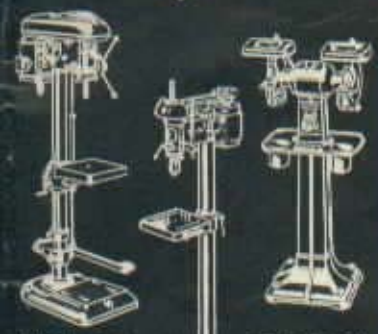
Delta

QUALITY TOOLS

1937 CATALOG

N-1

MOTOR — DRIVEN



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NEW! 6" Belt Sander Offers Unusual

Every Feature You Have Wanted in a Sander You Will Find Built Into this Machine

Sanding and polishing machines of the type of the new No. 1400, shown above, have heretofore either been too small and lightly built to be of any value in the shop doing serious work, or else they have been too expensive to be within the reach of the small shop.

Here, for the first time, is a sander that is heavy and husky enough to do any of the myriad of sanding and polishing operations that may be found around the amateur or professional shop, and yet which sells at a price that brings it within the reach of every shop, large or small.

Study Its Advantages

Into the design of this machine has gone all of our years of experience in design and manufacture—experience matched by no other manufacturer in this field. It incorporates everything of practical value that can be built into a sander of this type—plus the highest grade of material, design and manufacture.

In addition to its many mechanical advantages, it is of pleasing design, and the unused portion of the sanding belt is completely enclosed and guarded in accordance with stringent safety requirements. It is by far the safest and most thoroughly guarded machine of its type on the market, regardless of size or price.

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 (5¼"). 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.

Lapless sanding belts, 6" wide by 49⅝" long. Belts are lapless to insure accurate work and longer life, especially on metal work.

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.

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.	**$28.85**
No. 560	V-belt (56" inside circumference). Shipping Weight 1 lb. Code Word EICVB.	1.00
No. 5500	5" diam. motor pulley, ⅝" bore. Shipping Weight 1½ lbs. Code Word PULOH.	.75
No. 1401	Tilting table for No. 1400 Sander. Shipping Weight 20 lbs. Code Word SANDB.	5.50
No. 1403	Back Stop, complete with bracket. Shipping Weight 4 lbs. Code Word SANDD.	1.60
No. 1410	Wood Fence (2¾" by 17½") with brackets. Shipping Weight 5 lbs. Code Word SANDL.	2.15
No. 891	Steel Stand (Top, 7⅞" by 15⅞" by 24½" High). Shipping Weight 30 lbs. Code Word LABST.	6.85
No. 1402	Belt-Sander Unit, consisting of No. 1400 Sander, No. 560 V-belt, No. 5500 5" V-Pulley ⅝" bore, and No. 891 Steel Stand. Without fence, backstop or table. Without motor, belt guard or switch rod. Shipping Weight 144 lbs. Code Word SANDC.	**$37.45**
No. 1411	Belt guard for Sander, complete with screws. Shipping Weight 35 lbs. Code Word SANDM.	$6.85

(See page 4 for sanding belts)

Unit
No. 1402

Prices shown in this catalog supersede those quoted previous to September 25, 1936. 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, 19 Water 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 them 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

Endurance, Safety and Precision

Note, in the above photo, the adjustable deflector cated to catch a maximum amount of dust coming from the work. Also the light bag tied over the discharge spout to catch the dust.

Operates Vertically as Well as Horizontally

By releasing two capscrews conveniently placed on the end housing, the entire sanding surface may be swung vertically. In this position and when fitted with the tilting table, it will do all the work of a disk sander—and even more efficiently. An adjustable stop levels the machine when it is again lowered to the horizontal.

Adjustable Deflector

At the discharge end of the housing is provided an adjustable dust deflector. This may be adjusted level with the table for sanding long work. For ordinary short work it can be raised so as to catch practically all of the dust coming from the work, making the machine freer from dust throwing than any we have ever seen.

Detachable Fence and Stop

A 3¼" by 17½" fence, parallel with the belt and adjustable across the width of the table to distribute wear on the belt, is available for edge sanding in the direction of the grain. An adjustable back stop, to prevent small flat work from being carried along with the belt, is also available.

Complete Guarding

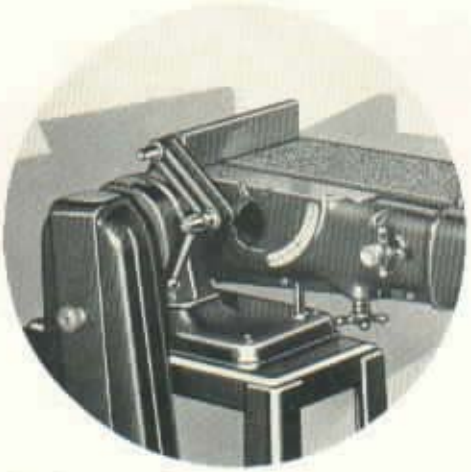
There is no more thoroughly enclosed and guarded sander available on the market today, regardless of size or price. Only the portion of the sanding belt that is being used is open, the ends and bottoms, as well as the drums, being completely covered. The guard covering the rear drum may be removed in a jiffy, when sanding long work.

For Wood or Metal

While no particular type of sander meets all requirements, the No. 1400 is the most universally useful type for the all-around shop. It is not confined to sanding or smoothing wood, but can be used for a wide variety of finishing operations on metal parts. In the machine shop, its sturdy construction combined with moderate first cost and low upkeep make it the ideal finishing machine for small parts.

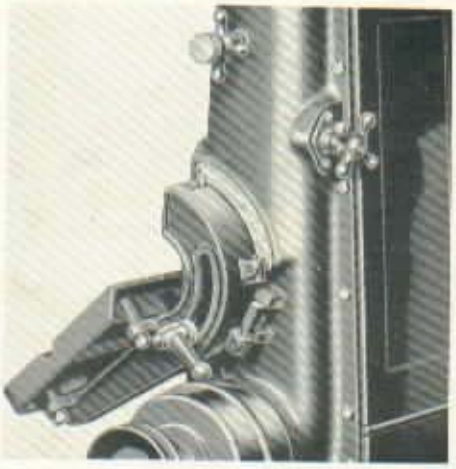
Ball-Bearing Equipped

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.

Unit. No. 1402



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.

No Rubber Coverings to Deteriorate

The 5½" diameter driving drum not only makes it possible to use a large (4") driving pulley to transmit the power so necessary for sanding, but also permits the elimination of rubber coverings for the drums, since the drum itself provides ample traction surface.

Tilting Table Available

When used vertically the machine may be equipped with a 7½" by 14½" tilting table, provided with a ⅜" by ¾" groove for the famous "Auto-Set" miter gage. This table enables a wide variety of forming and shaping to be done with this machine, and makes it especially suitable for pattern work and metal work. The table swings on a very heavy trunnion and is provided with a tilting scale and an adjustable pointer. Table tilts 15 deg. upward and 45 deg. downward.

Swinging Stop for Table

The tilting table is provided with a swinging stop similar to that used on the 6" jointer fence. With this, once the adjustable stop screws for the 90-deg. and 45-deg. positions of the table are set, the table is always thereafter accurately set for these angles. A touch of the finger takes the stop link out of the way when tilting the table.

Lapless Sanding Belts

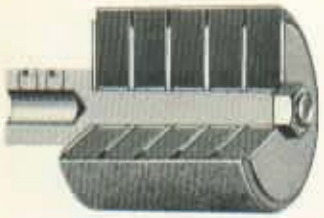
Lapless sanding belts, which are particularly essential for metal finishing, are finished for this machine. They are far ahead of the ordinary lapped-joint belt, as they have a longer life and insure smooth and accurate work. While slightly higher in cost, they will pay for themselves in a short time.

Completely Portable

When mounted on the No. 891 steel stand, this sander makes a portable unit that may be placed anywhere and run off the nearest light socket. NOTE: Either a ½ or preferably a ¾-H.P. Repulsion-Induction Motor should be used for this machine, and for very heavy sanding a double V-belt drive should be employed.

[Please Order by Catalog Number to Avoid Mistakes and Delay]

Sanding Drums, Belts and Accessories



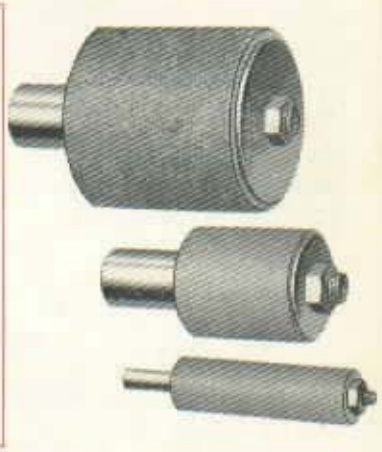
Patented Rubber-Cushion Sanding Drums

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 ⅛" diameter stem to fit ½" hollow spindle or chuck. Others have ½" bore. See page 32 for drums with No. 2 Morse taper shank to fit No. 930 lathe.

No. 830	3" diam. x 3" long Sanding Drum with one sleeve. Fits any ½" dia. spindle... Shipping Weight 2 lbs. Code Word SADRA.	$2.50
No. 831	6 extra 3" x 3" sleeves (coarse garnet). Code Word SASLA, per ½ doz.....	.85
No. 832	6 extra 3" x 3" sleeves (medium garnet). Code Word SASLB, per ½ doz.....	.85
No. 833	6 extra 3" x 3" sleeves (aluminum oxide; for metal). Code Word SASLC, per ½ doz.....	1.00
No. 835	1¾" diam. x 2" long Sanding Drum with one sleeve. Fits any ½" diam. spindle. Shipping Weight 1¼ lbs. Code Word SADRB.	1.60
No. 836	6 extra 1¾" x 2" Sleeves (medium garnet). Code Word SASLE, per ½ doz.....	.70
No. 837	6 extra 1¾" x 2" Sleeves (fine garnet). Code Word SASLF, per ½ doz.....	.70
No. 838	6 extra 1¾" x 2" Sleeves (aluminum oxide; for metal). Code Word SASLG, per ½ doz.....	.85
No. 840	½" diam. x 2½" Sanding Drum with one sleeve. Has ⅛" diam. shank. Fits into ⅜" hollow spindle or ½" chuck. Ship. Wt. 8 oz. Code Word SADRC.....	1.25
No. 841	6 extra ½" x 2½" Sleeves (medium garnet). Code SASLK, per ½ doz.....	.60
No. 842	6 extra ½" x 2½" Sleeves (fine garnet). Code SASLM, per ½ doz.....	.60
No. 847	6 extra ½" x 2½" Sleeves (aluminum oxide; for metal). Code SASLO, per ½ doz.....	.75

NOTE: Shipping weight of packages of 6 sleeves approximately 8 oz.



Abrasive Belts for No. 1400 Belt Sander

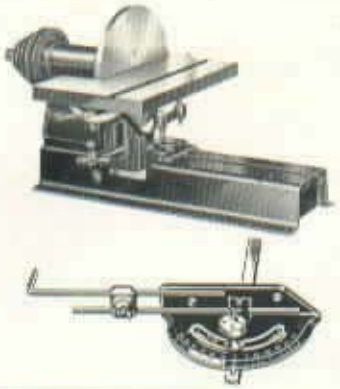
Abrasive belts listed here and supplied for the No. 1400 Belt Sander should not be confused with common lapped belts. These belts are lapless, and are far superior to lapped belts in the quality of the work produced with them: their slight additional cost is well justified by the accuracy and smoothness of the work, and by their additional life. Lapless belts are especially essential for fine metal finishing.

Belts are 6" wide and 49⅞" long. Furnished in two garnet grades for wood finishing, and in two aluminum-oxide grades for metal finishing.

		Each
No. 1404	6" Lapless Garnet Belt for wood, No. 80 grit (fine) paper backed. To fit 1400 Sander. Ship. wt. 1 lb. SANDF	$ .65
No. 1405	6" Lapless Garnet Belt, No. 40 grit (coarse) paper backed. To fit 1400 Sander. Ship. wt. 1 lb. Code SANDG	.80
No. 1408	6" Lapless Aluminum-oxide Belt, for metal, No. 100 grit (fine) cloth backed. Ship. wt. 1 lb. Code SANDJ	1.10
No. 1409	6" Lapless Aluminum-oxide Belt, for metal, No. 50 grit (coarse) cloth backed. Ship. wt. 1 lb. Code SANDK	1.25

No. 347	5" x 12" Sanding and Boring Table only, without disk, miter gage, headstock or bed..... Shipping Weight 15 lbs. Code Word DESAT.	$5.25
No. 956	Four-speed 9-inch lathe headstock only, with ½" shafts. Shipping Weight 18 lbs. Code Word NEWHE	7.85
No. 932	Four-step motor pulley, ½" bore..... Shipping Weight 3 lbs. Code Word DUBLC.	1.25
No. 946	Short U-Bed for Headstock, 18" long..... Shipping Weight 15 lbs. Code Word DUBSB.	3.00
No. 151	8½" Sanding Disk, fits any ½" shaft, with one disk. Shipping Weight 2¼ lbs. Code Word DISSA.	2.10
No. 155	Coarse Garnet-Paper Disks, 8⅝" diam. Shipped in package of 12 .....per doz. Shipping Weight 1¼ lbs. Code Word DISGA.	1.20
No. 157	Fine Garnet Disks (No. 0). Shipped in packages of 12 only .....per doz. Shipping Weight 1¼ lbs. Code Word DISGB.	1.20
No. 149	"Distie" for applying disks, per stick..... Shipping Weight 1 lb. Code Word DISIC.	.60
No. 180	Miter-Gage with graduated head and stop rods, ⅛" x ½" bar to fit No. 347 sanding table..... Shipping Weight 2 lbs. Code Word DELMI.	1.25

Sanding Disk and Sanding Table



This sanding disk and table forms one of the most useful tools in the craftsman's shop. The improved table offers perfect support for the work being shaped or finished, being absolutely solid and free from spring due to the front and rear support. Table is graduated to show the angle of tilt, and may be raised and lowered to suit the work.

Table has ½" grooves to suit the No. 180 miter gage, for sanding plain and compound miters. It may also be used for boring and routing work on the lathe. Fits No. 930 and 955 lathe beds.

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.

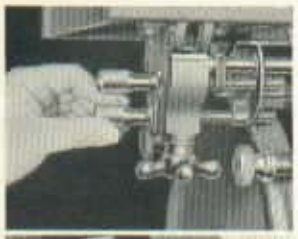
While most of our machines have cast-in brackets for the attachment, a neat bracket supplied with it enables it to be attached to practically any machine. Brackets are available as below to adapt it to older drill presses and band saws. Heavy, solid shade will not overheat, and the 25-watt lamps used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

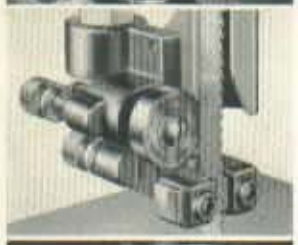
No. 882	Lamp attachment, with shade, socket and cord, four flat links, three bolts, spacer and attachment bracket Shipping Weight 1½ lbs. Code Word LAMPA.	$1.50
S-3-S	Extra support links, with spacer, screw and nut, per pair	.15
S-7-S	Lamp Attachment Clamp for 700 scroll saw, each.....	.20
S-8	Lamp Attachment Bracket for 970 drill press, each.	.15
SBS-50-S	Lamp Attachment Bracket for 785 and 385 band saws, each	.35

[Please Order by Catalog Number to Avoid Mistakes and Delay]

NEW! Finest 10" Band Saw Ever Made

Built for the Craftsman Who Demands the Finest for His Shop





Specifications

Overall Dimensions: 33½" high; 11⅝" 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.

½-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.

No. 777

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**
Shipping Weight 11 oz. Code Word PULOD.

No. 560 V-belt, 22¾" center to center..... **1.00**
Shipping Weight 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. 880 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"	¾"	BANDC	$1.00
771	3/16"	1½"	BANDE	1.00
772	¼"	2½"	BANDG	1.00
773	⅜"	4"	BANDH	1.00
774	½"	5¾"	BANDI	1.50

Shipping Weight 8 oz. each.
(No. 774 blade is for soft metals)

[Please Order by Catalog Number to Avoid Mistakes and Delay]

IMPROVED No. 890 14-In. Band Saw

Offers Most Value for Your Money

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

Upper-wheel adjustment has quick index to show blade tension. See plate 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"x⅝" 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.

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. 2,040,718

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 ¼" of table top.

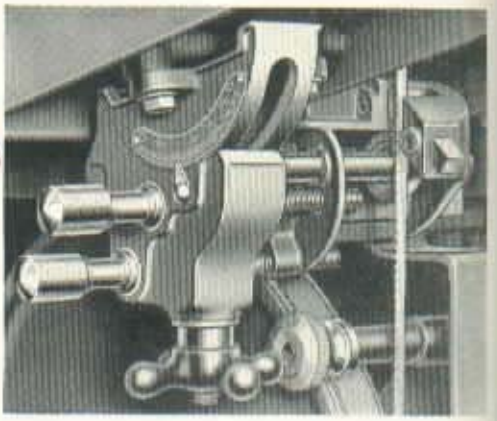
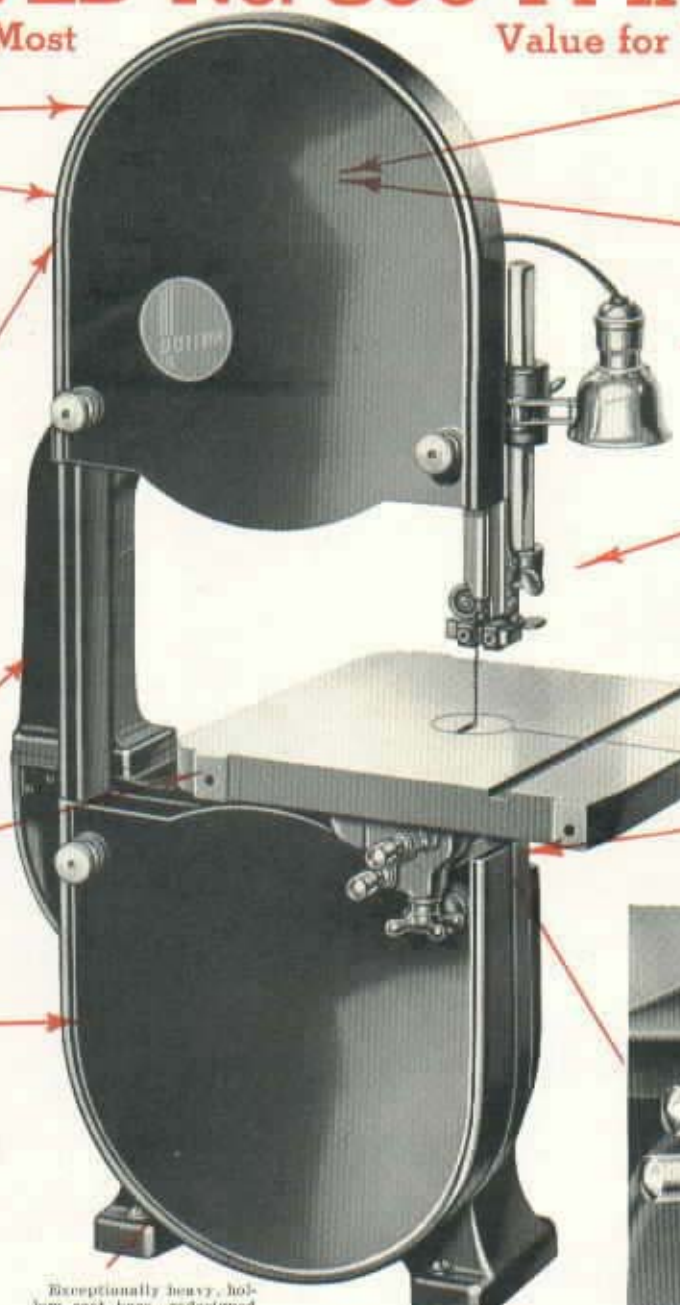


Photo above shows how the controls of the lower guide are brought to the front of the table—at the operator's finger tips.



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

No. 890

Unit No. 892

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

The previous model of the No. 890 band saw was so far ahead of anything in its class that it has become the standard 14" band saw used in industrial and school use everywhere. Now this new model offers further refinements, making it still more convenient, more rigid—and safer to use.

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.	**$45.85**
No. 5275	2¾" V-pulley, ½" bore..... Ship. Wt. 11 oz. Code Word PULGD.	.45
No. 568	V-belt, 24½" center to center..... Ship. Wt. 1 lb. Code Word FORVD.	1.00
No. 891	Steel stand, Top 7⅜"x15⅝"; 24" high..... Ship. Wt. 80 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 185 lbs. Code Word LABUN.	**$54.15**

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

[Please Order by Catalog Number to Avoid Mistakes and Delay]

14-Inch Metal-Cutting Band-Saw Unit

For All-Around Work in Factory, Toolroom or Machine Shop

The 14-inch band saw may be fitted up as a metal-cutting unit as shown at the right, by providing it with a countershaft to reduce the speed, and fitting it with a metal-cutting blade. The complete machine, as shown, is No. 896 "Lo-Speed" unit.

It is used in dozens of progressive shops for cutting Iron, Steel, Brass, Bronze, Aluminum bars, shapes and sheets, in foundries for cutting gates, in die-casting shops for trimming and sawing castings. It is used for cutting Transite, Fiber, Slate, Brake Lining and many other materials.

It is an ideal tool for the general machine shop or the experimental department where many different materials are to be cut. It takes the place of a power hacksaw in cutting off bars and shapes; toolrooms use it, with a weight feed, for sawing off tool and fixture stock; it will cut uniform strips from sheet metal stock; it saves hours of time in cutting the shapes of templates and similar tools and will cut almost any material, such as asbestos, mica, vulcanized fiber, etc., which are difficult to cut by ordinary means. Many machine shops who have installed this versatile and moderately priced machine would not now be without it if it cost several times its low price.

No. 896 "Lo-Speed" Metal-Cutting Band-Saw Unit

No. 890	14-inch Band Saw with No. 1062 Blade	**$46.35**
No. 891	Steel Stand	**6.85**
No. 897	Countershaft unit, consisting of two No. 370 Hangers; two No. 374 ¾" collars; ⅝" countershaft; 6100, 6280 and 5275 pulleys, (⅝" bore); 5200 pulley (½" bore); 670 and 340 V-belts. Countershaft Shipping Weight 20 lbs. Code Word LABGO.	**13.35**
	Total (without motor, light attachment or switch rod)	**$66.55**

Shipping Weight 203 lbs. Code Word LAMET.

No. 896

"Micro-Set" Rip Gages for 14" Band Saw

Due to the perfect support that the blade receives on the 14" band saw, ripping is a practical operation even with comparatively narrow blades. Two rip-gage attachments are available: the No. 893 with 18" guide bars and the No. 895 with 32" guide bars. The only difference is in the capacity. Guide bars are attached to the front and rear edge of the table with screws, and, due to the patented construction of the table, need not be removed even to change blades. The 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. Shipping Weight 10 lbs. Code Word LABGA.	**$3.85**
No. 895	Rip-Gage Attachment for No. 890 14" Band Saw, same as above but with 32" guide bars instead of 18". Shipping Weight 22 lbs. Code Word LABGB. U. S. Patent No. 1,963,688.	**4.55**

14-Inch Band-Saw Blades

Made of high-grade Swedish steel, accurately spaced, set and jointed, these blades will be found to give splendid service and to stand up under hard work. Standard blades for 14-inch band saw 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	⅛"	¼"	BLABA	**$1.25**
1033	¼"	⅜"	BLABB	**1.25**
1034	¼"	⅝"	BLABC	**1.25**
1036	⅜"	1"	BLABD	**1.25**
1038	½"	1¼"	BLABE	**1.50**
1040	¾"	1¾"	BLABF	**1.50**

Shipping Weight 15 oz. each.

14-inch Band-Saw Blades; 105-inch

Cat. No.	Width	Cut Radius	Code	Price Each
1045	⅛"	¾"	BLABJ	**$1.50**
1046	¼"	½"	BLABK	**1.50**
1047	¼"	⅝"	BLABL	**1.50**
1048	⅜"	1"	BLABM	**1.50**
1050	½"	1¼"	BLABO	**1.75**
1052	¾"	1¾"	BLABP	**1.75**

Shipping Weight 19 oz. each.

Metal-Cutting Blades; 93-inch

Cat. No.	Width	Teeth per in.	Code	Price Each
1060	½"	14	BLMET	**$1.75**
1062	½"	18	BLMEU	**1.75**
1064	½"	24	BLMEX	**1.75**

Shipping Weight 1½ lbs. each.

NOTE: These are hard-edge blades for cutting all metals.

NEW: Belt Guard for 14" Band Saw

This new belt guard, which completely encloses the belt front and rear, is designed to meet all safety-code and industrial-commission requirements, and, when applied to the No. 892 band saw, with its front and rear wheel and blade guards, makes the unit thoroughly safe, even for inexperienced help or for use in the school shop. Guard is heavily made of cast iron, and is fastened to stand with screws. Front of guard removeable to give access to belt and pulleys by loosening star wheel. **Will not fit No. 890 metal-working unit.**

No. 883 Belt guard for 14" band saw, with screws to fasten to stand. **$7.85**
Shipping Weight 30 lbs. Code Word LABAB.

