop.

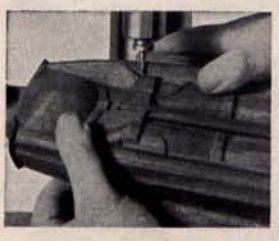
No. 645 11" Bench-model Drill Press, with No. 340 V-belt and No. 985 V-pulley, ½" bore, but without motor. **$25.95**
Shipping Weight 83 Lbs. Code Word PRENU.

No. 340 Extra V-belt for above, 13" center to center ..... **$ .80**
Shipping Weight 8 oz. Code Word BELUX.

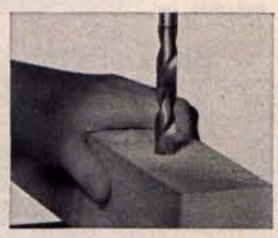
No. 6400 motor recommended. See page 50 for price.

No. 992 3½" x 1½" cup wheel for use with No. 991 spindle on all 11" and 14" drill presses **$2.25**
Shipping Weight 1½ Lbs. Code Word NEWCU.

See How Versatile This Machine Is for the Small Shop!



Using small carving bits for carving in the round saves hours of patient labor for the carver.



Boring in wood with spur bits is practical because of the standard high speed.

Surface grinding is one of the unusual jobs for which this modern tool is adapted.

The routing of all kinds of grooves is made absurdly simple, using standard router bits.

Sanding the edges of carved work with the sanding drum saves hours of tedious labor.

Mortiser — Drill-Press Bits and Chisels

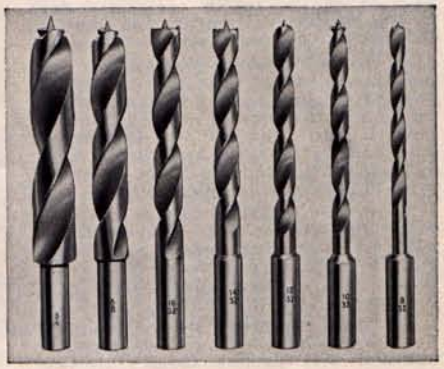
Machine-Spur Bits

Made of selected steel, properly hardened and tempered for keen cutting qualities and long life, these machine bits are of exceptionally high quality. They have a diamond point and two cutting lips which sever the fibers of the wood and produce clean holes without any chipping of edges. All are approximately 6¼" long overall, and have ½" shanks to fit standard ½" hole machine chucks, also mortiser spindle and No. 974 drill-press spindle.

No. 804	¼" Machine Spur Bit.	Code Word SPURA	**$1.10**
No. 805	5/16" Machine Spur Bit.	Code Word SPURB	**1.15**
No. 806	⅜" Machine Spur Bit.	Code Word SPURC	**1.20**
No. 807	7/16" Machine Spur Bit.	Code Word SPURD	**1.40**
No. 808	½" Machine Spur Bit.	Code Word SPURE	**1.55**
No. 809	9/16" Machine Spur Bit.	Code Word SPURF	**1.75**
No. 810	⅝" Machine Spur Bit.	Code Word SPURG	**1.95**
No. 812	¾" Machine Spur Bit.	Code Word SPURK	**2.45**

Shipping Weight, each 10 oz.

No. 818 Complete Set of 8 Machine Spur Bits, from ¼" to ¾".. **$12.30**
Shipping Weight 3 lbs. Code Word SPURL.



Standard Hollow Chisels and Bits

Made to produce square-end mortises. Made of selected steel, and suitable for the highest grade of work. The bit operates inside the chisel, and is driven by the drill-press or mortiser spindle, while the chisel is held stationary by means of a chisel holder. When used in the 14" drill press, No. 974 spindle must be used, and each bit should be ordered with its proper bushing. Outside diameter of bushings is ½". Shank of chisel ⅝" x 1½". Shipping weight per set, 1¼ lbs.

Details of Standard Chisel Only

Cat. No.	Size	Depth of Mortise	Code	Price Each
504	¼"x¼"	1⅞"	CHISA	**$4.30**
505	5/16"x5/16"	1⅞"	CHISB	**4.30**
506	⅜"x⅜"	2¾"	CHISC	**5.25**
508	½"x½"	3¼"	CHISE	**5.95**

Details of Bit

Cat. No.	Size	Dia. Shank	Code	Price Each
514	¼"	5/16"	BITOA	**$1.45**
515	5/16"	¼"	BITOB	**1.45**
516	⅜"	19/64"	BITOC	**1.45**
518	½"	19/64"	BITOE	**1.45**

Details of Bushings

Cat. No.	Size Hole	Code	Price Each
524	5/16"	BUSHA	**$ .45**
525	¼"	BUSHB	**.45**
526	19/64"	BUSHC	**.45**
526	19/64"	BUSHC	**.45**

NOTE: For each mortising chisel the proper size bit and bushing is required, as shown in above table.

