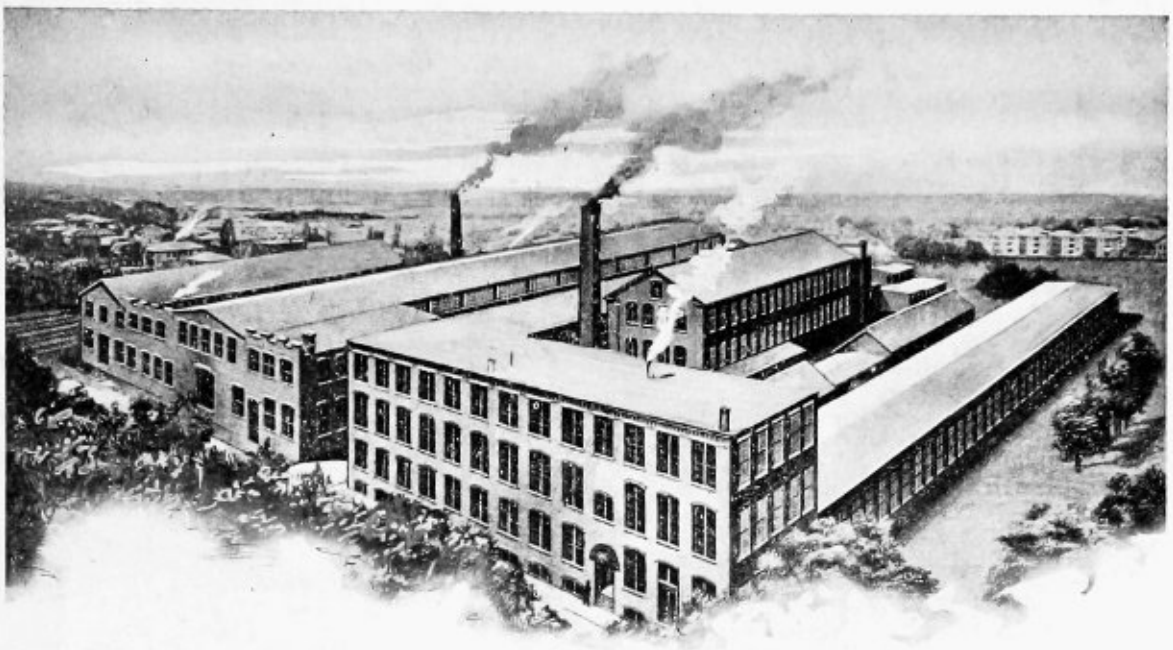
REED-PRENTICE COMPANY

WORCESTER
MASSACHUSETTS
U.S.A.

REED-PRENTICE COMPANY

R-P

WORCESTER
MASSACHUSETTS
U.S.A.



Production

High grade Machine Tools are the outstanding elements in Production today, whether in the school, experimental department, tool room or shop.

Rapidity in Production depends largely upon the construction of the machine. This is obtained by convenience in manipulation, appealing to the operator, also with quick acting mechanisms, reducing hand operating time to a minimum. In addition, proper design of tooling with sufficient power and rigidity correctly distributed in the machine, permit a number of heavy cuts to be taken at one time.

Quality in Production means accuracy in the product. The highest quality is always assured from equipment that is carefully designed and built.

Maintained Production results from the use of the highest grade materials in the manufacture of machines. Well proportioned bearing surfaces and the liberal use of hardened steel parts increase the wearing qualities. These eliminate tie-ups and reduce the cost of maintenance.

With Production as an ultimate to the user, Reed-Prentice equipment is designed and manufactured. It is the result of seventy-six years of careful study and experience in the building of widely known machine tools, and therefore insures most economical performance.

Offices and Agents listed next page

REED-PRENTICE CORP.

MACHINE TOOLS

WORCESTER MASS., U.S.A.

Factory and General Offices
667-677 Cambridge Street, Worcester, Mass., U. S. A.

Branch Offices

Detroit, Mich.
3-245 General Motors Bldg.

New York City
1810 Singer Bldg.

Domestic Agents

CHICAGO, Illinois, Stocker-Rumley-Wachs Company	Lathes, Planers, Vertical Millers
CLEVELAND, OHIO, Cleveland Duplex Machinery Company	Lathes
W. M. Pattison Supply Co.	Radial Drills, Planers, Vertical Millers
DAYTON, Ohio, Patterson Tool & Supply Co.	Lathes, Radial Drills, Planers, Vertical Millers
INDIANAPOLIS, Indiana, Millholland Sales & Engineering Company	Lathes, Radial Drills, Planers, Vertical Millers
PHILADELPHIA, Pennsylvania, D. J. Normoyle, 1323 W. Tioga St.	Lathes, Radial Drills, Planers
Stoer Machinery Co., Inc.,	Planers, Vertical Millers
PITTSBURGH, Pennsylvania, J. S. Miller Machinery Co.	Lathes, Radial Drills, Planers, Vertical Millers
PROVIDENCE, Rhode Island, Brownell Machinery Co.	Lathes, Radial Drills, Planers, Vertical Millers
ROCHESTER, New York, Ogden R. Adams Co., Inc.	Lathes, Radial Drills, Planers, Vertical Millers
SAN FRANCISCO / LOS ANGELES — California, F. O. Stallman Supply Co.	Lathes, Radial Drills, Planers, Vertical Millers
SYRACUSE, New York, H. A. Smith Machinery Co.	Lathes, Radial Drills, Planers, Vertical Millers
HOUSTON, Texas, Hacker Machinery & Supply Co.	Lathes, Radial Drills, Planers, Vertical Millers
ERIE, Pennsylvania, Saxer Machinery Co.	Lathes, Radial Drills, Planers, Vertical Millers
MILWAUKEE, Wisconsin, Walter Mickelson, 396 27th Ave.	Lathes, Planers, Vertical Millers
BUFFALO, New York, Crane-Schiefer-Owens, Inc.	Vertical Millers

Foreign Agents

*NORTH AMERICA, Canada, Canadian Fairbanks-Morse Co., Montreal, Quebec	Lathes, Radial Drills, Planers, Vertical Millers
SOUTH AMERICA, All Countries, Dreyfus Bros., 29 Broadway, New York City	Lathes, Radial Drills, Planers, Vertical Millers
ASIA, Japan, Mitsui & Co., Tokyo, Kobe, Nagaski, Nagoya, Osaka, Otaru	Lathes, Radial Drills, Planers, Vertical Millers
AUSTRALIA, Victoria, Selson Engineering Co., Melbourne	Vertical Millers
AUSTRIA, F. G. Kretschmer & Co., Vienna	Lathes, Planers, Radial Drills
EUROPE, BELGIUM, Fenwick Freres & Co., Brussels	Lathes, Planers
Selson Engineering Co., Brussels	Vertical Millers
BRITISH ISLES, Selson Engineering Co., London, England	Vertical Millers
CZECHO-SLOVAKIA, F. G. Kretschmer & Co., Vienna, Austria	Lathes, Planers, Radial Drills
FRANCE, Fenwick Freres & Co., Paris	Lathes, Planers
Selson Engineering Co., Paris	Vertical Millers
GERMANY, F. G. Kretschmer & Co., Frankfort, A. M.	Lathes, Planers, Radial Drills
HUNGARY, F. G. Kretschmer & Co., Vienna, Austria	Lathes, Planers, Radial Drills
ITALY, Fenwick Freres & Co., Turin	Lathes, Planers
Selson Engineering Co., Turin, Milan	Vertical Millers
JUGOSLAVIA, F. G. Kretschmer & Co., Vienna, Austria	Lathes, Planers, Radial Drills
POLAND, F. G. Kretschmer & Co., Vienna, Austria	Lathes, Planers, Radial Drills
PORTUGAL, Fenwick Freres & Co., Barcelona, Spain	Lathes, Planers
RUSSIA, Amtorg Trading Corp., 165 Broadway, New York City	Lathes, Planers, Radial Drills, Vertical Millers
SPAIN, Fenwick Freres & Co., Barcelona	Lathes, Planers
SWEDEN, Wilh. Sonesson & Co., Malmo	Lathes, Planers, Vertical Millers, Radial Drills
SWITZERLAND, Fenwick Freres & Co., Zurich	Lathes, Planers
*MEXICO / *CUBA / *PORTO RICO / *JAMAICA — Dreyfus Bros., 29 Broadway, New York City	Lathes, Planers, Radial Drills, Vertical Millers

*In addition to Domestic Agents.

The Heffernan Press, Spencer, Mass., U. S. A.—1M 6-15-26

Economical Production Facilities

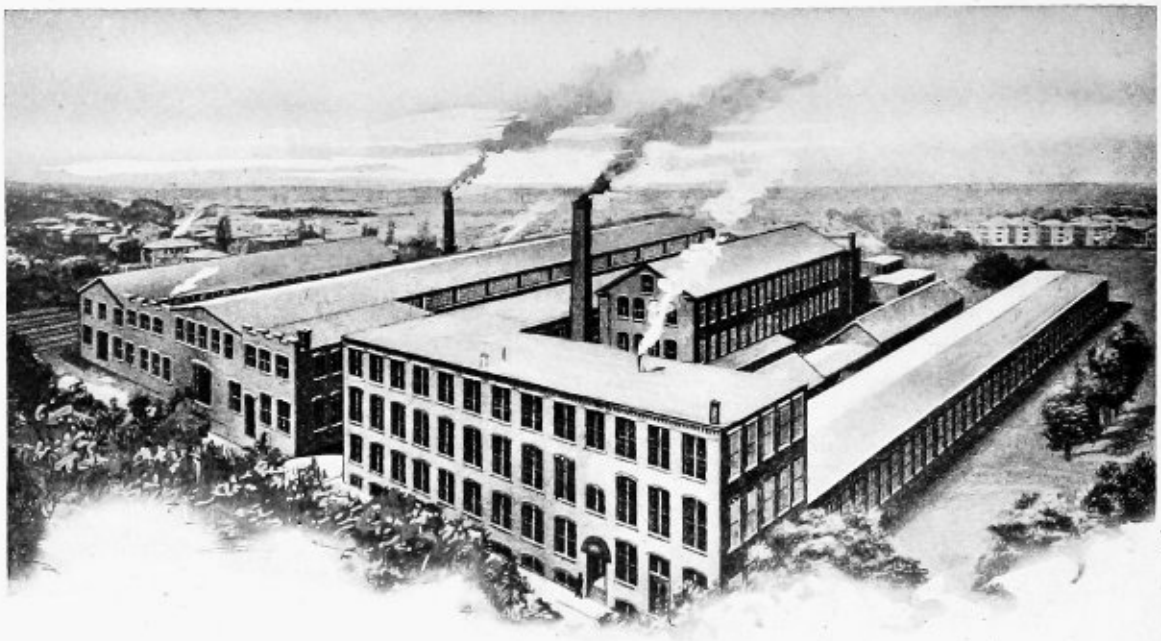
A pictorial pamphlet and
general specifications of equipment in
Reed-Prentice Machine Shop and Foundry
adaptable to special manufacturing
and contract work.

Your inquiries are respectfully solicited.

REED-PRENTICE COMPANY
MACHINE TOOLS
WORCESTER MASS., U.S.A.

NEW YORK DETROIT CHICAGO
AGENTS THROUGHOUT THE WORLD

Circular 9 - 100 - 1



Main Plant and General Offices

SINCE 1849 the companies from which Reed-Prentice Company is the outgrowth have been engaged in the construction of high grade machine tools widely known throughout the world.

After many years of experience, the present products are therefore the result of an organization familiarized with the fundamentals of machine design and manufacture.

To economically produce these varied types of standard and special machines requires a large assortment of properly arranged equipment adaptable for precision work.

There being such a close relation between the building of machine tools and general mechanical devices, the factory offers economical production facilities which are being continually used by outside interests. In some instances component parts are partially machined, while in others over one hundred complete machines have been built, including the furnishing of castings. Such work may be made to our own design or to customers' specifications, and has careful supervision which keeps the cost of manufacture to a minimum.

In the following pages portions of the factory are illustrated and the maximum capacities of machine and foundry equipment given.

Foundry Division

REED-PRENTICE MACHINE TOOLS

Economical Production Facilities

Sales and Administration. The executive and general sales offices are located at 677 Cambridge Street, Worcester, Mass. Branch sales offices are in New York, Detroit and Chicago, with agents thoughout the world.

Engineering Department. The consolidation of the engineering departments of various companies purchased has resulted in an engineering corps widely specialized in machine design. This divison is extremely capable of the development of new machinery and tools.

The department is equipped with modern facilities, blue printing and photostat machines, large filing rooms with safe deposit vaults. Also, private spaces may be given for development of inventions and such engineering work requiring absolute secrecy.

Pattern Shop. This department is equipped with modern wood working machinery and bench space suitable for handling a wide variety of pattern work.

Foundry. The foundry, shown on the opposite page, is located at 95 Gold Street, Worcester, Mass. This division makes all the castings of the Reed-Prentice products, and has also for several years made a large number of castings for outside concerns. Labor saving moulding machines are employed, thereby permitting castings to be made at low cost. The accompanying table gives a general idea of the capacity of the modern equipment used.

Foundry Equipment

Cupola:	60" shell lined to 48" Capacity 30 Tons in 8 hours
Sand Blast:	10' wide by 15' long
Moulding Machines:	Maximum capacity 48" x 72"

A Section of the Engineering Department

Cranes:	1—10 Ton traveling 1— 5 Ton traveling 1— 5 Ton Jib 2— 2 Ton Air Hoists in Core Room
Pit Floor:	9 ft. wide x 40 ft. long
Largest single casting:	11 Ton

Production. This division is subdivided into two sections: one for the estimating of new work, complete tooling of the products, and routing of work thru the shop; the other for scheduling of work throughout the plant.

Modern methods keep this department in close touch with the work at all times, and accurate records of time studies are filed for reference.

Manufacturing Division. This division is divided into separate departments specializing in definite machine operations. Each department is in charge of a foreman thoroughly trained to carry on his work in a most efficient manner. Many of the workmen have been with the company for years and are thoroughly skilled in their particular field. Overhead cranes and a suitably equipped transportation department permit the work flowing rapidly throughout the entire plant.

The main bay of the machine shop is equipped with overhead travelling cranes for convenience in handling of work.

Inspection. Quality in production is determined by the inspection department, which realizes that all parts must be held strictly in accordance with the engineering specifications to function properly.

Cost. Accurate cost keeping means fair prices. Charging costs where they properly belong avoids the necessity of loading the overhead with losses that accumulate as years go by, and thus handed down in every price quotation. This department is equipped with modern mechanical cost keeping devices and individual time keepers are located in shop departments. This insures accurate cost records for various commodities.

Planers

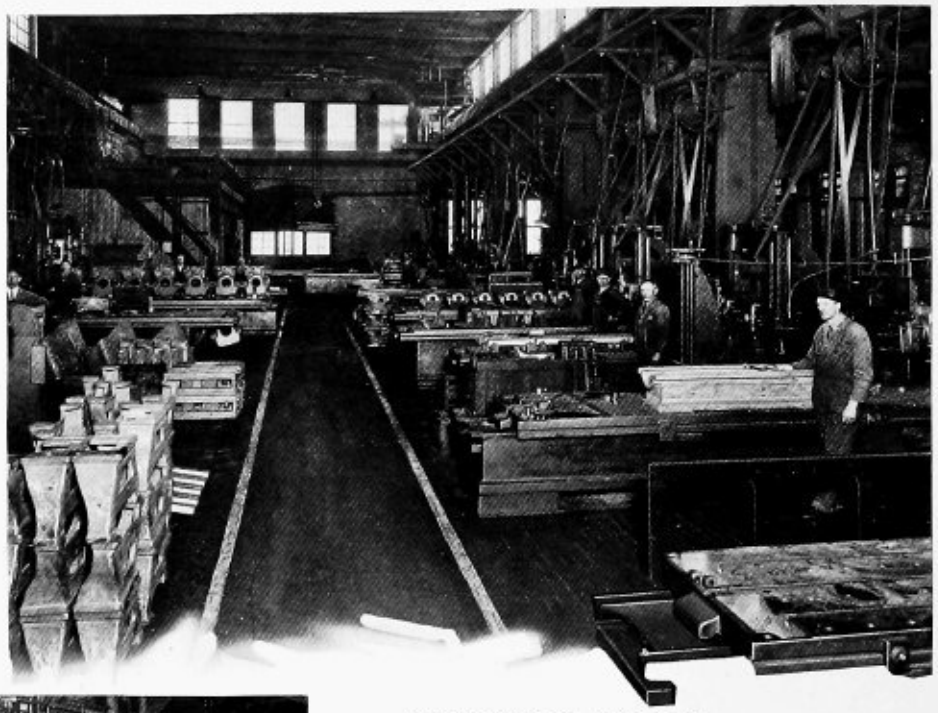
Maximum Capacities

Width between Uprights	Height under Cross Rail	Heads on Rail	Side Heads	Table Length
30″	30″	2	—	8′
36″	42″	2	2	20′
42″	42″	2	2	26′
42½″	30″	2	—	20′
42½″	42½″	2	—	12′
46″	48″	2	2	34′
49″	48″	2	2	14′
72″	47″	2	—	13′
72″	48″	2	2	16′

Splining Machines

Maximum Capacities

Type	Stroke	Table to Support
Broaching	60″	—
Slotter	12″	24″



Ganging Planer Operations

Boring Mills

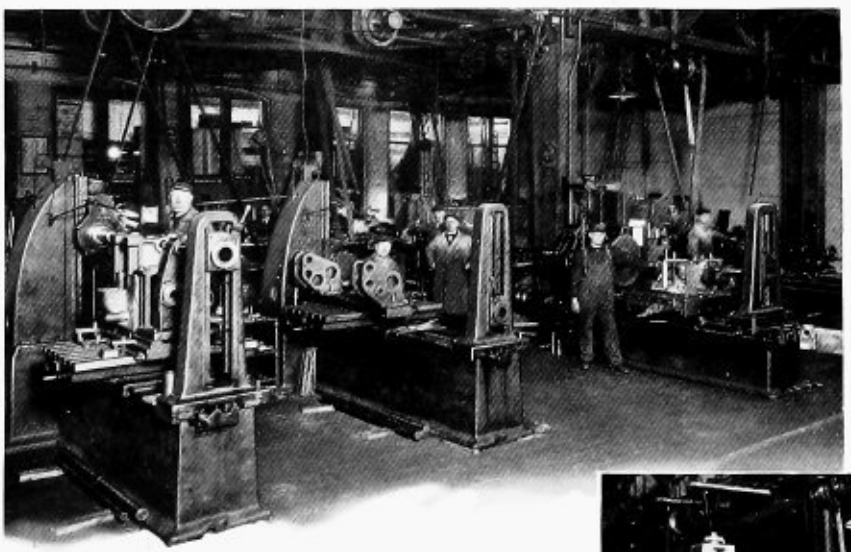
Maximum Capacities—**Horizontal Type**

Spindle		Vertical Adjust. Head on Col.	Table Travel	Carriage Travel	Bed Length
Travel	Diam.				
48″	3½″	30″	36″	48″	96″
72″	4″	24″	48″	44″	78″
24″	3″	20″	32″	72″	108″

Vertical Type

Turrret Traverse	Max. Length Boring Bar	Table to Cross Bar	Table Swing
16″	16″	16″	28″

NOTE: In addition see machine below



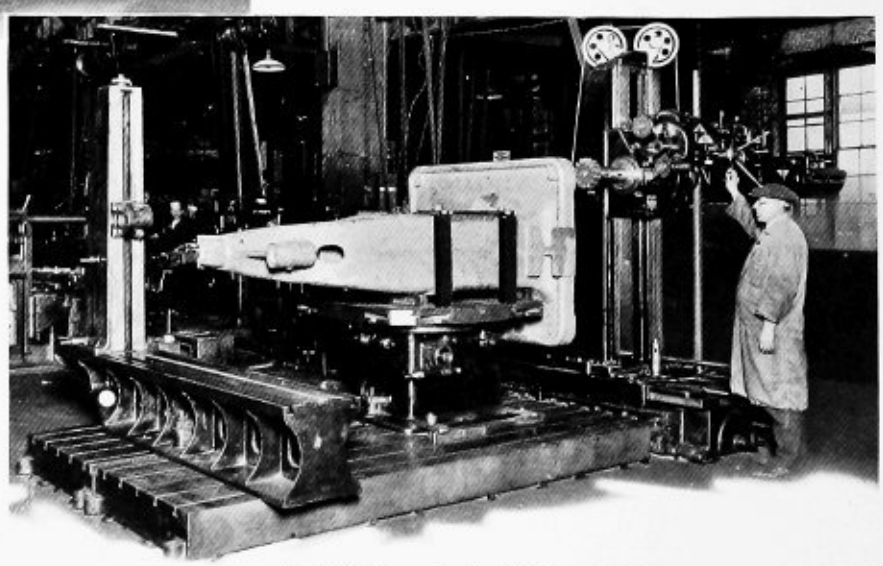
A Section of the Boring Mill Department

Gear Cutting Machines

Maximum Capacities

Machine	Style of Gear	Diam.	Face	Diametral Pitch	
				C. I.	Steel
Gear Cutter	Spur	48″	10″	4	5
Hobber	Spur or Helical	36″	8″	all	all
Shaper	Spur	*35″ †25″	*5″ †3″	4	4
Generator	Bevel	18″	4″	all	all
Rack Cutter	Rack	48″	8″	2	3

* External † Internal



Suitable for a Large Variety of Work

GENERAL SPECIFICATIONS—**Floor Boring Machine (above)**

Diameter of Spindle	4″
Longitudinal travel of spindle	30″
Vertical adjustment of head on column	54″
Horizontal adjustment of column	62″
Minimum distance work bed to center of spindle	22″
Maximum distance work bed to center of spindle	76″
Maximum distance from face of spindle to boring bar support	113″
Size of work bed	84″ x 120″

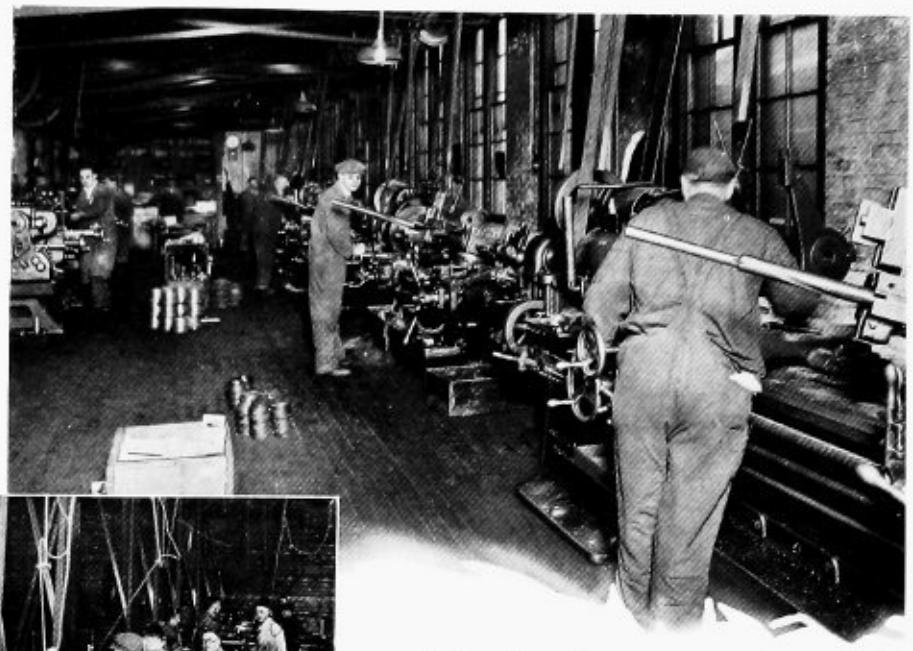
Tools and Fixtures. The tool room is suitably adapted for the making of special tools and fixtures. At times this department has been enlarged to accommodate the building of special jigs, fixtures and dies to customers' specifications.

Turret Lathes
Maximum Capacities

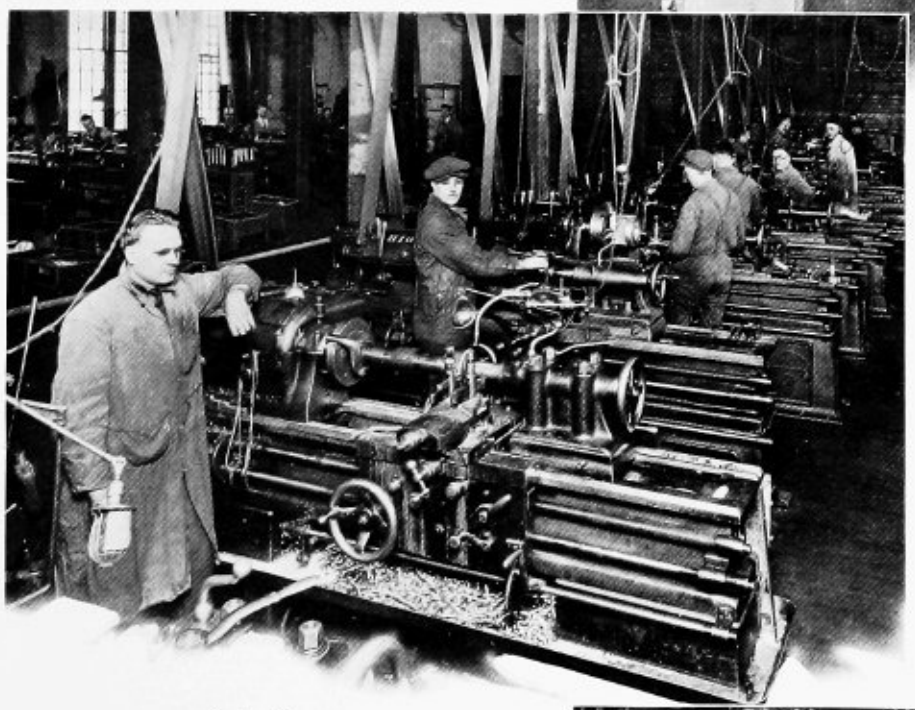
Swing over Ways	Swing over Carriage	Traverse of Turret	Maximum Length Boring Bar	Hole thru Spindle
16½"	12½"	26"	—	2¼"
21"	11¾"	40"	39"	1⅜"
24"	13⅞"	44"	43½"	2¼"

Automatics
Maximum Capacities

Spindle Capacity	Length of Feed	Number Spindles
1¼"	5"	4
2¼"	24"	1
2½"	18"	1
3⅛"	36"	1
3¼"	12"	1
4¼"	12"	1
7¾"	18"	1



A Few Turret Lathes



Lathe Department

Lathes
Maximum Capacites

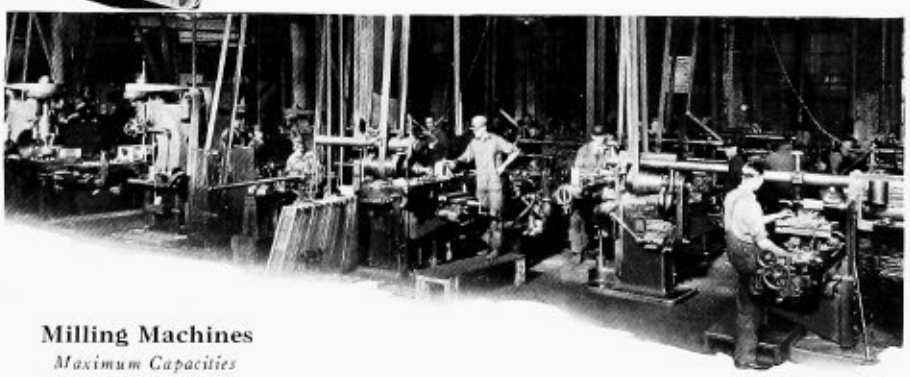
	Swing over Ways	Swing over Carriage	Bed Length	Distance between Centers
†	14"	8"	8'	4' 0"
†	16"	10"	6'	2' 6"
†	18"	10"	12'	8' 0"
*	18"	12"	20'	16' 6"
†	20"	13"	10'	6' 0"
*	20"	12"	15'	12' 0"
*	24"	14"	30'	24' 7"

†Standard Engine Lathes. *Shaft Turning Lathes.

Thread Cutting Machines
Maximum Capacities

	Length btw. Centers	Dia.	Lead Standard Gears	Lead Special Gears	Depth Cut	Collet	Follow Rest
*	132"	6"	.08" to 15"	.04" to 24"	⅝"	3"	3"
†	144"	6"	.10" to 2"	.06" to 13"	¼"	—	2"

*Thread Millers (cut Acme Threads)
†Automatic Lathes (cut Square Threads)



Milling Machines
Maximum Capacities

Type	Table Surface	Long. Table Travel	Cross Table Travel	Vert. Knee Travel	Col'm to Braces
Plain Horiz.	64¼" x 16½"	42"	12"	19"	37¼"
Plain Horiz.	61" x 18"	42"	14"	20"	32"
Univ. Horiz.	52" x 12"	34"	10"	19"	22"
Vertical	61" x 18"	62"	20"	22"	*24"

*Distance, Spindle to face

Heat Treating and Forging. The equipment contained in these departments is extremely valuable to concerns desiring to have steel heat treated under scientific methods. It consists of steam hammers, gas furnaces, cyanide pots, lead pots, carbonizing furnaces, hardening press, electric drawing furnace, and Bellis Lava System of Hardening. This last mentioned system prevents oxidizing (scaling) and shrinking of steels while hardening.

A Well Equipped Hardening Room

Drilling Machines

Maximum Capacities—**Radial Drills**

Arm	Spindle Travel	Arm Vertical Travel	Column to Spindle		Spindle to Base	
			Min.	Max.	Min.	Max.
3′	14″	38″	16½″	40½″	6″	58″
4′	16¼″	33½″	19″	51¼″	7⅝″	56½″
5′	16½″	34″	19¾″	62½″	7½″	57″

Multiple Spindle Drills

Number Spindles	Distance between Spindles	Column to Spindle	Spindle to Table		Spindle Traverse	Vert. Adj. Head
			Min.	Max.		
2	9″	8″	0″	36″	3½″	13″
3	9″	8″	0″	36″	3½″	13″

Deep Hole Drilling Machine

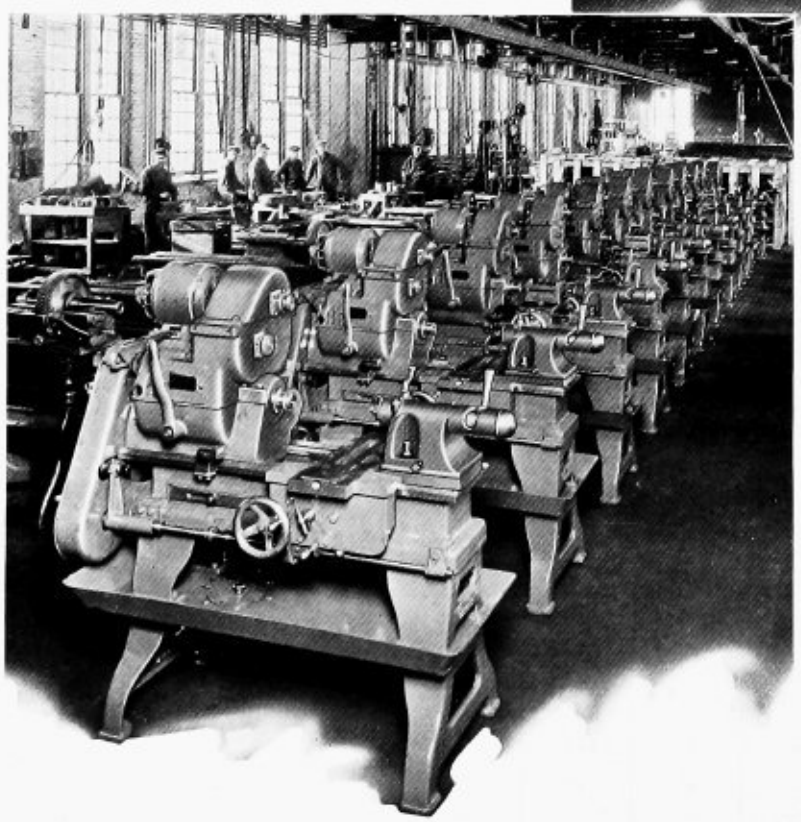
Maximum distance Chuck to Turret	Capacity Steady Rest	Length of Bed
48″	4″	96″
72″	4″	120″
96″	8″	144″

Grinding Machines

Maximum Capacities

Type	Swing over Ways	Distance between Centers	Maximum depth of hole
Universal	10″	72″	—
Universal	12″	60″	—
Internal	15″	—	11″

Systematic Assembling of Machines

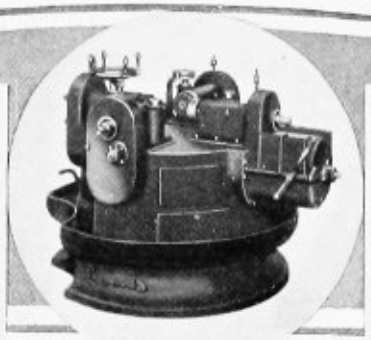


Finished Machines—Ready for Shipment

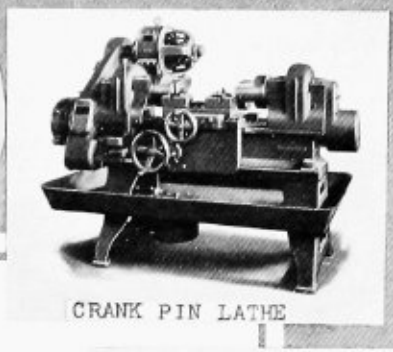
Assembly Department. A separate, well lighted building is given to assembling, and is arranged for the sub-assembling of machine units and the assembling of the entire machines. This department has a floor space of over 17,000 square feet, and is equipped with overhead cranes for the efficient handling of parts. As may be noted from the illustrations, this layout provides for a systematic arrangement of the machines for assembling and running off.

Cutter and Small Tool Departments. For over forty years, this department has been making a complete line of standard and special milling cutters which have been constantly improved through careful research and continuous use. The equipment used for this work consists of backing off and form relieving machines, production grinders, production milling machines and lathes, all of which are extremely advantageous in the manufacture of small tools.

UNIVERSAL JOINT LATHE



FOUR WAY DRILL



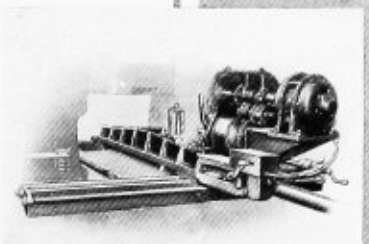
CRANK PIN LATHE

WORM GRINDER

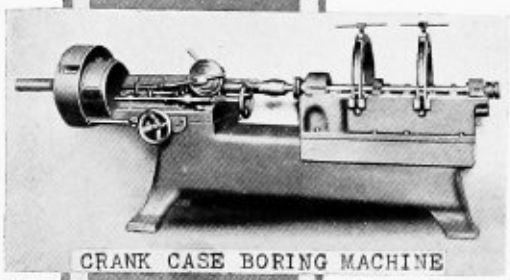
REED-PRENTICE MACHINE TOOLS

A few of the special machines designed and built for our customers' needs.

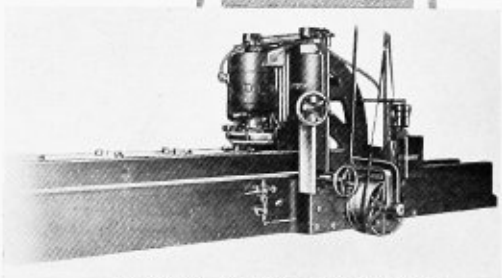
Let our Economical Production Facilities be profitable to you also.



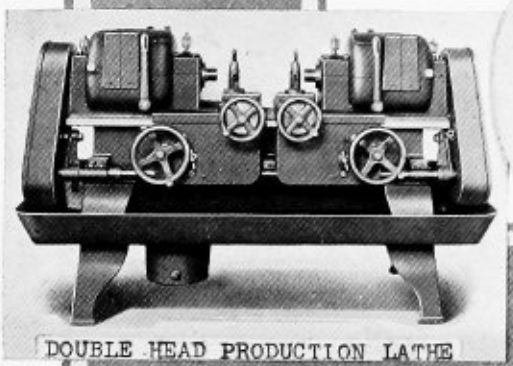
WHITCOMB PORTABLE SHAPER



CRANK CASE BORING MACHINE

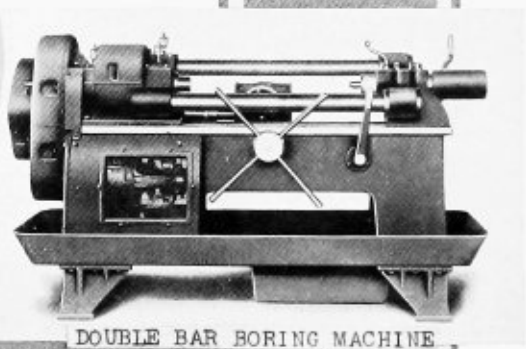


PLANER TYPE GRINDER

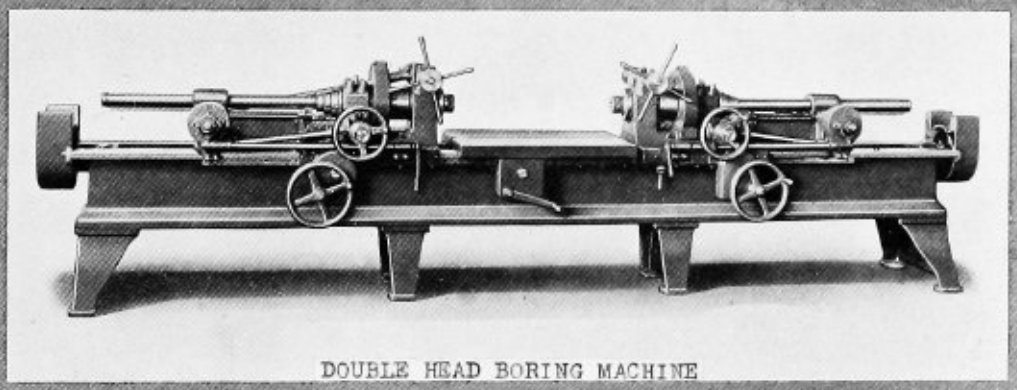


DOUBLE HEAD PRODUCTION LATHE

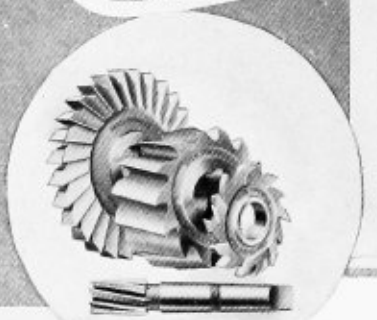
HOLLOW SPINDLE LATHE



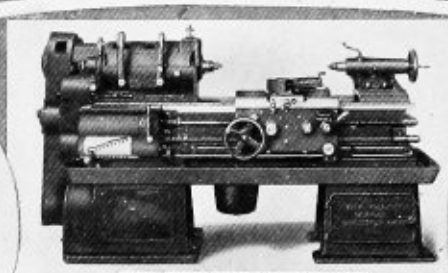
DOUBLE BAR BORING MACHINE



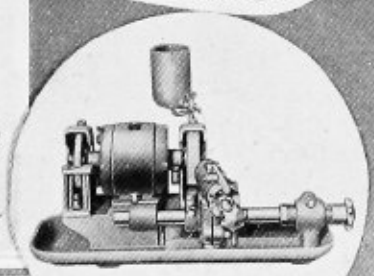
DOUBLE HEAD BORING MACHINE



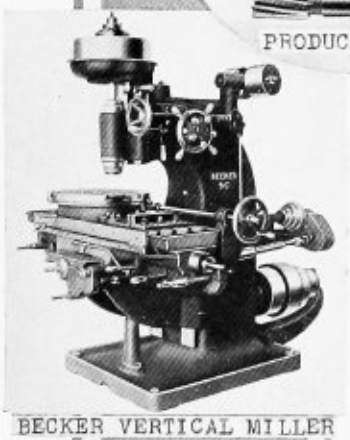
PRODUCTION CUTTERS



GEARED HEAD LATHE



ENGRAVERS' CUTTER GRINDER



BECKER VERTICAL MILLER

REED-PRENTICE COMPANY

MACHINE TOOLS

WORCESTER MASS., U.S.A.

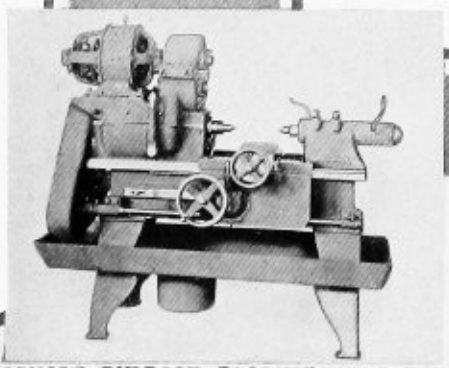
This complete line of standard machine tools is continuously serving manufacturers all over the world. Descriptive matter with general specifications of these machines and the special ones on the previous page will be sent at your request.

BECKER DIE SINKER

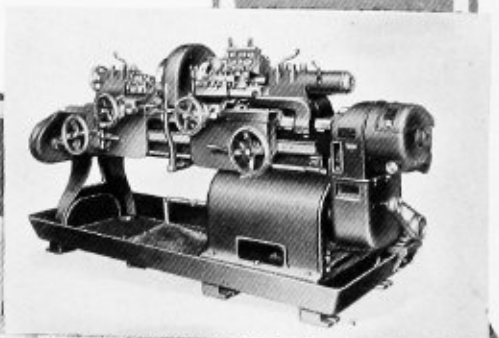
CONE HEAD LATHE

Lathes
Radial Drills
"Becker" Millers
"Whitcomb" Planers
Production Cutters
Special Machinery

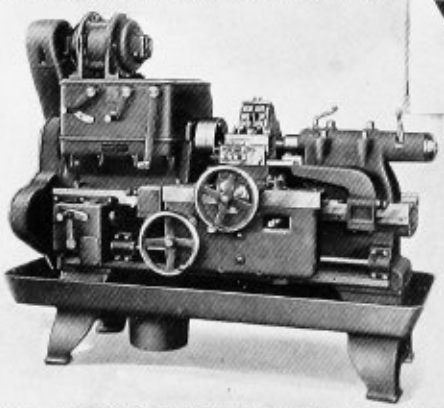
WHITCOMB PLANER



SINGLE PURPOSE PRODUCTION LATHE

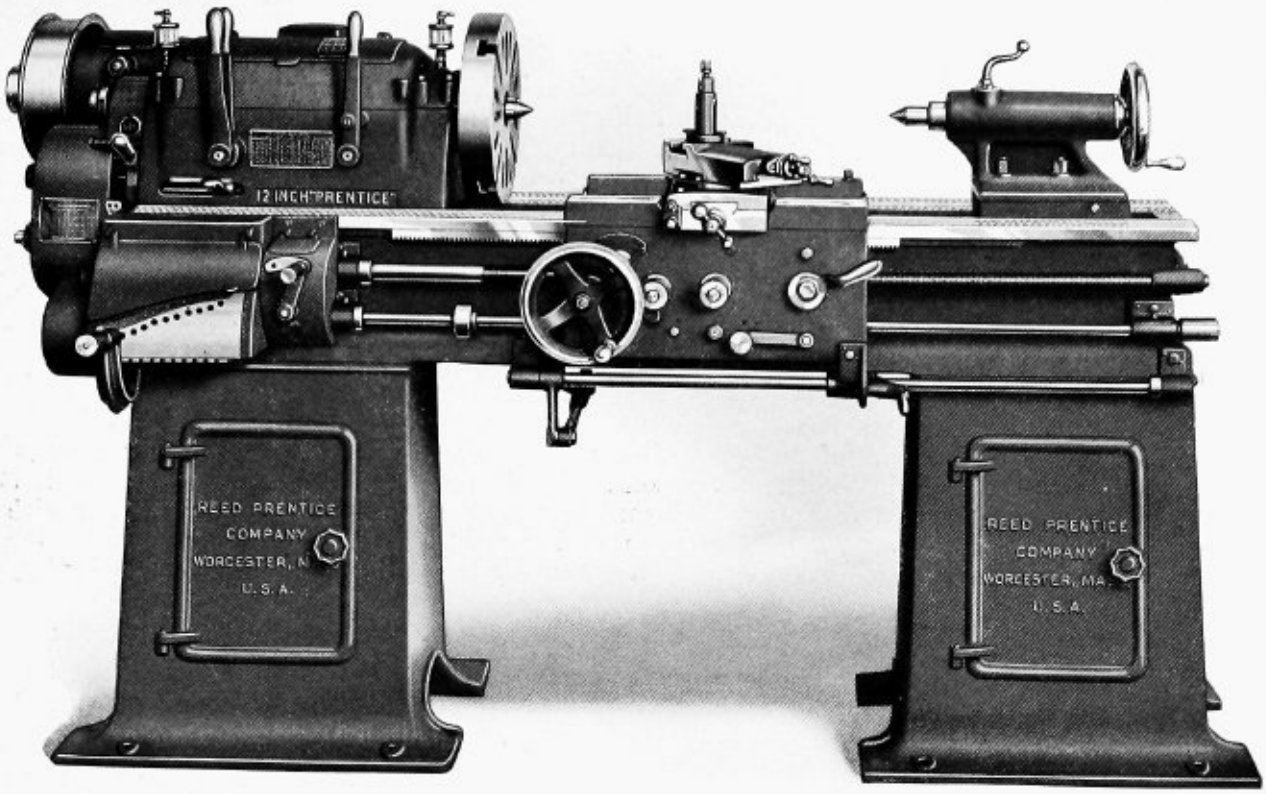


DOUBLE END CENTER DRIVE LATHE



FOUR SPEED PRODUCTION LATHE

THE DAVIS PRESS WORCESTER MASS. U.S.A.—SM-7-8-24



12-INCH STANDARD GEARED HEAD LATHE

PATENTED

CODE—APE

THE IDEAL COMBINATION OF

ACCURACY—RAPID MANIPULATION—HIGH POWER

SPECIFICATIONS

Swing over ways	14½″
Swing over compound rest	9″
Capacity of steady rest	4″
Distance between centers—6′ bed	30½″
Length taper attachment will turn at one setting	16″
Front bearing, diameter and length	$2\frac{3}{16}$″ x 4″
Rear bearing, diameter and length	$1\frac{13}{16}$″ x $2\frac{11}{16}$″
Spindle nose, diameter and threads	2½″ 6P
Diameter hole in spindle	1⅝″
Taper hole in spindle	Jarno No. 11
Size of tools	½″ x 1″
Pitch of lead screw	5
Feeds per revolution	.003″ .050″

Spindle speeds—number	8
Quick change gear mechanism cuts from	4 to 60
Range of spindle spseds R. P. M.	26–375
Speed of driving pulley R. P. M.	400
Driving pulleys, diameter and face	10⅜″ x 3⅛″
Width of belt	2½″
Weight net—6′ bed	2000 lbs.
Weight of extra foot of bed	75 lbs.
Weight boxed—6′ bed	2600 lbs.
Weight boxed, per extra foot of bed	110 lbs.
Cubic feet boxed—6′ bed	96
Cubic feet boxed, per extra foot of bed	7

MACHINE TOOLS

REED-PRENTICE COMPANY

WORCESTER MASS., U. S. A.

REED-PRENTICE MACHINE TOOLS

The Reed-Prentice Geared Head Lathe is the first and only lathe with an all-friction clutch headstock. It is the most rapid speed-changing lathe built.

In its compact design are incorporated new, improved features which are pioneers in lathe development. Whether turning, facing, boring or thread-cutting, the Reed-Prentice Lathe holds to the highest standards of accuracy and efficiency.

PULLEY:

The drive is direct from the main line shaft, or motor shaft, to a single pulley running on ball bearings. The pulley, which is exceptionally wide, is offset so that the belt-pull comes directly over the ball bearings. It is flanged to prevent the belt from slipping off when taking heavy cuts. The flanges also serve to keep the belt free from any oil which may be on the pulley.

CONTROL:

Instant start, stop and reverse of the spindle is obtained by a lever which is located on the apron and operates a mechanism in the headstock consisting of three bevel gears, and a double-friction clutch. For cutting internal threads or any threads ending against a shoulder, we can furnish a stop motion on the apron to operate the reverse rod automatically. This device will stop the lathe so closely that a groove a few thousandths wider than the thread being cut is sufficient for clearance.

SPEEDS:

The eight spindle speeds are selected by means of three levers on front of headstock. The levers operate powerful friction clutches, so arranged that it is impossible to engage conflicting gear ratios. All speeds can be changed instantly without strain on the mechanism.

QUICK CHANGE GEAR:

The quick-change gear box provides 44 changes of feed and 44 different threads of the most useful pitches.

The lead screw is of large diameter and coarse pitch, accurate to a high degree. When using the lead screw the feed rod does not rotate and vice versa. An automatic stop is provided on the feed rod to stop the feed at any desired travel of the carriage.

Easy-reading index plates show the relative position of speed and feed change levers. They are simple and comprehensive. The inexperienced operator will have no difficulty in securing any desired speed or feed.

SPINDLE:

The spindle is made from a high grade steel, with journals hardened and ground. End thrust is taken by a step firmly bolted to the headstock independent of spindle bearings. Spindle bearings are made of high-grade bronze, and are provided with a very effective oiling system. The taper hole in the spindle is a modified Jarno No. 11. An adapter can be furnished to accommodate either Morse or B. & S. tapers at a slight extra charge.

CARRIAGE:

The carriage is extra heavy, having an exceptionally rigid and wide bridge, and long bearings on the V's. Both compound and cross feed screws are provided with index dials reading to thousandths of an inch. The compound block is secured by four heavy bolts.

APRON:

The apron of the double support type in rigidly bolted to the carriage. A safety device provides against the simultaneous engaging of both feed rod gearing and lead screw nut. The Start—Stop—and Reverse of spindle is controlled by a lever at the lower right corner of the apron.

TAILSTOCK:

The tailstock has lateral adjustment for taper turning, and is the original offset type brought out by this Company. It is secured to the bed by two heavy bolts.