Cut Up to 12" Thick with Height Attachment

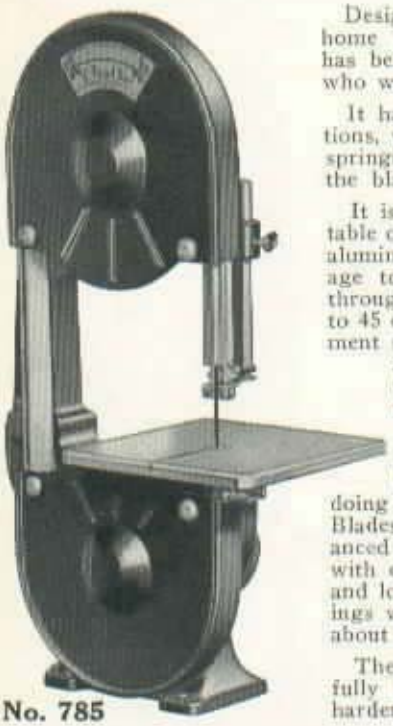
The design of the 14" band saw, with its hollow cast upper arm and separate base, permits the use of a height attachment to increase the cutting capacity to 12¾" thick whenever required. This consists of a 6" cast block, dowelled to fit between base and arm, a longer wood guard for back of blade, a longer belt and extension guard for front of saw. Adding the extension is a simple matter.

Band saws fitted with this height attachment are used for many varied purposes, from the cutting of cork slabs, for refrigerator linings to the ripping of wide sheets of balsa. Note that a longer blade is necessary for use with the attachment. Order 105" blades from the list on this page.

No. 894 Height Attachment for 14" band saw only, with cast block, dowels, bolt, back guard, extension front guard and long hexagon blade-support bar. **$6.00**
Shipping Weight 14 lbs. Code Word LABHA.

[Please Order by Catalog Number to Avoid Mistakes and Delay]

No. 785 Ball-Bearing 10-In. Band Saw



No. 785

Designed to fit the needs of the average small home workshop, the No. 785 10-Inch Band Saw has been giving satisfaction for years to craftsmen who want a well-built tool at a reasonable price.

It has a rugged cast-iron frame, cast in two sections, with hollow-cast upper arm which prevents all springing of the arm or twisting of the blade.

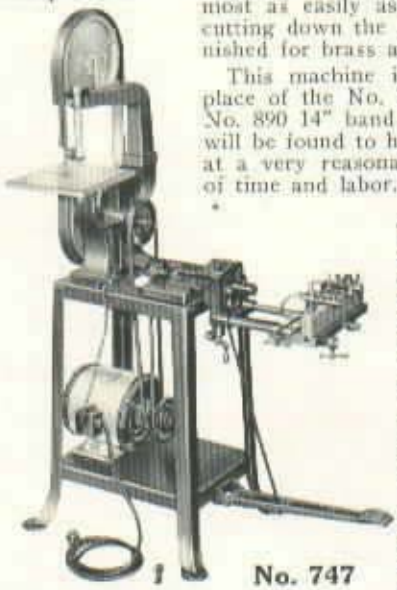
It is provided with a 10" by 10" table of heavy steel, with removable aluminum insert preventing all damage to the blade where it passes through the table. The table tilts to 45 degrees, and a graduated segment shows the exact angle of tilt. An adjustable stop screw returns the table to the level position.

The blade is thoroughly guarded front and rear, only the actual portion of the blade doing the cutting being exposed. Blades run on true running, balanced disk wheels, light and strong, with cementless rims. Both upper and lower wheels run on ball bearings which require lubrication only about twice a year.

The upper and lower guides are fully adjustable, and have square, hardened steel guide pins. Blade supports are ball bearing and double ended, so that either end may be used. The same type of guide is used below the table as above.

The capacity under the blade guide is a full 6" and the saw will take a cut in 6" hardwood with ease. Very soft metals may be cut almost as easily as wood, and harder ones by cutting down the speed. No. 781 blade is furnished for brass and similar soft metals.

This machine is not designed to take the place of the No. 768 10" band saw, or of the No. 890 14" band saw, but for the small shop will be found to handle a wide variety of work at a very reasonable cost and a great saving of time and labor.



No. 747

The No. 766 unit shown at lower right is a very handy unit, as it can be moved to any part of the shop with no trouble. Another handy unit is the combination of the 10" band saw and No. 468 mortiser mounted on a No. 494 steel stand, and driven from the same motor without any interference. No. 800 or 900 motor is recommended and No. 849 switch rod.

This combination, with others for which there is no space here, is fully described in Bulletin MR-6-36. Send for this bulletin.

No. 785 10-Inch Ball Bearing Band Saw, complete with guards, 5" drive pulley and ¼" blade..... **$19.50**
Shipping Weight 55 lbs. Code Word TENBA.

No. 5275 2⅝" Pulley, drives 10" Band Saw at correct speed, ½" bore **.45**
Shipping Weight 8 oz. Code Word FULOD.

No. 560 V-Belt, center to center distance, 22⅝" **1.00**
Shipping Weight 10 oz. Code Word EICVB.

Blades for No. 785 Saw 66" Long

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

Cat. No.	Width	Cut Radius	Code	Price Each
732	⅛"	⅛"	BABLK	$1.00
733	⅛"	⅛"	BABLL	1.00
734	¼"	¾"	BABLM	1.00
736	⅜"	1"	BABLP	1.00
781	¼"	¾"	BAMEU	1.50

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

No. 766 10" Band Saw Unit, consisting of No. 785 band Saw, No. 5275 2⅝" V-pulley, ½" bore, No. 560 V-belt and No. 339 Steel stand. Without motor or switch rod **$26.70**
Shipping Weight 95 lbs. Code Word TENUN.
Specify No. 800 or 1100 motor and 851 Switch Rod.

No. 747 10" Band Saw-Mortiser Unit, consisting of No. 785 Band Saw, No. 468 Mortiser, No. 494 Steel stand (no chute), No. 5500 5" V-pulley for Mortiser, ½" bore, No. 5275 2⅝" V-pulley for band saw, ½" bore, No. 453 V-belt for Mortiser, No. 560 V-belt for Saw and No. 461 Foot Feed..... **$60.10**
Shipping Weight 125 lbs. Code Word MIBRA.

Blades for 12" Saw 78" Long

Cat. No.	Width	Cut Radius	Code	Price Each
532	⅛"	⅛"	BABLA	$1.10
533	⅛"	⅛"	BABLB	1.10
534	¼"	¾"	BABLC	1.10
536	⅜"	1"	BABLE	1.10
381	¼"	¾"	BAMET	1.50

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

No. 766

Sanding Attachment for 10" Band Saw

This sanding attachment for the No. 785 10" band saw eliminates the tedious hand labor of finishing the edges of scroll and band-saw work. Instead of laboriously working with sanding block and stick, you merely pass the edges of the work across a rapidly running sanding belt and the work is finished smooth in a fraction of the time required for hand sanding.

The attachment consists of a belt ½" wide, and 66" long, the same length as the standard blade for the No. 785 10" band saw. The belt runs in a special guide which replaces the regular blade guides; two guides are furnished—one for flat and one for curved, scrolled or band-sawed surfaces.

With this attachment, sanding of such work becomes as fast and as easy as sawing. The properties of the modern garnet sanding belt are such that it is actually a cutting tool.

NOTE: This attachment will fit the No. 785 10" band saw only; it cannot be used on the No. 768 band saw.

No. 782 Sanding Attachment for No. 785 band saw, consisting of 2 guides, guide bracket and 66" garnet belt **$2.00**
Shipping Weight 14 oz. Code Word BELBA.

No. 783 Fine garnet band, 66" long, for 10-inch band saw, per ½ doz..... **1.25**
Shipping Weight 8 oz. Code Word BANTF.

No. 784 Medium garnet band, 66" long for 10-inch band saw, per ½ doz..... **1.25**
Shipping Weight 8 oz. Code Word BANTM.

[Please Order by Catalog Number to Avoid Mistakes and Delay]

NEW 10-in. Ball-Bearing Circular Saw

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
1,953,688
2,007,887
2,020,222
Des. Pat. No. 88,818
No. 99,814

Canadian Patents No. 349,730 386,174

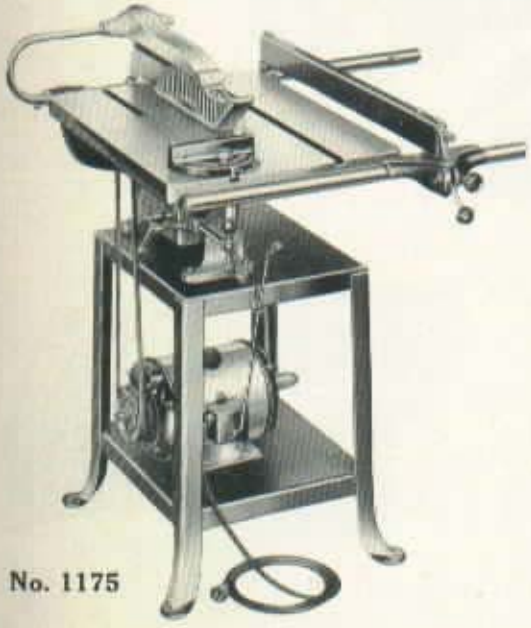
Here Is a Saw that Meets the Most Exacting Demands of the Craftsman, for Any Work

This new 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 new 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.



No. 1175

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.*

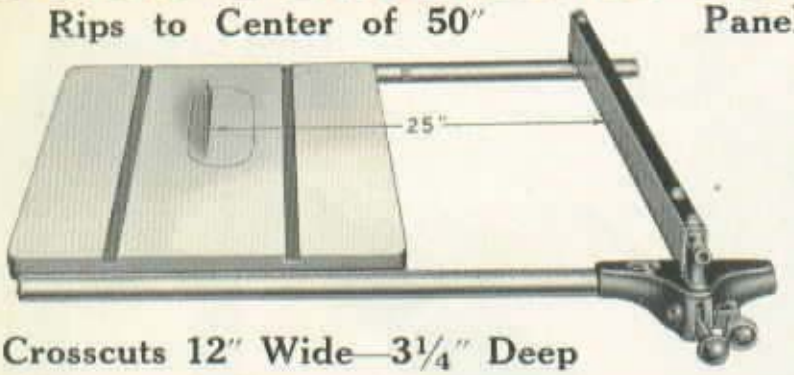
No. 1160	10" Ball-bearing Circular Saw, with "Auto-Set" Miter Gage, "Micro-Set" Rip Gage, graduated front rip-guide bar and plain rear guide bar. Without motor, belt, motor pulley or saw guard. Shipping Weight 190 lbs. Code Word TENSE.	**$49.85**
No. 560	V-belt (56" inside circumference). Shipping Weight 1 lb. Code Word EICVR.	**1.00**
No. 5500	5" V-pulley for motor, ⅝" bore. Shipping Weight 1½ lbs. Code Word PULOH.	**.75**
No. 1181	Steel Stand (Top 18¼" x 18¼" x 26⅝" high). Shipping Weight 52 lbs. Code Word SHAST.	**6.75**
No. 1175	10" Circular-Saw Unit, consisting of No. 1160 Circular Saw, No. 560 V-belt, No. 5500 V-pulley and No. 1181 Steel Stand. Without motor, switch rod or saw guard. Shipping Weight 250 lbs. Code Word TENSQ.	**$58.35**

No. 520 or 1120 motor recommended for this saw for ordinary use. For heavy duty No. 922 or 994 ¾-H.P. motor is recommended. Use No. 851 switch rod. See pages 35-37 for prices.

[Please Order by Catalog Number to Avoid Mistakes and Delay]

Some Features of 10-in. 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 26 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!

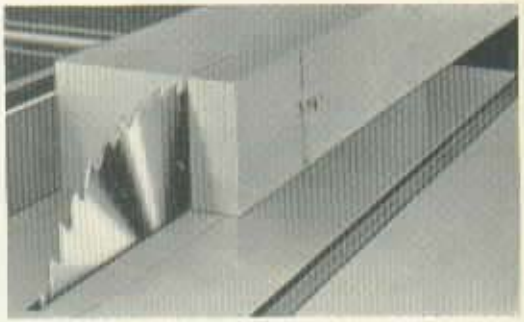
The table itself is an exceptionally heavy, strongly ribbed casting.

The rip-fence guide bars are a typical improvement. They are heavy walled tubes, 1⅝" 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—3¼" 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 3½" 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.



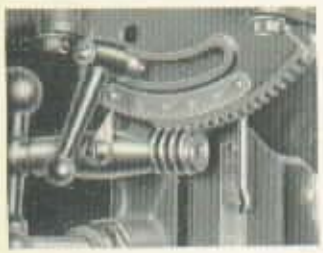
Many Design Advantages Found Only in This Remarkable Saw

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.

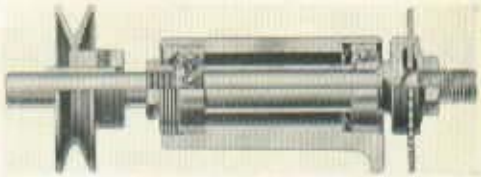
Quick-Action Inserts

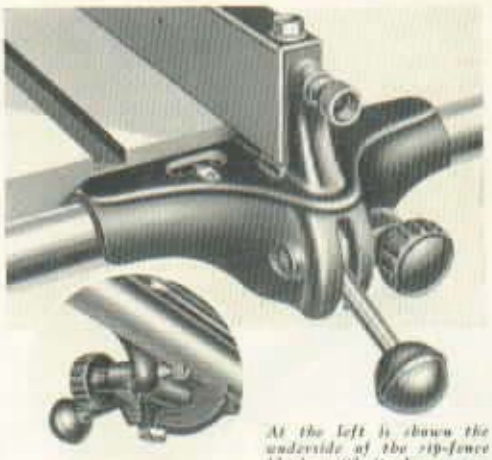
Table inserts are fitted in machined openings in the table—not rough cast holes. They are instantly snapped in or out with a touch of the finger—no screws to loosen. And (U. S. Pat. No. 2,626,222) they are provided with adjusting screws so they may be made to lie exactly flush with the table.

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.)



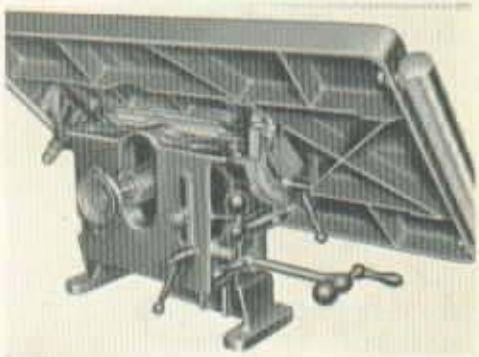


At the left is shown the underside of the rip-fence block, with its heavy cam lock and accurate rack.

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 end 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.

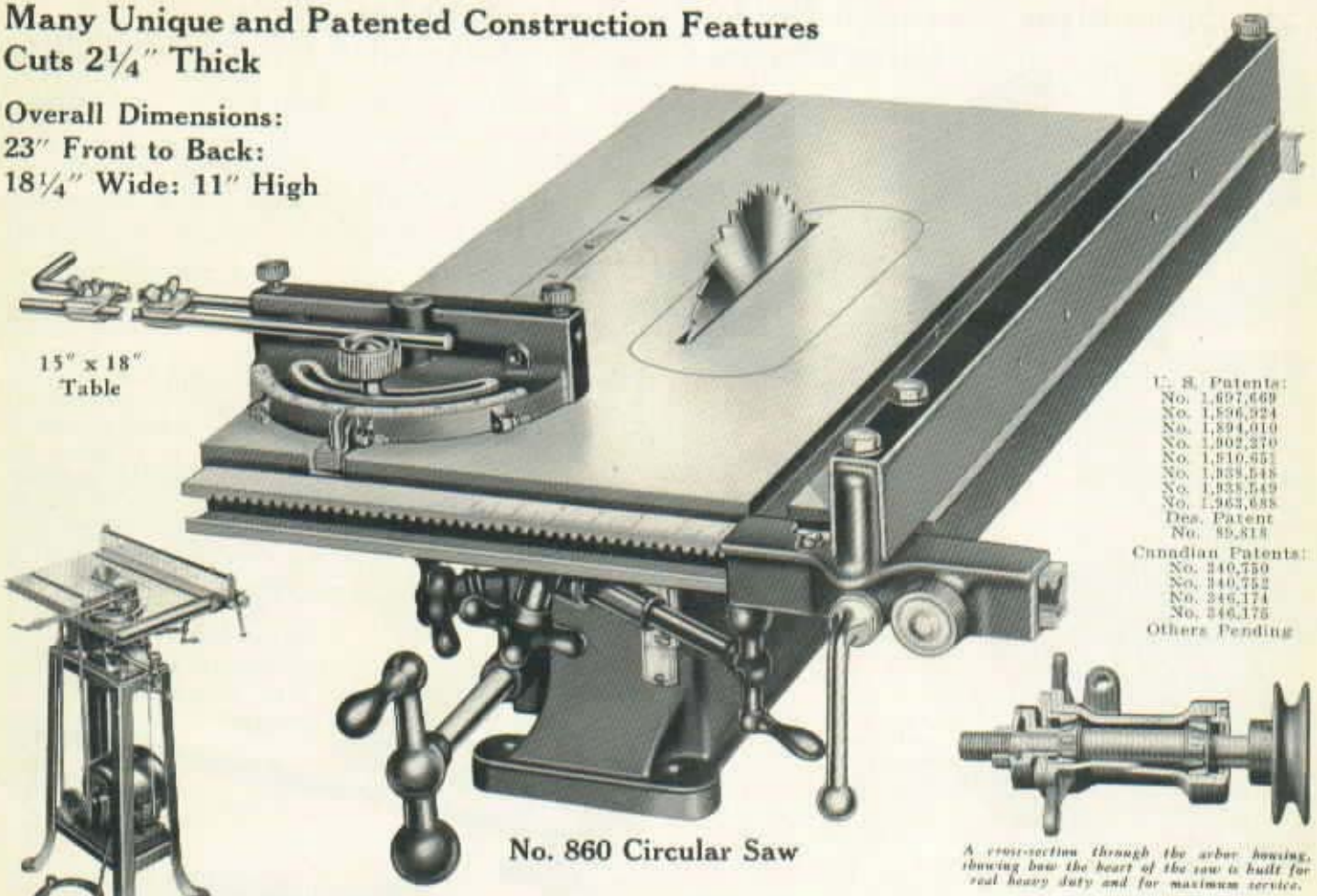


[Please Order by Catalog Number to Avoid Mistakes and Delay]

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



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
Des. Patent
No. 89,818
Canadian Patents:
No. 340,750
No. 340,752
No. 346,174
No. 346,175
Others Pending

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, 22⅝" 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. 820 or 1120 Motor recommended for this machine.

See pages 35-37 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 professional and school shop, as it is completely portable.

Our No. 820 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:

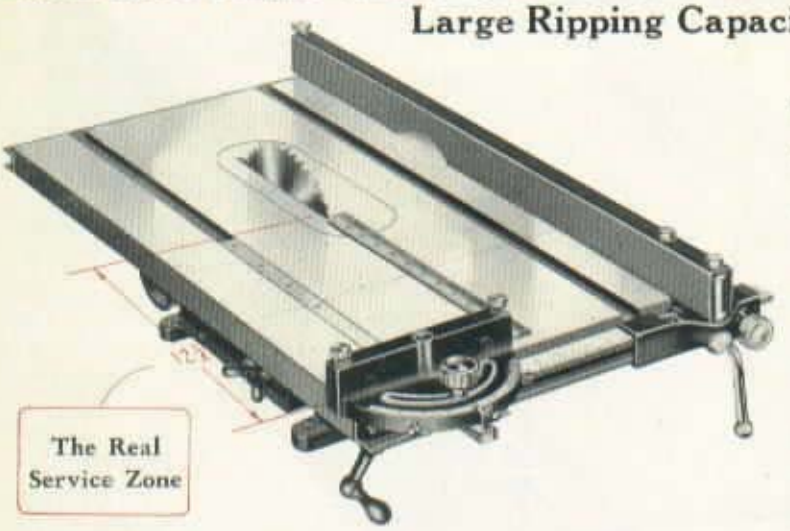
No. 860	Circular Saw	**$32.85**
No. 5500	V-Pulley, ¾" bore	**.75**
No. 560	V-Belt, 22⅝" center to center	**1.00**
No. 329	Steel Stand (without chute), with bolts & directions. (Stand 29" high. Top 7"x12½")	**5.75**
	Total	**$40.35**

Shipping Weight 122 lbs. Code Word NECUX.

[Please Order by Catalog Number to Avoid Mistakes and Delay]

Extension Increase Capacity of 8-in. Saw

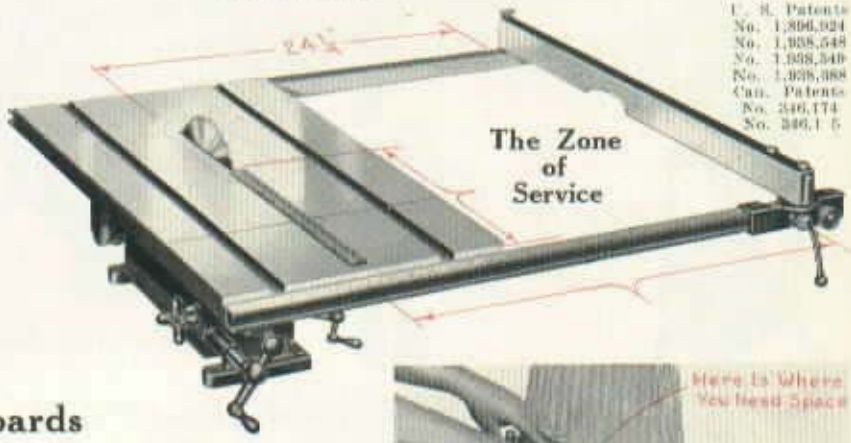
Extra Space Right Where It Is Needed—in Front of the Saw Blade:
Large Ripping Capacity: Attached or Removed in a Jiffy



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.

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

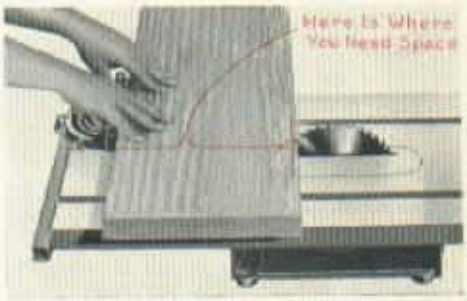


U. S. Patents
No. 1,806,924
No. 1,938,548
No. 1,938,549
No. 1,938,388
Can. Patents
No. 346,174
No. 346,175

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.

[Please Order by Catalog Number to Avoid Mistakes and Delay]

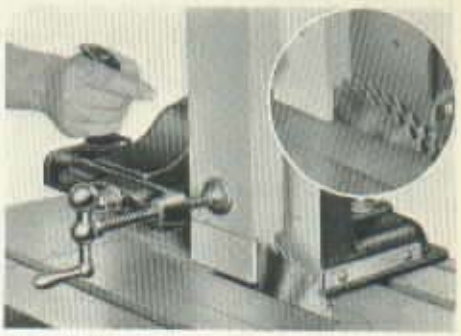
New Attachment Makes Tenoning Safe

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. 1188 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 $6.75
Shipping Weight 20 lbs. Code Word TENJG.

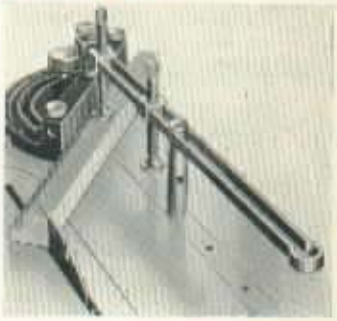
No. 1172 Tenoner complete with base plate (without miter gage head) $9.75
Shipping Weight 32 lbs. Code Word TENBP.

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

Craftsmen Find Clamp Attachment Indespensable

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 tilted.



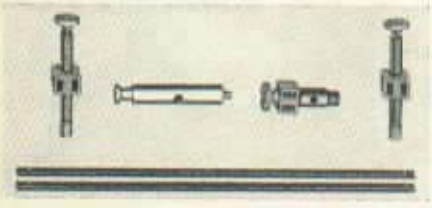
Invaluable for cutting accurate narrow miters as well as wide ones, and for all cutting-off operations where accuracy is of first importance.

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 ..... $ .35
Shipping Weight 4 oz. Code Word NECCS.

U. S. Pat. No. 1,894,010; Can. Pat. 340,752/1934.

[Please Order by Catalog Number to Avoid Mistakes and Delay]

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 the Wisconsin Industrial Commission.

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.

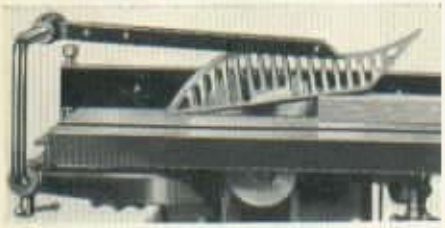
Ordinary guards—supported on so-called "splitters"—must be removed entirely when dadoing, grooving, etc., and are seldom replaced. These guards, on the contrary, may be swung completely back and out of the way in a second's time, and as quickly swung back when needed. They need never be removed for any 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 1¼" 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.



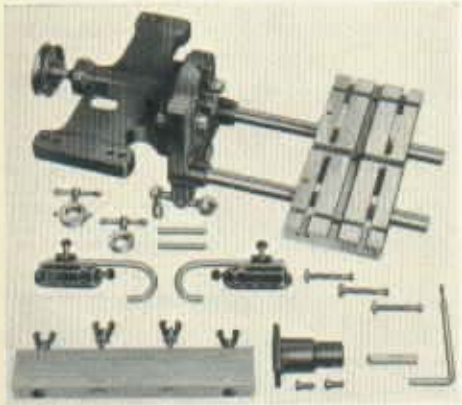
Work entering guard on No. 860 8" saw. This guard, while slightly different in construction details, has all the features of the larger guard.