Special Hollow Chisels

U. S. Patent No. 1,992,726

Made for the man who only occasionally has use for a mortising chisel these Hollow Chisels will be found an excellent value. They are the same sizes as the standard hollow chisels, and take the same bits and bushings. Not recommended for production work. Approximate Shipping Weight 10 oz. each.

Note that these chisels have the cutting portion made from high-grade HIGH-CARBON tool steel, carefully hardened and tempered, and that they should not be confused with chisels made from ordinary machine steel and merely carburized. Our chisels will stand up in regular workshop service without any crumbling at the cutting edges, since they are similar in cutting properties and in hardness and temper to regular production tools. The only difference is that the shank is made of a low-carbon steel, in order to produce a high-grade chisel at a low cost.

Special Hollow Chisels Only

Cat. No.	Size	Depth of Mortise	Code	Price Each
634	¼"x¼"	1⅞"	HOLOA	**$1.50**
636	⅜"x⅜"	2¾"	HOLOC	**1.50**
638	½"x½"	3¼"	HOLOD	**1.50**

High-Grade Router Bits

Invaluable for routing, carving, round-end mortises and grooving work of all kinds. Shank diameter is ½", to fit mortiser spindle, and No. 974 drill-press spindle. These router bits are a high grade product, and should not be confused with cheap bits, which will not hold an edge and will not stand up in service.

These router bits are of high-grade steel, tempered for real service.

Sizes of Router Bits

Cat. No.	Size	Shank Dia.	Lg. of Flute	Code	Price Each
474	¼"	½"x1½"	1¼"	ROUTA	**$1.10**
475	5/16"	½"x1½"	1¼"	ROUTB	**1.10**
476	⅜"	½"x1½"	1¼"	ROUTC	**1.10**
477	7/16"	½"x1½"	1¼"	ROUTD	**1.10**
478	½"	½"x1½"	1¼"	ROUTE	**1.10**

Shipping Weight 4 oz. each.

No. 480 Set of five Router Bits, sizes as above.... **$4.95**
Shipping Weight 2 lbs. Code Word ROUTO.

Plug and Dowel Cutters

There are countless jobs where the need of a tool to make short dowels or plugs, for screw holes is keenly felt. With these plug cutters, dowels up to 2" long and plugs up to 1" thick are cut as fast as the tool can be fed into the wood. All have ½" shanks to fit the No. 974 spindle. The ⅜" size is particularly adaptable to boat building, for cutting deck plugs.

Sign makers use them for cutting periods and dots for I's.

Sizes of Plug Cutters

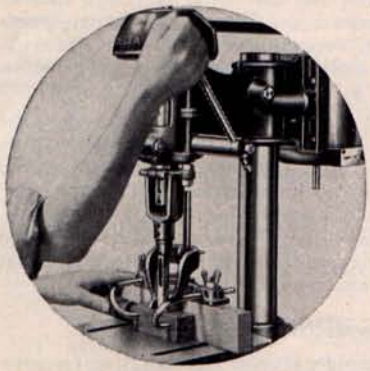
Cat. No.	Size	Shank Dia.	Lg. of Cut	Code	Price Ea.
814	⅜"	½"x2"	2"	PLUGA	**$3.10**
815	½"	½"x2"	2"	PLUGB	**3.40**
816	⅝"	½"x2"	2"	PLUGC	**3.95**
817	¾"	½"x2"	2"	PLUGD	**4.35**
819	1"	½"x2"	2"	PLUGE	**5.40**

Shipping Weight Approximately 6 oz. each.

No. 822 Complete set of 5 Plug Cutters, sizes as above **$19.95**
Shipping Weight 2½ lbs. Code Word PLUGS.

Accessories for 14" and 17" Drill Presses

Attachments Convert Drill Press Into Efficient Mortiser



Making true, square-end mortises is easy with this attachment.

Using our simple, easily installed attachments, our 14" and 17" drill presses can be used by anyone, even without previous experience, to make straight, true square-end mortises in all woods, and of practically any width, in a fraction of the time necessary by hand methods.

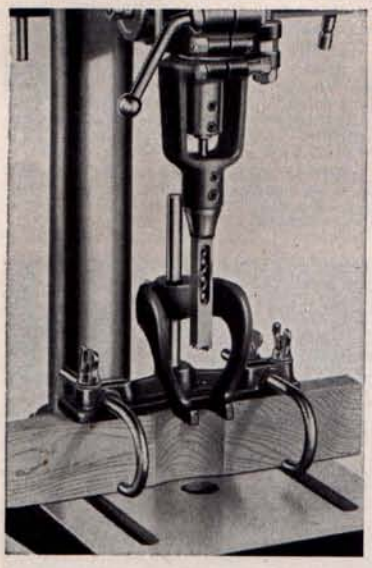
Woodworkers of all kinds—cabinet makers, contractors, repair men, instructors in school shops—everyone who has to make mortise-and-tenon joints has found this economical tool to be a time and labor saver.

