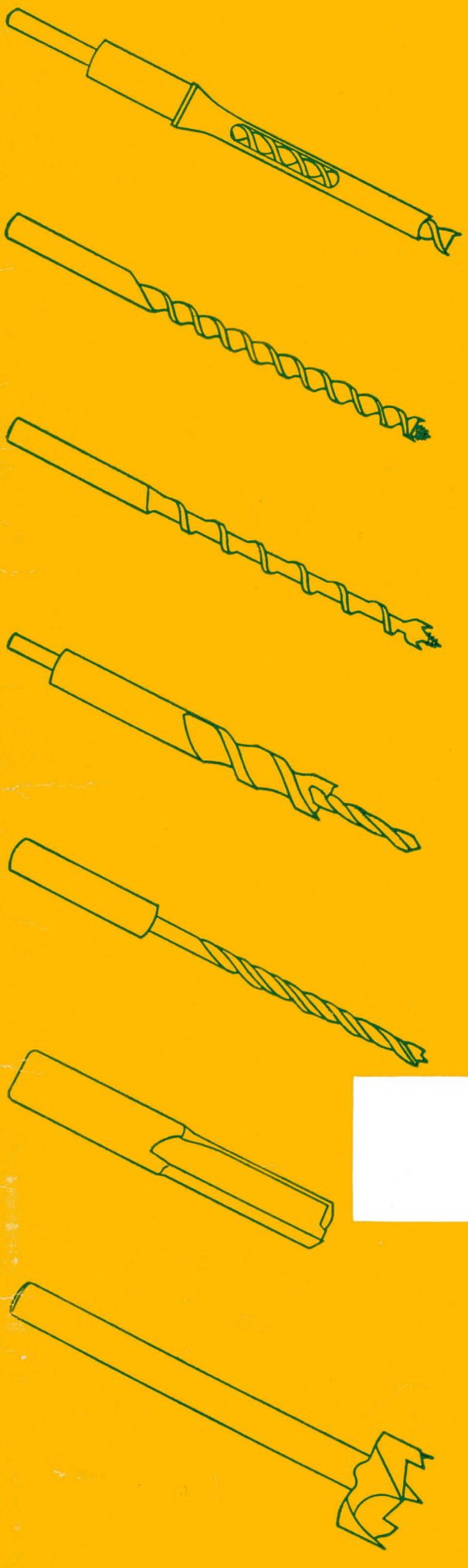


TOOLS FOR CRAFTSMEN

GREENLEE

TOOLS FOR MORTISING · BORING ROUTING

Catalog No. 34-M

GREENLEE TOOL CO., ROCKFORD, ILLINOIS

TOOLS FOR CRAFTSMEN

GREENLEE

TERMS

To GREENLEE customers having adequate ratings or with satisfactory references, terms are net cash in thirty days, or 2% cash discount 10th of month following date of invoice. If purchasers are unknown or without rating, we ask for remittance in advance or ship on basis of cash against documents.

SHIPPING

All orders are formally acknowledged, and goods are carefully packed and checked. Packing lists are supplied with each shipment. Claims for shortage or errors must be made on receipt of goods. Our delivery is to the transportation company in all cases, except for export trade. Shipments lost or damaged in transit are not at our risk, but we will prosecute claim for same in behalf of the purchaser. If not otherwise instructed, we use our judgment in shipping orders by freight, express, or parcel post. When shipping by parcel post, we reserve the right to register or insure, charging for same in addition to postage.

GUARANTEE

We guarantee every tool bearing the GREENLEE name to be free from imperfections of material or workmanship, and superior in quality and service. One of the terms of our guarantee is that tools claimed defective must be returned for our inspection.

TOOLS FOR CRAFTSMEN

GREENLEE

REGULAR and HARD-WEAR HOLLOW CHISELS and HOLLOW CHISEL BITS

No. 101-B 4" BLADE REGULAR HOLLOW CHISEL

No. 101-H 4" BLADE HARD-WEAR HOLLOW CHISEL

No. 101-B REINFORCED HOLLOW CHISEL

No. 120-B REGULAR HOLLOW CHISEL BIT

No. 120-H HARD-WEAR HOLLOW CHISEL BIT

No. 120-T SINGLE-TWIST HOLLOW CHISEL BIT

No. 101-B Regular Hollow Chisels and No. 101-H Hard-Wear Hollow Chisels, square type, are for making square mortises with one stroke, and oblong mortises with each succeeding stroke, when used with the Hollow Chisel Bits illustrated above and described in the right-hand column.

These chisels have a 4" blade and are 5-1/2" over all. Sizes 1/4" and 5/16" have reinforced blades. They can be used in any mortising machine or in attachments to a machine that will take the shank sizes listed. *Made of high-grade alloy steel,* heat-treated for strenuous use in high-production machines of the type employed in the woodworking industry. The No. 101-B Hollow Chisels have an opening on one side only, and are more suitable for use in soft woods. No. 101-H Hard-Wear type are better for hard woods where more severe chip clearance is encountered. These have openings on opposite sides which overlap in the center.

GREENLEE No. 120-B Regular Hollow Chisel Bits, No. 120-H Hard-Wear Hollow Chisel Bits, and three sizes of No. 120-T Single-Twist Hollow Chisel Bits, *made of tough alloy steel,* are for use with the No. 101-B and No. 101-H Hollow Chisels illustrated above and described in the left-hand column.

The 1/4" and 5/16" sizes have a 3-1/4" twist length, and the other sizes a 6" twist length. All of them are 9" over all.

The No. 120-B Regular Hollow Chisel Bits, with knife-edged spurs and without point, are more suitable for soft woods, where cutting and chip clearance are not too difficult. The No. 120-H Hard-Wear Hollow Chisel Bits, with broad-faced spurs and point, are for use on very hard wood, such as maple, birch, hickory, and ash. The No. 120-T Single-Twist Hollow Chisel Bits are made in 1/4", 5/16", and 3/8" sizes only, and provide rapid chip clearance when used in fast-feed machines, since chips are elevated twice as fast.

The proper bits for each chisel size are given opposite the chisel specification.

CHISELS

Size	*No.*	*Shank*	*Mortise Depth*
1/4"	101-B	5/8" x 1-1/2"	1-7/8"
5/16"	101-B	5/8" x 1-1/2"	1-7/8"
3/8"	101-B, 101-H	5/8" x 1-1/2"	3-1/4"
7/16"	101-B, 101-H	5/8" x 1-1/2"	3-1/4"
1/2"	101-B, 101-H	5/8" x 1-1/2"	3-1/4"
9/16"	101-B, 101-H	3/4" x 1-1/2"	3-1/4"
5/8"	101-B, 101-H	3/4" x 1-1/2"	3-1/4"
11/16"	101-B	3/4" x 1-1/2"	3-1/4"
3/4"	101-B, 101-H	1-1/8" x 1-1/2"	3"
13/16"	101-B	1-1/8" x 1-1/2"	3"
7/8"	101-B, 101-H	1-1/8" x 1-1/2"	3"
1"	101-B	1-3/8" x 1-1/2"	3"

BITS

Size	*No.*	*Shank*
1/4"	120-B, 120-H, 120-T	3/16" x 5-3/4"
5/16"	120-B, 120-H, 120-T	1/4" x 5-3/4"
3/8"	120-B, 120-H, 120-T	19/64" x 3"
7/16"	120-B, 120-H	19/64" x 3"
1/2"	120-B, 120-H	19/64" x 3"
9/16"	120-B, 120-H	19/64" x 3"
5/8"	120-B	19/64" or 1/2" x 3"
5/8"	120-H	1/2" x 3"
11/16"	120-B	19/64" or 1/2" x 3"
3/4"	120-B	19/64" or 1/2" x 3"
3/4"	120-H	1/2" x 3"
13/16"	120-B	1/2" x 3"
7/8"	120-B, 120-H	1/2" x 3"
1"	120-B	1/2" x 3"

TOOLS FOR CRAFTSMEN

GREENLEE

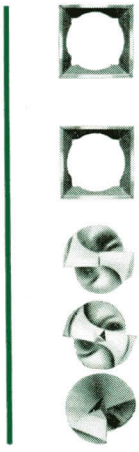
No. 102-B 2-3/4" BLADE REGULAR HOLLOW CHISEL

No. 102-H 2-3/4" BLADE HARD-WEAR HOLLOW CHISEL

No. 121-B REGULAR HOLLOW CHISEL BIT

No. 121-H HARD-WEAR HOLLOW CHISEL BIT

No. 121-T SINGLE-TWIST HOLLOW CHISEL BIT



No. 102-B Regular Hollow Chisels and No. 102-H Hard-Wear Hollow Chisels are identical to the No. 101-B and No. 101-H types, except that the blade length is 2-3/4" and the over-all length 4-1/4". The shorter blade provides increased stiffness. These chisels are *made of tough alloy steel* in 1/4", 5/16", and 3/8" sizes only.

The No. 121-B Regular Hollow Chisel Bits and No. 121-H Hard-Wear Hollow Chisel Bits are for use with the Hollow Chisels described at the left. The No. 121-B has knife-edged spurs and no point for soft wood. The No. 121-H has broad-faced, chisel-type spurs, and brad point for hard wood. The No. 121-T Single-Twist Bits are recommended where chip clearance difficulties are encountered. Twist length, 4-3/4"–over-all length, 8". *Made of tough alloy steel.*

The proper bits for each chisel size are given opposite the chisel specification.

CHISELS				BITS		
Size	*No.*	*Shank*	*Mortise Depth*	*Size*	*No.*	*Shank*
1/4"	102-B, 102-H	5/8" x 1-1/2"	1-7/8"	1/4"	121-B, 121-H, 121-T	3/16" x 3-1/4"
5/16"	102-B, 102-H	5/8" x 1-1/2"	1-7/8"	5/16"	121-B, 121-H, 121-T	1/4" x 3-1/4"
3/8"	102-B, 102-H	5/8" x 1-1/2"	1-7/8"	3/8"	121-B, 121-H, 121-T	19/64" x 3-1/4"

No. 103-B 5" BLADE REGULAR HOLLOW CHISEL

No. 103-H 5" BLADE HARD-WEAR HOLLOW CHISEL

No. 122-B REGULAR HOLLOW CHISEL BIT

No. 122-H HARD-WEAR HOLLOW CHISEL BIT

No. 103-B Regular and No. 103-H Hard-Wear Hollow Chisels have 5" blades for deeper mortising, but are otherwise similar to the 4" chisels. The No. 103-B Chisel is recommended for soft woods . . . the No. 103-H, up to and including 1", for hard woods. Chip clearance difficulties are seldom encountered in the 1-1/8" and 1-1/4" sizes. Over-all length, 6-1/2". *Made of tough alloy steel.*

No. 122-B and No. 122-H Hollow Chisel Bits *made of tough alloy steel* are available in sizes up to 1" as listed below. Only the No. 122-B is available in 1-1/8" and 1-1/4" sizes. For soft woods, the No. 122-B is recommended. For mortising hard woods, such as hard maple, birch, hickory, and ash in sizes 1-inch and under, the No. 122-H is recommended. Twist length, 7"–over-all length, 10".