STANDARD EQUIPMENT:

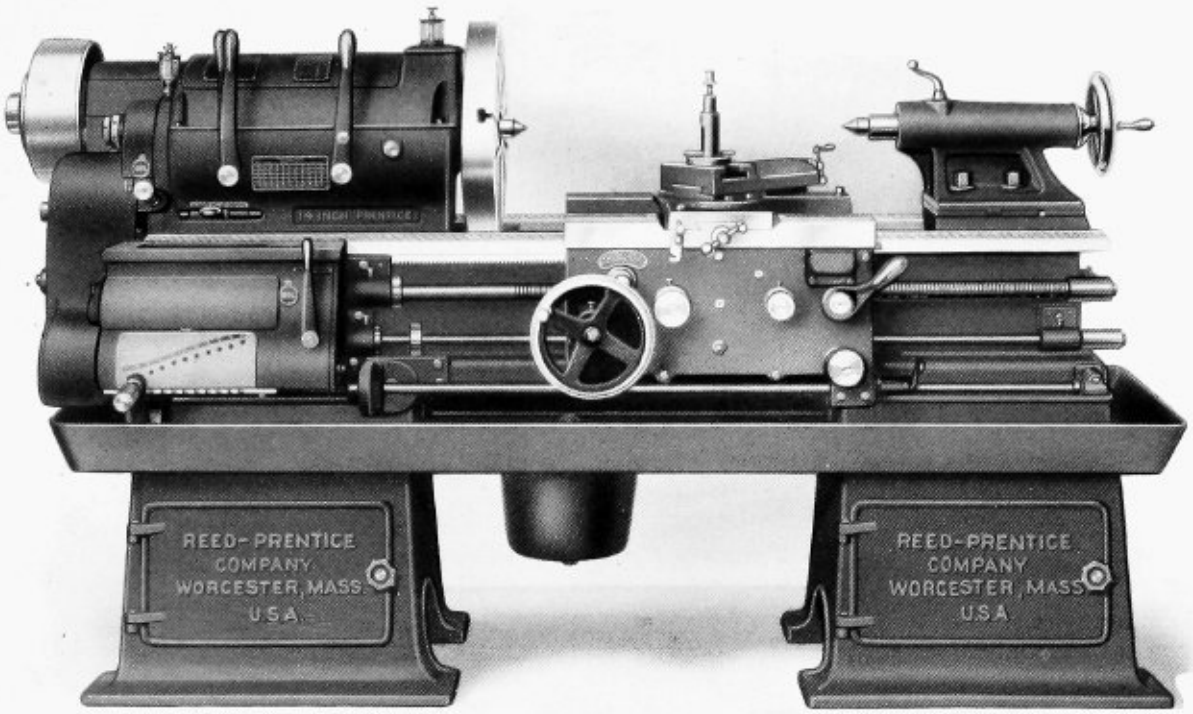
Steady rest, large and small face plates, compound rest, regular tool post, quick change gear mechanism, thread chasing dial and all necessary wrenches.

SPECIAL EQUIPMENT:

Taper and relieving attachments, follow rest, oil pan, oil pump and piping, closer type collect attachment and collets, motor attachment, either belt or gear connected, tight and loose pulley or double- or single-friction pulley countershaft, carriage or bed turrets, chuck plate, special centers, micrometer bed stop, automatic spindle stop, European tool post, and other lengths of bed than 6'.

THE DAVIS PRESS WORCESTER MASS. U.S.A. 3M-2-27-24

14-Inch Standard Geared Head Lathe



Standard Machine Complete with Oil Pan

The Ideal Combination of
Accuracy—Rapid Manipulation—High Power

SPECIFICATIONS

CODE—BARK

Swing over ways	16½″
Swing over compound rest	10¾″
Capacity of steady rest	4½″
Distance between centers—7′ bed	39″
Length taper attachment will turn at one setting	18″
Front bearing, diameter and length	2½″ x 5″
Rear bearing, diameter and length	1 13/16″ x 3″
Spindle nose, diameter and threads	2¾″—6P
Diameter hole through spindle	1¼″
Taper hole in spindle	Jarno No. 12
Size of tools	⅝″ x 1¼″
Pitch of lead screw	5
Feeds per revolution (range)	.0050 to .0750

Quick change gear mechanism cuts from	4 to 60
Spindle speeds—number	8
Range of spindle speeds R. P. M.	26 to 375
Speed of driving pulley R. P. M.	400
Driving pulleys, diameter and face	12″ x 3¼″
Width of belt	3″
Weight net—7′ bed	2900 lbs.
Weight per extra foot of bed	115 lbs.
Weight boxed—7′ bed	3450 lbs.
Weight boxed, per extra foot of bed	140 lbs.
Cubic feet boxed—7′ bed	112
Cubic feet boxed, per extra foot of bed	10

REED-PRENTICE COMPANY
MACHINE TOOLS
WORCESTER MASS., U. S. A.

Circular 10-214-1

REED-PRENTICE MACHINE TOOLS

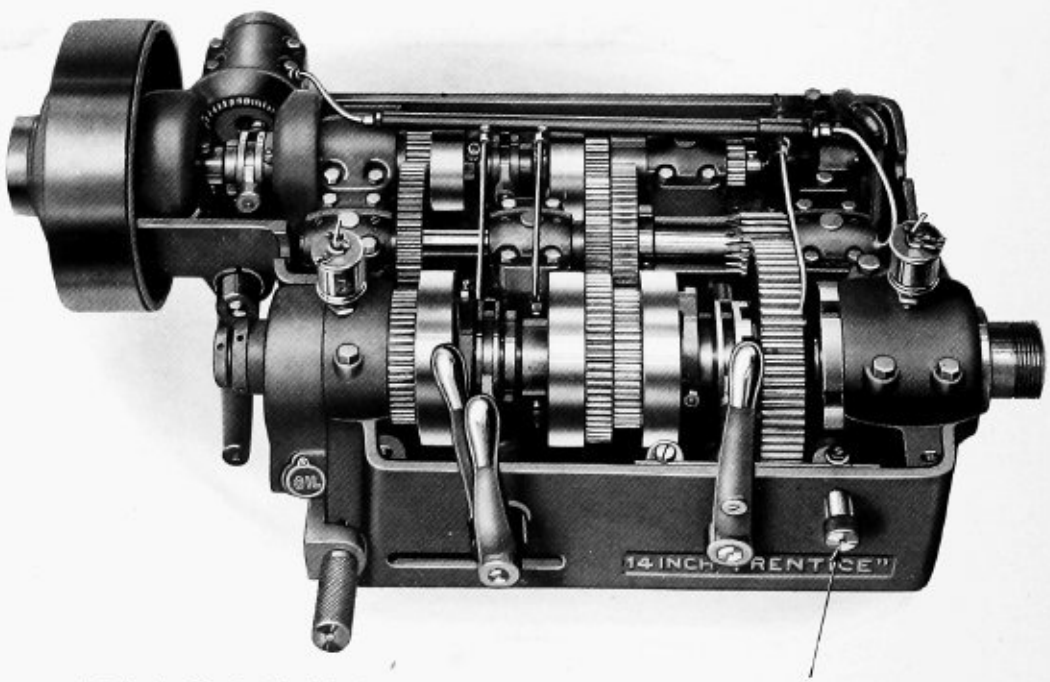
14-Inch Standard Geared Head Lathe

THE Reed-Prentice Geared Head Lathe is the first and only lathe with an all-friction clutch headstock. It is the most rapid speed changing lathe built.

In the compact design are incorporated new improved features which are pioneers in lathe development. This lathe offers a convenience in manipulation appealing to the skilled mechanic, and produces work of a most accurate nature. The unusual attachments which form the complete equipment make these machines invaluable for precision and tool room work, as well as for general manufacturing.

Headstock. This selective type of headstock permits the changing of spindle speeds without slowing down the machine or removing cutting tools from the work. All spindle speeds are obtained by the use of internal expanding friction clutches of Reed-Prentice special and patented design. This arrangement keeps the spur gears constantly in mesh their entire width of face and the full depth of tooth at all times.

The speed changing is so rapid that the change from one speed to another cannot be detected on the work, even should the changes be made while the tool is in actual cut. Eight spindle speeds can be obtained from three levers conveniently located at the front of the headstock. The engaging of conflicting gear ratios is impossible as it is necessary that the levers are in operative position in order to start the spindle; therefore, any one of the levers, when brought to a neutral position, will immediately stop the spindle. An index plate shows the relative position of the levers for different speeds.



A Selective Head with eight instantaneous speed changes. Note the Plunger for locking Spindle when removing Chucks or Face Plates. (Illustration shows head with cover removed.)

The spindle is made from a high grade steel with journals hardened and ground, while the spindle bearings are of a high grade bronze, scraped to the spindle to insure perfect alignment and maximum bearing surface. The end thrust of the spindle is taken by a ball-bearing and a check nut. The taper hole in the spindle is a modified Jarno No. 12. An adapter can be furnished to accommodate either Morse or B & S tapers at a slight extra charge.

The reversing mechanism on the headstock is located adjacent to the pulley and is operated from a control handle on the apron, thereby centralizing the control of the machine.

The back gears and intermediate gear in the reversing unit are on a plane with the spindle and pulley, thus permitting a rigid construction of the shipper mechanism and easy access to the friction fingers when adjustment is necessary.

To remove the face plate from the spindle nose a locking mechanism has been provided in the form of a sliding plunger which engages with a hardened steel notched ring keyed to the spindle. This mechanism prevents the rotation of the spindle and permits the removal of the face plate or chucks without transmitting any strain to the teeth of the headstock gears.

A safety device has been arranged in connection with the plunger mechanism, and will not permit the engagement of the spindle clutch until the plunger has been removed. This prevents the starting of the spindle with the plunger in locking position and when the clutch is engaged the locking plunger must retain its neutral position.

The drive is from a single pulley which may be driven direct from the main line shaft. The pulley is exceptionally wide, runs on ball-bearings and is offset so that the belt pull comes directly over the bearings.

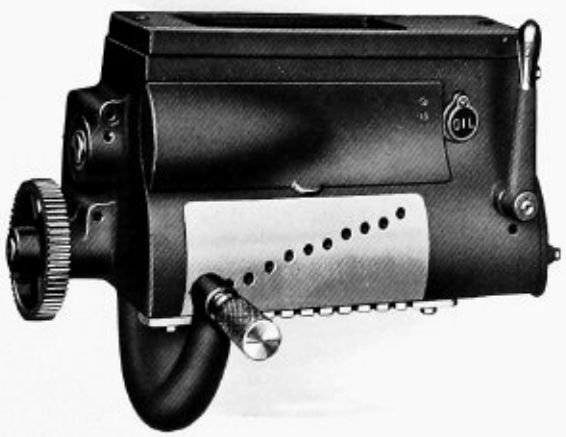
A geared pump in the headstock supplies the lubrication for all bearings, with the exception of the two main spindle bearings, these being supplied from sight feed oilers.

Tailstock. The tailstock has lateral adjustment for taper turning and is the original offset type brought out by this company. It is secured to the bed by two heavy bolts.

Bed. The top surface of the bed is of the drop V type, the inside V's being lower than the outside V's, thereby preventing excessive cut in the bridge of the carriage. The bed is both wide and deep, also provided with heavy ties at close intervals.

Carriage. This is extra heavy, having an exceptionally rigid and wide bridge, and long bearings on the V's. Both compound and cross feed screws are provided with index dials reading to thousandths of an inch. The compound block is graduated to 90° on each side and secured by four heavy bolts.

Quick Change Gear. The quick change gear mechanism receives its power from the rocker gears at the end of the head so that by engaging the proper rocker gears with the spindle, right or left hand threads may be cut.



The Quick Change Gear Box

The various leads or pitches are obtained by properly engaging the gears in the end works and the front gear bank mounted in the quick change gear box. The end gearing provides four changes obtained through a sliding spring key, controlled by a projecting lever in the slot at the front of the headstock.

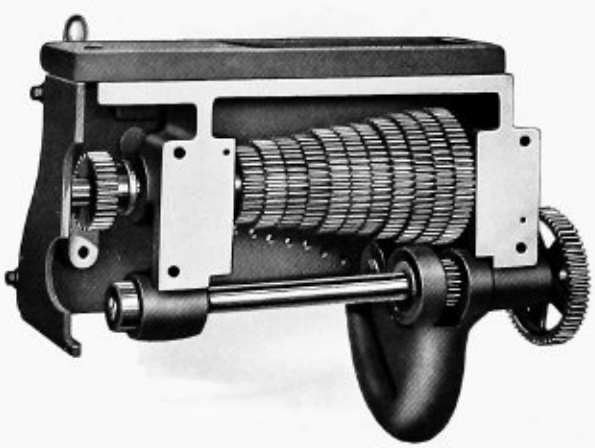
The quick change gear box provides eleven changes, any one of which is obtained by a sliding yoke carrying an intermediate gear, engaging with respective gears in the bank.

The relative positions of the feed and thread changes are shown by easy reading index plates which are simple and comprehensive. It is therefore a very simple problem to obtain any one of the forty-four pitch changes provided by the combination of four end changes and the eleven in the change gear box.

When arranged to cut Metric pitches, the quick change box provides nine changes and the end gearing four changes, making a total of thirty-six. When cutting English pitches, the sliding yoke shaft is the driving element in the front gear bank, and for Metric pitches, the gear bank becomes the driver.

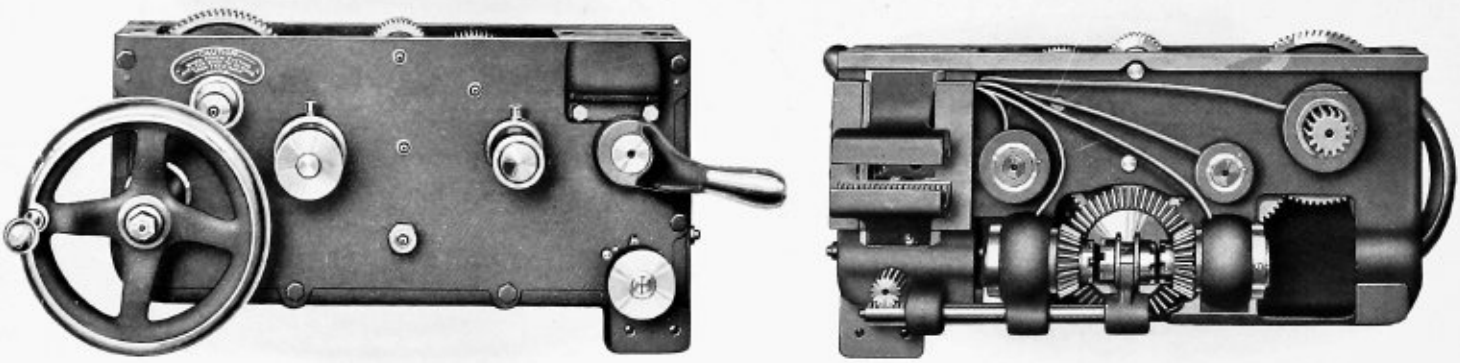
This method, while it means that slight changes are necessary, is the only correct method by which the proper pitches of each system are obtainable. The quick change gear device is not convertible from one system to another, but can be supplied for one or the other.

The forty-four English, or the thirty-six Metric changes are used in connection with both the lead screw and the feed rod. When used in connection with the lead screw, the feed rod does not revolve, and vice versa. This is accomplished by sliding a gear into mesh with either the lead screw gear or the feed rod gear.



Showing the rear construction

All gearing is properly guarded, well supported and supplied with proper lubricating facilities.



Double Wall Apron with many outstanding features

Apron. The double plate construction of the apron permits access to every part of the internal mechanism without removing it from the machine. All shafts and studs are supported at both ends in bronze bearings. The rear plate is made in box form and is securely bolted to the carriage, while the front plate is bolted and dowled to the rear plate and may readily be taken off by removing the cap screws.

The open and shut nut is planed into the guide cast integral with the rear plate. A locking mechanism, simple and rigid in construction, prevents the engagement of the longitudinal feed when the open and shut nut is in operation, and vice versa. This is accomplished by intercepting a ring forming part of the nut operating cam, with a part controlled by a device actuating the tooth clutch between the reverse bevels in the apron.

Both longitudinal and cross feeds are provided and both are friction operated.

The rack pinion may be withdrawn and disengaged from the rack when screw cutting, thus preventing the hand wheel from rotating during this operation.

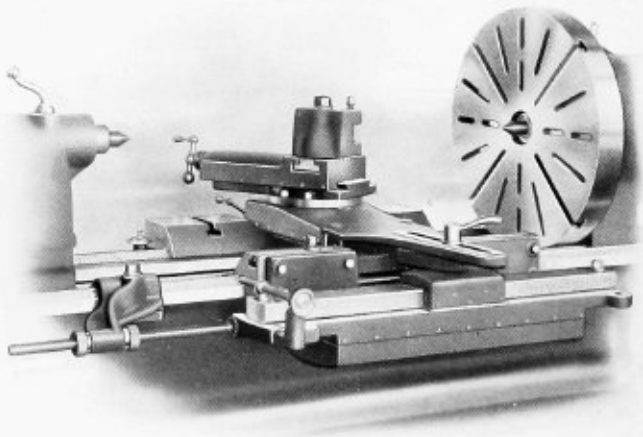
An oil reservoir with a protecting dust cap has been placed at the upper right hand corner of the apron from which all the bearings in the rear plate are lubricated. The front bearings are lubricated by oilers provided at each bearing.

Instant start, stop and reverse of the spindle is obtained by a lever located on the apron and operating the reversing mechanism in the headstock. For cutting internal threads or any threads ending against a shoulder, a stop motion can be furnished on the apron to operate the reverse rod automatically. This device will stop the lathe so closely that a groove a few thousandths wider than the thread being cut is sufficient for clearance.

For convenience when thread cutting, a thread chasing dial is furnished as part of standard equipment.

Taper Attachment. The Reed-Prentice taper attachment is designed so that the action is delivered direct to the bottom block by an extension clamped to the taper bar shoe. The attachment is arranged at the rear of the carriage and the endwise location of the taper bar controlled through an adjustment provided by the bracket clamped to the rear V of the bed. The unit is readily attached to the compound block, and the approximate positioning of the tool to the taper bar is obtained by a hand clamp on the shoe. When it is necessary to use the bottom block for adjustment, the taper attachment will deliver its action to the bottom block through the cross feed screw, also secured to the taper bar shoe.

The maximum length of taper obtainable at one setting is 18″ while the largest taper is 16 degrees and 45 minutes, being equivalent to 3½″ to the foot. The positioning of the taper bar is controlled by an adjusting screw.



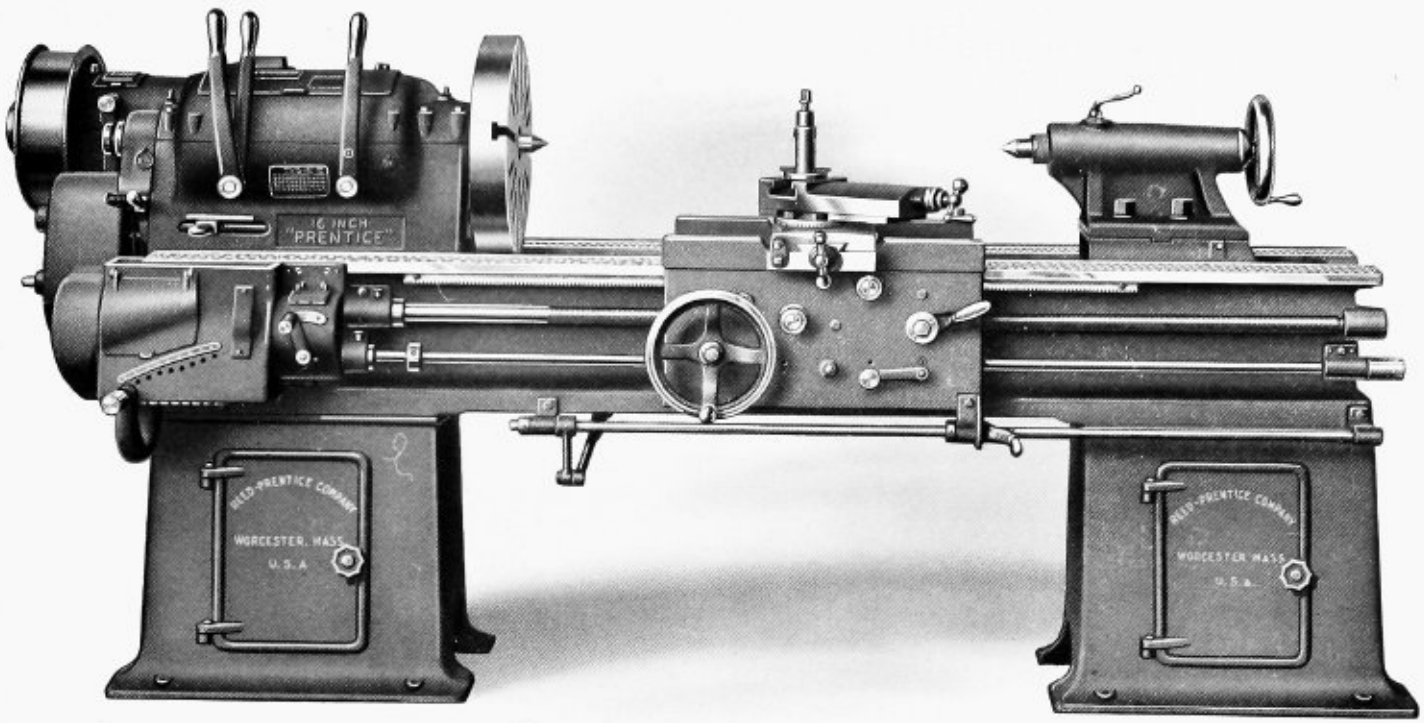
A convenient Taper Attachment

Standard Equipment. Steady rest, large and small face plates, compound rest, regular tool post, quick change gear mechanism, thread-chasing dial and all necessary wrenches.

Additional Equipment. Taper and relieving attachments, follow rest, oil pan, oil pump and piping, closer type collet attachment and collets, motor attachment (either belt or gear connected), tight and loose pulley or double or single friction pulley countershaft, carriage and bed turrets, chuck plate, special centers, micrometer bed stop, automatic spindle stop, European tool post, and other lengths of beds than 7 foot.

THE DAVIS PRESS WORCESTER MASS. U.S.A. 3M-6-24

16-Inch Standard Geared Head Lathe



The Ideal Combination of
Accuracy—Rapid Manipulation—High Power

SPECIFICATIONS

CODE—CAMP

Swing over ways	18½″
Swing over compound rest	11¾″
Capacity of steady rest	5″
Distance between centers—6′ bed	22″
Length taper attachment will turn at one setting	20″
Front bearing, diameter and length	2 13/16″ x 5½″
Rear bearing, diameter and length	2 3/16″ x 3½″
Spindle nose, diameter and threads	3, 6P
Diameter hole through spindle	1 3/8″
Taper hole in spindle	Jarno No. 13
Size of tools	5/8″ x 1¼″
Pitch of lead screw	4
Feeds per revolution (range)	.010 to .151
Quick change gear mechanism cuts from	2 to 30
Spindle speeds—number	8
Range of spindle speeds R. P. M.	26 to 375
Speed of driving pulley R. P. M.	400
Driving pulley, diameter and face	12″ x 3¾″
Width of belt	3½″
Weight net—6′ bed	3300 lbs.
Weight per extra foot of bed	125 lbs.
Weight boxed—6′ bed	3900 lbs.
Weight boxed, per extra foot of bed	190 lbs.
Cubic feet boxed—6′ bed	126
Cubic feet boxed, per extra foot of bed	16

REED-PRENTICE COMPANY
MACHINE TOOLS
WORCESTER MASS., U.S.A.

Circular 10-216-1

REED-PRENTICE MACHINE TOOLS

THE Reed-Prentice Geared Head Lathe is the first and only lathe with an all-friction clutch headstock. It is the most rapid speed-changing lathe built.

In its compact design are incorporated new, improved features which are pioneers in lathe development. Whether turning, facing, boring or thread-cutting, the Reed-Prentice Lathe holds to the highest standards of accuracy and efficiency.

Pulley. The drive is direct from the main line shaft, or motor shaft, to a single pulley running on ball bearings. The pulley, which is exceptionally wide, is offset so that the belt-pull comes directly over the ball bearings. It is flanged to prevent the belt from slipping off when taking heavy cuts. The flanges also serve to keep the belt free from any oil which may be on the pulley.

Control. Instant start, stop and reverse of the spindle is obtained by a lever which is located on the apron and operates a mechanism in the headstock consisting of three bevel gears, and a double-friction clutch. For cutting internal threads or any threads ending against a shoulder, we can furnish a stop motion on the apron to operate the reverse rod automatically. This device will stop the lathe so closely that a groove a few thousandths wider than the thread being cut is sufficient for clearance.

Speeds. The eight spindle speeds are selected by means of three levers on front of headstock. The levers operate powerful friction clutches, so arranged that it is impossible to engage conflicting gear ratios. All speeds can be changed instantly without strain on the mechanism.

Quick Change Gear. The quick-change gear box provides 44 changes of feed and 44 different threads of the most useful pitches.

The lead screw is of large diameter and coarse pitch, accurate to a high degree. When using the lead screw the feed rod does not rotate and vice versa. An automatic stop is provided on the feed rod to stop the feed at any desired travel of the carriage.

Easy-reading index plates show the relative position of speed and feed change levers. They are simple and comprehensive. The inexperienced operator will have no difficulty in securing any desired speed or feed.

Spindle. The spindle is made from a high grade steel, with journals hardened and ground. End thrust is taken by a step firmly bolted to the headstock independent of spindle bearings. Spindle bearings are made of high-grade bronze, and are provided with a very effective oiling system. The taper hole in the spindle is a modified Jarno No. 13. An adapter can be furnished to accommodate either Morse or B. & S. tapers at a slight extra charge.

Carriage. The carriage is extra heavy, having an exceptionally rigid and wide bridge, and long bearings on the V's. Both compound and cross feed screws are provided with index dials reading to thousandths of an inch. The compound block is secured by four heavy bolts.

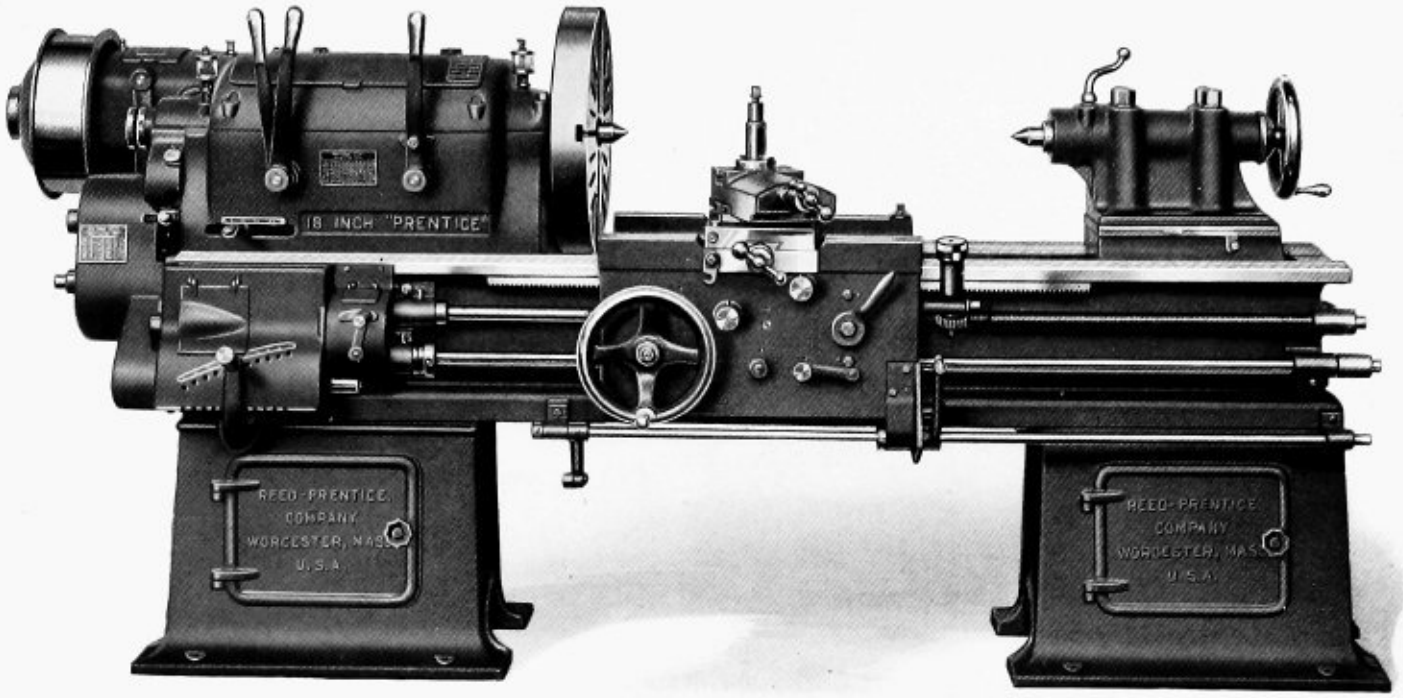
Apron. The apron of the double support type in rigidly bolted to the carriage. A safety device provides against the simultaneous engaging of both feed rod gearing and lead screw nut. The Start—Stop—and Reverse of spindle is controlled by a lever at the lower right corner of the apron.

Tailstock. The tailstock has lateral adjustment for taper turning, and is the original offset type brought out by this Company. It is secured to the bed by two heavy bolts.

Standard Equipment. Steady rest, large and small face plates, compound rest, regular tool post, quick change gear mechanism, thread-chasing dial and all necessary wrenches.

Additional Equipment. Taper and relieving attachments, follow rest, oil pan, oil pump and piping, closer type collet attachment and collets, motor attachment (either belt or gear connected), tight and loose pulley or double or single friction pulley countershaft, carriage and bed turrets, chuck plate, special centers, micrometer bed stop, automatic spindle stop, European tool post, and other lengths of beds than 6 foot.

THE DAVIS PRESS WORCESTER MASS. U.S.A. 3M 10-15-24



18-INCH STANDARD GEARED HEAD LATHE

PATENTED

THE IDEAL COMBINATION OF

ACCURACY — RAPID MANIPULATION — HIGH POWER

SPECIFICATIONS

CODE—DAB

Swing over ways	20½″	Quick change gear mechanism cuts from	2 to 32
Swing over compound rest	13¼″	Spindle speeds—number	8
Capacity of steady rest	6″	Range of spindle speeds R. P. M.	22–300
Distance between centers—8′ bed	38″	Speed of driving pulley R. P. M.	400
Length taper attachment will turn at one setting	24″	Driving pulley, diameter and face	14″ x 4⅞″
Front bearing, diameter and length	3″ x 5 15/16″	Width of belt	4″
Rear bearing, diameter and length	2⅜″ x 3 9/16″	Weight net—8′ bed	4150 lbs.
Spindle nose, diameter and threads	3¼″–4P	Weight per extra foot of bed	155 lbs.
Diameter hole in spindle	1½″	Weight boxed—8′ bed	4400 lbs.
Taper hole in spindle	Jarno No. 15	Weight boxed, per extra foot of bed	235 lbs.
Size of tools	⅝″ x 1¼″	Cubic feet boxed—8′ bed	150
Pitch of lead screw	4	Cubic feet boxed, per extra foot of bed	18
Feeds per revolution (range)	.0096″–.1529″		

REED-PRENTICE COMPANY

MACHINE TOOLS

WORCESTER MASS., U. S. A.

REED-PRENTICE MACHINE TOOLS

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In its compact design are incorporated new, improved features which are pioneers in lathe development. Whether turning, facing, boring or thread-cutting, the Reed-Prentice Lathe holds to the highest standards of accuracy and efficiency.

PULLEY:

The drive is direct from the main line shaft, or motor shaft, to a single pulley running on ball bearings. The pulley, which is exceptionally wide, is offset so that the belt-pull comes directly over the ball bearings. It is flanged to prevent the belt from slipping off when taking heavy cuts. The flanges also serve to keep the belt free from any oil which may be on the pulley.

CONTROL:

Instant start, stop and reverse of the spindle is obtained by a lever which is located on the apron and operates a mechanism in the headstock consisting of three bevel gears, and a double-friction clutch. For cutting internal threads or any threads ending against a shoulder, a stop motion can be furnished on the apron to operate the reverse rod automatically. This device will stop the lathe so closely that a groove a few thousandths wider than the thread being cut is sufficient for clearance.

SPEEDS:

The eight spindle speeds are selected by means of three levers on front of the headstock. The levers operate powerful friction clutches, so arranged that it is impossible to engage conflicting gear ratios. All speeds can be changed instantly without damage to the mechanism.

QUICK CHANGE GEAR:

The quick-change gear box provides 44 changes of feed and 44 different threads of the most useful pitches.
The lead screw is of large diameter and coarse pitch, accurate to a high degree. When using the lead screw the feed rod does not rotate and vice versa. An automatic stop is provided on the feed rod to stop the feed at any desired travel of the carriage.
Easy-reading index plates show the relative position of speed and feed change levers. They are simple and comprehensive. The inexperienced operator will have no difficulty in securing any desired speed or feed.

SPINDLE:

The spindle is made from a high grade steel, with journals hardened and ground. End thrust is taken by a step firmly bolted to the headstock independent of spindle bearings. Spindle bearings are made of high-grade bronze, and are provided with a very effective oiling system. The taper hole in the spindle is a modified Jarno No. 15. An adapter can be furnished to accommodate either Morse or B. & S. tapers without extra charge.

CARRIAGE:

The carriage is extra heavy, having an exceptionally rigid and wide bridge, and long bearings on the V's. Both compound and cross feed screws are provided with index dials reading to thousandths of an inch. The compound block is secured by four heavy bolts.

APRON:

The apron of the double support type is rigidly bolted to the carriage. A safety device provides against the simultaneous engaging of both feed rod gearing and lead screw nut.
The Start—Stop—and Reverse is controlled by the lever at lower right corner.

TAILSTOCK:

The tailstock has lateral adjustment for taper turning. It is secured to the bed by four heavy bolts.

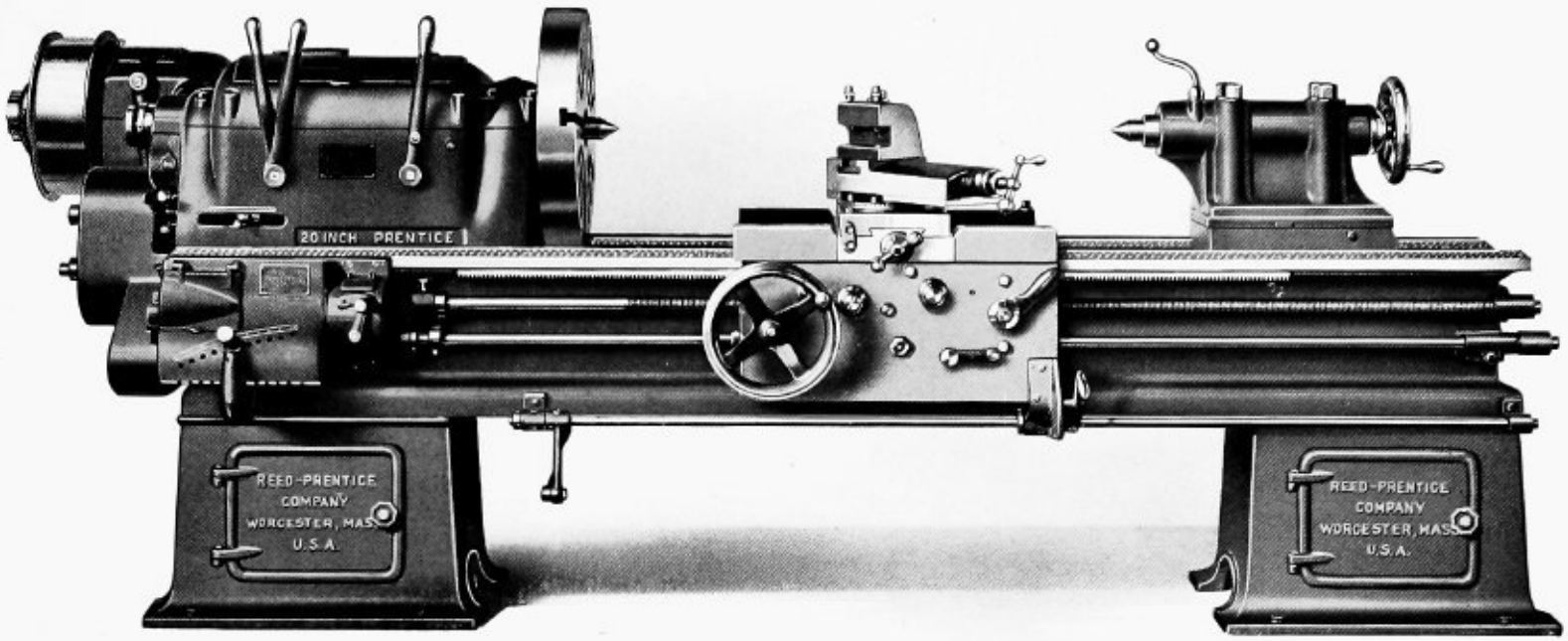
STANDARD EQUIPMENT:

Steady rest, large and small face plates, compound rest, regular tool post, quick change gear mechanism, thread chasing dial, and all necessary wrenches.

ADDITIONAL EQUIPMENT:

Taper and relieving attachments, follow rest, oil pan, oil pump and piping, motor attachment, (either belt or gear connected), tight and loose pulley or double or single-friction pulley countershaft, carriage and bed turrets, chuck plates, special centers, micrometer bed stop, automatic spindle stop, European tool posts and other lengths of beds than listed in specifications.

THE DAVIS PRESS WORCESTER MASS. U.S.A.—3M 5-6-24



20-INCH STANDARD GEARED HEAD LATHE

PATENTED

THE IDEAL COMBINATION OF

ACCURACY—RAPID MANIPULATION—HIGH POWER

SPECIFICATIONS

CODE—ERA

Swing over ways	22½″	Quick change gear mechanism cuts from	2 to 32
Swing over compound rest	14″	Spindle speeds—number	8
Capacity of steady rest	7″	Range of spindle speeds R. P. M.	22–273
Distance between centers—10′ bed	57″	Speed of driving pulley R. P. M.	364
Length taper attachment will turn at one setting	24″	Driving pulley, diameter and face	15″ x 5″
Front bearing, diameter and length	3½″ x 6¾″	Width of belt	4½″
Rear bearing, diameter and length	2½″ x 4″	Weight net—10′ bed	5170 lbs.
Spindle nose, diameter and threads	3½″–4P	Weight per extra foot of bed	185 lbs.
Diameter hole through spindle	1¾″	Weight boxed—10′ bed	5400 lbs.
Taper hole in spindle	Jarno No. 17	Weight boxed, per extra foot of bed	275 lbs.
Size of tools	¾″ x 1½″	Cubic feet boxed—10′ bed	195
Pitch of lead screw	4	Cubic feet boxed, per extra foot of bed	30
Feeds per revolution (range)	.0128-.1964		

MACHINE TOOLS

REED-PRENTICE COMPANY

WORCESTER MASS., U.S.A.

REED-PRENTICE MACHINE TOOLS

The Reed-Prentice Geared Head Lathe is the first and only lathe with an all-friction clutch headstock. It is the most rapid speed-changing lathe built.
In its compact design are incorporated new, improved features which are pioneers in lathe development. Whether turning, facing, boring or thread-cutting, the Reed-Prentice Lathe holds to the highest standards of accuracy and efficiency.

PULLEY:

The drive is direct from the main line shaft, or motor shaft, to a single pulley running on ball bearings. The pulley, which is exceptionally wide, is offset so that the belt-pull comes directly over the ball bearings. It is flanged to prevent the belt from slipping off when taking heavy cuts. The flanges also serve to keep the belt free from any oil which may be on the pulley.

CONTROL:

Instant start, stop and reverse of the spindle is obtained by a lever which is located on the apron and operates a mechanism in the headstock consisting of three bevel gears, and a double-friction clutch. For cutting internal threads or any threads ending against a shoulder, a stop motion can be furnished on the apron to operate the reverse rod automatically. This device will stop the lathe so closely that a groove a few thousandths wider than the thread being cut is sufficient for clearance.

SPEEDS:

The eight spindle speeds are selected by means of three levers on front of the headstock. The levers operate powerful friction clutches, so arranged that it is impossible to engage conflicting gear ratios. All speeds can be changed instantly without damage to the mechanism.

QUICK CHANGE GEAR:

The quick-change gear box provides 44 changes of feed and 44 different threads of the most useful pitches.
The lead screw is of large diameter and coarse pitch, accurate to a high degree. When using the lead screw the feed rod does not rotate and vice versa. An automatic stop is provided on the feed rod to stop the feed at any desired travel of the carriage.
Easy-reading index plates show the relative position of speed and feed change levers. They are simple and comprehensive. The inexperienced operator will have no difficulty in securing any desired speed or feed.

SPINDLE:

The spindle is made from a high grade steel, with journals hardened and ground. End thrust is taken by a step firmly bolted to the headstock independent of spindle bearings. Spindle bearings are made of high-grade bronze, and are provided with a very effective oiling system. The taper hole in the spindle is a modified Jarno No. 17. An adapter can be furnished to accommodate either Morse or B. & S. tapers without extra charge.

CARRIAGE:

The carriage is extra heavy, having an exceptionally rigid and wide bridge, and long bearings on the V's. Both compound and cross feed screws are provided with index dials reading to thousandths of an inch. The compound block is secured by four heavy bolts.

APRON:

The apron of the double support type is rigidly bolted to the carriage. A safety device provides against the simultaneous engaging of both feed rod gearing and lead screw nut.
The Start—Stop—and Reverse is controlled by the lever at lower right corner.

TAILSTOCK:

The tailstock has lateral adjustment for taper turning. It is secured to the bed by four heavy bolts.

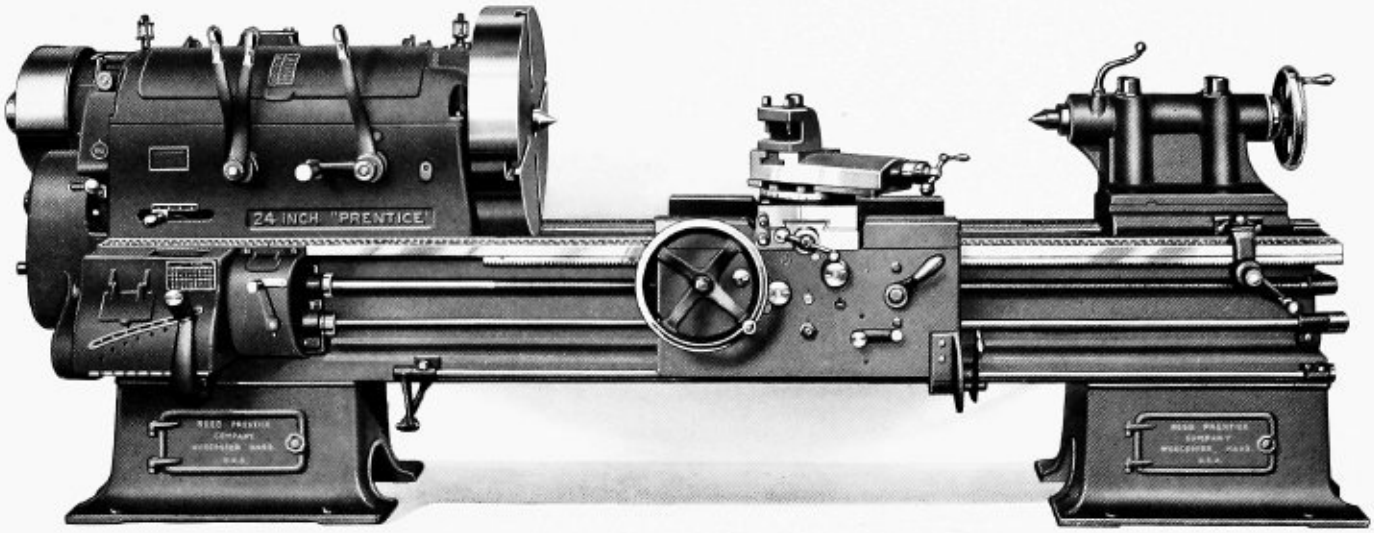
STANDARD EQUIPMENT:

Steady rest, large and small face plates, compound rest, regular tool post, quick change gear mechanism, thread chasing dial, and all necessary wrenches.

ADDITIONAL EQUIPMENT:

Taper and relieving attachments, follow rest, oil pan, oil pump and piping, motor attachment, (either belt or gear connected), tight and loose pulley or double or single-friction pulley countershaft, carriage and bed turrets, chuck plates, special centers, micrometer bed stop, automatic spindle stop, European tool posts and other lengths of beds than listed in specifications.

THE DAVIS PRESS WORCESTER MASS. U.S.A.—1M 5-6-24



24-INCH STANDARD GEARED HEAD LATHE

PATENTED

CODE—FACE

THE IDEAL COMBINATION OF

ACCURACY—RAPID MANIPULATION—HIGH POWER

SPECIFICATIONS

Swing over ways	26½″
Swing over compound rest	17″
Capacity of steady rest	8″
Distance between centers—10′ bed	44″
Length taper attachment will turn at one setting	26″
Front bearing, diameter and length	4¾″ x 7″
Rear bearing, diameter and length	3¼″ x 4 7/16″
Spindle nose, diameter and threads	4″—4P
Diameter hole through spindle	2″
Taper hole in spindle	Jarno No. 23
Size of tools	¾″ x 1½″
Pitch of lead screw	3
Feeds per revolution (range)	.013″ to .200″

Quick change gear mechanism cuts from	1 to 16
Spindle speeds—number	12
Range of spindle speeds R. P. M.	7 to 316
Speed of driving pulley R. P. M.	400
Driving pulleys, diameter and face	16″ x 5¼″
Width of belt	5″
Weight net—10′ bed	7000 lbs.
Weight per extra foot of bed	225 lbs.
Weight boxed—10′ bed	8300 lbs.
Weight boxed, per extra foot of bed	335 lbs.
Cubic feet boxed—10′ bed	248
Cubic feet boxed, per extra foot of bed	21

MACHINE TOOLS

REED-PRENTICE COMPANY

WORCESTER MASS., U. S. A.

REED-PRENTICE MACHINE TOOLS

The Reed-Prentice Geared Head Lathe is the first and only lathe with an all-friction clutch headstock. It is the most rapid speed-changing lathe built.
In its compact design are incorporated new, improved features which are pioneers in lathe development. Whether turning, facing, boring or thread-cutting, the Reed-Prentice Lathe holds to the highest standards of accuracy and efficiency.

PULLEY:

The drive is direct from the main line shaft, or motor shaft, to a single pulley running on ball bearings. The pulley, which is exceptionally wide, is offset so that the belt-pull comes directly over the ball bearings. It is flanged to prevent the belt from slipping off when taking heavy cuts. The flanges also serve to keep the belt free from any oil which may be on the pulley.

CONTROL:

Instant start, stop and reverse of the spindle is obtained by a lever which is located on the apron and operates a mechanism in the headstock consisting of three bevel gears, and a double-friction clutch. For cutting internal threads or any threads ending against a shoulder, we can furnish a stop motion on the apron to operate the reverse rod automatically. This device will stop the lathe so closely that a groove a few thousandths wider than the thread being cut is sufficient for clearance.

SPEEDS:

The twelve spindle speeds are selected by means of three levers and a sliding pinion handle on the front of the headstock. The levers operate friction clutches, so arranged that it is impossible to engage conflicting gear ratios. The four slowest speeds drive through the rim of the face plate giving tremendous power for the slow, heavy cuts.

QUICK CHANGE GEAR:

The quick-change gear box provides 36 changes of feed and 36 different threads of the most useful pitches.
The lead screw is of large diameter and coarse pitch, accurate to a high degree. When using the lead screw the feed rod does not rotate and vice versa. An automatic stop is provided on the feed rod to stop the feed at any desired travel of the carriage.
Easy-reading index plates show the relative position of speed and feed change levers. They are simple and comprehensive. The inexperienced operator will have no difficulty in securing any desired speed, feed, or thread.

SPINDLE:

The spindle is made from a high grade steel, with bearings hardened and ground. End thrust is taken by a step firmly bolted to the headstock independent of spindle bearings. Spindle bearings are made of high-grade bronze, and are provided with a very effective oiling system. The taper hole in the spindle is a modified Jarno No. 23. An adapter can be furnished to accommodate either Morse or B. & S. tapers at a slight extra charge.

CARRIAGE:

The carriage is extra heavy, having an exceptionally rigid and wide bridge, and long bearings on the V's. Both compound and cross feed screws are provided with index dials reading to thousandths of an inch. The compound block is secured by four heavy bolts.

APRON:

The apron of the double support type is rigidly bolted to the carriage. A safety device within the apron provides against the simultaneous engaging of both feed rod gearing and lead screw nut. The Start—Stop—and Reverse of spindle is controlled by a lever at the lower right corner of the apron.

TAILSTOCK:

The tailstock has lateral adjustment for taper turning. It is secured to the bed by four heavy bolts.

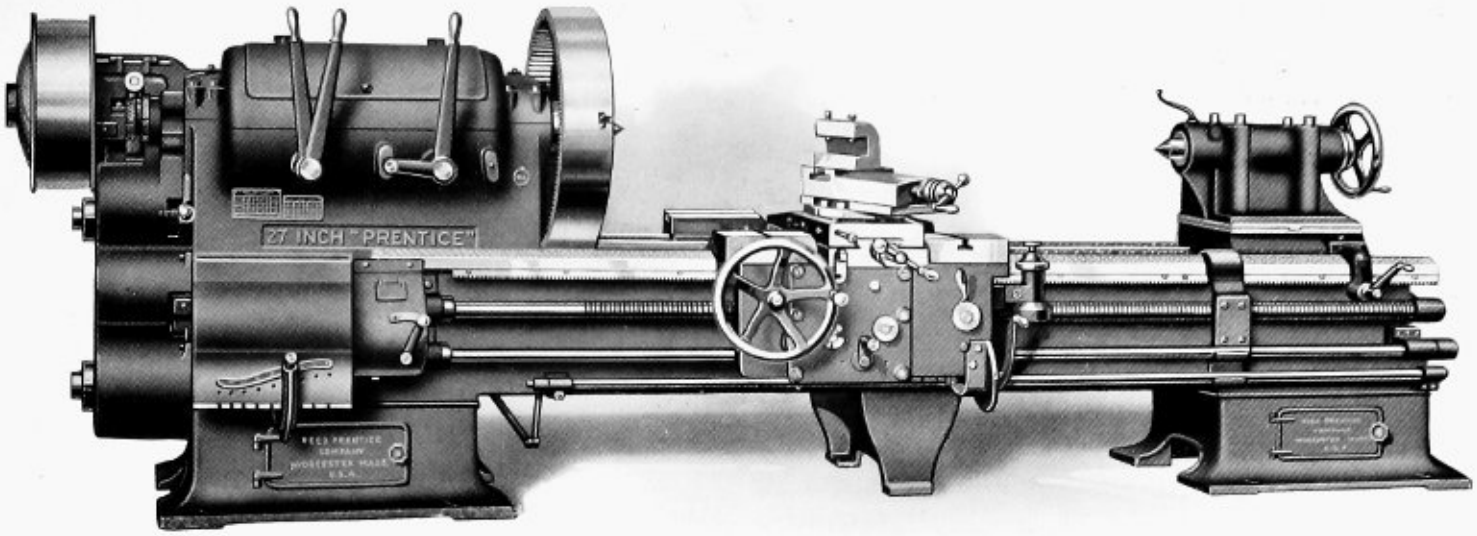
STANDARD EQUIPMENT:

Steady rest, large and small face plates, compound rest, regular tool post, quick change gear mechanism, thread chasing dial, and all necessary wrenches.