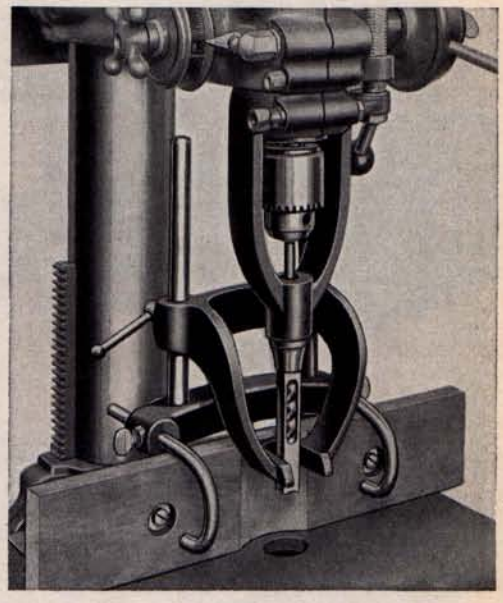
Simple, Safe and Convenient to Use

The NEW No. 1381 Mortising attachment for the No. 1376 17" drill press consists of a heavy base casting which is bolted to the table of the drill press. This carries a hard-maple fence, against which the work is placed. Two heavy rods, mounted in the base, carry a cast bracket for hooked rods which hold the work against the fence, and also a substantial hold-down which keeps the work from being raised as the mortising chisel is withdrawn. (Shown at right.)

The mortising chisel is held in the holder, which replaces the regular stop-rod clamp on the drill press, and the mortising bit is held in the regular geared chuck. Capacity under hold-down, 6½". Ends of hooked rods to fence 2⅜". Adjustable for ¾" to 3¾" thick.

Note: This mortising attachment cannot be used on Drill Presses with Morse taper spindle.





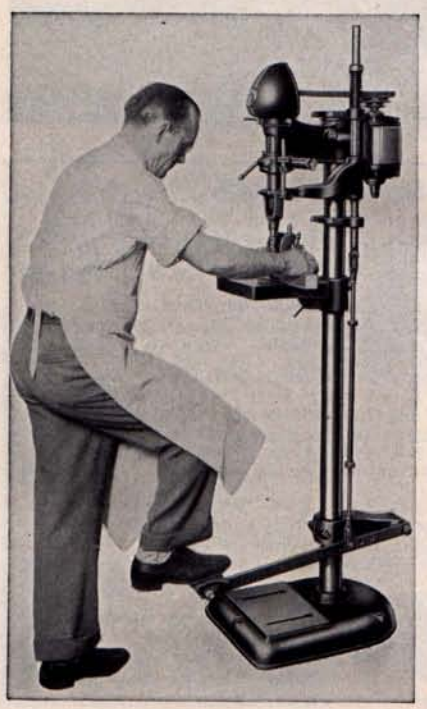
No. 976 Mortising Attachment for the 11" and 14" drill press also enables mortising to be done from ¼" to ½", in any wood. Chisel holder clamps to quill in place of stop-rod casting. Fence carries hold-down casting and bracket for hooked rods. Capacity under hold-down up to 4¾" thick. Capacity from ends of hooked rods to fence 2¾". This attachment must be used with No. 974 spindle, which takes the regular bushings supplied for mortising chisels.

No. 976 Mortising Attachment for 11" and 14" drill presses, complete with fence, hold-down bracket, hold-down and rod, chisel holder, curved arms and bolts. Without No. 974 spindle **$3.95**

Shipping Weight 8 lbs. Code Word NEMOR.

No. 1381 NEW Mortising Attachment for 17" drill press, complete with base, fence, hold-down, curved arm bracket, curved arms, chisel holder and bolts. Without bit or chisel..... **$6.95**

Shipping Weight 16 lbs. Code Word DRILL.



NEW! 14" Drill-Press Foot Feed

Here—for the first time—is a foot feed for your 14" drill press which is thoroughly engineered for long life and maximum efficiency. There are only two links, which eliminates a number of sources of wear. The operating bracket is guided in a straight line by a heavy shaft carried in two substantial bearings. Pressure is applied to the quill on a line parallel to the spindle axis, which eliminates side thrusts on the quill, and consequently cuts down wear.

Adjustment of spring pressure over a wide range is simply a matter of moving a collar on the shaft—and the range is double by providing two springs, to suit tapping and mortising equipment of various weights.