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 Shipping Weight 9 lbs. Code Word SEFGA	**$4.85**
No. 867	Splitter Attachment for No. 860 Circular Saw, consisting of three splitters and two collars for support rod Shipping Weight 2½ lbs. Code Word SEGSB.	**$1.50**
No. 1165	Swing Guard for No. 1160 Circular Saw, with bracket, support arm, pivot bracket, basket, collars and screws Shipping Weight 10 lbs. Code Word TENSK	**$10.75**
No. 1166	Splitter Attachment for No. 1160 Circular Saw, consisting of three splitters, anti-kickback and collars for support arm Shipping Weight 5 lbs. Code Word TENSL.	**$3.75**

Many Operations Possible with Mortiser



For complete specifications and details of the No. 458 Mortising and Routing Attachment, send for Bulletin MR-6-16.

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.

This attachment is designed for use with the No. 860 saw, and cannot be used under the No. 1160 10" saw.

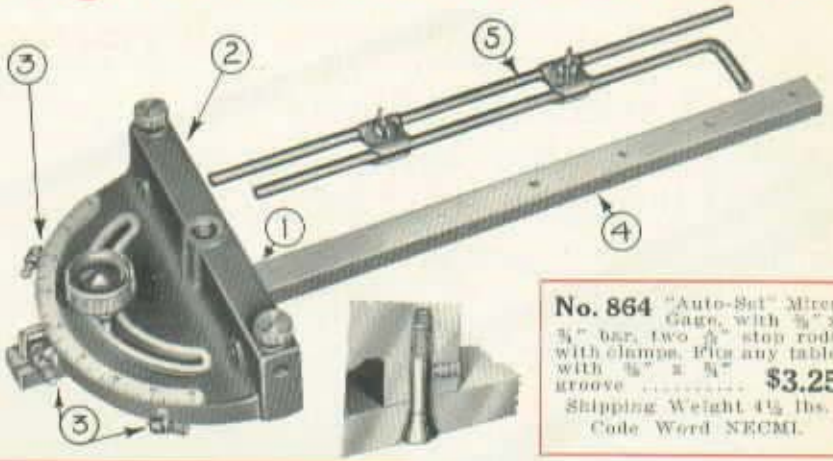
No. 458	Mortiser and Router only, includes everything shown in the photo Shipping Weight 42 lbs. Code Word MORBO.	**$26.25**
No. 453	V-Belt for above; Center to center distance, 17⅝" Shipping Weight 1 lb. Code Word MORBL.	**$ .90**
No. 583	V-Belt for circular saw, when Mortiser is used with Units No. 365 or 368 (No. 560 belt is then too short). Center to center distance 24" Shipping Weight 1 lb. Code Word FORBL.	**$1.10**
No. 461	Foot-Power Feed for No. 458 Mortiser fits our Steel Stands Shipping Weight 8 lbs. Code Word MORFE.	**$4.25**

[Please Order by Catalog Number to Avoid Mistakes and Delay]

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. 340,758) 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 ⅝" by ¾" bar, very rigid and strong, 17" long.
5. Full ⅜" diameter stop rods, with two heavy clamps, not flimsy wires that are useless for accurate repetition work.



No. 864 "Auto-Set" Miter Gage, with ⅝" x ¾" bar, two ⅜" stop rods with clamps. Fits any table with ⅝" x ¾" groove **$3.25**
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 Circular Saw, ⅝" arbor hole. **$3.75**
Shipping Weight 2 lbs. Code Word TENSP.

No. 1017 10" Special Rip Blade for No. 1160 Circ. 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 **$4.95**
Shipping Weight 1½ lbs. Code Word EICBP.

No. 1016 10" Hollow-Ground Blade, for No. 1160 Saw, ⅝" hole **$5.95**
Shipping Weight 2 lbs. Code Word TENSK.

No. 1018 10" Spe. Crosscut Blade for 1160 Circ. 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 ⅛" thick, 8" diameter, and have ⅝" arbor hole only. Bonded with genuine synthetic resin, and should not be confounded with cheap shellac-bond wheels.

No. 223 8" Cutting Wheel, ⅛" thick, ⅝" hole, for cutting vitrified brick, cast iron, sand cores, slate and plain or glazed tile **$1.50**
Shipping Weight 1½ lbs. Code Word BAKEC.

No. 225 8" Cutting Wheel, ⅛" thick, ⅝" hole, for cutting monel metal, steel tubing, hardened steel, stellite, stainless steel, aluminum tubes, etc. **1.50**
Shipping Weight 1½ lbs. Code Word BAKED.

No. 227 8" Cutting Wheel, ⅛" thick, ⅝" hole, for cutting porcelain, hard rubber, brass tubing, copper, brass and bronze **1.50**
Shipping Weight 1½ lbs. Code Word BAKEF.

No. 228 8" Cutting Wheel, ⅛" thick, ⅝" hole, for cutting soft steel and wrought iron **1.50**
Shipping Weight 1½ lbs. Code Word BAKEH.

No. 230 Abrasive Wheel Guard, with bracket and arm, to fit No. 860 Circular Saw..... **3.90**
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..... **2.10**
Shipping Weight 7 lbs. Code Word GURDA.

Cutting a steel bar with the abrasive wheel, showing No. 270 Guard in place.

Dado Head and Inserts

For cutting of grooves varying in width from ⅛" to ⅞" 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 both 860 and 1160 saws.

No. 333 8" Dado Head, consisting of two outer blades, ⅛" thick, two inside cutters ⅛" thick, one inside cutter 1/16" thick and one ⅛" thick. To cut grooves from ⅛" to ⅞", advancing by 1/16". With ⅝" holes to fit No. 860 and 1160 Circular Saw..... **$9.85**
Shipping Weight 2½ lbs. Code Word EICDA.

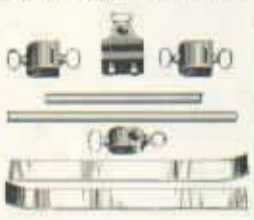
No. 874 Table Insert for No. 860 Circular Saw ..... **.80**
Shipping Weight 1½ lbs. Code Word NECDA.

No. 1161 Insert for No. 1160 Saw..... **$1.00**
Shipping Weight 1½ lbs. Code Word TENSF.

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 **$2.25**
Shipping Weight 4½ lbs. Code Word NECHO.
Note: To adapt No. 984 shaper hold-down to fit circular saw, order the following parts:

NCS-315-S	Clamp bracket ..... each	**.75**
DP-331	Short rod (⅜" x 6¾") .. each	**.20**
NCS-316	Long Rod (⅜" x 10"). each	**.25**

NEW! The Finest 4-inch Ball-Bearing Precision Jointer Ever Offered to the Craftsman

U. S. Patents
No. 1,700,288
No. 1,967,791
No. 1,975,502

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 ½" by 4", this machine will quickly prove its superiority over any others 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 has been omitted that would add to precision or convenience.

No. 290 4" Ball-bearing Jointer, with Two-Way Tilting and Graduated Fences with Dual-Control Handle, set of three high-speed steel knives, arbor pulley and front safety guard. Without motor, belt or motor pulley..... **$29.50**
Shipping Weight 75 lbs. Code Word JOIBM.

No. 5600 6" V-pulley, ½" bore..... **.90**
Shipping Weight 1½ lbs. Code Word PULOJ.

No. 560 V-belt, cent. to cent. distance 22⅝"... **1.00**
Shipping Weight 1 lb. Code Word EICVB.

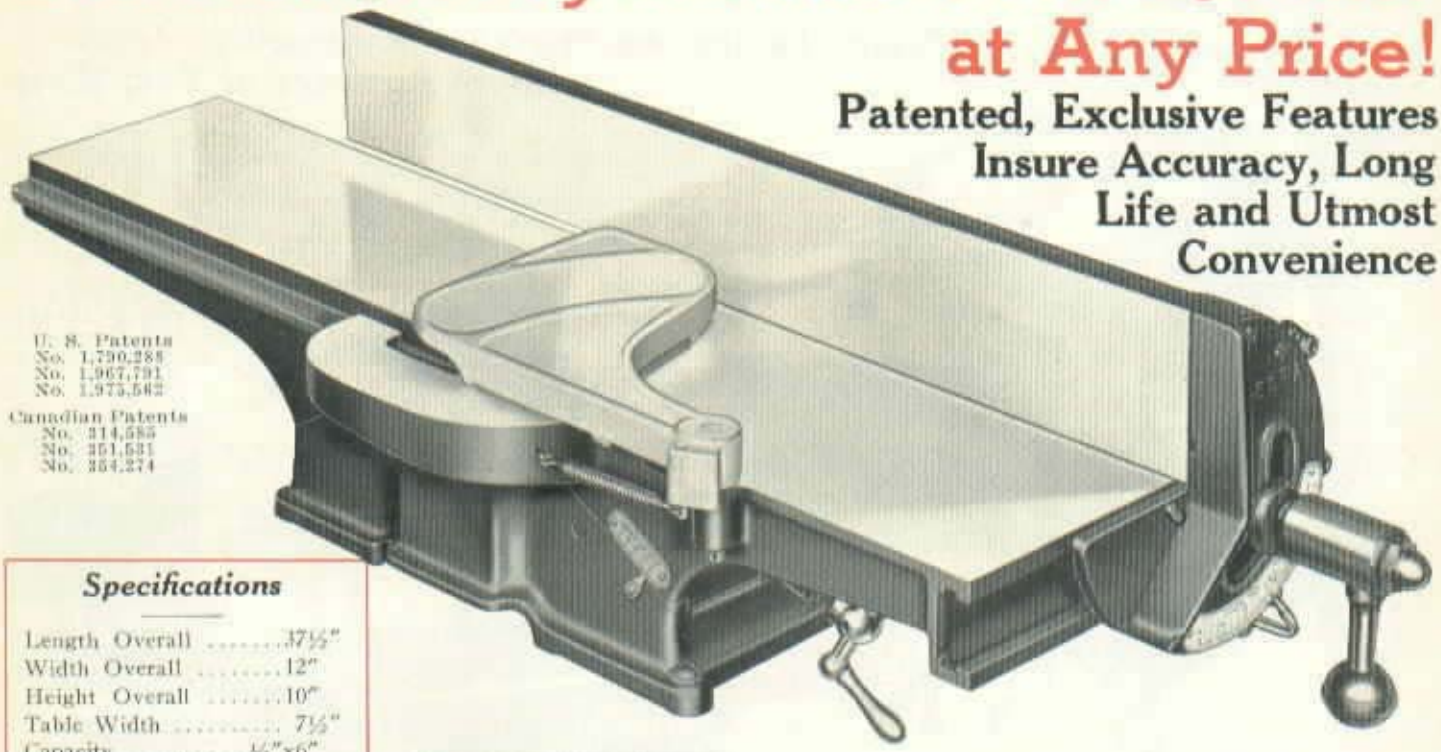
No. 304 Steel stand, with chute **6.25**
Shipping Weight 31 lbs. Code Word JOIST.

No. 292 4" Jointer Unit, consisting of No. 290 Jointer, No. 560 V-belt, No. 5600 6" V-pulley and No. 304 Steel Stand. Without motor or switch rod..... **$37.65**
Shipping Weight 110 lbs. Code Word JOIBO.

[Please Order by Catalog Number to Avoid Mistakes and Delay]

You Cannot Buy a Better 6-inch Jointer at Any Price!

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



U. S. Patents
No. 1,790,288
No. 1,967,791
No. 1,973,582

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

Specifications

Length Overall ..... 47½"
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.
Dept-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.

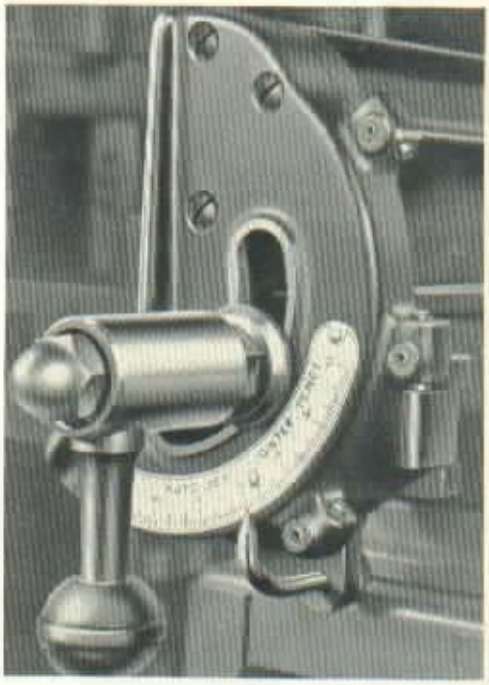
A touch of the finger moves the stop link into or out of engagement with the individually adjustable stop screws enabling the fence to be stopped with accuracy at 45, 90 or 135 degrees.

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 boddily 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. Without belt or motor pulley..... **$45.00**
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 SIXVB

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 PILOT.

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.

[Please Order by Catalog Number to Avoid Mistakes and Delay]

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 suriace 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.

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

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

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.

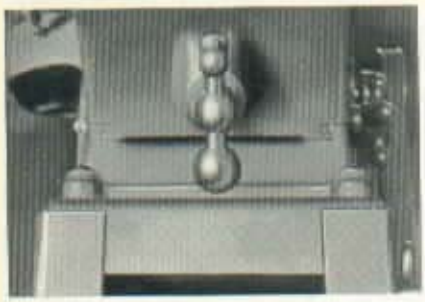
As shown in the photo at right, a guard is available to cover the rear of the knives when rabbeting—an absolute necessity in the school shop, and in the production shop where machines may be set in close quarters. The flap guard follows the fence as it is moved across the table, and thus no portion of 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 its 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	$45.00
No. 560	V-belt, center to center distance 22⅝"	1.00
No. 5700	7" V-pulley, drives jointer at correct speed (4200 R.P.M.) ⅝" 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 and switch rod)	$54.05
	Shipping Weight 154 lbs. Code Word SIXUN.	

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	Aluminum belt guard for 6-inch Jointer, with stud, screws, etc.	$5.85
	Shipping Weight 9 lbs. Code Word SIXGA.	
No. 662	Rear knife guard for 6-inch Jointer, with spring	2.85
	Shipping Weight 2 lbs. Code Word SIXRE.	

[Please Order by Catalog Number to Avoid Mistakes and Delay]

Combination Circular Saw-Jointer Units

8-Inch Saw—4-Inch Jointer Combinations

The combination of circular saw and jointer, first introduced by us, is one of the most useful in the shop. Eighty per-cent 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 either the No. 301 4" jointer or 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. 1350 Unit

U. S. Pats. No. 1,886,924 1,790,288 1,910,651 1,967,791 1,938,549 1,897,009 1,902,270

U. S. Pats. No. 1,938,548 1,925,477 1,938,688 1,975,562 Des. Pat. No. 89,818 Can. Pat. No. 314,585 340,750

NEW

No. 368 Unit

Further Improved

The convenience of the 8" saw—4" jointer combinations 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 8"-Saw—6"-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	**29.50**
No. 361	Steel Stand, with chute and raising block	**9.95**
	Shipping Weight, Stand and Block Only, 75 lbs. Code CROSX.	
No. 5500	5" V-pulley for saw, ¾" bore	**.75**
No. 5600	6" V-pulley for jointer, ¾" bore	**.90**
No. 560	V-belt for saw	**1.00**
No. 510	V-belt for jointer	**1.00**
	Total (less saw guard and motor)	**$75.95**

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, 26⅝" high.

No. 1350 Combination Unit Includes:

No. 860	8" Timken-bearing Circular Saw	**$32.85**
No. 654	6" Ball-bearing Jointer	**45.00**
No. 1356	Steel stand, with chute and raising block	**11.25**
	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)	**$93.05**

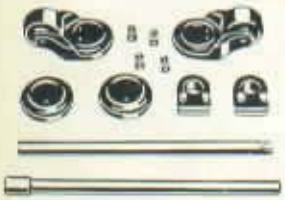
Shipping weight 282 lbs. Code Word COMBE.
Use motor No. 820 or 1120. Switch rod No. 851.
Stand dimensions: 16" wide; 30" long, 26⅝" high.

No. 365 Combination Unit Includes:

No. 860	8" Circular Saw	**$32.85**
No. 301	4" Jointer	**22.50**
No. 359	Steel Stand (without raising block)	**8.45**
No. 5500	5" V-pulley for saw, ¾" bore	**.75**
No. 5500	5" V-pulley for jointer, ¾" bore	**.75**
No. 510	V-belt for saw	**1.00**
No. 453	V-belt for jointer	**.90**
	Total (less saw guard and motor)	**$67.20**

Shipping Weight 211 lbs. Code Word COMBF.
Use No. 820 or 1120 motor. No. 851 switch rod.
Note: No. 359 stand is same as No. 361, but without raising block.

Casters for Portable Units



Attachment consists of two clamps, attached to the upper shelf of the stand, two front-leg pads, two casters for rear legs and two lengths of cadmium-plated pipe with a coupling. The pipe is inserted through the clamps and the whole machine tipped onto the casters for moving.

Not recommended for No. 365, 368, 1184, 1350, 1175 or 1188 units.

No. 351 Caster Attachment, as shown above **$3.25**
Shipping Weight 13 lbs. Code Word CASTA.

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 ..... $ **.85**
Shipping Weight 10 oz. Code Word RUBFE.

[Please Order by Catalog Number to Avoid Mistakes and Delay]

No. 1164 10-in. Saw—6-in. Jointer Unit

U. S. Patents
1,807,669
1,790,288
1,806,924
1,910,651
1,967,791
2,007,887

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. 90,614

One of the advantages of the tilting-table saw is the fact that there is no necessity for twisted belts, floating pulleys or other devices of this nature. Another is that the design lends itself to a compact, convenient combination with the jointer on a steel stand, eliminating the clumsy, awkward construction necessary when the motor must be mounted behind the saw.

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

Notice how very compact and convenient is the 10" saw and 6" jointer combination. The motor is mounted below the machines—protected to a large extent by the stand top from sawdust and shavings. Direct, straight belts are used for driving, with V-pulleys—and the switch rod brings control of the machines to the finger tips.

The unit is more portable than many "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 right to the job, if necessary, and, as it takes its power from the nearest light socket, can be operated wherever electric light is available.

The Ideal Machine for Contractors

The No. 1164 unit is the ideal machine for the contractor, the novelty or furniture 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.

No. 1164 Unit, Consisting of:

No. 1160	10" Circular Saw	$49.85
No. 654	6" Jointer	45.00
No. 1168	Steel stand (16" wide, 36" long, 26¾" high). Shipping Weight, Stand Only, 73 lbs. Code Word TEN80.	9.75
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	$108.55

Shipping Weight 380 lbs. Code Word TEN81

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

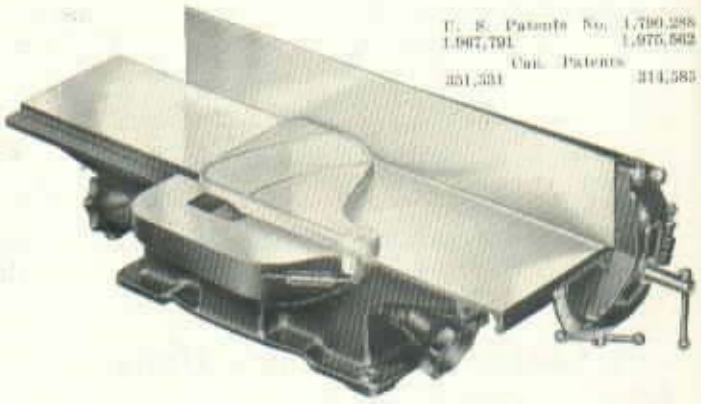
4-Inch Ball-Bearing Jointer Offers Unusual Value

The No. 301 4-Inch Ball-Bearing Jointer is a big machine—not a toy suitable only for the lightest work. It is 23" long, 9½" wide and 7½" high. Front table is 5¼" wide and has an additional 3" rabbetting arm. The rear table is 5¼" wide also, with a ¼" by ¾" rabbetting ledge. Machine cuts ¾" deep by 4" wide.

Solid-steel cutter head, carried on self-sealed ball bearings (lubricated for their life) and equipped with three high-speed steel knives sharpened and jointed ready for use.

Fence tilts 45 deg. both ways, on a patented pivot bracket and is moved across table by loosening one ball crank. Once the fence has been set square with the table by means of the swinging stop link and stop screw, it is never necessary thereafter to square the fence, as this is done automatically by means of the stop link.

Each machine is fitted with automatic flap guard covering the knives, instantly detachable for rabbetting. Available as bench or floor machine.



U. S. Patents No. 1,790,288
1,967,791 1,975,562
Can. Patents
351,531 314,585

No. 301	4" Ball-bearing Jointer, with high-speed steel knives, 2¾" arbor pulley, 2-way tilting, graduated fence, wrench and flap guard. Shipping Weight 43 lbs. Code Word JOIBL.	$22.50
No. 5500	5" V-pulley, ¾" bore. Shipping Weight 1½ lbs. Code Word PILOH	.75
No. 510	V-belt. Cent. to cent. distance 20¼". Shipping Weight 1 lb. Code Word JOIVB.	1.00
No. 302	Extra set of high-speed knives. Shipping Weight 8 oz. Code Word JOIKI	2.75
No. 296	4" Jointer Unit, including No. 301 Jointer, No. 5500 5" V-pulley, No. 510 V-belt, No. 304 steel stand with chute. Shipping Weight 76 lbs. Code Word JOIUN. Motor and switch rod not included.	$30.50

No. 800 or 900 motor is recommended for this machine. See pages 35-37 for motors and switch rod. Use switch rod No. 851.

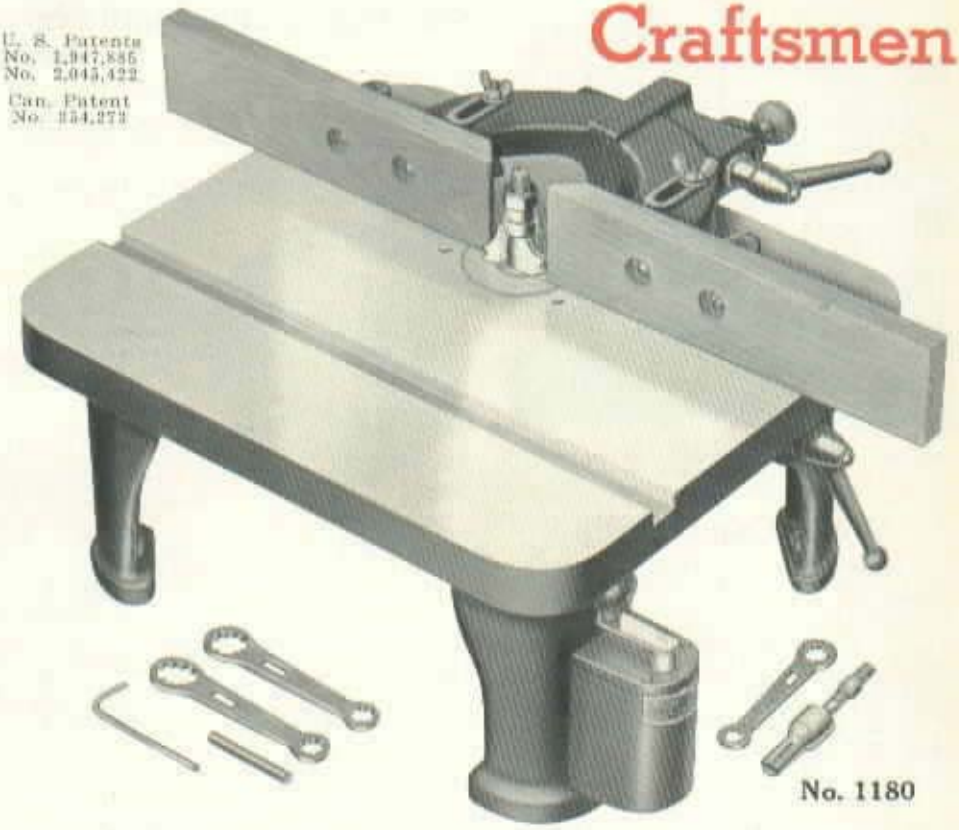
[Please Order by Catalog Number to Avoid Mistakes and Delay]

This Shaper Is Choice of Professional Craftsmen

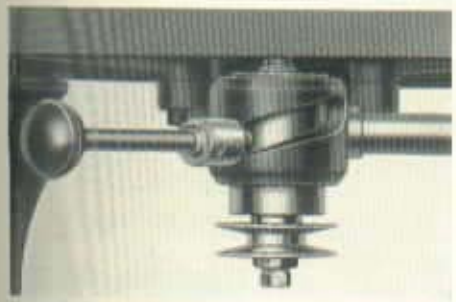
Specifications

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

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



No. 1180



View of the Spindle Adjustment of the shaper. Fast and positive, yet capable of very fine adjustment—and with no backlash.

No. 1188

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 ⅝" 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.

Mounted on the No. 1181 welded-steel stand, it forms a compact, portable unit that is unique in its field. The motor recommended is the No. 915 ball-bearing reversible ½-H. P. motor. It is mounted on a special bracket bolted to the rear of the stand, and carrying a guard that completely encloses the belt and motor pulley. The front of the belt and the spindle pulley are enclosed by a separate guard, instantly removable for changing spindles. The 3450 r.p.m. motor drives the spindle at a speed of 10,000 r.p.m. from a flat, flanged pulley which permits the spindle to be raised or lowered without any twist or strain on the belt.