ADDITIONAL EQUIPMENT:

Taper and relieving attachments, follow rest, oil pan, oil pump and piping, motor attachment, either belt or gear connected, tight and loose pulley or double or single-friction pulley countershaft, carriage and bed turrets, chuck plates, special centers, micrometer bed stop, automatic spindle stop, European tool posts and other lengths of beds than listed in specifications.

THE DAVIS PRESS WORCESTER MASS U S A —3M 12-31 27



27-INCH STANDARD GEARED HEAD LATHE

PATENTED

CODE—GAIN

THE IDEAL COMBINATION OF

ACCURACY—RAPID MANIPULATION—HIGH POWER

SPECIFICATIONS

Swing over ways	30″
Swing over compound rest	19¼″
Capacity of steady rest	9″
Distance between centers—12′ bed	66″
Length taper attachment will turn at one setting	28″
Front bearing, diameter and length	4¾″ x 7½″
Rear bearing, diameter and length	3⅝″ x 5 11/16″
Spindle nose, diameter and threads	4½″—4P
Diameter hole in spindle	2½″
Taper hole in spindle	Jarno No. 23
Size of tools	⅞″ x 1¾″
Pitch of lead screw	2
Feed per revolution (range)	.010″—.167″
Quick change gear mechanism cuts from	1 to 16
Spindle speeds—number	12
Range of spindle speeds R. P. M.	6–293
Speed of driving pulley R. P. M.	400
Driving pulley, diameter and face	20″ x 6¼″
Width of belt	6″
Weight net—12′ bed	12420 lbs.
Weight per extra foot of bed	270 lbs.
Weight boxed—12′ bed	13900 lbs.
Weight boxed, per extra foot of bed	430 lbs.
Cubic feet boxed—12′ bed	300
Cubic feet boxed, per extra foot of bed	22

REED-PRENTICE COMPANY
MACHINE TOOLS
WORCESTER MASS., U. S. A.

Circular 10-2127-2

REED-PRENTICE MACHINE TOOLS

The Reed-Prentice Geared Head Lathe is the first and only lathe with an all-friction clutch headstock. It is the most rapid speed-changing lathe built.

In its compact design are incorporated new, improved features which are pioneers in lathe development. Whether turning, facing, boring or thread-cutting, the Reed-Prentice Lathe holds to the highest standards of accuracy and efficiency.

PULLEY:

The drive is direct from the main line shaft, or motor shaft, to a single pulley running on ball bearings. The pulley, which is exceptionally wide, is offset so that the belt-pull comes directly over the ball bearings. It is flanged to prevent the belt from slipping off when taking heavy cuts. The flanges also serve to keep the belt free from any oil which may be on the pulley.

CONTROL:

Instant start, stop and reverse of the spindle is obtained by a lever which is located on the apron and operates a mechanism in the headstock consisting of three bevel gears, and a double-friction clutch. For cutting internal threads or any threads ending against a shoulder, we can furnish a stop motion on the apron to operate the reverse rod automatically. This device will stop the lathe so closely that a groove a few thousandths wider than the thread being cut is sufficient for clearance.

SPEEDS:

The twelve spindle speeds are selected by means of three levers and a sliding pinion handle on the front of the headstock. The levers operate powerful friction clutches, so arranged that it is impossible to engage conflicting grea ratios. The four slowest speeds drive through the rim of the face plate giving tremendous power for the slow, heavy cuts.

QUICK CHANGE GEAR:

The quick-change gear box provides 36 changes of feed and 36 different threads of the most useful pitches.

The lead screw is of large diameter and coarse pitch, accurate to a high degree. When using the lead screw the feed rod does not rotate and vice versa. An automatic stop is provided on the feed rod to stop the feed at any desired travel of the carriage.

Easy-reading index plates show the relative position of speed and feed change levers. They are simple and comprehensive. The inexperienced operator will have no difficulty in securing any desired speed or feed.

SPINDLE:

The spindle is made from the best quality steel, hardened and ground. End thrust is taken by a step firmly bolted to the headstock independent of spindle bearings. Spindle bearings are made of high-grade bronze, and are provided with a very effective oiling system. The taper hole in the spindle is a modified Jarno No. 23. An adapter can be furnished, to accommodate either Morse or B. & S. tapers at a slight extra charge.

CARRIAGE:

The carriage is extra heavy, having an exceptionally rigid and wide bridge, and long bearings on the V's. Both compound and cross feed screws are provided with index dials reading to thousandths of an inch. The compound block is secured by four heavy bolts.

APRON:

The apron of the double support type is rigidly bolted to the carriage. A safety device within the apron provides against the simultaneous engaging of both feed rod gearing and lead screw nut. The Start—Stop—and Reverse is controlled by the lever at lower right corner.

TAILSTOCK:

The tailstock has lateral adjustment for taper turning. It is secured to the bed by four heavy bolts.

STANDARD EQUIPMENT:

Steady rest, large and small face plates, compound rest, European tool post, quick change gear mechanism, thread chasing dial and all necessary wrenches.

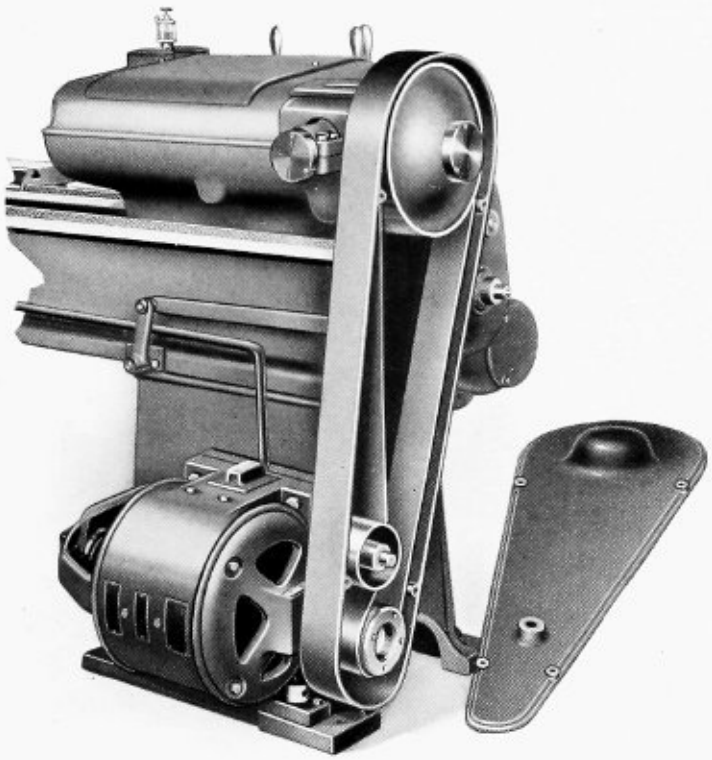
SPECIAL EQUIPMENT:

Taper attachment, follow rest, oil pan, oil pump and piping, motor attachment either belt or gear connected, tight and loose pulley or double-friction pulley countershaft, carriage or bed turrets, chuck plate, special centers, and other lengths of bed than 12′.

THE DAVIS PRESS WORCESTER MASS. U.S.A. 1M 1-20-26

MOTOR DRIVES

For Reed-Prentice Geared Head Lathes



Two types, belted and geared connected motor drives, are regularly furnished for Reed-Prentice Geared Head Lathes.

Belt Connected. This type of motor drive consists of a motor mounted on an adjustable bracket clamped to a pad on the rear of the cabinet leg. An endless leather belt connects the main driving pulley on the headstock with the motor pulley. The belt and pulleys are completely enclosed by a pressed steel guard equipped with a removable cover giving access for belt inspection. Inside of the guard just above the motor pulley is an idler that increases the amount of belt lap on the motor drive pulley, while the proper belt tension is obtained through a raising screw located under the motor bracket. A collar on this screw is arranged with four holes for either a pin or spanner wrench and provides for vertical raising and lowering of the motor bracket. The driving belt is supplied with the attachment.

This type of motor drive provides sufficient capacity for general requirements. The location of the motor is desirable as it is close to the floor, thus eliminating all possibility of vibration.

Any standard make of motor may be used. Alternating current motors of 1200 R. P. M., induction type and direct current motors of 1150 R. P. M. of shunt type are recommended, as their electrical efficiency is high and size relatively small. All mechanical speed changes are secured instantly through the geared headstock on the lathe, and if additional speed changes should be desired, a 2 to 1 variable or multi-speed motor may be used. A ten point drum controller used with variable speed motor will multiply the existing spindle speeds ten times.

It is optional whether customer purchases electrical equipment or whether we purchase it. In the former case, however, we would prefer to have customer use equipment recommended.

With lathes equipped with relieving attachments, it is necessary to use a two-speed motor of 600 and 1200 R. P. M.

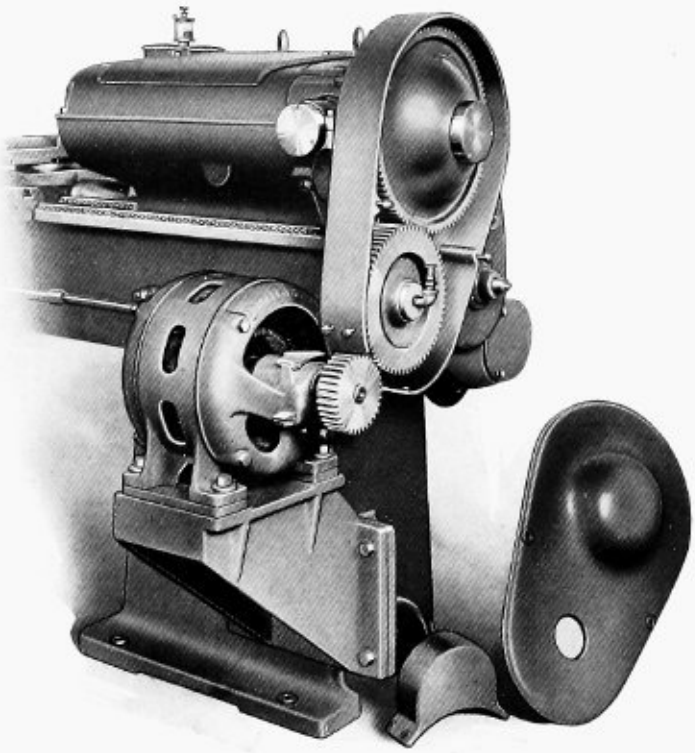
Motors Recommended

Size of Lathe	H. P.	R. P. M.
12	2	1150 or 1200
14	3	1150 or 1200
16	3 or 5	1150 or 1200
18	5	1150 or 1200
20	5	1150 or 1200
24	7½	1150 or 1200
27	10	1150 or 1200

Attachment includes wiring complete but without electrical equipment which will be supplied by us if desired. Customer may supply electrical equipment and wire if preferable, although in this case it is necessary that motor diagram be furnished that suitable bracket may be supplied.

REED-PRENTICE COMPANY
MACHINE TOOLS
WORCESTER MASS., U.S.A.

Circular 10-401-2



Gear Connected. With this arrangement the motor is mounted on a bracket clamped to a pad on the rear of the cabinet leg. The motor is geared to the main driving shaft through a large fabroil, bakalite or rawhide intermediate gear. The fabroil intermediate is supplied unless otherwise specified. This gear is mounted on an eccentric stud which provides for proper meshing of the gears and the gear train is completely enclosed by a cast iron guard, equipped with a removable cover.

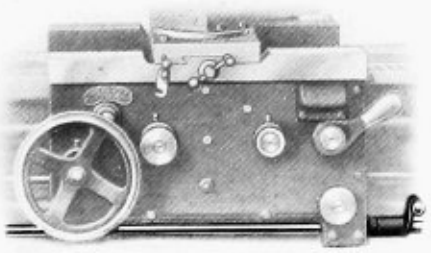
When a lathe is to be used for very heavy work, this geared type of motor drive is recommended. Like the belted types, the location of the motor is desirable, as it is close to the floor, thus eliminating all possibility of vibration.

Any standard make of motor may be used. Alternating current motors of 1200 R. P. M., induction type and direct current motors of 1150 R. P. M., of shunt type are recommended, as their electrical efficiency is high and size relatively small. All mechanical speed changes are secured instantly through the geared headstock on the lathe, and if additional speed changes should be desired, a 2 to 1 variable or multi-speed motor may be used. A ten point drum controller used with variable speed motor will multiply the existing spindle speeds ten times.

With lathes equipped with relieving attachments, it is necessary to use a two-speed motor of 600 and 1200 R. P. M.

The motors recommended are in accordance with the tabulations on the previous page.

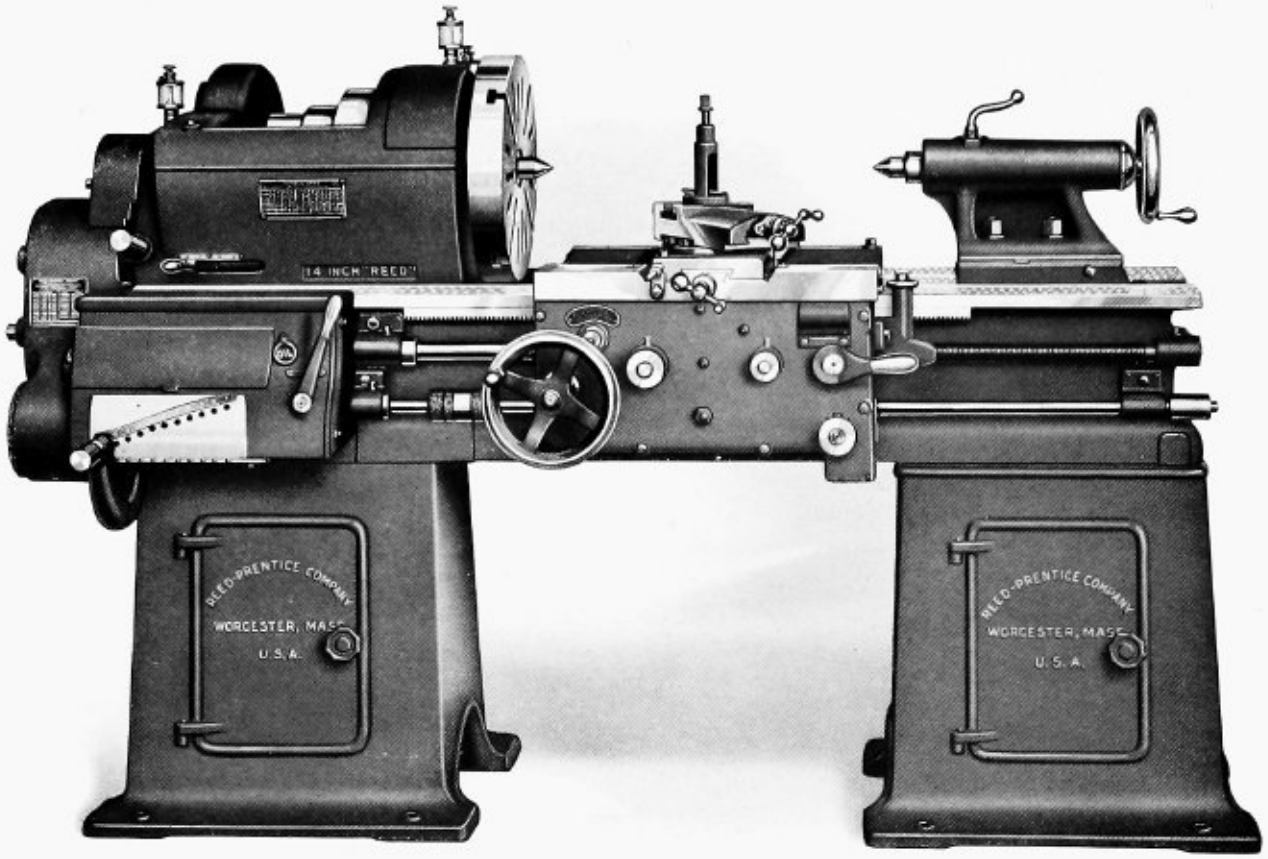
Attachment includes wiring complete but without electrical equipment which will be supplied by us if desired. Customer may supply electrical equipment and wire if preferable, although in this case it is necessary that motor diagram be furnished that suitable bracket may be supplied.



Spindle Control

All Reed-Prentice Geared Head Lathes are equipped with a patented mechanical apron control for starting, stopping and reversing of the headstock spindle. The control handle is located in the lower right hand portion of the apron, and traveling with the apron it is always in a convenient position for the operator. This feature insures ease and rapidity of control and eliminates the need of a reversing controller.

THE DAVIS PRESS WORCESTER MASS. U.S.A. 2M 12-15-25



14-INCH REED-PRENTICE HEAVY DUTY CONE HEAD LATHE

WITH QUICK CHANGE GEAR MECHANISM

CODE—KRAB

SPECIFICATIONS

Swing over ways	16½″
Swing over compound rest	10½″
Capacity of steady rest	4½″
Distance between centers—7′ bed	40″
Length taper attachment will turn at one setting	18″
Front bearing, diameter and length	2½″ x 5″
Rear bearing, diameter and length	1 13/16″ x 3″
Spindle nose, diameter and threads	2¾″—6P
Diameter hole through spindle	1¼″
Taper hole in spindle	Jarno No. 12
Size of tools	⅝″ x 1¼″
Pitch of lead screw	5
Feeds per revolution (range)	.0058″ to .0860″

Quick change gear mechanism cuts from	4 to 60
Spindle speeds—number	8
Countershaft pulley, diameter and face	12″ x 3½″
Cone step diameter, largest and smallest	8⅛″ x 4¼″
Speed of countershaft, R. P. M.	196
Width of belt	2½″
Weight net—7′ bed	2850 lbs.
Weight per extra foot of bed	115 lbs.
Weight boxed—7′ bed	3350 lbs.
Weight boxed, per extra foot of bed	140 lbs.
Cubic feet boxed—7′ bed	112
Cubic feet boxed, per extra foot of bed	10

REED-PRENTICE COMPANY

MACHINE TOOLS

WORCESTER MASS., U.S.A.

REED-PRENTICE MACHINE TOOLS

The Reed-Prentice Heavy Duty 14″ Cone Head Lathe is very adaptable to general all around machine work, and is also particularly acceptable to the tool-room. It produces work of a most accurate nature and offers a convenience in manipulation appealing to the skilled mechanic. In its compact design are incorporated new and improved features which are pioneers in lathe development. The unusual attachments which form the complete equipment make this machine invaluable for precision work.

Headstock. The headstock is arranged with a four step cone pulley and a set of back gears. The main spindle bearings are well proportioned and all moving parts are equipped with means for proper lubrication.

The spindle is made from a high grade steel, and the journals are hardened and ground. The spindle bearings are of high-grade bronze, hand scraped to spindle, and provided with a very effective individual oiling system. End thrust is taken by a ball bearing having a check nut adjustment. The taper hole in the spindle is a modified Jarno, and adapters can be furnished to accommodate either Morse or Brown & Sharpe tapers, at a slight additional charge.

Tailstock. The tailstock has lateral adjustment for taper turning, and is of the off-set type originally brought out by this Company. It is firmly secured to the bed by heavy clamping bolts.

Carriage. The carriage is extra heavy, having an exceptionally rigid and wide bridge, and long bearings on the V's. Both compound and cross feed screws are provided with index dials reading in thousandths of an inch. The compound block is secured by four heavy bolts, and may be swiveled to 360°.

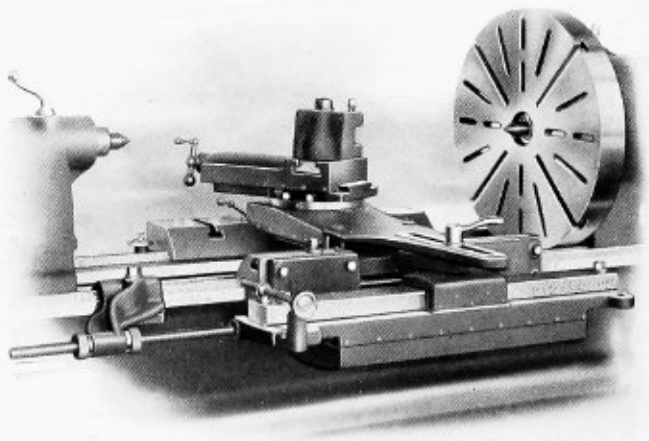
Apron. The apron of the double support type is rigidly bolted and doweled to the carriage. It is equipped with power cross and longitudinal feeds, and the direction is independently controlled by a hand lever on the front of the apron. A safety device provides against the simultaneous engaging of both apron feed gearing and lead screw nut. Ample provision is made for proper lubrication.

Control. Instant start, stop and reverse of the spindle is obtained by a lever located at the lower right edge of the apron. For cutting internal or external threads ending against a shoulder, an automatic stop motion can be furnished on the apron. It is so sensitive that a groove a few thousandths wider than the thread being cut is sufficient for tool clearance. This device may also be used for automatically tripping the feed at any desired travel of the carriage.

Quick Change Gear. The quick-change gear box provides 44 changes of both feeds and threads of the most useful range, and can be arranged for 36 metric pitches at a slight additional charge. A simple-reading index plate at the front of the box shows the relative position of the levers for the various feeds. The lead screw is of large diameter and coarse pitch, accurate to a high degree. When using the lead screw the feed rod does not rotate and vice versa.

Taper Attachment. This taper attachment is designed so that the action is delivered direct to the bottom block by an extension clamped to the taper bar shoe. The unit is readily attached to the compound block and the approximate positioning of the tool to the taper bar is obtained by a hand clamp on the shoe. When it is necessary to use the bottom block for adjustment, the taper attachment will deliver its action to the bottom block through the cross feed screw, also secured to the taper bar shoe.

The maximum length of taper obtainable at one setting is 18″ while the largest taper is 16 degrees and 45 minutes, being equivalent to 3½″ to the foot. The positioning of the taper bar is controlled by an adjusting screw.

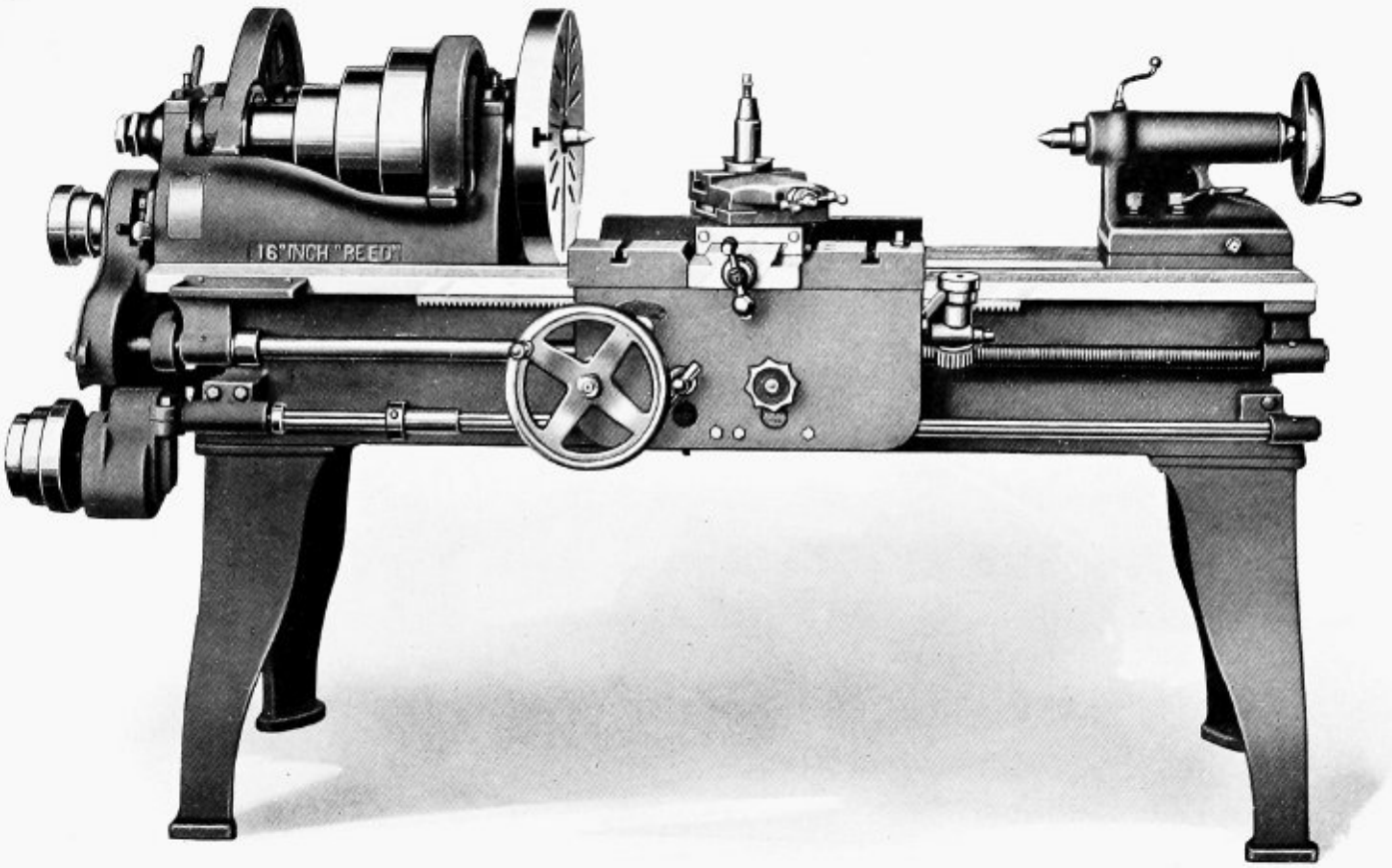


Standard Equipment. Steady rest, large and small face plates, compound rest, regular tool post, quick change gear mechanism, thread-chasing dial, double friction countershaft and all necessary wrenches.

Additional Equipment. Taper and relieving attachments, follow rest, oil pan, oil pump and piping, closer type collet attachment and collets, motor attachment either belt or gear connected, tight and loose pulley or double or single friction pulley countershaft, carriage and bed turrets, chuck plate, special centers, micrometer bed stop, automatic spindle stop, European tool post, and other lengths of beds than listed in specifications.

THE DAVIS PRESS WORCESTER MASS. U.S.A.—3M-2-25-24.

16-Inch "Reed" Standard Cone Head Lathe



With Belt and Geared Feed

SPECIFICATIONS

CODE—CAD

Swing over ways	18″
Swing over compound rest	11½″
Capacity of steady rest	4¾″
Distance between centers—6′ bed	31″
Length taper attachment, will turn at one setting	18½″
Front bearing, diameter and length	2½″ x 4 13/16″
Rear bearing, diameter and length	2 3/64″ x 3 11/16″
Spindle nose, diameter and threads	3″—6
Diameter hole through spindle	1¼″
Taper hole in spindle	Jarno No. 13
Size of tools	½″ x 1″
Pitch of lead screw	5
Cuts threads per inch	2 to 26
Feeds per revolution (geared)	.010 to .071
Feeds per revolution (belt)	.011 to .045
Range of spindle speeds	8 to 478
Speed of countershaft, R. P. M.	160
Countershaft pulleys, diameter and width of belt	13″ x 3½″
Cone step diameters, largest and smallest	12″, 4½″
Width of belt	3″
Weight with compound rest—6′ bed	2530 lbs.
Weight, extra foot of bed	125 lbs.
Weight boxed—6′ bed	2950 lbs.
Weight boxed, extra foot of bed	150 lbs.
Cubic feet boxed—6′ bed	69
Cubic feet boxed, extra foot of bed	8

REED-PRENTICE COMPANY
MACHINE TOOLS
WORCESTER MASS., U.S.A.

Circular 10-2016-1

REED-PRENTICE MACHINE TOOLS

THE Reed-Prentice 16″ Standard Engine Lathe has four step cone, with steps large in diameter and wide of face, which in conjunction with wide face gearing of suitable pitches makes this lathe especially adapted for a wide range of work, both light and heavy.

Head Spindle is made from a steel forging with journals, hardened and ground. The taper hole in the spindle is a modified Jarno 13. An adapter can be furnished to accommodate either Morse or B. & S. tapers at a slight extra charge.

Spindle Bearings. These are square cast-iron housings which fit snugly into square seats in the headstock. They are lined with Babbitt metal which is poured and compressed into dovetail slots in the cast-iron backing. They are then bored with a diamond and hand scraped to spindle

Rest. Lathe is regularly made with compound rest, but plain rest can be furnished if desired. The rest has long bearings and is securely gibbed to outside of bed at front and back.

Feed. Power cross feed with both styles of rest. Independent rod, friction feed and automatic stop motion. With combined belt and gear feeds, feed cones large in diameter and wide of face, so arranged that lower feed cone can be moved to tighten feed belt. There are six belt feeds ranging from .011″ to .045″ per revolution. When geared feed is desired, remove belt and connect feed rod with intermediate gear. Then, by changing gears on feed stud of headstock, feeds from .010″ to .071″ per revolution are obtained.

Steel rack and pinion gear for moving carriage. Rack gear is arranged so that it can be withdrawn from rack, thus preventing rotation of handle and gears when screw cutting.

Screw Cutting. Steel lead screw cut 5 threads per inch, with open and shut nut. Cuts threads 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 11½, 12, 13, 14, 16, 18, 20, 22, 24 and 26 per inch. By the use of an extra set consisting of double intermediates and three change gears, the following metric threads can be cut: 10, 9.5, 9, 8.5, 8, 7.5, 7, 6.5, 6, 5.5, 5, 4.5, 4, 3.5, 3, 2.75, 2.5, 2.25, 2, 1.75, 1.5, 1.25, and 1 mm. lead.

Metric Lead Screw cut 5 mm. lead can be supplied in place of regular lead screw without extra charge. Lathe so equipped will cut the following metric threads: 10, 9.5, 9, 8.5, 8, 7.5, 7, 6.5, 6, 5.5, 5, 4.5, 4, 3.5, 3, 2.75, 2.5, 2.25, 2, 1.75, 1.5, 1.25, 1 and .75 mm. lead. By the use of an extra set consisting of double intermediates and eight change gears, the following English threads can be cut: 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 11½, 12, 13, 14, 16, 18, 20, 22 and 24 per inch.

Quick Change Gear. Lathe can be equipped with quick change gear mechanism instead of combined belt and geared feeds if desired. This mechanism is very simple and is made up of the fewest parts possible. (See circular of 16″ Reed Quick Change Gear Lathe.)

Tool Posts will take turning tools ½″ x 1″.

Countershaft. There are two friction pulleys 13″ in diameter for 3½″ belt and should run at 160 R. P. M. Hangers have large oil reservoirs.

Taper Attachment. Taper Attachment can be furnished with either style of rest at an extra charge. This Attachment is rigid and complete in itself. Simply tightening one screw makes it secure in position for work at any desired place on the bed, and it always gives the correct taper at whatever point the tool begins its cut. Bar is graduated on one end in inches, on the other end in degrees, and provides for turning tapers up to 3″ to the foot, 18½″ in length.

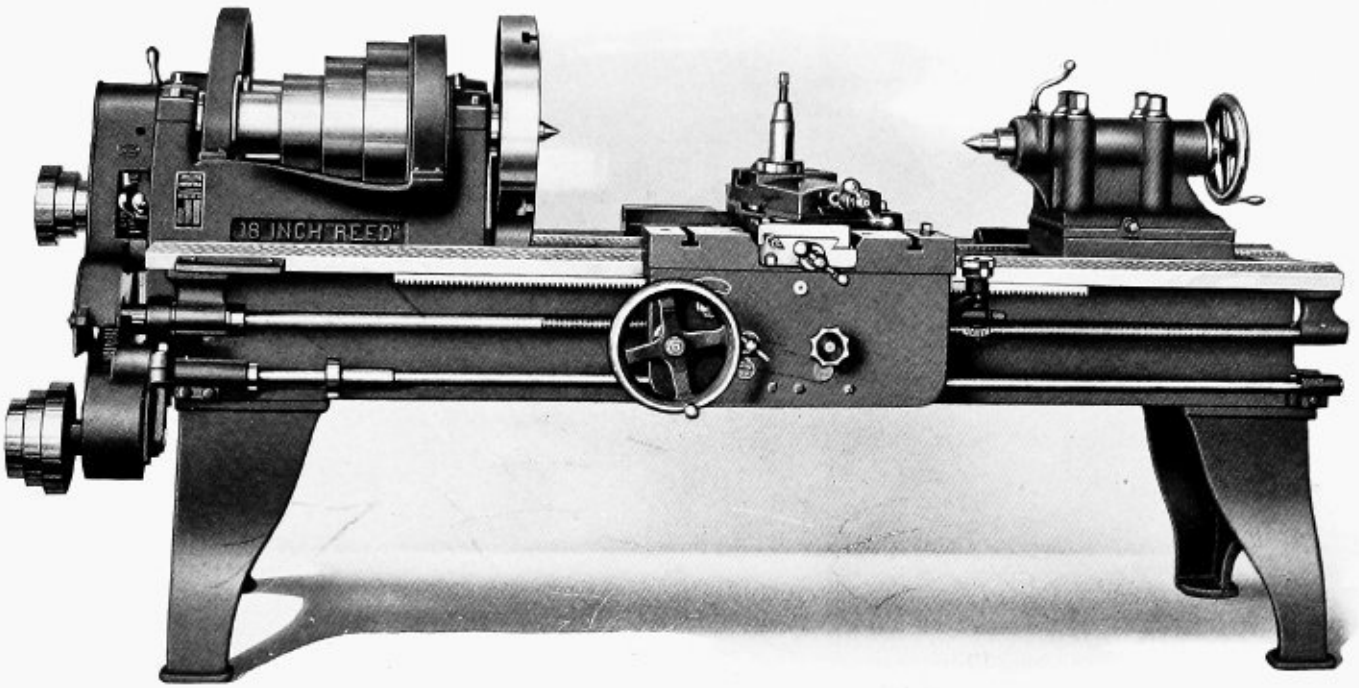
Standard Equipment. Steady rest, large and small face plates, compound rest, regular tool post, belt and geared feed, thread chasing dial, double-friction pulley countershaft, and necessary wrenches.

Additional Equipment. Taper attachment, follow rest, oil pan, oil pump and piping, draw-in collet attachment and collets, relieving attachment, carriage or bed turrets, chuck plates and special centers, micrometer bed stop, European tool post, and other lengths of bed than listed in specifications.

Motor Drive. This lathe can be supplied at an extra charge with motor drive headstock, using direct current adjustable speed, or alternating current multi-speed motors. (See circular of Motor Drives for Reed Lathes.)

THE DAVIS PRESS WORCESTER MASS. U.S.A. 3M-8-9-24

18-Inch "Reed" Standard Cone Head Lathe



With Belt and Geared Feed

SPECIFICATIONS

CODE—CAR

Swing over ways	20″	Feeds per revolution (geared)	.009 to .100
Swing over compound rest	11¾″	Feeds per revolution (belt)	.010 to .040
Capacity of steady rest	5″	Range of spindle speeds	7 to 478
Distance between centers—8′ bed	46″	Speed of countershaft R. P. M.	150
Length taper attachment will turn at one setting	22″	Countershaft pulleys, diameter and width of belt	14″ x 3¾″
Front bearing, diameter and length	2 23/32″ x 5⅝″	Cone Step Diameters—Largest and Smallest	14″—5″
Rear bearing, diameter and length	2⅛″ x 3 13/16″	Width of belt	3¼″
Spindle nose, diameter and threads	3¼″–4	Weight with compound rest 8′ bed	3600 lbs.
Diameter hole through spindle	1½″	Weight per extra foot of bed	150 lbs.
Taper hole in spindle	Jarno No. 15	Weight boxed—8′ bed	4100 lbs.
Size of tools	⅝″ x 1¼″	Weight boxed, per extra foot of bed	190 lbs.
Pitch of lead screw	4	Cubic feet boxed—8′ bed	100
Cuts threads per inch	2 to 26	Cubic feet boxed, per extra foot of bed	9

REED-PRENTICE COMPANY
MACHINE TOOLS
WORCESTER MASS., U.S.A.

Circular 10-2018-1

REED-PRENTICE MACHINE TOOLS

THE "Reed" 18" Standard Engine Lathe has four step cone, with steps large in diameter and wide of face, which in conjunction with wide face gearing of suitable pitches makes this lathe especially adapted for a wide range of work, both light and heavy.

Head Spindle is made from a steel forging with journals, hardened and ground. The taper hole is a modified Jarno No. 15. An adapter can be furnished to accommodate either Morse or B. & S. tapers without extra charge.

Spindle Boxes are made of bronze, bored and hand-scraped to fit spindle.

Rest: Lathe is regularly made with compound rest, but plain rest can be furnished if desired. The rest has long bearings and is securely gibbed to outside of bed at front and back.

Feed: Power cross feed with both styles of rest. Independent rod, friction feed and automatic stop motion. With combined belt and gear feeds, feed cones large in diameter and wide of face, so arranged that lower feed cone can be moved to tighten feed belt. There are *six* belt feeds ranging from .010 to .040 per inch. When geared feed is desired, remove belt and connect feed rod with intermediate gear. Then, by changing gears on feed stud of headstock, feeds from .009 to .100 per inch are obtained.

Steel rack and pinion gear for moving carriage. Rack gear is arranged so that it can be withdrawn from rack, thus preventing rotation of handle and gears when screw cutting.

Screw Cutting: Steel lead screw cut 4 threads per inch, with open and shut nut. Cuts threads 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 11½, 12, 13,14,16, 18, 20, 22, 23, 24 and 26 inch. By the use of an extra set consisting of double intermediates and thirteen change gears, the following metric threads can be cut: 12, 11, 10, 9.5, 9, 8.5, 8, 7.5, 7, 6.5, 6, 5.5, 5, 4.5, 4, 3.5, 3, 2.75, 2.5, 2.25, 2, 1.75, 1.5, 1.25 and 1 mm. lead.

Metric Lead Screw cut 6 mm. lead can be supplied in place of regular lead screw without extra charge. Lathe so equipped will cut the following metric threads: 12, 11, 10, 9.5, 9, 8.5, 8, 7.5, 7, 6.5, 6, 5.5, 5, 4.5, 4, 3.5, 3, 2.75, 2.5, 2.25, 2, 1.75, 1.5, 1.25, and 1 mm. lead. By the use of an extra set consisting of double intermediates and thirteen change gears, the following English threads can be cut: 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 11½, 12, 13, 14, 16, 18 and 20 per inch.

Quick Change Gear: Lathe can be equipped with quick change gear mechanism instead of combined belt and geared feeds if desired. This mechanism is very simple and is made up of the fewest parts possible. (See circular of Reed Lathe with Quick Change Gear Mechanism.)

Countershaft has two friction pulleys 14" diameter for 3¼" belt, and should run at 150 revolutions per minute. Hangers have large oil reservoirs.

Tool Posts will take turning tools ⅝" x 1¼".

Standard Equipment: Countershaft, steady rest, compound rest, large and small face plates, thread chasing dial, and all necessary wrenches.

Additional Equipment: Any equipment or length of bed to meet your needs can be furnished at an extra charge, such as the following:

Draw-in Collet Attachment can be furnished at an extra charge, complete with collets, any sizes ⅛" to 1" inclusive. Metric collets can be furnished any sizes within above limits.

Taper Attachment can be supplied with either style of rest.

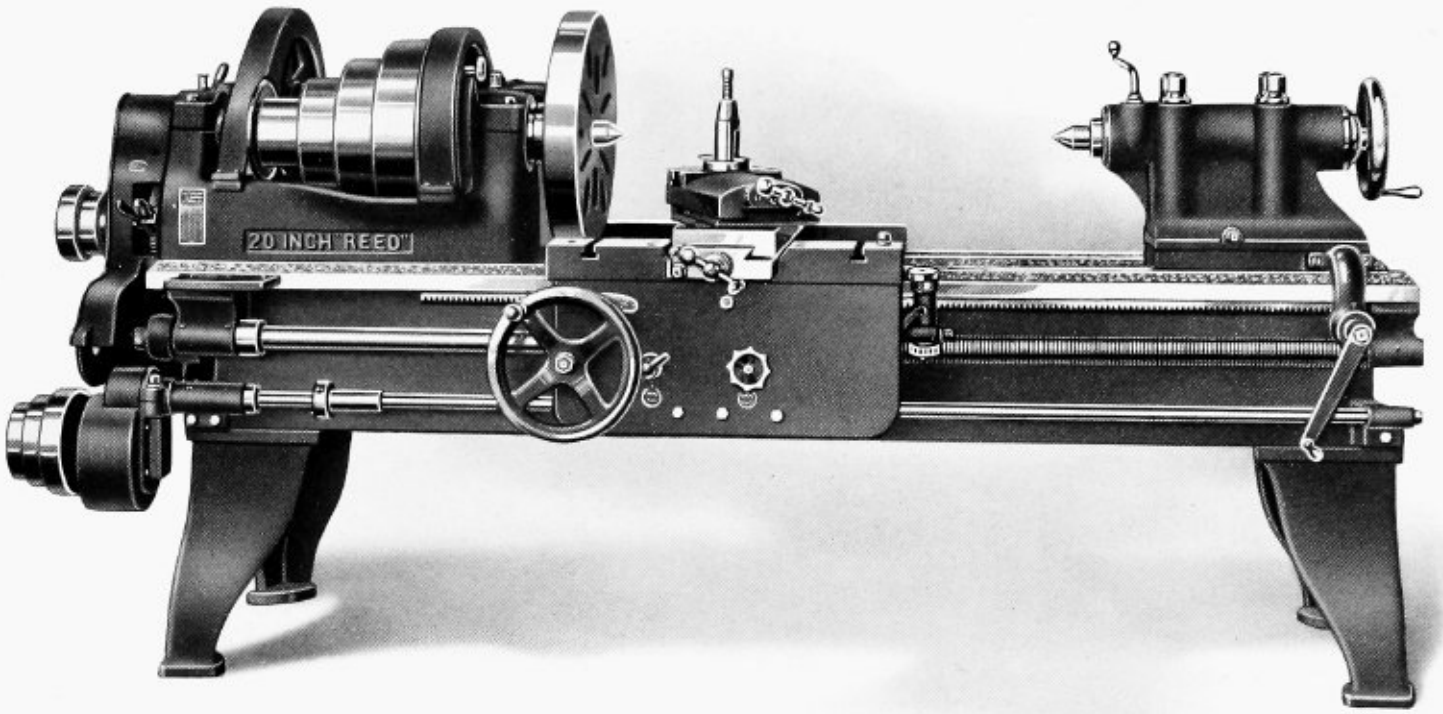
Relieving Attachment can be arranged in connection with the headstock.

Oil Pan, Pump and Piping: Lathes of all lengths can be mounted in steel oil pans and equipped with pump and piping.

Turrets: Lathe can be furnished with either round or hexagon carriage or bed turrets.

Motor Drive: Lathe can be furnished for adjustable speed or multi-speed motor drive with motor mounted on headstock. (See Circular of Motor Drives for Reed Lathes.)

20-Inch "Reed" Standard Cone Head Lathe



With Belt and Geared Feed

SPECIFICATIONS

CODE—CIB

Swing over ways	22″	Feeds per revolution (geared)	.009 to .100
Swing over compound rest	13″	Feeds per revolution (belt)	.014 to .059
Capacity of steady rest	5¼″	Range of spindle speeds	7 to 423
Distance between centers—8′ bed	40″	Speed of countershaft R. P. M.	140
Length taper attachment will turn at one setting	24″	Countershaft pulleys, diameter and width of belt	16″ x 4″
Front bearing, diameter and length	3″ x 6¼″	Cone Step Diameters—Largest and Smallest	15½″—5¾″
Rear bearing, diameter and length	2 31/32″ x 4 15/32″	Width of belt	3½″
Spindle nose, diameter and threads	3½″–4	Weight with compound rest 8′ bed	4500 lbs.
Diameter hole through spindle	1¾″	Weight per extra foot of bed	200 lbs.
Taper hole in spindle	Jarno No. 17	Weight boxed—8′ bed	5200 lbs.
Size of tools	⅝″ x 1¼″	Weight boxed, per extra foot of bed	250 lbs.
Pitch of lead screw	4	Cubic feet boxed—8′ bed	116
Cuts threads per inch	2 to 26	Cubic feet boxed, per extra foot of bed	10

REED-PRENTICE COMPANY
MACHINE TOOLS
WORCESTER MASS., U.S.A.

Circular 10-2020-1

REED-PRENTICE MACHINE TOOLS

THE "Reed" 20″ Standard Engine Lathe has four step cone, with steps large in diameter and wide of face, which in conjunction with wide face gearing of suitable pitches makes this lathe especially adapted for a wide range of work, both light and heavy.

Head Spindle is made from a steel forging with journals, hardened and ground. The taper hole in the spindle is a modified Jarno 17. An adapter can be furnished to accommodate either Morse or B. & S. tapers at a slight extra charge.

Spindle Bearings. These are made of bronze, bored and hand-scraped to fit spindle.

Rest: Lathe is regularly made with compound rest, but plain rest can be furnished if desired. The carriage has long bearings and is securely gibbed to outside of bed at front and back.

Feed: Power cross feed with both styles of rest. Independent rod, friction feed and automatic stop motion. With combined belt and gear feeds, feed cones large in diameter and wide of face, so arranged that lower feed cone can be moved to tighten feed belt. There are six belt feeds ranging from .014 to .059 per revolution. When geared feed is desired, remove belt and connect feed rod with intermediate gear. Then, by changing gears on feed stud of headstock, feeds from .009″ to .100″ per revolution are obtained.

Steel rack and pinion gear for moving carriage. Rack gear is arranged so that it can be withdrawn from rack, thus preventing rotation of handle and gears when screw cutting.

Screw Cutting: Steel lead screw cut 4 threads per inch, with open and shut nut. Cuts threads 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 11½, 12, 13, 14, 16, 18, 20, 22, 24 and 26 per inch. By the use of an extra set consisting of double intermediates and three change gears, the following metric threads can be cut: 12, 11, 10, 9.5, 9, 8.5, 8, 7.5, 7, 6.5, 6, 5.5, 5, 4.5, 4, 3.5, 3, 2.75, 2.5, 2.25, 2, 1.75, 1.5, 1.25, and 1 mm. lead.

Metric Lead Screw cut 6 mm. lead can be supplied in place of regular lead screw without extra charge. Lathe so equipped will cut the following metric threads: 12, 11, 10, 9.5, 9, 8.5, 8, 7.5, 7, 6.5, 6, 5.5, 5, 4.5, 4, 3.5, 3, 2.75, 2.5, 2.25, 2, 1.75, 1.5, 1.25, and 1 mm. lead. By the use of an extra set consisting of double intermediates and eight change gears, the following English threads can be cut: 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 11½, 12, 13, 14, 16, 18 and 20 per inch.

Quick Change Gear: Lathe can be equipped with quick change gear mechanism instead of combined belt and geared feeds if desired. This mechanism is very simple and is made up of the fewest parts possible. (See circular of 20″ Reed Quick Change Gear Lathe.)

Tool Posts will take turning tools ⅝″ x 1¼″.

Countershaft has two friction pulleys 16″ diameter for 4″ belt, and should run at 140 R. P. M. Hangers have large oil reservoirs.

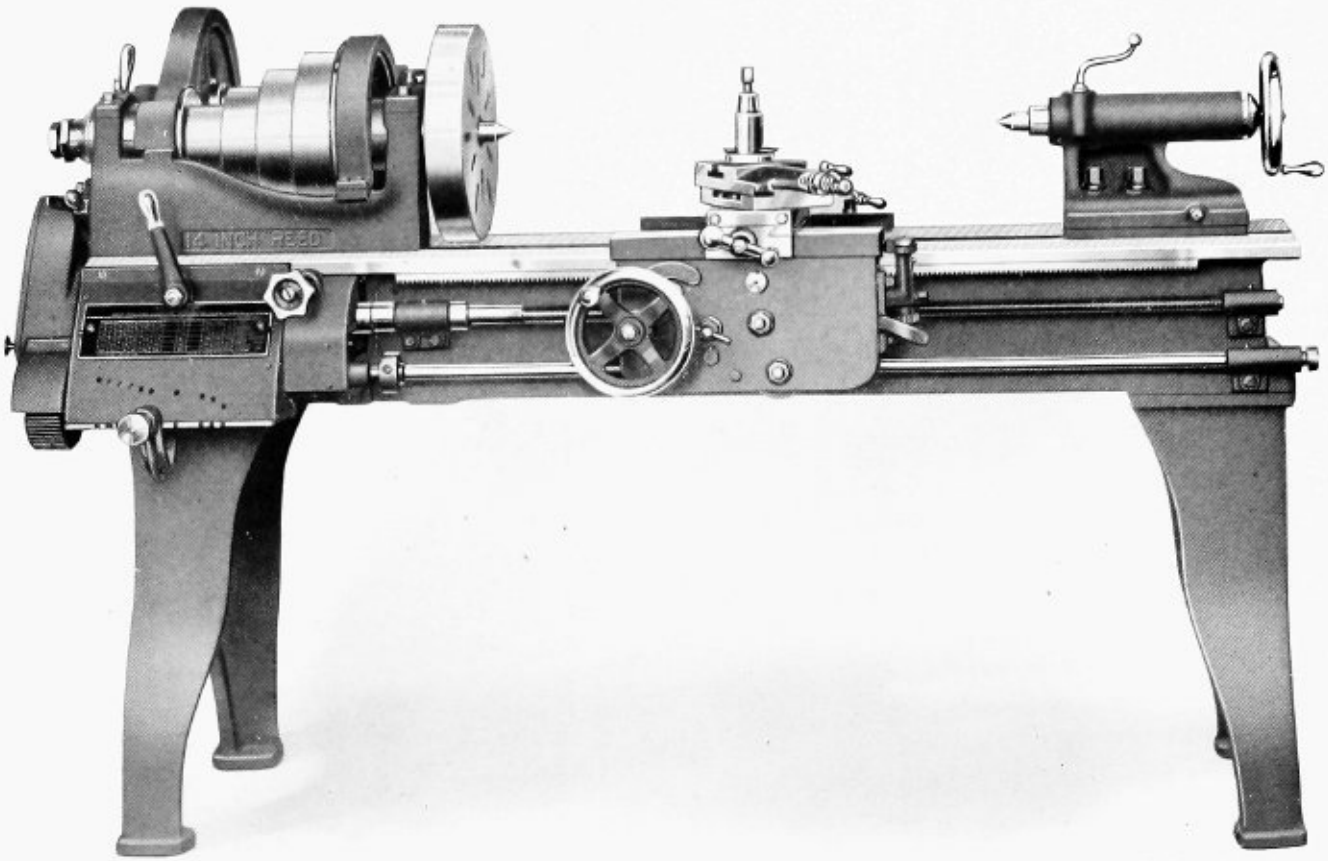
Taper Attachment. Taper Attachment can be furnished with either style of rest at an extra charge. This Attachment is rigid and complete in itself. Simply tightening one screw makes it secure in position for work at any desired place on the bed, and it always gives the correct taper at whatever point the tool begins its cut. Bar is graduated on one end in inches, on the other end in degrees, and provides for turning tapers up to 3″ to the foot, 24″ in length.