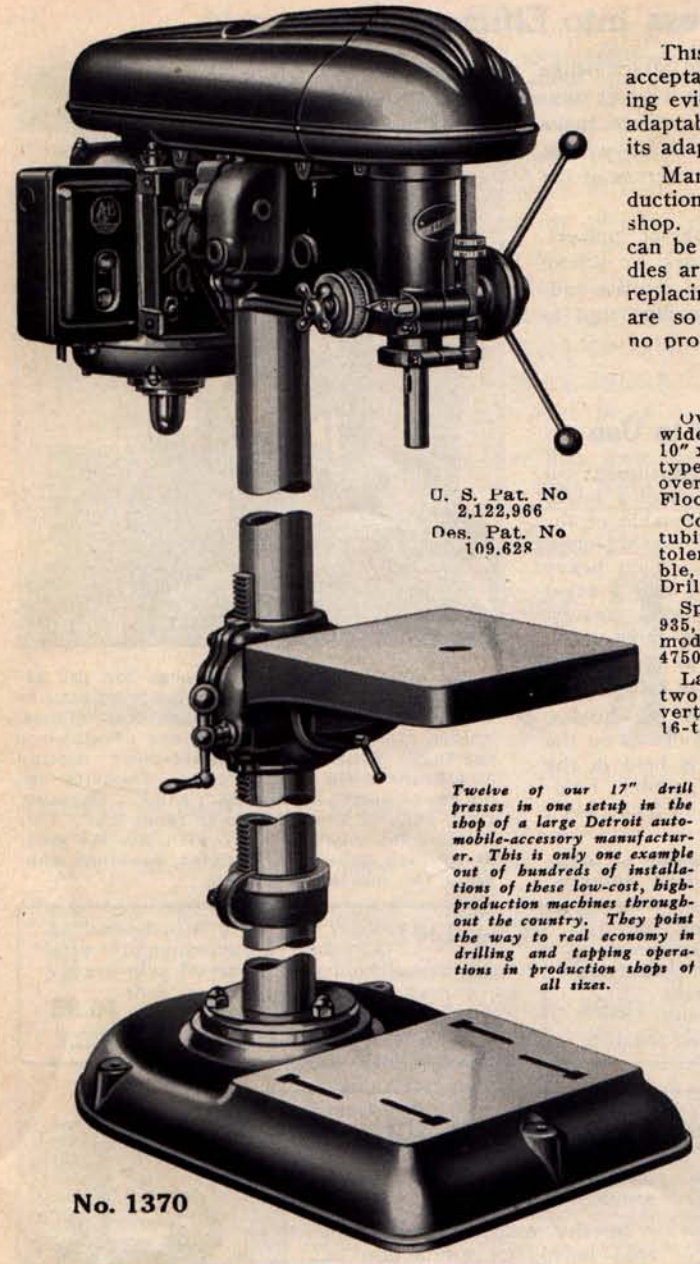
In the machine shop, this feed speeds up production on drilling and tapping operations, as it leaves the operator's hands free for handling of jigs and work. It increases output and lessens operator fatigue. It can be adjusted for maximum convenience whether the operator sits or stands at the machine.

In the pattern and cabinet shop it enables work to be handled with both hands, thus increasing the safety and speed of such operations as routing surfaces down to size, mortising long stock and similar operations.

No. 1007 Foot feed for 14" drill press only, consisting of foot lever and bracket, connecting rods and tube, two column brackets, shifter bracket, shifter shaft, two springs and adjusting collar..... **$15.00**

Shipping Weight 30 lbs. Code Word NEWFF.

17-inch Industrial Drill Presses



U. S. Pat. No 2,122,966
Des. Pat. No 109,628

No. 1370

A Real Production Drill Press

This radically new type of 17" drill press has met with wide and instant acceptance since its introduction a short time ago. The advanced engineering evident throughout the design; the fine, accurate workmanship; the wide adaptability of the machine and its many built-in improvements have led to its adaption by hundreds of manufacturers as a standard production tool.

Many shops use them in batteries of from five to twenty on straight production work, in addition to using them in the toolroom and general machine shop. They can be installed in a few minutes anywhere they are needed, can be used to supplement multiple-spindle machines where additional spindles are required, can be adapted easily and cheaply for special operations, replacing expensive single-purpose machines—they have so many uses and are so economical in first cost, power consumption and maintenance that no progressive shop can afford to be without them.

Condensed Specifications

Overall dimensions: 66" high; 18" wide; 27" front to rear. Floor base 10" x 13¾" table surface. Bench type production base 25" x 29½" overall; 20" x 20" table surface. Floor-model tilting table 11" x 12".

Column 3½" x 60", of heavy-walled tubing, ground and polished to close tolerances. Capacity, spindle to table, 34"; spindle to base, 44½". Drilling capacity, ¾" in cast iron.

Speeds, standard models: 385, 600, 935, 1450 and 2240 r.p.m. High-Speed models: 700, 1150, 1750, 2750 and 4750 r.p.m.