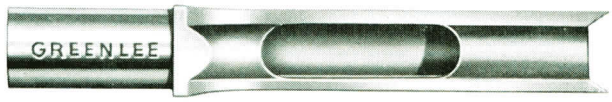
The proper bits for each chisel size are given opposite the chisel specification.

CHISELS				BITS		
Size	*No.*	*Shank*	*Mortise Depth*	*Size*	*No.*	*Shank*
3/8"	103-B, 103-H	5/8" x 1-1/2"	4-1/4"	3/8"	122-B, 122-H	19/64" x 3"
7/16"	103-B, 103-H	5/8" x 1-1/2"	4-1/4"	7/16"	122-B, 122-H	19/64" x 3"
1/2"	103-B, 103-H	5/8" x 1-1/2"	4-1/4"	1/2"	122-B, 122-H	19/64" x 3"
9/16"	103-B	3/4" x 1-1/2"	4-1/4"	9/16"	122-B	19/64" x 3"
5/8"	103-B, 103-H	3/4" x 1-1/2"	4-1/4"	5/8"	122-B	19/64" or 1/2" x 3"
				5/8"	122-H	1/2" x 3"
3/4"	103-B, 103-H	1-1/8" x 1-1/2"	3-3/4"	3/4"	122-B	19/64" or 1/2" x 3"
				3/4"	122-H	1/2" x 3"
7/8"	103-B, 103-H	1-3/8" x 1-1/2"	3-3/4"	7/8"	122-B, 122-H	1/2" x 3"
1"	103-B, 103-H	1-3/8" x 1-1/2"	3-3/4"	1"	122-B, 122-H	1/2" x 3"
1-1/8"	103-B	1-3/8" x 1-1/2"	3-3/4"	1-1/8"	122-B	1/2" x 3"
1-1/4"	103-B	1-3/8" x 1-1/2"	3-3/4"	1-1/4"	122-B	1/2" x 3"

TOOLS FOR CRAFTSMEN

GREENLEE

No. 100-B OBLONG BAR HOLLOW CHISELS



No. 100-B OBLONG BAR HOLLOW CHISEL

No. 120-B REGULAR HOLLOW CHISEL BIT

Designed primarily for sash and door manufacturers to make extremely oblong mortises for inserting muntin bars. They permit mortising in the sizes listed below with one stroke of the machine. *Made of finest alloy steel,* scientifically heat-treated, for use in high-production machines. Over-all length, 5-1/2".

The No. 120-B Hollow Chisel Bit as illustrated above is recommended for use in the No. 100-B Chisel. The knife-edge spurs and absence of point makes it an efficient tool for the softer woods used in the sash and door industry. Over-all length, 9". Twist length, 6". *Made of tough alloy steel.*

CHISELS

Size	*No.*	*Shank*
3/8" x 9/16" x 4"	100-B	5/8" x 1-1/2"
3/8" x 5/8" x 4"	100-B	5/8" x 1-1/2"
3/8" x 3/4" x 4"	100-B	3/4" x 1-1/2"
3/8" x 13/16" x 4"	100-B	3/4" x 1-1/2"

BITS

Size	*No.*	*Shank*
1/2"	120-B	19/64" x 3"
1/2"	120-B	19/64" x 3"
5/8"	120-B	19/64", or 1/2" x 3"
5/8" or 11/16"	120-B	19/64", or 1/2" x 3"

The proper bits for each chisel size are given opposite the chisel specification.

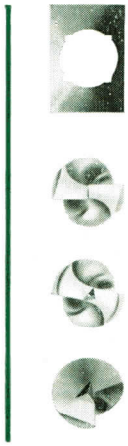
No. 101-B OBLONG HOLLOW CHISELS

No. 101-B OBLONG HOLLOW CHISEL

No. 120-B REGULAR HOLLOW CHISEL BIT

No. 120-H HARD-WEAR HOLLOW CHISEL BIT

No. 120-T SINGLE-TWIST HOLLOW CHISEL BIT



No. 101-B Oblong Hollow Chisels with 4-inch blades are designed especially for sash and door mortising in soft wood. They permit mortising in the sizes listed below with one stroke of the machine. Constructed of *finest high-grade alloy steel,* scientifically heat-treated, for use in high production machines. Over-all length, 5-1/2".

No. 120-B, No. 120-H, or No. 120-T Hollow Chisel Bits can be used in the No. 101-B Oblong Hollow Chisel. The No. 120-B Bit is recommended where mortising is being done in soft wood. A 7/16" Hollow Chisel Bit with a twist diameter of 5/16" is listed for use in the 3/8" x 1/2" and 3/8" x 9/16" chisels. Over-all length, 9".

The proper bits for each chisel size are given opposite the chisel specification.

CHISELS

Size	*No.*	*Shank*	*Mortise Depth*
5/16" x 3/8" x 4"†	101-B	5/8" x 1-1/2"	1-7/8"
3/8" x 7/16" x 4"	101-B	5/8" x 1-1/2"	3-1/4"
3/8" x 1/2" x 4"*	101-B	5/8" x 1-1/2"	3-1/4"
3/8" x 9/16" x 4"*	101-B	5/8" x 1-1/2"	3-1/4"
7/16" x 1/2" x 4"	101-B	5/8" x 1-1/2"	3-1/4"
1/2" x 5/8" x 4"	101-B	5/8" x 1-1/2"	3-1/4"
1/2" x 3/4" x 4"	101-B	5/8" x 1-1/2"	3-1/4"

BITS

Size	*No.*	*Shank*
5/16"	120-B, 120-H, 120-T	1/4" x 5-3/4"
3/8"	120-B, 120-H, 120-T	19/64" x 3"
3/8"	120-B, 120-H, 120-T	19/64" x 3"
3/8"	120-B, 120-H, 120-T	19/64" x 3"
7/16"	120-B	19/64" x 3"
1/2"	120-B, 120-H	19/64" x 3"
1/2"	120-B, 120-H	19/64" x 3"

*7/16" No. 120-B with 5/16" twist diameter can be used with 3/8" x 1/2" and 3/8" x 9/16" No. 101-B Chisels.

†Reinforced blade.

TOOLS FOR CRAFTSMEN

GREENLEE

No. 104-B 6-1/2" BLADE REGULAR HOLLOW CHISEL

No. 123-B REGULAR HOLLOW CHISEL BIT

The No. 104-B–6-1/2" Blade Hollow Chisels are designed primarily for use in medium and heavy car shop machines to handle timber mortising requirements. These chisels have reinforced blades in sizes 9/16" and smaller. The larger sizes are made with straight blades. A single opening provides adequate chip clearance. *Made of high-grade alloy steel,* heat-treated, ground, and carefully sharpened. Over-all length, 8-1/2".

The Hollow Chisels listed at the left, when used in medium-sized mortisers, require the No. 123-B Hollow Chisel Bits listed belw with 9" twist length and 12" overall. When using these chisels in heavy mortisers, use No. 124-B Bits with 10" twist length and 14" over all. Provided with knife-edge outlining spurs and without point for fast cutting. Carefully heat-treated and accurately sharpened for long life and smooth operation.

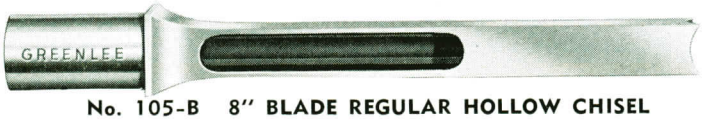
The proper bits for each chisel size are given opposite the chisel specification.

CHISELS			
Size	*No.*	*Shank*	*Mortise Depth*
3/8"	104-B*	1-1/8" x 2"	3-1/4"
7/16"	104-B*	1-1/8" x 2"	3-1/2"
1/2"	104-B*	1-1/8" x 2"	3-1/2"
9/16"	104-B*	1-1/8" x 2"	3-1/2"
5/8"	104-B	1-1/8" x 2"	5-1/8"
3/4"	104-B	1-1/8" x 2"	5-1/8"
7/8"	104-B	1-3/8" x 2"	5-1/8"
1"	104-B	1-3/8" x 2"	5-1/2"
1-1/8"	104-B	1-3/8" x 2"	5-1/2"
1-1/4"	104-B	1-3/4" x 2"	5"
1-1/2"	104-B	1-3/4" x 2"	5-1/4"
1-3/4"	104-B	2-1/4" x 2"	5"
2"	104-B	2-1/4" x 2"	5"

*Reinforced Blade

BITS Medium-Sized Mortisers		
Size	*No.*	*Shank*
3/8"	123-B	19/64" x 3"
7/16"	123-B	19/64" x 3"
1/2"	123-B	19/64" x 3"
9/16"	123-B	19/64" x 3"
5/8"	123-B	1/2" x 3"
3/4"	123-B	5/8" x 3"
7/8"	123-B	5/8" x 3"
1"	123-B	5/8" x 3"
1-1/8"	123-B	5/8" x 3"
1-1/4"	123-B	5/8" x 3"
1-1/2"	123-B	5/8" x 3"
1-3/4"	123-B	5/8" x 3"
2"	123-B	5/8" x 3"

BITS Heavy Mortisers		
Size	*No.*	*Shank*
3/8"	124-B	19/64" x 4"
7/16"	124-B	19/64" x 4"
1/2"	124-B	19/64" x 4"
9/16"	124-B	19/64" x 4"
5/8"	124-B	1/2" x 4"
3/4"	124-B	5/8" x 4"
7/8"	124-B	5/8" x 4"
1"	124-B	5/8" x 4"
1-1/8"	124-B	5/8" x 4"
1-1/4"	124-B	5/8" x 4"
1-1/2"	124-B	5/8" x 4"
1-3/4"	124-B	5/8" x 4"
2"	124-B	5/8" x 4"



No. 105-B 8" BLADE REGULAR HOLLOW CHISEL

No. 125-B REGULAR HOLLOW CHISEL BIT

The No. 105-B–8" Blade Hollow Chisels are primarily for use in the heavy car shop mortising machines where deep mortising in the larger sizes is required. *Made of high-grade alloy steel,* carefully heat-treated and sharpened. One opening is provided for chip clearance. Over all-length, 10".

The bits listed below have an 11" twist and are 15" in length for use in larger mortisers with 8" blade chisels. When 8" blade Hollow Chisels are operated in medium mortisers, use No. 124-B Hollow Chisel Bits. *Made of tough alloy steel* and carefully heat-treated for long life.

The proper bits for each chisel size are given opposite the chisel specification.