Standard Equipment: Steady rest, large and small face plates, compound rest, regular tool post, belt and geared feed, thread chasing dial, double-friction pulley countershaft, and necessary wrenches.

Additional Equipment. Taper attachment, follow rest, oil pan, oil pump and piping, draw-in collet attachment and collets, relieving attachment, carriage or bed turrets, chuck plates, special centers, micrometer bed stop, European tool post, and other lengths of bed than listed in specifications.

Motor Drive. This lathe can be supplied at an extra charge with motor drive headstock, using direct current adjustable speed, or alternating current multi-speed motors. (See Circular of Motor Drives for Reed Lathes.)

THE DAVIS PRESS WORCESTER MASS. U.S.A. 3M-9-1-24



14-in. "REED" STANDARD CONE HEAD LATHE

WITH QUICK CHANGE GEAR MECHANISM

CODE—HAT

SPECIFICATIONS

Swing over ways	16"
Swing over compound rest	10½"
Capacity of steady rest	3⅝"
Distance between centers—6' bed	35"
Length taper attachment will turn at one setting	16"
Front bearing, diameter and length	2¼" x 4⅞"
Rear bearing, diameter and length	1 13/16" x 3¾"
Spindle nose, diameter and threads	2¼"—7
Diameter hole through spindle	1⅛"
Taper hole in spindle	Jarno No. 12
Size of tools	½" x 1"
Pitch of lead screw	5
Cuts threads per inch	2 to 128
Feeds per revolution	.0015 to .100
Range of spindle speeds	9 to 516
Speed of countershaft R. P. M.	180
Countershaft pulleys, diameter and width of belt	12" x 3"
Cone step diameters, largest and smallest	11", 4¼"
Width of belt	2½"
Weight of compound rest—6' bed	1850 lbs.
Weight, extra foot of bed	100 lbs.
Weight boxed—6' bed	2200 lbs.
Weight boxed, extra foot of bed	130 lbs.
Cubic feet boxed—6' bed	56
Cubic feet boxed, extra foot of bed	5

MACHINE TOOLS

REED-PRENTICE CORP.

WORCESTER MASS., U.S.A.

Circular 10-2114-2

The "Reed" 14" Standard Cone Head Lathe has four step cone, with steps large in diameter and wide of face, which in conjunction with wide face gearing of suitable pitches makes this lathe especially adapted for a wide range of work, both light and heavy.

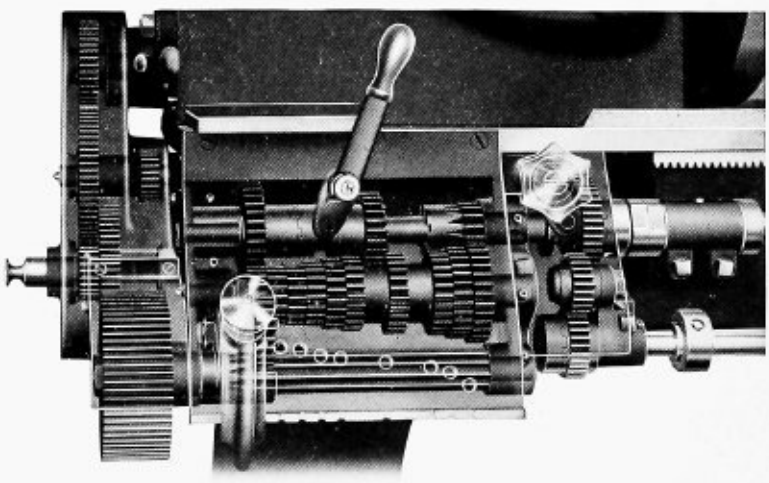
HEAD SPINDLE is made from a steel forging with journals hardened and ground. The taper hole in the spindle is a modified Jarno No. 12. An adapter can be furnished to accommodate either Morse or B. & S. tapers at a slight extra charge.

SPINDLE BEARINGS: These are square cast-iron housings which fit snugly into square seats in the headstock. They are lined with Babbitt metal which is poured and compressed into dovetail slots in the cast-iron backing. They are then bored with a diamond and hand scraped to spindle.

REST: Lathe is regularly made with compound rest, but plain rest can be furnished if desired. The rest has long bearings and is securely gibbed to outside of bed at front and rear.

FEED: Power Cross Feed with both types of rest. Independent feed rod is furnished so that leadscrew is used only for thread cutting. When using the leadscrew the feed rod does not rotate, and vice versa. An automatic stop is provided on the feed rod to stop the feed at any desired travel of the carriage. Steel rack and pinion gear for moving carriage. Rack Gear arranged to be drawn out of rack when screw cutting thus preventing rotation of handle and gears.

QUICK CHANGE GEAR: Lathe is equipped with quick change gear box providing 60 changes to both leadscrew and feed rod. All gears in front box are steel, cut coarse pitch. Device is so arranged that leadscrew and feed rod are never engaged and running at the same time thus effecting a saving of wear and power of running both when but one is required. Design provides that any position of levers and sliding gear will not lock the mechanism and cause breakage. Index plate on front of box is easy to read and clearly shows location of levers for all threads and feeds. Standard threads from 2-128 including 11½ pipe thread can be cut, and feeds from .0015 to .100 per inch obtained.



PHANTOM VIEW OF QUICK CHANGE GEAR BOX

Lathe can be equipped with quick change gear box for cutting metric threads with metric screw at extra charge.

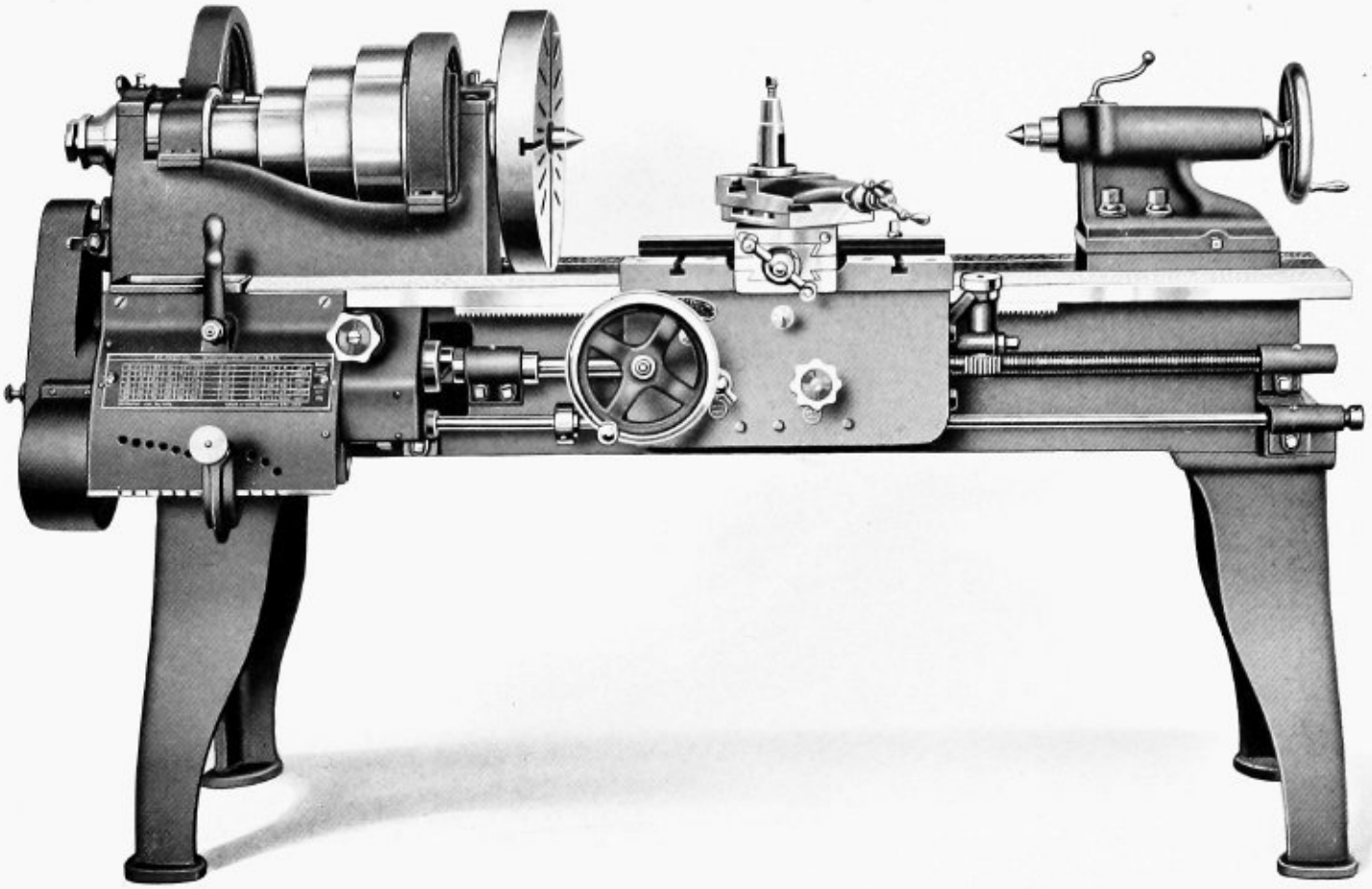
COUNTERSHAFT: There are two friction pulleys 12" in diameter for a 3" belt, and should run at 130 R. P. M. Hangers have large oil reservoirs.

TAPER ATTACHMENT: Taper Attachment can be furnished with either style of rest at an extra charge. This Attachment is rigid and complete in itself. Simply tightening one screw makes it secure in position for work at any desired place on the bed, and it always gives the correct taper at whatever point the tool begins its cut. Bar is graduated on one end in inches, on the other end in degrees, and provides for turning tapers up to 3" to the foot, 16" in length.

STANDARD EQUIPMENT: Steady rest, large and small face plates, compound rest, regular tool post, quick-change gear mechanism, thread chasing dial, double-friction pulley countershaft, and necessary wrenches.

ADDITIONAL EQUIPMENT: Taper attachment, follow rest, oil pan, oil pump and piping, draw-in collet attachment and collets, relieving attachment, carriage or bed turrets, chuck plates, special centers, micrometer bed stop, European tool post, and other lengths of bed than listed in specifications.

THE HEFFERNAN PRESS, SPENCER, MASS., U. S. A.—2M 6-15-26



16-IN. "REED" STANDARD CONE HEAD LATHE

WITH QUICK CHANGE GEAR MECHANISM

CODE—HEM

SPECIFICATIONS

Swing over ways	18″
Swing over compound rest	11½″
Capacity of steady rest	4¾″
Distance between centers—6′ bed	31″
Length taper attachment, will turn at one setting	18½″
Front bearing, diameter and length	2½″ x 4 13/16″
Rear bearing, diameter and length	2 3/64″ x 3¾″
Spindle nose, diameter and threads	2½″—6
Diameter hole through spindle	1¾″
Taper hole in spindle	Jarno No. 13
Size of tools	½″ x 1″
Pitch of lead screw	5
Cuts threads per inch	2 to 128
Feeds per revolution	.0015 to .100
Range of spindle speeds	8 to 478
Speed of countershaft R. P. M.	160
Countershaft pulleys, diameter and width of belt	13″x3½″
Cone step diameters, largest and smallest	12″, 4½″
Width of belt	3″
Weight with compound rest—6′ bed	2530 lbs.
Weight, extra foot of bed	125 lbs.
Weight boxed—6′ bed	300 lbs.
Weight boxed, extra foot of bed	150 lbs.
Cubic feet boxed—6′ bed	69
Cubic feet boxed, extra foot of bed	8

REED-PRENTICE COMPANY
MACHINE TOOLS
WORCESTER MASS., U.S.A.

Circular 10-2116-1

REED-PRENTICE MACHINE TOOLS

The Reed-Prentice 16″ Standard Engine Lathe has four step cone, with steps large in diameter and wide of face, which in conjunction with wide face gearing of suitable pitches makes this lathe especially adapted for a wide range of work, both light and heavy.

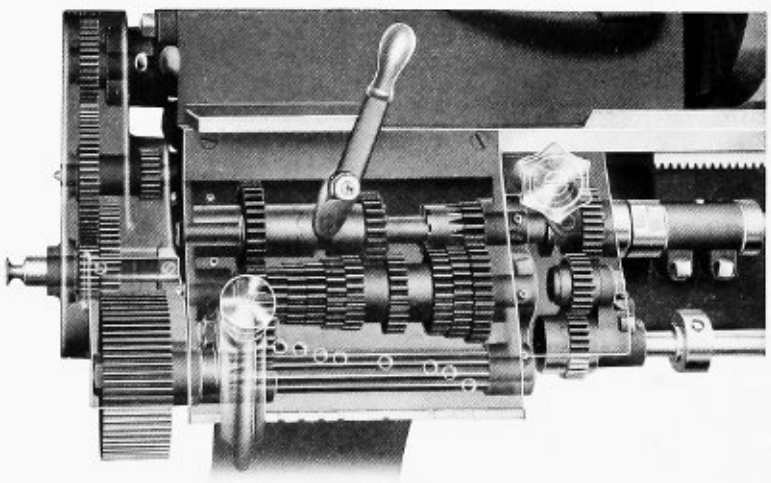
HEAD SPINDLE is made from a steel forging with journals, hardened and ground. The taper hole in the spindle is a modified Jarno 13. An adapter can be furnished to accommodate either Morse or B. & S. tapers at a slight extra charge.

SPINDLE BEARINGS: These are square cast-iron housings which fit snugly into square seats in the headstock. They are lined with Babbitt metal which is poured and compressed into dovetail slots in the cast-iron backing. They are then bored with a diamond and hand scraped to spindle.

REST: Lathe is regularly made with compound rest, but plain rest can be furnished if desired. The rest has long bearings and is securely gibbed to outside of bed at front and rear.

FEED: Power cross feed with both types of rest. Independent feed rod is furnished so that leadscrew is used only for thread cutting. When using the leadscrew the feed rod does not rotate, and vice versa. An automatic stop is provided on the feed rod to stop the feed at any desired travel of the carriage. Steel rack and pinion gear for moving carriage. Rack gear arranged to be drawn out of rack when screw cutting thus preventing rotation of handle and gears.

QUICK CHANGE GEAR: Lathe is equipped with quick change gear box providing 60 changes to both leadscrew and feed rod. All gears in front box are steel, cut coarse pitch. Device is so arranged that leadscrew and feed rod are never engaged and running at the same time thus affecting a saving of wear and power of running both when but one is required. Design provides that any position of levers and sliding gear will not lock the mechanism and cause breakage. Index plate on front of box is easy to read and clearly shows location of levers for all threads and feeds. Standard threads from 2-128 including 11½ pipe thread can be cut and feeds from .0015 to .100 per inch obtained.



PHANTOM VIEW OF QUICK CHANGE GEAR

Lathe can be equipped with quick change gear box for cutting metric threads with metric screw at extra charge.

COUNTERSHAFT: There are two friction pulleys 13″ in diameter for 3½″ belt and should run at 160 R. P. M. Hangers have large oil reservoirs.

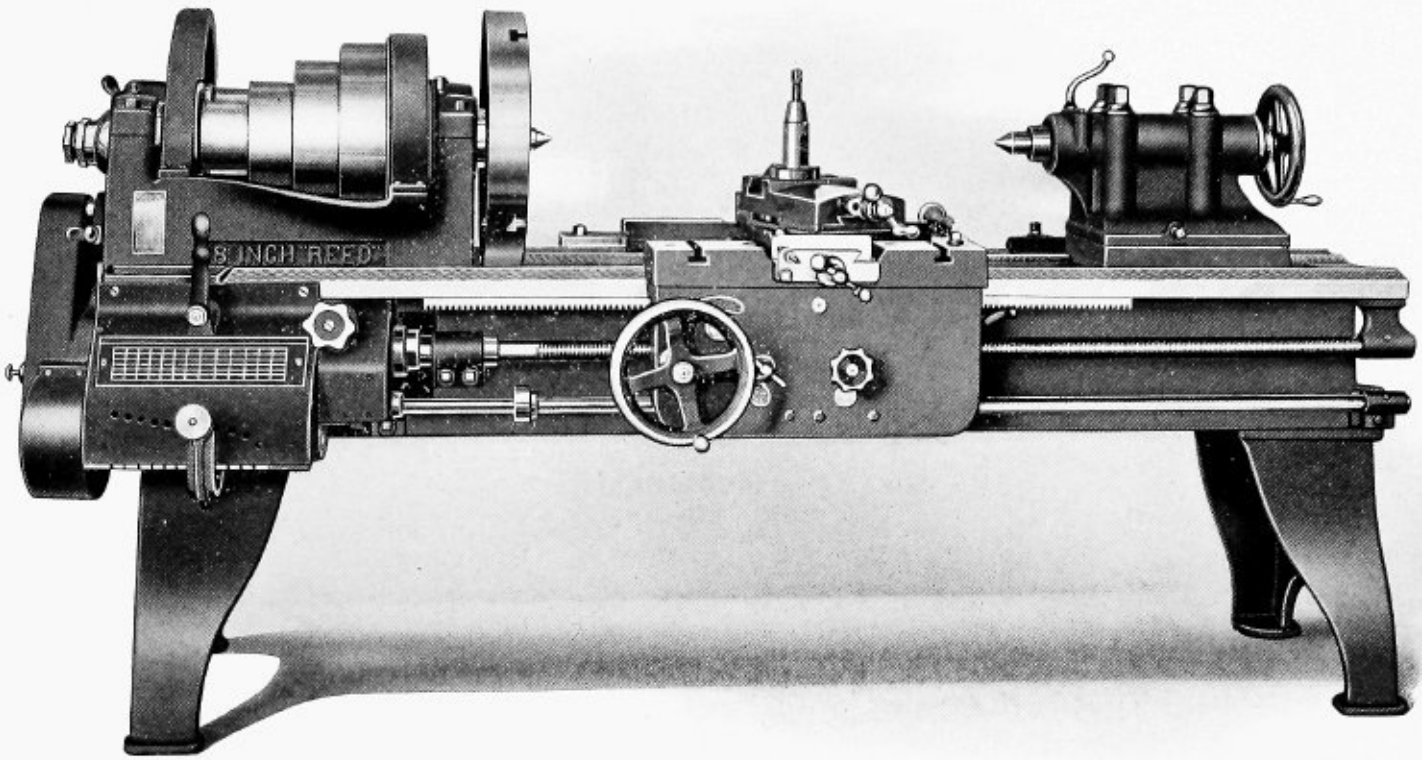
TAPER ATTACHMENT: Taper Attachment can be furnished with either style of rest at an extra charge. This Attachment is rigid and complete in itself. Simply tightening one screw makes it secure in position for work at any desired place on the bed, and it always gives the correct taper at whatever point the tool begins its cut. Bar is graduated on one end in inches, on the other end in degrees, and provides for turning tapers up to 3″ to the foot, 18½″ in length.

STANDARD EQUIPMENT: Countershaft, steady rest, tool post, large and small face plates, thread chasing dial and all necessary wrenches.

SPECIAL EQUIPMENT: Follow rest, relieving attachment, draw-in or closer type collet attachment and collets, oil pan, pump and piping, taper attachment, carriage or bed turrets, chuck plates and special centers. This lathe can also be supplied with metric leadscrew and quick change gear or with belt and gear feed and transposing gears to cut metric pitches.

MOTOR DRIVE: This lathe can be supplied at an extra charge with motor drive headstock, using direct current variable speed, or alternating current multi-speed motors. (See circular of Motor Drives for Reed Lathes.)

THE DAVIS PRESS WORCESTER MASS. U.S.A. 2M 12-15-25



18-in. "REED" STANDARD CONE HEAD LATHE

WITH QUICK CHANGE GEAR MECHANISM

CODE—HIT

SPECIFICATIONS

Swing over ways	20"
Swing over compound rest	11¾"
Capacity of steady rest	5"
Distance between centers—8' bed	45"
Length taper attachment will turn at one setting	22"
Front bearing, diameter and length	2 5/16" x 5⅝"
Rear bearing, diameter and length	2⅛" x 3 1/16"
Spindle nose, diameter and threads	3¼"—4
Diameter hole through spindle	1½"
Taper hole in spindle	Jarno No. 15
Size of tools	⅝" x 1¼"
Pitch of lead screw	4
Cuts thread per inch	2 to 128
Feeds per revolution	.0015 to .100
Range of spindle speeds	7 to 478
Speed of countershaft, R. P. M.	150
Countershaft pulleys, diameter and width of belt	14" x 3¾"
Cone step, diameters, largest and smallest	14"—5"
Width of belt	3¼"
Weight with compound rest—8' bed	3200 lbs.
Weight, extra foot of bed	150 lbs.
Weight boxed—8' bed	3700 lbs.
Weight boxed, extra foot of bed	190 lbs.
Cubic feet boxed—8' bed	80
Cubic feet boxed, extra foot of bed	9

MACHINE TOOLS

REED-PRENTICE CORP.

WORCESTER MASS., U.S.A.

Circular 10-2118-2

REED-PRENTICE MACHINE TOOLS

The "Reed" 18" Standard Cone Head Lathe has four step cone, with steps large in diameter and wide of face, which in conjunction with wide face gearing of suitable pitches makes this lathe especially adapted for a wide range of work, both light and heavy.

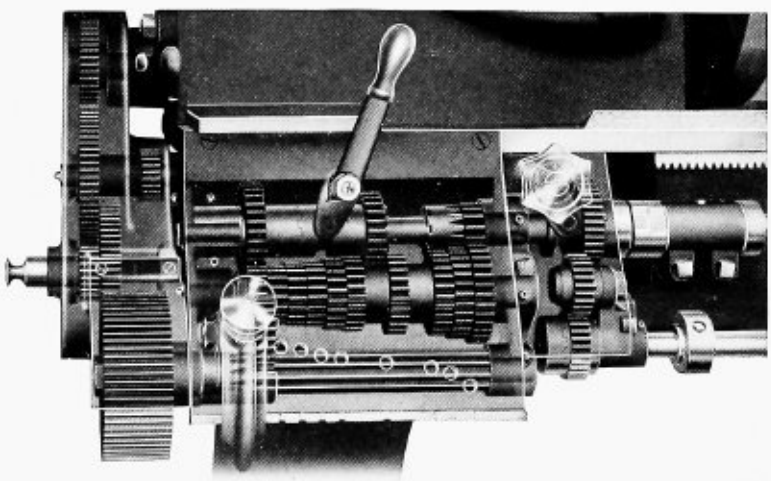
HEAD SPINDLE is made from a steel forging with bearings, hardened and ground. The taper hole is a modified Jarno No. 15. An adapter can be furnished to accommodate either Morse or B. & S. tapers at a slight extra charge.

SPINDLE BOXES are made of bronze, bored and hand-scraped to fit spindle.

REST: Lathe is regularly made with compound rest, but plain rest can be furnished if desired. The rest has long bearings and is securely gibbed to outside of bed at front and rear.

FEED: Power Cross Feed with both styles of rest. Independent feed rod is furnished so that leadscrew is used only for thread cutting. When using leadscrew the feed rod does not rotate, and vice versa. An automatic stop is provided on the feed rod to stop the feed at any desired travel of the carriage. Steel rack and pinion gear for moving carriage. Rack Gear arranged to be drawn out of rack when screw cutting thus preventing rotation of handle and gears.

QUICK CHANGE GEAR: Lathe is equipped with quick change gear box providing 60 changes to both leadscrew and feed rod. All gears in front box are steel, cut coarse pitch. Device is so arranged that leadscrew and feed rod are never engaged and running at the same time thus effecting a saving of wear and power of running both when but one is required. Design provides that any position of levers and sliding gear will not lock the mechanism and cause breakage. Index plate on front of box is easy to read and clearly shows location of levers for all threads and feeds. Standard threads from 2-128 including 11½ pipe thread can be cut, and feeds from .0015 to .100 per inch obtained.



PHANTOM VIEW OF QUICK CHANGE GEAR BOX

Lathe can be equipped with quick change gear box for cutting metric threads with metric screw at an extra charge.

COUNTERSHAFT has two friction pulleys 14" diameter for 3¾" belt, and should run at 150 revolutions per minute. Hangers have large oil reservoirs.

TAPER ATTACHMENT: Taper attachment can be furnished with either style of rest at an extra charge. This Attachment is rigid and complete in itself. Simply tightening one screw makes it secure in position for work at any desired place on the bed, and it always gives the correct taper at whatever point the tool begins its cut. Bar is graduated on one end in inches, on the other end in degrees, and provides for turning tapers up to 3" to the foot, 22" in length.

STANDARD EQUIPMENT: Steady rest, large and small face plates, compound rest, quick-change gear mechanism, thread chasing dial, double-friction pulley countershaft, and all necessary wrenches.

SPECIAL EQUIPMENT: Taper attachment, follow rest, oil pan, oil pump and piping, draw-in attachment and collets, relieving attachment, carriage or bed turrets, chuck plates and special centers.

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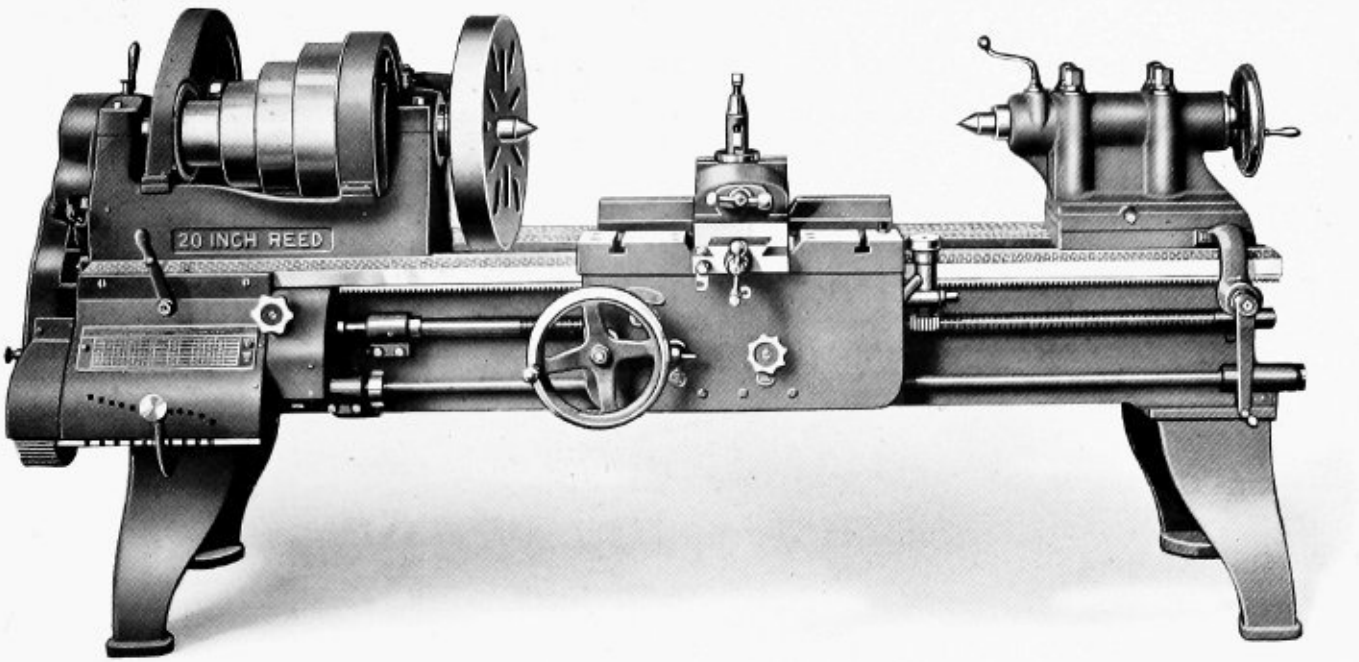


20-IN. "REED" STANDARD CONE HEAD LATHE

WITH QUICK CHANGE GEAR MECHANISM

CODE—HIS

SPECIFICATIONS

Swing over ways	22″
Swing over compound rest	13″
Capacity of steady rest	5¼″
Distance between centers—8′ bed	39″
Length taper attachment will turn at one setting	24″
Front bearing, diameter and length	3″ x 6¼″
Rear bearing, diameter and length	2 9/32″ x 4 15/32″
Spindle nose, diameter and threads	3½″—4
Diameter hole through spindle	1¾″
Taper hole in spindle	Jarno No. 17
Size of tools	⅝″ x 1¼″
Pitch of lead screw	4
Cuts threads per inch	2 to 128
Feeds per revolution	.0015″ to .100″
Range of spindle speeds R. P. M.	7 to 423
Speed of countershaft R. P. M.	140
Countershaft pulleys, diameter and width of belt	16″ x 4″
Cone step diameters—largest and smallest	15½″, 5¾″
Width of belt	3½″
Weight with compound rest—8′ bed	4500 lbs.
Weight per extra foot of bed	200 lbs.
Weight boxed—8′ bed	5200 lbs.
Weight boxed, per extra foot of bed	300 lbs.
Cubic feet boxed—8′ bed	116
Cubic feet boxed, per extra foot of bed	10

REED-PRENTICE COMPANY
MACHINE TOOLS
WORCESTER MASS., U.S.A.

Circular 10-2120-1

REED-PRENTICE MACHINE TOOLS

The Reed-Prentice 20″ Standard Cone Head Lathe has four step cone, with steps large in diameter and wide of face, which in conjunction with wide face gearing of suitable pitches makes this lathe especially adapted for a wide range of work, both light and heavy.

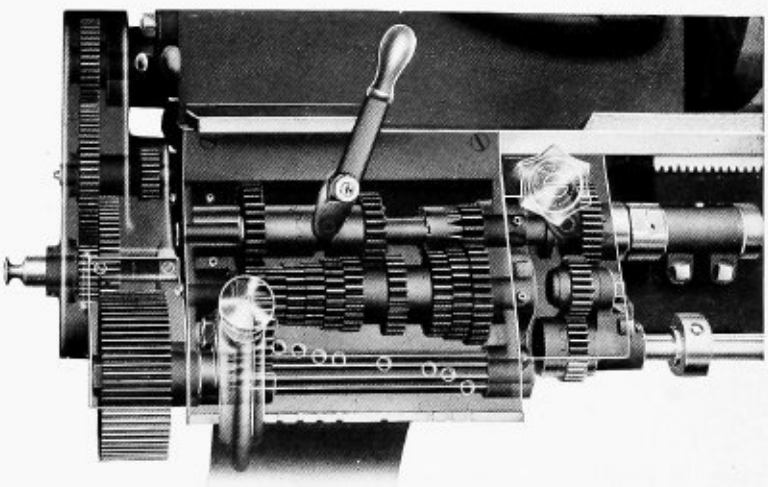
HEAD SPINDLE is made from a steel forging with journals hardened and ground. The taper hole in the spindle is a modified Jarno No. 17. An adapter can be furnished to accommodate either Morse or B. & S. tapers at a slight extra charge.

SPINDLE BEARINGS: These are of bronze, hand-scraped to fit the spindle, and are firmly screwed into the headstock.

REST: Lathe is regularly made with compound rest, but plain rest can be furnished if desired. The rest has long bearings and is securely gibbed to outside of bed at front and rear.

FEED: Power Cross Feed with both types of rest. Independent feed rod is furnished so that leadscrew is used only for thread cutting. When using the leadscrew the feed rod does not rotate, and vice versa. An automatic stop is provided on the feed rod to stop the feed at any desired travel of the carriage. Steel rack and pinion gear for moving carriage. Rack Gear arranged to be drawn out of rack when screw cutting thus preventing rotation of handle and gears.

QUICK CHANGE GEAR: Lathe is equipped with quick change gear box providing 60 changes to both leadscrew and feed rod. All gears in front box are steel, cut coarse pitch. Device is so arranged that leadscrew and feed rod are never engaged and running at the same time thus effecting a saving of wear and power of running both when but one is required. Design provides that any position of levers and sliding gear will not lock the mechanism and cause breakage. Index plate on front of box is easy to read and clearly shows location of levers for all threads and feeds. Standard threads from 2-128 including 11½ pipe thread can be cut, and feeds from .0015 to .100 per inch obtained.



PHANTOM VIEW OF QUICK CHANGE GEAR

Lathe can be equipped with quick change gear box for cutting metric threads with metric screw at extra charge.

COUNTERSHAFT: There are two friction pulleys 16″ in diameter for a 4″ belt, and should run at 140 R. P. M. Hangers have large oil reservoirs.

TAPER ATTACHMENT: Taper Attachment can be furnished with either style of rest at an extra charge. This Attachment is rigid and complete in itself. Simply tightening one screw makes it secure in position for work at any desired place on the bed, and it always gives the correct taper at whatever point the tool begins its cut. Bar is graduated on one end in inches, on the other end in degrees, and provides for turning tapers up to 3″ to the foot, 24″ in length.

STANDARD EQUIPMENT: Steady rest, large and small face plates, compound rest, regular tool post, quick-change gear mechanism, thread chasing dial, double-friction pulley countershaft, and necessary wrenches.

ADDITIONAL EQUIPMENT: Taper attachment, follow rest, oil pan, oil pump and piping, draw-in collet attachment and collets, relieving attachment, carriage or bed turrets, chuck plates and special centers, micrometer bed stop, European tool post, and other lengths of bed than listed in specifications.

MOTOR DRIVE: This lathe can be supplied at an extra charge with motor drive headstock, using direct current variable speed or alternating current multi-speed motors. (See circular of Motor Drives for Reed Lathes.)

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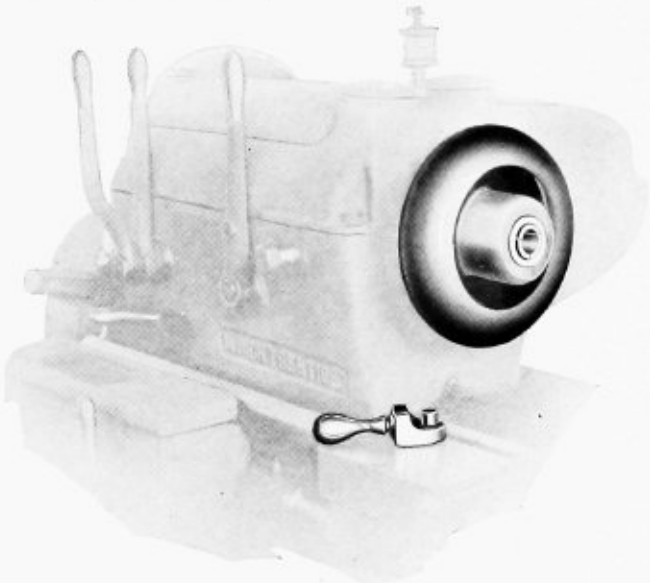
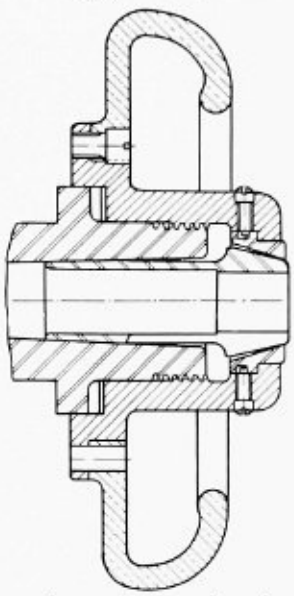
REED-PRENTICE MACHINE TOOLS

Equipment for Standard Engine Lathes

Closer Type Collet Attachment (for Reed Prentice Geared Head lathes only). This simple and accurate attachment is a marked improvement in collet attachments, since it centralizes control and increases the collet capacity considerably.



The Closer is threaded to fit the spindle nose, and the recess surrounding the spindle flange centralizes the Closer accurately with the spindle. This recess is made $\frac{1}{32}$" less in diameter than the standard spindle flange, and permits fitting to lathes already in operation. The Closer also protects the threaded portion of the spindle from dirt and chips.



The inner part of the Closer is of cast iron while the outer portion or bowl is of aluminum, which is very light, thus reducing the fly wheel effect to a minimum. This eliminates a tendency to loosen the Closer when stopping the lathe.

The bowl of the Closer conforms readily to an operator's hand, and provides for a firm finger hold, an effect similar to having a moneky wrench on a pulley. Holes are drilled in the bowl so that a wrench although seldom required, may be used for clamping work during heavy cuts.

The taper shank of the collet fits the central portion of the taper hole in the spindle and the nose of the collet is supported by a steel ring in the Closer. By fitting the collet to the taper hole, a collet of maximum capacity is obtained. The collets set well back into the spindle, thereby insuring rigid construction by having a minimum overhang.

The hardened steel ring is properly seated in the Closer and has a snug running fit in the front opening. When the Closer is rotated to close the collet and hold the work, the ring grips the collet and the running fit between the ring and the Closer allows the ring to remain stationary.

The collet does not have any endwise movement during its opening and closing. This is particularly advantageous when it is desirous to locate a piece of work from a stop on the tailstock, as the work is clamped without being drawn away from the stop.

The location of the collet attachment permits ease and convenience of operation. Being on the nose of the spindle enables the operator to open and close the collet without going to the rear end of the headstock as customary with the drawbar.

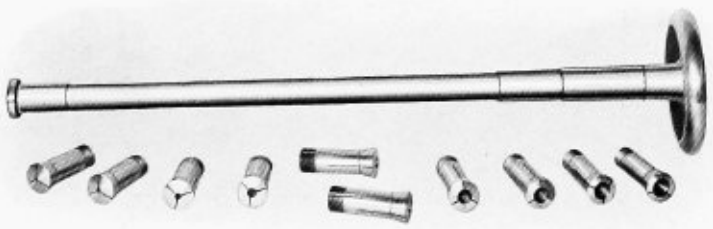
Collet attachments and sets can be furnished for 12", 14", 16" and 18" Geared Head and 14" Reed Prentice Cone Head Lathes, as tabulated and metric collets in any sizes of the listed capacities.

COLLET SETS (For Geared Head Lathes Only)

Size of Lathe	12"	14"	16"	18"
Maximum Collet Capacity	1"	1⅛"	1¼"	1⅜"
Closer Attachment, Set No. 8				
Range of Collets (⅛" Increments)	⅛—1"	¼—1⅛"	¼—1¼"	¼—1⅜"
Number of Collets per Set	8	8	9	10
Closer Attachment, Set No. 16				
Range of Collets ($\frac{1}{16}$" Increments)	⅛—1"	¼—1⅛"	¼—1¼"	¼—1⅜"
Number of Collets per Set	15	15	17	19

The attachment is regularly furnished with a Closer complete with wrench and one collet, size of which is optional.

A cabinet with bracket suitable for attaching to the rear of the lathe, and containing a set of collets and a knockout rod, can also be supplied for convenience to operator.



Draw-In Type of Collet Attachment (for "Reed" Cone Head Lathes). The attachment consists of a sleeve fitted to the taper hole at the mouth of the spindle, and arranged with an opening to receive the bevel on the outside of the collet. The collets of all sizes within the capacity of the lathe are made to fit the sleeve. The inside end of the collet is threaded to fit the threaded hole in the end of the draw bar that passes through the entire length of the spindle, and the key in the sleeve prevents the collet from turning when the work is being clamped.

DRAW-IN COLLETS

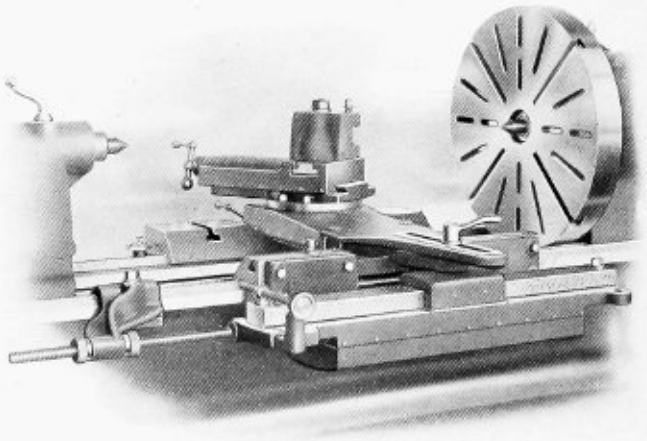
(For "Reed" Cone Head Lathes)

Lathe	Capacity	
	Min.	Max.
12"	1/8"	1/2"
14"	1/8"	3/4"
16"	1/8"	3/4"
18"	1/4"	1"
20"	1/4"	1 1/4"

The draw-in attachment is regularly furnished with a sleeve complete with draw bar and one collet, the size of which is optional.

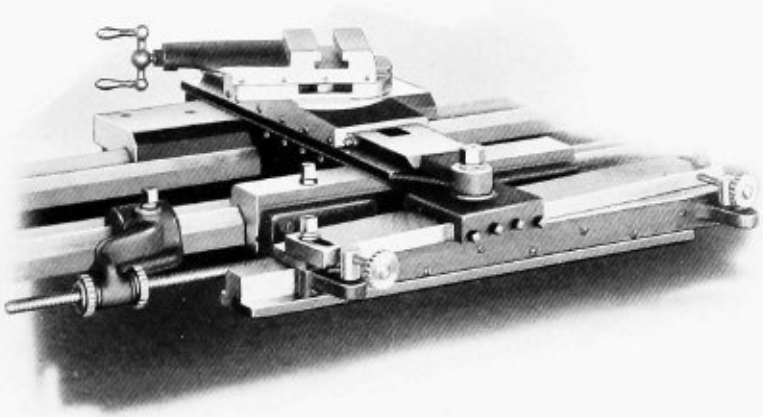
The collet capacities that can be furnished are tabulated for the various sizes of lathes. These collets are regularly made by 1/16" increments and metric collets can be supplied in any sizes within the listed capacities.

"Prentice" Taper Attachment. This attachment is designed so that the action is delivered direct to the bottom block by an extension clamped to the taper bar shoe. The attachment is arranged at the rear of the carriage and the endwise location of the taper bar controlled through an adjustment provided by the bracket clamped to the rear V of the bed. The unit is readily attached to the compound block of a standard lathe, and the approximate positioning of the tool to the taper bar is obtained by a hand clamp on the shoe. When it is necessary to use the bottom block for adjustment, the taper attachment will deliver its action to the bottom block through the cross feed screw, also secured to the taper bar shoe.



The maximum lengths of tapers obtainable at one setting are listed in the lathe specifications while the largest taper is 16 degrees and 45 minutes, being equivalent to 3 1/2" to the foot. The positioning of the taper bar is controlled by an adjusting screw.

The attachment is applicable to any of the Reed-Prentice Geared Head Lathes, and the 18" and 20" Reed Cone Head Lathes.

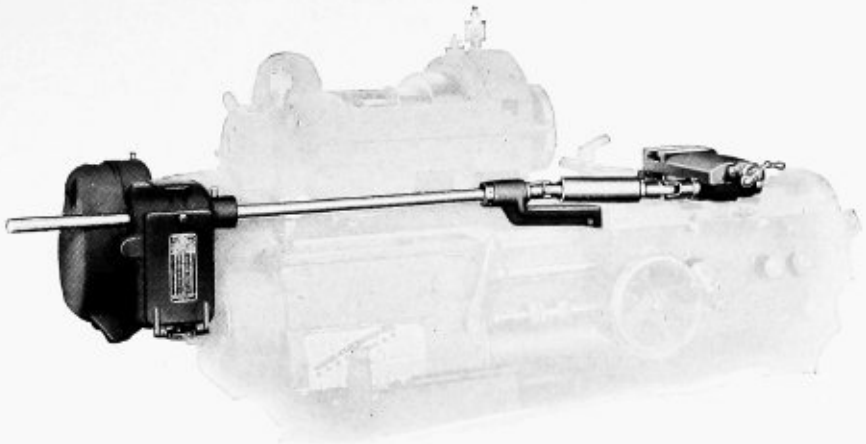


"Reed" Taper Attachment. The "Reed" taper attachment is arranged in conjunction with the standard rests, and the cross slide is of the double dovetail type, insuring extreme rigidity under severe cutting conditions. The travel of the tool is controlled by a taper bar mounted on a slide at the rear of the lathe, the motion transferred through a shoe straddling the bar and directly connected to the cross slide on the carriage. The attachment can be used at any desired place on the bed, and is secured in an endwise position by an adjustable bracket clamped to the rear V of the bed.

Provision is made for turning tapers up to 3" to the foot, and maximum lengths obtainable are in accordance with listed specifications on the first page. The taper bar is graduated in 1/8" per foot at one end, and degrees on the other end.

This attachment can be used with either compound or plain rests, and power cross feeds on the 12", 14" and 16" Reed lathes, while the "Prentice" type of attachment is used on the 18" and 20" Reed Lathes.

Micrometer Bed Stop. This stop is clamped to the front V of the bed and is very convenient in accurately adjusting the endwise position of the carriage. The adjusting screw is arranged with an index dial graduated in one thousandths of an inch and clamped in desired place by a knurled head screw at the front of the stop.



"Prentice" Relieving Attachment for 16", 18" and 20" "Reed" Quick Change Lathes and all "Reed Prentice" Geared Head Lathes

"Prentice" Relieving Attachment. The relieving attachment is used for backing off the side and end teeth of cutters, hobs, taps and many other tools having straight, taper or irregular surfaces that require uniform relief. This type of attachment may be arranged with the 12", 14", 16", 18" and 20" sizes of Reed-Prentice Geared Head Lathes, 14" Reed-Prentice Cone Head Lathes, and the 16", 18" and 20" Reed Quick Change Gear Lathes.

The change gear box is clamped to the guard covering the end works of the lathe, and contains the oscillating mechanism that reciprocates the compound block on the carriage through a telescopic shaft.

The rocker arm located on the end portion of the telescopic shaft inside of the change gear box is oscillated by means of a four-throw hardened cam driven from the spindle gear of the end works. This arm is equipped with an adjustable shoe sliding in an elongated slot, and adjusted by a screw. The knurled head of this screw extends below the surrounding housing, giving convenience in adjustment, while the door directly in front of the rocker arm provides access to the shoe clamping bolt. The position of the adjusting shoe governs the oscillating of the telescopic shaft, thereby controlling the amount of relief imparted to the work.

The other end of the telescopic shaft is arranged with a telescoping sleeve and a set of universal joints, and connects to a pinion meshing with a rack made integral with the compound rest screw nut. The upper block of the compound rest is moved forward by the cam, and returned by a heavy coil spring. This construction permits the upper and lower blocks to be independently adjustable, and allows the standard taper attachment to be used. In addition, the compound rest may be swiveled toward the tailstock to the amount of 45 degrees, so that end relief may be obtained.

The telescopic shaft supported by a bracket extending from the carriage, is made of considerable length to permit the attachment being used for long work, hence increasing the range for which the attachment is adaptable.

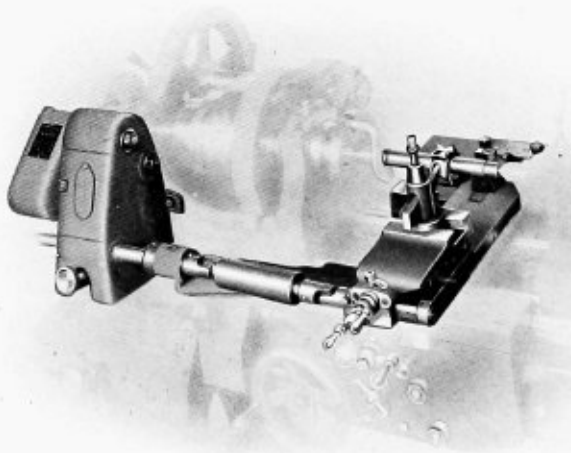
A set of 19 change gears is regularly furnished for use with the four throw cam, and provides for the relieving of work having from 4 to 20 teeth. By the use of an eight-throw cam in connection with these change gears, work having 8 to 40 teeth, by increments of 2, may be relieved. The eight throw cam can be supplied at an extra charge. These cams provide for reliefs varying from 0 to $\frac{3}{16}$".

The change gears form part of the driving mechanism and are arranged with a quadrant. These gears are made accessible by simply removing a hinged cover at the end of the change gear box.

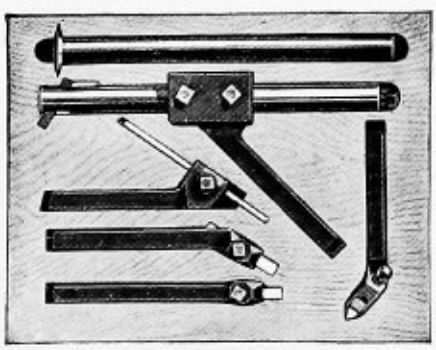
When using a lathe with this attachment, it is necessary to make provision for slow spindle speeds. This may be accomplished through the countershaft for the belt drive machine, and when motor drive is furnished, a two speed motor of 600 and 1200 R. P. M. should be used.

"Reed" Relieving Attachment. This type may be arranged with the 14", 16", 18" and 20" "Reed" Belt and Geared Feed Lathes and 14" "Reed" Quick Change Gear Lathes. This attachment operates in a similar manner to the one previously described, the difference being that the driving mechanism is attached at the front of the headstock.

With this attachment, a set of 6 change gears and four and eight throw cams are regularly furnished, and provide for the relieving of work having from 4 to 16 teeth.

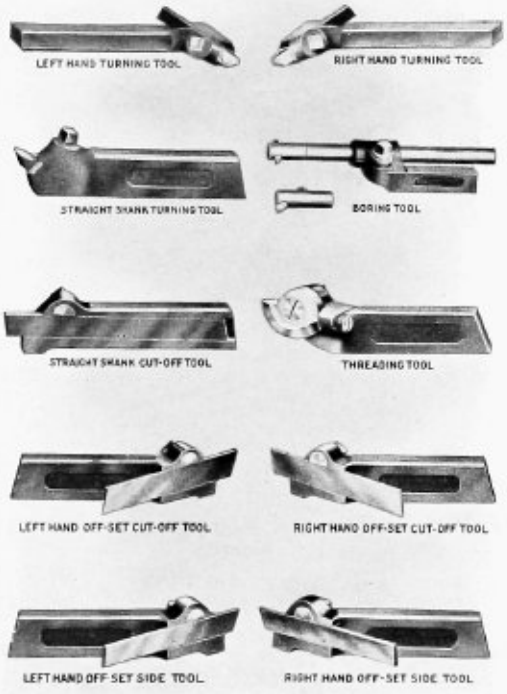


"Reed" Relieving Attachment for 14" "Reed" Quick Change and all "Reed" Belt and Gear Feed Lathes



Cutting Tools. The use of proper cutting tools is of prime importance. Two types of recommended tool holders with inserted cutting tools are shown, and may be furnished in sets, or separately.

