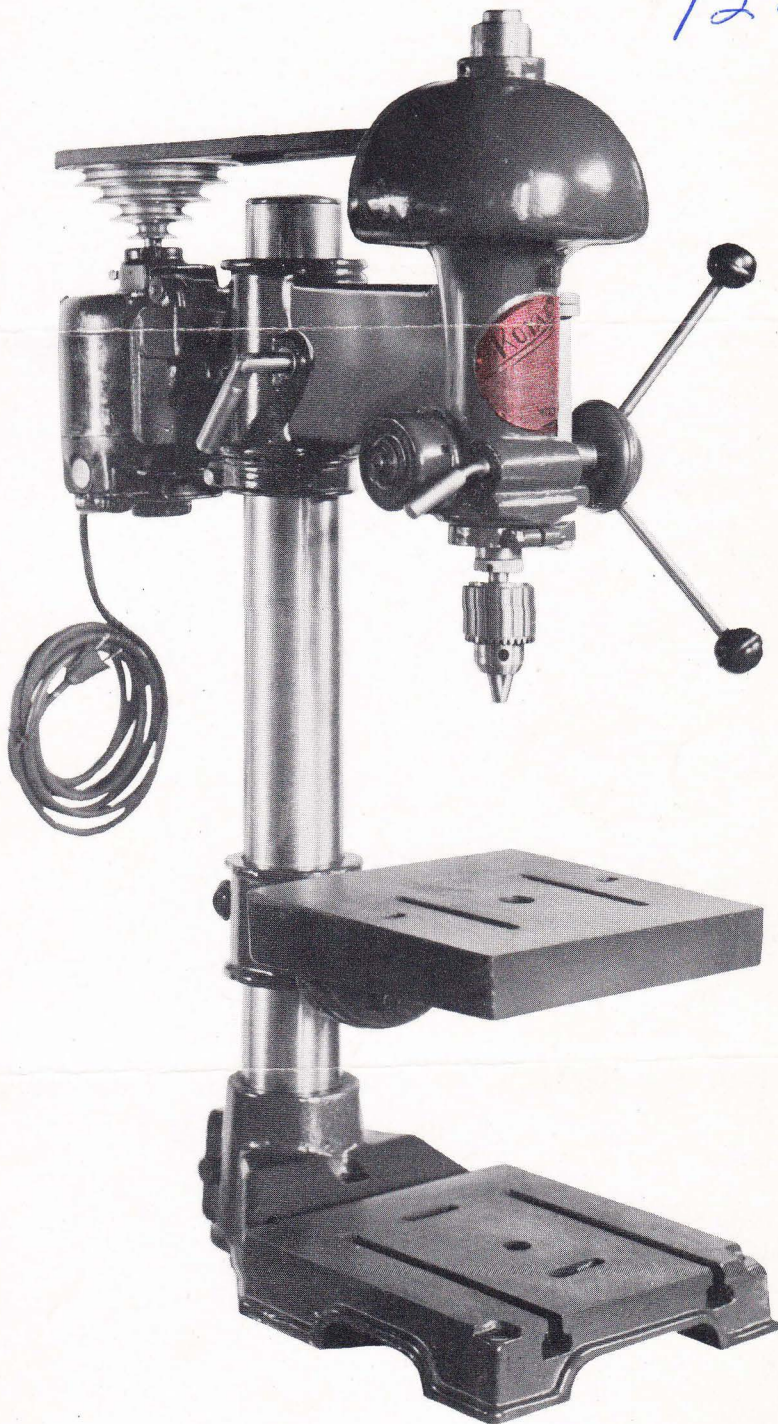


ROYAL

BALL BEARING MOTOR DRIVEN BENCH AND FLOOR DRILLS

CANEDY-OTTO

PRECISION BUILT
DRILLING UNITS



BULLETIN 216

C-O No. 16 Royal

READY FOR THE JOB

C-O NO. 16 ROYAL DRILL

is designed to meet the requirements of the most exacting buyer of drilling equipment. It is designed and built as a machine tool to produce accurate work at a minimum operating cost, and like all C-O precision built drills, comes completely equipped "READY FOR THE JOB."