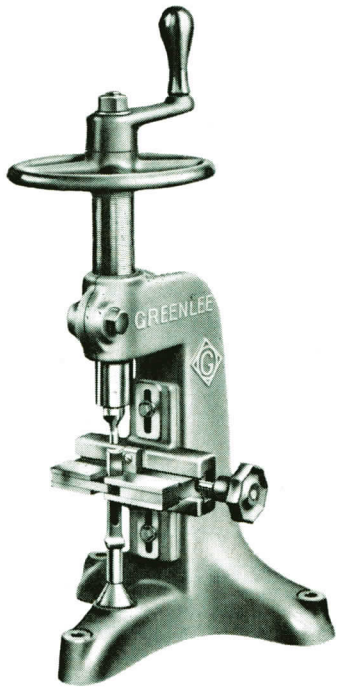
CHISELS			
Size	*No.*	*Shank*	*Mortise Depth*
3/4"	105-B	1-1/8" x 2"	6-3/4"
7/8"	105-B	1-3/8" x 2"	6-3/4"
1"	105-B	1-3/8" x 2"	6-3/4"
1-1/8"	105-B	1-3/8" x 2"	6-3/4"
1-1/4"	105-B	1-3/4" x 2"	6-3/4"
1-1/2"	105-B	1-3/4" x 2"	6-3/4"
1-3/4"	105-B	2-1/4" x 2"	6-3/4"
2"	105-B	2-1/4" x 2"	6-3/4"

BITS		
Size	*No.*	*Shank*
3/4"	125-B	5/8" x 4"
7/8"	125-B	5/8" x 4"
1"	125-B	5/8" x 4"
1-1/8"	125-B	5/8" x 4"
1-1/4"	125-B	5/8" x 4"
1-1/2"	125-B	5/8" x 4"
1-3/4"	125-B	5/8" x 4"
2"	125-B	5/8" x 4"

TOOLS FOR CRAFTSMEN

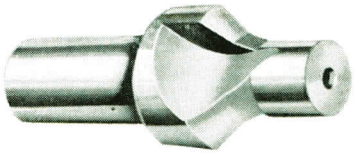
GREENLEE

No. 720 HOLLOW CHISEL SHARPENING MACHINE



A hand-operated machine that speeds resharpening of dull chisels and can also be used for reclaiming broken chisels that might otherwise be discarded. Its use will eliminate practically all hand filing, since it is only necessary to complete the corner grooves of the chisel with a square file. It also permits shaping the correct inside contour of the chisels for maximum cutting efficiency. Will sharpen chisels up to 1-1/4" square and 6-3/4" in over-all length. Base is 12" x 10-1/2", with holes for bolting to workbench. Height over all, 27".

No. 111 DOUBLE-ANGLE CUTTERS



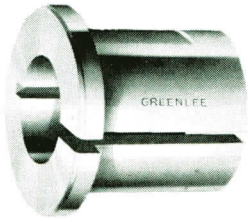
These cutters are for use in the No. 720 Hollow Chisel Sharpening Machine, and are especially designed for GREENLEE Hollow Chisels only. A separate cutter is required for each size chisel. They are easily resharpened by regrinding the face, and the contour of cutter is not changed. *Made of high-speed steel.*

Stock cutter sizes: 1/4", 5/16", 3/8", 7/16", 1/2", 9/16", 5/8", 11/16", 3/4", 13/16", 7/8", 1" 1-1/8", and 1-1/4".

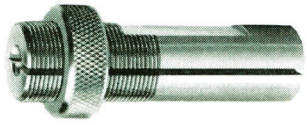
See Chisel Sharpening Instructions on Page 17 of this Catalog.

GREENLEE HOLLOW CHISEL and BIT BUSHINGS

No. 115 SPLIT BIT BUSHING



No. 116 SPLIT CHISEL BUSHING



No. 117 ADJUSTABLE BIT BUSHING

Specify type of bushing, bore, and outside diameter of bushing when ordering. Bushings of special dimensions can be made to order.

No. 115 SPLIT BIT BUSHINGS

Bore	Outside Diameter
3/16"	19/64"
1/4"	19/64"
3/16"	1/2"
1/4"	1/2"
19/64"	1/2"
3/16"	5/8"

Bore	Outside Diameter
1/4"	5/8"
19/64"	5/8"
1/2"	5/8"
19/64"	3/4"
1/2"	3/4"
5/8"	3/4"

No. 117 ADJUSTABLE BIT BUSHINGS

Bore	Outside Diameter
3/16"	3/4"
1/4"	3/4"
19/64"	3/4"

Bore	Outside Diameter
1/2"	3/4"
5/8"	3/4"

No. 116 SPLIT CHISEL BUSHINGS

Standard Bore

Bore	Outside Diameter
5/8"	7/8"
3/4"	7/8"
5/8"	1-1/8"
3/4"	1-1/8"
5/8"	1-3/8"
3/4"	1-3/8"
1-1/8"	1-3/8"
5/8"	1-3/4"
3/4"	1-3/4"

Bore	Outside Diameter
1-1/8"	1-3/4"
1-3/8"	1-3/4"
5/8"	2"
3/4"	2"
1-1/8"	2"
1-3/8"	2"
1-3/4"	2"
5/8"	2-1/4"
3/4"	2-1/4"
1-1/8"	2-1/4"
1-3/8"	2-1/4"

TOOLS FOR CRAFTSMEN

GREENLEE

GREENLEE ROUTER BITS

No. 142 ALLOY STEEL ROUTING BITS

No. 142 Right-Hand Routing Bits are carried in stock with double flutes and square cutting end. Flutes, shank, and back clearance are accurately ground to insure even cutting by both edges. *Made of tough alloy steel,* carefully heat-treated.

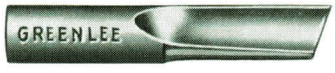
No. 141 Left-Hand Router Bits are stocked in sizes 3/16″ to 1″ inclusive; No. 142 Right-Hand Bits in 3/16″ to 1-1/4″ as listed.

Size	*Flute Length*	*Shank*
3/16″	1-1/4″	1/2″ x 1-1/2″
1/4″	1-1/2″	1/2″ x 1-1/2″
5/16″	1-1/2″	1/2″ x 1-1/2″
3/8″	1-1/2″	1/2″ x 1-1/2″
7/16″	1-1/2″	1/2″ x 1-1/2″
1/2″	1-1/2″	1/2″ x 1-1/2″
9/16″	1-1/2″	1/2″ x 1-1/2″
5/8″	1-1/2″	1/2″ x 1-1/2″
3/4″	1-1/2″	1/2″ x 1-1/2″
7/8″	1-1/2″	1/2″ x 1-1/2″
1″	1-1/2″	1/2″ x 1-1/2″
1-1/8″	1-1/2″	1/2″ x 1-1/2″
1-1/4″	1-1/2″	1/2″ x 1-1/2″

No. 146 HIGH-SPEED STEEL ROUTING BIT

Made of high-speed steel, the No. 146 Bit is ideal for working hard woods and laminated stock at fast spindle speeds. Its keen edge is little affected by heat . . . stays sharp longer. Has double flutes. Entire tool is ground to accurate size. Right-Hand only in stock. *No. 145 Left-Hand Router Bits can be made special-to-order.*

Size	*Flute Length*	*Shank*
3/16″	1-1/4″	1/2″ x 1-1/2″
1/4″	1-1/2″	1/2″ x 1-1/2″
5/16″	1-1/2″	1/2″ x 1-1/2″
3/8″	1-1/2″	1/2″ x 1-1/2″
7/16″	1-1/2″	1/2″ x 1-1/2″
1/2″	1-1/2″	1/2″ x 1-1/2″
9/16″	1-1/2″	1/2″ x 1-1/2″
5/8″	1-1/2″	1/2″ x 1-1/2″
3/4″	1-1/2″	1/2″ x 1-1/2″
7/8″	1-1/2″	1/2″ x 1-1/2″
1″	1-1/2″	1/2″ x 1-1/2″



No. 143 SINGLE-FLUTE ROUTER

These are right-hand routers. *Made of high-speed steel* carefully heat-treated to retain a sharp cutting edge. Single flute and shank are accurately ground to size for precision work. Stocked in the sizes listed at the right.

Size	*Flute Length*	*Shank*
1/8″	1/2″	1/4″ x 1″
5/32″	1/2″	1/4″ x 1″
3/16″	5/8″	1/4″ x 1″
7/32″	3/4″	1/4″ x 1″
1/4″	1″	1/4″ x 1″
5/16″	1″	1/4″ or 5/16″ x 1″
3/8″	1″	1/4″ or 3/8″ x 1″

No. 143-D DOUBLE-END ROUTER

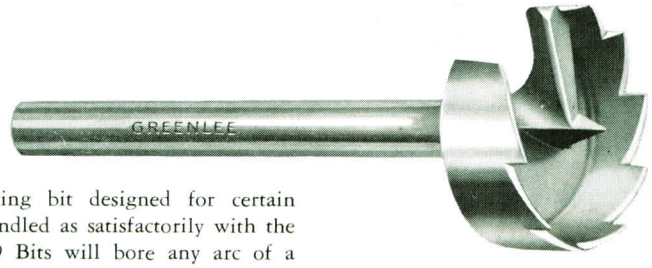
No. 143-D Double-End, Right-Hand Routing Bits are *made of high-speed steel,* carefully heat-treated, and with both cutting ends accurately ground for size and clearance. These single-flute cutters have a 1″ long center shank. Available as listed at the right.

Size	*Flute Length*	*Shank*
1/8″	1/2″	1/4″ x 1″
5/32″	1/2″	1/4″ x 1″
3/16″	5/8″	1/4″ x 1″
7/32″	3/4″	1/4″ x 1″
1/4″	1″	1/4″ x 1″
5/16″	1″	3/8″ x 1″
3/8″	1″	3/8″ x 1″

TOOLS FOR CRAFTSMEN

GREENLEE

No. 149 MULTI-SPUR MACHINE BITS

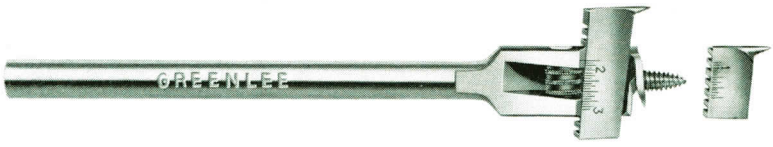


A fast-cutting, smooth-boring bit designed for certain classes of boring work not handled as satisfactorily with the usual machine bits. No. 149 Bits will bore any arc of a circle on the edge of a piece of stock . . . operates equally well in hard or soft wood. They bore smoothly in veneered stock without tearing, and bore at an angle, overlapping, or on close centers without danger of splitting the stock. Due to ease of boring, larger holes can be bored with a minimum of power on small spindle machines.

Made of high-grade alloy steel, the No. 149 is carefully heat-treated for long life. The head and shank are accurately ground for size and clearance. These bits operate with a minimum of friction, will not choke with chips, and can be sharpened with a File. Shanks are 1/2″ diameter on 3″ and smaller bits, 3/4″ on larger bits. Over-all lengths range from 5-1/2″ to 5-3/4″. Sizes 3-1/4″ and larger have double cutters and 3/8″ diameter inserted point. Stock sizes as listed.