The reversing switch may be mounted on the front right leg of the shaper, within instant reach of the operator, yet so that it cannot be accidentally thrown on while setting cutters or fence.

The high speed produces perfect work with the three-lip cutters, and when equipped with the Sliding Jig for end-grain work it is perfectly safe even for inexperienced operators or for boys in the school shop.

No. 1180	Ball-Bearing Reversible Shaper, with Fully Adjustable Fence, ⅝" and ½" Spindles, Table Insert, Starting Pin, Wrenches and Spindle Pulley. Without Motor or Motor Pulley, Cutters or Collars. Shipping Weight 57 lbs. Code Word SHAPR.	**$25.75**
No. 1185	Special flanged motor pulley for shaper, 5⅝" diam., ⅝" bore, with keyway, for standard 60-cycle 3450 r.p.m. motor. Shipping Weight 2½ lbs. Code Word SHAPU.	**1.35**
No. 1187	Flanged pulley as above, but 5⅛" diam., ⅝" bore, for 50-cycle 2850 r.p.m. motor. Shipping Weight 2½ lbs. Code Word SHAPI.	**1.35**
No. 410	Special flexible V-belt for shaper (do not use ordinary V-belt) Shipping Weight 10 oz. Code Word BELTB.	**.85**
No. 1181	Steel stand (Top 16½"x18¾"x28⅝" High. Shipping Weight 52 lbs. Code Word SHAST.	**6.75**
No. 1183	Belt Guard and Motor Bracket. Shipping Weight 28 lbs. Code Word SHABG.	**4.85**
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.	**$39.55**

No. 1185 pulley for 60-cycle motor shipped unless otherwise ordered.
No. 915 60-cycle or 916 50-cycle motor should be used for this machine.
See pages 35-37 for prices.

[Please Order by Catalog Number to Avoid Mistakes and Delay]

End-Grain Shaping Made Fast and Easy

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.

Shaping of Short and Narrow Pieces Is Now a Safe Operation

Striving always for complete 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.

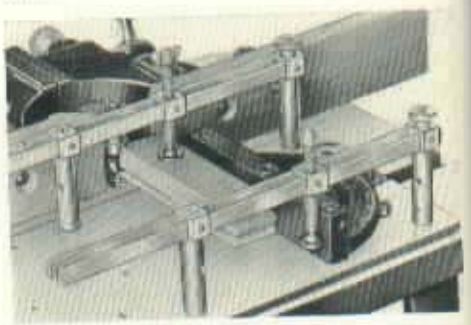
Photo at left shows how the jig is used on a rush operation, insuring absolutely accurate cuts. The photo at the right, below, shows how even a short, narrow block may be shaped safely by the use of the jig.

Patent Pending

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.



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.

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 **$7.00**

Shipping Weight 13½ lbs. Code Word SILIG.

NCS-229-S Additional clamp screw, with block, each..... **.42**

Note: This sliding jig may be adapted to many other machines and for many other operations. Key on base plate is ⅝" by ⅜".

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 **$5.75**

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 **$1.65**

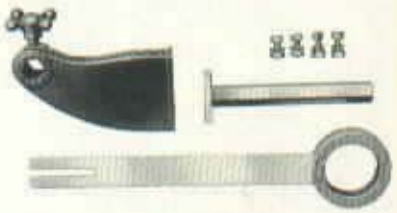
Shipping Wt. 2 lbs. Code Word NESHD.

Demountable Guard Protects User on Curved and Circular Work

Shaping a curved rail with the No. 987 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 ⅞" 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 hard-rubber guard ring and screws **$3.85**

Shipping Weight 8 lbs. Code Word NESGA.

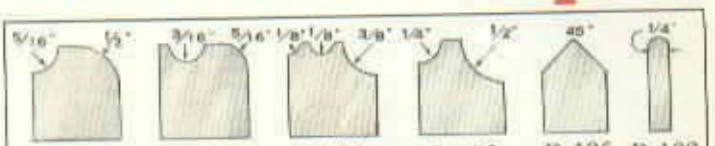
Universal and Sash Cutters for Shapers

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..... $1.00	D-142	⅜" Spacing collar..... .15
D-101	Cutter as shown..... 1.00	D-143	½" Spacing collar..... .15
D-102	Cutter as shown..... 1.00	D-144	⅝" Spacing collar..... .15
D-103	Cutter as shown..... 1.00	D-145	1 ⅛" Spacing collar..... .15
D-104	Straight cutter, 1" wide. 1.00	D-146	1 ¼" Spacing collar..... .15
D-105	Straight cut'r, 1½" wide 1.35	D-147	1 ½" Spacing collar..... .20
D-106	45-deg. cutter 1.00	D-148	1 ¾" Spacing collar..... .20
D-107	Straight cut'r, ½" wide. 1.00	D-149	1 ⅞" Spacing collar..... .20
D-108	Straight cut'r, ¼" wide. .75	D-152	Wood box with slide lid.. .35
D-109	Round nose, ¼" wide.... .75		

Note: Above collars ⅝" thick. Approx. Ship. Wt., collars & cutters, 5 oz. ea.

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..... **$10.85**

Shipping Weight 5½ lbs. Code Word SHACU.

NEW Sash and Cabinet Cutters Offer New Possibilities for Pleasure and Profit

These original cutters offer unusual possibilities, not only to the man who likes to turn his home shop to the making of things useful as well as ornamental, but to the professional shop as well, as with them all the cope and reverse mould shapes used on regular sash and cabinet work can be accomplished with ease.

With these cutters the owner of the shaper is practically independent of the mill. He can make his own sash, brick or door mouldings, cabinet mouldings, base moulds, back bands, etc., either straight or circular.

The cutters in this set can be used in combination with each other, or in combination with the standard cutters in the No. 1182 set. The sash cutters are designed for sash using 1¼" stock. They can be used for many other purposes.

Sash and Cabinet Cutters and Collars

D-120	Ogee cutter $1.00	D-130	Str. sash cut., ⅝" wide.. 1.00
D-121	Female sash cutter..... 1.00	D-140	¼"x1⅛" Spacing collar. .15
D-138	Male sash cutter (cope).. 1.00	D-141	⅜"x1⅛" Spacing collar. .15
D-123	Cabinet Cut'r, r. h. male 1.00	D-150	⅝"x1⅛" Spacing collar. .20
D-124	Cabinet cut'r, l. h. male 1.00	D-151	¼"x1⅝" Spacing collar. .20
D-125	Cabinet cut., r. h. female 1.00	D-154	Wood box with slide cov. .35
D-126	Cabinet cut., l. h. female 1.00	SR-232-8	Stub spindle, with screw and Allen wrench 1.00
D-127	Straight cut'r, ⅝" wide. .75		

Note: Cutter D-108, listed in Standard cutter list, is also included in Sash and Cabinet Set No. 1184.

We do not recommend the use of cutters with ½" hole on any drill press. Cutters with ⅝" hole, as listed on page 24, can be used on a high-speed drill press with satisfaction. But, when using larger cutters on a drill press, a torsional vibration is set up which is detrimental to good shaper work.

No. 1184 Set of Sash and Cabinet cutters, consisting of Cutters D-108 and D-120 to D-127 inclusive, D-130 Plain cutter, Spacing Collars D-140, D-141, D-150 and D-151, with SR 232-8 Stub spindle and wrench, packed in neat slide-top wood box..... **$10.85**

Shipping Weight 8 lbs. Code Word SHACR.

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 **$3.00**

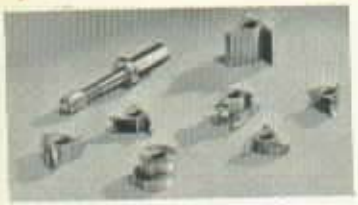
Ship. Wt. 1½ lbs. Code Word SHAPR.

No. 1193	½" wide blank knives, set of two. Code SHAPC.....	1.65
No. 1194	⅝" wide blank knives, set of two. Code SHAPD.....	1.65
No. 1195	1" wide blank knives, set of two. Code SHAPE.....	1.65
No. 1196	1½" wide blank knives, set of two. Code SHAPF.....	2.15

Average shipping weight per set 6 oz.

[Please Order by Catalog Number to Avoid Mistakes and Delay]

5/16-in. Cutters for Shaper and Drill Press

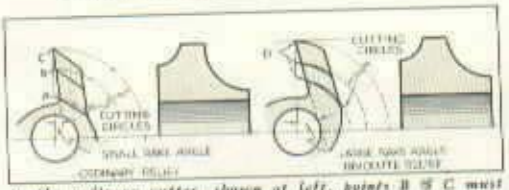


These shaper cutters are precision products, made of high-grade chrome-vanadium steel, hardened throughout in oil, accurately formed and relieved. They are available either singly or in sets of 24, with collars and adapter, as illustrated at right.

Like the larger ½" hole cutters intended for use on the shaper only, these ⅜" 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.

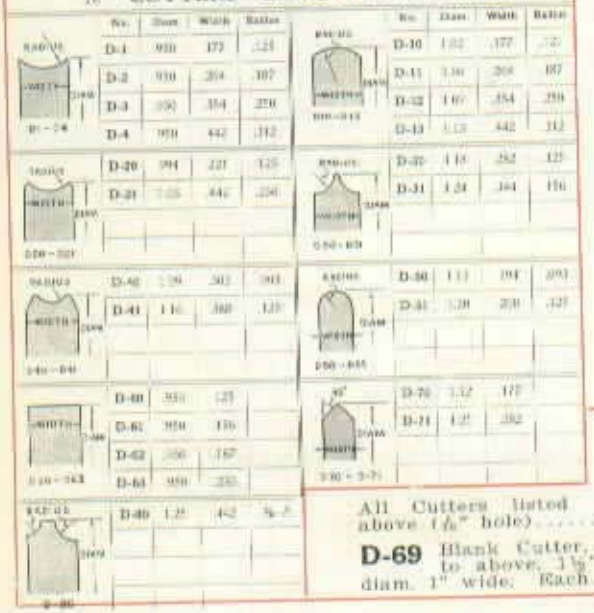
One of the greatest advantages of our cutter design is the involute relief of the cutting edge, shown in the diagram below. While this requires special machinery to produce, it is important because it insures adequate clearance at the cutting edge, without at the same time weakening the edge as ordinary 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.

Send for Bulletin SR-1155 for complete information on shaper cutters



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.

⅜" CUTTERS—SIZES AND SHAPES



No.	Diam.	Width	Radius
D-1	.938	.177	.125
D-2	.938	.364	.187
D-3	.938	.364	.250
D-4	.938	.442	.312
D-10	1.02	.177	.125
D-11	1.06	.208	.187
D-12	1.07	.354	.250
D-13	1.13	.442	.312
D-20	.994	.221	.125
D-21	1.05	.442	.250
D-30	1.13	.282	.125
D-31	1.24	.364	.156
D-40	1.11	.194	.093
D-41	1.20	.208	.125
D-60	.938	.125	
D-61	.938	.156	
D-62	.938	.187	
D-63	.938	.250	
D-70	1.32	.177	
D-71	1.25	.282	
D-80	1.25	.442	.312

All Cutters listed above (⅜" hole) ..... **$ .55**

D-69 Blank Cutter, similar to above, 1½" diam. 1" wide. Each **$ .75**

No. 978 Adapter for ⅜" hole cutters. Fits No. 974 drill-press spindle. Each ..... **$ .80**
Ship. Wt. 8 oz. Code Word XRSBA.

No. 979 Set of six depth collars, ⅜" hole ..... **$ .75**
Ship. Wt. 8 oz. Code Word XRSBC.

No. 980 Complete Set of Cutters listed above, including D-69, 24 cutters, ⅜" hole, with No. 978 adapter and No. 979 collars, packed in wood box. **$14.85**
Ship. Wt. 2 lbs. Code Word XRSBC.

Moulding Cutter Extends Range of Circular Saw

With the standard speed of the 860 or 1160 saw, the three knives in the head produce over 10,000 cuts per minute, which explains the smoothness of the cut. There is nothing to get out of order, and the head is extremely safe in operation because only the actual cutting edge of the knife is exposed, and even this is covered when work is being run.

This unique tool (U. S. Patent No. 1,830,813) is the only practical one of its kind. It consists of a strong, well-designed head in which a set of three high-speed steel knives is locked so that they are completely safe in operation. The head may be used on the arbor of the No. 860 or the 1160 saw, or on most other saws provided with a double-face fence.

As the work is run over the knives, a perfect moulding is made in one operation, or if the cut is a deep one, in two or more passes. There is nothing makeshift about this tool; it is being used in hundreds of production shops. The knife shapes (originated by us) are so designed that hundreds of shapes can be made with four sets of knives only. The cut is so smooth that little or no finishing is required to make the mouldings ready for stain and varnish.

On straight work it enables the owner of a circular saw to duplicate shaper work, and it can even be used on table tops and other round and oval shapes of fairly large radius.

Send for Bulletin MC-1 for complete information

No. 858 Moulding Cutter Set, to fit ⅝" 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 **$14.55**
Shipping Weight 10 lbs. Code Word MOLDY.

No. 262 Moulding Cutter Set for other makes of circular saws with arbor up to ⅞" diameter. Price includes boring up to ⅝", ¾", ⅞" or 1" diameter. Does not include table insert or guide fence. Specify bore wanted **$10.90**
Shipping Weight 2 lbs. Code Word MOUHJ.

No. 1169 Moulding cutter set for No. 1160 Circular Saw. Same as No. 858, but without fence (wood facings are used as standard fence of No. 1160 saw when moulding cutter is used) **$11.50**
Shipping Weight 8 lbs. Code Word TENMC.

No. 868 Moulding Cutter Fence, 20½" long, complete as shown above for No. 860 saw **$3.25**
Shipping Weight 7 lbs. Code Word XRCFE.

No. 872 Moulding Cutter Insert only, to fit No. 860 circular saw ..... **$ .80**
Shipping Weight 1½ lbs. Code Word XRCIO.

No. 1162 Moulding Cutter Insert for No. 1160 saw **$1.00**
Shipping Weight 1½ lbs. Code Word TENSG.

Extra Sets of Moulding Cutters

Extra cutters come in sets of three matched blades, and are made of the finest High-Speed Steel, not merely carbon steel. They are priced low enough to be replaced like the blades of a safety razor, although they will cut thousands of feet of moulding before becoming dull.

No. 250 Cutters, Style A. For Glass Mouldings, Table Edges and many other uses. Set of three **$2.15**
Code Word MOULA.

No. 251 Cutters, Style B. For table tops and large mouldings. Set of three **$2.15**
Code Word MOULB.

No. 252 Cutters, Style C. For fluting and cove moulding. Set of three **$2.15**
Code Word MOULC.

No. 253 Cutters, Style D. For beading, making ⅛" dowels, etc. Set of three **$2.15**
Code Word MOULD.

No. 254 Cutters, Style E. For screen mouldings, making ⅝" dowels, etc. Set of three **$2.15**
Code Word MOULE.

No. 255 Cutters, Style F. For classic leaf screen mouldings. Set of three **$2.15**
Code Word MOULF.

No. 257 Cutters, Style H. For making strong glue joints. Set of three **$2.15**
Code Word MOULH.

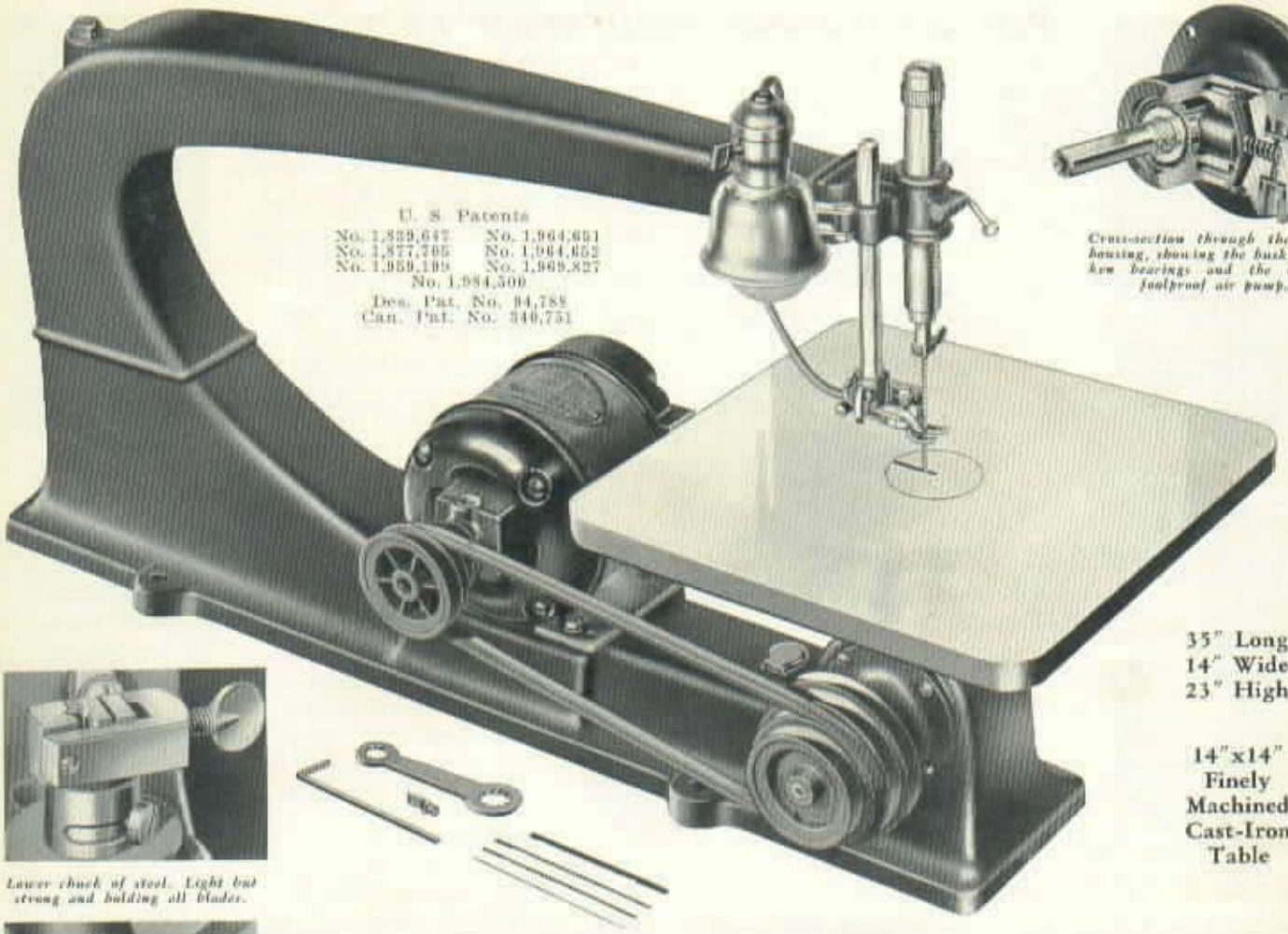
No. 259 Cutters, Style J. 1" straight cutter, good for many uses. Set of three **$2.15**
Code Word MOULJ.

Shipping weight 4 oz. each set.

No. 249 Moulding cutter head only, with screws, to fit ⅝" arbor. Does not include collar, wrench or cutters **$1.50**
(Add 25 cents to above prices for boring ½", ¾" or 1")
Shipping weight 18 oz. Code Word MOUHA.

[Please Order by Catalog Number to Avoid Mistakes and Delay]

The "De-Luxe" 24-inch Scroll Saw



U. S. Patents
No. 1,839,647 No. 1,964,851
No. 1,877,705 No. 1,964,852
No. 1,959,199 No. 1,969,827
No. 1,984,500
Des. Pat. No. 84,788
Can. Pat. No. 340,751

Cross-section through the shaft housing, showing the husky Timken bearings and the sturdy, foolproof air pump.

35" Long
14" Wide
23" High

14"x14" Finely Machined Cast-Iron Table

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.

"The Finest Scroll Saw Ever Made" For Heavy Work as Well as Light

This machine, from the moment it was first introduced, has been the standard of comparison for all other scroll saws, and in saying so we are merely repeating what thousands of delighted users have told us.

For heavy work as well as light this saw is the finest that can be purchased at any price. Nothing has been omitted that will add either to the quality of the machine or the convenience of the user, and you will find many features—from the Timken-bearing counter-balanced crankshaft and the revolvable table to the patented universal chucks—which you cannot find in any other scroll saw, at any price.

No. 1200 "De-Luxe" Scroll Saw, with one saber blade, 3 jewelers' blades, four-speed cone pulley on shaft, puzzle-blade jaw for upper chuck and light attachment. **Without motor, motor pulley or belt**.. **$27.95**
Shipping Weight 117 lbs. Code Word LUXSA.

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

No. 718 Four-step motor pulley; provides speeds of 850, 1800, 1300 and 1750 R.P.M. ½" bore..... **$ .75**
Shipping Weight 18 oz. Code Word CONPA.

No. 1206 De-Luxe Scroll Saw Unit, consisting of No. 1200 Scroll Saw, No. 340 V-belt, No. 718 cone pulley, No. 716 steel stand and No. 1205 hook bolts. Without motor or switch rod..... **$37.75**
Shipping Weight 170 lbs. Code Word LUXUN.

Note: For this machine use motor No. 880 or 1180, or No. 920 for three-phase installation. See page 35 for prices.

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

Powerful and convenient hand knob locks the tilting table to the trunnion seats.

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

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

Marking an engraving—cutting through both wood and metal at the same time.

Designed for Fast, Accurate Work

Patented Universal Chuck Holds All Blades

Saber blades are held in the V-jaws of the lower chuck.

The chucks on the De-Luxe scroll saw are the result of unmatched experience with the manufacture of thousands of scroll saws, and represent the perfect chuck for an all-around machine.

They hold all types of blades: Jewelers', puzzle or saber. They hold files and all attachments with ¼" shank firm and straight—no separate chucks needed. They are faced sidewise in a moment, needing no wrenches to operate: the upper one comes provided with a self-centering jaw for very fine blades—they have so many superior features that you have to operate them to appreciate them.

Made of steel, they cannot be broken, and yet are so light that they eliminate most of the cause of fine-blade breakage—the inertia of the moving parts.

Jewelers' blades are held between the flat jaws of the chuck.

Built-In Quality and Convenience

Every detail that can add to the practical convenience of the user has been incorporated in this saw. For example, the bracket carrying the table can be swung through 90 deg. in either direction, to permit the cutting of long work with the table tilted. This cannot be done on the ordinary saw. And two positions are furnished for the guide; one for cutting from the front and one for sidewise cutting—either available without re-adjusting of the guide. Check the illustrations for other unusual features of this remarkable saw.

Sanding attachment is held in V-jaws without any change.

For Every Type of Scroll-Saw Work

While this machine is the favorite of those who do the finest marquetry and puzzle work, because of its accuracy and remarkable blade life, it must not be understood that it is intended for the finest work only. On the contrary, it is so rugged and sturdy that it is in use in many industries for very heavy work. Engravers and printers use it for mortising engravings, cutting both metal and wood at the same time. Display studios use it for lettering in wood up to 2" thick. Jewelers use it for fine metal work; die shops use it for thin metal templates; service stations use it for cutting brake-block lining—the uses to which this versatile machine is put cannot be listed completely.

The husky counterbalanced crankshaft with accurately ground crankpin.

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

Cutting a large panel with the table turned sidewise and tilted to provide a beveled edge on the stock.

Left, cutting brake-block lining on a saw fitted with rip fence. Right, cutting lettering in heavy wood is child's play on this husky, accurate machine.

Upper guide is instantly removed, leaving plenty of room above work for insertion of blade through holes.

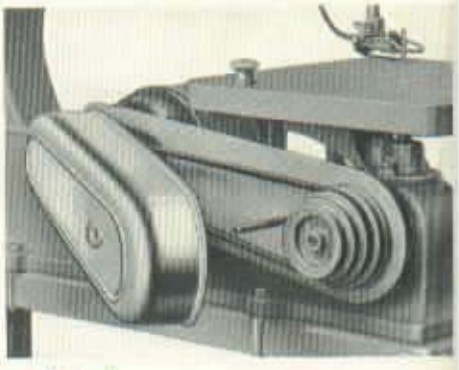
NEW Belt Guard for Scroll Saw

Covering completely both pulleys and belt on the No. 1200 scroll saw, the new aluminum No. 1203 Belt Guard fills a long-felt need for the school and industrial shop. It covers the back of the pulleys as well as the front and thus complies with all the regulations of Industrial Commissions and Safety Codes.

Back plate is fastened to the motor by means of threaded sleeves, supplied in two lengths to suit No. 800, 900 or 1100 motors. The front end is fastened to the crankshaft housing in a similar manner.

The guard is hinged to the back plate and swings open to permit quick belt changing, a knurled knob being removed and the guard swung open to change speeds.

Fits No. 1200 Scroll Saw only.



No. 1203 Scroll-Saw Belt Guard, complete with back plate and hinged front section, with threaded sleeves **$6.85**
Shipping Weight 7 lbs. Code Word LEXBG.