● ANTI-FRICTION

The No. 16 Royal all ball bearing drill is equipped with two extra large single row ball bearings in the spindle cone pulley and two annular ball bearings in the six splined spindle, which has a full travel of $4\frac{5}{8}$ inches.

The spindle is provided with a key type chuck of $\frac{1}{2}$ inch capacity as standard equipment, or a No. 1 or No. 2 Morse Taper spindle can be furnished at no extra cost.

● DRIVE

The 5 step sheave type pulley will give a wide range of spindle speeds and is dynamically balanced. The heavy, endless Vee type belt will transmit ample power to drive the drill to its full capacity of $\frac{1}{2}$ inch with a $\frac{1}{3}$ H. P. motor.

● BELT TENSION

A convenient and simple belt tightener is provided by means of a sliding member to which the motor is attached. This unit can be moved in and out by releasing one tension screw. With this quick method of adjustment, the desired belt tension can be secured at any time.

The column is 3 inches in diameter and ground to size. The heavy slotted accurately machined table is provided with a loop at the back, which allows it to be tilted to any desired angle, either

to the left or right and is not confined to three positions as found on other makes of drills.

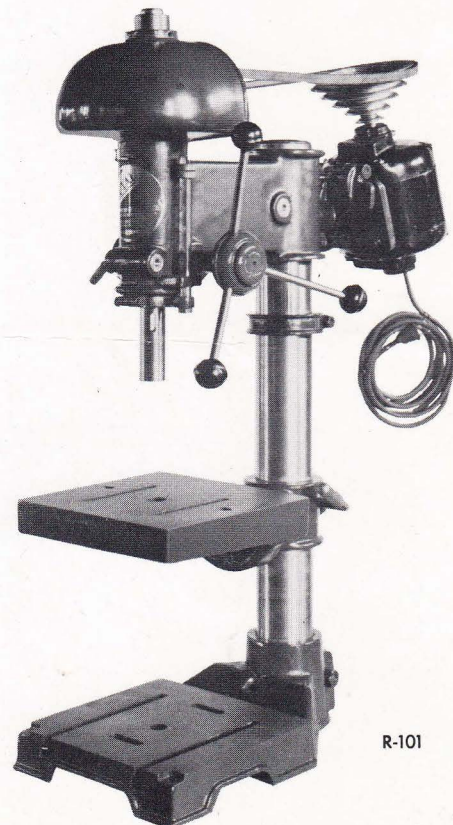
● SPINDLE RETURN

For quick return of the spindle, a clock type spring fully enclosed is provided. This spring is adjustable for tension. A graduated depth gauge is mounted at the right of the spindle in full view of the operator.

Combined with this gauge are two narrow stop nuts for setting predetermined depths for the spindle travel.

● CHANGING SPEEDS

By use of a hinged motor bracket (see illustration) the belt can be readily changed to any of the five steps as shown in the illustration. This quick simplified method is another C-O original design. Patent applied for.



R-101

C-O No. 16 Royal Bench Drill with No. 2 M. T. Spindle

C-O NO. 16 ROYAL DRILL • SPECIFICATIONS

The cord furnished with this drill is three wire rubber covered, with a three-way plug which can be used where state or city law requires a ground wire. The same cord and plug can also be used where only two-way plug is required.

In addition to the cord, standard equipment of the drill is key type chuck and switch.

The drill can also be furnished with No. 1 or No. 2 Morse Taper spindle.

All parts are accurately machined and drill is of the most durable quality. It is designed in order to provide a dependable investment. Thoroughly tested and inspected before shipment so as to arrive completely equipped "READY FOR THE JOB."

• EXCLUSIVE C-O FEATURES

Hinged motor bracket (patented). Eight inch overhang. Full $4\frac{5}{8}$ inch spindle travel. Three inch ground column. Full tilting table. More weight. More range. Greater durability.

• WOODWORKING

Primarily designed as a metal working tool, the C-O No. 16 Royal Drill is also adaptable to woodworking. For shaping the head can be inverted on the column with the table above and shaper arbor extending through the hole in the center of the table.

This drill can also be used for sanding, mortising, grinding and routing.

• SPECIFICATIONS

Drills holes up to $\frac{1}{2}$ inch.

Drills to center of $1\frac{1}{4}$ inches.

Five speeds, 5200-2835-1632-917-460 RPM.

With slow speed pulley, 385-732-1240-1950-3110 RPM.