Size	*Size*	*Size*	*Size*
1/2″	1-1/8″	1-3/4″	2-3/4″
9/16″	1-3/16″	1-13/16″	2-7/8″
5/8″	1-1/4″	1-7/8″	3″
11/16″	1-5/16″	1-15/16″	3-1/4″
3/4″	1-3/8″	2″	3-1/2″
13/16″	1-7/16″	2-1/8″	3-3/4″
7/8″	1-1/2″	2-1/4″	4″
15/16″	1-9/16″	2-3/8″	
1″	1-5/8″	2-1/2″	
1-1/16″	1-11/16″	2-5/8″	

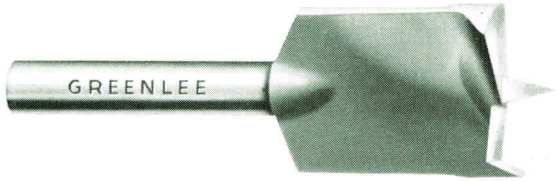
No. 6-M MACHINE EXPANSIVE BITS



Boring holes of odd diameters is no problem with this bit . . . its two cutting blades provide a size range from 7/8″ to 3″, and with the extra-large blade, sizes up to 4″ can be bored. Cutting blade is easily adjusted by turning a knurled screw, and locks securely in place by tightening an eccentric pin. The 1/2″ shank is accurately ground concentric with the head for true boring. Over-all length, 8″. Not recommended for production runs.

No. 6-M Complete, 7/8″ to 3″
No. 6-MC Cutter, 2-1/2″ to 4″

No. 169 MACHINE CENTER BITS



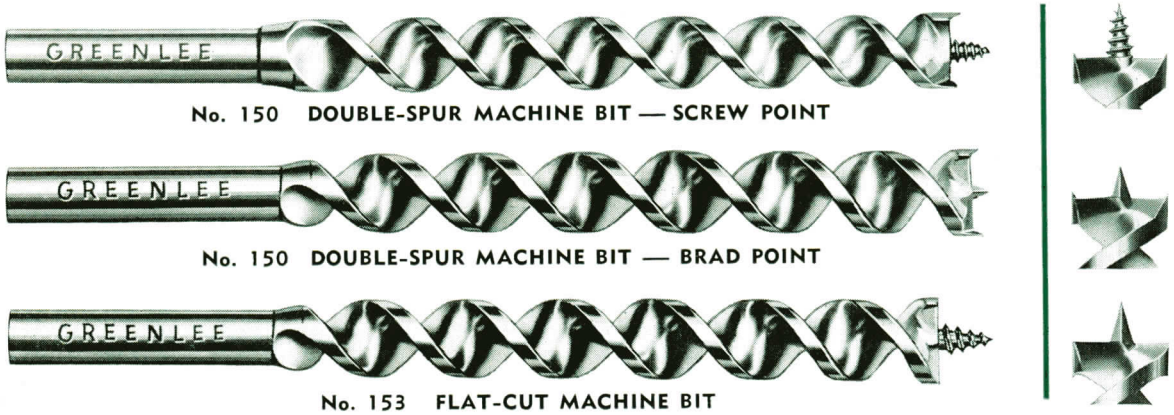
Designed primarily for boring shallow holes of large diameter, these bits have a 2″ blade length, brad points, and knife-edge spurs. The shanks are 1/2″ in diameter and 2-1/4″ in length. Stock sizes are listed. Special sizes quoted on request.

Size	*Size*	*Size*	*Size*
3/4″	1-1/4″	2″	3″
7/8″	1-3/8″	2-1/4″	3-1/4″
1″	1-1/2″	2-1/2″	3-1/2″
1-1/8″	1-3/4″	2-3/4″	4″

TOOLS FOR CRAFTSMEN

GREENLEE

GREENLEE MACHINE BITS



No. 150 DOUBLE-SPUR MACHINE BIT — SCREW POINT

No. 150 DOUBLE-SPUR MACHINE BIT — BRAD POINT

No. 153 FLAT-CUT MACHINE BIT

The No. 150 Double-Spur Machine Bit has two outlining spurs, supported by side lips, that enable it to cut smooth holes in either soft or hard wood, cross or end grain. The double twist elevates chips out of both channels. This bit is used successfully even after the outlining spurs are worn off, although the holes are not as smooth. *Carefully made of high-grade alloy steel,* with medium-pitch screw point for general-purpose boring. Also supplied with brad point as illustrated. *Be sure to specify point desired.*

No. 153—Same bit as No. 150 except outlining spurs are removed. This bit is especially suited for end-grain boring where cross-fibers are not encountered. With single-thread screw point or brad point.

No. 150 STOCK ASSORTMENTS

Twist Length	*Shank*	*Sizes*
4″	1/2″ x 2-1/4″	1/4″ to 1-1/2″ by sixteenths
6″	1/2″ x 2-1/4″	1/4″ to 2″ by sixteenths
12″	1/2″ x 2-1/4″	3/8″ to 1-1/4″ by sixteenths, also 22/16″, 24/16″, 28/16″, and 32/16″
12″	3/4″ x 2-1/4″	
14″	3/4″ x 2-1/4″	

No. 151 EXTENSION-LIP MACHINE BIT

This bit is especially designed to do smooth boring for furniture and cabinet work. The outlining spurs sever the fibers well ahead of the extension-lip cutting edges, producing an exceptionally clean-cut hole with no tearing of the wood. The double-screw point provides a medium feed for best results. Double-twist pattern elevates chips through both channels. A similar bit with 2-1/4″ twist, 5-1/4″ over all is described on page 10.

No. 151 STOCK ASSORTMENTS

Twist Length	*Shank*	*Sizes*
4″	1/2″ x 2-1/4″	1/4″ to 1″ by sixteenths
6″	1/2″ x 2-1/4″	1/4″ to 1″ by sixteenths

No. 155 SOLID-CENTER MACHINE BIT

Made with two outlining spurs, two extended cutting lips, and medium-pitch screw point. Spurs outline a smooth hole. Extension lips easily cut chips, which are elevated out of the two throats into the solid-center single spiral. Solid-center design, slightly tapered toward shank, adds greater stiffness, particularly on smaller size bits, yet provides maximum chip clearance. Regularly provided with single screw point, but this can be changed to brad point at nominal additional cost.

No. 155 STOCK ASSORTMENTS

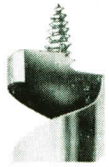
Twist Length	*Shank*	*Sizes*
4″	1/2″ x 2-1/4″	1/4″ to 1-1/4″ by sixteenths
6″	1/2″ x 2-1/4″	1/4″ to 1-1/4″ by sixteenths
8″	1/2″ x 2-1/4″	1/4″ to 1-1/4″ by sixteenths
10″	1/2″ x 2-1/4″	5/16″ to 1-1/8″ by sixteenths
12″	1/2″ x 2-1/4″	3/8″ to 1-1/4″ by sixteenths
14″	1/2″ x 2-1/4″	9/16″, 11/16″, 13/16″, 15/16″, 17/16″

TOOLS FOR CRAFTSMEN

GREENLEE

GREENLEE MACHINE BITS

No. 157 SHIP-AUGER MACHINE BIT — WITH SCREW



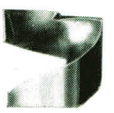
This tool derives its name from the fact that it is used quite extensively in the shipbuilding industry. It has one cutting edge and one side lip. The single-spiral design makes a stiff, strong tool with ample chip clearance, eliminating any tendency for the chips to crowd the bit and cause it to bind. Extremely deep holes are bored easily and quickly.

It is well-adapted for use in the portable power boring machines commonly used in ship, bridge, and framing construction work. Available in 12″, 15″, 18″, and 24″ twist lengths in sizes as listed.

No. 157 STOCK ASSORTMENTS

Twist Length	*Sizes*
12″	6/16″ to 17/16″ inclusive, by sixteenths
15″	18/16″, 20/16″, 22/16″, 24/16″, 28/16″, 32/16″
18″	9/16″ to 17/16″ inclusive, by sixteenths
24″	9/16″ to 17/16″ inclusive, by sixteenths

No. 158 SHIP-AUGER MACHINE BIT — WITHOUT SCREW



This bit has twist identical to the No. 157 Ship Auger Machine Bit except that it does not have a point and the heel is not backed-off, therefore it has less tendency to lead off with the grain of the wood when deep boring. *These bits are not stocked, and are made to special order only.*

No. 159 SINGLE-SPUR MACHINE BIT

Designed for boring deep, smooth holes in bridge, dock, and other heavy timber construction work, The No. 159 Bit is particularly recommended for portable electric or air-driven boring machines. The medium-pitch screw point bores twelve turns to the inch.

The polished single twist allows ample room for efficient chip clearance. Chips are carried at the center to permit easy withdrawal of the bit. The single-cutter head has one outlining spur that severs the wood fibers in advance of the cutting edge for smoother, easier boring and long life. Available in 12″, 18″, and 24″ twist lengths, with 1/2″ diameter shanks 2-1/4″ long.

No. 159 STOCK ASSORTMENTS

Twist Length	*Sizes*
12″	6/16″ to 17/16″ inclusive, by sixteenths
18″	9/16″ to 17/16″ inclusive, by sixteenths
24″	9/16″ to 17/16″ inclusive, by sixteenths

TOOLS FOR CRAFTSMEN

GREENLEE

SHORT DOUBLE-TWIST EXTENSION-LIP MACHINE BITS

No. 162 SHORT EXTENSION-LIP MACHINE BITS

These bits have 2-1/4" twist lengths and are 5-1/4" over-all. They have double screw points for slow feed and are excellent for boring fine cabinet work, as well as for use in stationary or portable power equipment, or in relishing machines for boring between the tenon and the rail on window sash. The 1/2" x 2-3/4" shank bit can be used in new type relishing machines or in any single or multiple-spindle boring machine for boring holes 2" or less in depth. Works well with No. 184 Countersink Cutter. *The No. 161 3/8" x 2-3/4" shank bit is made for use in the old type sash and door relishing machines.* Either type can be supplied with brad points at extra cost. The 3/8" shank bit can also be used in No. 195 Countersinks having 3/8" bore.

Stock sizes—1/4" thru 1" by sixteenths

SCREW-SHANK DOWEL BITS and DOWEL DRILLS

Nos. 163 and 164 SCREW-SHANK DOWEL BITS

Double-twist bits with extension lip. Shank has 7/8" rounded shoulder with pin hole. Over-all length, 4-1/2". *Made of alloy steel,* and suitable for cross-grain or end-grain boring. Two shank styles as follows:

No. 163—5/16" diameter shank with No. 20 threads. Double-thread screw point.

Stock sizes: 4/16" thru 10/16" by sixteenths, also 12/16" size. Sizes 6/16, 7/16", and 8/16" also available with single-thread screw point.

No. 164—7/16" diameter shank with No. 14 threads. Single-thread screw point.

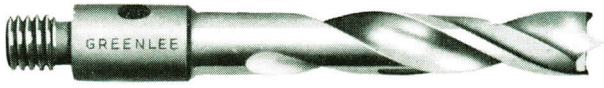
Stock sizes: 4/16" thru 10/16" by sixteenths, also 12/16" size. Sizes 3/16" thru 8/16" also available with double-thread screw point.

Be sure to specify shank diameter and threads desired.

Nos. 178 and 178-A SCREW-SHANK DOWEL DRILLS

Taper-head type, ideal for end-grain boring. *Made of tough alloy steel,* with milled twist and marginal relief. Easily sharpened. Over-all length, 4-1/2"; threaded shank, 1/2" long; shoulder, 7/8" long. In two shank styles as follows:

No. 178—5/16" diameter shank with No 20 thread.
No. 178-A—7/16" diameter shank with No. 14 thread.
Stock sizes: 6/32", 8/32", 10/32", 12/32", 14/32", 16/32", 18/32", 20/32", and 24/32".