[Please Order by Catalog Number to Avoid Mistakes and Delay]

No. 700—An Efficient 24" Scroll Saw

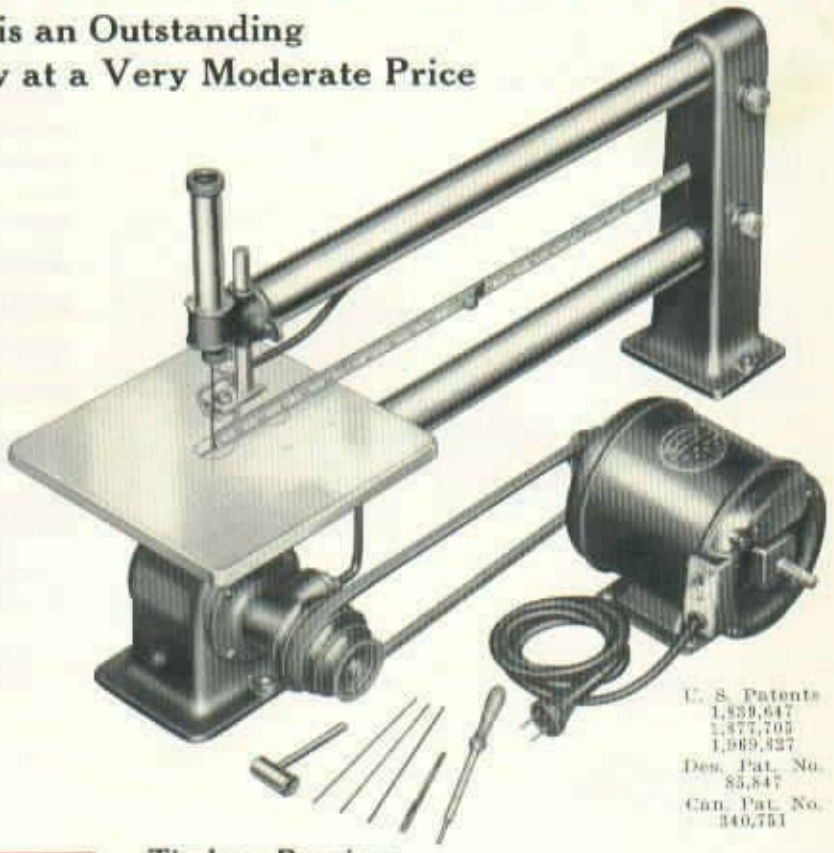
Many Patented Features Make This an Outstanding Saw at a Very Moderate Price

Until the introduction of the No. 700 Scroll Saw there was no such thing as a practical scroll saw at a moderate price. All scroll saws were slow, of limited capacity, and all suffered from excessive vibration. This revolutionary machine changed all that, and, while it has been widely copied, it has never been improved upon until we produced the "De Luxe" Scroll Saw shown on page 25.

Like the De Luxe scroll saw, the No. 700 offers many practical features not found in any other make of scroll saw. These features include: Four speeds without moving the motor: 650, 1000, 1300 and 1750 R.P.M. Patented design is very rigid while comparatively light in weight, and permits extension of the frame for very large work. The Universal blade guide and hold-down supports the blades right at the cutting point, and the hardened steel disk has grooves to suit practically all blades—not merely a few sizes. Cuts up to 2" thick with saber blade.

Holds Any Type of Blade

The Universal chuck (patented) holds any type of blade, or files and tools with ¼" shank. No other type of chuck is so simple and positive. The heavy, smooth steel table has a removable aluminum blade insert, and tilts to 45 degrees, either side, on heavy steel trunnions. The capacity of the machine is 24 inches from the blade to the rear column, so it will cut to the center of a 48-inch panel.



U. S. Patents
1,839,647
2,377,705
1,989,827
Des. Pat. No. 85,847
Can. Pat. No. 340,751

No. 700 24" Scroll Saw, with 1 satre blade, 3 jeweler's blades, No. 720 four-speed cone pulley on shaft, socket wrench and chuck wrench. Without motor, belt or motor pulley **$19.95**
Shipping Weight 60 lbs. Code Word LASAW.

No. 284 V-Belt, 8" center to center ..... **.75**
Shipping Weight 8 oz. Code Word BELTA.

No. 718 Four speed motor pulley, ½" bore, gives speeds of 650; 1,000; 1,300 and 1,750 R.P.M. without moving motor ..... **.75**
Shipping Weight 18 oz. Code Word CONPA.

No. 714 Scroll-Saw Unit

Consists of:

No. 700	24" Scroll Saw	$19.95
No. 716	Steel Stand (7" wide, 35" long, 31½" high)	7.85
No. 510	V-Belt	1.00
No. 718	4-Speed Motor Pulley, ½" bore	.75
		$29.55

Price complete, but without motor or switch rod... Motors and switch rods page 35.
Shipping Weight 116 lbs. Code Word LASUN.
Use No. 806 or 1100 motor and No. 855 switch rod.

No. 710 Wire Blade Guard for No. 780 Scroll Saw... $ **.10**
Shipping Weight 2 oz. Code Word LAGUA.

Timken Bearings

The extra-heavy precision-ground crankshaft (similar in design to that used in the De-Luxe saw) runs on Timken bearings. The crank-shaft is large and accurately balanced, and the drive may be fitted to either side of the crankcase if necessary to meet the conditions of an existing drive.

There is a built-in sawdust blower of neat and foolproof design, readily accessible for cleaning if necessary, and guaranteed not to pump oil onto the work. And—an important point, the pump is not made a part of the upper plunger, as this adds weight and pressure to the mechanism. Keeping the mechanism in the head light but strong means long life for very fine blades, and the minimum of blade breakage.

Mounted on a steel stand as shown at the right, this scroll saw makes a compact, portable unit that can be used anywhere.

Lower Guide for Saber Blades

This attachment consists of two individual guides to fit No. 703 and 704 saber blades, carried on an adjustable post that fits in the crankcase, immediately behind the lower plunger. It supports the blade directly under the table, and, in conjunction with the upper guide, enables perfect straight-line work to be done, as there is no opportunity for the blade to spring.

No. 1204 Lower Guide for No. 1200 Scroll Saw only, with guide post, nut & thumbscrew $ **.85**
Shipping Weight 10 oz. Code Word LUXLE.

Self-Centering Lower Chuck for Fine Blades

Designed to fit both No. 700 and No. 1200 scroll saws, this chuck will be found a boon to craftsmen who specialize in fine puzzle and marquetry work. Fine blades are guided to the center of the chuck automatically and locked securely with the thumbscrew, thus saving much time, especially on interior cuts. Used in connection with the self-centering jaw in the upper chuck of the No. 1200 scroll saw it will be found especially handy and efficient.

No. 715 Self-Centering Lower Chuck for No. 700 and No. 1200 scroll saws ..... $ **.75**
Shipping Weight 5 oz. Code Word LACHU.

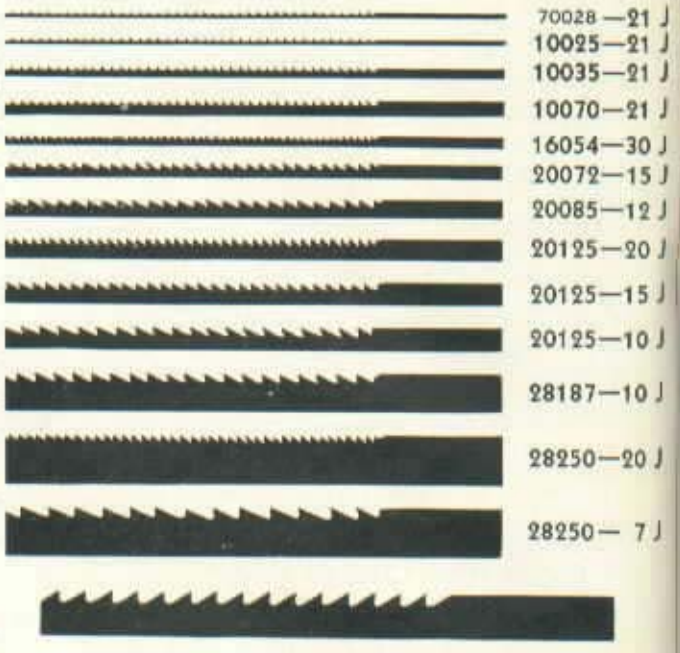
Accessories For The Scroll-Saw

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

Where close following of a line or pattern is important, these new and practical guides will prove worth their cost many times over. They supplement the regular guide and holddown, and aid in producing perfect work. They are ideal for jig-saw puzzle work. The set consists of six hardened steel guides and a blower-nozzle bracket to replace the one supplied with the scroll saw.

No. 712 set, shown at left, fits No. 700 scroll saw. No. 1202 set, at right, fits No. 1200 saw.

No. 712 Set of 6 individual guides for No. 700 scroll saw, with bracket for air-pump nozzle **$1.35**
Shipping Weight 15 oz. Code Word SAGID.

No. 1202 Set of 6 individual guides for No. 1200 scroll saw, with bracket and bolt **$1.55**
Shipping Weight 16 oz. Code Word LUXGA.

Machine Files for Scroll Saws

No. 726 (Square). ¼" Shank. Code FILEA. Each ..... .55
No. 727 (Crochet). ¼" Shank. Code FILEB. Each ..... .55
No. 728 (½-Rd.). ¼" Shank. Code FILEC. Each ..... .55
No. 729 (Round). ¼" Shank. Code FILED. Each ..... .55
No. 730 (3-Sq.). ¼" Shank. Code FILEE. Each ..... .55
No. 731 (Pillar). ¼" Shank. Code FILEF. Each ..... .55
Approximate Shipping Weight 4 oz.

No. 740 Set of 6 Assorted Files, ¼" Shank **$3.00**
Shipping Weight 8 oz. Code Word FILEX.

No. 751 (⅛" Sq.). Code SAFIL. Ea. .45
No. 752 (Crochet). Code SAFIM. Ea. .45
No. 753 (⅛ Round). Code SAFIN. Ea. .45
No. 754 (Round). Code SAFIO. Ea. .45
No. 755 (3-Square). Code SAFIP. Ea. .45
No. 756 (Pillar). Code SAFIR. Ea. .45
No. 757 (Lozenge). Code SAFIS. Ea. .45
No. 758 (Knife). Code SAFIT. Ea. .45
Approximate Shipping Weight 3 oz.

No. 760 Set of 8 Assorted ⅛" Shank Files **$3.25**
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. ¾" wide, ⅛" thick and 2⅛" long on body. Shank ¼" diameter, fits lower chuck on both No. 700 and 1200 scroll saws.

No. 711 Sanding Attachments Fits 24" Scroll Saw with 1 Sleeve **$1.35**
Shipping Weight 8 oz.
Code Word SAMAT.

No. 841 Extra Garnet paper sleeves (medium). Code word SABLK. ⅓ doz. ..... .60
Shipping Weight 6 oz. approx.

No. 842 Extra Garnet Paper Sleeves (Fine). Code word SASLM. ⅓ doz. ..... .60
Shipping Weight 5 oz. approx.

[Please Order by Catalog Number to Avoid Mistakes and Delay]

No. 930 11-in. Double-Duty Speed Lathe

Strong, Rigid Bed: Timken Bearings: Index Mechanism: 4 Speeds

Quick-Acting, Set-Over Tailstock

Speeds 900; 1,400; 2,200; 3,400 R.P.M.

Left, trimming a metal form spun on the No. 930 lathe. Right, no wrench is required to move the tailstock; a handy ball-end lever locks and unlocks it.

56½" Long; 12" High; 6¾" Wide; Swings 37" Between Centers

Offers Convenience, Dependability and Value

The No. 930 11-Inch Lathe is a big lathe—not a toy. It will swing pieces 11" in diameter over the bed, and work 37" long can be turned between centers. The distance between centers can be increased at any time merely by adding another standard bed to the end. Work of practically unlimited diameter can be turned on the left-hand end of the headstock, using the No. 697 floor stand (see page 32) to hold the tool support.

Built like a modern steel bridge, the bed of the No. 930 lathe is formed from very heavy steel, with crosspieces of the same material welded in every 6 inches, thus producing a bed that is very rigid and free from spring.

The indexing mechanism on the headstock—originated by us—permits the accurate division of work held between centers or on the faceplate. It is invaluable for fluting, reeding, etc., as well as for layout work.

Study the cross-section of the headstock shown above. Note the spindle, a full 1¾" diameter at the center and carried on heavy-duty Timken tapered-roller bearings—ideal for metal spinning due to their capacity for heavy end thrusts. The spindle has a ⅝" hole through the center, which is essential for repetition work, especially in metal.

The tailstock can be set over to align centers or for special jobs in taper turning. One movement of the tailstock lock lever loosens or tightens the tailstock to the bed. No. 2 Morse taper centers in both headstock and tailstock.

Centers are quickly changed due to the No. 2 Morse taper in head and tailstocks.

Underside of No. 930 Lathe bed. Crosspieces welded in every 6" make it tremendously strong.

No. 930 "Double-Duty" 11-inch Four-Speed Lathe, including 3" faceplate, special Allen wrench, faceplate wrench, taper shank spur center, taper shank cup center, tool support and tool-support base **$28.85**
Shipping Weight 82 lbs. Code Word DUBLA.

No. 932 Four-Speed Pulley for motor (⅝" bore)..... **$1.25**
Shipping Weight 2 lbs. Code Word DUBLC
Note: This pulley can also be furnished in ½" and ¾" bore.

No. 588 V-Belt, 25½" center to center..... **$1.10**
Shipping Weight 5 oz. Code Word FORVC.
(No. 900 motor recommended for this lathe: See page 35).

Note double row of index holes in photo at left. At right is shown the graduated tailstock sleeve, with the adjustable pointer.

[Please Order by Catalog Number to Avoid Mistakes and Delay]

Versatile Double-Duty Lathe Units

No. 950 Four-Speed Lathe Unit

The Double-Duty Lathe Unit is an ideal tool for all serious craftsmen. It is compact, portable, convenient and efficient, and is especially adaptable for industrial training classes, where its moderate price enables the installation of enough machines to accommodate the largest classes, at a fraction of the cost of a few larger machines. Speeds 900; 1,400; 2,200 and 3,400 R.P.M.

For general woodworking shops of all kinds no better machine has ever been offered. The unit consists of the No. 930 Double-Duty Lathe, mounted on No. 947 Lathe Stand. Legs are of heavy cast iron, with ledge for shelf under top. Bench top and motor shelf of clear fir, oiled and varnished. For this unit the No. 900 ½ H. P. Repulsion - Induction motor is recommended.

No. 950

No. 950 Lathe Unit Includes:

No. 930	Double Duty 11-in. Speed Lathe	$28.85
No. 947	Lathe Stand with Legs and Bolts	19.85
No. 588	V-Belt	1.10
No. 932	Four-speed Motor Pulley (⅞ Bore)	1.25
	Total	$51.05

Ship. Weight 190 lbs. Code Word DUBUN.

No. 945 Lathe Legs only, (no Bolts) per pair..... **$13.25**

Ship. Weight 65 lbs. Code Word DULEG.

No. 947 Lathe Stand complete with Legs, Top, Shelf and full set of bolts, ready for assembly **$19.85**

Ship. Weight 110 lbs. Code Word DUSTA.

No. 854 switch rod used with this unit. See page 35 for prices of rods and motors.

No. 952

No. 952 Eight-Speed Lathe Unit

No. 952 Lathe Unit represents the most versatile unit ever offered at such a low price. Fitted with a countershaft and driven by No. 900 motor, eight speeds are available: 300, 450, 700, 900, 1,100, 1,400, 2,200 and 3,400 R.P.M. This means that the lathe is suitable for a wide range of work besides woodworking.

The slower speeds can be used not only for very heavy faceplate work, as in patternmaking, but, when the No. 965 slide rest is added, the lathe turns into a practical machine for light work in metal. Practically everything in the way of lathe work with the exception of screw cutting can be done on a lathe of this type.

It will be found to perform as well as a standard toolroom speed lathe due to its exceptionally rigid bed and accurate construction. Has setover tailstock for accurate alignment of centers.

No. 952 Lathe Unit Includes:

No. 930	Double-Duty 11" Lathe	$28.85
No. 947	Lathe Stand, complete	19.85
No. 588	V-Belt	1.10
No. 932	Four-Speed motor pulley, ⅞" bore	1.25

No. 928 Countershaft Unit, Including:

Two No. 379 Hangers; One 5806 V-pulley, ⅝" bore; One 5000 V-pulley, ½" bore; One 5500 V-pulley, ⅝" bore; One 5275 V-pulley, ½" bore; Two 374 collars; No. 378 countershaft and One 355 V-belt. With bolts.....	$10.10
Total price of 952 Unit...	$61.15

Shipping weight No. 928 countershaft only, 20 lbs. Code Word DUBCO.
Shipping weight, No. 952 Unit complete, 215 lbs. Code Word DUBUS.
For prices of stand and legs only, see No. 950 above. Use No. 900 motor and No. 854 switch rod. See page 35 for prices.

Sturdy Universal Chuck Fits Every Need of Small Lathe

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 of four Lathe Feet.... **$1.75**

Ship. Wt. 9 lbs. Code Wd. DUFFE.

No. 618 V-belt **$1.25**

Ship. Wt. 10 oz. Code Wd. BELTL.

Universal chucks, in which the jaws move in and out simultaneously through the use of one key, and which are self-centering have heretofore been so high-priced as to be beyond the reach of most craftsmen. The No. 957 Universal Chuck is a very high-grade tool, with heavy cast-iron body and two sets of hardened-steel jaws, precision fitted and equal in every way to chucks costing much more.

No. 957 is fitted with back plate to fit No. 930 Lathe only. If wanted for other lathes, order Universal Chuck No. 963, without back plate, and separate back plate No. 964. This back plate must be machined to fit your lathe and to insure true running of the chuck. Chuck is 4" diameter. Maximum capacity 4".

No. 957 Three-Jaw Universal Chuck, with inside and outside hardened-steel jaws, wrench and back plate threaded to fit No. 930 lathe, but not turned on rim. **$12.45**

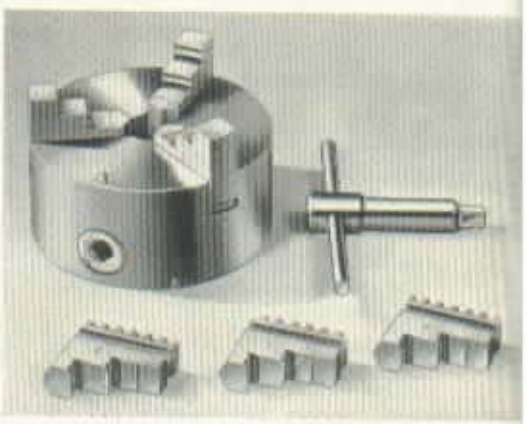
Shipping Weight 8 lbs. Code Word NECHU.

No. 963 Universal Chuck, as above, but without back plate.... **$10.95**

Shipping Weight 6 lbs. Code Word CHUNP.

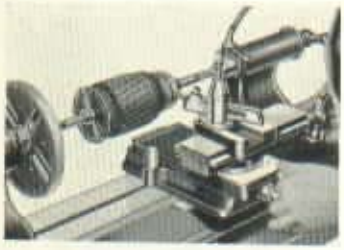
No. 964 Back Plate, not machined, for No. 963 Chuck..... **$ .60**

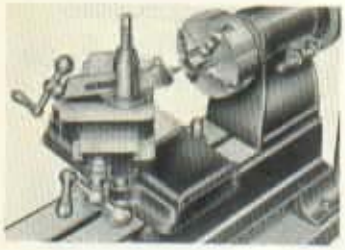
Shipping Weight 2 lbs. Code Word CHUPL.



[Please Order by Catalog Number to Avoid Mistakes and Delay]

Metal Turning on Your Own 11-in. Lathe

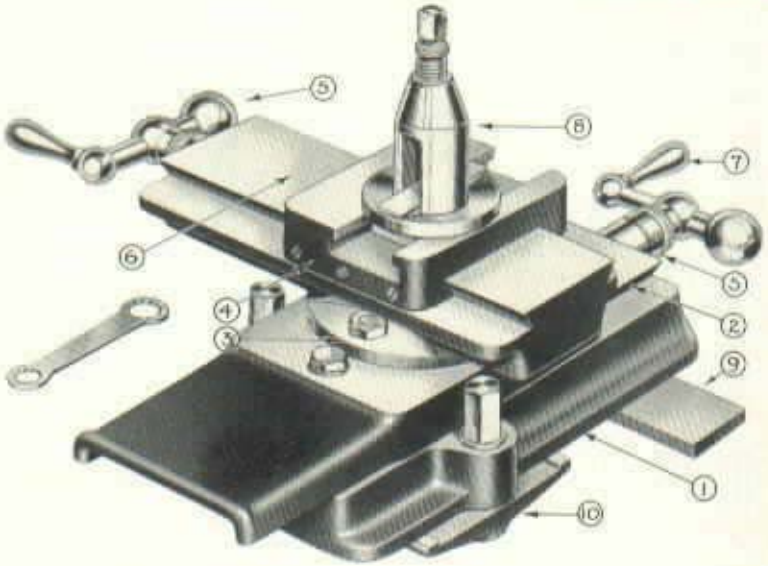




Here is a slide rest that will enable you to do dozens of metal-turning jobs right on your own 11" lathe, jobs that otherwise would require an expensive toolroom speed lathe. Metal parts for your projects, metal novelties, models of all kinds, household repairs—a thousand and one jobs of metal working can be done with this slide rest.

Dozens of industrial shops, too, are finding that this husky, accurate slide rest is just the tool for special work, and it is used for all kinds of jobs, from armature commutator truing to the finest work on precision motors for motion-picture cameras.

It should be used only with the No. 952 lathe unit, or any lathe similarly equipped to provide speeds down to 275 r.p.m. Ordinary wood-turning lathe speeds are too high for metal work. Specifications are given below:



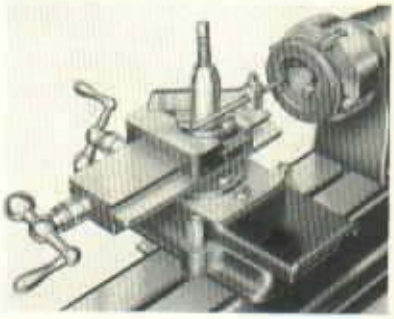
1. Very heavy, rigid and accurate cast-iron base.
2. Accurately machined dovetail ways for transverse slide, fitted with adjustable gib and with long chip guard at rear. Accurately milled Acme screw. Transverse feed 4½".
3. Compound-slide base revolves through 360 degrees and is accurately graduated. Fastened to cross slide by two screws, swivel cannot possibly spring.
4. Compound slide fitted on dovetail ways with adjustable gib. Front slide has extra wide surface to take tool pressure. Longitudinal feed 5".
5. Micrometer sleeves, accurately graduated, on both feed screws. Each graduation equals .001". Sleeves are friction fit for quick setting.
6. Large ball-crank handles for operating feed screws.
7. Longitudinal feed screw completely covered to guard from dirt and chips. Convenient flat top surface.
8. American-style toolpost; most convenient for all-around use. Hardened steel screw with knurled collar for quick adjustment. Opening in toolholder ⅛"x⅝".
9. Alignment bar on front of slide rest can be set to make rest positively and permanently parallel to lathe centers.
10. Heavy clamp, with two screws, to fasten rest to lathe bed. No chance to spring either lathe or rest.

No. 965 Compound Slide Rest, with tool post, rocker washer and wrench, but without tool holder or tools **$17.85**
Shipping Weight 23 lbs. Code Word DURST.

Toolholders, Boring Bars and Bits for Slide Rest

The Boring Bar Holder is a combination tool that will be found a marvel of convenience, neat in appearance and compact in design. It holds boring bars rigidly and safe from slipping. Holes for bars are square and V-notched, to take both round bars and standard ¼" tool bits. The two positions in which bars and bits can be placed enable the holder to be used on jobs for which the ordinary toolholder is awkward. Made of steel, case hardened in colors, with hardened-steel screw.

The Straight Toolholder will be found ideal for the man who uses his lathe for hobby work only.



No. 962 Boring Bar Holder, with set of three bars: ⅛", ⅜" and ¼" **$2.60**
Shipping Weight 12 oz. Code Word DUBBO.

No. T-100-A	Boring Bar Holder only	1.75
No. T-110	⅛" Boring Bar	.25
No. T-111	⅜" Boring Bar	.30
No. T-112	¼" Boring Bar	.45
No. 966	Set of three boring bars: one each T-110, T-111 and T-112	$1.00

Shipping Weight 8 oz. Code Word DUBOR.

No. 953 Straight Toolholder and set of four ground tool bits **$1.65**
Shipping Weight 1 lb. Code Word DURTH.

No. T-120-S	Straight Toolholder only	.75
No. T-122	Roughing Tool Bit	.25
No. T-123	Finishing Tool Bit	.25
No. T-124	Right-Corner Tool Bit	.25
No. T-125	Left-Corner Tool Bit	.25
No. 954	Set of four tool bits: One each, T-122, T-123, T-124 and T-125	$1.00

Shipping Weight 4 oz. Code Word DURIT.

No. 955—9" 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 is screw-feed, with ball crank and quill lock. Bed and tool rest are similar to No. 930 lathe. Speeds: 500, 1400, 2200 and 3400 r.p.m. Swings work 9" diameter over bed and 32" 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 2 lbs. Code Word BUBLE.

No. 568 V-belt, 24⅛" center to center **1.00**
Shipping Weight 10 oz. Code Word FORVB.

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 30 ..... **$41.95**
Shipping Weight 185 lbs. Code Word NEWUN.

Use No. 500 or 900 motor, and No. 814 switch rod when lathe stand is used.

See page 33 for accessories.

[Please Order by Catalog Number to Avoid Mistakes and Delay]

Accessories For The 11-inch Lath

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) **$2.50**

Shipping Weight 2½ lbs. Code Word SATAP.