Travel of spindle $4\frac{5}{8}$ inches.

Working surface of table 10 inches x 10 inches.

Working surface of T slotted base 10 inches x 10 inches.

Maximum height with spindle raised 39 inches.

Least diameter of spindle $\frac{5}{8}$ inch.

Maximum distance from chuck to table 11 inches.

Diameter of ground column 3 inches.

Maximum distance from chuck to base 17 inches.

Net weight—with motor—145 lbs.

Shipping weight—with motor—180 lbs.

Shipping weight—less motor—165 lbs.

• FLOOR TYPE

General specifications same as for bench type.

Overall height, floor drill, 70 inches.

Maximum distance of table to chuck 42 inches.

Machined working surface of T slotted base, 11 inches x 13 inches.

Floor space, 19 inches x 14 inches.

Net weight—with motor—167 lbs.

Shipping weight—with motor—215 lbs.

Shipping weight—less motor—190 lbs.

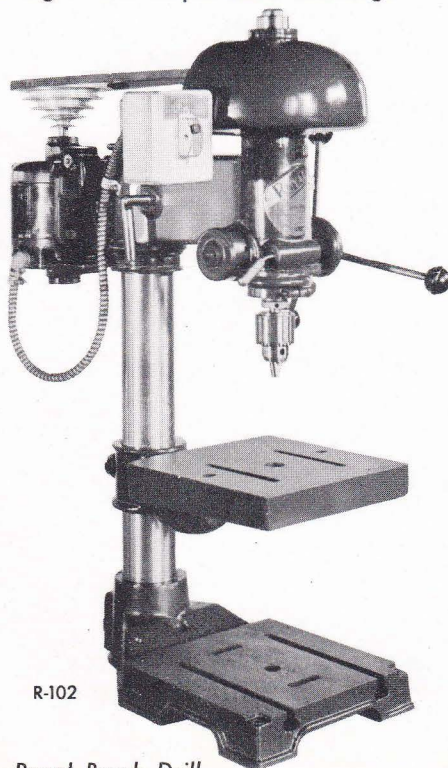
C-O NO. 16 ROYAL DRILL

● SPINDLE CONSTRUCTION

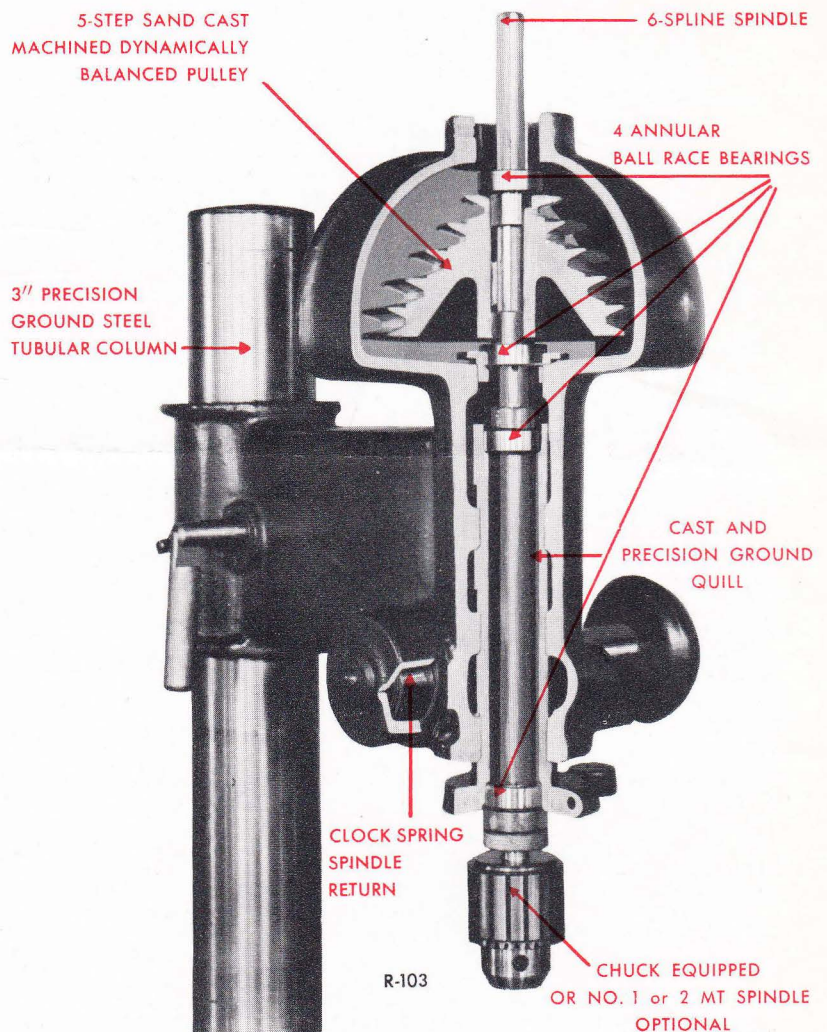
The illustration shows the spindle construction used in the No. 16 Royal Drill. You will note there is a single row ball bearing in the top of the cone pulley, a single row ball bearing at the bottom of the cone pulley and two additional single rows of ball bearings in the spindle quill, one at the top and one at the bottom, giving four ball bearings in a line. Using these ball bearings in the cone pulley gives extra support. This is a feature of the Royal Drill.