Nos. 179, 179-A and 179-M SCREW-SHANK DOWEL DRILLS

Provided with outlining spurs and brad point for smooth boring in cross-grained or end-grained work. Wide margins on flutes provide long life, with sufficient stock for formation of new spurs when re-sharpening. *Made of tough alloy steel,* heat-treated, and ground for accuracy. Over-all length, 4-1/2".

No. 179—5/16" diameter shank with No. 20 threads.
Stock sizes: 6/32", 8/32", 10/32", 12/32", 14/32", 16/32", 18/32", 20/32", and 24/32".

No.179-A—7/16" diameter shank with No. 14 threads.
Stock sizes: 6/32", 8/32", 10/32", 12/32", 14/32", 16/32", 18/32", 20/32", and 24/32". Left-hand bits stocked in 12/32", 14/32", and 16/32".

No. 179-M—5/16" diameter shank with No. 18 threads.
Stock sizes: 12/32", 14/32", and 16/32" in both right and left-hand drills.

TOOLS FOR CRAFTSMEN

GREENLEE

GREENLEE MACHINE DRILLS

No. 176 TAPER-HEAD DRILL

Made of tough alloy steel, heat-treated to withstand severe use, and particularly adapted to bore hard and soft wood for furniture, implement, radio and television cabinets, and truck and body woodwork. The longer drills are generally used in portable electric or pneumatic machines for car shop work. Easily sharpened. Shanks 1/2″ x 2-1/4″. Twist lengths as listed.

4″ twist: sizes 6/32″ to 16/32″ by thirty-seconds, also 18/32″, 20/32″, 24/32″.
6″ twist: sizes 12/32″, 14/32″, 16/32″, 18/32″, 20/32″, 22/32″, and 24/32″.
8″ twist: sizes 12/32″, 14/32″, 16/32″, 18/32″, 20/32″, 22/32″, and 26/32″.
10″ twist: sizes 12/32″, 14/32″, 16/32″, 18/32″, 20/32″, 22/32″, and 26/32″.
12″ twist: sizes 14/32″, 16/32″, 18/32″, 20/32″, 22/32″, 26/32″, and 30/32″.

No. 176-D DOOR DOWEL DRILL

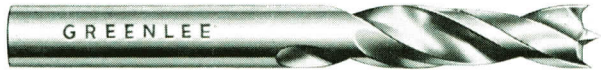
Specifically designed for production boring of dowel holes in doors, these bits are *made of high-speed steel,* heat-treated, and ground over-all for perfect straightness. Two sizes, 1/2″ and 5/8″ diameters, meet industry requirements. Shank 1/2″ x 3-1/4″, with 4″ twist. Over-all length, 7-1/4″ available in right-hand or left-hand twists. *Be sure to specify style desired.*

Twist Length	*Shank*	*Size*
4″	1/2″ x 3-1/4″	16/32″
4″	1/2″ x 3-1/4″	20/32″

No. 177 SPUR MACHINE DRILL

Widely used in the woodworking field for cross-grain boring and other general types of work requiring smooth, accurate holes. Designed for use in boring machines using round shank drills. Head, twist, and shank ground after hardening for accuracy. Two outlining spurs cut in advance of edges to produce exceptionally smooth, clean holes. Flutes and lands are milled to permit outlining spurs to be maintained for 3/4 of twist length when resharpening. *Excellent for use in portable electric drills where screw point is not desired.* 1/2″ x 2″ shank, 4″ twist length.

Stock sizes: 6/32″, 7/32″, 8/32″, 9/32″, 10/32″, 11/32″, 12/32″, 13/32″, 14/32″, 15/32″, 16/32″, 18/32″, 20/32″, 22/32″, 24/32″, 26/32″, 28/32″, 30/32″, 32/32″, 36/32″, and 40/32″.



No. 177-A SPUR MACHINE DRILL

Similar to the No. 177 Drill described above except that the twist length is 2-1/2″. Shank 1/2″ x 2″. A short, sturdy tool for shallow and dowel boring.

Stock sizes: 12/32″, 14/32″, and 16/32″.

No. 177-M SPUR MACHINE DRILL (TAPER-SHANK)

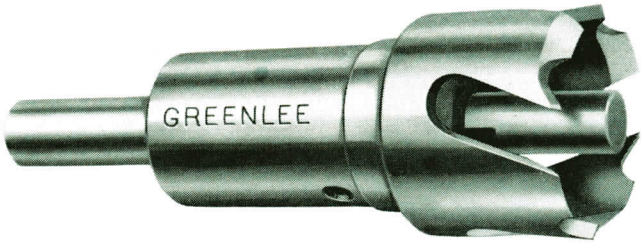
Has tapered shank with shoulder to fit McKnight and similar machines used for dowel boring. *Made of alloy steel,* completely heat-treated and ground. Length from shoulder to tip, 3″. Over-all length, 4-3/4″. For right or left-hand operation. *Be sure to specify style desired.*

Stock sizes: 12/32″, 14/32″, and 16/32″.

TOOLS FOR CRAFTSMEN

GREENLEE

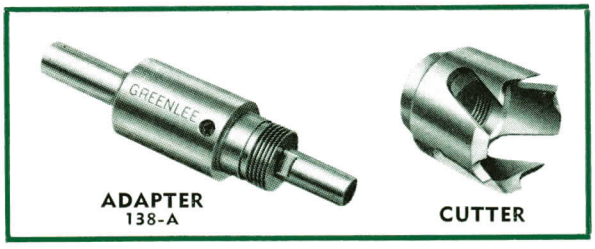
GREENLEE PLUG CUTTERS



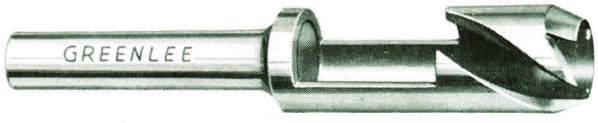
No. 138 PLUG CUTTER

The No. 138 Plug Cutter is a perfectly balanced tool for cutting plugs in the larger sizes. Adapter has 1/2″ diameter shank 2-1/4″ in length, and a 1-1/4″ diameter body containing a spring-loaded plug ejector. The alloy steel cutting barrel threads onto the adapter. This design permits using one adapter with any of the cutter sizes listed. Cuts plugs up to 1″ in thickness.

Diameters from 1-1/8″ to 1-1/2″ are made with cutters having three wings or series of outlining spurs and cutters. The larger sizes have four sets of cutting blades as illustrated. Stock sizes as listed.



Stock cutter sizes: 1-1/8″, 1-1/4″, 1-3/8″, 1-1/2″, 1-5/8″, 1-3/4″, 1-7/8″, and 2″.



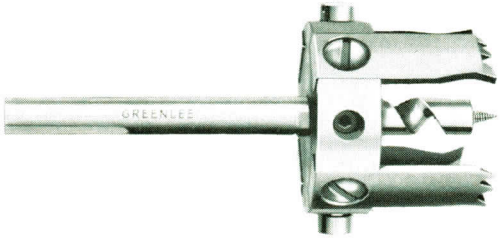
No. 140 SPIRAL PLUG CUTTER

A carefully designed, one-piece plug cutter for cutting cross-grain plugs or end-grain dowels up to 2″ in length, plugs up to 1″ in thickness are easily cleared through the 1-1/8″ opening. Barrel of the cutter is 2-3/8″ in length. Shank is standard 1/2″ x 2″. Both inside and outside of barrel accurately ground after hardening to insure proper clearance and size.

Plug is outlined with a knife-edge rim, while stock is removed with a single cutting edge which is slightly pitched to produce an exceptionally smooth, clean cut.
Carefully made of tough alloy steel for long life. Easily sharpened. Stocked in sizes as listed.

Stock sizes: 3/8″, 7/16″, 1/2″, 5/8″, 3/4″, 7/8″, and 1″.

GREENLEE SHEATHING TOOLS



No. 1150 SHEATHING CUTTER

Speeds cutting of insulating blower holes. Makes smooth 2-1/2″ openings to 1-1/4″ depth. Cutters *made of high-speed steel* for longer wear. Drill shank is 1/2″ diameter, with 3 milled flats for use in electric drill chucks. Over-all length, 6″.

Cutters are easily removed for sharpening. Special "stop screws" permit cutting to desired depth. This handy tool is easy to use from scaffold or ladder. Heavy pressure is not required, since the screw point feeds the cutter into the wood. Only one brick need be removed from brick homes to accommodate cutter. Weighs 1-1/2 pounds.

No. 1665 SIDING BAR

Ideal companion tool for Sheathing Cutter . . . speeds siding removal, nail pulling, etc. A versatile pry bar for construction or home use for opening windows, boxes, etc. Carbon spring steel, 1-3/4″ wide, 14-5/8″ long, 1/4″ thick. Extra width reduces marring. Weighs 2 pounds.

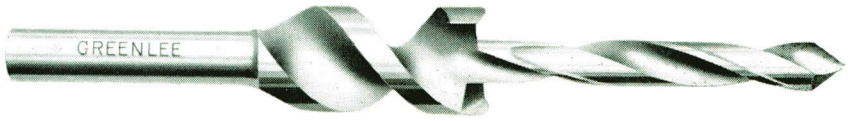
TOOLS FOR CRAFTSMEN

GREENLEE

GREENLEE COUNTERSINK BITS and DRILLS

No. 180 COUNTERSINK MACHINE BIT

Ideal for boring concentric holes with a combination of two or more diameters in one operation. Has double-spur lead and double-spur counter, and can be furnished with screw point or brad point. These bits are not stocked because of the wide range of combinations possible. *When ordering, indicate the diameter and length of lead, diameter and length of counter, and diameter and length of shank.* If quantity of work is limited, we recommend the No. 184 Multi-Spur Countersink, which can be attached to any 1/2" shank bit.



No. 183 COUNTERSINK BIT AND DRILL

Has double-spur pattern counter for countersinking a flat-bottomed hole. Taper-head drill pattern lead. Lead will not be seriously damaged if it encounters metal. Not carried in stock. *When ordering, state length and diameter of counter and lead plus complete shank specifications.*

The No. 184 or No. 195 may prove adequate and should be considered before ordering special countersinks.

No. 185 COUNTERSINK DRILL

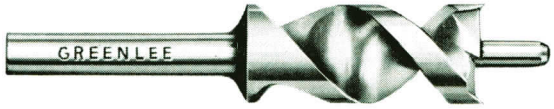
For occasions where adjustable type countersinks are not suitable, the solid-type No. 185, as illustrated above, can be used for boring and countersinking holes for wood screw in one operation. Taper-head drill lead. 82 degrees beveled counter. Stock sizes as listed.

Lead	*Counter*	*Shank*
3/16" x 1-1/2"	1/2" x 2"	1/2 " x 2"
7/32" x 1-1/2"	1/2" x 2"	1/2 " x 2"
1/4" x 1-1/2"	1/2" x 2"	1/2 " x 2"

No. 186 COUNTERSINK DRILL

Has spur machine-drill type counter and lead for boring flat-bottomed holes for screws, lag-screws, stove bolts and other fasteners to be countersunk below the surface and covered with a plug. Brad point, with two outlining spurs each on lead and on counter. Produces exceptionally smooth hole on both diameters. *Made of high-grade alloy steel.* Stock sizes as listed.