"Red-E" No. G Lathe Tool Set. This complete set of tools—six in all—provides all tools required for inside and outside turning, facing, threading and boring. The container board provides a place for every tool, and should one be missing, the fact can be seen at a glance. The drop forged holders are ½" x 1" in size, and provided with adjustable high speed steel bits, renewable at a small cost.



"Armstrong" Tool Sets. These patented drop forged tool holders can be furnished as follows:

Set "A" includes the ten tools shown. Each holder is equipped with a wrench and one high speed cutter.

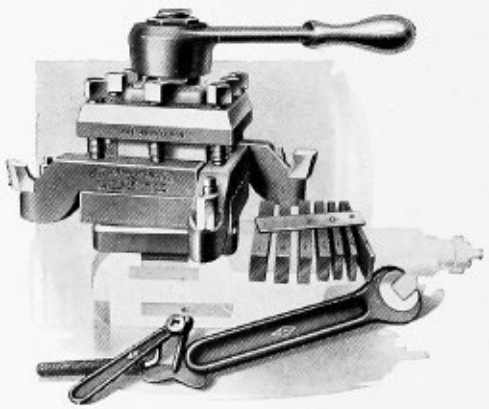
Set "B" includes five lathe tools most commonly used on ordinary work, consisting of the straight shank turning tool, boring tool, threading tool, right hand off-set cutting off tool, right hand off-set side tool. Each holder is equipped with a wrench and one high speed cutter.

TOOL SETS

Lathe	Shank	Set No.	
		5 Tools	10 Tools
12"	3/8" x 7/8"	A-0F	A-0
14" & 16"	1/2" x 1 1/8"	A-1F	A-1
18" & 20"	5/8" x 1 3/8"	A-2F	A-2

Four Way Tool Post. This four way tool post is designed for 14" to 20" lathes. The height from the tool seat to the center of the lathe is uniform for all sizes.

The tool post is made of special alloy steel, heat treated, and ample room is provided for adjustment vertically by shimming as the tools wear.



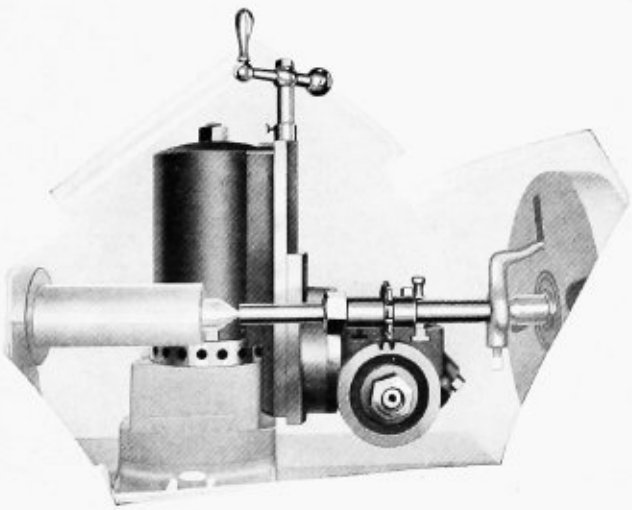
From the illustration it will be noted that the tool post varies from all others inasmuch as the entire square base engages in the tool holder supporting plate on a forty-five degree angle. The base plate is accurately tongued into the T-slot of the lathe rest, and the base is independently bolted into the T-slot to prevent its moving while the tool post is indexed.

A positive indexing method is provided, and can be operated very rapidly, as the clamping handle raises the entire upper portion of the holder from the base when loosened, for indexing any tool into the cutting position.

Although the illustration shows the tool holder complete with "OK" holders and tools, it may be readily used for other types of tool holders having shanks approximately 1" to 1¼" in height.

Milling Attachment. This milling attachment not only permits a lathe to be used as a milling machine, but allows the lathe to be used to the best possible advantage. It enables the cutting of gears, both spur and bevel; surface, straddle, angular, dovetail and end milling; graduating; slotting; key seating, also general dividing head and milling machine work.

The attachment is bolted to the tool post slot in the compound rest, while the cutters are driven by the headstock spindle. The handle at the top of the attachment controls the vertical movement; the cross feed screw of the lathe, the cross movement; and the carriage, the longitudinal movement. The power feeds in the apron give automatic feeds to the cross and longtitudinal movements.



Cutting Gears on a Lathe

The milling angles are obtained by the swiveling of the base, while the dividing head with its change gears provides for cutting of 2 to 360 divisions. The attachment is regularly furnished in three sizes in accordance with the table, and the standard equipment consists of two wrenches, one cutter arbor, two work arbors with draw bolts, one straight clamp, one concave clamp, one dog center, one outboard support, index head and one set of 24 change gears. Additional equipment consists of a drill press base, angle plate and vise.

SPECIFICATIONS

Size	No. 4	No. 5	No. 6
For Lathe	12"	14" to 16"	18" to 20"
Travel of Down Slide	6 1/2"	7 1/2"	9"
Net Weight	45 lbs.	60 lbs.	100 lbs.

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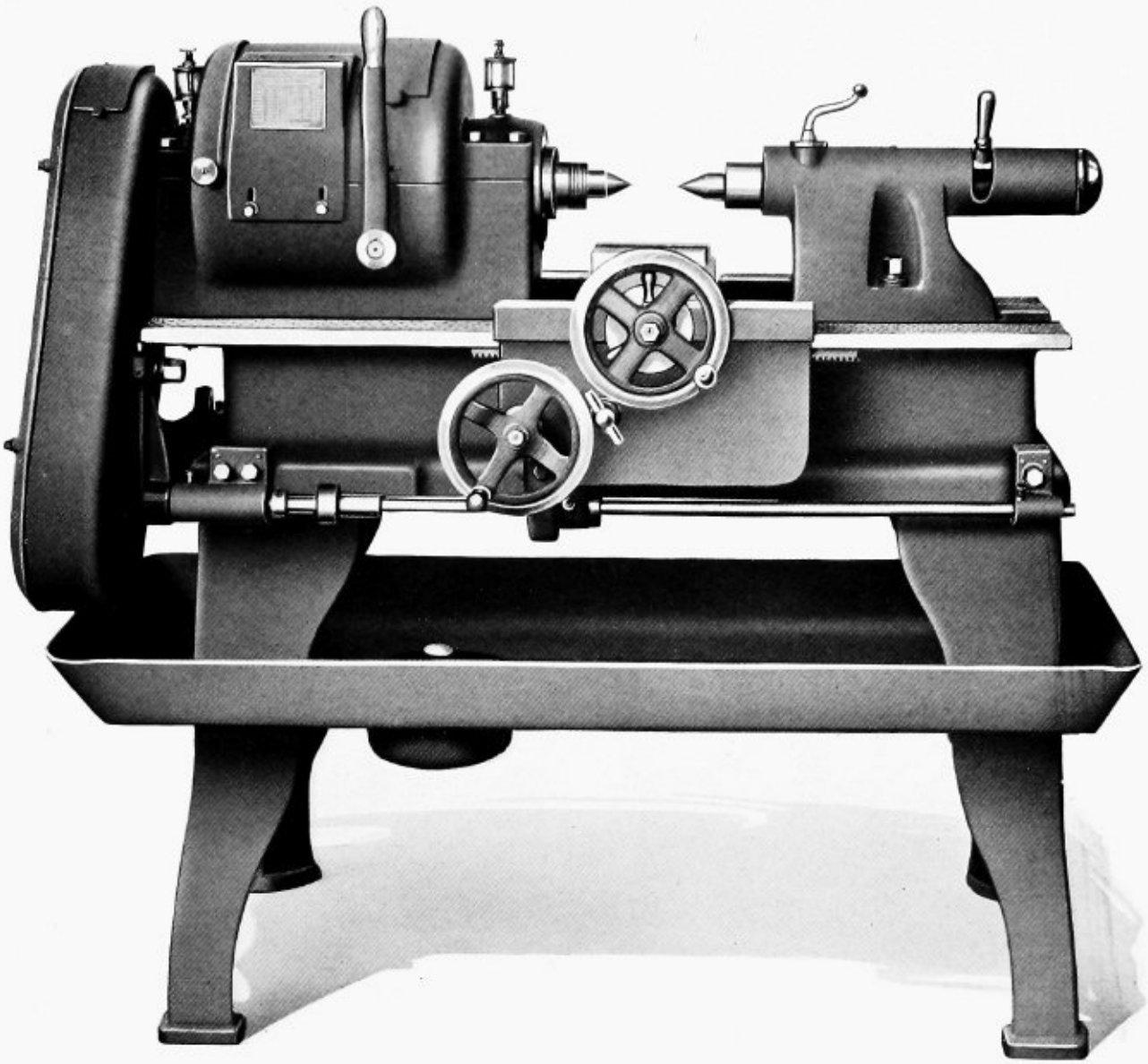
No. 00 Production Lathe



Standard Equipment. Friction brake headstock; belt feed to feed rod; cam tailstock; plain T-slot block, carriage arranged to receive back arm; friction type longitudinal power feed with automatic stop; hand cross feed; bed; legs and oil pan.

SPECIFICATIONS

CODE—MAC

Swing over ways	16″	Front bearing, diameter and length	2⅞″ x 5″
Swing over carriage bridge	11″	Rear bearing, diameter and length	1 13/16″ x 3½″
Swing by back arm	8¼″	Feed per revolution of spindle, unless otherwise specified	.015″
Diameter hole through spindle	13/16″	Size of tools	½″ x 1″
Taper hole in spindle	No. 9 Jarno	Weight, net, 4 ft. bed	1700 lbs.
Spindle nose, diameter and threads	2¼″–7	Weight, extra per ft. of bed	125 lbs.
Diameter drive pulley	12″	Weight, boxed complete, 4 ft. bed	1900 lbs.
Width of belt	5″	Weight, boxed, extra per ft. of bed	185 lbs.
Standard length of bed (additional bed extra)	4′	Cubic feet boxed, 4 ft. bed	105
Distance between centers, cam tail	9⅝″	Cubic feet boxed, extra per ft. of bed	11

REED-PRENTICE COMPANY
MACHINE TOOLS
WORCESTER MASS., U.S.A.

Circular 11-101-2

Standard Equipment

THE Reed-Prentice Production Lathe is an advanced development of the Multiple Tool Lathe and with its numerous patented attachments has become very popular among the automobile, electrical, textile and general machine trades. It is admirably adapted for straight, taper and form turning; straight and bevel facing; recessing; straight and form boring.

Rapid Production and Accuracy are the predominating features. The machine may be arranged with multiple tool holders, which are made interchangeable for performing one or a series of operations. Where production warrants, a number of machines may be tooled for separate operations, which in some cases may only require one operator in attendance.

Friction Brake Headstock. The friction brake headstock consists of a single pulley belt drive mounted directly on the spindle. The driving pulley is large in diameter and has a wide face. A hand lever is conveniently located on the front of the headstock, and operates a sliding spool on the spindle. When the handle is moved away from the operator, the spool expands the friction clutch in the pulley and sets the spindle in operation.

When it is desired to stop the rotating of the spindle, the hand lever is drawn toward the operator, and the spool engages a friction brake that stops the spindle instantaneously. With this arrangement, it is not necessary for the operator to wait for the spindle to stop of its own accord, and therefore much time is saved in the loading and unloading of the work.

The head is completely enclosed, and a removable plate is located at the front of the headstock to permit the adjustment of the friction and brake when necessary.

The spindle is made of a steel forging and its journals are hardened and ground. The nose of the spindle is cylindrical for half its length, and threaded the other half. The end thrust of the spindle is taken up by means of ball thrust bearings located inside of the head. There is a hole passing through the entire length of the spindle, while the nose end is arranged with a modified Jarno taper. The spindle bearings are of a high grade bronze, and are scraped to the spindle to insure an accurate alignment and maximum bearing surface. The spindle bearings are of liberal proportions and equipped with self oilers.

Apron. The apron is of simple and sturdy construction, and equipped with a longitudinal power feed. The power is received from the feed rod and delivered to the pinion gear through internal friction clutch in the worm gear. The friction clutch is operated by a handle on the front of the apron that expands a pair of fingers in the friction ring. The apron drive is automatically disengaged by a special automatic trip arranged in connection with the feed rod. All shafts are provided with ample bearing surfaces, and provision is made for proper lubrication.

The cross feed cuts, in most cases are obtained by the use of the back arm attachment. In cases where the back arm attachment is not used, the cross feed is operated by hand as it has seemed most advisable not to furnish a power cross feed.

Carriage and Blocks. As in the case of the apron, simplicity and rigidity are the predominating features. The bridge is of liberal width and depth to give rigid support under the most extreme cutting conditions. The long bearings are carefully scraped to the V's of the bed, and are properly protected by chip guards that prolong the life and original accuracy.

The carriage on the standard machine is equipped with a plain T-slot block that is operated by a cross feed screw having a large hand wheel arranged with a micrometer dial. It may be arranged with other types of blocks, and frequently special designs of carriages are made to meet special classes of work. These special carriages and blocks are furnished at an additional cost.

Cam Tailstock. The cam tailstock is furnished with standard equipment. The spindle is arranged with a lever located in a cam path in the barrel of the tail. The cam path has a straight portion so as to give a spindle traverse of about 2" before the cam lever comes in contact with the portion of the path which gives a ⅜" spindle traverse for about ninety degrees movement of the cam lever. With this method, the work may be removed from the centers very rapidly, and a fine adjustment of the center in the work is obtained. A hand clamping arrangement is also provided for the spindle. The tail is clamped to the bed by means of four large clamping bolts and a strap supported beneath the V's.

Belt Feed Works. This type of feed works consists of a direct belt drive from the spindle to the feed rod. The feed works are entirely enclosed by a guard arranged with a cover that can be removed, permitting easy access to the feed works at any time. At the top of the guard is also a hinged cover that gives complete vision of the belt arrangement. To the rear, and extending from the side of the guard, is a rocker arm carrying an idler pulley that is used to keep proper tension on the belt.

The machine is regularly equipped with a longitudinal feed of .015" per revolution of the spindle. However, when specified, a different feed will be furnished.

Automatic Trip. The feed rod is equipped with an arrangement that automatically trips the longitudinal feed. A sliding dog on the feed rod may be locked in position to trip the feed at any desired position of the carriage. As the carriage feeds toward the head, the feed rod bearing on the apron comes in contact with the sliding dog pushing it longitudinally toward the head until the clutch collar on the end of the feed rod disengages with the teeth on the driving pulley. This automatically trips the feed drive and the operator then releases the friction in the apron. As soon as the apron is withdrawn from the sliding dog, a spring reengages the clutch collar and driving pulley, thereby connecting the drive mechanism again.

Bed. The top of the bed has been designed somewhat differently than that of the usual engine lathe, in that there is a drop V for the inside ways. This eliminates excessive cut in the bridge of the carriage. The beds are cast of semi-steel, and large ties are provided at close intervals, thus insuring extreme rigidity.

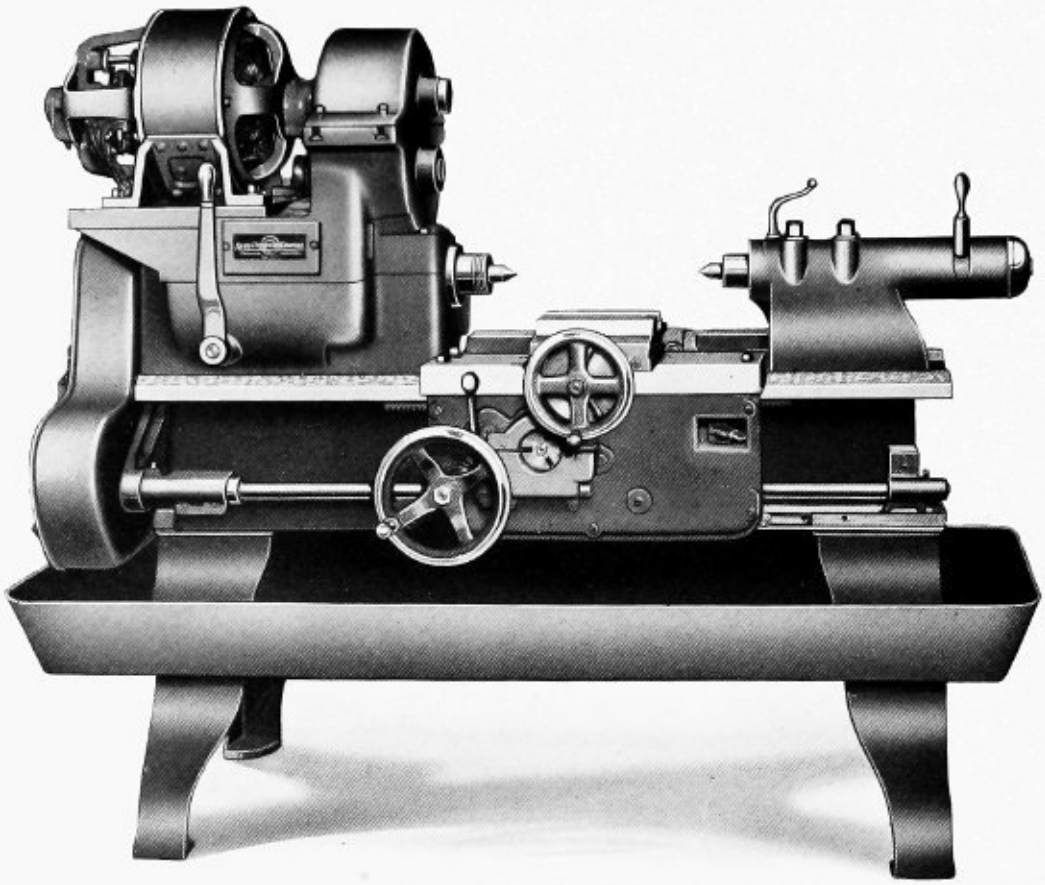
Oil Pan. An oil pan with large reservoir is furnished with regular equipment, and provides ample room for chips and cutting compounds. The oil pan is of pressed steel and eliminates all possibility of breakage, as is usually experienced when a cast iron pan is used.

Special Equipment. Back arm attachment; back arm support; cam and hand lever tail; hand wheel tail; spring tail; countershaft; motor attachments; draw back attachment; tool holders; small face plate and compensating drivers; oil pump and piping; steady rests; positive bed and cross stops; front and rear taper attachments; carriage and bed turrets; hand lever extension for long bed.

Our Engineering Service Department is placed at your disposal and will gladly submit complete production proposals upon request.

THE DAVIS PRESS WORCESTER MASS. U.S.A. 2M 12-16-25

No. 0 Production Lathe



Above shows standard machine arranged for special motor drive.

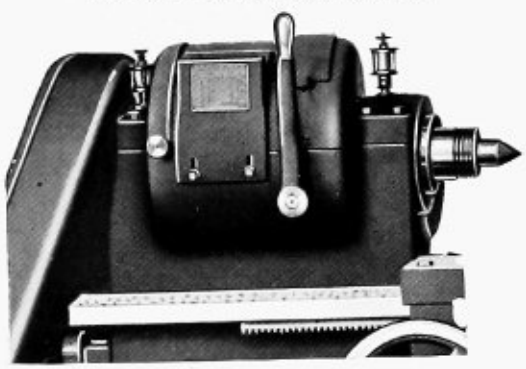
Standard Equipment. Belt driven friction brake head; gear feed to feed rod; cam tail; plain T-slot block, carriage arranged to receive back arm; clutch type longitudinal power feed with automatic trip; hand cross feed; bed; legs and oil pan.

SPECIFICATIONS

CODE—ORE

Swing over ways	16½"
Swing over carriage bridge	10⅜"
Swing by back arm	8¼"
Diameter hole through spindle	1¼"
Taper hole in spindle	No. 14 Jarno
Spindle nose, diameter and threads	3¼"–4
Diameter drive pulley	14"
Width of belt	5½"
Standard length of bed (additional bed extra)	5′
Distance between centers, cam tail	17"
Front bearing, diameter and length	3½" x 6½"
Rear bearing, diameter and length	3⅛" x 4"
Feed per revolution of spindle, unless otherwise specified	.015"
Size of tools	⅝" x 1¼"
Weight, net, 5 ft. bed	2900 lbs.
Weight, extra per ft. of bed	135 lbs.
Weight, boxed, complete, 5 ft. bed	3400 lbs.
Weight, boxed, extra per ft. of bed	205 lbs.
Cubic feet boxed, 5 ft. bed	120
Cubic feet boxed, extra per ft. of bed	13

No. 0 Production Lathe



Belt Driven Friction Brake Headstock furnished with Standard Equipment

REED-PRENTICE COMPANY
MACHINE TOOLS
WORCESTER MASS., U.S.A.

Circular 11-202-1

Standard Equipment

THE Reed-Prentice Production Lathe is an advanced development of the Multiple Tool Lathe and with its numerous patented attachments has become very popular among the automobile, electrical, textile and general machine trades. It is admirably adapted for straight, taper and form turning; straight and bevel facing; recessing; straight and form boring.

Rapid Production and Accuracy are the predominating features. The machine may be arranged with multiple tool holders, which are made interchangeable for performing one or a series of operations. Where production warrants, a number of machines may be tooled for separate operation, which in some cases may only require one operator in attendance.

Friction Brake Headstock. The friction brake headstock consists of a single pulley belt drive mounted directly on the spindle. The driving pulley is large in diameter and has a wide face. A hand lever is conveniently located on the front of the headstock, and operates a sliding spool on the spindle. When the handle is moved away from the operator, the spool expands the friction clutch in the pulley and sets the spindle in operation.

When it is desired to stop the rotating of the spindle, the hand lever is drawn toward the operator, and the spool engages a friction brake that stops the spindle instantaneously. With this arrangement, it is not necessary for the operator to wait for the spindle to stop of its own accord, and therefore much time is saved in the loading and unloading of the work.

The head is completely enclosed, and a removable plate is located at the front of the headstock to permit the adjustment of the friction and brake when necessary.

The spindle is made of a steel forging and its journals are hardened and ground. The nose of the spindle is cylindrical for half its length, and threaded the other half. The end thrust of the spindle is taken up by means of ball thrust bearings located inside of the head. There is a hole passing through the entire length of the spindle, while the nose end is arranged with a modified Jarno taper. The spindle bearings are of a high grade bronze, and are scraped to the spindle to insure an accurate alignment and maximum bearing surface. The spindle bearings are of liberal proportions and equipped with self oilers.

Apron. The apron is of simple and sturdy construction, designed to give maximum convenience to the operator. The power is received from a feed rod and delivered to the rack pinion through a series of bevel and spur gears. A sliding clutch spool on the feed rod which is actuated by the hand lever at the right hand side of the apron, engages and disengages the feed.* A friction disc clutch operated by the lever on the left side of the apron is incorporated in the line of drive. Hand wheels in front actuate hand longitudinal and cross feed.

*Can be used as a reversing lever when arranged for feeding in both directions, either longitudinal or cross.

The apron is regularly equipped with power longitudinal feed in one direction, but at a small additional cost power longitudinal feed in both directions can be furnished. Where power cross feed is required it can be supplied in either or both directions. In this case a small pull-pin is incorporated in the front of the apron to indicate power feed to be cross or longitudinal.

Two large central oil pockets localize and insure proper oil supply to all friction points in the apron. All steel gears are used in the transmission of power.

Carriage and Blocks. As in the case of the apron, simplicity and rigidity are the predominating features. The bridge is of liberal width and depth to give rigid support under the most extreme cutting conditions. The long bearings are carefully scraped to the V's of the bed, and are properly protected by chip guards that prolong the life and original accuracy.

The carriage on the standard machine is equipped with a plain T-slot block that is operated by a cross feed screw having a large hand wheel arranged with a micrometer dial. It may be arranged with other types of blocks, and frequently special designs of carriages are made to meet special classes of work. These special carriages and blocks are furnished at an additional cost.

Cam Tailstock. The cam tailstock is furnished with standard equipment. The spindle is arranged with a lever located in a cam path in the barrel of the tail. The cam path has a straight portion so as to give a spindle traverse of about 2" before the cam lever comes in contact with the portion of the path which gives a 3/8" spindle traverse for about ninety degrees movement of the cam lever. With this method, the work may be removed from the centers very rapidly, and a fine adjustment of the center in the work is obtained. A hand clamping arrangement is also provided for the spindle. The tail is clamped to the bed by means of four large clamping bolts and a strap supported beneath the V's.

Geared Feed Works. With this type of feed works, the drive is through a train of gears connecting the spindle with the feed rod. The feed works are entirely enclosed by a guard arranged with a cover that can be removed, permitting easy access to the feed works at all times. To the rear, and extending from the side of the guard, is a rocker arm carrying an intermediate gear which is mounted on the stud that slides in an elongated slot in the rocker arm. The position of the intermediate gear and rocker arm may be changed to accommodate any size of gear that may be used on the feed rod to obtain the feeds desired.

The machine is regularly equipped with a longitudinal feed of .015" per revolution of the spindle. However, when specified a different feed will be furnished. The cross feed, when supplied, is two-thirds longitudinal feed.

Automatic Trip. Incorporated in the feed-engaging mechanism, is an automatic trip. A sliding dog fastened at the desired tripping point in a slot on the bed of the machine, engages with a finger extending inward from the apron and actuates the feed-engaging clutch spool. By virtue of a spring detent the clutch spool re-engages with the feed mechanism as soon as the apron is moved away from the dog. Before withdrawing the apron and carriage the friction clutch lever is thrown out. At a small additional cost, a similar automatic trip for the cross feed can be furnished. Tests made with this tripping arrangement proved that it would operate to an accuracy of .005".

Bed. The top of the bed has been designed somewhat differently than that of the usual engine lathe, in that there is a drop V for the inside ways. This eliminates excessive cut in the bridge of the carriage. The beds are cast of semi-steel, and large ties are provided at close intervals, thus insuring extreme rigidity.

Oil Pan. An oil pan with large reservoir is furnished with regular equipment, and provides ample room for chips and cutting compounds. The oil pan is of pressed steel and eliminates all possibility of breakage, as is usually experienced when a cast iron pan is used.

Special Equipment. Power cross feed; back arm attachment; back arm support; cam and hand lever tail; hand wheel tail; spring tail; countershaft; motor attachments; draw back attachment; tool holders; small face plate and compensating drivers; oil pump and piping; steady rests; positive bed and cross stops; front and rear taper attachments; carriage and bed turrets; hand lever extension for long bed.

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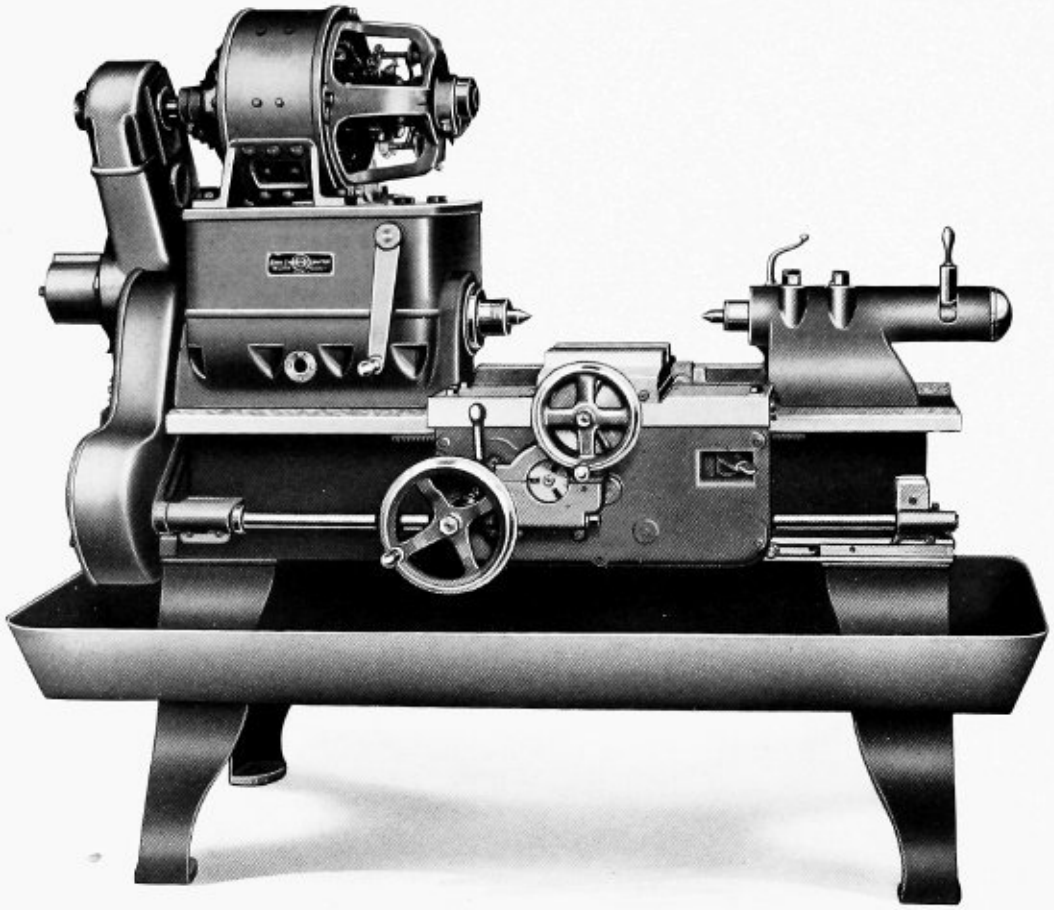
THE DAVIS PRESS WORCESTER MASS. U.S.A. 2M 12-8-25

No. 1 Production Lathe



Above shows standard machine arranged with special motor drive

Standard Equipment. Single gear reduction headstock arranged for single pulley belt drive and operated by disc clutch and brake; cam tail; gear feed to feed rod; plain T-slot block, carriage arranged to receive back arm; clutch type longitudinal power feed with automatic trip; hand cross feed; bed; legs and oil pan.

SPECIFICATIONS

CODE—NAB

Swing over ways	16½″	Drive pulley, dia. and face	14″ x 5½″
Swing over carriage	10⅜″	Width of belt (double)	5″
Swing by back arm	11¼″	Size, cutting tools	⅝″ x 1¼″
Distance between centers—5′ bed	12¼″	Motor recommended, H. P.	5
Front bearing, dia. and length	4″ x 6½″	Weight, net, std. bed, belt drive	3500 lbs.
Rear bearing, dia. and length	3¼″ x 4″	Weight, net, extra foot of bed,	155 lbs.
Spindle nose, diameter	3½″	Weight, boxed, std. bed, belt drive	4300 lbs.
Spindle flange, dia. and threads	7″—4	Weight, boxed, extra foot of bed,	250 lbs.
Hole through spindle	1¼″	Cubic feet boxed, std. bed, belt drive	165
Spindle taper, modified Jarno	No. 14	Cubic feet boxed, extra ft. of bed	19
Feed per revolution of spindle, unless otherwise specified	.015″	Floor space (std. bed)	48″ x 84″

REED-PRENTICE COMPANY
MACHINE TOOLS
WORCESTER MASS., U.S.A.

Standard Equipment

THE Reed-Prentice Production Lathe is an advanced development of the Multiple Tool Lathe and with its numerous patented attachments has become very popular among the automobile, electrical, textile and general machine trades. It is admirably adapted for straight, taper and form turning; straight and bevel facing; recessing; straight and form boring.

Rapid Production and Accuracy are the predominating features. The machine may be arranged with multiple tool holders, which are made interchangeable for performing one or a series of operations. Where production warrants, a number of machines may be tooled for separate operations, which in some cases may only require one operator in attendance.

Headstock. The headstock is of box construction arranged for a single speed obtained through herringbone gears. The drive is through a disc clutch and brake located at the rear of the head and operated by a hand lever at the front of the headstock. The simple arrangement of this hand lever provides for instantaneous starting and stopping.

The headstock gears are of hardened steel, and the driving gears to the spindle are of the herringbone type providing for smooth power transmission to the spindle. All of the gear shafts in the headstock, with the exception of the spindle, run in ball bearings, while the spindle journals are hardened and ground and run in bronze bearings. The entire headstock is lubricated through a splash system, and the sight feed oiler shows the level of the oil at all times.

The headstock is regularly furnished with belt drive, but can be easily arranged for motor drive. At a small additional cost two speeds can be supplied.

Apron. The apron is of simple and sturdy construction, designed to give maximum convenience to the operator. The power is received from a feed rod and delivered to the rack pinion through a series of bevel and spur gears. A sliding clutch spool on the feed rod, which is actuated by the hand lever at the right hand side of the apron, engages and disengages the feed.* A friction disc clutch operated by the lever on the left side of the apron is incorporated in the line of drive. Hand wheels in front actuate hand longitudinal and cross feed.

*Can be used as a reversing lever when arranged for feeding in both direction, either longitudinal or cross.

The apron is regularly equipped with power longitudinal feed in one direction, but at a small additional cost power longitudinal feed in both directions can be furnished. Where power cross feed is required it can be supplied in either or both directions. In this case a small pull-pin is incorporated in the front of the apron to indicate power feed to be cross or longitudinal.

Two large central oil pockets localize and insure proper oil supply to all friction points in the apron. All steel gears are used in the transmission of power.

Carriage and Blocks. As in the case of the apron, simplicity and rigidity are the predominating features. The bridge is of liberal width and depth to give rigid support under the most extreme cutting conditions. The long bearings are carefully scraped to the V's of the bed, and are properly protected by chip guards that prolong the life and original accuracy.

The carriage on the standard machine is equipped with a plain T-slot block that is operated by a cross feed screw having a large hand wheel arranged with a micrometer dial. It may be arranged with other types of blocks, and frequently special designs of carriages are made to meet special classes of work. These special carriages and blocks are furnished at an additional cost.

Cam Tailstock. The cam tailstock is furnished with standard equipment. The spindle is arranged with a lever located in a cam path in the barrel of the tail. The cam path has a straight portion so as to give a spindle traverse of about 2" before the cam lever comes in contact with the portion of the path which gives a $\frac{3}{8}$" spindle traverse for about ninety degrees movement of the cam lever. With this method, the work may be removed from the centers very rapidly, and a fine adjustment of the center in the work is obtained. A hand clamping arrangement is also provided for the spindle. The tail is clamped to the bed by means of four large clamping bolts and a strap supported beneath the V's.

Geared Feed Works. With this type of feed works, the drive is through a train of gears connecting the spindle with the feed rod. The feed works are entirely enclosed by a guard, arranged with a cover that can be removed, permitting easy access to the feed works at all times. To the rear, and extending from the side of the guard, is a rocker arm carrying an intermediate gear which is mounted on the stud that slides in an elongated slot in the rocker arm. The position of the intermediate gear and rocker arm may be changed to accommodate any size of gear that may be used on the feed rod to obtain the feeds desired.

The machine is regularly equipped with a longitudinal feed of .015" per revolution of the spindle. However, when specified a different feed will be furnished. The cross feed, when supplied, is two-thirds longitudinal feed.

Automatic Trip. Incorporated in the feed-engaging mechanism is an automatic trip. A sliding dog fastened at the desired tripping point in a slot on the bed of the machine, engages with a finger extending inward from the apron and actuates the feed-engaging clutch spool. By virtue of a spring detent the clutch spool re-engages with the feed mechanism as soon as the apron is moved away from the dog. Before withdrawing the apron and carriage the friction clutch lever is thrown out. At a small additional cost, a similar automatic trip for the cross feed can be furnished. Tests made with this tripping arrangement proved that it would operate to an accuracy of .005."

Bed. The top of the bed has been designed somewhat differently than that of the usual engine lathe, in that there is a drop V for the inside ways. This eliminates excessive cut in the bridge of the carriage. The beds are cast of semi-steel, and large ties are provided at close intervals, thus insuring extreme rigidity.

Oil Pan. An oil pan with large reservoir is furnished with regular equipment, and provides ample room for chips and cutting compounds. The oil pan is of pressed steel and eliminates all possibility of breakage, as is usually experienced when a cast iron pan is used.

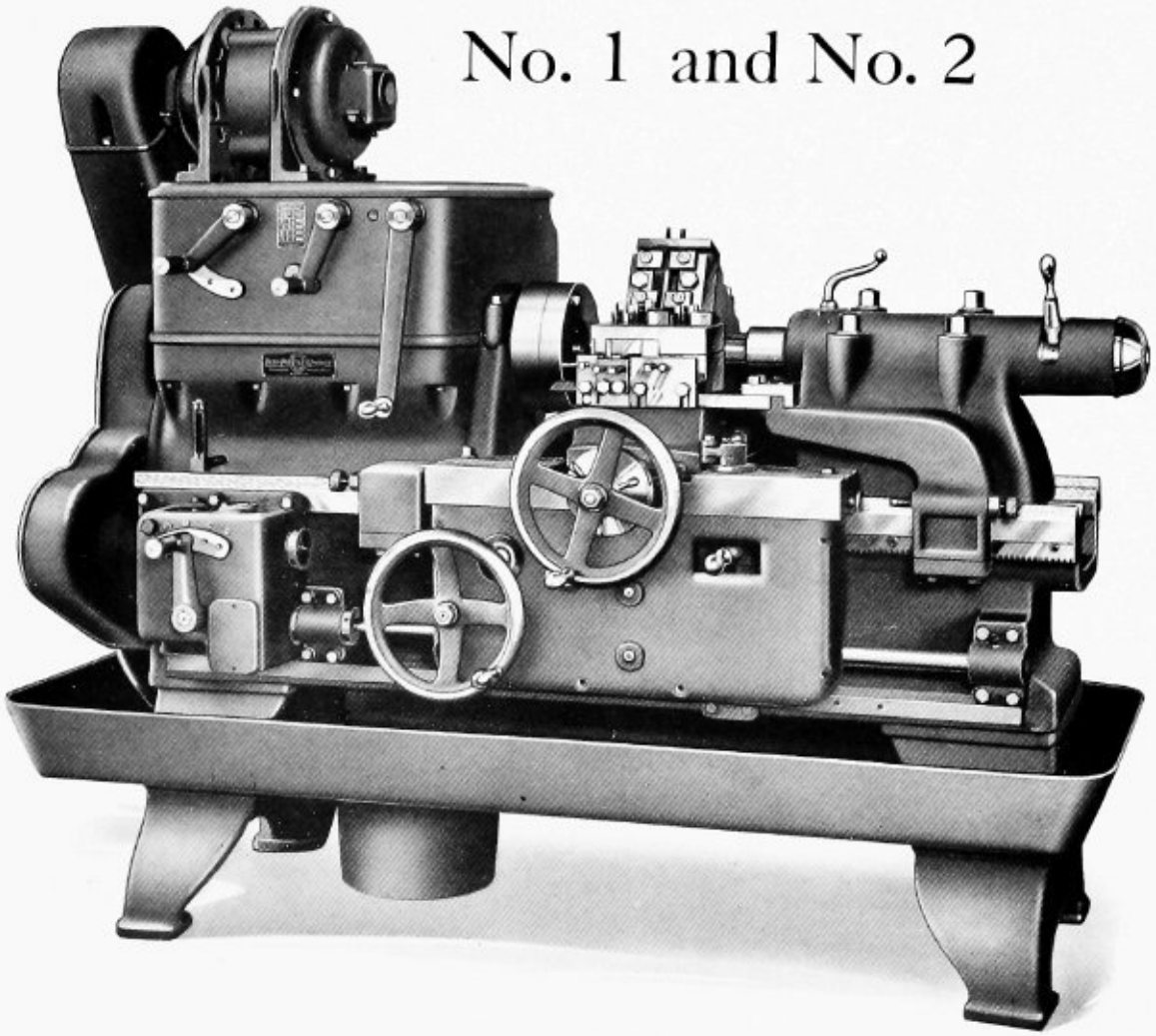
Special Equipment. Double gear reduction headstock; power cross feed; back arm attachments; back arm support; cam and hand lever tail; spring tail; countershaft; motor attachment; draw back attachment; tool holders; small face plate and compensating drivers; oil pump and piping; steady rests; positive bed and cross stops; front and rear taper attachments; carriage and bed turrets; hand lever extension for long bed.

Our Engineering Service Department is placed at your disposal and will gladly submit complete production proposals upon request.

THE OAKES PRESS WORCESTER MASS. U.S.A. 2M 12-16-25

Four Speed Production Lathes

No. 1 and No. 2



Above shows standard No. 2 machine arranged for special motor drive and equipped with back arm and special tool holders

Standard Equipment. Four speed headstock arranged for single pulley belt drive and operated by disc clutch and brake; cam tailstock with 2″ travel; gear box provides for four feeds with simple end gearing and three additional with compound end gearing; power longitudinal and crossfeeds in both direction with automatic trips and independently operated; oil pan.

SPECIFICATIONS

CODE—NO. 1, FOX—NO. 2, FOM

Details	No. 1	No. 2
Swing over ways	16½″	22″
Swing over carriage	10⅜″	12¼″
Swing by back arm	11¼″	12½″
§Distance between centers, (5 ft. bed No. 1—7 ft. bed No. 2)	12¼″	24″
Front bearing, dia. and length	4″ x 6½″	4¾″ x 6½″
Rear bearing, dia. and length	3¼″ x 4″	3¾″ x 4″
Spindle nose, diameter	3½″	4″
Spindle flange, dia. and threads	7″—4	7½″—4
Hole through spindle	1¼″	1¾″
Spindle taper, modified Jarno	No. 14	No. 17
*Feeds per rev., std. feed box	8	8
Simple endworks gearing	.010, .015, .020, .025	
Compound endworks gearing	.020, .030, .040, .050	

Details	No. 1	No. 2
Spindle speeds, number	4	4
†Spindle speeds, std., R. P. M.	87, 114, 146, 190	16, 20, 27, 35
Drive pulley, speed R. P. M.	400	142
Drive pulley, dia. and face	14″ x 5½″	16″ x 5½″
Width of belt (double)	5″	5″
Size, cutting tools	⅝″ x 1¼″	¾″ x 1½″
‡Motor recommended, H. P.	5	7½
§Weight, net. std. bed, belt drive	3500 lbs.	5500 lbs.
Weight, net, extra foot of bed	155 lbs.	195 lbs.
§Weight, boxed, std. bed, belt drive	4300 lbs.	6400 lbs.
Weight, boxed, extra foot of bed	250 lbs.	300 lbs.
§Cubic feet boxed, std. bed, belt drive	165	225
Cubic feet boxed, extra ft. of bed	19	23
§Floor space (std. bed)	48″ x 84″	48″ x 108″

*Other feeds can be furnished upon request.
†Spindle speeds may be varied and arranged to suit different classes of work.
‡For extra heavy work larger size motors are required. Also the speed of the motor depends on the spindle speeds used.
§Std. No. 1 lathe has 5 ft. bed; No. 2 has 7 ft. bed. Other length of beds can be furnished.

REED-PRENTICE COMPANY
MACHINE TOOLS
WORCESTER MASS., U.S.A.

Circular 11-401-2

Standard Equipment

THIS type machine is admirably adapted to the automotive and general manufacturing trades for straight, taper and form turning, straight and bevel facing, recessing, and straight and form boring. The flexibility furnished by its design, and its ruggedness of construction adapt it to innumerable uses. It permits extra heavy series of cuts to be taken at one time, both with the front and rear tools, as presented in the machining of steering knuckles, cam shafts, armature shafts, cluster gears and many other such parts.

All handles are centrally located, giving ease of manipulation and rapidity in the loading of the work. Also, the liberal use of hardened alloy steel parts and large bearing surfaces insure long life and continued accuracy, while the ball bearings and herringbone gear drive furnish a smooth spindle operation.

Headstock. The headstock is of box construction arranged with four spindle speeds which are obtained through sliding gears positioned through crank handles conveniently located on the front of the headstock. The drive is through a disc clutch and brake located at the rear of the head and operated by a hand lever at the front of the head stock. This arrangement of levers provides for simple manipulation, while the disc clutch and brake gives instantaneous starting and stopping.

The headstock gears are of hardened steel, and the driving gears to the spindle are of the herringbone type providing for smooth power transmission to the spindle. All of the gear shafts in the headstock, with the exception of the spindle, run in ball bearings, while the spindle journals are hardened and ground and run in bronze bearings. The entire headstock is lubricated through a splash system, and the sight feed oiler shows the level of the oil at all times.

The headstock can be furnished with either belt or motor drive. The illustration shows it arranged for herringbone gear connected motor drive with all gears running on ball bearings. The motors used range from 5 H. P. to 20 H. P., depending upon the class of work.

Apron. The apron is of simple and sturdy construction, designed to give maximum convenience to the operator. The power is received from a feed rod and delivered to the rack pinion through a series of bevel and spur gears. A sliding clutch spool on the feed rod, which is actuated by the hand lever at the right hand side of the apron, engages and disengages the feed.* A friction disc clutch operated by the lever on the left side of the apron is incorporated in the line of drive. Hand wheels in front actuate hand longitudinal and cross feed.

*Can be used as a reversing lever when arranged for feeding in both directions, either longitudinal or cross.

The apron is regularly equipped with power longitudinal feed in one direction, but at a small additional cost power longitudinal feed in both directions can be furnished. Where power cross feed is required it can be supplied in either or both directions. In this case a small pull-pin is incorporated in the front of the apron to indicate power feed to be cross or longitudinal.

Two large central oil pockets localize and insure proper oil supply to all friction points in the apron. All steel gears are used in the transmission of power.

Carriage and Blocks. As in the case of the apron, simplicity and rigidity are the predominating features. The bridge is of liberal width and depth to give rigid support under the most extreme cutting conditions. The long bearings are carefully scraped to the V's of the bed, and are properly protected by chip guards that prolong the life and original accuracy.

The carriage on the standard machine is equipped with a plain T-slot block that is operated by a cross feed screw having a large hand wheel arranged with a micrometer dial. It may be arranged with other types of blocks, and frequently special designs of carriages are made to meet special classes of work. These special carriages and blocks are furnished at an additional cost.

Cam Tailstock. The cam tailstock is furnished with standard equipment. The spindle is arranged with a lever located in a cam path in the barrel of the tail. The cam path has a straight portion so as to give a spindle traverse of about 2" before the cam lever comes in contact with the portion of the path which gives a $\frac{3}{8}$" spindle traverse for about ninety degrees movement of the cam lever. With this method, the work may be removed from the centers very rapidly, and a fine adjustment of the center in the work is obtained. A hand clamping arrangement is also provided for the spindle. The tail is clamped to the bed by means of four large clamping bolts and a strap supported beneath the V's.

Feed Changes. The feed box regularly furnished gives four feeds, and by compounding the standard gears constituting the end works, three additional feeds may be obtained. The changing of the feed in the gear box is accomplished through sliding hardened steel gears operated by a crank handle at the front of the box. A simple reading index plate shows the position of the handle and gears for the different feeds. The feeds regularly furnished are shown in the table and supplied unless otherwise specified. However, other feeds up to .050 can be furnished if desired.

Automatic Trip. Incorporated in the feed-engaging mechanism, is an automatic trip. A sliding dog fastened at the desired tripping point in a slot on the bed of the machine, engages with a finger extending inward from the apron and actuates the feed-engaging clutch spool. By virtue of a spring detent the clutch spool re-engages with the feed mechanism as soon as the apron is moved away from the dog. Before withdrawing the apron and carriage the friction clutch lever is thrown out. At a small additional cost, a similar automatic trip for the cross feed can be furnished. Tests made with this tripping arrangement proved that it would operate to an accuracy of .005".

Bed. The top of the bed has been designed somewhat differently than that of the usual engine lathe, in that there is a drop V for the inside ways. This eliminates excessive cut in the bridge of the carriage. The beds are cast of semi-steel, and large ties are provided at close intervals, thus insuring extreme rigidity.

Oil Pan. An oil pan with a large reservoir provides ample room for chips and cutting compounds. The pan is of pressed steel and eliminates all possibility of breakage, while a large strainer, allows the cutting lubricant to flow freely into the reservoir at all times. An oil pump completely piped to the work may be furnished at additional charge. The pump automatically stops and starts with the operation of the headstock spindle, thus relieving the operator of a time-wasting inconvenience.

Special Equipment. Back arm attachment; back arm support; cam and hand lever tailstock; countershaft; motor attachment; draw back attachment; tool holders; small face plate; compensating drivers; oil pump and piping; steady rest; positive bed and cross stops; front and rear taper attachments; carriage and bed turrets; hand lever extension for long beds.

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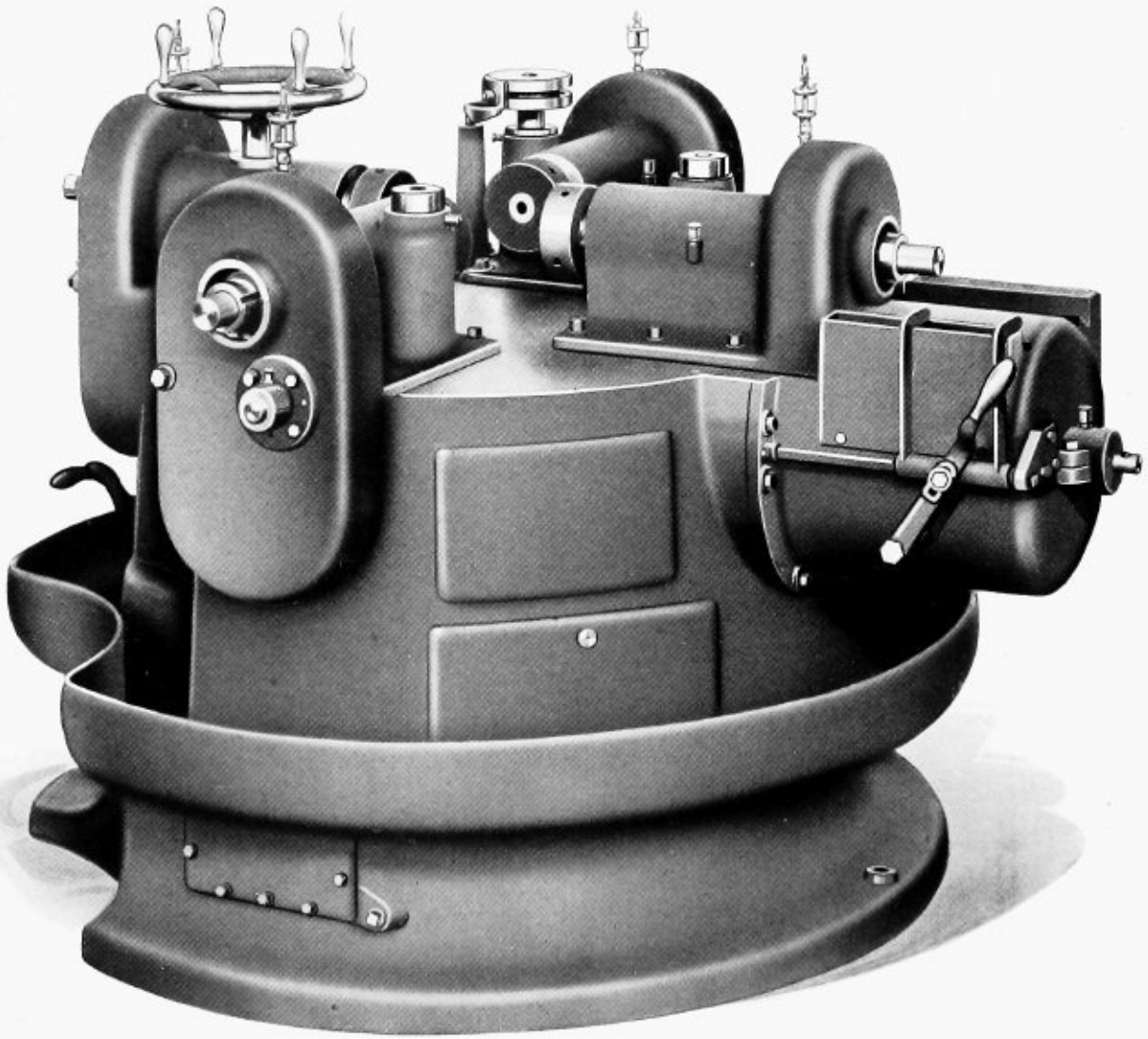
THE DAVIS PRESS WORCESTER MASS. U.S.A. 2M 12-8-25

Nos. 1 and 2 Four Way Drilling and Turning Machine



Front View of No. 1 Machine arranged with Belt Drive

REED-PRENTICE COMPANY
MACHINE TOOLS
WORCESTER MASS., U.S.A.