The spindle drive sleeve is placed at the bottom of the spindle cone pulley, so that the point of drive is as close as possible to the nose of the spindle, which is a very desirable feature. The spindle is six splined and accurately ground. The sleeve is also ground for accuracy.

The illustration also shows the clock type spring in the adjustable housing.



No. 16—Royal Bench Drill
Slow Speed—Showing 3-Phase Motor and Switch



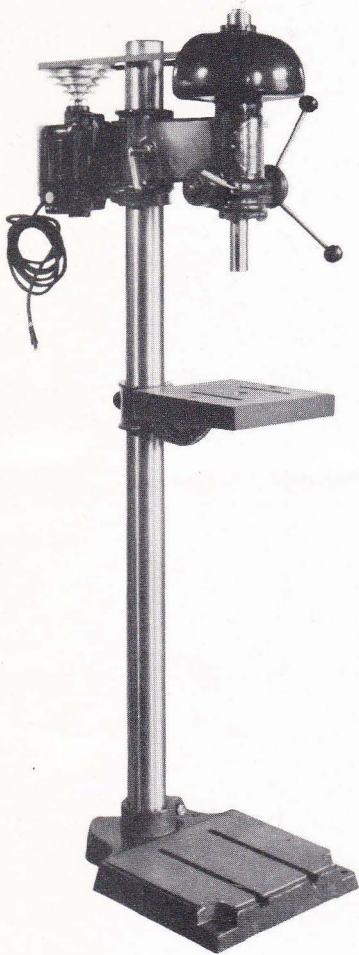
Spindle construction of Royal Drills

● NO. 16 ROYAL BENCH DRILL SLOW SPEED

This illustration shows the No. 16 Royal Bench Drill with slow speed pulleys with 220 volt, 60 cycle, 3 phase motor and switch mounted on the spindle cone pulley guard, convenient to the operator. The illustration shows the drill equipped with 1/2 inch chuck, but either No. 1 or No. 2 Morse Taper can be supplied in place of the chuck.

The base is standard and is provided with T slots. The table is the regular full tilting type.

NO. 16 ROYAL FLOOR DRILL



R-104

C-O No. 16—Royal Slow Speed Floor Drill, No. 2 M.T. Spindle

These illustrations show the two floor drills, one with chuck and one with Morse Taper spindle. They also illustrate the machined and T slotted base supplied as standard equipment on the Royal floor drill and the tilting action of the table.

This also illustrates the safety clamp provided on all Royal drills and which is located just underneath the head. By using this clamp it is possible to lower the head without danger of slipping out of the operator's hand as this clamp can be set at any desired position and the head lowered to rest on it.