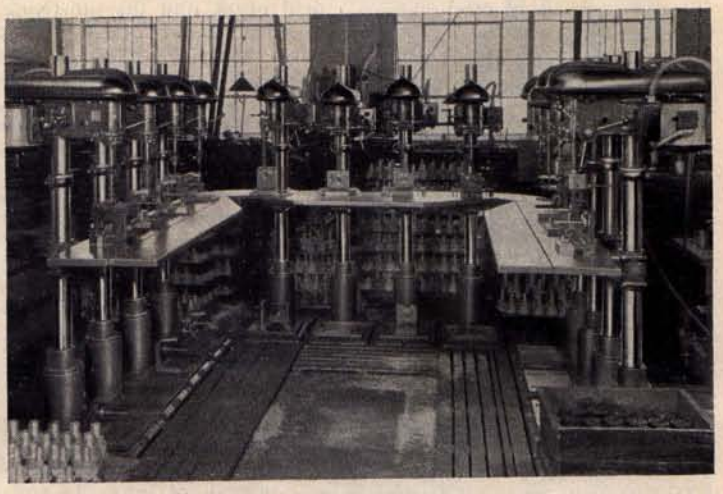
Large spindle pulley carried in two self-sealed ball bearings. Inverted spindle with automobile-type 16-tooth spline drive and floating spindle sleeve: Carried in self-sealed pre-loaded ball bearings.

No. 2 Morse-taper spindle standard equipment. Also furnished with built-in ½" capacity Jacobs geared chuck. Spindle assembly instantly removeable. Quill has 5" stroke.

Raising and lowering mechanism for table on floor models. Raising and lowering mechanism for head on production bench models. Belt completely guarded. Guard quickly removed for speed changing. Belt tension adjustable. V-belt drive.

Built-in depth-stop gage. Depth scale on spindle-return spring housing. Foot-power feed available for floor models.

Twelve of our 17" drill presses in one setup in the shop of a large Detroit automobile-accessory manufacturer. This is only one example out of hundreds of installations of these low-cost, high-production machines throughout the country. They point the way to real economy in drilling and tapping operations in production shops of all sizes.



Standard-Speed Models

No. 1370 17" Floor-model Drill Press with No. 2 Morse taper spindle, streamlined belt guard, tilting table with rack and pinion raising mechanism and table-type base. With motor pulley and No. 520 V-belt but without motor. Without switch..... **$89.50**

Shipping Weight 340 Lbs. Code Word DRILA.

No. 1375 17" Bench-model Production Drill Press, with No. 2 Morse-taper spindle, belt guard, production-style bench base and rack and pinion raising mechanism for head. With motor pulley and No. 520 belt, but without motor and switch..... **$114.50**

Shipping Weight 400 Lbs. Code Word DRILF.

No. 1376 17" Floor-model Drill Press, similar to No. 1370 but with built-in ½" capacity geared chuck instead of No. 2 M. T. Spindle..... **$94.85**

Shipping Weight 340 Lbs. Code Word DRILG.

No. 1377 17" Bench-model Production Drill Press, similar to No. 1375, but with built-in ½" capacity geared chuck instead of No. 2 M. T. spindle. **$119.85**

Shipping Weight 400 Lbs. Code Word DRILH.

Above models have speeds of 385, 600, 935, 1450, 2240 r.p.m.

High-Speed Models

No. 1370-H New 17" High-Speed Floor-Model Drill Press with No. 2 M. T. spindle. Same as No. 1370, but with speeds of 700, 1150, 1750, 2750 and 4750 r.p.m. With motor pulley and No. 501 V-belt. Without motor **$89.50**

Shipping Weight 340 Lbs. Code Word DRIAA.

No. 1375-H New 17" High-Speed Bench-Model Drill Press with No. 2 M. T. spindle. Same as No. 1375, but with speeds of 700, 1150, 1750, 2750 and 4750 r.p.m. With motor pulley and No. 501 V-belt. Without motor **$114.50**

Shipping Weight 400 Lbs. Code Word DRIAF.

No. 1376-H New 17" High-Speed Floor-Model Drill Press. Same as No. 1370-H, but with built-in ½" capacity geared chuck instead of No. 2 M. T. spindle **$94.85**

Shipping Weight 340 Lbs. Code Word DRIAG.

No. 1377-H New 17" High-Speed Bench-Model Drill Press. Same as No. 1375-H, but with ½" capacity geared chuck instead of No. 2 M. T. spindle **$119.85**

Shipping Weight 400 Lbs. Code Word DRIAH.

Ask for Bulletin HDP-38 for prices of parts to change standard speed to high speed.

(Note: Order geared-chuck models where straight-shank drills only are to be used. Where taper-shank drills, or both taper and straight-shank drills are to be used, specify the models with No. 2 M. T. spindles. Geared-chuck models have greater capacity under the spindle.)

Offer Entirely New Standards of Value

2-Spindle 17-Inch Drill Presses

The unusual value of the standard single-spindle 17″ drill presses has led to a demand for a similar machine of the manufacturing type and the two-spindle drill presses listed below are the result of this demand. Heads and columns are of the same design and have the same features as the standard bench and floor models. Heads are interchangeable, so that either high or low-speed heads may be used together, or heads with either type of spindle.