Lead	*Counter*	*Shank*
3/16" x 1-1/2"	1/2" x 2"	1/2" x 2"
7/32" x 1-1/2"	1/2" x 2"	1/2" x 2"
1/4" x 1-1/2"	1/2" x 2"	1/2" x 2"



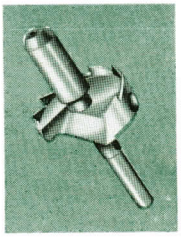
No. 189 COUNTERBORE MACHINE BIT

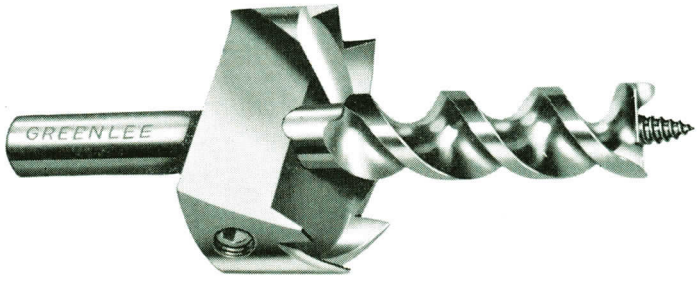
Used in countersinking for washers, bolt heads, etc., where a hole has already been bored. Also used for enlarging holes clear through stock. For occasional use, the No. 184 Multi-Spur Countersink Cutter, mounted on a suitable plug, can be well-adapted for this use also. No. 189 Bits are not carried in stock. Prices on request. *When ordering specify diameter and length of counter, diameter and length of pilot, and complete shank specifications.*

TOOLS FOR CRAFTSMEN

GREENLEE

GREENLEE ADJUSTABLE COUNTERSINK CUTTERS



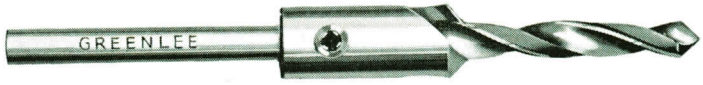


No. 184 MULTI-SPUR COUNTERSINK CUTTER

An adjustable Countersink Cutter designed to fit any bit or drill with 1/2" shank. Cutter is held firmly in place with setscrew. This permits using various-sized counters with a wide range of bits and drills . . . *you make up your own combination as desired.*

Cutter bores smoothly with minimum of power. Can also be used as counterbore as illustrated at the left. Easily sharpened, and design permits considerable re-sharpening.

Stock sizes: 1-1/8", 1-1/4", 3-/8", 1-1/2", 1-5/8", 1-3/4", 1-7/8", 2", 2-1/8", 2-1/4", and 2-1/2".



No. 191 ADJUSTABLE COUNTERSINK CUTTER

Beveled head countersinks for flat-head wood screws. Socket setscrew holds countersink firmly in place on twist or shank of drill, permitting it to be set for various depths of boring. Over-all length, 1-1/4". Stock sizes as listed. *The drill is not included.*

Countersink Diameter	*Drill Size*	*Countersink Diameter*	*Drill Size*
1/2"	1/8"	1/2"	1/4"
1/2"	5/32"	5/8"	1/4"
1/2"	11/64"	5/8"	17/64"
1/2"	3/16"	5/8"	9/32"
1/2"	13/64"	5/8"	5/16"
1/2"	7/32"	3/4"	5/16"
1/2"	15/64"	3/4"	3/8"

No. 192 ADJUSTABLE COUNTERSINK CUTTER

Extension-lip pattern of head bores a smooth flat-bottomed hole. Socket setscrew holds countersink on shank or twist for boring various depths. Over-all lengths, 1-1/4" and 1-1/2", depending on size. Drill diameter becomes the shank diameter. Stock sizes as listed. *The drill is not included.*

Countersink Diameter	*Drill Size*	*Countersink Diameter*	*Drill Size*
1/2"	1/8"	1/2"	15/64"
1/2"	5/32"	1/2"	1/4"
1/2"	11/64"	5/8"	1/4"
1/2"	3/16"	5/8"	17/64"
1/2"	13/64"	5/8"	9/32"
1/2"	7/32"	3/4"	5/16"

No. 195 ADJUSTABLE COUNTERSINK

Extension-lip pattern bores smooth, flat-bottomed holes. Double-fluted twist with wide channels for easy chip clearance. Adjusts on drill for different boring depths. Held securely with socket setscrew. Use with Nos. 174 and 175 Drills. Twist length, 2". Shank, 1/2" x 2". Over-all length, 4". Stock sizes as listed. *The drill is not included.*

Countersink Diameter	*Drill Size*
3/8"	3/16"
7/16"	5/32" or 3/16"
1/2"	1/8", 11/64", 3/16", 13/64", 7/32", 15/64" or 1/4"
9/16"	7/32" or 1/4"
5/8"	3/16", 7/32" 1/4" 17/64", 9/32", or 5/16"
3/4"	1/4", 9/32", 5/16", or 3/8"
7/8"	1/4", 9/32", 5/16", 11/32", or 3/8"
1"	1/4", 9/32", 5/16", 11/32", or 3/8"
1-1/8"	5/16", 11/32", or 3/8"
1-1/4"	5/16", 11/32", or 3/8"

TOOLS FOR CRAFTSMEN

GREENLEE

GREENLEE ADJUSTABLE COUNTERSINKS

No. 198 ADJUSTABLE COUNTERSINK

Has two cutting edges beveled 82 degrees to correspond with taper of flat-head screws. Flutes milled on a spiral to line up with drill flutes for efficient elimination of chips. Counter is 1-1/2" long, with standard 1/2" x 1-1/2" shank. Over-all length, 3". Requires No. 174-A or No. 175-A drills. Stock sizes as listed. *The drill is not included.*

Countersink Diameter	*Drill Size*
1/2"	1/8", 5/32", 11/64", 3/16", 13/64", 7/32", 15/64", or 1/4"
5/8"	1/4", 17/64", 9/32", or 5/16"
3/4"	5/16" or 3/8"

No. 199 ADJUSTABLE COUNTERSINK

Recommended for countersinking where screw heads are to be below the surface of the wood. Has milled double twist 1-1/2" long. Shank is 1/2" x 1-1/2". Over-all length, 3". Requires No. 174-A or No. 175-A drills. Stock sizes as listed. *The drill is not included.*

Countersink Diameter	*Drill Size*
1/2"	3/16"
1/2"	7/32"
1/2"	1/4"

GREENLEE STRAIGHT-SHANK DRILLS

Nos. 174 and 174-A STRAIGHT-SHANK TAPER-POINT DRILLS

Designed for boring tapered holes for wood screws. Twist tapered to correspond with threaded part of screw, thus permitting screw to engage wood firmly for stronger construction.

No. 174 has 2-1/2" twist, 6" over-all length. Used with GREENLEE Nos. 191, 192, and 195 Countersinks.

Stock sizes: 3/16", 13/64", 7/32", 15/64", 1/4", 17/64", 9/32", and 5/16".

No. 174-A has 2" twist, 4-1/2" over-all length. Used with GREENLEE Nos. 191, 192, 198, and 199 Countersinks.

Stock sizes: 3/16", 13/64", 7/32", 15/64", 1/4", 17/64", 9/32", and 5/16".

Nos. 175 and 175-A STRAIGHT-SHANK DRILLS

These drills have a full diameter twist, with standard wood drill taper on head.

No. 175 has 2-1/2" twist, 6" over-all length. Used with GREENLEE Nos. 191, 192, and 195 Countersinks.

Stock sizes: 1/8", 5/32", 11/64", 3/16", 13/64", 7/32", 15/64", 1/4", 17/64", 9/32", 5/16", 11/32", and 3/8".

No. 175-A has 2" twist, 4-1/2" over-all length. Used with GREENLEE Nos. 191, 192, 198, and 199 Countersinks.

Stock sizes: 1/8", 5/32", 11/64", 3/16", 13/64", 7/32", 15/64", 1/4", 17/64", 9/32", and 5/16".

No. 177-S STRAIGHT-SHANK MACHINE DRILLS

For use with all types of Adjustable Countersinks, or for straight boring purposes. Identical to the No. 177 Machine Drill except that the shank diameter is the same as the twist diameter for use with GREENLEE Countersink Cutters. *Made of tough alloy steel,* carefully heat-treated. Has milled flutes with wide margins. The head, twist, and shank are ground after hardening. Two outlining spurs and brad point produce clean, accurate holes, particularly when boring cross-grained work. Stock sizes as listed.

Diameter	*Twist Length*	*Over-all Length*
3/16"	2-1/2"	6"
7/32"	2-1/2"	6"
1/4"	2-1/2"	6"

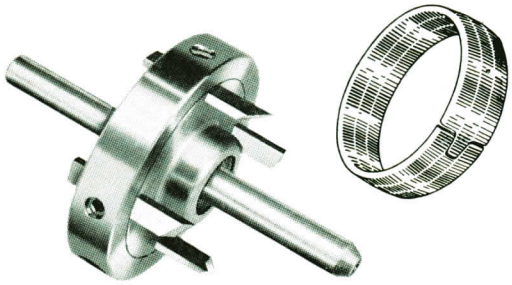
TOOLS FOR CRAFTSMEN

GREENLEE

TECO CONNECTOR GROOVING TOOLS

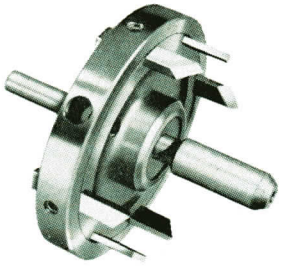
Illustrated here are the principal tools designed to cut grooves and daps for Teco Wedge-Fit connectors and Teco shear plates, widely employed in light and heavy timber construction to increase the joint strength in timber structures.

These tools are made by GREENLEE on blanket specification for the account of the Timber Engineering Company, Washington, D. C., and are carried in stock only by that company.



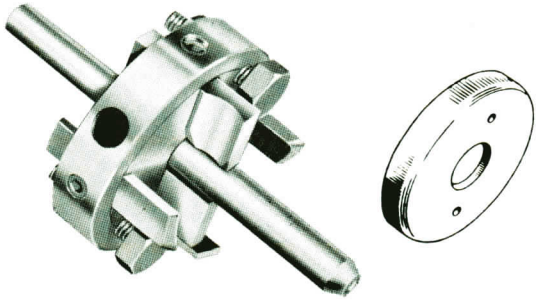
No. 12-M 4-WING CUTTERHEAD

The No. 12-M four-wing cutterhead with high-speed steel inserted cutters used in power machines only for cutting grooves for 2-1/2″ diameter Teco Wedge-Fit connectors as illustrated at the left.