See page 4 for sleeves.

No. 164 1¼" 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) **$1.85**

See page 4 for sleeves. Shipping Weight 1½ lbs. Code Word SATAQ.

No. 165 Grinding wheel arbor with No. 2 Morse taper shank. Holds all grinding wheels up to ½" thickness with ½" hole as well as buffing wheels, wire brushes, etc. See page 33. A very high grade arbor **$1.10**

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 ½" **$3.25**

Shipping Weight 2½ lbs. Code Word CHIAP.

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 TOOLA.

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 ..... **$ .90**

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..... **$ .80**

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.... **$ .95**

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... **$2.10**

Shipping Weight 2 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 **$1.85**

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 33, 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. 3½" high..... **$1.0**

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 2½ 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..... **$ .90**

Shipping Weight 12 oz. Code Word DUBLO.

No. 940 Screw center, with No. 2 Morse taper shank for 11-inch Lathe only. Has replaceable center screw, No. 14, 1½" long..... **$1.00**

Shipping Weight 14 oz. Code Word DUBLJ.

No. 943 4-jaw Independent Chuck. Very heavy and sturdy cast-iron body with hardened-steel jaws. A very high-grade chuck at a reasonable cost. Chuck diameter 4". Maximum capacity 4½". Each jaw independently adjustable to hold work of almost any shape. With back plate to fit No. 930 lathe spindle..... **$6.75**

Shipping Weight 6 lbs. Code Word DUCHR.
Without Back Plate **$4.75**

No. 948 Steady rest for 11-inch Lathe. Prevents spring and vibration of long and slender work. Indispensable for slender turnings. Takes work up to 2¾" diameter. Heavy, well-designed cast-iron body, wide steel shoes.... **$3.25**

Shipping Weight 7 lbs. Code Word DUBRE.

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. 696, 692 and 695 tool supports. Invaluable for large-diameter faceplate work. Knocked down.. **$7.50**

Shipping Weight 44 lbs. Code Word TOOLA.
(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. **$6.75**

Ship. Wt. 2½ lbs. Code Word CHUKA.

[Please Order by Catalog Number to Avoid Mistakes and Delay]

Turning Tools and 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 ⅝" 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" Gauge. Code word GOUGO **1.00**

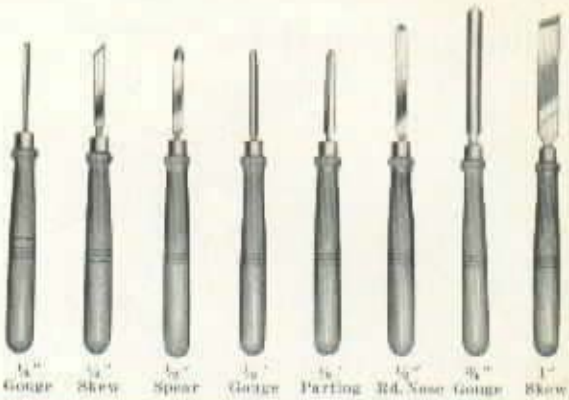
No. 127 ⅜" Spear Point. Code word SPEAR ..... **.80**

No. 128 ¾" 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 SCREW.

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 ..... $ **.75**

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 **$1.45**

Shipping Weight 1½ lbs. Code Word CHUKO.

No. 192 Special extension Allen wrench for ⅛" 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.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 **$1.00**

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.... **$2.05**

Shipping Weight 7 lbs. Code Word TOSUL.

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 ..... $ **.70**

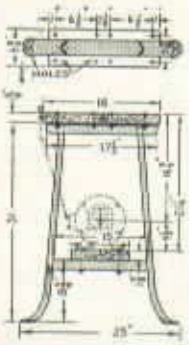
Shipping Weight 1¾ lbs. Code Word TOSUP.

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..... **$3.25**

Shipping Weight 6 lbs. Code Word NEWRS.

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 5 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 **$3.00**

Shipping Weight 21½ lbs.
Code Word LEGSO.

No. 143

3" diameter faceplate. 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 ..... $ **.70**

Shipping Weight 14 oz.
Code Word FACEO.

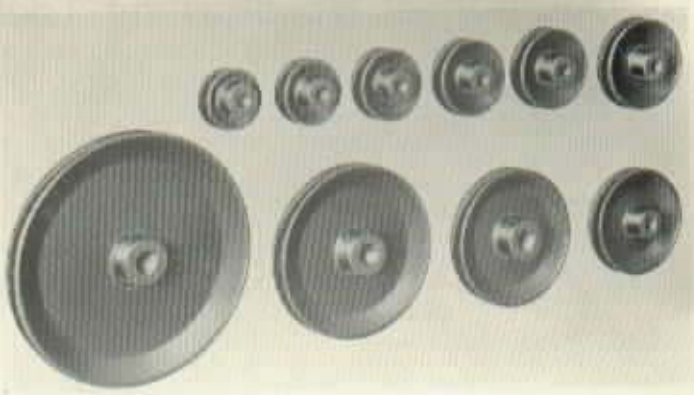
[Please Order by Catalog Number to Avoid Mistakes and Delay]

Pulleys and Line Shaft Equipment

Pulleys for V-Belts

Our V-Pulleys are designed for belts measuring ½" wide, ⅜" 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 ⅞" keyway. All have ⅜" hollow-head set-screw. These are not ordinary stamped pulleys. They run true and are balanced perfectly. ⅝" bore furnished unless otherwise specified.

Cat. No.	Outside Diam.	Code Word	Price Each
5200	2"	PULOA	.35
5225	2½"	PULOB	.40
5250	2½"	PULOC	.45
5275	2¾"	PULOD	.45
5300	3"	PULOE	.50
5350	3½"	PULOF	.55
5400	4"	PULOG	.55
5500	5"	PULOH	.75
5600	6"	PULOJ	.90
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 ⅝" 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

Useful for a wide variety of power drives. Numbers 718 and 720 can be used in any combination with each other. Two No. 718 pulleys used together provide speeds of 900, 1500, 2250 and 3450 R.P.M. Two No. 720 pulleys used together provide 1200, 1545, 1980 and 2575 R.P.M. A No. 718 and a No. 720 pulley used together provide the following ranges: 650, 1000, 1500, 1750 R.P.M. or 1750, 2400, 3400, 5000 R.P.M., depending upon which pulley is used as the driver.

No. 932 cone pulley should be used only paired with another 932, and will provide speeds of 900, 1400, 2200 and 3400 R.P.M. All speeds figured for 1750 R.P.M. motor.

Two No. 985 pulleys, paired, furnish 590, 1275, 2450 and 5000 R.P.M.

All cone pulleys supplied in ½", ⅝" and ¾" bores. ½" furnished unless otherwise specified.

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 2⅛ lbs. Code Word DUBLC.

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

V-Belts

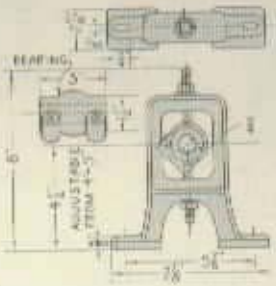
The finest and most satisfactory V-Belts obtainable. Moulded into one endless piece—no lacings or joints to hammer pulleys. Easily and quickly slipped on pulleys. Ideal for short-center drives. Transmit an unusually large amount of power, and are capable of very high speeds. Run with very little tension.

Cat. No.	Inside Circumference	Width	Thickness	Angle	Code Word	Price Each
284	29¾"	½"	⅜"	38°	BELTA	.75
340	35"	½"	⅜"	38°	BELUX	.80
355	37"	½"	⅜"	38°	FORVB	.80
387	38⅝"	½"	⅜"	38°	FORDP	.85
410	41"	½"	⅜"	38°	BELTB	.85
430	42½"	½"	⅜"	38°	FORSL	.90
453	45⅝"	½"	⅜"	38°	MORBL	.90
510	51⅜"	½"	⅜"	38°	JOIVB	1.00
520	52⅝"	½"	⅜"	38°	BELTC	1.00
560	57½"	½"	⅜"	38°	RICVB	1.00
568	58⅝"	½"	⅜"	38°	FORVD	1.00
583	59⅜"	½"	⅜"	38°	FORBL	1.10
588	60½"	½"	⅜"	38°	FORVC	1.10
595	60⅜"	½"	⅜"	38°	RABEL	1.25
648	63¼"	½"	⅜"	38°	BELTL	1.25
670	67⅝"	½"	⅜"	38°	BELTC	1.30
*673	73½"	⅜"	⅜"	38°	PREBL	1.00
750	74¼"	½"	⅜"	38°	JOBAS	1.85

*This belt only ⅜" wide.

Self-Aligning Hangers for ¾" Shafting

This sturdy, practical Line Shaft Hanger is one of the finest ever produced. It 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 supply of lubricant sufficient for many weeks of operation. Made for ¾" shafting only.



No. 370 Line-Shaft Hanger, as shown on left..... **$2.25**

Shipping Wt. 8 lbs. Code Word LIBAN.

Flexible Couplings

Flexible couplings are necessary where motors are connected directly to the end of line shafts or to the shafts of machines, without the use of pulleys and belts. One side is bored ¾" to suit line shaft. The other side may be bored ½", ⅝" or ¾".

Be sure to specify size wanted.

No. 379 Flexible Coupling, as shown, each **$1.00**

Shipping Weight 1¼ 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 **$0.30**

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 1750 R.P.M.

Mot. Pulley Size, In.	Pulley on Machine: Size, In.												
	2	2½	2¾	2⅞	3	3½	4	5	6	7	8	10	12
2	1725	1498	1325	1187	1075	865	781	614	505	425	371	295	245
2½	1828	1725	1525	1360	1235	1040	897	684	577	490	426	327	282
2¾	2129	1875	1725	1542	1402	1180	1019	794	655	558	483	372	319
2⅞	2330	2129	1889	1725	1562	1317	1148	887	732	623	542	416	356
3	2550	2200	2040	1800	1725	1452	1252	980	807	682	596	458	392
3½	2900	2550	2388	2185	1985	1725	1489	1162	958	815	708	543	466
4	3300	3000	2926	2605	2368	2000	1725	1345	1109	940	820	650	546
5	4875	4290	3758	3350	3046	2580	2205	1725	1427	1210	1050	835	695
6	5900	5140	4550	4060	3700	3100	2680	2095	1725	1480	1250	1010	840
7	6950	6050	5340	4775	4350	3650	3160	2480	2025	1725	1500	1180	980
8	8000	6950	6150	5490	5000	4200	3600	2825	2320	1985	1725	1350	1135
10	10000	8750	7750	6920	6300	5300	4575	3580	2940	2500	2180	1725	1438
12	12000	10500	9350	8350	7580	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 ⅜" x ½" 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.

[Please Order by Catalog Number to Avoid Mistakes and Delay]

Rugged Ball-Bearing 1/3-H. P. Motors

No. 800 1/3-H.P. Double-Duty Ball-Bearing Motor

The No. 800 Split-Phase ⅓ H.P. Ball-Bearing Motor is a revelation in motor performance at low cost. It is built for us to our own design and rigid specifications, and represents exceptionally high value at low cost.

It has an unusually high overload capacity, because no attempt has been made to cut down material or workmanship in order to produce a "cheap" motor, at a sacrifice in capacity or efficiency.

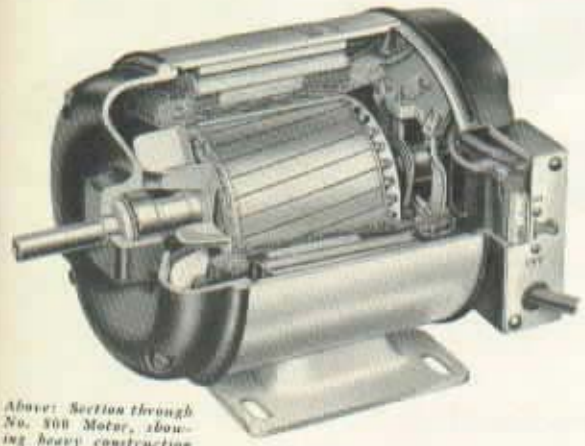
Although they are rated conservatively at ⅓ H.P., they will actually deliver close to ⅜ H.P. before stalling.

It is fitted with a fool-proof starting-winding switch capable of 1,000,000 starts and stops without failure. It is provided with self-sealed New Departure ball bearings, which need no attention for the life of the bearing. Due to the ball-bearing construction of this motor, it may be installed in any position, horizontal, vertical or upside down, without bearing trouble or any special installation such as is necessary for many bronze-bearing motors.

The casing is of heavy arc-welded construction with heavy steel feet which cannot be broken off like cast-iron feet.

It has a strong and neatly built-in switch which insures convenient starting and stopping, as, by means of the switch rods control is brought within reach of the operator's finger-tips.

Double shafts, full ½" diameter by 1½" long.

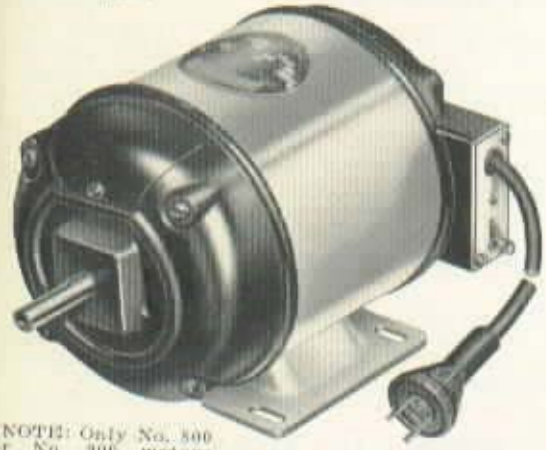


Above: Section through No. 800 Motor, showing heavy construction throughout.

No. 800 ⅓ H.P. Double-Duty Split Phase Ball-Bearing Motor, 110 volt, 60-cycle A. C., complete with 8-ft. cord, two 1¼" blocks and soft-rubber plug. Speed 1725 R.P.M. **$12.85**
Shipping Weight 31 lbs. Code Word BALMO.

Note: Split-phase motors cannot be used on both 110 and 220-volt circuits. They are built for one voltage only.

No. 900 1/3-H.P. Repulsion-Induction Motor



(NOTE: Only No. 800 or No. 900 motors should be ordered for use with Triple-Duty or Sio-Speed drill presses. Do not order No. 1160 for this duty.)

Repulsion-Induction motors, while their cost is a little higher than that of the split-phase type, have certain advantages in operation. They will start easily with very little current, even when connected to machines that are hard to start. They are capable of operating under a heavy overload and stand quite a lot of abuse.

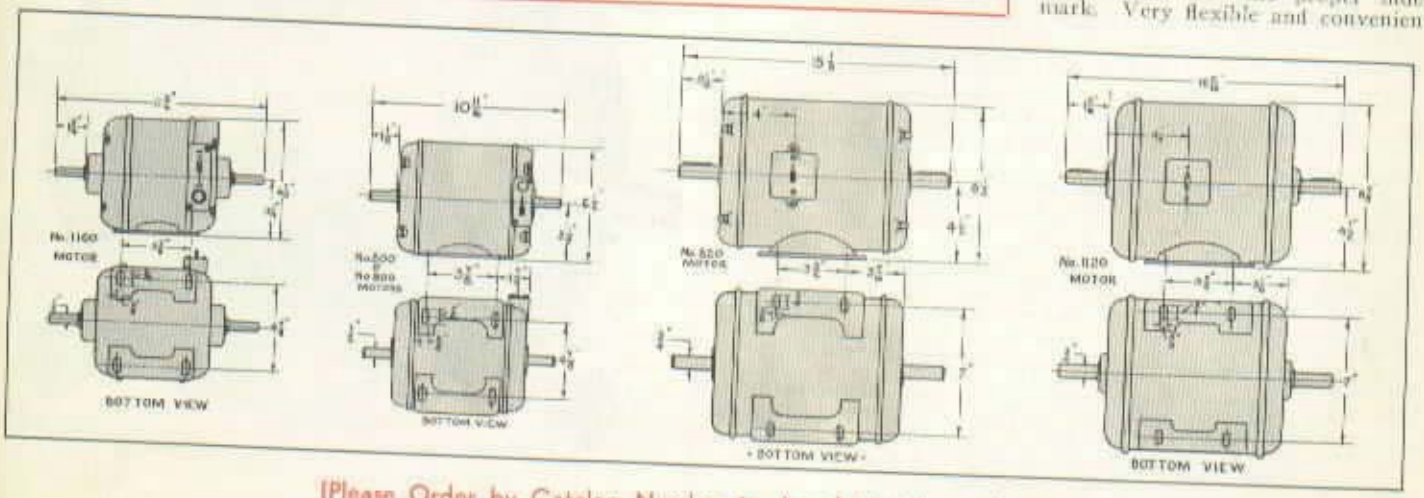
Since their efficiency is higher, they consume less current for a given output and they are consequently much more economical in the long run.

The No. 900 Repulsion-Induction Motor is built to the same rigid specifications as the No. 800. It has double shafts, self-sealed New Departure ball bearings, which require no attention during their entire life, the same high-grade built-in switch and 8-ft. cord with soft-rubber plug.

Base dimensions are the same as those of the No. 800 motor, and it is interchangeable with it on all Delta stands, machines and benches. It uses the same switch rods as specified for No. 800 motor.

It can be used on either 110-volt or 220-volt lines, changing from one voltage to the other being accomplished very simply. It is reversible in direction of rotation merely by loosening one screw and moving the brush carrier to the proper index mark. Very flexible and convenient.

No. 900 ⅓ H. P. Repulsion-Induction Motor, 1725 R.P.M., 110-220 volts, 60-cycle A. C., complete with 8-ft. cord, soft-rubber plug and two raising blocks..... **$18.95**
Shipping Weight 32 lbs. Code Word REMPO.



[Please Order by Catalog Number to Avoid Mistakes and Delay]

½-H. P. Reversible and ¼-H. P. Sleeve-Bearing Motors

½-H.P. Ball-Bearing, Reversible 3450 R.P.M. Capacitor Motors

No. 917

Reversing Switch

The reversing switch shown at the left is standard on the No. 915 and 916 motors. It can be used on any standard split-phase motor having both ends of the starting and main windings brought out, and on many D. C. and A. C. motors. It cannot be used on repulsion-induction motors of the type of our No. 820, 1120 or 900 motors, where the reversal is made by moving brushes.

These reversible motors have the same high standards as those that have made such a name for efficient performance in the past. They are specially intended for high-speed work, such as driving the shaper and other high-speed tools. Rated conservatively at ½ H.P., they will actually deliver much more power before stalling.

All are equipped with double shafts, and with ball bearings. Motor No. 915 is especially equipped for use with the No. 1180 Shaper, and comes completely wired with No. 1116 reversing switch. It is wired with a four-wire cord from motor to reversing switch, and with 8-ft. two-wire cord and plug to connect to lighting socket, ready to plug in.

No. 917 motor is exactly the same as No. 915, except that it has standard 8-ft. cord and plug only, and is fitted with toggle switch instead of reversing switch; it is used for machines where reversal of rotation is not required.

These motors have a very low in-rush current, and can be used on any house-lighting circuit, being equipped with a condenser to absorb the initial starting inrush. They are built in a 6" frame.

Note: Shaft diameter of No. 915, 916 and 917 Motors is ⅝".

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 **$23.25**
Shipping Weight 43 lbs. Code Word CAPMO.

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 110-v, 50-cycle A. C. **$23.25**
Shipping Weight 43 lbs. Code Word CAPFC.

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 **$20.35**
Shipping Weight 41 lbs. Code Word CAPLS.

No. 1116 Reversing switch only, for use on No. 917 motor, or with any standard split-phase motor. With four wire cord, connected ..... **$ 3.75**
Shipping Weight 2 lbs. Code Word SWREV.

No. 1100 ¼-H.P. Sleeve-Bearing Motors

Built to serve the needs of those who require an economical motor of less power than the No. 800 ball-bearing motor, the No. 1100 ¼-H.P. Sleeve-Bearing Double-Shaft Motor will be found an exceptional value.

It is made to exactly the same high-grade specifications as the No. 800 and 900 double-shaft motors, the only difference being that it is ¼-H.P. instead of ½-H.P., that it is fitted with plain bronze sleeve bearings instead of ball bearings and it has built-in switch, 8-ft. cord and plug.

Casing is of arc-welded construction with heavy steel feet. Bearings are of high-grade bronze, fitted with oilers, and motor is very powerful, well-balanced and quiet. This motor has double shafts ⅝" diameter by 1⅝" long.

No. 1100

No. 1100 ¼-H.P. Sleeve-Bearing Double-Shaft Motor, 110-volt, 60-cycle A. C., 1750 R.P.M., with cord and plug; switch and raising blocks... **$8.85**
Ship. Weight 27 lbs. Code Word SLEMO.

Note: We can furnish motors to suit any current, voltage or frequency. Specify exactly what type current, voltage and phase your circuit is and we will quote on your requirements.

Switch Rods

Designed for use on our motors, they bring control of machines to the finger tips. With rubber bushing in clamp or screweye, No. 851 is used with special loop for all Triple-Duty and Slo-Speed Drill Presses. All rods for No. 800 fit Nos. 900 and 1100.

No. 848 Switch Rod for No. 800 and No. 820 Motor in Units No. 90, and 652. With screw eye, also fits No. 800 motor in units No. 950 and 960..... **$0.45**
Code Word RODSA.

No. 849 Switch Rod for No. 820 Motor in Units No. 360, 868 and 747, with clamp ..... **.45**
Code Word RODSB.

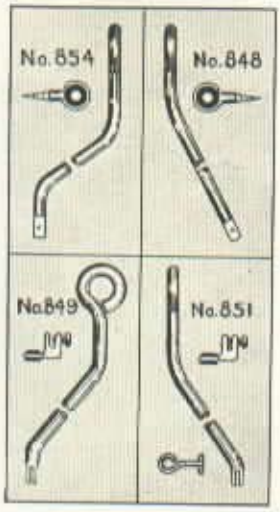
No. 851 Switch Rod for No. 800 and No. 820 in Units No. 296, 668, 747, 706, 365, 368, 878, 892, 1350 and 1164. With clamp and loop ..... **.45**
Code Word RODSD.

No. 854 Switch Rod for No. 820 Motor in Units 950 and 960, with Screweye..... **.45**
Code Word RODSG.

No. 855 Switch Rod for No. 800 and No. 900 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 No. 824 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.



No. 920 3-Phase Ball-Bearing Motors

Made to the same rugged design and specifications as the No. 800 and 900 motors, and interchangeable with them, the No. 920 3-phase ½-H. P. motors are particularly adaptable for production work. They should be specified when a large gang of machines is installed, (which should not be operated from the lighting circuit) and when so used will save from 30 to 40 per cent of the power consumed by split-phase motors, besides delivering more power.

These ½-H.P. 220-volt motors cannot be used on the lighting circuit, but must be installed by an electrician. **They cannot be furnished with built-in switches, cords or plugs.**

Particularly adapted for installation on Triple-Duty and Slo-Speed drills, as they are built in the same frame as No. 800 and No. 900 motors.

No. 920 ½-H.P. 3-Phase Ball-Bearing Double-Shaft Motor, 1725 R.P.M. For 220-volt, 60-cycle A. C. Without built-in switch, but with raising blocks **$18.85**
Shipping Weight 33 lbs.
Code Word PHAMO.
Write for bulletin M-10 on installation of 3-phase wiring and switches.

Half and Three-Quarter-H. P. Motors

½-H.P. Ball-Bearing Repulsion-Induction Motors

Powerful and rugged, this ½-H.P. motor will actually deliver almost 1¼ H.P. before stalling, and in addition to this, its design insures that it will perform at practically constant speed, regardless of load. It is of high efficiency, consuming very little starting current, conforms to all lighting company requirements, and operates from any light socket.

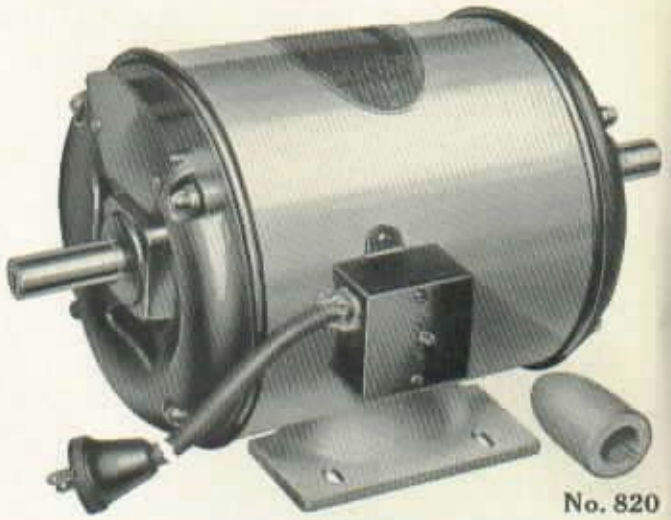
No. 820 and 1120 motors are built to run on either 110 or 220-volt current merely by changing connections, the change being simple and being graphically shown on the nameplate. Reversal of rotation is equally simple, being affected merely by moving the brush carrier ring to the correct index mark.

No. 820 motors are equipped with New Departure double-seal ball bearings, of the type shown in the photo at left, which insures freedom from trouble and absence of any attention for the life of the bearings. They have husky double shafts, ¼" diameter by 2¼" long, with ⅝" square keys. Equipped with protector which slips over unused shaft to protect the user against accidental injury.

Cut-away view showing double-seal ball bearings used in our motors.