Base specifications are listed below; other specifications same as No. 1375 and 1375-H:

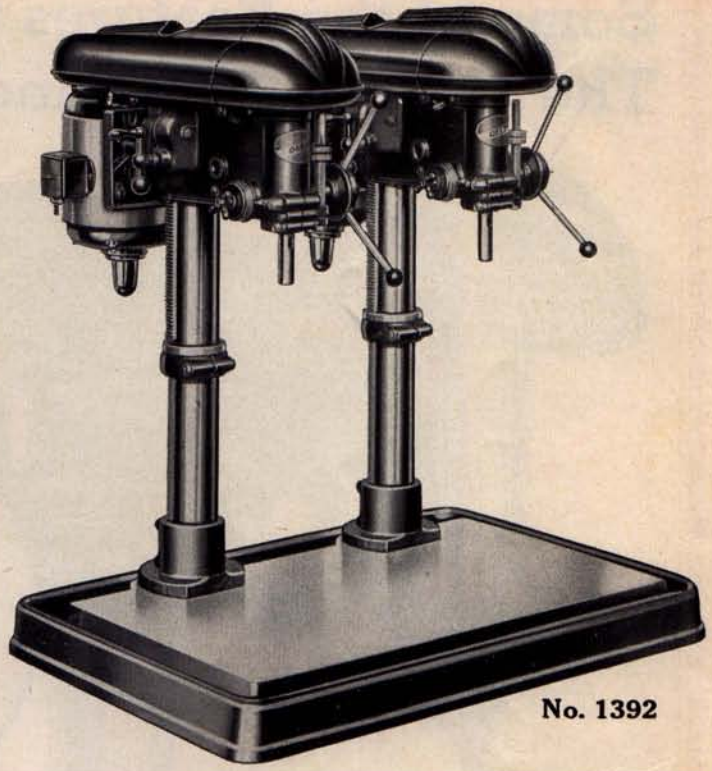
Overall dimensions: 29½″x41½″x48½″ high. Table surface 23½″x36″. Center to center distance between spindles 18″. Column diameter 3½″. Maximum distance chuck to table 26″. 1½″ oil trough, drilled and tapped at rear for ½″ oil-drain pipe.

No. 1392 Two-spindle 17″ drill press, with No. 2 M. T. spindles, belt-guards, manufacturing-type base and raising mechanism in heads. With belts and motor pulleys, but without switches or motors **$249.25**
Speeds: 385, 600, 935, 1450 and 2240 r.p.m.
Shipping Weight 660 Lbs. Code Word DRILW.

No. 1392-H Two-spindle 17″ drill press with No. 2 M. T. spindles. Same as No. 1392, but with speeds of 700, 1150, 1750, 2750, and 4750 r.p.m..... **$249.25**
Shipping Weight 660 Lbs. Code Word DRIHW.

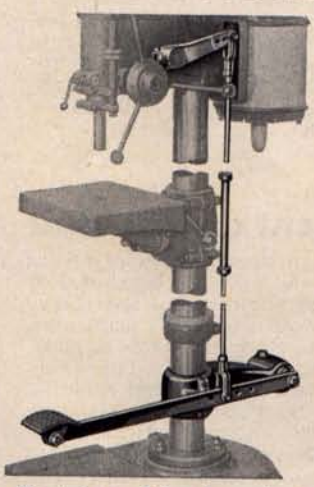
No. 1393 Two-spindle 17″ drill press, with ½″ capacity geared chucks, belt guards, manufacturing-type base and raising mechanisms in heads. With belts and motor pulleys, but without motors or switches..... **$259.95**
Speeds: 385, 600, 935, 1450 and 2240 r.p.m.
Shipping Weight 660 Lbs. Code Word DRILX.

No. 1393-H Two-spindle 17″ drill press, with ½″ capacity geared chucks. Same as No. 1393, but with speeds of 700, 1150, 1750, and 4750 r.p.m. **$259.95**
Shipping Weight 660 Lbs. Code Word DRIHX.
No. 9400 ¾-H. P. 3-Ph. motors recommended for these machines.



No. 1392

Foot Feed for 17″ Floor Models

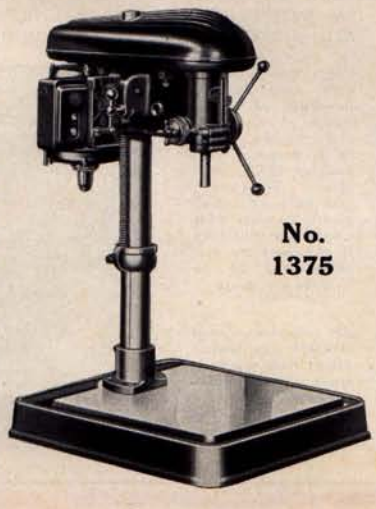


Quickly and easily installed on floor models of the 17″ drill press, the No. 1371 foot feed will be found a great time saver on production work. The foot treadle is carried on a heavy adjustable bracket, and is counterpoised with a powerful adjustable spring. A wide range of adjustment is provided, not only as to stroke and leverage but also to suit the operator's position and height, whether sitting or standing. A finely designed, well built mechanism.

No. 1371 Foot feed for 17″ floor - model drill press, including splined shaft, gear segment and lever, connecting rods, foot lever and bracket, studs and bolt **$16.85**
Ship. Wt. 34 Lbs. Code Word DRILB.