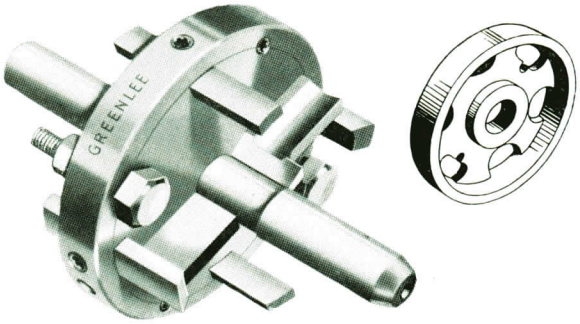
No. 14-M 6-WING CUTTERHEAD

The No. 14-M six-wing cutterhead used for cutting 4″ diameter Teco Wedge-Fit connector grooves. Cutterhead may be equipped with bit for simultaneous boring and dapping, or with smooth pilot for dapping prebored lumber.



No. 22-P CUTTERHEAD

Cutterhead No. 22-PP with high-speed steel inserted cutters for cutting daps for 2-5/8″ diameter Teco shear plates. Cutterhead cuts dap to conform with contour of plate so plate fits flush with the wood surface.



No. 24-MP CUTTERHEAD

Cutterhead No. 24-MP used for cutting 4″ diameter daps for shear plates. Cutterhead matches shear plate contour to allow plates to fit flush with the wood surface.

No. 10-B MACHINE-SHANK BIT

MACHINE-SHANK BITS

The No. 10-B-9 machine shank bit, as illustrated, is for use with No. 12-M cutterhead. Various sizes and lengths of bits are available for use with different cutterheads.

TOOLS FOR CRAFTSMEN

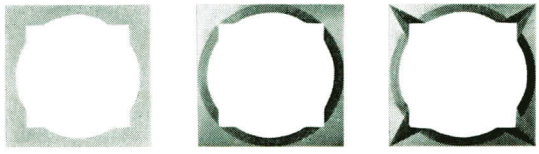
GREENLEE

SHARPENING INSTRUCTIONS

HOLLOW CHISEL

To get a smooth, clean mortise the hollow chisel cutting edges should be sharp and properly formed. We recommend the filing method of sharpening to the smaller user, and equipment should consist of half-round and square files, No. 0 or No. 1 cut. A new tool should be used as a guide, and caution should be used to preserve the curved edges as well as the double inner angles of the edges.

The No. 720 Hollow Chisel Sharpening Machine described on page 4 is recommended for the large user. In using this machine, the Hollow Chisel is placed in the jaws, holding it just tight enough to prevent turning around, centering pilot of cutter in bore of chisel by screwing down spindle until the cutter comes in contact with edges of chisel. If corners of chisel are broken or split, grind or file square at



A B C

cutting end, as in "A," before inserting in machine. After lowering cutter to contact with chisel, turn crank and screw spindle *downward* until outside angle of cutter has cut to corner of chisel. Cutter should make a fairly heavy cut, burr being easily removed with file or scraper. Cutting edge now is as in illustration "B." Groove the corners with a square file until they are as shown in illustration "C."

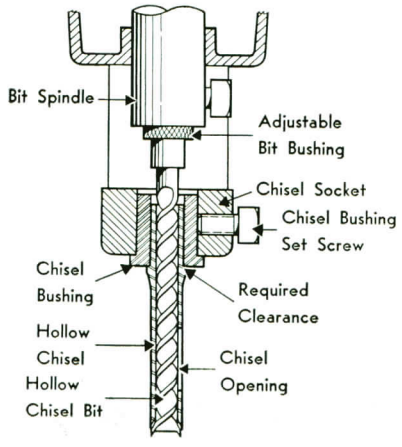
The Hollow Chisel is by far the most expensive of the two tools costing three or four times as much as the bit. It is not practical to use bits that are not in first-class condition, as by so doing a greater strain is thrown on the chisel, and breakage is likely to result. Bits are made to over cut the chisel to some extent, and when there is any question whatever of their doing their full share of the work, they should be replaced.

HOLLOW CHISEL BIT

A Hollow Chisel Bit should produce a fine, well-broken chip that can be readily cleared through the chisel. It can only do this when its edges are sharp and shaped as found on a new tool. *Always* file the cutting edges of a bit *from below,* with the file working in the throat through which the chips pass. The spurs and side lips should be sharp and lined up evenly with the cutting edges. Filing should be done on the *inside only* on the regular Hollow Chisel Bits. On the Hard-Wear type the filing is done on top of the broad face spurs at the correct angle. Half-round and taper warding files are best suited to bit sharpening.

ADJUSTMENT of BIT and CHISEL

Correct adjustment between bit head and chisel when placed in the machine is of prime importance. A common method is to place the chisel in the socket, with a slight clearance between its shoulder and the face of the chisel socket, fastening *lightly.* This clearance should be at least 1/32" and on chisels larger than 3/4" it should be increased to 1/16 of an inch. Feeler stock or shim stock is recommended for setting this clearance. The bit is then inserted until its head rests against the cutting edges of the chisel and is *securely fastened* in this position. Loosen chisel set screw and remove the shim, push the chisel up so that its shoulder rests against the face of the chisel socket, and then tighten the chisel set screw. This will give the proper clearance between the head of the bit and the end of the chisel.



Hollow Chisels and Bits listed in this catalog have proper specifications to fit GREENLEE Machines. We can, however, supply proper Hollow Chisels and Bits of Regular Types for all makes of mortisers. *In ordering,* MAKE and STYLE NUMBER *Should be carefully noted.*

TOOLS FOR CRAFTSMEN

GREENLEE

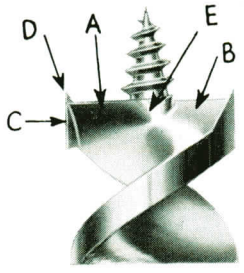
SHARPENING INSTRUCTIONS

BIT SHARPENING INSTRUCTIONS

Wood boring tools of all types will give long and satisfactory service if they are kept in good condition by the user. It is well known, however, that improper sharpening shortens the life of many tools. With this in mind we offer here some suggestions for sharpening, which will be helpful to many who are not experienced in this work.

The first requirement for correctly sharpening bits is proper files. Three separate files are necessary: a square, a taper warding, and a half-round, all 4- or 5-inch, either No. 0 or No. 1 cut. This file equipment will take care of all sizes from 3/16 to 1-inch. For larger sizes, 6 and 8-inch files are necessary.

The boring tools most commonly used have outlining spurs for smooth boring and, therefore, to make the instructions more clear, we show on this page an illustration of the head of a double-spur machine bit. The instructions will refer particularly to tools of this type, although the method of edge filing applies to all patterns.



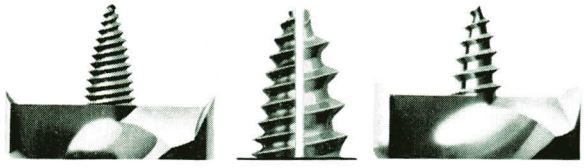
The cutting edges should be sharpened with the *flat* side of a half-round or square file, stroking through the throat (A). The top of the cutting edge (B) should be lightly filed, merely to clean the surface, and we would caution not to remove too much stock at this point, as the chip lifting ability of the cutting edge would then be destroyed. The side lips (C) should be even with the cutting edges, and filed on the *inside only* with a *square file.*

Outlining spurs (D), which sever the fibers of wood in cross-grain boring, should be keen and of proper shape. A new tool should be used as a guide in this operation, and the original form should be retained as far as possible. File on the *inside* of the spurs (D) *only,* using a taper warding file with one edge ground off to prevent notching the base of the spur. *Do not file on the outside of the spurs* as this reduces the diameter of the head. It is of great importance that spurs project beyond cutting edges, and care should be used in refiling to preserve their relative position and to keep them of even height.

In filing under the base of the screw point, the *half-round file* should be used, which retains the radius at (E). This style of file also prevents under-cutting the screw point, which weakens this important part of a machine bit.

COMPARISON OF POINTS

Machine Bits shown as being carried in our stock are regularly made with screw point of pitch to best suit general requirements. We can make special bits, however, with slower or faster pitch of threads, either single or double, or with brad point to suit particular requirements.



DOUBLE SCREW COMPARISON SINGLE SCREW

A single screw has only one thread or spiral running from the tip of the point, while the double screw has two threads starting from the opposite sides at the tip and running parallel down to the base. One complete thread may be eliminated from a double screw point, thus making it into a single screw, without changing the pitch of the thread.

A No. 12 double screw and a No. 12 single screw will bore at exactly the same speed, providing the wood is such that bits follow the natural feed of the points, although the former will register with a No. 24 screw pitch gauge while the latter agrees with a No 12.

Practically all double-twist extension-lip machine bits have fine pitch double-thread screw points, while other patterns have single-screw points, fine to medium pitch.

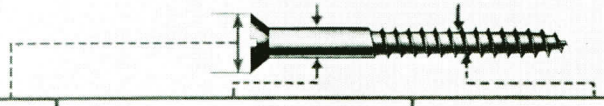
TOOLS FOR CRAFTSMEN

GREENLEE

BORING CHART FOR WOODS SCREWS

HOW TO USE THIS CHART

The table of wood screw specifications simplifies the selection of the bit or drill size best suited to your requirements. The fractional equivalents and undersize and oversize decimals indicate how close a bit of given fractional size will bore to the actual screw dimension and whether the fit will be snug or loose. In selecting a tool size for the pilot hole (for threaded portion of screw), note that root diameters are average dimensions measured at the middle of the threaded portion. On some screws the root diameter tapers slightly from the end of the screw, increasing toward the head. It is usually good practice to bore the pilot hole the same size as the root diameter in hardwoods, such as oak, and about 15% smaller for soft woods, such as pine and Douglas fir. In some cases, allowances can be made to advantage for moisture content and other varying factors. This same rule can be used for shank holes. The SHANK DIAMETERS shown below are standard specifications subject to tolerances of $\frac{+.004}{-.007}$. MAXIMUM HEAD DIAMETERS are also standard specifications which apply to flat and oval-head screws. Head sizes run from 5% to 10% smaller for round-head screws.