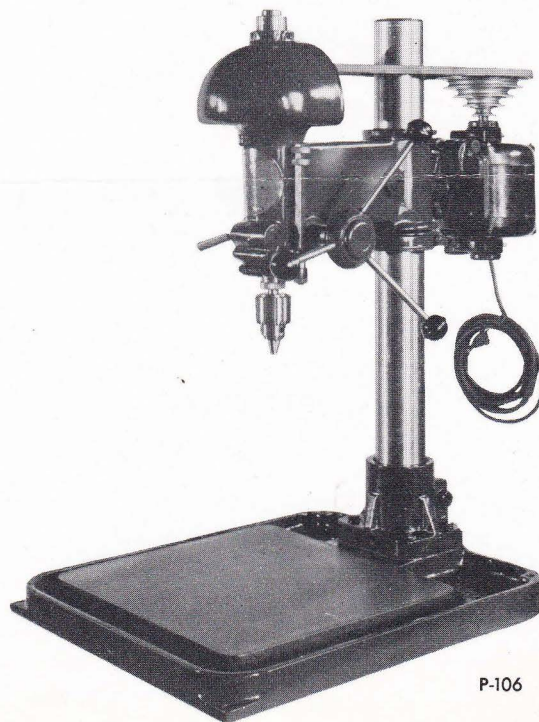
R-105

C-O No. 16—Royal Floor Drill with Chuck equipped Spindle

● NO. 16 ROYAL BENCH DRILL WITH PRODUCTION TYPE BASE

This illustration shows the No. 16 Royal head mounted on a large production type base. The machined surface of this base is 12 inches by 13 inches and the overall bench base 19 inches by 14 inches. This base is ideal for tool room work or where jigs are used for production work.

C-O No. 16—Royal Drill Head mounted on Production Type Base



P-106

MULTIPLE SPINDLE BENCH DRILL

These two illustrations show the No. 16 Royal drill in a two-spindle and three-spindle bench type. These are desirable for production work and you will note the spindles can be arranged either with chuck or Morse Taper, or one head equipped with chuck and one with tapping attachment.

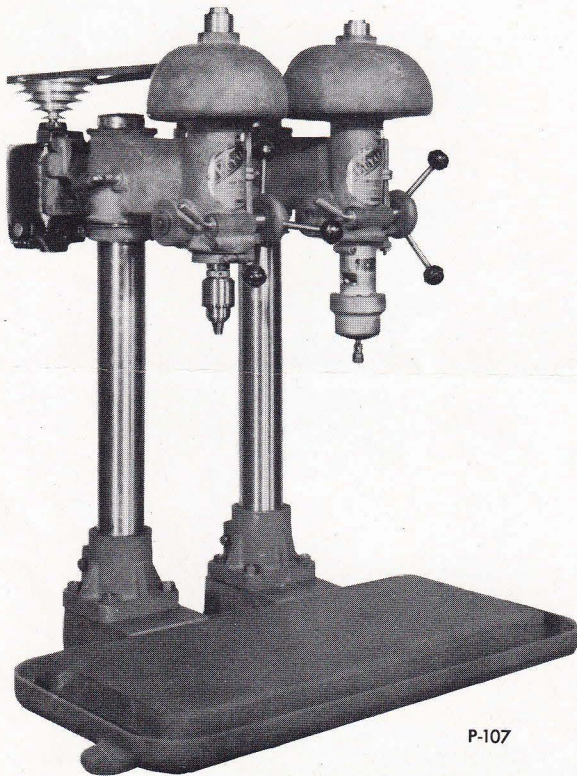
Quite often on a setup like this, it is desirable to have one head, especially the tapping head, run at a slower speed than the drilling head. This can readily be obtained by furnishing a standard speed head on one column and a slow speed head on the other column which is to be used for tapping.

This also shows the type of control when 3 phase motors are used, which is very often the

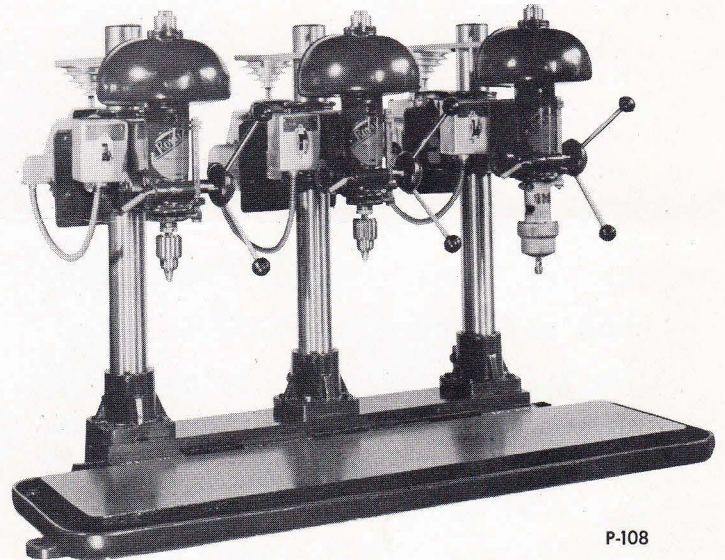
case when these drills are furnished in multiple.