Raising Mechanism for Head or Table

The raising mechanism for the 17″ drill press can be supplied separately, as it is occasionally desirable to install the mechanism in the head of a floor-model drill press as well as in the table, and it is also convenient in many cases to raise and lower the head in a special setup. Easily installed in any of our 17″ drill-press heads when required.



No. 1375

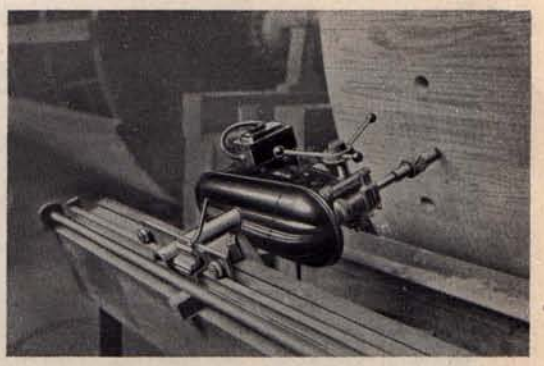
No. 1380 Raising mechanism for 17″ drill press. Consists of worm shaft, worm gear and pinion, ball handle, rack, ball-thrust bearing and collar for column . **$7.75**
Ship. Wt. 9 Lbs. Code DRILK.

Drill Heads for Special Setups

Heads for the 17″ drill press, which can be purchased separately, are ideal for use in special setups and are widely used in production shops. Their low cost makes them more economical than anything for the same purpose that can be made up in toolroom or machine shop, and alert tool engineers and production executives have recognized their outstanding advantages. They can be used in any position, vertical, horizontal or angular, as their self-sealed ball-bearing construction eliminates lubrication problems.

Photo at right shows one of the many examples of the use of 17″ drill - press heads in special setups. This head is mounted on rails for drilling and counterboring holes around the circumference of large wooden drums.

Our 11″, 14″ and 17″ drill-press heads are used in hundreds of shops for special setups like this. They may be used singly, or in any combination.



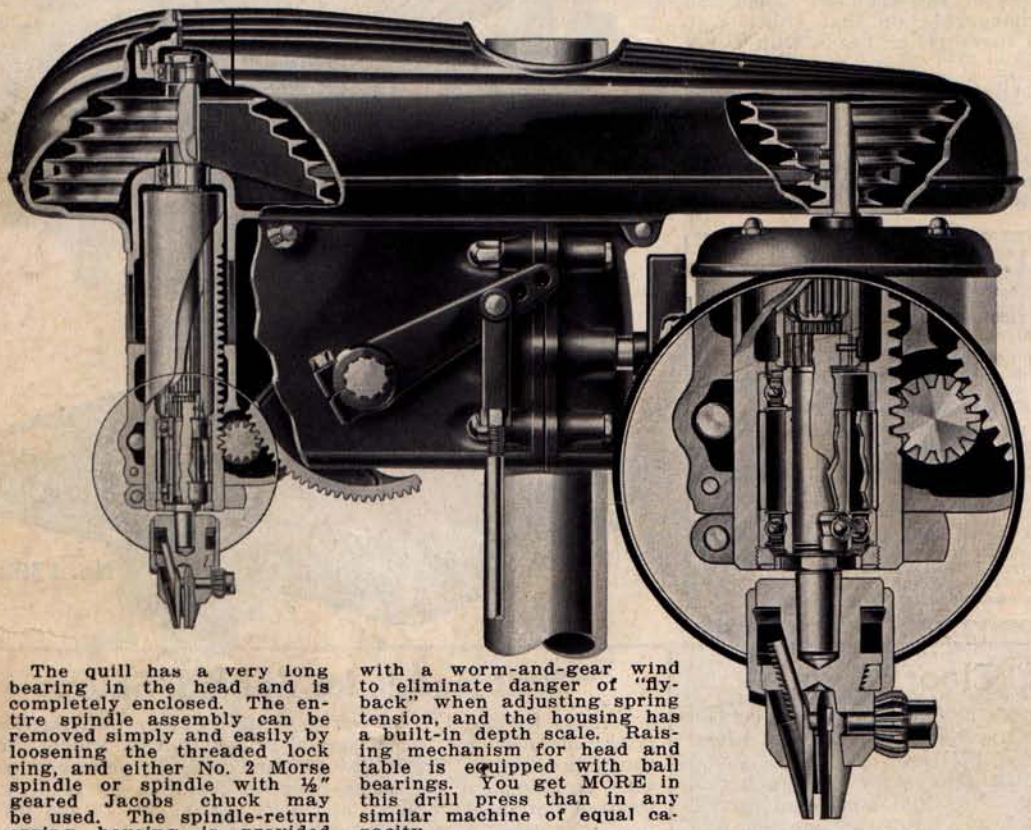
No. 1378 Head only for 17″ drill press, with No. 2 M. T. spindle. No. 520 V-belt and motor pulley. Speeds: 385, 600, 935, 1450 and 2240 r.p.m. Without motor **$51.25**
Shipping Weight 125 Lbs. Code Word DRILI.