Circular 15-101-1

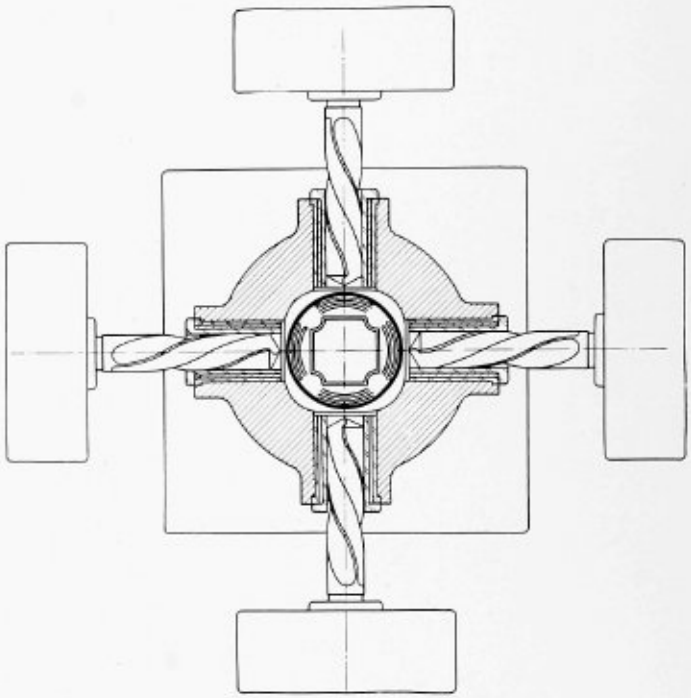
Tooling Suggestions and Time Studies

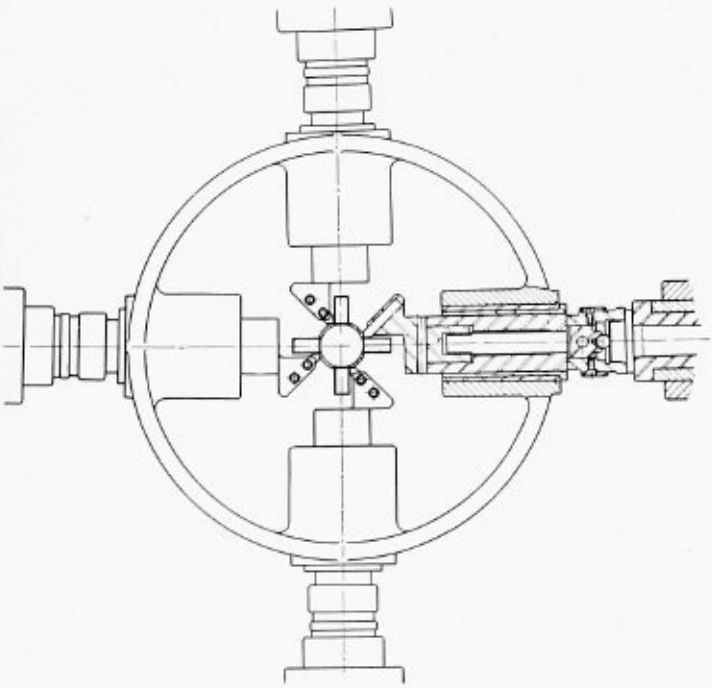
Drilling Universal Joint Rings

On No. 1 Machine

This method has proved very satisfactory for drilling four holes simultaneously in universal joint rings.

The ring is held in a fixture mounted on the table of the machine and firmly held on a pilot (not shown) by a horseshoe washer and hex nut. The drills are held in the machine spindles and accurately guided close to the work by jig bushings in the walls of the fixture surrounding the work. These bushings are hardened and ground and are free to rotate in bronze bearings running inside of steel liners pressed into the fixture. This reduces the wear materially and insures prolonged alignment.





Turning Differential Spiders

On No. 2 Machine

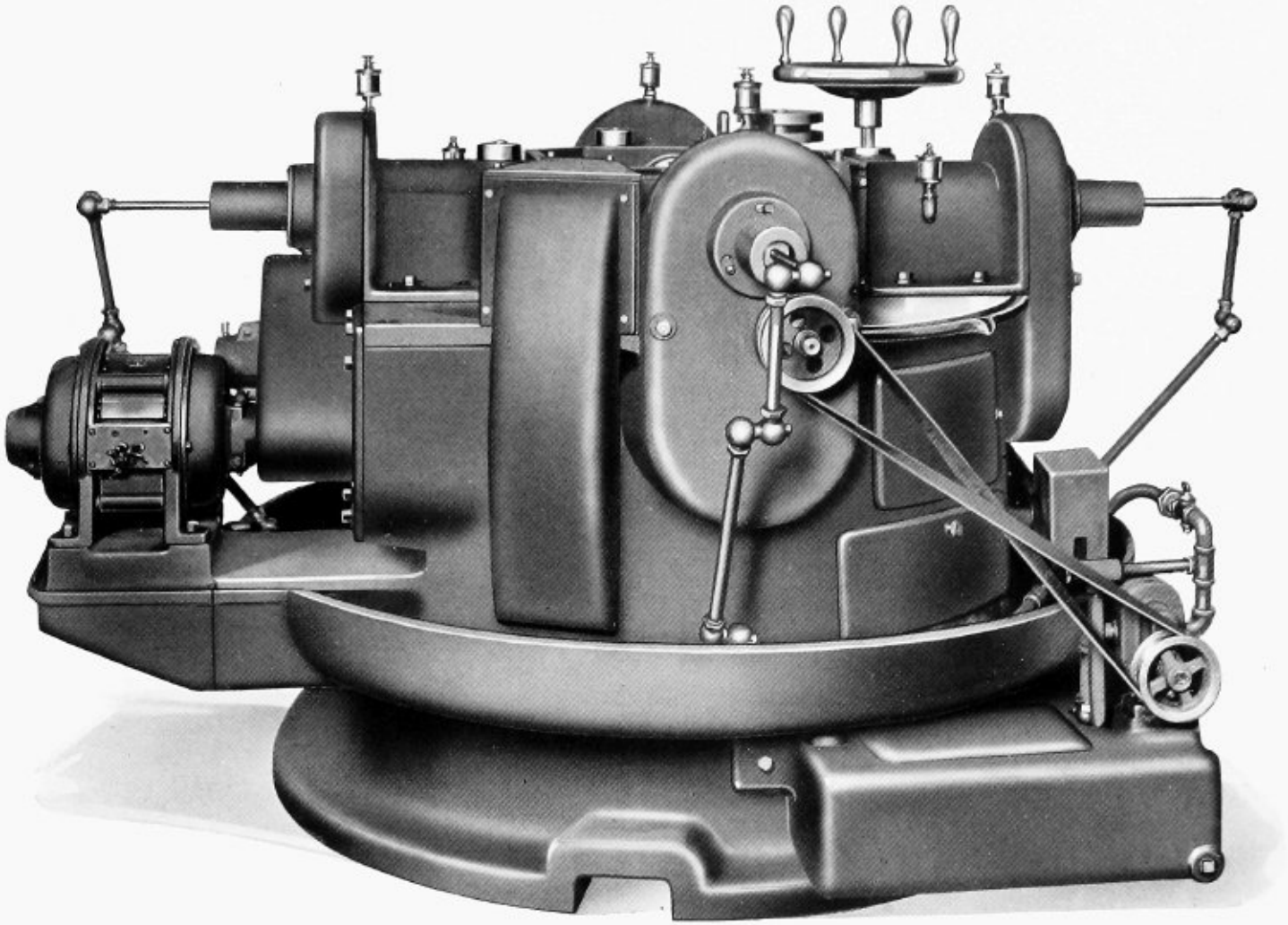
Simultaneous turning of the four diameters on differential spiders on this machine has eliminated many production difficulties.

The spider is clamped on a pilot and located in relation to the tools by a swinging arm which is removed when the tools are in operation. This is not shown in the illustration. The turning tools are inserted in holders in auxiliary tool spindles mounted in a self-contained fixture clamped to the bed of the machine. These spindles are driven from the machine spindles by drivers arranged with a bayonet lock permitting the removal of the fixture at any time without disturbing the remainder of the machine. This use of the single point tools permits a free cutting action without the interference of chips, while the turning of the four diameters simultaneously not only reduces the handling and machine time to a minimum, but insures an accurate relationing of the diameters machined.

Time Studies

It is very difficult to give here, production figures as these are controlled by the cutting speeds and feeds adaptable. This condition is varied in nearly every case by the customer's requirements. However, we will be pleased to furnish tooling layouts and time studies together with proposal for complete equipment upon receipt of blue-prints or a sample. When forwarding these, it is also of decided advantage to give the physical analysis and scleroscope or Brinnell hardness of material in condition at time of machining, also the cutting speeds and feeds now in use, thus enabling the user's experience to be carefully considered.

Four Way Drilling and Turning Machine



Rear View of No. 2 Machine arranged with motor drive, oil pump piped to spindles, oil reservoir and guards

SPECIFICATIONS

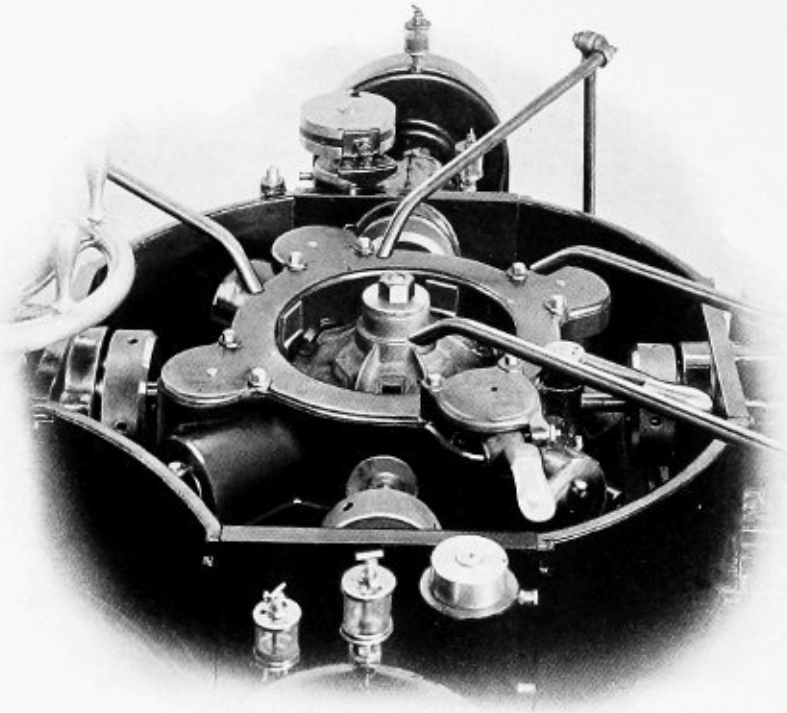
Size	No. 1	No. 2
Distance between heads	14"	26"
Maximum spindle travel	5"	5"
Taper in inner spindle sleeve, Morse	No. 5	No. 5
Height of spindle from table	6"	6"
Height of spindles above floor	40"	40"
Spindle bearing, rear, diameter and length	4½" x 5½"	4½" x 5½"
Spindle bearing, front, diameter and length	3" x 10½"	3" x 10½"
Feeds per revolution, obtainable	.001 to .024	.002 to .048
Spindle speed, maximum	600 R. P. M.	600 R. P. M.
Driving pulley, maximum speed,	600 R. P. M.	600 R. P. M.
Driving pulley, diameter	14"	14"
Floor space, length x width x height	80" x 73" x 54"	92" x 85" x 54"
Width of driving belt	5"	5"
Net weight	6680 lbs.	8180 lbs.
Boxed weight	7500 lbs.	9000 lbs.
Cubic feet	214	246
Motor recommended, 1150 or 1200 R. P. M.	5 H. P.	5. H. P.
Code	FOD	FOE

Description

The Reed-Prentice Four Way Drilling and Turning Machine is extraordinary in that it drills four holes, turns four diameters, or mills four surfaces simultaneously, such as are presented in universal joint rings, differential spiders and fan spiders. It is used extensively in many of the automobile industries, and by its simple, accurate operation, gives a maximum production of work within close tolerances.

The machine consists of four heads mounted on the table forming the top of the bed. Each head contains a spindle driven through helical gears from four spindle drive shafts and a cluster of bevel gears inside of the bed. One of these shafts extends outside of the bed where it is arranged with a tight and loose pulley furnishing a belt drive to the entire machine.

When desired, however, this shaft may be arranged for a motor drive in place of the tight and loose pulleys. The motor is mounted on a bracket clamped to the side of the bed and the power transmitted to the drive through a train of gears. Should it be necessary to change the spindle speed, new gears can be furnished. A five H. P. motor of 1150 or 1200 R. P. M. of shunt type for direct current, and induction type for alternating current, is recommended.



Drilling Differential Housings

The spindles are free to slide back and forth in the heads, and four vertical shafts, one in each head, have pinions meshing with steel racks in the spindle bearings. Four gears on the lower ends of each shaft mesh with a large central spur gear receiving its drive indirectly from a spindle drive shaft, thus providing power feed to all spindles. This feed is engaged by a hand lever on the left side of the machine.

This drive operating the endwise movement of the spindles contains a set of change gears which provides for some changes in feeds, and any one feed within the range listed in the specifications can be furnished.

The upper portion of the vertical feed shaft arranged in connection with the left head has a large hand wheel that allows all the spindles to be moved backward and forward simultaneously by the operator. At the top of the rear head is a drum carrying an adjustable dog that rotates with the shaft sliding the spindle. As the dog travels in its circular path it comes in contact with a sliding plunger and in pushing the plunger downward, disengages the power feed. The spindles can therefore be automatically tripped where desired, and are brought back to their starting position by the use of the hand wheel.

Each spindle is arranged with a sliding inner sleeve which can be placed in any desired endwise position, regardless of the location of the spindle. The sleeves are regularly equipped with a No. 5 Morse taper, and made fixed by hardened taper bushings and clamping collars on the nose of the spindle. This construction allows the cutters or drills to be set in exact relation to each other, also, the re-setting of any tool after it has been re-ground, thus making it possible to use standard drills until they have become too short for any further possible use.

The entire machine is heavy and rugged, and all parts are designed to give prolonged service under extreme manufacturing conditions. Special attention has been given to spindle bearings which are of a phospher bronze of large diameter, and considerable length. The spindles are carefully aligned and with the well constructed spindle bearings, insure continued accuracy to the work being produced.

The main spindle bearings are equipped with sight feed oilers, while lubrication is furnished to all other rotating members by a central oil pump. The oil is taken from an interior reservoir capable of holding six quarts of oil. There are a number of hand holes around the base of the machine that gives access for pouring in the lubricant also to the interior mechanism.

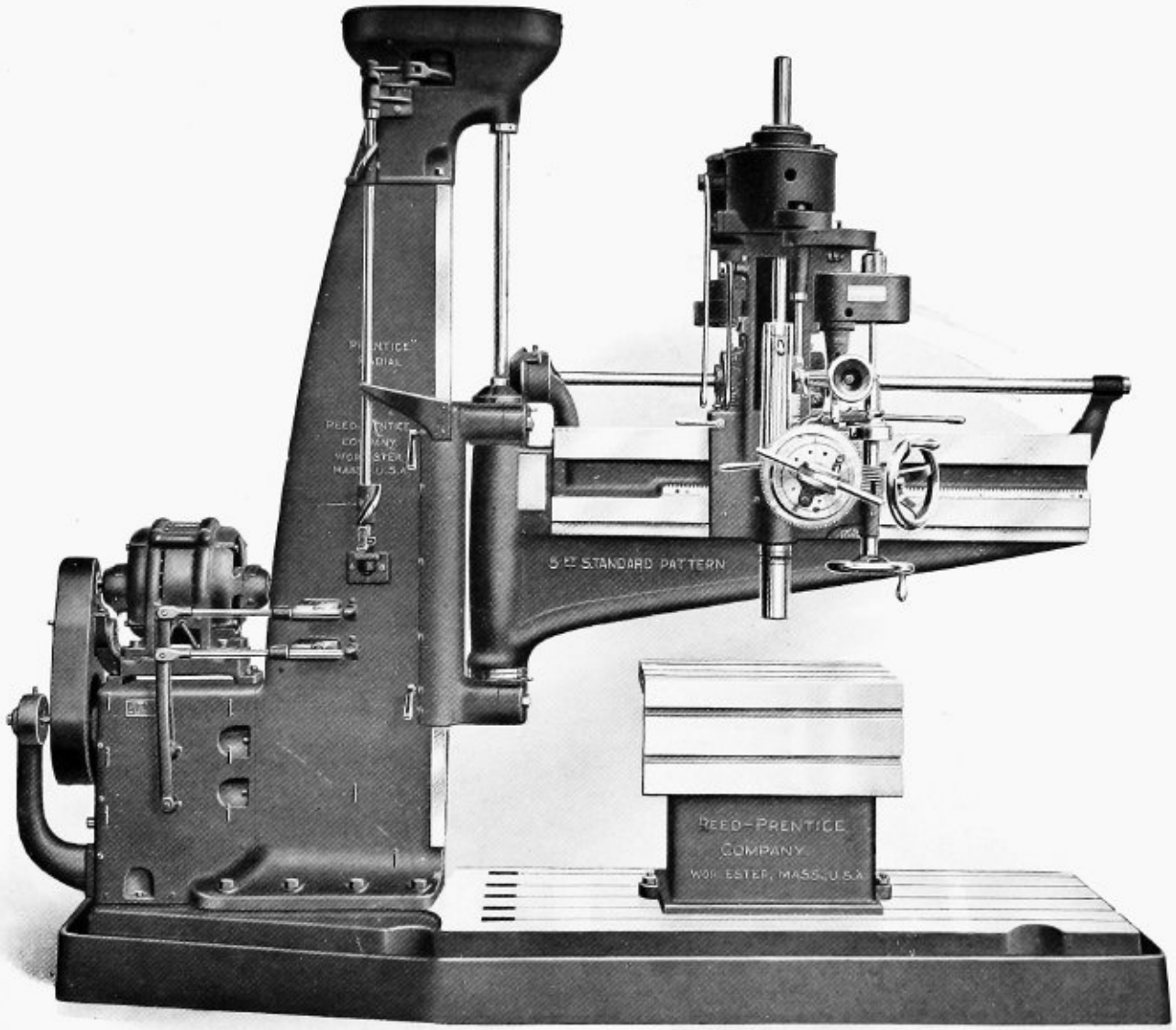
The standard machine is regularly equipped with an oil pan surrounding the entire bed, and when desired, an oil pump and tank can be furnished, completely piped to the rotating spindles.

Special fixtures are required for holding the work, and their design depends entirely upon the class of work for which they are used. Our Engineering Department is pleased to co-operate and offer suggestions as to the types of fixtures best adapted. In addition, we are pleased to furnish tooling layouts and time studies upon receipt of blueprints or sample pieces.

THE DAVIS PRESS WORCESTER MASS. U.S.A. 3M-11-15-24

Radial Drilling Machines

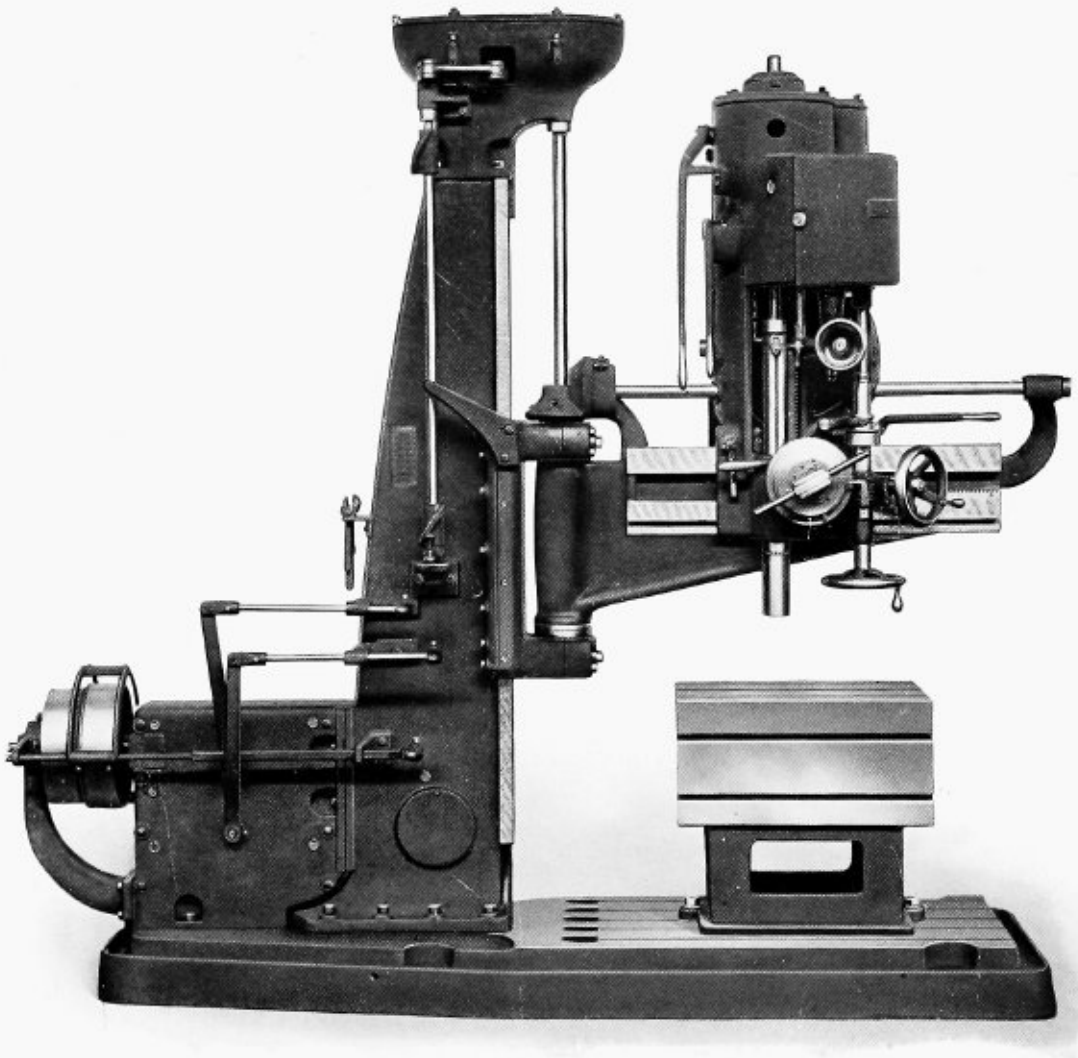
3, 4 and 5 ft. sizes—Box Column



Standard Pattern of four and five foot machines
Arranged for constant speed motor drive

REED-PRENTICE COMPANY
MACHINE TOOLS
WORCESTER MASS., U. S. A.

Circular 16-102-1



Standard Pattern of three foot machine arranged for belt drive

Specifications

Length of arm	3 ft.	4 ft.	5 ft.
Hole in spindle, Morse taper No.	4	4	5
Traverse of spindle	13½″	16¼″	16½″
Traverse of saddle	32½″	33½″	34″
Maximum distance column to spindle center	39″	51¼″	62½″
Minimum distance column to spindle center	17⅜″	19″	19¾″
Maximum distance trunion to spindle center	30⅞″	43½″	53½″
Minimum distance trunion to spindle center	9¼″	11¼″	10¾″
Will drill to center of	78½″	102½″	125¼″
Maximum distance spindle to base	54¾″	56½″	57″
Minimum distance spindle to base	7⅞″	7″	7½″
Range of speeds, R. P. M.	10–500	14–400	14–400
Range of feeds per revolution	.006–.054″	.006–.054″	.006–.054″
Driving pulley dimensions	12″ x 3⅛″	12″ x 3⅜″	14″ x 4⅛″
Speed of driving pulley, R. P. M.	500	400	450
Base plate dimension	92″ x 35″	101″ x 39″	116½″ x 44″
Base plate, available space	47″ x 28″	60″ x 32″	72″ x 37½″
Table dimensions	20 x 24 x 22″	20 x 24 x 22″	23 3/16 x 27½ x 24⅜″
Total height of machine	93″	99″	127″
Floor space	98¾″ x 35″	109″ x 39″	126″ x 44″
Weight, net lbs.	5110	6125	8725
Weight, boxed, lbs.	6258	7300	10210
Cubic feet	139	147	218
Code	Lar	Lim	Liv

REED-PRENTICE MACHINE TOOLS

Radial Drilling Machine

The Reed-Prentice Radial Drilling Machines are built with a box type of stationary column because of the extreme rigidity offered by this design. The same high standard of accuracy and ease of control that characterize Reed-Prentice Tools have been incorporated in these machines.

The spindle is started, stopped and reversed by a lever conveniently located just above the hand wheel on the head and operating a double friction clutch arranged in conjunction with the bevel gear.

There are sixteen spindle speeds at the instant command of the operator, obtained by a combination of four changes in the gear box and four in the head. High spindle speeds can therefore be obtained for small drills without increasing the speed of the shaft and gears back of the head. This important feature, together with helical cut gears, insures quiet running and a powerful drive for large pipe taps without placing any excessive strain on the drive mechanism.

Eight changes of feed are provided, any one of which may be engaged while the machine is running. These are controlled by two simple levers which operate sliding keys.

An over-running roller friction clutch contained in the feed mechanism permits the hand feed to be operated while the power feed is engaged. When the operator lets go of the hand-wheel the power feed automatically continues the work. The clutch may also be disengaged automatically by means of an adjustable stop on the spindle quill.

The dial depth gauge is graduated in sixteenths of an inch and can be set to read from zero at any position of spindle.

A double-ended quick-return lever on the dial engages or disengages the power feed and raises or lowers the spindle by hand quickly. This is one of the most convenient feed controls found on a drilling machine.

There is a small latch pin located on the dial which is used to prevent the feed from becoming engaged when tapping.

The spindle is made of special steel, carefully heat-treated to produce maximum strength and toughness. Its counterbalancing weight is equipped with a safety device which prevents the dropping of the weight in case its supporting chain should break.

Easy-reading index plates show the position of speed levers for obtaining any desired speed, and position of feed levers for securing the correct feed in inches per revolution of the spindle.

The column is of box construction and is exceptionally massive and rigid. The heavy base is stiffly ribbed and is entirely surrounded by a deep oil channel. The arm, which swings easily on a ball-thrust bearing, is so constructed as to resist twisting and bending strains. It is raised and lowered by power. Safety stops are provided which automatically disengage the power when either extremity of travel has been reached.

Motor Drives for Radial Drilling Machine

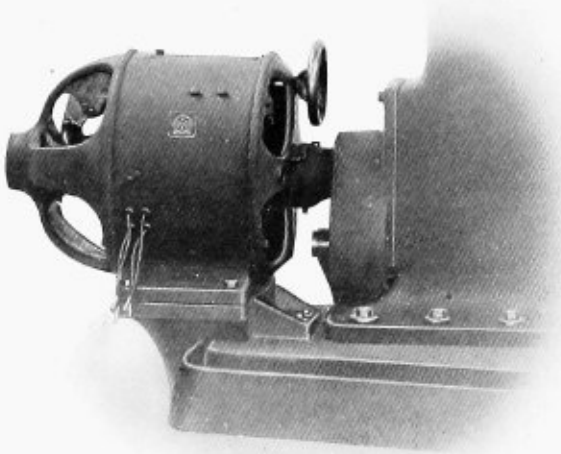
These Radial Drilling Machines may be arranged with constant speed, variable and multi-speed motor drives.

Constant Speed Motor Drive

The motor is bolted to the top of the gear box, and the drive is obtained through a train of gears properly guarded. The motor pinion is of steel, while the main driving gear is of cast iron, and the fabroil intermediate permits quiet operation. This is clearly shown in the cut on the front cover.

The gear train is arranged in conjunction with the gear box that provides sixteen spindle speeds ranging from 10 to 500 R. P. M. on the 3′ machine and 14 to 400 on the 4′ and 5′ machines. The quick change gear mechanism is entirely enclosed by the gear box, and the changes in speed are obtained by levers on the side of the gear box and also on the head. This method of changing the spindle speeds is similar to that of the belt drive machines.

A 1200 R. P. M. motor of 3 H. P. is recommended for the 3′ machine and 5 H. P. for the 4′, and 5′ machines.



Adjustable Speed Motor Drive

A wide range of spindle speeds can be obtained by means of an adjustable speed motor used in connection with direct current only. The adjustment of speeds requires only the simple shifting of the handle of a rheostat conveniently located on the side of the machine. The motor is bolted to a bracket fastened to the left end of the base and the drive is through a train of gears properly guarded. The motor pinion is of steel, while the main driving gear is of cast iron and the fabroil intermediate permits quiet operation.

With this arrangement it is not necessary to have a gear box, and a range of spindle speeds varying from 10 to 500 R. P. M. can be obtained on the 3′ machines, and 14 to 400 R. P. M. on the 4′ and 5′ machines.

A two to one speed motor of 650 to 1300 R. P. M. of 3 H. P. is recommended for the 3′ machine, and 5 H. P. for the 4′ and 5′ machines.

A multi-speed motor of three speeds may be used in connection with alternating current of three phase, 60 cycles. Twelve spindle speeds may be obtained through this arrangement, three being obtained from the motor and four from the head. A motor of 600, 900 and 1200 R. P. M. is recommended. Multi-speed motors are usually manufactured in four speeds, namely, 600, 900, 1200 and 1800 R. P. M. and in such a case, we recommend using the three lower speeds only.

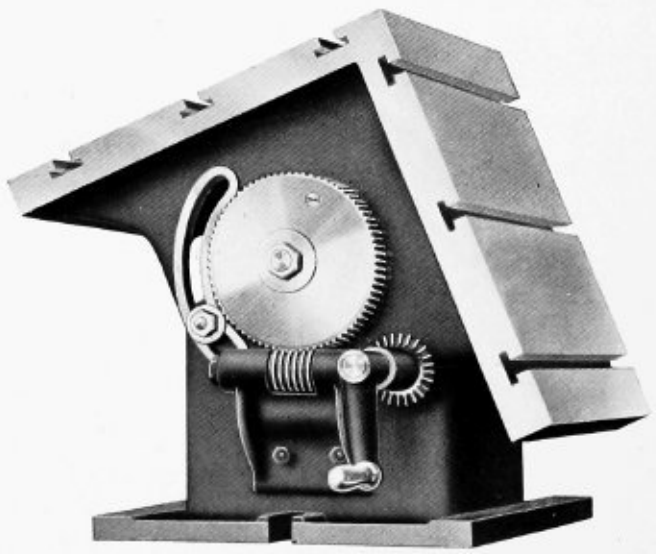
As multi-speed motors are built for three phase circuits only, it is necessary where two phase circuits are available, to transform the current from two phase to three phase. This may be done by the use of transformers.

Tilting Table

Although a box table is furnished with standard equipment, the machine may be equipped with a universal tilting table at a slight extra charge. The table has two plain surfaces equipped with T-slots, and the tilting is obtained through a worm and worm gear arrangement operated by a handle at the side of the table. These tables are built in two sizes, of the following specifications.

Size No. 1, used on 3′ and 4′ machines	
Top surface	23¼″ x 22″
Side surface	22″ x 20¾″
Net weight	700 lbs.
Cubic Ft.—Boxed	9

Size No. 2, used on 5′ machines	
Top surface	27″ x 23″
Side surface	27″ x 22¼″
Net weight	900 lbs.
Cubic Ft.—Boxed	11¼



THE DAVIS PRESS WORCESTER MASS. U.S.A. 3M-10-10-24

A Maximum Spindle Speed of 6000 R.P.M.

BECKER

No. 2

High Speed Vertical Milling Machine

REED-PRENTICE COMPANY
MACHINE TOOLS
WORCESTER MASS., U.S.A.

Circular 18-201-1

Specifications—No. 2

RANGE:

Longitudinal feed	12″
Cross feed	11″
Vertical feed of knee	16″
Head travel	2″
Maximum distance between spindle and machine table	17″
Maximum distance between spindle and rotary table	13″
Maximum distance between spindle and frame	15″

TABLE:

Working surface	18″ x 8⅞″
Size overall	18″ x 8⅞″
Has 3 T slots, ⅝″ wide.	
Length of carriage	16½″

SPINDLE:

Diameter of main bearing	1″
Length of main bearing	5 3/16″
Number of spindle speeds	6
Range of spindle speeds R. P. M. { 3″ pulley	6000–3240–1800
Range of spindle speeds R. P. M. { 5″ pulley	3540–1920–1060

Hole for No. 2 collet .590″ (Straight hole.)
Hole through spindle ½″.
Spindle is provided with feed controlled by foot treadle, quick return hand lever, also micrometer stop gauge which accurately controls depth of cut. Main bearing is unusually long and bushed with hard bronze.

PULLEYS:

Spindle pulleys	3″ and 5″
Spindle driving pulley	14¼″
Belt for spindle drive, width	1½″
Diameter of countershaft tight and loose pulleys	6″
Speed of countershaft, R. P. M.	540

Belt pull is taken up on an adjustable auxiliary ball bearing.

FLOOR SPACE:

Length x width x height	40½″ x 50¼″ x 62″

WEIGHTS AND SHIPPING DIMENSIONS:

Machine, without rotary, net, about	1075 lbs.
Rotary, net, about	75 lbs.
Machine, without rotary, boxed for ocean shipment, about	1420 lbs.
Machine, with rotary, boxed for ocean shipment, about	1490 lbs.
Contents, boxed (length 60″, width 36″, height 60″)	75 cu. ft.

EQUIPMENT:

Standard: Cone drive, tight and loose pulley countershaft, one 1½″ flat canvas belt for spindle drive, vise set blocks, one ¼″ collet, drawbar, 3″ and 5″ spindle drive pulleys, wrenches. Handwheels can be furnished on the cross and longitudinal feed screws in place of the ball crank handles if preferred.

Additional: Rotary attachment. Cicrular table graduated to 360° and operated by hand. Diameter of working surface 15″.

Flat leather 1½″ belt for spindle drive used in connection with larger cutters and slow speeds.

CODE WORDS:

Without rotary	Bea
With rotary	Bearot

REED-PRENTICE MACHINE TOOLS

Becker No. 2
High Speed Vertical Milling Machine

"The Machine that gives the Smooth Finish"

Engravers and manufacturers of small dies will find embodied in the design of this new improved Becker No. 2 High Speed Miller, every requirement to obtain the necessary high spindle speed, smooth finish, and extreme accuracy demanded in their particular class of fine milling and die sinking work.

The entire machine is built rugged and solid, especially the knee, where the rigid full box form design entirely eliminates vibration and its result and effect on the work.

A steel chip guard in front of the carriage, protects the cross feed screw, and also enables the machine to be more freely cleaned of chips.

High spindle speeds—at least fifty per cent greater than formerly used—even above 6000 R. P. M.—are easily obtained. Nothing more than proper attention to spindle bearing lubrication is necessary when running at the highest speeds.

A greater range of speeds is available, due to using two spindle drive pulleys, 3″ and 5″ diameter. The pulleys are readily changed by lifting the one off by hand and slipping the other into place over the spindle sleeve. Proper belt tension is then secured by adjusting the movable idler pulley bracket.

A special canvas belt, adapted to high speed operation, is furnished as standard equipment with the machine. However, it is advisable to use a leather belt when larger cutters and slow speeds are required.

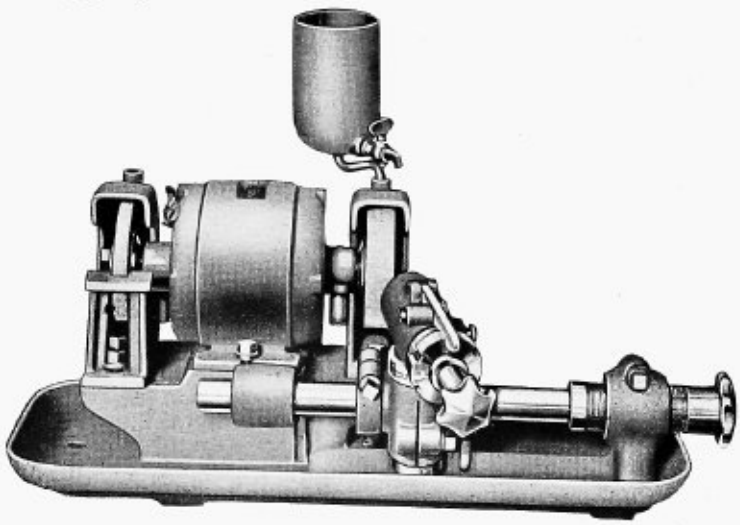
The belt pull is counteracted by an auxiliary ball bearing on the spindle. The main spindle bearing is babbitt lined bronze, the most suitable bearing for high speeds.

The spindle is made of a high grade crucible steel and is ground all over. Hardened steel thrust washers are also used. All the rotating parts—spindle, washers, and pulleys, are correctly balanced, thus insuring non-vibrating operating conditions.

A ¼″ collet is furnished as part of the standard equipment, while extra collets can be furnished for this machine in sizes ranging from ⅛″ to ½″ by one-sixteenth-inch increments.

For the convenience of our customers, a set of cutters has been arranged consisting of a wide variety of straight and bevel cutters particularly adapted to engraving work. These sets are clearly illustrated in our Standard Cutter catalog.

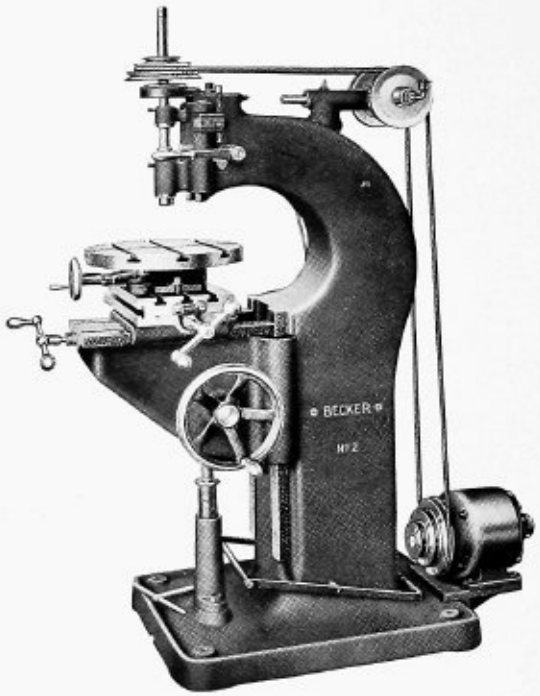
This illustration shows the Reed-Prentice Engravers' Cutter Grinder used extensively for accurately grinding uniform eccentric and straight reliefs, flat cutting edges and innumerable other uses. This machine is completely illustrated and described in Engravers' Cutter Grinder circular, which will be mailed to you upon request.



For Accurate Grinding of Engravers' Cutters

Motor Drives for No. 2 Miller

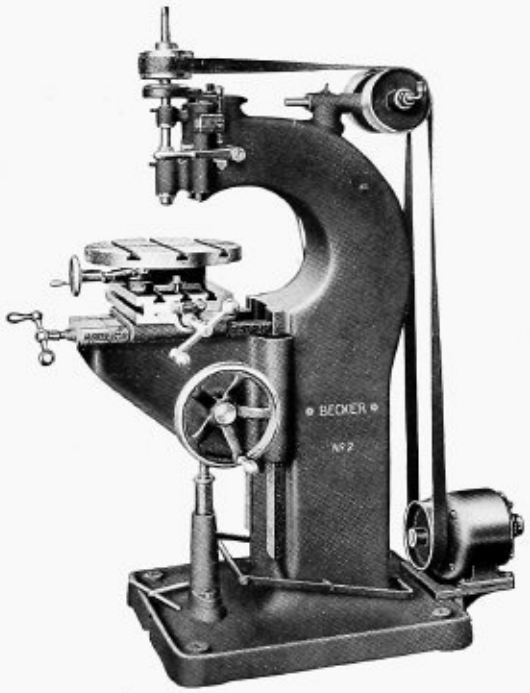
Constant Speed Motor Drive



The motor is bolted to a motor bracket fastened to the base of the machine and together with its V belt drive, constitutes a very simple and compact motor drive arrangement. A 1 H. P. constant speed motor of 1700 or 1800 R. P. M. is recommended for this type of drive.

Three-step grooved cone pulleys on the spindle and armature shaft of the motor permit three changes of speed by direct shifting of the belt to the various sets of steps on the cone pulleys.

Another variation of spindle speeds may be obtained by retaining the belt on a step of the motor cone pulley and shifting the belt to any step on the machine spindle cone pulley; taking up the slack of the belt by an adjustment of the idlers. A total of nine spindle speeds is furnished by this combination and provides a range of spindle speeds from 1200 to 6000 R. P. M.



Adjustable Speed Motor Drive

A wide range of spindle speeds can be obtained by means of a adjustable speed motor used in connection with direct current only. The adjustment of the speed requires only the simple shifting of the handle of a rheostat located on the side of the machine.

Crown faced pulleys on the armature shaft of the motor and machine spindle permit the use of a flat belt; the proper belt tension being obtained by an adjustment of the idlers.

A 1 H. P. adjustable speed motor running at speeds ranging from 500 to 1500 R. P. M. is recommended for this type of drive and will give a range of spindle speeds from 1200 to 6000 R. P. M.

Samples of Work

The cakes of soap in the illustration are reproductions of moulds finished on a No. 2 Vertical Miller and the round pieces are samples of metal work that have been routed by one of our customers on the same machine.

A close study of the various pieces reveals the adaptability of the machine as an engraver's tool. The position of the operating handles on the machine provides for rapid manipulation while this combined with the high spindle speed warrants a maximum production.

THE DAVIS PRESS WORCESTER MASS. U.S.A. 3M-11-15-24

Milling Cutters and Collets for Becker Nos. 1, 2 and 2A Vertical Milling Machines

END AND SIDE MILLING CUTTERS

(Collet Shank)

These cutters are threaded for drawbar and made with collet shank to fit direct to spindle of the Nos. 2 and 2A BECKER Vertical Millers.

No. 2 Vertical

No.	Diameter Inches	Length Inches	Price	
			Carbon Steel	High Speed Steel
B-100	3/8	1	$3 50	**$7 00**
B-102	1/2	1 1/4	3 80	**7 75**
B-103	9/16	1 1/4	3 80	**7 75**
B-104	5/8	1 1/4	4 45	**9 00**
B-105	11/16	1 3/8	4 80	**9 75**
B-106	3/4	1 3/8	4 80	**9 75**
B-107	13/16	1 1/2	4 80	**9 75**
B-108	7/8	1 1/2	4 80	**9 75**

End and Side Mills made to order. Give diameter and length of cut desired with size of machine.

No. 2A Vertical

No.	Diameter Inches	Length Inches	Price	
			Carbon Steel	High Speed Steel
B-129	3/8	1	$3 50	**$7 00**
B-131	7/16	1 1/4	3 80	**7 75**
B-133	1/2	1 1/2	4 15	**8 45**
B-135	5/8	1 3/4	4 45	**9 00**
B-138	3/4	2	4 80	**9 75**
B-139	13/16	2	4 80	**9 75**
B-140	7/8	2	4 80	**9 75**
B-141	7/8	2 1/4	5 10	**10 25**
B-142	15/16	2 1/4	5 10	**10 25**
B-143	1	2 1/4	5 10	**10 25**

End and Side Mills made to order. Give diameter and length of cut desired with size of machine.

SPRING COLLETS

(For Vertical Millers)

By the use of spring collets, straight shank end mills and similar cutters of the smaller diameters may be used in the BECKER Nos. 1, 2 and 2A Vertical Millers.

Collets are threaded for drawbar by which they are drawn into the spindle thus closing the taper end and holding the cutter securely.

No. 1 used in spindle of No. 1 machine in sizes to hold cutters from 1/8" to 5/16" advancing by 1/16". Price, each **$3 50**

No. 2 used in spindle of No. 2 machine in sizes to hold cutters from 1/8" to 1/2" advancing by 1/16". Price, each **$3 50**

No. 2A used in spindle of No. 2A machine in sizes to hold cutters from 1/8" to 9/16" advancing by 1/16". Price, each **$3 75**

STRAIGHT SHANK CUTTERS

(To be used with Spring Collets)

No.	Diameter of Cutter Inches	Length of Cutter Inches	Diameter of Shank Inches	Total Length Inches	Price each Carbon Steel	Price Each High Speed Steel
C-10	1/8	1/2	5/32	1 3/4	$0 45	**$0 75**
C-11	5/32	1/2	5/32	1 3/4	50	**80**
C-12	3/16	3/4	3/16	1 3/4	55	**95**
C-13	3/32	7/8	1/4	2	60	**1 00**
C-14	1/4	7/8	1/4	2	65	**1 15**
C-15	9/32	7/8	5/16	2	70	**1 25**
C 16	5/16	7/8	5/16	2	80	**1 35**
C-17	11/32	7/8	3/8	2	85	**1 45**
C-18	3/8	7/8	3/8	2	90	**1 50**
C-19	13/32	7/8	1/2	2	95	**1 80**
C-20	7/16	7/8	1/2	2	1 25	**2 10**
C-21	1/2	27/32	1/2	2	1 60	**2 35**
C-22	9/16	27/32	5/8	2	1 90	**2 75**
C-23	5/8	27/32	5/8	2	1 90	**2 75**

Cutters up to and including 7/16" are cut with straight flutes—above that size with spiral flutes.

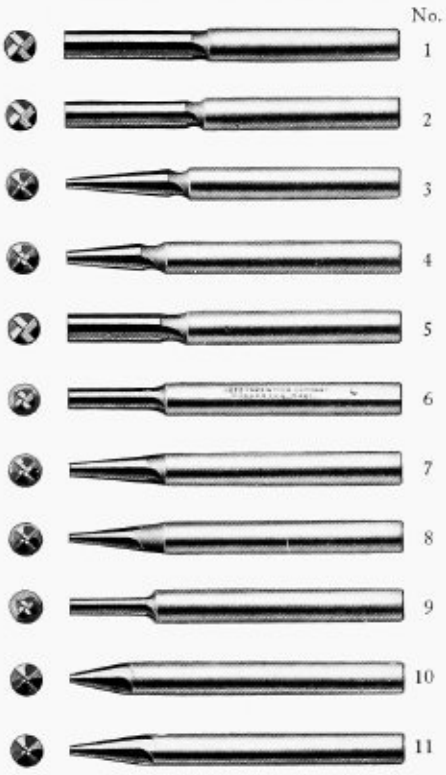
REED-PRENTICE CORP.
MACHINE TOOLS
WORCESTER, MASS., U.S.A.

ENGRAVERS' CUTTERS

(with straight shank to be used with spring collets)

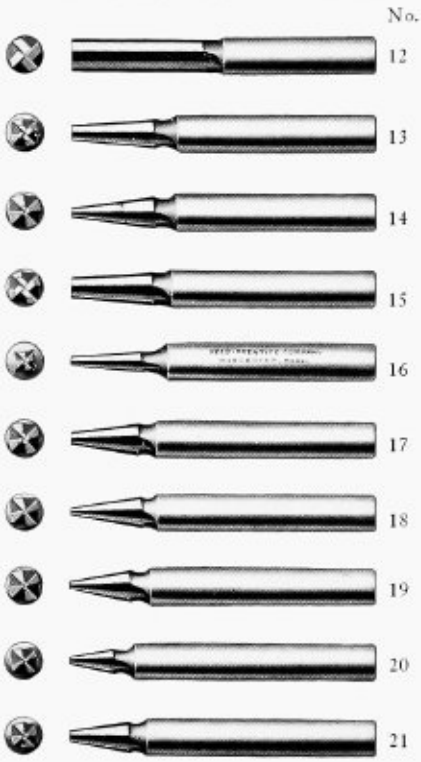
These Cutters are specially adapted for engraving purposes and very delicate milling in brass and steel. Illustrations full size. Special Cutters made to order; give size of shank and complete specifications.

SHANKS 5-32″ DIAMETER



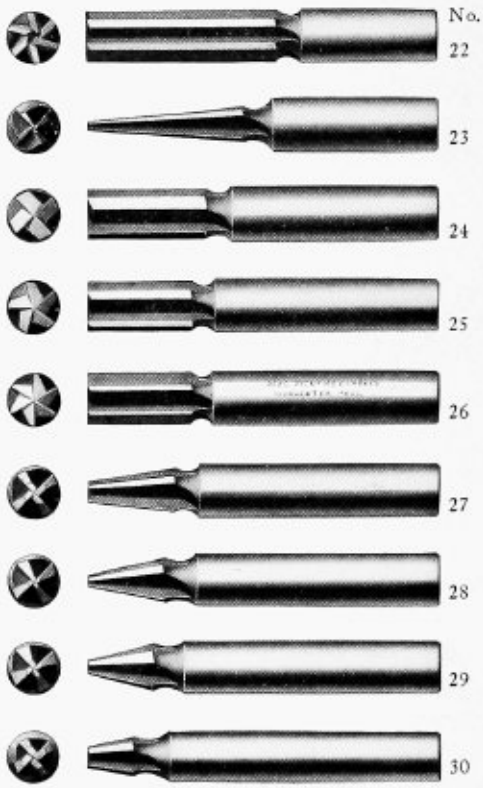
Carbon Steel: Price, 45 cents each.
High Speed Steel: Price, 75 cents each.