The center distance between spindles is 11 inches on a standard base. The machined working surface on a three-spindle is 12 inches by 38 inches and the machined working surface on a standard two-spindle 12 inches by 28 inches. All these bases are provided with a large oil groove for wet drilling.

The illustration showing the switches on 3 phase motors shows the three heads mounted on a four-spindle base. In this case the distance between spindle centers is 16 inches, which is quite often required for use with various size jigs where a smaller center distance would not be sufficient. These drills are furnished in two, three, four and six spindles.

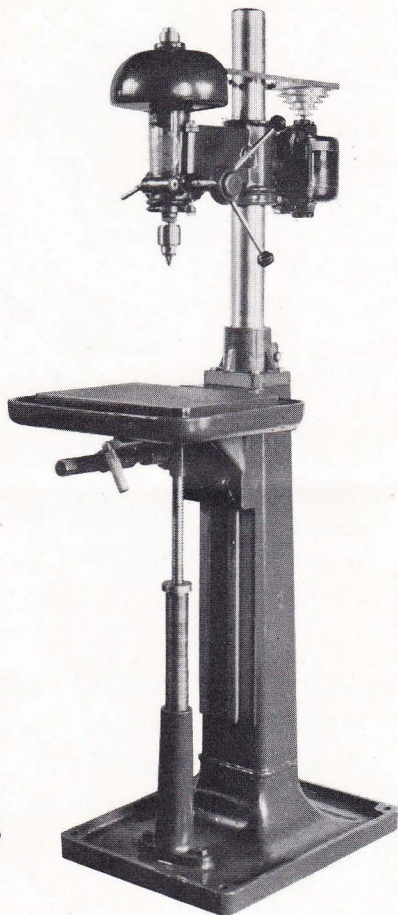


2 Spindle Royal Bench Drill—1-Head with tapping attachment



3 Spindle Bench Drill with 3-phase Motors and Switches

ROYAL MULTIPLE SPINDLE FLOOR DRILLS



P-109

C-O No. 16—Royal Head mounted on Box Column

● MULTIPLE SPINDLE FLOOR DRILL

This illustration shows a No. 16 Royal Drill mounted on the floor type multiple spindle base. The heads shown in this illustration are three heads mounted on a four-spindle base giving a center distance between spindles of 15 inches. These can also be supplied on standard bases, i. e., a regular three-spindle base with three spindles and in this case the center distance between spindles is 12 inches.

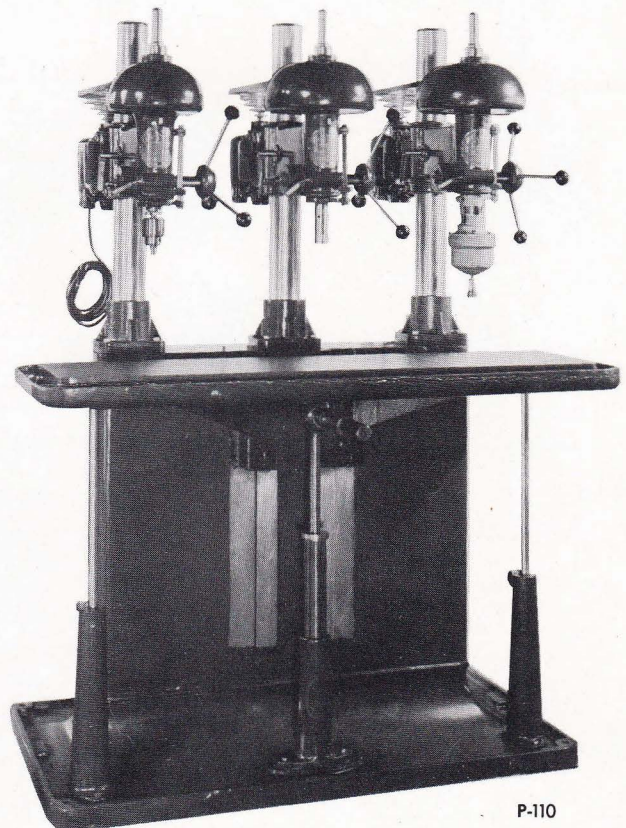
The machined working surface of a table on a four spindle base is 12 inches by 48 inches. These bases and tables are the same as furnished on heavier and more expensive type drills.