No. 1378-H Head only for 17″ drill press. Same as No. 1378, but with speeds of 700, 1150, 1750, 2750 and 4750 r.p.m. **$51.25**
Shipping Weight 125 Lbs. Code Word DRIHI.

No. 1379 Head only for 17″ drill press, with ½″ capacity geared chuck, No. 520 V-belt and motor pulley. Speeds: 385, 600, 935, 1450 and 2240 r.p.m. Without motor **$56.60**
Shipping Weight 125 Lbs. Code Word DRILJ.

No. 1379-H Head only for 17″ drill press. Same as No. 1379, but with speeds of 700, 1150, 1750, 2750 and 4750 r.p.m. **$56.60**
Shipping Weight 125 Lbs. Code Word DRIHJ.

Some of the Features that Make the 17" Drill The Favorite in Hundreds of Modern Plants



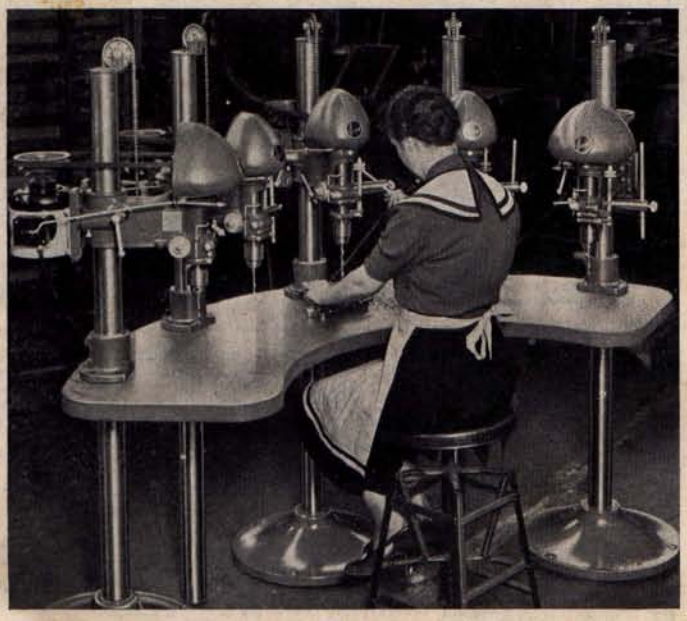
The quill has a very long bearing in the head and is completely enclosed. The entire spindle assembly can be removed simply and easily by loosening the threaded lock ring, and either No. 2 Morse spindle or spindle with ½" geared Jacobs chuck may be used. The spindle-return spring housing is provided with a worm-and-gear wind to eliminate danger of "fly-back" when adjusting spring tension, and the housing has a built-in depth scale. Raising mechanism for head and table is equipped with ball bearings. You get MORE in this drill press than in any similar machine of equal capacity

Like the design of the 14" drill press, the introduction of this 17" drill marked a long step forward in medium-sized drill press design. As the cross-section at the left shows, the spindle does not project through the pulley, but is keyed to it. This, in addition to other advantages, permits the inclosure of both belt and pulleys in a built-in guard of exceptionally neat design.

The lower end of the spindle is machined to form a 16-tooth automobile-type spline, fitting into a husky sleeve of large diameter, internally splined to fit the spindle. The exceptionally long bearing between sleeve and spindle practically eliminates wear and retains the original accuracy of the fits, and, in addition, the design insures very sensitive action of the spindle.

The spindle pulley runs in two sealed-for-life ball bearings and takes all belt pull, so that none is transmitted to the spindle. The spindle is also carried in two sealed-for-life ball bearings, set close together near the bottom of the quill, to assure maximum stiffness and to eliminate spindle whip

How Our Economical, Efficient Drill Heads Are Used to Make Up Special Drilling Equipment at Low Cost



Another mid-western plant superintendent speeded up his production on small parts by means of the machine shown above. All parts of the machine are standard except for the inexpensive curved table plate.

Our drill-press heads are used in hundreds of plants to make up drilling machines for special purposes as shown in the illustrations on this page. The photo at the left shows how the superintendent of a mid-west production plant used five 14" drill heads with standard columns and bases to make up a special curved drilling unit for small parts. The whole unit cost much less than any standard machine that could be purchased for the job, and only a fraction of what a special machine would have cost. All parts are standard except for the simple curved plate. Photo below shows a special 18 head straightline drilling machine made up by another mid western production shop, using our standard 14" and 17" drill-press heads. Ask for engineering data sheets.

These photos show only two of the hundreds of applications of our standard drill-press parts in progressive production shops. Machines like these, cost only a fraction of the expense that would be necessary if the complete machine had to be specially made.

An eighteen-head straight line multiple drilling machine made up in a mid-western production shop, using our regular 14" and 17" drill-press heads.