SHANKS 3-16″ DIAMETER



Carbon Steel: Price, 65 cents each.
High Speed Steel: Price, $1.00 each.

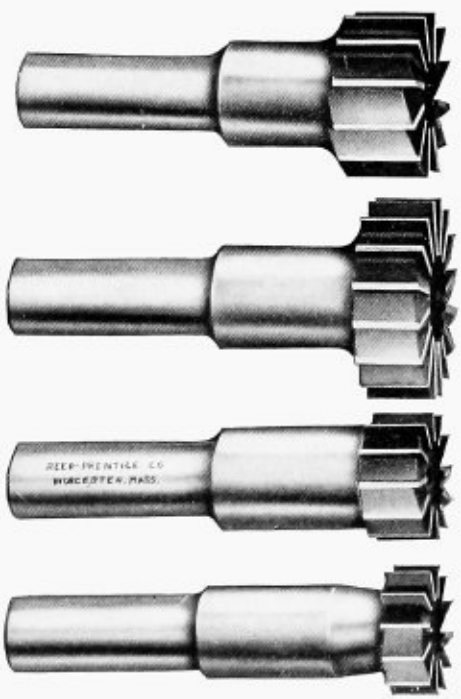
SHANKS 1-4″ DIAMETER



Carbon Steel: Price, 85 cents each.
High Speed Steel: Price, $1.50 each.

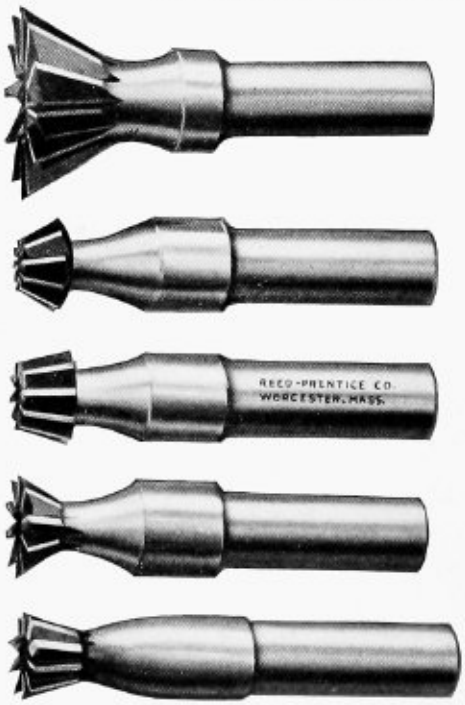
SHANKS 3-8″ DIAMETER

Carbon Steel	High Speed Steel	No.
$2 90	**$5 50**	31
2 30	**4 75**	32
2 30	**4 75**	33
2 30	**4 75**	34



SHANKS 3-8″ DIAMETER

Angle	No.	Carbon Steel	High Speed Steel
30°	35	$2 90	**$5 50**
30°	36	2 30	**4 75**
15°	37	2 30	**4 75**
30°	38	2 30	**4 75**
15°	39	2 30	**4 75**

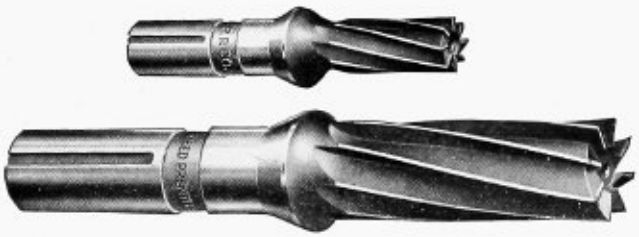


THE DAVIS PRESS WORCESTER MASS. U.S.A. 2M 10-1-26

Milling Cutters and Collets for Becker Nos. 2A and 3 Vertical Milling Machines

END AND SIDE MILLING CUTTERS

(Collet Shank)



These cutters are threaded for drawbar and made with collet shank to fit direct to spindle of the Nos. 2A and 3 BECKER Vertical Millers.

No. 2A Vertical

No.	Diameter Inches	Length Inches	Price	
			Carbon Steel	High Speed Steel
B-129	3/8	1	$3 50	**$7 00**
B-131	7/16	1 1/4	3 80	**7 75**
B-133	1/2	1 1/2	4 15	**8 45**
B-135	5/8	1 3/4	4 45	**9 00**
B-138	3/4	2	4 80	**9 75**
B-139	13/16	2	4 80	**9 75**
B-140	7/8	2	4 80	**9 75**
B-141	7/8	2 1/4	5 10	**10 25**
B-142	15/16	2 1/4	5 10	**10 25**
B-143	1	2 1/4	5 10	**10 25**

End and Side Mills made to order. Give diameter and length of cut desired with size of machine.

No. 3 Vertical*

No.	Diameter Inches	Length Inches	Price	
			Carbon Steel	High Speed Steel
B-158	1/2	1 1/2	$4 80	**$9 75**
B-159	9/16	1 1/2	4 80	**9 75**
B-160	5/8	1 3/4	4 80	**9 75**
B-161	11/16	1 3/4	4 80	**9 75**
B-162	3/4	1 1/2	4 80	**9 75**
B-163	3/4	2	5 10	**10 25**
B-163A	1 3/16	1 3/4	5 00	**10 00**
B-164	13/16	2	5 10	**10 25**
B-165	7/8	2	5 10	**10 25**
B-166	7/8	2 1/2	5 40	**11 00**
B-167	15/16	2 1/4	5 40	**11 00**
B-168	1	2 1/4	5 40	**11 00**
B-169	1	2 3/4	5 75	**11 75**
B-170	1 1/16	2 3/4	5 75	**11 75**
B-171	1 1/8	2 1/2	6 05	**12 25**
B-172	1 1/8	3	6 40	**13 00**
B-174	1 1/4	2 3/4	6 40	**13 00**
B-175	1 1/4	3 1/4	7 15	**14 25**

End and Side Mills made to order. Give diameter and length of cut desired with size of machine.

SPRING COLLETS

(For Vertical Millers)

By the use of spring collets, straight shank end mills and similar cutters of the smaller diameters may be used in the BECKER Nos. 2A and 3 Vertical Millers.

Collets are threaded for drawbar by which they are drawn into the spindle thus closing the taper end and holding the cutter securely.

No. 2A used in spindle of No. 2A machine in sizes to hold cutters from 1/8" to 9/16" advancing by 1/16". Price, each **$3 75**

No. 3 used in spindle of No. 3 machine in sizes to hold cutters from 1/8" to 3/4" advancing by 1/16". Price, each **$4 00**

STRAIGHT SHANK CUTTERS

(To be used with Spring Collets)

No.	Diameter of Cutter Inches	Length of Cutter Inches	Diameter of Shank Inches	Total Length Inches	Price each Carbon Steel	Price Each High Speed Steel
C-10	1/8	1/2	5/32	1 3/4	$0 45	**$0 75**
C-11	5/32	1/2	5/32	1 3/4	50	**80**
C-12	3/16	3/4	3/16	1 3/4	55	**95**
C-13	7/32	7/8	1/4	2	60	**1 00**
C-14	1/4	7/8	1/4	2	65	**1 15**
C-15	9/32	7/8	5/16	2	70	**1 25**
C-16	5/16	7/8	5/16	2	80	**1 35**
C-17	11/32	7/8	3/8	2	85	**1 45**
C-18	3/8	7/8	3/8	2	90	**1 50**
C-19	13/32	7/8	1/2	2	95	**1 80**
C-20	7/16	7/8	1/2	2	1 25	**2 10**
C-21	1/2	7/8	1/2	2	1 60	**2 35**
C-22	9/16	7/8	5/8	2	1 90	**2 75**
C-23	5/8	7/8	5/8	2	1 90	**2 75**

Cutters up to and including 7/16" are cut with straight flutes—above that size with spiral flutes.

*Adaptable for larger machines through use of reducing bushings. See circular 27-203-1 covering cutters and collets for use with 4B, 5C, 6 and other BECKER Vertical Milling Machines.

REED-PRENTICE CORP.
MACHINE TOOLS
WORCESTER, MASS. U.S.A.

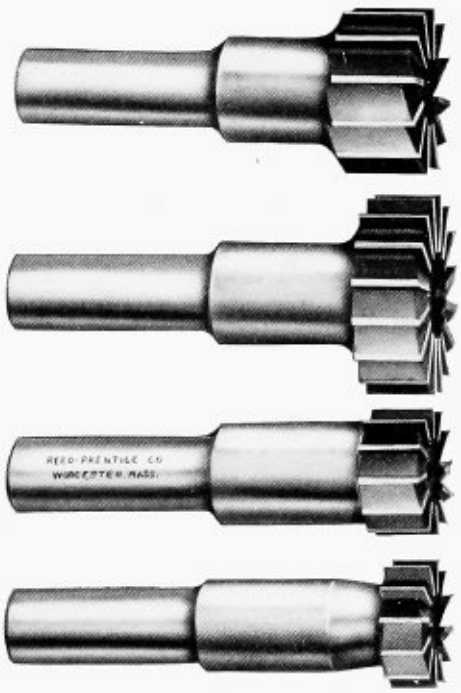
Circular 27-202-2

Engraver's Cutters

These Surface, Dovetail and Bevel Mills are made with straight shank to be used with spring collets. Illustrations full size.
Special cutters made to order; give size shank and complete specifications.

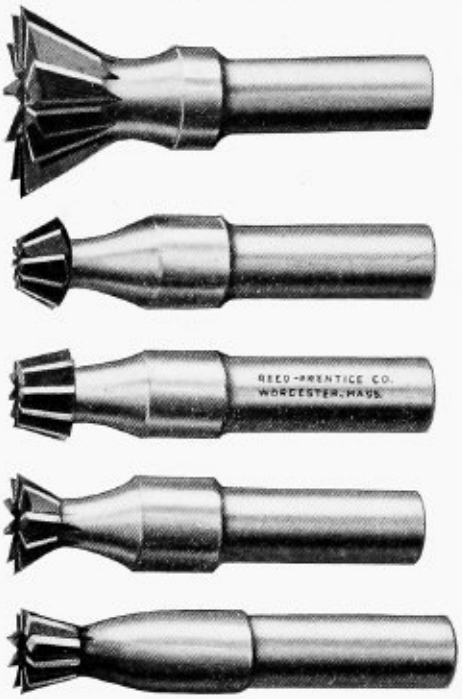
SHANKS 3-8″ DIAMETER

Carbon Steel	High Speed Steel	No.
$2 90	$5 50	31
2 30	4 75	32
2 30	4 75	33
2 30	4 75	34



SHANKS 3-8″ DIAMETER

Angle	No.	Carbon Steel	High Speed Steel
30°	35	$2 90	$5 50
30°	36	2 30	4 75
15°	37	2 30	4 75
30°	38	2 30	4 75
15°	39	2 30	4 75



Sets of Tools for BECKER Nos. 2A and 3 Vertical Millers

Cutters in following lists are those which we have found by experience to be best suited for general requirements.
Prices cover complete sets as listed, and are *net* to customer.

SET NO. 3 (for No. 2A)

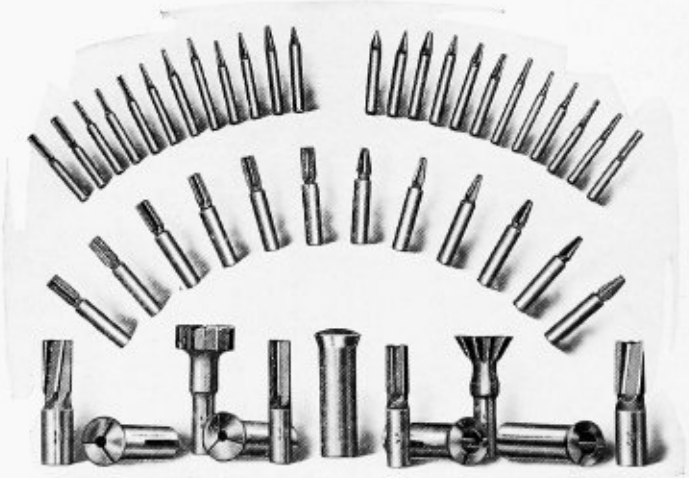
One No. 2A Collet, $\frac{1}{4}$″
One No. 2A Collet, $\frac{3}{8}$″
Two End Mills, $\frac{1}{4}$″ diameter, Straight Shank
Two End Mills, $\frac{3}{8}$″ diameter, Straight Shank
One End Mill, $\frac{3}{8}$″ x 1″, No. 2A Shank
One End Mill, $\frac{1}{2}$″ x 1$\frac{1}{2}$″, No. 2A Shank
One End Mill, $\frac{3}{4}$″ x 2″, No. 2A Shank
One End Mill, $\frac{7}{8}$″ x 2$\frac{1}{4}$″, No. 2A Shank
One End Mill, 1″ x 2$\frac{1}{4}$″, No. 2A Shank
One Surface Mill No. 31, $\frac{3}{8}$″, Straight Shank
One Dovetail Mill No. 35, $\frac{3}{8}$″, Straight Shank
Carbon Steel $35.90
High Speed Steel 57.10

SET NO. 4 (for No. 2A)

One No. 2A Collet, $\frac{5}{32}$″
One No. 2A Collet, $\frac{3}{16}$″
One No. 2A Collet, $\frac{1}{4}$″
One No. 2A Collet, $\frac{3}{8}$″
One No. 2A Collet, $\frac{1}{2}$″
Eleven Cutters, No. 1 to No. 11, $\frac{5}{32}$″, Straight Shank*
Ten Cutters, No. 12 to No. 21, $\frac{3}{16}$″, Straight Shank*
Nine Cutters, No. 22 to No. 30, $\frac{1}{4}$″, Straight Shank*
Two End Mills, $\frac{3}{8}$″ diameter, Straight Shank
Two End Mills, $\frac{1}{2}$″ diameter, Straight Shank
One Surface Mill No. 31, $\frac{3}{8}$″, Straight Shank
One Dovetail Mill No. 35, $\frac{3}{8}$″, Straight Shank
Carbon Steel $45.65
High Speed Steel 59.10

*See circular 27-201-1 covering milling cutters and collets for Nos. 1, 2 and 2A BECKER Vertical Milling Machines.

SET NO. 4 (for No. 2A) shown below

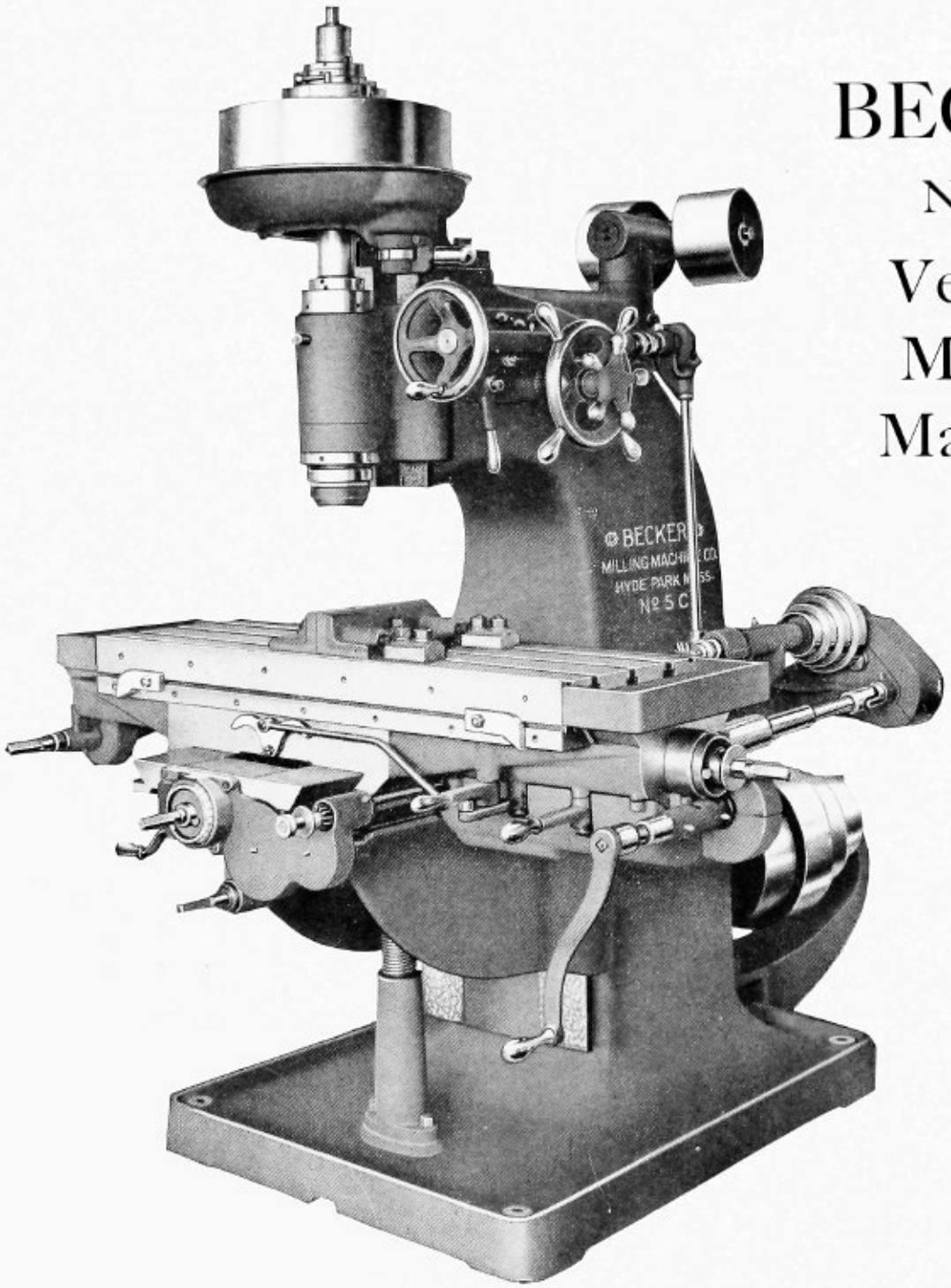


SET NO. 5 (for No. 3)

One No. 3 Collet, $\frac{1}{4}$″
One No. 3 Collet, $\frac{3}{8}$″
Two End Mills, $\frac{1}{4}$″ diameter, Straight Shank
Two End Mills, $\frac{3}{8}$″ diameter, Straight Shank
One Surface Mill No. 32, $\frac{3}{8}$″, Straight Shank
One Dovetail Mill No. 35, $\frac{3}{8}$″, Straight Shank
One Bevel Mill No. 37, $\frac{3}{8}$″, Straight Shank
One End Mill, $\frac{1}{2}$″ x 1$\frac{1}{2}$″, No. 3 Shank
One End Mill, $\frac{5}{8}$″ x 1$\frac{3}{4}$″, No. 3 Shank
One End Mill, $\frac{3}{4}$″ x 2″, No. 3 Shank
One End Mill, $\frac{7}{8}$″ x 2″, No. 3 Shank
One End Mill, 1″ x 2$\frac{1}{4}$″, No. 3 Shank
One End Mill, 1$\frac{1}{4}$″ x 2$\frac{3}{4}$″, No. 3 Shank
Carbon Steel $45.40
High Speed Steel 75.45

THE DAVIS PRESS WORCESTER MASS. U.S.A. 2M 10-1-26

"The Machine That Gives the Smooth Finish"



BECKER

No. 5C

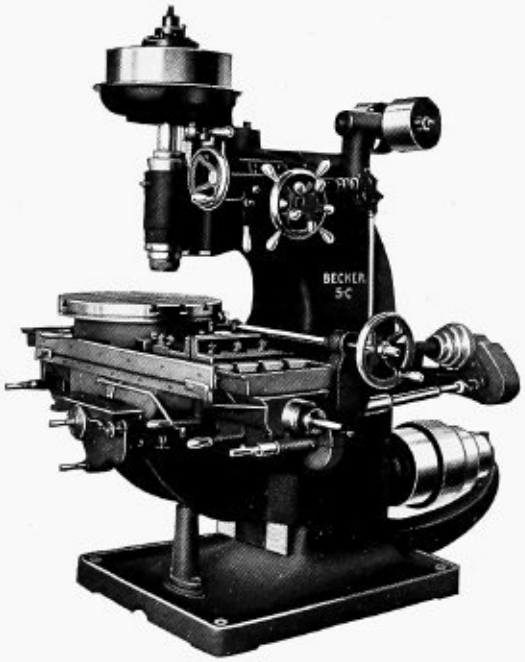
Vertical Milling Machine

REED-PRENTICE CORP.

MACHINE TOOLS

WORCESTER MASS., U.S.A.

Circular 18-501-2



Specifications—No. 5C

RANGE:	
Longitudinal feed (power)	54"
Cross feed (power)	16"
Vertical feed of knee (hand)	18"
Head travel (power)	8¾"
Maximum distance between spindle and table	21"
Maximum distance between spindle and rotary table	15¼"
Maximum distance between spindle and frame	18"
MACHINE TABLE:	
Working surface	53" x 14"
Size overall	63½" x 14"
Has 3 T slots, width	⅝"
Length of carriage	64½"
Number of feeds for each spindle feed	8
Longitudinal feed per revolution of spindle, open belt	.0073 to .1481
Longitudinal feed per revolution of spindle, back gears	.0382 to .7775
Longitudinal feed per minute	.470" to 72.0"
ROTARY TABLE:	
Diameter of working surface	18⅝"
Diameter overall	22"
Has 4 T slots, width	⅝"
SPINDLE:	
Diameter and length of main bearing	3" x 7⅜"
Number of spindle speeds	12
Range of spindle speeds, R. P. M.	13 to 500
Ratio of back gears	5.25 to 1
Taper hole, No. 11 B. & S., Nose 3", 3 Pitch, R. H.—U. S. Form	
Hole through spindle	1¼"
PULLEYS:	
Spindle pulley	16"
Spindle driving pulley	12"
Width of driving belt	4"
Diameter of countershaft pulleys	18" and 12"
Speed of countershaft, R. P. M.	150 and 375
FLOOR SPACE:	
Length x width x height	119" x 85" x 85"
WEIGHTS AND SHIPPING DIMENSIONS:	
Machine without rotary, about	4700 lbs.
Rotary, net, about	500 lbs.
Machine, without rotary, boxed for ocean shipment, about	5900 lbs.
Machine, with rotary, boxed for ocean shipment, about	6400 lbs.
Contents boxed, length 98", width 79", height 95"	426 cu. ft.
EQUIPMENT:	
Standard: Cone drive, friction countershaft, vise set blocks, drawbar, wrenches.	
Special: 4" double driving belt, 1¼" single feed belt, oil pump and connections, arbor support, rotary attachment, cherrying and profiling attachments.	
CODE WORDS:	
Without rotary, (cone drive)	Grea
(constant speed drive)	Greabox
With rotary, (cone drive)	Grearot
(constant speed drive)	Grearotbox

REED-PRENTICE MACHINE TOOLS

BECKER No. 5C
Vertical Milling Machine

This tool is used almost universally by forge shops for machining dies.

It is capable of handling a very large range of work—making it an exceptionally adaptable tool for the average manufacturer or repair shop.

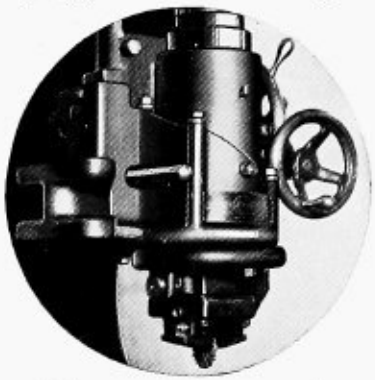
The very unique attachments which can be applied to this tool also make it very popular.

The spindle has a taper bronze bushing with adustable collars for taking up wear, and keep the spindle in alignment. The back gears are located directly on the spindle. The spindle is fitted with hand and power feed, and with the hand feed, as used by die makers, there is practically a direct connection which eliminates backlash.

The belt pressure on the spindle pulley is taken on an auxiliary bearing supported in a bracket attached to the top of the column. With this construction the strain of the belt is not carried by the spindle. Micrometer stop gauge is attached to head and accurately controls depth of cut.

The table is of very liberal proportions, having a large working surface. The saddle has wide bearing on the knee which supports the table its full working surface. This is a special feature on all BECKER Milling Machines. The table is equipped with power as well as hand cross and longitudinal feed.

Rotary attachment with power feed adds to the range of work the machine is capable of doing. This rotary attachment can be applied to the machine at any time. It is equipped with both power and hand feeds in either direction with automatic stop, is graduated to 360°, and equipped with oil trough.



Cherrying Attachment can be furnished for die makers. This attachment as illustrated is fitted directly to the spindle. Drive is by steel bevel gear threaded to the spindle then through spur gear to the cutter arbor. The minimum diameter cutter which can be used is 1″, and the maximum 7″. See Circular 18-701-1 for complete description of this attachment.

A Fine Feed Attachment can be furnished giving a feed range with open belt of .0024″ to .049″, with back gears .0127″ to .2591″.

This machine may be equipped with single pulley gear box drive, allowing machine to be driven from a main line without the use of a countershaft. Speed box has seven changes, and with the back gears located on the head gives fourteen spindle changes.

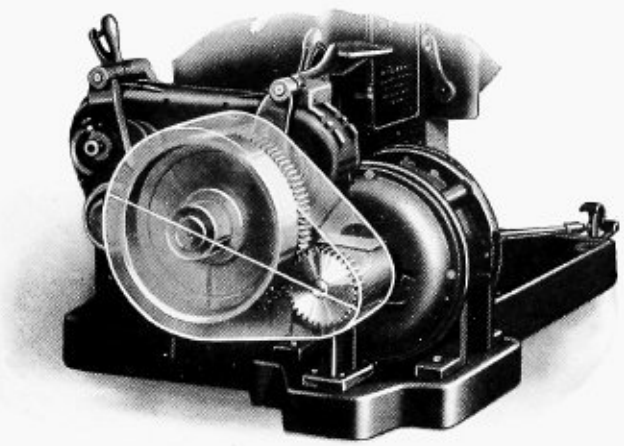
Motor Drives for No. 5C Miller

Constant Speed Motor Drive

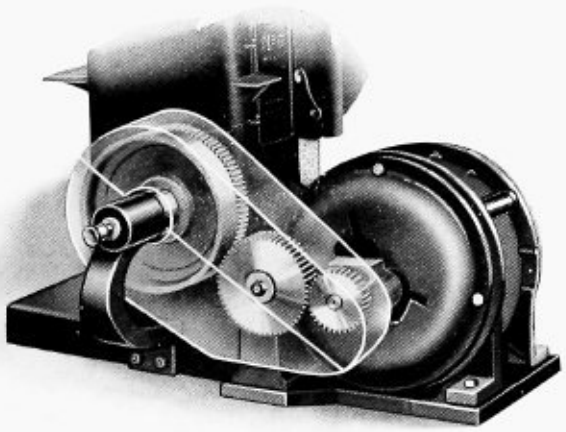
The motor is bolted to a bracket fastened to the rear portion of the base of the machine, and the drive is through two gears properly guarded. The motor pinion is made of bakelite, permitting quiet operation, while the main driving gear is of cast iron.

The gear drive is used in conjunction with a gear box that provides fourteen spindle speeds ranging from 20 to 500 R. P. M. The quick change gear mechanism is entirely enclosed and the changes in speed are obtained through two handles conveniently located on the top of the gear box.

A 5 horsepower constant speed motor of 1150 or 1200 R. P. M. is recommended for this type of drive.



Variable Speed Motor Drive



A wide range of spindle speeds can be obtained by means of a variable speed motor used in connection with direct current only. The selection of speeds requires only the simple shifting of the handle of a rheostat conveniently located on the side of the machine.

The motor is bolted to a bracket fastened to the rear of the base of the machine, and the drive is through a train of gears properly guarded. The motor pinion is of steel, the main driving gear cast iron, and the intermediate bakelite, permitting quiet operation.

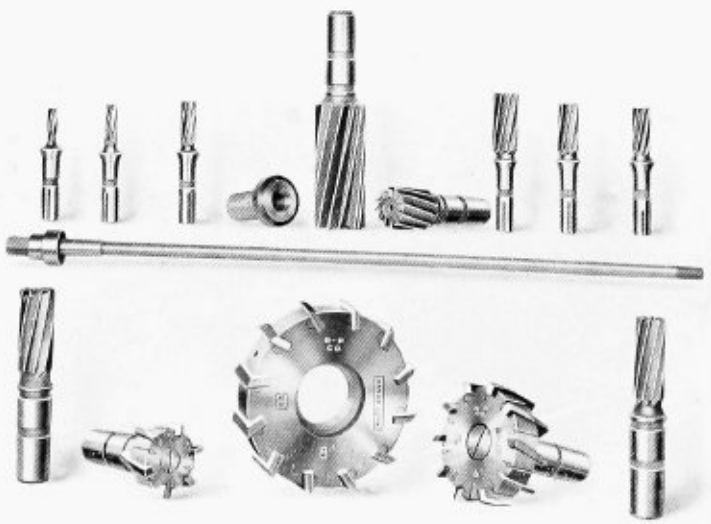
With this arrangement it is not necessary to have a gear box, and a range of spindle speeds varying from a minimum of 20 to a maximum of 500 R. P. M. can be secured.

A 5 horsepower adjustable speed motor of 450 to 1800 R. P. M. is recommended for this type of drive.

Cutters

The use of high grade cutters has much to do with obtaining the best results from Milling Machines. Long continued experience in the making of cutters in connection with our machines has enabled us to produce cutters of the highest efficiency.

For the convenience of our customers, No. 19 set has been prepared consisting of a wide variety of cutters adaptable to many classes of work. This group of cutters is illustrated here, and may be purchased as a set or separately, as may be required. Circular 27-203-1 gives prices and illustrates and describes the complete line of cutters designed especially for this machine, and will be gladly sent upon request.



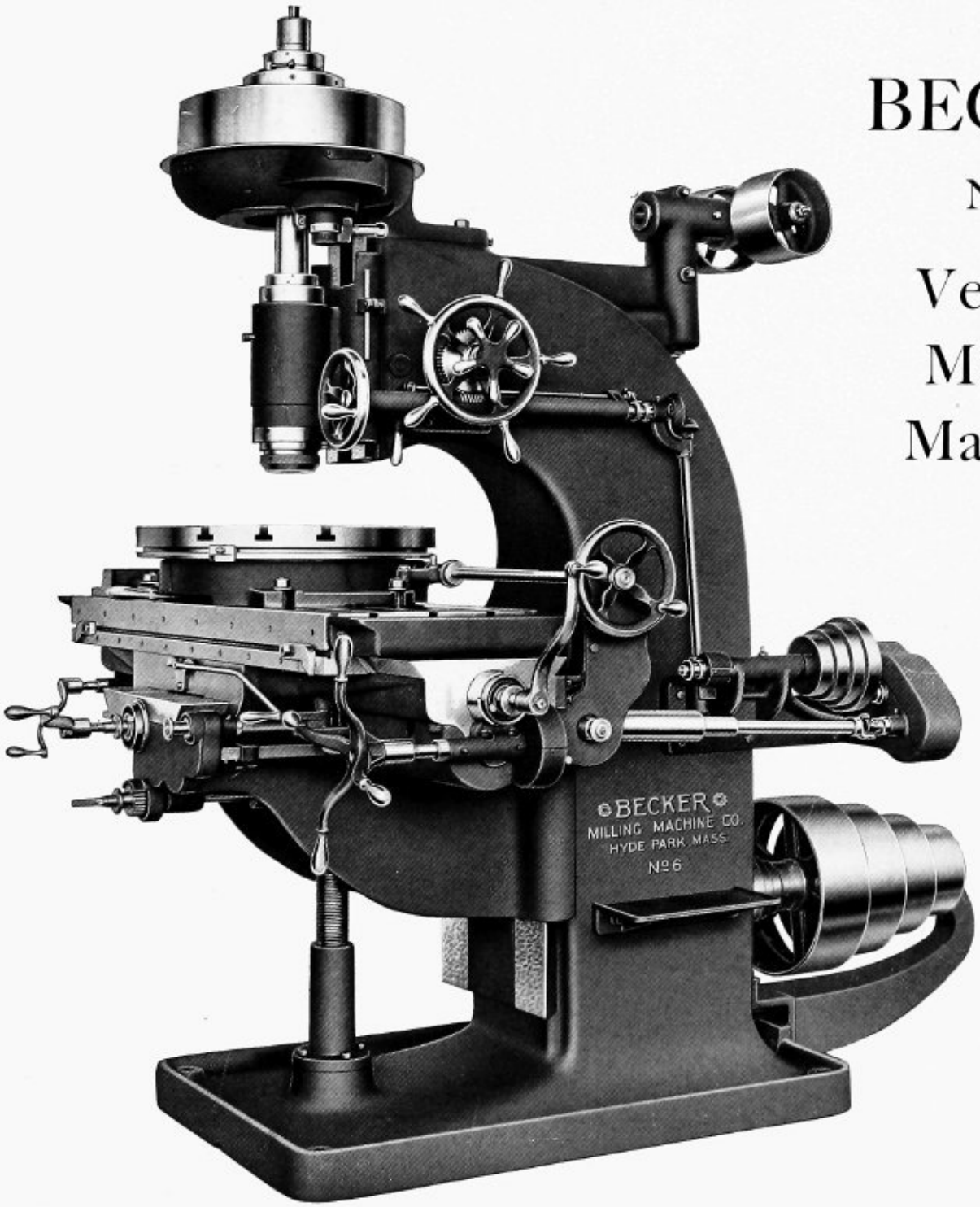
The Heffernan Press, Spencer, Mass., U. S. A.—3M 6-15-26

"The Machine That Gives the Smooth Finish"

BECKER

No. 6

Vertical Milling Machine

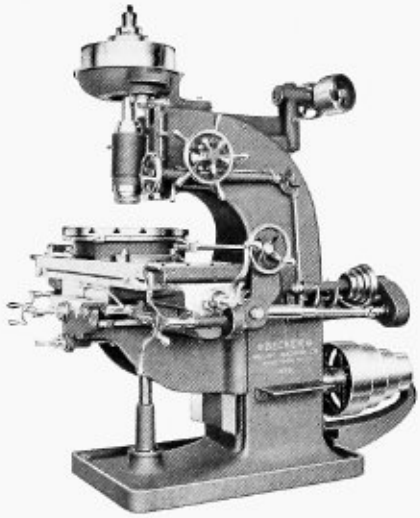


MACHINE TOOLS

REED-PRENTICE CORP.

WORCESTER MASS., U.S.A.

Circular 18-601-2



Specifications—No. 6

RANGE:	
Longitudinal feed (power)	62″
Cross feed (power)	22″
Vertical feed of knee (power)	22″
Head travel (power)	12″
Maximum distance between spindle and table	30″
Maximum distance between spindle and rotary table	23″
Maximum distance between spindle and frame	24″
MACHINE TABLE:	
Working surface	61″ x 18″
Size overall	76¼″ x 18″
Has 3 T slots, width	¾″
Length of carriage	73″
Number of feeds for each spindle speed	8
Longitudinal feed per revolution of spindle, open belt	.003″ to .040″
Longitudinal feed per revolution of spindle, back gears	.016″ to .251″
Longitudinal feed per minute	.25″ to 20″
ROTARY TABLE:	
Diameter of working surface	24″
Diameter overall	27¾″
Has 4 T slots, width	¾″
SPINDLE:	
Diameter and length of main bearing	3¾″ x 8¾″
Number of spindle speeds	12
Range of spindle speeds, R. P. M.	16 to 499
Ratio of back gears	6.2 to 1
Taper hole, No. 13 B. & S., Nose 3½″, 3 Pitch, R. H.—U. S. Form	
Hole through spindle	1¼″
PULLEYS:	
Spindle pulley	20″
Spindle driving pulley	20″
Width of driving belt	5″
Diameter of countershaft pulleys	18″
Speed of countershaft, R. P. M.	140 and 350
FLOOR SPACE:	
Length x width x height	138¼″ x 98″ x 108″½
WEIGHTS AND SHIPPING DIMENSIONS:	
Machine without rotary, about	7800 lbs.
Rotary, net, about	600 lbs.
Machine, without rotary, boxed for ocean shipment, about	8800 lbs.
Machine, with rotary, boxed for ocean shipment, about	9400 lbs.
Contents boxed, (length 100″, width 92″, height 103″)	479 cu. ft.

EQUIPMENT:

Standard: Cone drive, friction countershaft, vise set blocks, drawbar, wrenches

Special: 5″ double driving belt, 1¼″ single feed belt, oil pump and connections, arbor support, rotary attachment with power or hand feed in either direction with automatic stop, cherrying and profiling attachments.

CODE WORDS:	
Without rotary (cone drive)	Her
(constant speed drive)	Herbox
With rotary (cone drive)	Herrot
(constant speed drive)	Herrotbox

REED-PRENTICE MACHINE TOOLS

BECKER No. 6
Vertical Milling Machine

This size miller is unsurpassed for die sinking and is used extensively by automobile manufacturers for the machining of crank cases and similar work. It has not only the greatest range of any standard vertical milling machine made but it has power without vibration.

The construction permits two extremes of service—roughing and finishing cuts—the one interfering in no way with the accuracy of the other, which means much to any shop.

Centralized control is another of its advantages, which permits the operator to use both the power longitudinal table feed and hand cross feed.

The spindle has a very liberal main bearing, and runs in tapered bronze bearings that compensate for wear by adjusting collars at the top and bottom of the main bearing. The back gears are located directly on the spindle and have a large gear ratio, thus increasing the power. The spindle is equipped with both power and hand feed, the hand feed being practically a direct connection which eliminates backlash contained in gear connection. This feature is preferred by die makers as it eliminates the chatter. The belt pressure on the spindle pulley is taken by an auxiliary bearing supported in a bracket at the top of the column. With this construction the strain of belt pressure is not carried by the spindle. Micrometer stop gauge is attached to the head and allows spindle to be fed down to pre-determined depth.

Table has a liberal working surface and the saddle has a wide center bearing on the knee, which practically eliminates any deflection in the table when working heavy loads such as die blocks. This saddle construction is a special feature on all BECKER Milling Machines. Table feed is by hand quick traverse as well as power on the longitudinal feed.

Rotary attachment with power or hand feed can be applied, and adds greatly to the range of work that can be done on this machine.

Cherrying attachment as illustrated can be furnished for die makers. The drive is by steel bevel gear, threaded to the spindle, then through spur gear to cutter arbor. The attachment is graduated so that it can be swiveled 360°, and cutters ranging from 1″ to 7″ can be used. See Circular 18-701-1 for complete description of this attachment.

The machine may be equipped with a single pulley gear box which will allow driving direct from the main line without the use of a countershaft. This speed box has seven gear changes and in connection with the back gears directly located in the head, gives fourteen spindle speeds.

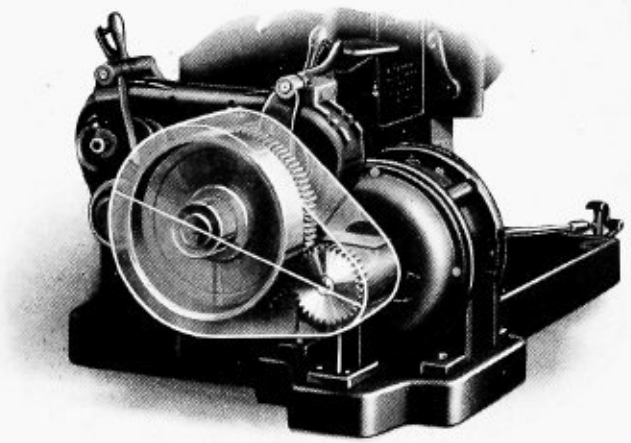
Motor Drives for No. 6 Miller

Constant Speed Motor Drive

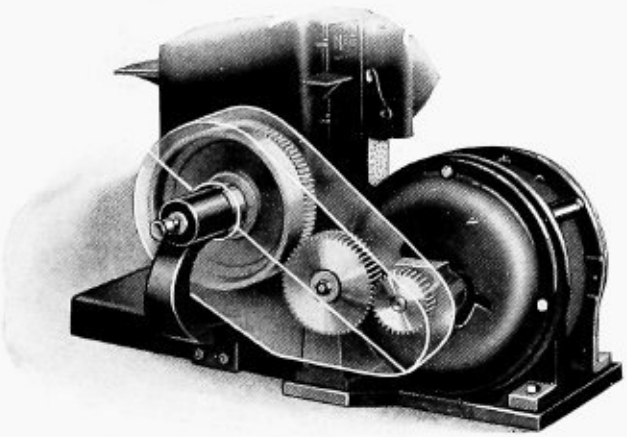
The motor is bolted to a bracket fastened to the rear portion of the base of the machine, and the drive is through two gears properly guarded. The motor pinion is made of bakelite, permitting quiet operation, while the main driving gear is of cast iron.

The gear drive is used in conjunction with a gear box that provides fourteen spindle speeds ranging from 20 to 500 R. P. M. The quick change gear mechanism is entirely enclosed, and the changes in speed are obtained through two handles conveniently located on the top of the gear box.

A 7½ horsepower constant speed motor of 1150 or 1200 R. P. M. is recommended for this type of drive.



Variable Speed Motor Drive



A wide range of spindle speeds can be obtained by means of a variable speed motor used in connection with direct current only. The selection of speeds requires only the simple shifting of the handle of a rheostat conveniently located on the side of the machine.

The motor is bolted to a bracket fastened to the rear of the base of the machine, and the drive is through a train of gears properly guarded. The motor pinion is of steel, the main driving gear of cast iron, and the intermediate bakelite, permitting quiet operation.

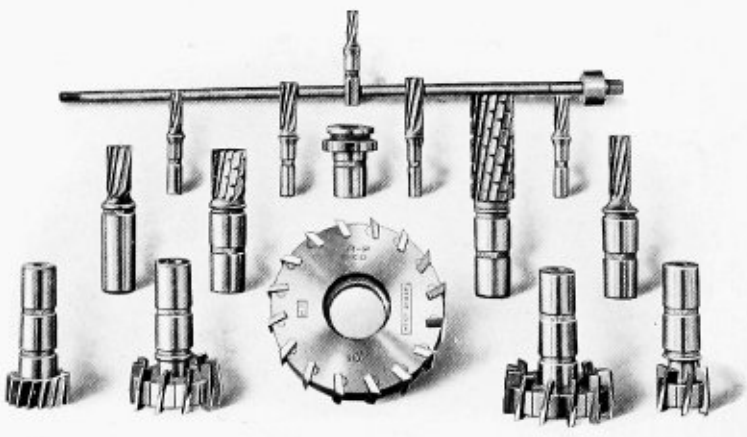
With this arrangement it is not necessary to have a gear box, and a range of spindle speeds varying from a minimum of 20 to a maximum of 500 R. P. M. can be secured.

A 7½ horsepower adjustable speed motor of 450 to 1800 R. P. M. is recommended for this type of drive.

Cutters

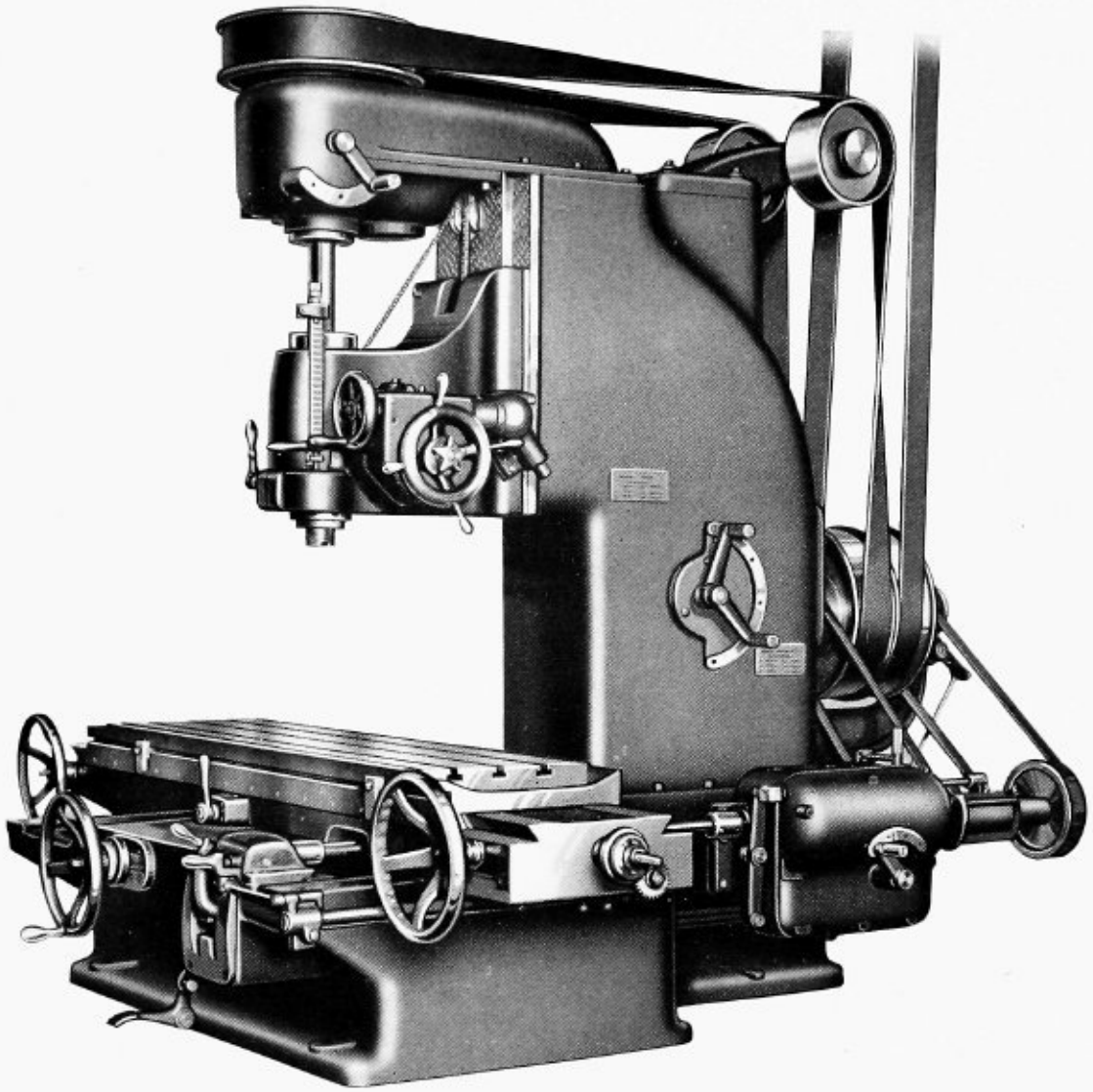
The use of high grade cutters has much to do with obtaining the best results from Milling Machines. Long continued experience in the making of cutters in connection with our machines has enabled us to produce cutters of the highest efficiency.

For the convenience of our customers, No. 20 cutter set has been prepared consisting of a wide variety of cutters adaptable to many classes of work. This group of cutters is illustrated here and may be purchased as a set or separately, as may be required. Circular 27-203-1 gives prices and illustrates and describes the complete line of cutters designed especially for this machine, and will be gladly sent you upon request.



The Heffernan Press, Spencer, Mass., U. S. A.—3M 6-15-26

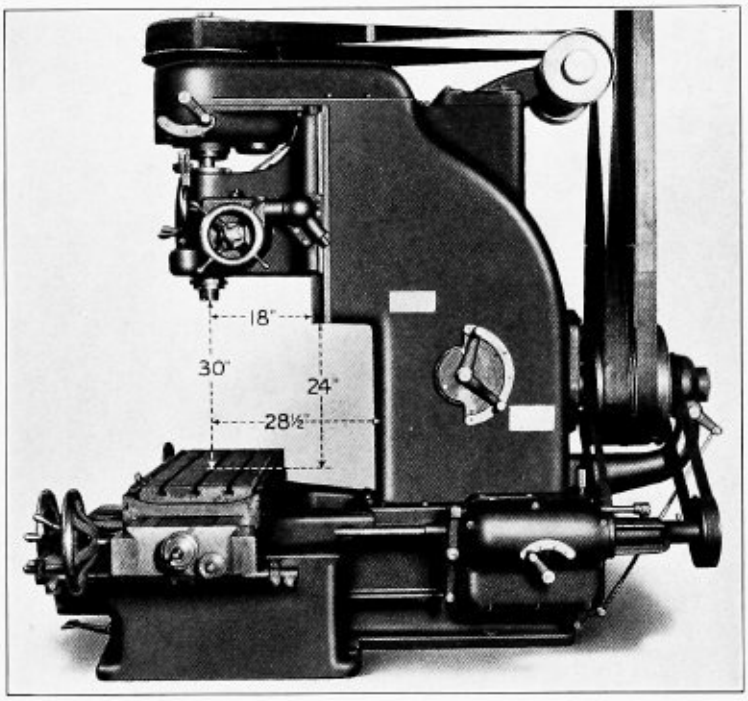
New Model No. 6 Becker Die Sinker and Vertical Milling Machine



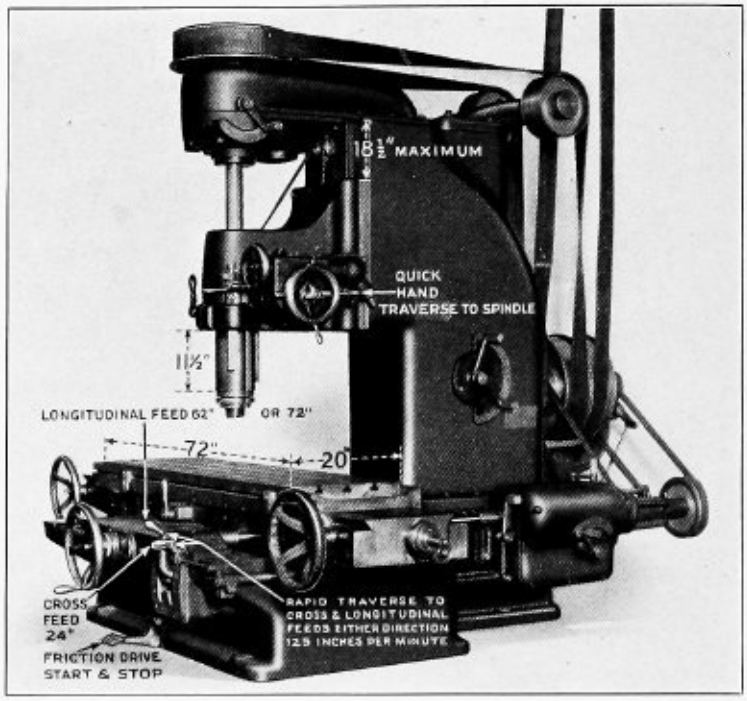
Specifications

Working surface of table	72″ x 20″
Table travel—Longitudinal	62″ or 72″
Cross	24″
Height of table above floor	29″
Maximum overhang of table when in extreme position	25″
Distance between two outside bearings on knee	71″
Distance of spindle nose to table—maximum	30″
minimum	0″
Vertical feed of spindle	11½″
Throat depth	28½″
Distance between center line of spindle to face of column	18″
Maximum distance between center line of spindle to center slot in table—out	12½″
in	11½″
Diameter of spindle sleeve	6¾″
Diameter of driving pulley	19″
Width of driving belt	5″
Diameter of spindle pulley	20″
Width of spindle belt	5″
Number of spindle speeds	12
Range	15.8 to 500 R. P. M.
Number of feeds per revolution of spindle	24
Range	.003″ to .450″
Rapid traverse feed—cross	125″ per min.
longitudinal	125″ per min.
Diameter spindle	3″
Taper hole in spindle	No. 13 B. & S.
Travel of head on column	18½
Floor space	156″ wide x 115″ deep x 112″ high

Permits ready machining of the largest and heaviest die blocks and castings requiring vertical milling



Spindle and head at extreme height showing maximum distance spindle to table, center of spindle to column, etc.