These motors are made for heavy-duty service, being built into a frame 9" in diameter. They should not, of course, be compared with 6" frame high-speed motors built for a special service, like the No. 915 or No. 916 motors.

[Note: Nos. 800, 900 and 820, 1100 and 1120 motors can be furnished to suit any voltage and frequency. Write for special prices.] Send for Bulletin M-150 on selection and care of motors.



No. 820

No. 820 Ball-Bearing ½-H.P. Repulsion-Induction Motor, for 110-220-volt, A. C., 60-cycle 1725 R.P.M. with built-in switch, 8-ft. extra-heavy cord and soft-rubber plug **$29.85**
Shipping Weight 65 lbs. Code Word DOUMO.
Note. This motor is recommended for No. 365, 368 and 1350 Units.

No. 1120

Sleeve-Bearing ½-H.P. Repulsion-Induction Motors

This ½-H.P. Repulsion-Induction Motor is exactly the same high-grade motor as the No. 820 described above, except that it is equipped with high-grade plain sleeve bronze bearings instead of ball bearings. It is fitted with switch, 8-ft. heavy rubber-covered cord and plug, similar to that supplied on No. 820 motor.

Like the No. 820, it will operate on either 110 or 220 volts, 60 cycle alternating current merely by changing connections, and reversal of rotation is effected in the same manner as in the No. 820. Shafts are of the same size, and the same shaft protector is furnished for the unused shaft. **Should not be run in vertical position.**

No. 1120 Sleeve-Bearing ½ H.P. Repulsion-Induction Motor, for 110-220 volt, 60-cycle A. C. 1725 R.P.M. With switch, cord and plug. **$24.85**
Shipping Weight 65 lbs. Code Word MOREP.

¾-H.P. Ball-Bearing Single and Three-Phase Motors for Heavy Duty

The new ¾-H.P. Heavy-Duty Motors are offered in response to the demand from satisfied users for use in installations where more power is required than is furnished even by our ½-H.P. motors.

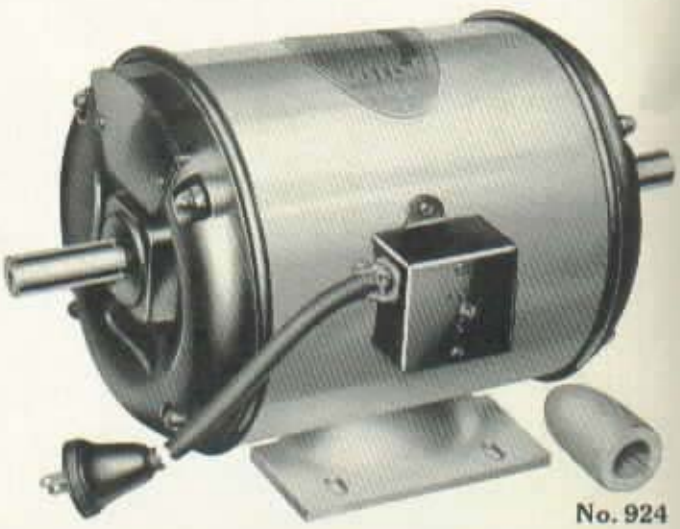
They are supplied in two types: No. 924, a ball-bearing, repulsion-induction single-phase motor, for either 110-v. or 220-v. 60-cycle alternating current, and No. 922, a ball-bearing, three-phase motor for 220-v. 60-cycle A. C. only.

The No. 924 motor is equipped with heavy-duty toggle switch, 8-ft. cord and plug, for connection to lighting circuit. Since the No. 922 motor is designed for installation on a power circuit it is not supplied with switch, cord or plug. It should be connected by a licensed electrician and equipped with a three-phase overload relay switch. (Send for Bulletin M-103).

Base dimensions, hole spacings and frame diameter are the same as on the No. 820, but the frame is 1¾" longer. Shafts are ¾" diameter, 2½" long, with ⅝" keys. Overall length 14".

No. 924 ¾-H.P. Ball-Bearing Repulsion-Induction Motor, 1725 R.P.M., for 110-220 volt 60-cycle A. C. With built-in switch, 8-ft. cord and soft-rubber plug **$35.85**
Shipping Weight 80 lbs. Code Word REPLM.

No. 922 ¾-H.P. Ball-Bearing Three-Phase Motor, 1725 R.P.M., for 220 volt, 60-cycle A. C. only. Without switch, cord or plug **37.50**
Shipping Weight 80 lbs. Code Word PHAMP.



No. 924

Efficient Belt-Drive and Motor Grinders

The Most Efficient Grinders Yet Developed for All-Around Work—in Every Shop

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. (Patent Pending.)

Armored 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.

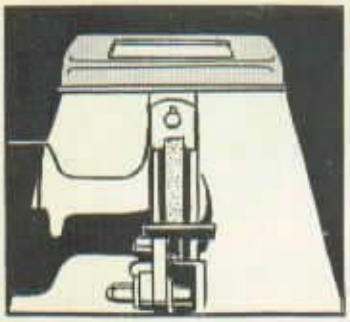
Substantial cast-iron water pot, 4¼" diam. by 4¼" long, mounted on swing bracket.

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.

Highest-grade 7" Alexite 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. 99,289.

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	Motor-Driven Bench Grinder, for 110v. A. C. 60 cycle current, complete with ⅝"x7" 60-J and 60-K Alexite wheels, two Lamp Attachments, Water Pot and Bracket, Tool Rests, Wheel Guards, Toggle Switch, Cord and Plug, without bulbs..... Shipping Weight 88 lbs. Code Word GRINA. (For 110v. 60-cyl. Single Phase A. C. only. 3450 R.P.M. unless 1750 is specified)	**$42.50**
No. 1245	7" Alexite wheel, balanced within 1/100 oz.-inch, 60 grit, Grade J, ⅝" Hole.... Shipping Weight 2 lbs. Code Word GRINJ.	**$1.85**
No. 1247	7" Alexite wheel, balanced within 1/100 oz.-inch, 60 grit, Grade K, ⅝" Hole.. Shipping Weight 2 lbs. Code Word GRINK.	**$1.85**
No. 1250	Lamp Attachment and Safety Shield (one only) with sockets, reflectors and armored cable, but without lamp bulbs.....each Shipping Weight 3 lbs. Code Word GRILP.	**$3.75**
No. 1280	Lamp Bulb for Safety Shield, each..... Shipping Weight 8 oz. Code Word GRILB.	**$ .40**

No. 1240 Ball-Bearing Single-Phase Grinder

From double-seat 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.

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?

[Please Order by Catalog Number to Avoid Mistakes and Delay]

Set New Standards of Efficiency

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 4 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-Lite 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 46K Aloxite wheels, ¾" face by 7" diameter, ⅝" hole. Absolutely true running to prevent vibration and permit accurate tool grinding.

Tool rests are 38" 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, 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 Lamp Bulbs **$59.50**
Shipping Weight 194 lbs. Code Word GRINC.

No. 1268 Motor Driven Pedestal Grinder 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 **$66.85**
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..... **$72.50**
Shipping Weight 194 lbs. Code Word GRING.

No. 1245 7" Aloxite wheel, balanced within 1/100 oz.-inch, 60 grit, Grade J, ⅝" Hole **$1.85**
Shipping Weight 2 lbs. Code Word GRINJ.

No. 1247 7" Aloxite wheel, balanced within 1/100 oz.-inch, 60 grit, Grade K, ⅝" Hole **$1.85**
Shipping Weight 2 lbs. Code Word GRINK.

NOTE: All above grinders are supplied to 1750 or 3450 R.P.M. Please specify speed required. 3450 R.P.M. supplied if 1750 not specified.

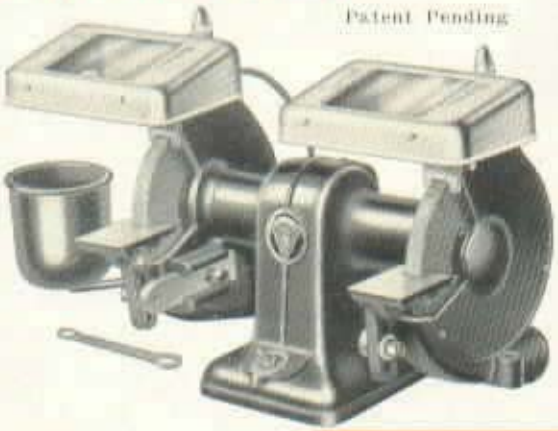
Belt-Drive Grinders and Buffers

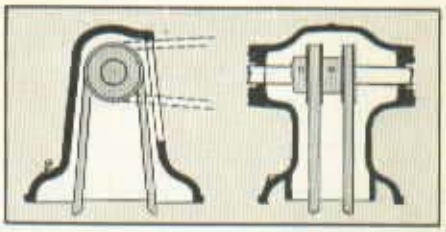
Here, for the first time, is a belt-drive grinder that is a real machine tool and not a toy. From its substantial cast-iron housing to its precision double-seal ball bearings, it is a tool worthy of the finest shop.

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.

Patent Pending





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 **$25.75**
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. **9.85**
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. Machines should not run over 3400 R.P.M. Nos. 880 and 900 motors are suitable for average work. For heavy work use No. 820 or 1120 motor and double-belt drive.

[Please Order by Catalog Number to Avoid Mistakes and Delay]

NEW! No. 645 11-inch Drill Press

The Ideal Drill Press for the Small Home Workshop

U. S. Patents
No. 1,830,022
No. 2,025,834

Specifications

Overall dimensions, with motor: 34½" high, 11¾" wide, 19" front to back.
8" by 8" slotted, finely machined cast-iron table. 6¼" by 7½" machined table surface on base.
Maximum distance, chuck to table 10⅝", chuck to base 14".
Spindle travel 4". Column diam. 1⅞".
Spindle speeds: 590, 1275, 2450 and 5000 r.p.m.
Drills to center of 11-inch circle. Takes drills up to ½".
Full-floating ball-bearing spindle pulley; no belt strains transmitted to spindle.
Self-sealed ball bearings used throughout; lubricated for life of bearing.
Graduated quill. Adjustable pointer.
Stop rod and knurled stop nuts.
Tilting table with index pin to locate table square after tilting.

For Drilling; Boring; Routing Carving; Sanding; Mortising

The owner of the home workshop who does not require the capacity of a large machine, yet who wants the highest quality in his tools will find in the new 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 ½" in diameter. In addition to this, it will take all standard wood bits with ⅜" 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. 892 cup wheel on the No. 391 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.

No. 645 11" Bench-model Drill Press, with No. 340 V-belt and No. 985 V-pulley, ½" bore **$24.95**
Shipping Weight 83 lbs. Code Word PRENC.

No. 340 Extra V-belt for above, 13" center to center ..... **$ .80**
Shipping Weight 8 oz. Code Word BELUX.

Note: No. 872 spindle with balanced geared chuck; No. 974 spindle with ½" hole for router bits and No. 991 spindle for cup wheel may be used on this machine. No. 977 spindle for ¼" shaper cutters may also be used, but No. 982 shaper fence will not fit this machine.

No. 300 motor is recommended. See page 35 for price.

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 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 curved work with the sanding drum saves hours of tedious labor.

[Please Order by Catalog Number to Avoid Mistakes and Delay]

Mortiser and Drill-Press Bits and Chisels

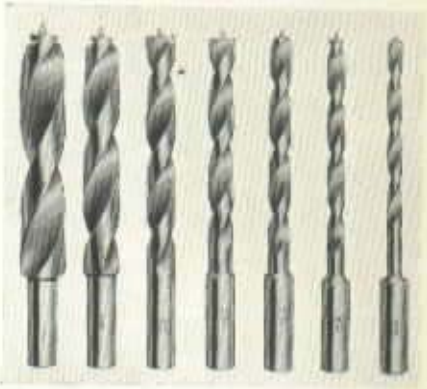
Machine-Spur Bits

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	**$1.00**
No. 805	5/16" Machine Spur Bit.	Code Word SPURB	**1.05**
No. 806	⅜" Machine Spur Bit.	Code Word SPURC	**1.10**
No. 807	7/16" Machine Spur Bit.	Code Word SPURD	**1.30**
No. 808	½" Machine Spur Bit.	Code Word SPURE	**1.45**
No. 809	9/16" Machine Spur Bit.	Code Word SPURF	**1.65**
No. 810	⅝" Machine Spur Bit.	Code Word SPURG	**1.85**
No. 812	¾" Machine Spur Bit.	Code Word SPURK	**2.35**

Shipping Weight, each 10 oz.

No. 818 Complete Set of 8 Machine Spur Bits, from ¼" to ¾"... **$11.50**
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 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 5/16" x 1½". Shipping weight per set, 1¼ lbs.

Details of Standard Chisel Only

Cat. No.	Size	Depth of Mortise	Code	Price Each
504	¼" x ¼"	1⅜"	CHISA	$3.95
505	5/16" x 5/16"	1⅝"	CHISB	3.95
506	⅜" x ⅜"	2¾"	CHISC	4.85
508	½" x ½"	3¼"	CHISD	5.50

Details of Bit

Cat. No.	Size	Dia. Shank	Code	Price Each
514	¼"	⅜"	BITOA	$1.35
515	5/16"	⅜"	BITOB	1.35
516	⅜"	19/64"	BITOC	1.35
518	½"	19/64"	BITOE	1.35

Details of Bushings

Cat. No.	Size Hole	Code	Price Each
524	⅜"	BUSHA	$ .40
525	½"	BUSHB	.40
526	19/64"	BUSHC	.40
530	19/64"	BCSHC	.40

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. 1,392,726

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" x ¾"	1⅜"	HOLOA	$1.35
636	5/16" x ⅜"	2¾"	HOLOC	1.35
638	½" x ½"	3¼"	HOLOD	1.35

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 cutter 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	1/16"	½" x 1½"	1¼"	ROUTA	$1.00
475	⅛"	½" x 1½"	1¼"	ROUTB	1.00
476	3/16"	½" x 1½"	1¼"	ROUTC	1.00
477	¼"	½" x 1½"	1¼"	ROUTD	1.00
478	5/16"	½" x 1½"	1¼"	ROUTE	1.00

Shipping Weight 4 oz. each

No. 480 Set of five Router Bits, sizes as above..... **$4.50**
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 ⅝" 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" x 2"	2"	PLUGA	$2.75
815	½"	½" x 2"	2"	PLUGB	3.00
816	⅝"	½" x 2"	2"	PLUGC	3.50
817	¾"	½" x 2"	2"	PLUGD	3.85
819	1"	½" x 2"	2"	PLUGE	4.75

Shipping Weight Approximately 6 oz. each.

No. 822 Complete set of 5 Plug Cutters, sizes as above **$17.50**
Shipping Weight 2½ lbs. Code Word PLUGS.

[Please Order by Catalog Number to Avoid Mistakes and Delay]

A Complete Line of Drill Presses

For Every Type of Shop

U. S. Pat. No. 2,025,834

"New Departure" Precision-Type Ball Bearings Throughout

Overall Height .....68"
Column Diameter ...2⅝"
Table Travel .....12"
Spindle Travel ..... 4"
Max. Distance, Table to Spindle .....43"
Drills to Cen. of Clr..14"
Takes Drills up to....½"
Table Size .....10"x10"
Spindle Speeds 598, 1275, 2450, 5060

No. 970

This tool is the original of the modern high-speed multiple-duty type of sensitive drill press, and, although widely copied, it is still the leader in the field.

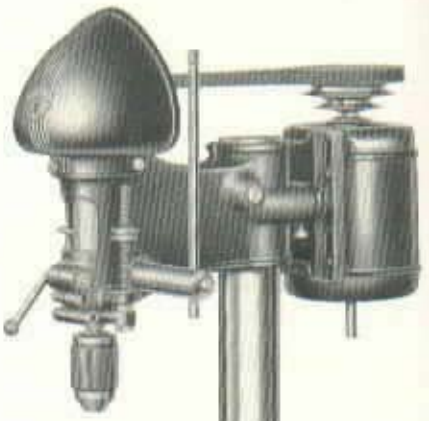
It incorporates all of the improvements first introduced by us—such as the floating spindle drive, in which none of the belt pull is transmitted to the spindle, and which insures free, sensitive operation of the spindle—still further improved by the novel internal-gear clutch inside the spindle pulley, which automatically insures perfect alignment. (Patented.)

This drill press is actually seven tools in one, since it can be used for mortising, carving, routing, shaping, sanding and surface grinding in addition to its regular job of drilling. Hundreds of these machines, both bench and floor types, are in use in industrial shops of every kind, from the toolroom and the general machine shop to the pattern shop, the cabinet shop and the automobile factory. No. 970 drill press heads are used also in many special drilling setups.

The floor type and bench type machines are identical in construction. Note that both can be furnished with geared chuck instead of the keyless type, the geared-chuck models being Nos. 989 and 999. Note also that the geared chucks furnished are of full No. 60 to ½" capacity, and should not be confused with lighter chucks of ⅜" to ½" capacity. All our geared chucks are balanced for high-speed work. For convenience, portability and all around usefulness there is no machine that will quite equal these drill presses.

No. 645 for Small Workshops

"Triple-Duty" Bench Models



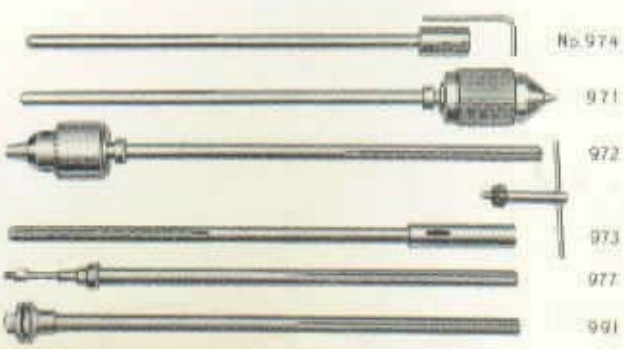
No. 995

CAPACITY
Chuck to Table....11½"
Chuck to Base....17"

56" High
10" Wide
With Motor
21"
Front to Rear

No. 970	14" Triple-Duty Drill Press, with No. 587 V-Belt and No. 885 motor pulley 1½" bore) but without motor. Shipping Weight 145 lbs. Code Word NEWDF.	**$33.85**
No. 989	14" Floor Model Drill Press, as above but with geared chuck and spindle (without motor) ..... Shipping Weight 145 lbs. Code Word NEWJC.	**$37.35**
No. 971	Standard spindle, with Keyless Chuck ..... Shipping Weight 3½ lbs. Code Word NESPA.	**3.25**
No. 972	Special Spindle with balanced geared chuck ..... Shipping Weight 3½ lbs. Code Word NESPB.	**6.75**
No. 973	Special Spindle with No. 1 Morse taper hole ..... Shipping Weight 2 lbs. Code Word NESPC.	**2.85**
No. 974	Special Spindle with ⅝" hole for router bits ..... Shipping Weight 2½ lbs. Code Word NESPD.	**2.00**
No. 977	Special Spindle for ⅞" hole shaper cutters ..... Shipping Weight 2 lbs. Code Word NESPF.	**1.75**
No. 991	Spindle for Cup Wheel. Ship. Wt. 2 lbs. Code Word NESPG.	**2.00**
No. 995	14" Bench Drill Press, with belt and motor pulley, but without motor. Ship. Wt. 110 lbs. Code Word NEWHE...	**$28.85**
No. 999	14" Drill Press, as above, but with geared chuck and spindle (without motor) ..... Shipping Weight 110 lbs. Code Word BENJC.	**$32.35**
No. 387	Extra belts for above. Ship. Wt. 1 lb. Code Word FORDP..	**.85**

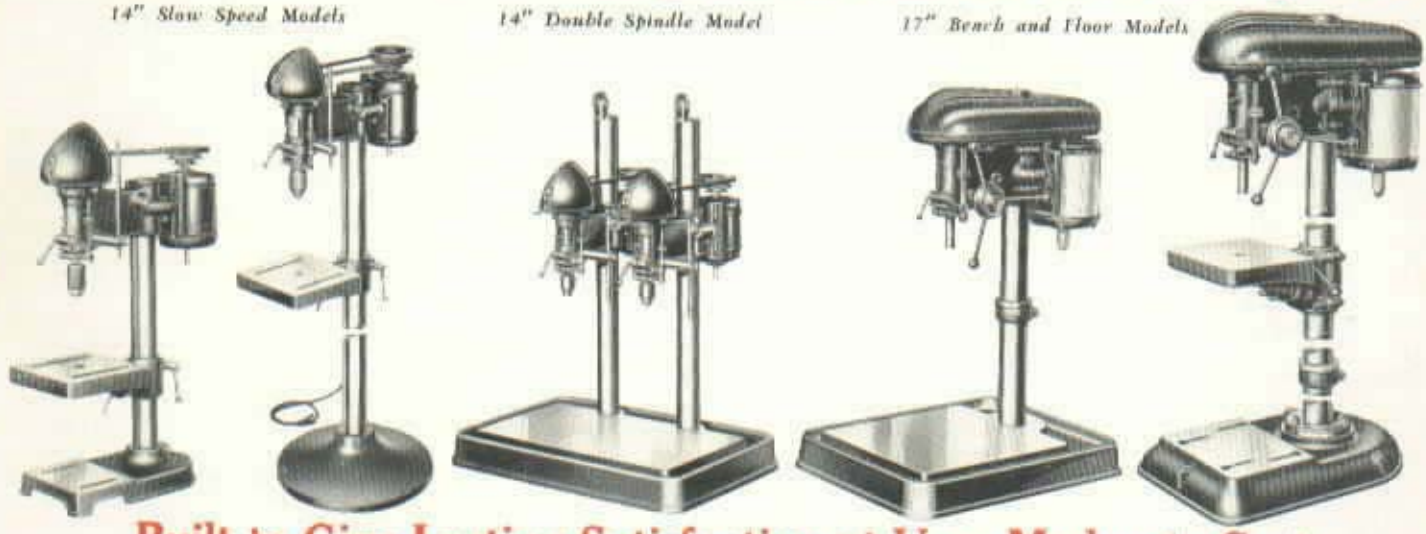
For suitable motors (Nos. 890, 900 and 920) see pages 35 to 37.



[Please Order by Catalog Number to Avoid Mistakes and Delay]

One to Suit Every Need and Purpose

14" Slow Speed Models *14" Double Spindle Model* *17" Bench and Floor Models*



Built to Give Lasting Satisfaction at Very Moderate Cost

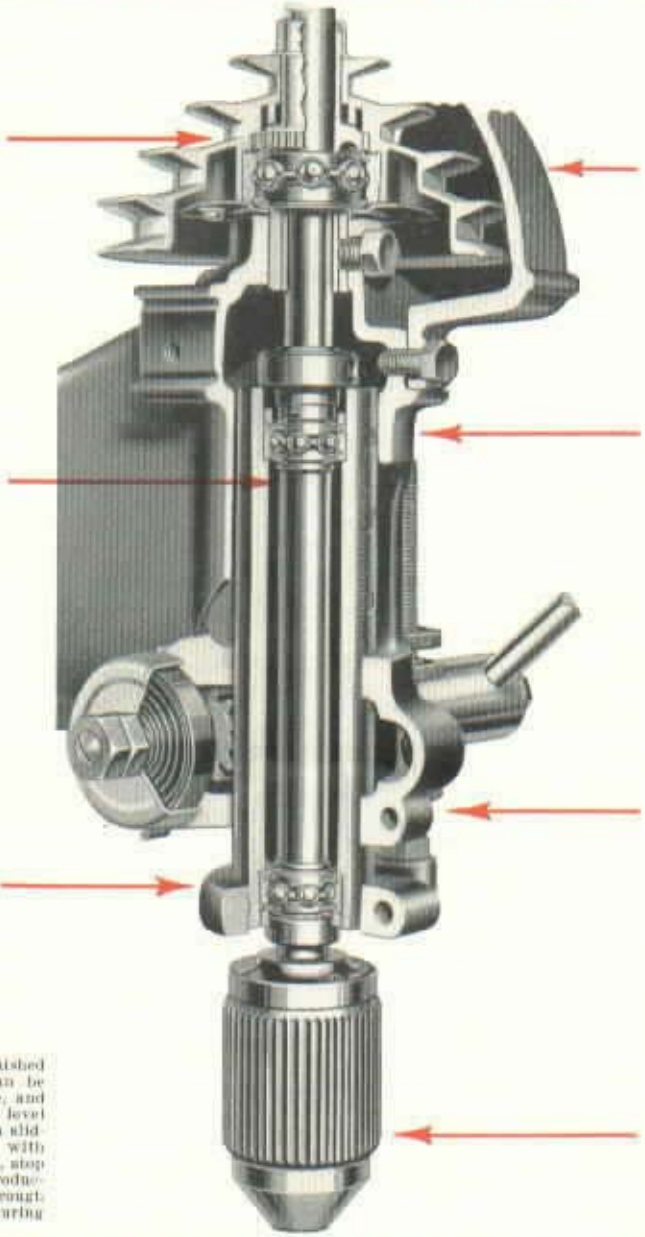
The "free-floating" spindle design—first introduced by us—in which all the pull of the belt is taken by the bearing, has been still further improved in this design by the use of a patented internal-gear clutch connecting the pulley and the spindle. With this design there can be no possibility of alignment troubles, which would cause vibration or undue wear of the spindle. The double keys in the pulley clutch prevent "edging" troubles, and the spindle operates freely and sensitively at all speeds and loads.

Many machine shops, toolrooms and production shops use this machine, and there is available for their use a No. 1 Morse taper spindle in addition to the geared-chuck spindle and the regular keyless chuck, making the drill press adaptable for any type of work.