NO. OF SCREW	MAXIMUM HEAD DIAMETER	SHANK DIAMETER		ROOT DIAMETER		THREADS PER INCH	NO. OF SCREW
		BASIC DEC. SIZE	NEAREST FRACTIONAL EQUIVALENT	AVERAGE DEC. SIZE	NEAREST FRACTIONAL EQUIVALENT		
0	.119	.060	1/16 OVERSIZE .002	.040	3/64 OVERSIZE .007	32	0
1	.146	.073	5/64 OVERSIZE .005	.046	3/64 BASIC SIZE	28	1
2	.172	.086	3/32 OVERSIZE .007	.054	1/16 OVERSIZE .008	26	2
3	.199	.099	7/64 OVERSIZE .010	.065	1/16 UNDERSIZE .002	24	3
4	.225	.112	7/64 UNDERSIZE .003	.075	5/64 OVERSIZE .003	22	4
5	.252	.125	1/8 BASIC SIZE	.085	5/64 UNDERSIZE .007	20	5
6	.279	.138	9/64 OVERSIZE .002	.094	3/32 BASIC SIZE	18	6
7	.305	.151	5/32 OVERSIZE .005	.102	7/64 OVERSIZE .007	16	7
8	.332	.164	5/32 UNDERSIZE .007	.112	7/64 UNDERSIZE .003	15	8
9	.358	.177	11/64 UNDERSIZE .005	.122	1/8 OVERSIZE .003	14	9
10	.385	.190	3/16 UNDERSIZE .002	.130	1/8 UNDERSIZE .005	13	10
11	.411	.203	13/64 BASIC SIZE	.139	9/64 OVERSIZE .001	12	11
12	.438	.216	7/32 OVERSIZE .003	.148	9/64 UNDERSIZE .007	11	12
14	.491	.242	1/4 OVERSIZE .008	.165	5/32 UNDERSIZE .009	10	14
16	.544	.268	17/64 UNDERSIZE .002	.184	3/16 OVERSIZE .003	9	16
18	.597	.294	19/64 OVERSIZE .003	.204	13/64 UNDERSIZE .001	8	18
20	.650	.320	5/16 UNDERSIZE .007	.223	7/32 UNDERSIZE .004	8	20
24	.756	.372	3/8 OVERSIZE .003	.260	1/4 UNDERSIZE .010	7	24

ACTUAL WOOD SCREW SHANK SIZES

To determine the size of a screw visually, lay the screw shank on the silhouette.

No. 0

No. 1

No. 2

No. 3

No. 4

No. 5

No. 6

No. 7

No. 8

No. 9

No. 10

No. 11

No. 12

No. 14

No. 16

No. 18

No. 20

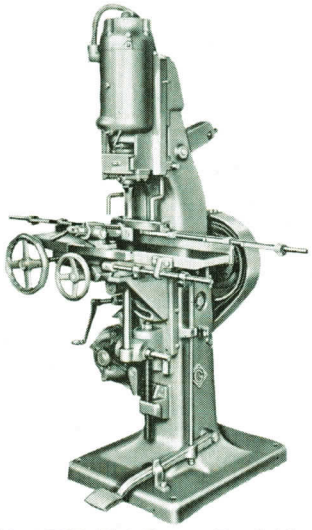
No. 24

TOOLS FOR CRAFTSMEN

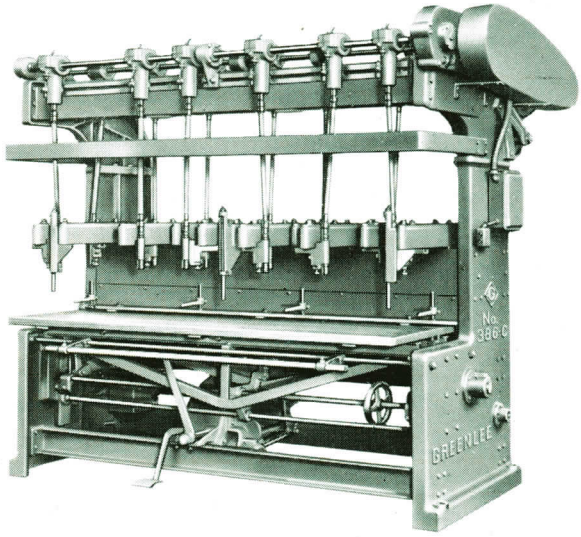
GREENLEE

GREENLEE WOODWORKING MACHINERY

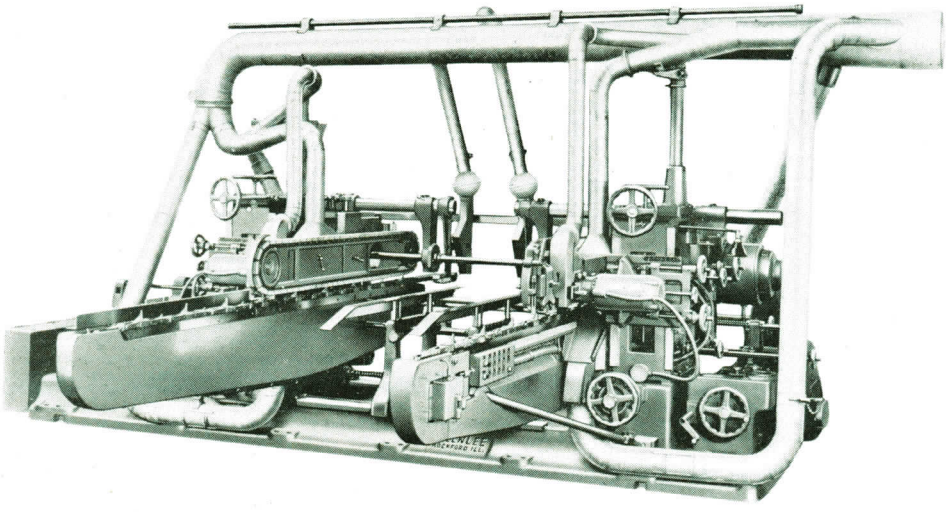
When GREENLEE BROS. & CO., of which GREENLEE TOOL CO. is a division, was established in 1866, its first product was Woodworking Machinery. Over the years it has been one of its most important lines, although no attempt has been made to build such machinery for every purpose. Instead, there has been intense specialization on certain types for mortising, tenoning, boring, planing, shaping, and sawing. The illustrations shown here serve only as a suggestion of the line, and anyone interested in machines for any of these purposes should write for descriptive bulletins.



No. 227-BM Power-Feed Mortiser with Built-in Spindle Motor and Compound Table. Chisel Capacity up to 1".



No. 386-C Universal-Spindle Gang Borer Built in Lengths from 4 to 12'.



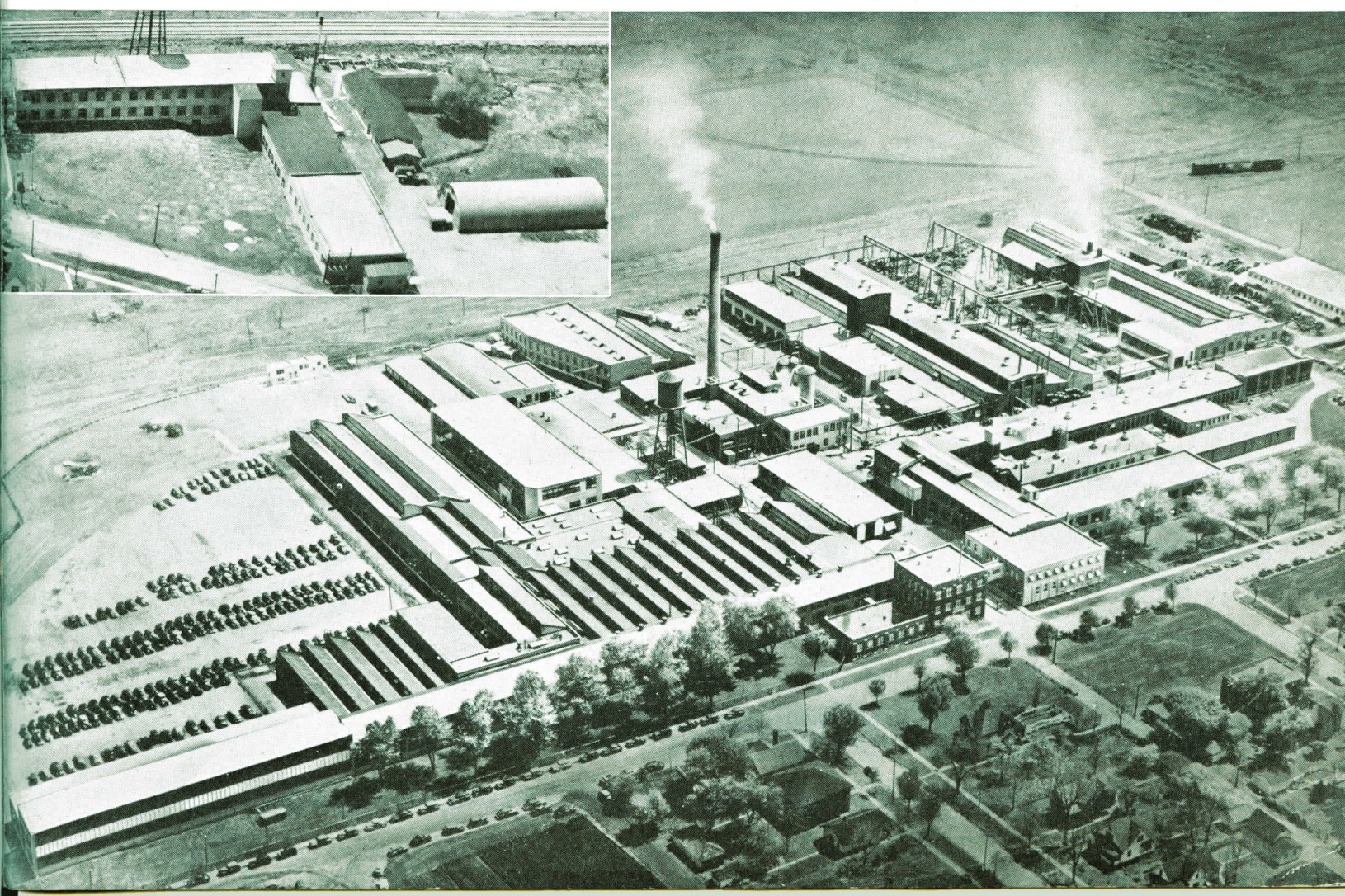
No. 545 Double-End Tenoner, Built in Various Lengths and Arranged for Numerous Attachments to do a Wide Variety of Operations.

TOOLS FOR CRAFTSMEN . . . BY CRAFTSMEN

GREENLEE tools are built for long years of hard use. They are the kind of high-quality tools real craftsmen like to hold and put to work.

They are designed and built to have accurate sizing, sharp cutting edges, smooth action . . . and they are made by skilled craftsmen who have had long experience in producing only these kinds of products.

GREENLEE tools are made in the plants shown below: (left) at Genoa, Illinois and (right) at the large GREENLEE plant located on a 25-acre plat in Rockford, Illinois.



TOOLS FOR WOODWORKERS

CATALOG No. 35-H

- Auger Bits
- Drills
- Expansive Bits
- Car Bits, Augers
- Chisels and Gouges
- Drawknives
- Spiral Screw Drivers
- Automatic Push Drills
- Turning Tools
- and Many Others

TOOLS FOR ELECTRICIANS PLUMBERS, CONSTRUCTION

CATALOG No. 35-E

- Hydraulic Pipe Benders
- Tubing Benders
- Hydraulic Pipe Pushers
- Cable Pullers
- Joist Borers
- Plumbers' Bit Sets
- Electricians' Auger Bits
- Knockout Punches and Cutters
- Hydraulic Knockout Punch Drivers
- Radio Chassis Punches
- and Many More

TOOLS FOR CRAFTSMEN

GREENLEE

PRODUCTS OF HIGHEST QUALITY

MORTISING & BORING TOOLS

CATALOG No. 34-M

- Hollow Chisels
- Hollow Chisel Bits
- Machine Bits
- Relishing Bits
- Drills
- Plug Cutters
- Countersink Cutters
- Countersink Drills
- and Many More

Printed in U.S.A.

11-53-25M