The floor type multiple type spindles are furnished in two, three, four and six spindles.

● BOX TYPE COLUMN

This illustration shows the No. 16 Royal head mounted on a box type column drill for use in the tool room. This provides a good substantial table having a screw adjustment for raising and lowering the table. This tool is especially desirable in tool room work for dies and jigs where a great deal of accuracy is required.

The machined working surface of the table is 16 inches by 12 inches and is provided with a large oil groove.



P-110

C-O No. 16—Royal 3-Spindle Floor Drill

FOOT LEVER FEED

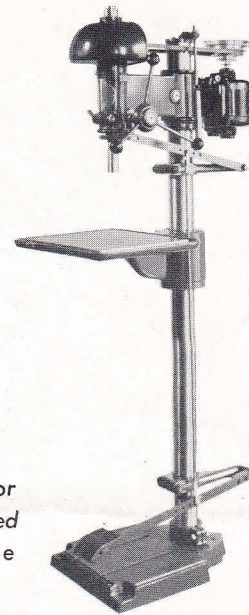
This illustration shows a No. 16 Royal floor drill equipped with production type table and foot lever feed, which leaves the operator's hands free to load and unload jigs and production work. The machined working surface on the production table is 14 inches by 12 inches and is provided with a large oil groove.

● POSITION DRILLING

The illustration shows the adaptability of the Royal head to various types of work. The heads can be furnished separately and used for angle drilling or where work requires opposing head. The heads can be placed in any position to suit the job and due to their flexibility, as many heads as necessary can be mounted on either a special fixture or regular bench.

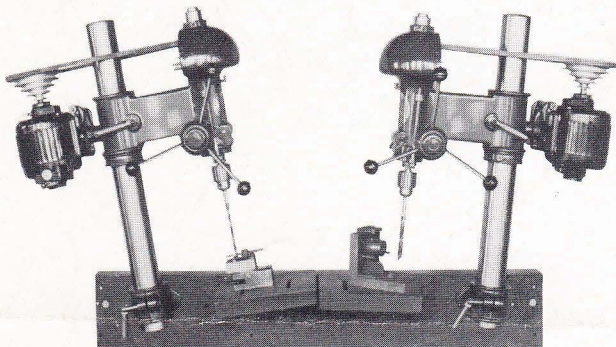
The No. 16 Royal Drill is not a side line with the Canedy-Otto Manufacturing Company, but is one of a complete line of drilling machines manufactured in capacities from 0 inch to $\frac{1}{2}$ inch, and all types of drills are available in either single

C-O No. 16—Royal Floor Drill with Foot Lever Feed and Production Type Table

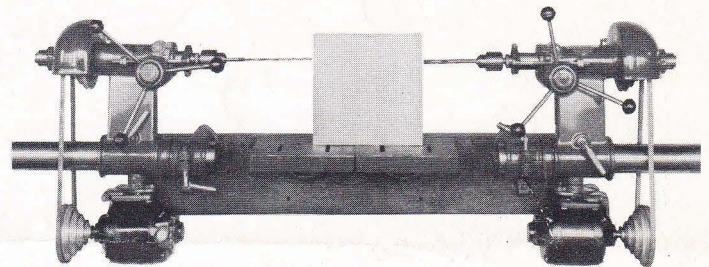


P-111

spindle, multiple spindle bench, multiple spindle floor, as well as various types of special drilling machines for special applications. In back of all these drills there are many years of experience in building machine tools.



C-O No. 16—Royal Heads mounted for Angle Drilling



C-O No. 16—Royal Head mounted for Horizontal Drilling



MANUFACTURED BY

CANEDY-OTTO MANUFACTURING COMPANY

GENERAL OFFICES AND FACTORY: CHICAGO HEIGHTS, ILLINOIS

READY FOR THE JOB