Pattern shops, novelty shops, furniture factories and many other woodworking shops use this drill press for boring, routing and mortising. The No. 974 spindle takes all standard ½" shank woodworking bits, and is used also in connection with the No. 976 Mortising Attachment.

Bearings used in this drill press carry closely fitting seals on both sides, preventing escape of lubricant and entrance of dirt. Lubricated at the factory, they require no further attention for their entire life.

The regular table furnished as standard equipment can be tilted through a full circle, and is locked automatically level after tilting by means of a sliding pin. Table is provided with slots for fastening fixtures, stop bolts, etc. A regular production-type table with oil trough is available for manufacturing work. See page 44.



Pulley bearing is extremely large in diameter—over 2 inches, and is placed in exact center of pulley to distribute the belt pull equally. The entire assembly of pulley and bearing is quickly detachable, and a slow-speed pulley assembly may be used in its place. The ball bearing is of the New Departure precision self-sealed type. The double seals prevent entrance of dirt and escape of lubricant, and many of these bearings have been running for years without any attention whatever. Seal used on top of pulley also.

"Free-floating" spindle carried in two high-grade precision type self-sealed New Departure ball bearings, lubricated at the factory for their entire life. The spindle is of precision ground stock, with double keyway to prevent edging and to insure balance at high speeds. Heavy, massive graduated quill with milled rack teeth and built-in slow to prevent over-travel of spindle. The inner races of the ball bearings are positively driven on all types of spindles, and dirt cannot enter even when spindles are completely withdrawn. All spindles quickly interchangeable.

Stop rod and adjustable knurled stop nuts for drilling to depth on manufacturing operations. Stop rod carried on heavy casting which is interchangeable with chisel holder.

Quill is graduated in inches and sixteenths, and head casting is provided with an adjustable pointer of utmost convenience for drilling to exact depth, reaming, countersinking, counterboring, etc.

Standard machine fitted with high-grade keyless chuck. Interchangeable spindles make it possible to equip the machine with exactly the right spindle for the job. Note that the geared chucks furnished for this machine are of full No. 00 to ½" capacity. They should not be confused with smaller "½-inch" chucks, which will not take drills below ⅛" diameter. Geared chucks are balanced for high-speed work.

[Please Order by Catalog Number to Avoid Mistakes and Delay]

14-in. "Slo-Speed" Drills for Metal Work

With Keyless Chuck, Geared Chuck or No. 1 Morse-Taper Spindle

The combination of low cost and high accuracy in these drill presses has led to their adoption by hundreds of progressive production shops all over the country, from airplane-engine shops to factories making precision control and timing devices; from heavy machine shops to the finest tool-rooms. Their economy is not guesswork; it is a proved fact.

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 ½" with the utmost efficiency. For very small hole drilling at high speed the standard Triple-Duty models are recommended.

Note that Jacobs chucks furnished with our Drill Presses are full-size ⅜" capacity chucks, which will take drills from No. 60 to ½". They should not be confused with the smaller Jacobs chucks which will take only drills from ⅛" to ⅜" diameter.

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. 900 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. 920 ½-H.P. three-phase motors are recommended.

(Slo-speed drill presses take belt No. 430. See page 34 for price. No. 851 switch rod can be used. See page 37).

No. 1270 Floor-Type Slo-Speed Drill Press, with keyless chuck, with motor bracket, motor pulley and belt, but without motor **$35.95**
Shipping Weight 149 lbs. Code Word SLOFA.

No. 1286 Floor-Type, Slo-Speed Drill Press, as above, but with No. 1 Morse Taper Spindle (without motor) **$35.55**
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) **$39.45**
Shipping Weight 149 lbs. Code Word SLOFC.

No. 1295 Bench-Type Slo-Speed Drill Press, with keyless chuck, motor bracket, motor pulley and belt, but without motor **$30.95**
Shipping Weight 102 lbs. Code Word SLOBR.

No. 1300 Bench-Type Slo-Speed Drill Press, as above, but with No. 1 Morse Taper Spindle (without motor) **$30.55**
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) **$34.45**
Shipping Weight 102 lbs. Code Word SLOBG.

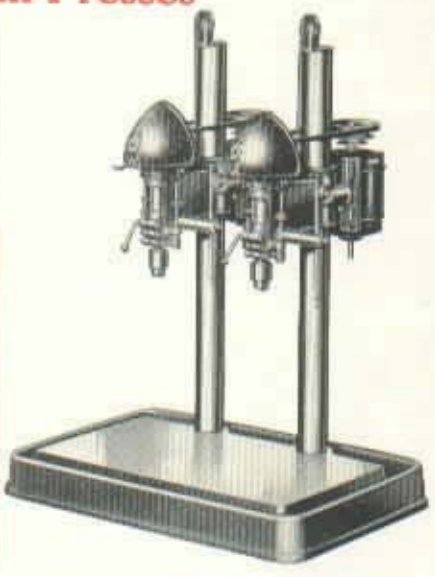
14-Inch Double-Spindle Sensitive Drill Presses

Our 14" Double-Spindle Drill Presses incorporate everything that can make for efficiency and convenience, and will rapidly pay for themselves in the production shop.

The substantial cast-iron base is 24" by 34" in size, with a table surface of 16½" by 28". It is provided with generous oil troughs, 1¾" by 1¾", drilled and tapped at the rear for drain piping.

Remaining specifications are similar to those of the regular "Triple-Duty" or "Slo-Speed" drill presses, and the construction is of the same high grade throughout. Machines can be furnished with either ½" capacity geared chucks or with No. 1 Morse taper spindles.

Write for special bulletin DP-997 for complete information on these drill presses.



"Triple Duty" (high speed) Models

No. 997 14" Double-Spindle Drill Press, with ⅜" geared chucks, counterweights, chains and ball-bearing chain rollers. Without motors or switch rods..... **$117.75**
Crated, F. O. B. Factory.
Shipping Weight 467 lbs. Code Word TWOSP.

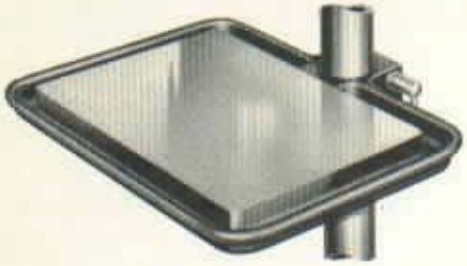
No. 998 14" Double-Spindle Drill Press, as above but fitted with No. 1 Morse taper spindles instead of geared chucks **$109.95**
Crated, F. O. B. Factory.
Shipping Weight 462 lbs. Code Word TOMOR.

"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..... **$121.95**
Crated, F. O. B. Factory.
Shipping Weight 472 lbs. Code Word SLOTP.

No. 1298 14" Double-Spindle "Slo-Speed" Drill Press, similar to No. 998, but speeds 390, 745, 1280 and 2050 R.P.M. Fitted with No. 1 Morse taper spindles..... **$114.15**
Crated, F. O. B. Factory.
Shipping Weight 467 lbs. Code Word SLOTQ.

Write for special bulletin DP-997 on Double-Spindle Drill Presses



No. 988 Production Table for 14-Inch Drill Presses

Ideal for production work, especially where jigs are used. This table is a massive, heavily-ribbed gray iron casting, 14¾" by 20" by 4¾" overall. The table surface is 11¼" by 16¼", ground flat and true and to a high finish to facilitate the handling of jigs and fixtures. It is provided with a 1½" trough all around to carry off excess cutting compound; trough has drain holes at rear which can be piped to tank.

No. 988 Production Table, for 14" Drill Presses only. To fit 2¾" column. Will not fit No. 620 or 645 drill press. Complete with clamp bolt **$9.85**
Ship. Weight 60 lbs. Code Word NETAB.

[Please Order by Catalog Number to Avoid Mistakes and Delay]

Accessories for 14" and 17" Drill Presses

Accurate Mortising Is Easy on the Drill Press

The No. 976 Mortising Attachment, shown at the left as used on the No. 976 Drill Press, enables 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.

The attachment converts the 970, 995 or 645 drill press into a first-class mortising machine. The chisel holder clamps onto the lower end of the quill, replacing the regular stop-rod casting. The end of the mortising chisel is held in the holder by means of two Allen setscrews, which permit the chisel to be adjusted into alignment easily, and at the same time hold the chisel firmly. The mortising bit is held by means of a bushing in the No. 974 spindle.

A strong and convenient hold-down is included with the attachment. The hold-down casting is raised and lowered on a vertical rod carried on a casting on top of the fence, and is adjustable for stock from ¾" to 4¾" thick, thinner stock being mortised merely by shimming under it. The fence is of hard maple, 1⅛" by 2¼" by 12", drilled to fit the table. Curved rods hold the work against the fence; the capacity from ends of rods to fence is 2¾".

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 belts. Without mortising chisel or bit **$3.75**

Shipping Weight 8 lbs. Code Word NEMOR.

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.

The No. 990 tapping attachment on a 14" drill press.

Tapping Attachments 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. Reverse is twice forward speed.

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 ⅜" in steel. Complete with four collets to take No. 2, 3, 4, 5, 6, 7, 8, 9, 10 and ¼" taps, and wrenches **$39.85**

Ship. Wt. 6 lbs. Code Word NEWTA.

No. 996 Tapping Attachment to fit 14" drill press. Capacity No. 8 to ½" in brass; No. 8 to 5/16" in cast iron; No. 8 to ⅜" in steel. With seven collets to fit No. 8, 9, 10, ¼", ⅜", 7/16" and ½" taps, and wrenches **$55.00**

Ship. Wt. 10 lbs. Code Word NEWTB.

"Pilot-Wheel" Feed for 14-Inch Drill Presses

While the straight lever type of feed used on the No. 970 and No. 995 drill presses is as practical as the "pilot-wheel" type, some drill-press users prefer the latter feed, and we are now prepared to furnish them for all drill presses of the 970 and 995 type, as shown in the photo. Also fits No. 645.

They are attached simply by removing the straight lever and thumbscrew, slipping the hub casting in place and locking it with the capscrew and washer provided.

No. 969 Pilot Wheel Feed for 970, 995 and all similar 14" drill presses. Also fits No. 645. ..... **$1.25**

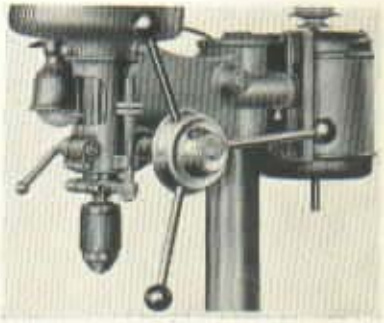
Shipping Weight 4 lbs. Code Word NEWFE.

Cup Wheel for 991 Spindle

Extremely useful for surface-grinding work on No. 970 and No. 995 drill presses. Furnished only in 3½" diameter, 1½" wide, with ½" arbor hole to fit No. 991 spindle.

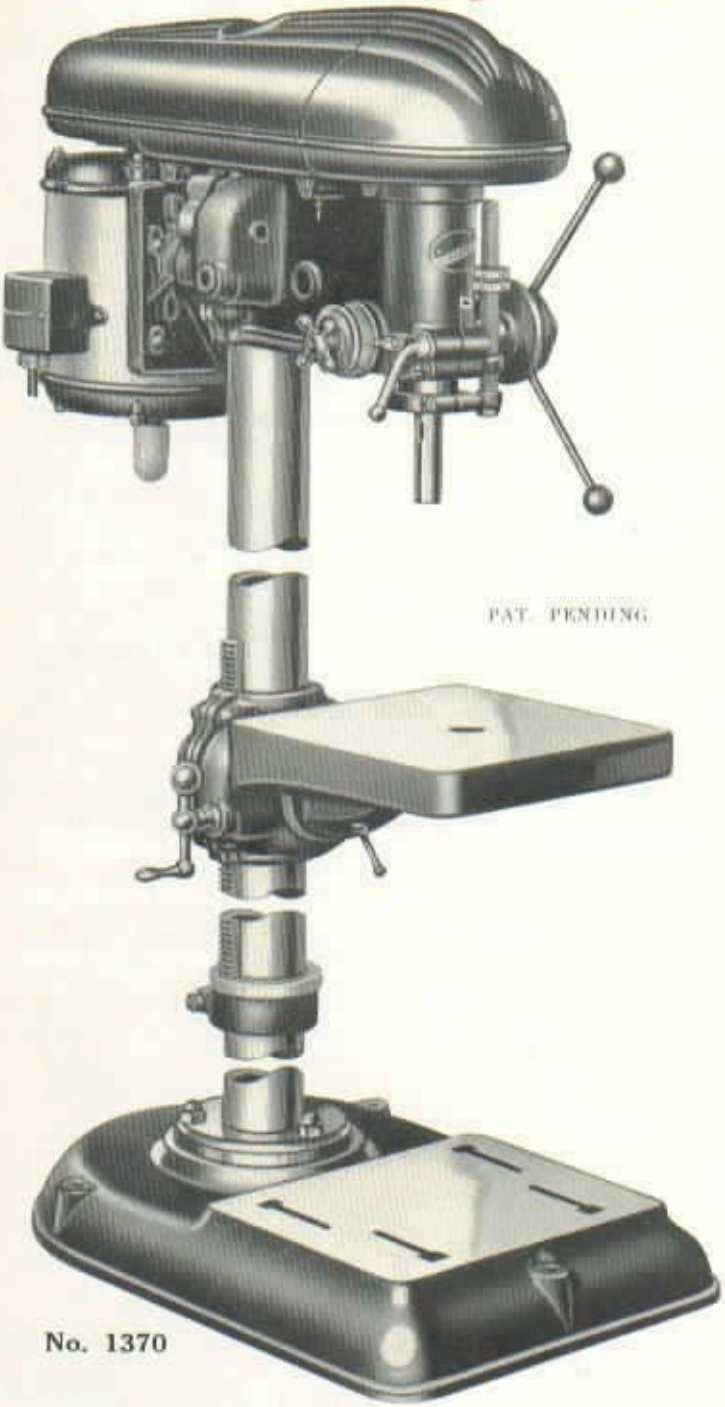
No. 992 Cup Wheel **$1.25**

Ship. Wt. 1½ lbs. Code Word NEWCU.



[Please Order by Catalog Number to Avoid Mistakes and Delay]

Revolutionary NEW 17-in. Drill Presses



PAT. PENDING

No. 1370

Condensed Specifications

Overall Dimensions: 66" high; 18" wide; 27" front to rear. Tilting table 11" by 12". Production table 12½" by 17" surface. Floor base 10" by 13¾" table surface. Bench type production base 25" by 29½" overall; table 20" by 20".

3½" diam. by 60" column, of heavy-walled tubing, ground and polished to close tolerances.

Five speeds: 385, 600, 935, 1450 and 2240 r.p.m.

Large spindle pulley carried in two self-sealed ball bearings. Exclusive inverted spindle, with automobile-type 16-tooth spline drive, and floating pinion sleeve. Carried in self-sealed, preloaded ball bearings.

No. 2 Morse taper spindle standard equipment. Can also be furnished with built-in ½" geared chuck. Entire spindle assembly instantly removeable. Quill has 5" stroke.

Capacity of machine ¾" in cast iron.

Built in depth stop gage. Depth scale on spindle return-spring housing.

Raising and lowering mechanism for table on floor types. Raising and lowering mechanism for head on production bench types.

Capacity, spindle to table 34"; spindle to base 44½".

Belt completely guarded. Guard quickly removeable for speed changing. Belt tension adjustable.

Foot-power feed for spindle available.

Tilting table standard equipment. Index pin locks table accurately in horizontal or vertical positions.

Engineered for Production . . . .
Built for Maximum Life . . . . .
Designed for Accuracy . . . . . .
But Priced to Fit Your Budget . . .

The advanced design, fine workmanship, accurate construction and built-in advantages of our No. 970 type 14-inch drill presses, combined with their very moderate cost, led to their instant adoption by alert production shops and general industrial shops of all kinds. And their trouble-free, economical service has led to a demand for a tool incorporating all these advantages, but of larger capacity. The new 17" drill press is the answer.

Designed to serve the needs of the general shop, toolroom or production shop, these new drill presses represent as radical a step forward in drill-press design as the No. 970 was several years ago. The advanced engineering evidenced throughout the design, the fine, accurate workmanship used in building the tools—made possible by the use of the finest production machinery and skilled mechanics—the many built-in improvements and above all the very moderate cost make this a machine that no modern, progressive shop can afford to be without!

No. 1370 New 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 belt, but without motor **$77.50**
Shipping Weight 450 lbs. Code Word DRILA.

No. 1375 New 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 belt, but without motor and switch **$99.50**
Shipping Weight 500 lbs. Code Word DRILE.

No. 1376 New 17" Floor model Drill Press, similar to No. 1370, but with built-in ½" capacity geared chuck instead of No. 2 M. T. spindle. **$82.75**
Shipping Weight 450 lbs. Code Word DRILG.

No. 1377 New 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 **$104.75**
Shipping Weight 500 lbs. Code Word DRILH.

No. 1371 Foot-feed for 17" floor type drill presses, including splined shaft, gear segment and lever, connecting rods, foot lever, bracket, studs and bolts **$14.85**
Shipping Weight 25 lbs. Code Word DRILK.

No. 1378 Head only for 17" drill press, with No. 2 M. T. spindle, belt and motor pulley. Without motor **$44.50**
Shipping Weight 125 lbs. Code Word DRILL.

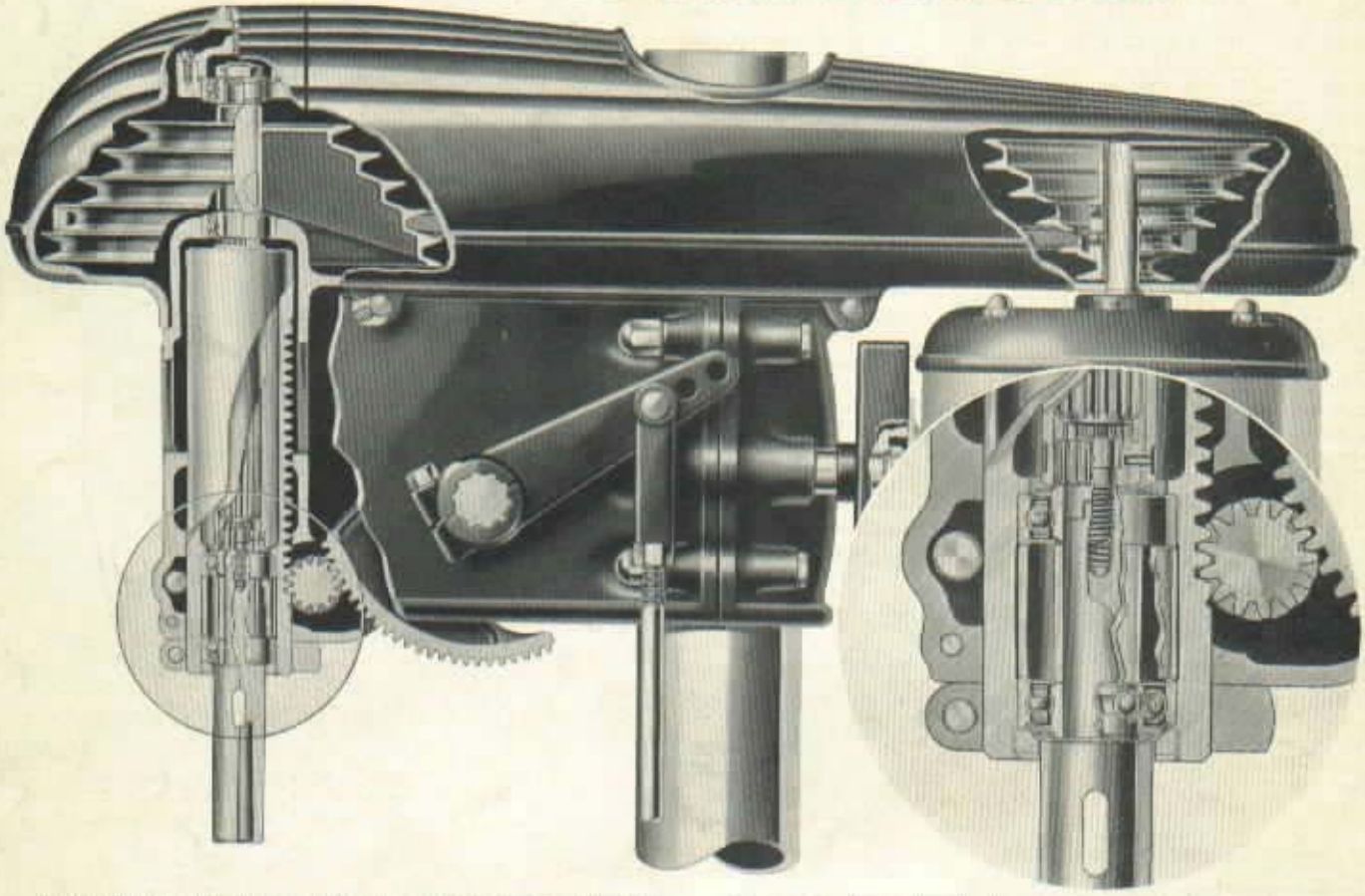
No. 1379 Head only for 17" drill press, with built-in ½" geared chuck. With belt and motor pulley. Without motor **$49.75**
Shipping Weight 125 lbs. Code Word DRILJ.

No. 1380 Raising mechanism only. Consisting of worm shaft, wormgear and pinion, ball handle, rack, collar and ball-thrust bearing **$6.75**
Shipping Weight 18 lbs. Code Word DRILK.

(Note: Nos. 1376 or 1377 should be ordered where straight-shank drills only are used. The built-in geared chuck reduces the overhang under the bearings and increases the capacity under the spindle. Where both straight and taper-shank drills are used, order No. 1370 or No. 1375.)

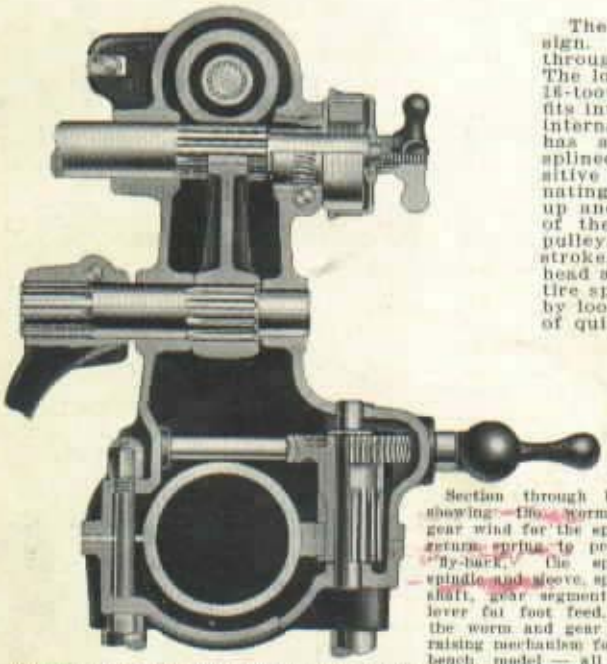
[Please Order by Catalog Number to Avoid Mistakes and Delay]

Some Advanced Engineering Features of the New 17-Inch Drill Press



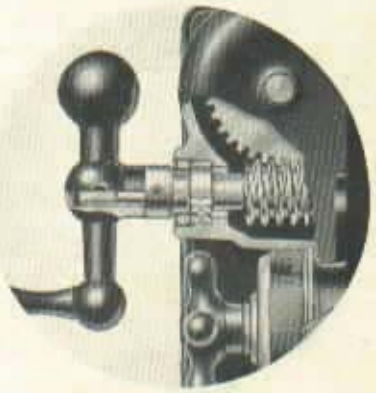
Note that the five-speed pulley is carried on two precision self-sealed ball bearings, which require no attention whatever during their entire life. This feature, together with the "floating pulley" in which none of the belt pull or stresses are transmitted to the spindle, was pioneered by us and has proved to be highly successful.

Note also how closely the two lower ball bearings are spaced. This, together with the preloading of the bearings, completely eliminates the spindle "whip" found in ordinary designs, besides making the spindle extremely rigid and free running, and giving the bearings exceptionally long life besides retaining the initial accuracy of the machine.



Section through head, showing the worm-and-gear wind for the spindle return spring, to prevent "fly-back," the splined spindle and sleeve, splined shaft, gear segment and lever for foot feed, and the worm and gear head raising mechanism for the bench model — all evidences of the care used in the design and construction of these drill presses. View at right: front view of head-raising mechanism.

The spindle is of radically new design. The spindle does not project through the pulley, but is keyed to it. The lower end is machined to form a 16-tooth automobile-type spline, which fits into a very husky floating sleeve, internally splined to fit. This sleeve has a very long bearing on the splined spindle, permitting very sensitive feeding and practically eliminating wear. Sleeve and quill move up and down on the spindle instead of the spindle moving through the pulley. The quill, which has a 6" stroke, has a very long bearing in the head and is completely enclosed. Entire spindle assembly can be removed by loosening threaded ring at bottom of quill.



Blazing the Trail to a New Standard of Drill-Press Value

The features shown on this page are only a few of the many that make this drill press the outstanding value in its field. No matter what you pay for a 17" drill press, you will not find another that has all the advantages of this one, for it is years ahead of other drill presses in design and construction. This may seem like a strong statement, but a comparison will quickly justify it.

And there are dozens of jobs and setups around the production shop where the separate heads of these fine drills can be used to advantage—and at considerably lower cost than anything that can be built in your own toolroom. Investigate this at once—it will pay you dividends!