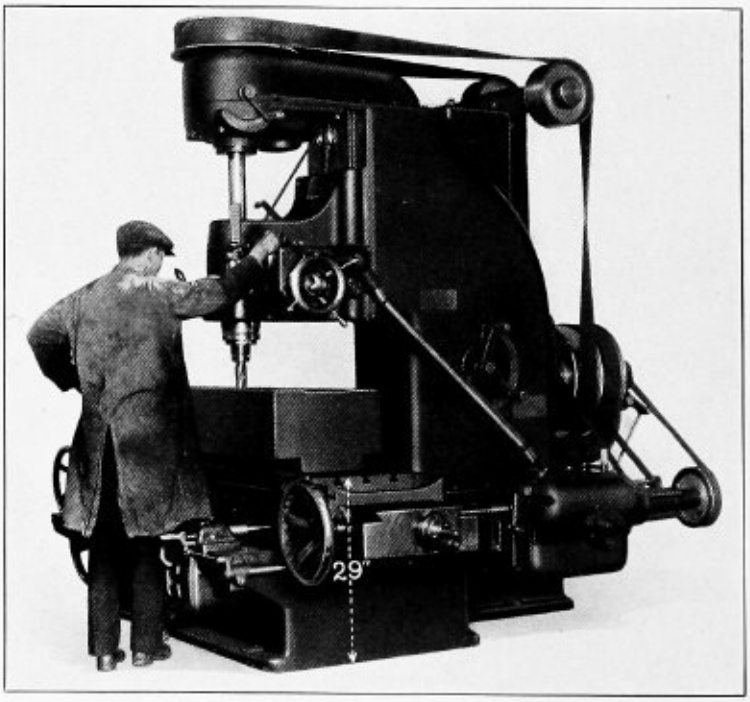


Spindle and head at lowest point, showing adjustment of spindle and head, etc.

Features of the previous BECKER Die Sinkers and Vertical Millers have been maintained in this new model including belt drive to spindle permitting proper speeds for end mills and die sinkers' cutters. While maximum speed is 500 R. P. M., in some cases speeds of 1000 and 1200 R. P. M. have been used satisfactorily with this construction. 5" Spindle drive belt insures sufficient power to the cutter.

New features include triple gearing in head, spindle with either clutch type or threaded nose; speed and feed change mechanisms; power down feed to head for vertical milling; adjustable head and spindle quill; rapid traverse to longitudinal and cross feeds in either direction. All feed gears of alloy steel, running in oil.

Rotary table hand or power feed, 26" diameter, can be supplied if desired.



Convenient working height of table, and head and spindle adjustment for the average workman.

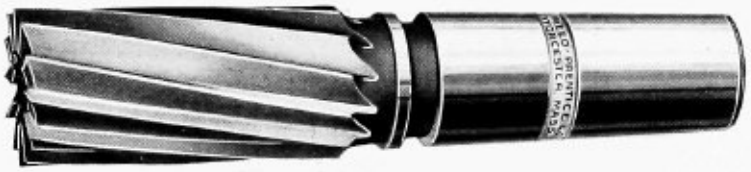
REED-PRENTICE CORP.
MACHINE TOOLS
WORCESTER MASS., U.S.A.

THE DAVIS PRESS WORCESTER MASS. U.S.A. 1530. 7-10-26

Milling Cutters, Collets, Reducing Bushings and Shanks for Becker Nos. 4B, 5C and 6 Vertical Milling Machines

(also Nos. 4, 5 and 5B and Models A and AB, B and C)

END AND SIDE MILLING CUTTERS—TAPER SHANK—HIGH SPEED STEEL



These cutters are threaded for drawbar and made with taper shank to fit direct to spindle of Nos. 4 and 4 B, 5, 5B and 5C and 6 BECKER Vertical Millers; also to Models A and AB, B and C.

They are regularly made and carried in stock in High Speed Steel but Carbon Steel can be supplied on order.

Nos. 4 and 4B Vertical—Models A and AB

No.	Diameter of Cutter Inches	Length Inches	Price
B-10	3/4	2	$10 25
B-11	3/4	2 1/2	11 00
B-12	13/16	2	11 00
B-14	7/8	2 1/2	11 75
B-16	1	2 1/4	11 75
B-17	1	2 3/4	12 25
B-20	1 1/8	3	13 75
B-21	1 3/16	3	13 75
B-22	1 1/4	2 3/4	13 75
B-23	1 1/4	3 1/4	14 75
B-24	1 3/8	3	14 75
B-26	1 1/2	3	16 50
B-27	1 1/2	3 1/2	17 25
B-28	1 3/4	3 1/2	19 50
B-29	2	2 1/2	20 75
B-30	2	5	28 50

NOTE: End and side mills made to order. Give diameter and length of cut desired with size of machine.

Nos. 5, 5B, 5C Vertical—Models B

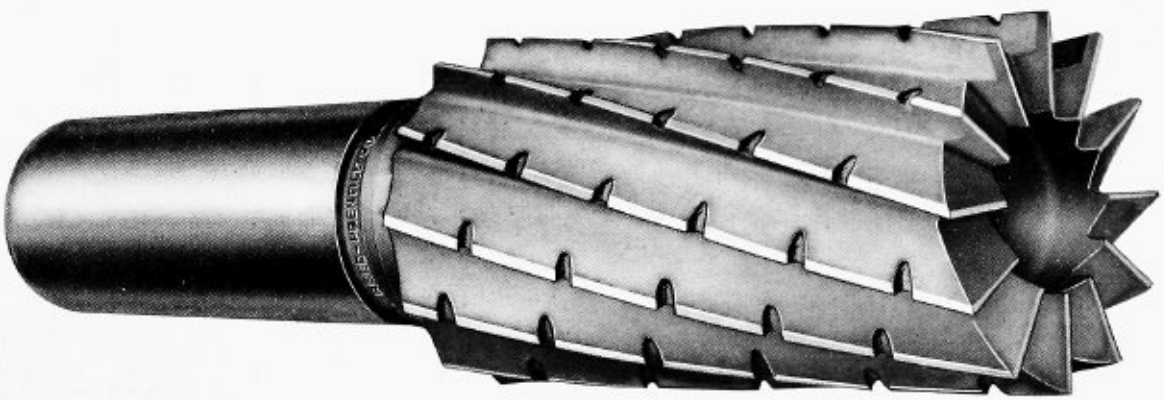
No.	Diameter of Cutter Inches	Length Inches	Price
B-33	3/4	2	$12 00
B-34S	3/4	3 1/4	13 00
B-36	7/8	2	12 00
B-40	1	2 3/4	13 25
B-43	1 1/8	3	14 00
B-45	1 1/4	2 3/4	14 25
B-46	1 1/4	3 1/4	16 25
B-48	1 1/2	2 1/2	17 00
B-49	1 1/2	3	17 50
B-50	1 1/2	3 1/2	18 50
B-51	1 3/4	3 1/2	20 75
B-52	2	2 1/2	22 00
B-53	2	5	30 50
B-54	2 1/2	3	32 50
B-55	2 1/2	6	44 00

NOTE: End and side mills made to order. Give diameter and length of cut desired with size of machine.

No. 6 Vertical—Models C

No.	Diameter of Cutter Inches	Length Inches	Price
B-57	1 1/4	3 1/4	$23 50
B-60	1 1/2	3	24 25
B-61	1 1/2	3 1/2	25 00
B-62	1 3/4	3 1/2	26 00
B-63	2	2 1/2	27 25
B-64	2	5	33 75
B-66	2 1/2	6	48 00

NOTE: End and side mills made to order. Give diameter and length of cut desired with size of machine.



End mills 2" diameter and larger are furnished with nicked teeth.

REDUCING BUSHING

to take Taper and No. 3 Collet Shank, also No. 3 Collet

(to be used with drawbar)

These bushings fit direct to spindle and make it possible to use end and side mills with taper shank smaller than those for which machine is designed, also No. 3 collet shank or No. 3 collet for straight shank cutters.

No.	Outside Taper B. & S.	Inside Taper B. & S.	No. of Machine Where Used	Price
H-20	13	No. 3 Collet	No. 6 Vertical and Model C	$6 00
H-21	13	10		6 00
H-22	13	11		6 00
H-23	13	12		6 00
H-27	11	No. 3 Collet	Nos. 5, 5B, 5C and Model B Vertical	4 50
H-28	11	10	No. 3 Plain and No. 3 Universal	4 50
H-29	10	No. 3 Collet	Nos. 4, 4B and Models A and AB Vertical, Nos. 1½ and 2 Plain, 1½ and 2 Universal	4 25
H-30	9	No. 3 Collet	Nos. 25, 26 and 4½ Plain, Large Hand, Miller.	3 50

SPRING COLLETS

(For Vertical Millers)

By the use of collet reducing bushings referred to in the above table the No. 3 spring collets can be used to hold following straight shank end mills and similar cutters of smaller diameters.

No. 3 collet is made in sizes to hold cutters from $\frac{1}{8}$" to $\frac{3}{4}$" advancing by $\frac{1}{16}$". Price, each $4.00

STRAIGHT SHANK CUTTERS

(To be used with No. 3 Spring Collet)

No.	Diameter of Cutter Inches	Length of Cutter Inches	Diameter of Shank Inches	Total Length Inches	Price each Carbon Steel	Price Each High Speed Steel
C-10	$\frac{1}{8}$	$\frac{1}{2}$	$\frac{5}{32}$	$1\frac{3}{4}$	$0 45	**$0 75**
C-11	$\frac{5}{32}$	$\frac{1}{2}$	$\frac{5}{32}$	$1\frac{3}{4}$	50	**80**
C-12	$\frac{3}{16}$	$\frac{3}{4}$	$\frac{3}{16}$	$1\frac{3}{4}$	55	**95**
C-13	$\frac{7}{32}$	$\frac{7}{8}$	$\frac{1}{4}$	2	60	**1 00**
C-14	$\frac{1}{4}$	$\frac{7}{8}$	$\frac{1}{4}$	2	65	**1 15**
C-15	$\frac{9}{32}$	$\frac{7}{8}$	$\frac{5}{16}$	2	70	**1 25**
C-16	$\frac{5}{16}$	$\frac{7}{8}$	$\frac{5}{16}$	2	80	**1 35**
C-17	$\frac{11}{32}$	$\frac{7}{8}$	$\frac{3}{8}$	2	85	**1 45**
C-18	$\frac{3}{8}$	$\frac{7}{8}$	$\frac{3}{8}$	2	90	**1 50**
C-19	$\frac{13}{32}$	$\frac{7}{8}$	$\frac{1}{2}$	2	95	**1 80**
C-20	$\frac{7}{16}$	$\frac{7}{8}$	$\frac{1}{2}$	2	1 25	**2 10**
C-21	$\frac{1}{2}$	$\frac{22}{32}$	$\frac{1}{2}$	2	1 60	**2 35**
C-22	$\frac{9}{16}$	$\frac{22}{32}$	$\frac{5}{8}$	2	1 90	**2 75**
C-23	$\frac{5}{8}$	$\frac{22}{32}$	$\frac{5}{8}$	2	1 90	**2 75**

Cutters up to and including $\frac{7}{16}$" are cut with straight flutes—above that size with spiral flutes.

END AND SIDE MILLING CUTTERS

(No. 3 Collet Shank)

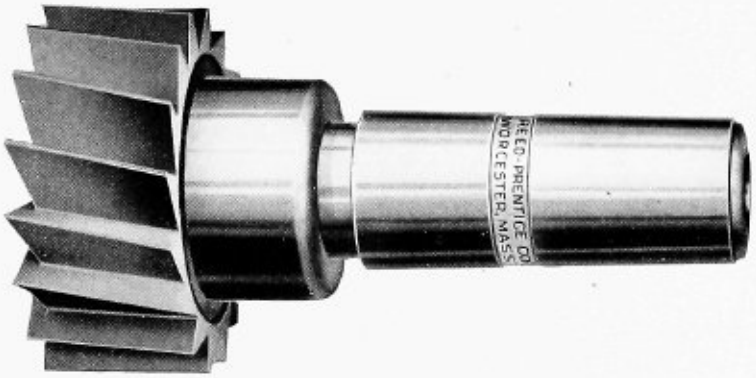
By the use of collet reducing bushings referred to on this page the following No. 3 collet shank cutters can be used.

No.	Diameter Inches	Length Inches	Price	
			Carbon Steel	High Speed Steel
B-158	$\frac{1}{2}$	$1\frac{1}{2}$	$4 80	**$9 75**
B-159	$\frac{9}{16}$	$1\frac{1}{2}$	4 80	**9 75**
B-160	$\frac{5}{8}$	$1\frac{3}{4}$	4 80	**9 75**
B-161	$\frac{11}{16}$	$1\frac{3}{4}$	4 80	**9 75**
B-162	$\frac{3}{4}$	$1\frac{1}{2}$	4 80	**9 75**
B-163	$\frac{3}{4}$	2	5 10	**10 25**
B-164	$\frac{13}{16}$	2	5 10	**10 25**
B-165	$\frac{7}{8}$	2	5 10	**10 25**
B-166	$\frac{7}{8}$	$2\frac{1}{2}$	5 40	**11 00**
B-167	$\frac{15}{16}$	$2\frac{1}{4}$	5 40	**11 00**
B-168	1	$2\frac{1}{4}$	5 40	**11 00**
B-169	1	$2\frac{3}{4}$	5 75	**11 75**
B-170	$1\frac{1}{16}$	$2\frac{3}{4}$	5 75	**11 75**
B-171	$1\frac{1}{8}$	$2\frac{1}{2}$	6 05	**12 25**
B-172	$1\frac{1}{8}$	3	6 40	**13 00**
B-174	$1\frac{1}{4}$	$2\frac{3}{4}$	6 40	**13 00**
B-175	$1\frac{1}{4}$	$3\frac{1}{4}$	7 15	**14 25**

FACE AND SIDE MILLS

HIGH SPEED STEEL

(Shanks not included in price)



These cutters are made with taper shanks to fit direct to spindles of Nos. 4, and 4B, 5, 5B and 5C, 6 and models A and AB, B and SB, C and CS Becker Vertical Millers. They can also be used on horizontal boring mills for face and side milling.

(Also made with No. 3 collet shank)

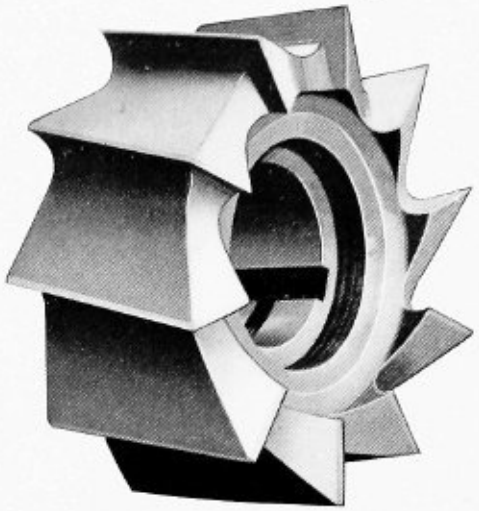
No.	Diameter of Cutter Inches	Face Inches	Hole Inches	Price
K–10	3	1½	1⅛	$13 75
K–11	3½	1½	1⅛	17 50
K–12	4	1½	1⅛	22 25
K–13	5	1½	1⅛	31 10
K–14	6	1½	1⅛	39 85

In ordering cutters with shanks give number of shank and machine for which required. To obtain price of cutter with shank add price of mill to that of shank.

HIGH POWER FACE AND SIDE MILLS

HIGH SPEED STEEL

(Shanks not included in price)

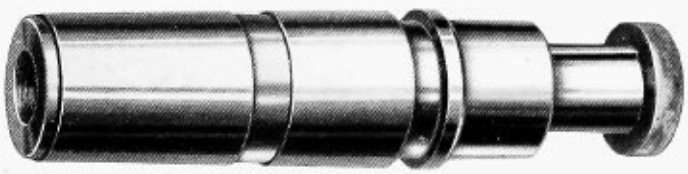


These cutters are made in coarse tooth pattern permitting the removal of a greater amount of metal. Teeth are spiral, widely spaced, with rake to take a large and deep chip with a shearing action. Like the standard type they are made with taper shanks to fit direct to spindle.

No.	Diameter of Cutter Inches	Width of Face Inches	Size of Hole Inches	Price Each
K–17	4	1¾	1½	$23 95
K–18	4½	1¾	1½	32 25
K–19	5½	1¾	1½	46 50

SHANKS

(For face and side and inserted tooth surface cutters)



These shanks are tapered to fit spindle and made to take the above face and side mills, also inserted tooth surface mills later described herein.

Shank	Machine	Diam.	Taper	Price
No. 3 Collet	No. 3 and larger Verticals by use of reducing bushings	*1⅛	Straight	$3 50
No. 4 Shank	Nos. 4, 4B Vertical, models A and AB	1⅛	No. 10 B. & S.	3 75
No. 5 Shank	Nos. 5, 5B, 5C Vertical, models B and SB	1⅛	No. 11 B. & S	4 00
No. 6 Shank	No. 6 Vertical, models C and CS	1⅛	No. 13 B. & S	4 25

* ¾" diameter with 3" Inserted Tooth Surface Mills.

Shanks and face and side mills made to order.

SHANKS

(For high power face and side and inserted tooth cutters)

Like the standard these shanks are tapered to fit spindle and made to take the above high power face and side mills. Similar shanks are used with inserted tooth face and side mills later described herein.

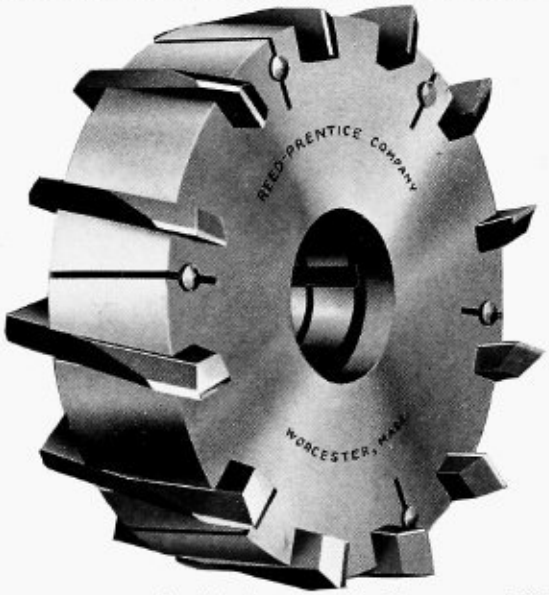
Shank	Machine	*Diam.	Taper	Price
No. 4 Shank	Nos. 4, 4B Vertical, models A and AB	1½	No. 10 B. & S.	$4 25
No. 5 Shank	Nos. 5, 5B and 5C, Vertical, models B	1½	No. 11 B. & S.	4 50
No. 6 Shank	No. 6 Vertical, models C	1½	No. 13 B. & S.	4 75

* 3" and 4" High Power Inserted Tooth Face and Side Mills take shanks ⅞ and 1⅛ diameter.

Shanks and high power face and side mills made to order.

INSERTED TOOTH SURFACE MILLS

HIGH SPEED STEEL (Shanks included in price)



These cutters are made with shanks to fit direct to spindle of Nos. 4, 4B, 5, 5B, 5C and 6 Becker Vertical Millers and models A and AB, B and C. Shanks for standard face and side mills, see page 3.

Nos. 4 and 4B Vertical—Models A and AB

No.	Diameter of Cutter Inches	Thickness of Body Inches	With No. 4 Shank B. & S. Taper No. 10 Price
I–10	*3	1¼	$12 50
I–11	4	1¼	17 00
I–12	5	1¼	20 00
I–13	6	1¼	23 00

Nos. 5, 5B, 5C Vertical—Model B

No.	Diameter of Cutter Inches	Thickness of Body Inches	With No. 5 Shank B. & S. Taper No. 11 Price
I–14	*3	1¼	$12 75
I–15	4	1¼	17 25
I–16	5	1¼	20 25
I–17	6	1¼	23 25

No. 6 Vertical—Model C

No.	Diameter of Cutter Inches	Thickness of Body Inches	With No. 6 Shank B. & S. Taper No. 13 Price
I–18	*3	1¼	$13 00
I–19	4	1¼	17 50
I–20	5	1¼	20 00
I–21	6	1¼	23 50

* Furnished with No. 3 Shank; price, $11.75. Regularly supplied with ¾" hole. All others supplied with 1⅛" hole. Price of Carbon Steel Teeth for above Mills, 30 cents each. High Speed Steel, $1.00 each.

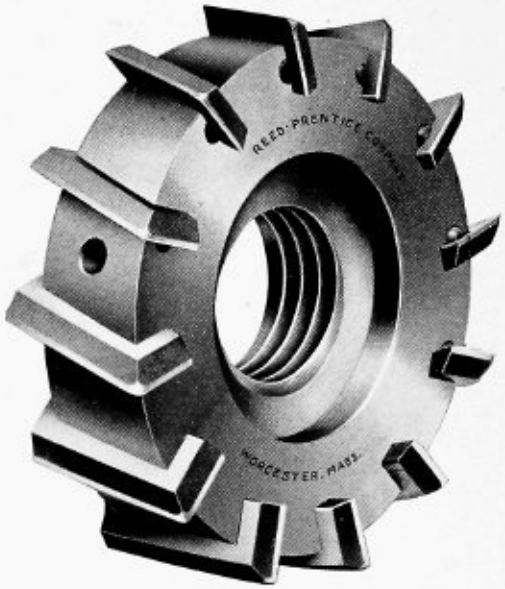
BEVEL AND DOVETAIL MILLS

These Mills, which can be made to any angle, are made solid from one piece of steel, and great care is exercised to supply the angle specified with the utmost accuracy. To obtain best results Cutters should be kept sharp.

In ordering Bevel Mill Cutters do not fail to specify the angle required. To obtain the angle for Bevel Mills, measurement should be taken from a line drawn lengthwise through the centre of the Mill. Prices on application.

HIGH POWER INSERTED TOOTH FACE AND SIDE MILLS

HIGH SPEED STEEL (Threaded to fit spindle)*



Plain and side milling cutters greater than 8" in diameter are recommended made with inserted teeth. Body is made of machinery steel and teeth regularly furnished of high speed steel fastened by pins and easily removable in case of breakage. Cutters are threaded direct to spindle nose and blades provided with liberal rake permitting heavy and fast cuts.

It is recommended that an extra set of blades be ordered with cutters of this type.

No.	Diameter Inches	Size of Blades Inches	Price Each	Extra Blades Price Each
I–29	3†	5/16 x 3/4 x 2	$35 00	$1 50
I–31	4†	5/16 x 7/8 x 2	37 75	1 50
I–32	5†	5/16 x 1 x 2	41 50	1 50
I–33	6†	3/8 x 1 1/16 x 2 1/8	44 00	1 50
I–34	8	3/8 x 1 1/16 x 2 1/8	52 00	1 50
I–35	10	3/8 x 1 3/16 x 2 5/8	61 50	2 00
I–36	12	3/8 x 1 3/16 x 2 5/8	80 00	2 00
I–37	14	3/8 x 1 3/16 x 2 5/8	97 50	2 00
I–38	‡16	3/8 x 1 3/16 x 2 5/8	114 00	2 00

* Nos. 4 and 4B, Models A and AB, 2¼", 8 threads per inch, "V" R. H. Nos. 5, 5B and 5C, Models B, 3", 3 threads per inch, (U. S. F.) R. H. No. 6, Model C, 3½", 3 threads per inch, (U. S. F.) R. H.

† Cutters 6" and under are furnished with straight holes 3", ⅞"; 4", 1⅛"; 5" and 6", 1½" diameter to be used with taper shank to fit spindle. Shanks for high power face and side mills, see page 3. In ordering above cutters be sure to give number of machine.

‡ Has cast-iron body.

MACHINE TOOLS

REED-PRENTICE CORP.

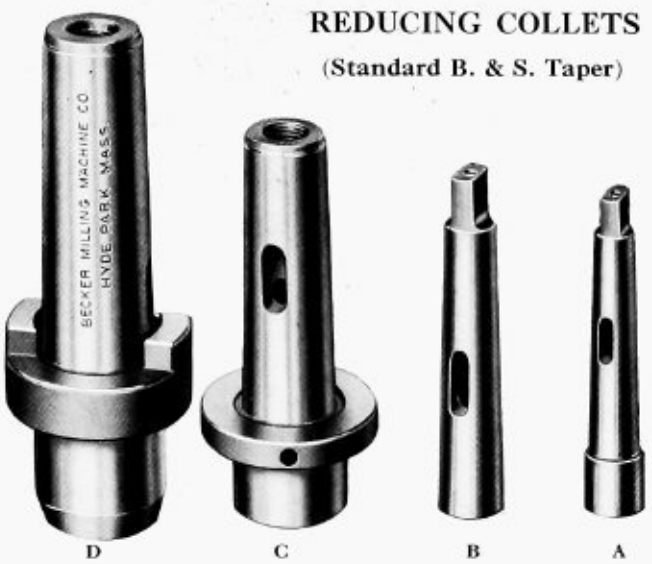
WORCESTER MASS., U.S.A.

THE DAVIS PRESS WORCESTER MASS. U.S.A. 3M 7-10-26

Reducing Collets, Arbors and Cutter Sets for use with Becker Milling Machines

REDUCING COLLETS

(Standard B. & S. Taper)

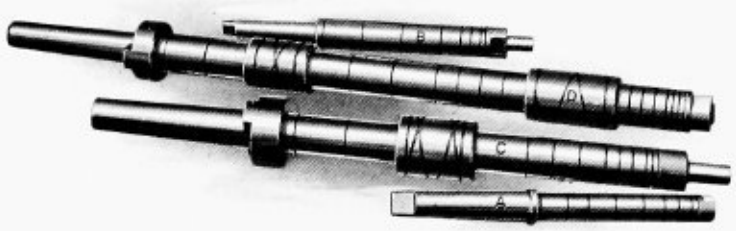


D C B A

No. of Collet	Style	Outside B. & S. Taper	Inside B. & S. Taper	Diameter of Threaded Hole Inches	Price
2	B	7	5	. . . . .	$5 00
3	A	9	5	. . . . .	5 50
5	A	10	5	. . . . .	7 25
6	A	10	7	. . . . .	7 50
7	A	10	9	. . . . .	8 00
8	C	10	5	5/8–16 R. H.	7 00
9	C	10	7	5/8–16 R. H.	8 00
10	C	10	9	5/8–16 R. H.	8 50
12	A	11	7	. . . . .	8 00
13	A	11	9	. . . . .	9 00
15	C	11	7	5/8–16 R. H.	9 00
16	C	11	9	5/8–16 R. H.	10 00
18	D	11	10	5/8–16 R. H.	11 00
19	C	13	9	3/4–12 R. H.	12 00
20	C	13	10	3/4–12 R. H.	14 00
23	D	13	11	3/4–12 R. H.	14 00
27	D	14	9	3/4–12 R. H.	15 00

Special collets made to order.

CUTTER ARBORS



The following cutter arbors have been adopted as standard for machines listed and are regularly carried in stock. Others to meet requirements can be made to order. Give size of machine and complete specifications of arbor.

No. of Arbor	Diam. of Arbor Inches	Length from Shoulder to nut, in.	No. of Taper	Style	No. of Machine Where Used	Price
2	7/8	8	9	B	Hand Mch.,4½,25-26 Pl.	$12 75
3	1	5	9	B	Hand Mch.,4½,25-26 Pl.	9 25
4	1	8	9	B	Hand Mch.,4½,25-26 Pl.	13 25
4A	1¼	8	9	B	Hand Mch.,4½,25-26 Pl.	14 00
7	7/8	12	10	C	No. 1½, 2 Universal	21 00
8	1	5	10	C	No. 1½, 2 Universal	12 00
10	1	12	10	C	No. 1½, 2 Universal	24 25
44	1	22¾	10	D	No. 7 Plain	33 00
45	1¼	22¾	10	D	No. 7 Plain	34 50
66	1½	22¾	10	D	No. 7 Plain	35 50
14	7/8	10	11	C	No. 3 Universal	19 50
20	1¼	10	11	C	No. 3 Universal	20 00
21	1¼	14	11	C	No. 3 Universal	25 00
53	1	23½	11	D	No. 3 Plain	34 00
56	1½	23½	11	D	No. 3 Plain	36 00

Prices include collars, bushings and nut.

Cutter Sets for Becker Nos. 2, 2A, 3, 4B, 5C and 6 Vertical Millers

Cutters in following lists are those which we have found by experience to be best suited for general requirements. Prices cover complete sets as listed and are *net* to customer.

SET NO. 2 (FOR No. 2)

One No. 2 Collet, 5/32″
One No. 2 Collet, 3/16″
One No. 2 Collet, 1/4″
One No. 2 Collet, 3/8″
One No. 2 Collet, 1/2″
Two End Mills, 3/8″ diameter, Straight Shank
Two End Mills, 1/2″ diameter, Straight Shank
Twelve Cutters, No. 1 to No. 11, 5/32″, Straight Shank
Twelve Cutters, No. 12 to No. 21, 3/16″, Straight Shank
Twelve Cutters, No. 22 to No. 30, 1/4″, Straight Shank
One Surface Mill No. 31, 3/8″, Straight Shank.
One Dovetail Mill No. 35, 3/8″, Straight Shank.

Carbon Steel $44.40
High Speed Steel $57.85

SET NO. 3 (for No. 2A)

One No. 2A Collet, 1/4″.
One No. 2A Collet, 3/8″.
Two End Mills, 1/4″ diameter, Straight Shank
Two End Mills, 3/8″ diameter, Straight Shank
One End Mill, 3/8″, x 1″, No. 2A Shank
One End Mill, 1/2″ x 1½″, No. 2A Shank
One End Mill, 3/4″ x 2″, No. 2A Shank
One End Mill, 7/8″ x 2¼″, No. 2A Shank
One End Mill, 1″ x 2¼″, No. 2A Shank
One Surface Mill No. 31, 3/8″ Straight Shank
One Dovetail Mill No. 35, 3/8″, Straight Shank

Carbon Steel $35.90
High Speed Steel $57.10

Cutter Sets

(See other side of this page for Sets Nos. 2 and 3)

SET NO. 4 (for No. 2A)

One No. 2A Collet, $\frac{5}{32}$".
One No. 2A Collet, $\frac{3}{16}$"
One No. 2A Collet, $\frac{1}{4}$"
One No. 2A Collet, $\frac{3}{8}$"
One No. 2A Collet, $\frac{1}{2}$"
Eleven Cutters, No. 1 to No. 11, $\frac{5}{32}$" Straight Shank
Ten Cutters, No. 12 to No. 21, $\frac{3}{16}$" Straight Shank
Nine Cutters, No. 22 to No. 30, $\frac{1}{4}$", Straight Shank
Two End Mills, $\frac{3}{8}$" diameter, Straight Shank
Two End Mills, $\frac{1}{2}$" diameter, Straight Shank
One Surface Mill No. 31, $\frac{3}{8}$", Straight Shank
One Dovetail Mill No. 35, $\frac{3}{8}$", Straight Shank
Carbon Steel $45.65
High Speed Steel $59.10

SET NO. 5 (for No. 3)

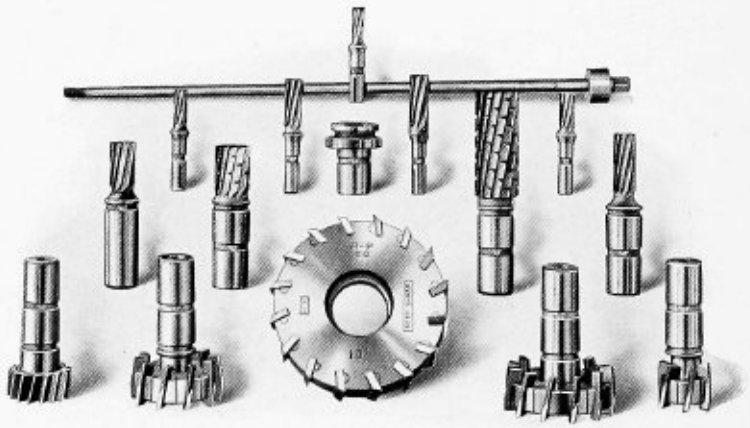
One No. 3 Collet, $\frac{1}{4}$"
One No. 3 Collet, $\frac{3}{8}$"
Two End Mills, $\frac{1}{4}$" diameter, Straight Shank
Two End Mills, $\frac{3}{8}$" diameter, Straight Shank
One Surface Mill No. 32, $\frac{3}{8}$", Straight Shank
One Dovetail Mill No. 35, $\frac{3}{8}$", Straight Shank
One Bevel Mill No. 37, $\frac{3}{8}$", Straight Shank
One End Mill, $\frac{1}{2}$" x $1\frac{1}{2}$", No. 3 Shank
One End Mill, $\frac{5}{8}$" x $1\frac{3}{4}$", No. 3 Shank
One End Mill, $\frac{3}{4}$" x 2", No. 3 Shank
One End Mill, $\frac{7}{8}$" x 2", No. 3 Shank
One End Mill, 1" x $2\frac{1}{4}$", No. 3 Shank
One End Mill, $1\frac{1}{4}$" x $2\frac{3}{4}$", No. 3 Shank
Carbon Steel $45.40
High Speed Steel $75.45

SET NO. 7 (for No. 4B)

One No. 3 Collet, $\frac{1}{4}$"
One No. 3 Collet, $\frac{3}{8}$"
One No. 3 Collet, $\frac{1}{2}$"
Two End Mills, $\frac{1}{4}$" diameter, Straight Shank
Two End Mills, $\frac{3}{8}$" diameter, Straight Shank
Two End Mills, $\frac{1}{2}$" diameter, Straight Shank
One End Mill, $\frac{1}{2}$" x $1\frac{1}{2}$", No. 3 Shank
One End Mill, $\frac{5}{8}$" x $1\frac{3}{4}$", No. 3 Shank
One End Mill, $\frac{3}{4}$" x 2", No. 3 Shank
One End Mill, $\frac{7}{8}$" x 2", No. 3 Shank
One End Mill, 1" x $2\frac{1}{4}$", No. 3 Shank
One End Mill, $1\frac{1}{4}$" x $3\frac{1}{4}$", No. 4 Shank
One End Mill, 2" x $2\frac{1}{2}$", No. 4 Shank
One Face and Side Mill, $3\frac{1}{2}$" x $1\frac{1}{2}$", No. 4 Shank
One Inserted Tooth Surface Mill, 6" diameter, Threaded to Nose of Spindle
Carbon Steel $96.30
High Speed Steel $142.15

SET NO. 19 (for No. 5C)

One Drawbar
One Bushing, No. 11 to No. 3 Collet
One End Mill, $\frac{1}{2}$" x $1\frac{1}{2}$", No. 3 Shank
One End Mill, $\frac{5}{8}$" x $1\frac{3}{4}$", No. 3 Shank
One End Mill, $\frac{3}{4}$" x 2", No. 3 Shank
One End Mill, $\frac{7}{8}$" x 2", No. 3 Shank
One End Mill, 1" x $2\frac{1}{4}$", No. 3 Shank
One End Mill, $1\frac{1}{4}$" x $2\frac{3}{4}$", No. 3 Shank
One End Mill, $1\frac{1}{4}$" x $3\frac{1}{4}$", No. 5 Shank
One End Mill, $1\frac{1}{2}$" x $3\frac{1}{2}$", No. 5 Shank
One End Mill, 2" x $2\frac{1}{2}$", No. 5 Shank
One End Mill, $2\frac{1}{2}$" x 6", No. 5 Shank
One Inserted Tooth Face Mill, 3" x $1\frac{1}{8}$", No. 5 Shank
One Inserted Tooth Face Mill, 5" x $1\frac{1}{8}$", No. 5 Shank
One Inserted Tooth Surface Mill, 8" diameter, Threaded to Nose of Spindle
High Speed Steel $209.30



SET NO. 20 (for No. 6, shown above)

One Drawbar
One Bushing, No. 13 to No. 3 Collet
One End Mill, $\frac{5}{8}$" x $1\frac{3}{4}$", No. 3 Shank
One End Mill, $\frac{3}{4}$" x 2", No. 3 Shank
One End Mill, $\frac{7}{8}$" x 2", No. 3 Shank
One End Mill, 1" x $2\frac{1}{4}$", No. 3 Shank
One End Mill, $1\frac{1}{4}$" x $2\frac{3}{4}$", No. 3 Shank
One End Mill, $1\frac{1}{4}$" x $3\frac{1}{4}$", No. 6 Shank
One End Mill, $1\frac{1}{2}$" x $3\frac{1}{2}$", No. 6 Shank
One End Mill, 2" x $2\frac{1}{2}$", No. 6 Shank
One End Mill, $2\frac{1}{2}$" x 6", No. 6 Shank
One Face and Side Milling Cutter, $3\frac{1}{2}$" x $1\frac{1}{2}$", No. 6 Shank
One Inserted Tooth Face Mill, 3" x $1\frac{1}{8}$", No. 6 Shank
One Inserted Tooth Face Mill, 5" x $1\frac{1}{8}$", No. 6 Shank
One Inserted Tooth Face Mill, 6" x $1\frac{1}{8}$", No. 6 Shank
One Inserted Tooth Surface Mill, 10" diameter, Threaded to Nose of Spindle
High Speed Steel $272.25

MACHINE TOOLS

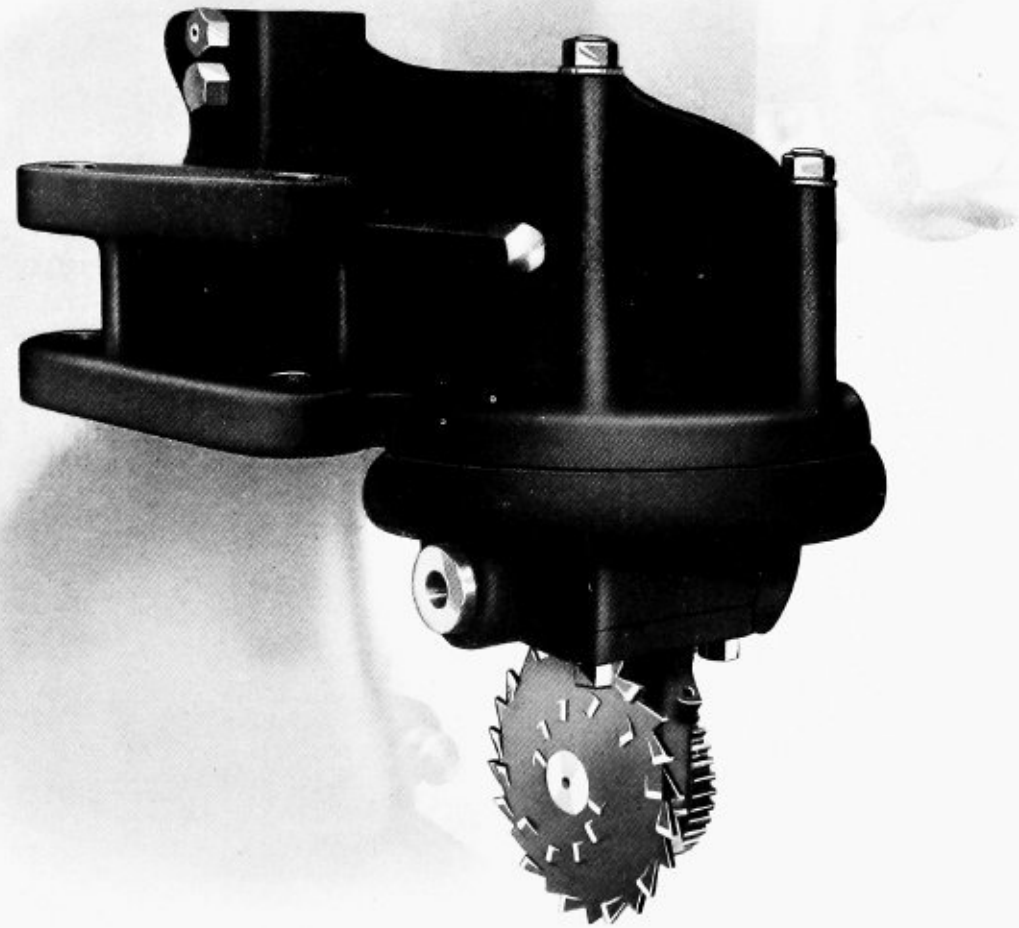
REED-PRENTICE CORP.

WORCESTER MASS., U.S.A.

THE DAVIS PRESS WORCESTER MASS. U.S.A. 3M. 7-10-26

Becker Combination Cherrying and Profiling Attachment

For Die Sinking on Becker Vertical Milling Machines



The Cherrying Attachment showing the improved Reed-Prentice cutter

REED-PRENTICE COMPANY
MACHINE TOOLS
WORCESTER MASS., U.S.A.

Circular 18-701-1

Becker Combination Cherrying and Profiling Attachment

This attachment is designed for use with the Nos. 5C and 6 Becker Milling Machines, primarily for the purpose of simplifying the operations required in the formation of complicated shapes, as in cutting profile and stencil work, in die sinking and other irregular recesses and projections in the large variety of work submitted to the milling machine.

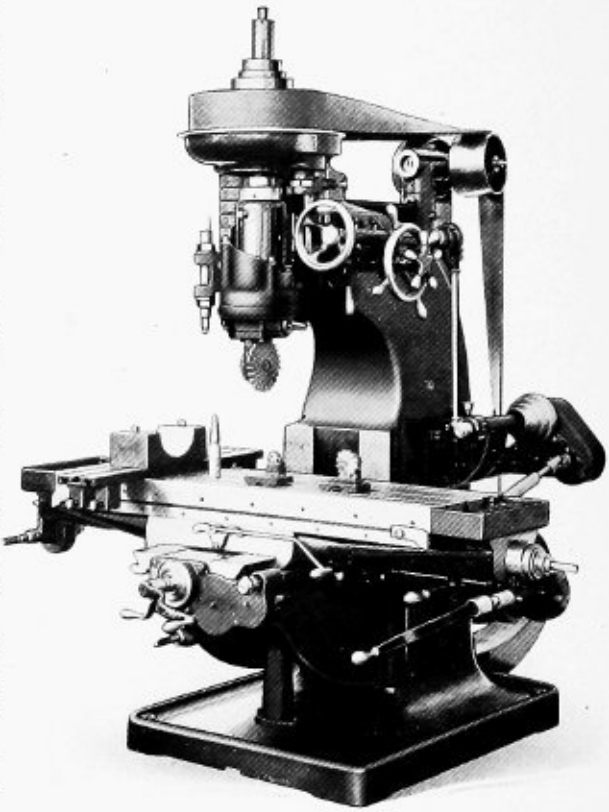
Having an attachment which may be used in connection with the Standard Vertical Milling Machines permits the using of such machines for a wide range of work, and thereby gives the user a unit which is flexible and invaluable.

It greatly reduces the length of time required to perform these operations, hence, materially effects a worthwhile saving in the actual labor costs and increases the production capacity of the machine for this particular type of work.

Besides, the principle on which it operates removes all guess work from the part of the operator and results in a much greater accuracy in the finished work.

With these advantages: simplifying the complicated work, reducing the time required and therefore the operating costs, also attaining greater production and accuracy in the work, the Becker Profiling and Cherrying Attachment fills a much needed want in the machine industry.

Because of the various uses for which this attachment is required, it has been arranged separately as a profiling attachment and a cherrying attachment or may be furnished as a combination of both.



Ideal for Die Sinking

Cherrying Attachment. The cherrying attachment consists of a head bracket, angular shaped so that it can be readily bolted to a lower portion of the spindle housing, and have the utmost rigidity.

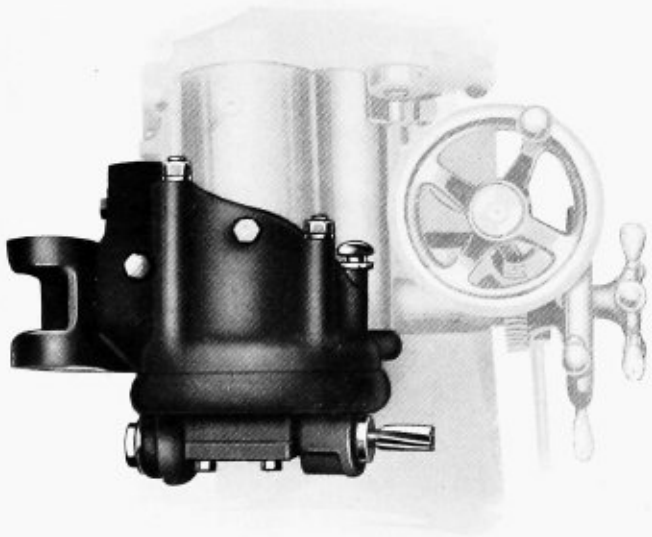
This is the only member of the attachment that is attached to the Milling Machine. It is located in such a position on the spindle head that upon removal of the lower units from the member the milling machine can be used for other work not requiring its use, without the attachment interfering.

The swivel plate is clamped to the bottom of the head bracket and carries a horizontal spindle with a spur pinion, cut integral. This spindle has a No. 7 B. & S. taper hole at one end, while mounted adjacent to the spur pinion inside of the swivel plate housing is a bevel pinion meshing with the bevel drive gear screwed on to the threads of the spindle nose of the standard machine.

The swivel plate is held to the head bracket by four T bolts, the heads of which fit into a circular T slot in the swivel plate. With this arrangement the swivel plate may be placed at any angle on a horizontal plane and clamped in position by the T bolt nuts at the top of the upright portion of the bracket.

The taper hole in the horizontal spindle provides for the use of an end mill for horizontal milling, and with the flexibility of the swivel plate permits the milling of surfaces that ordinarily would be very difficult to machine.

The cutter brackets are screwed and tongued into the lower portion of the swivel plate, and made in styles A and B, both being suitable for cutters ranging from 1″ to 7″ in diameter.



Simplifies Complicated Milling

Style A Cutter Bracket. This style of cutter bracket is used when the work being milled allows *ample clearance for the bracket and cutter.* The cutter mills with one side only and for milling in opposite directions the swivel plate may be swung 180° from its initial setting. The brackets are made of a T-shaped steel casting and carry a cutter spindle having a spur gear meshing with an intermediate driven from the swivel plate spindle. These brackets are made interchangeable with the swivel plate in five sizes for use with the cutters listed in the table. The standard attachment is

CUTTER BRACKET—STYLE A (Page 1)

Cutter Bracket	Bracket Boss	Range of Cutters
Style A, No. 1	$\frac{15}{16}$″ Dia.	*1″ to $1\frac{23}{32}$″ Dia.
Style A, No. 2	$1\frac{1}{4}$″ Dia.	$1\frac{3}{4}$″ to $2\frac{11}{32}$″ Dia.
Style A, No. 3	$1\frac{7}{8}$″ Dia.	$2\frac{3}{8}$″ to $3\frac{11}{32}$″ Dia.
Style A, No. 4	$2\frac{7}{8}$″ Dia.	$3\frac{3}{8}$″ to $4\frac{31}{32}$″ Dia.
Style A, No. 5	4″ Dia.	5″ to 7″ Dia.

*This range furnished with straight radial teeth nicked to break chip.

regularly furnished with one cutter bracket and cutter, the size of which may be specified from the table by the customer. Additional cutter brackets and cutters may be obtained at a nominal charge.

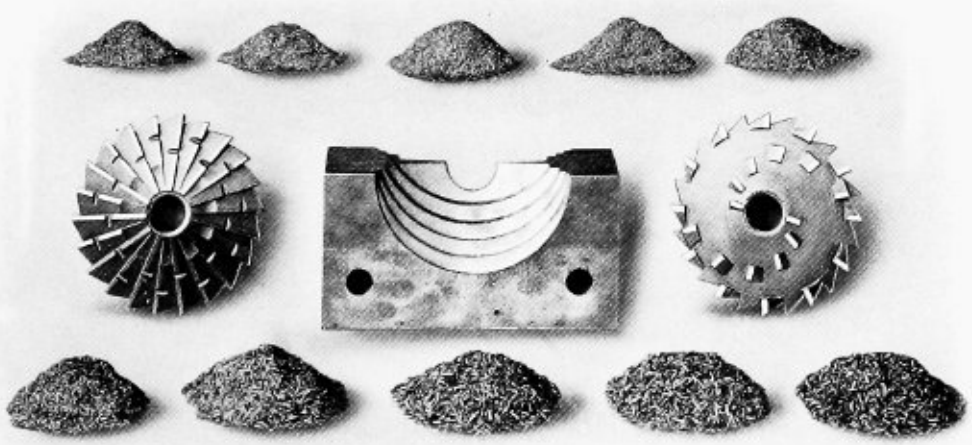
Style B Cutter Bracket. In cases where it is necessary to sink a cutter one-half its depth into narrow cavities, the style B cutter bracket is required. This consists of two dovetail slides controlled by collar head screws and made with projecting pilots that fit into a plain hole in the cutter. A specially designed cutter is used as the drive takes place from an intermediate gear meshing with the teeth on the periphery. The cutting teeth are made with sufficient clearance so that any chips lodging will not interfere with the free meshing of the intermediate gear. There are also two sets of overlapping teeth on both sides of the cutter that unwind themselves spirally from the center to the outside of the cutter.

CUTTER BRACKET—STYLE B (Opposite)

Cutter Bracket	Centers	Range of Cutters
Style B 1	No. 1	1″ to $2\frac{53}{64}$″ Dia.
Style B 2	No. 2	$2\frac{3}{4}$″ to $3\frac{31}{32}$″ Dia.
Style B 2	No. 3	4″ to $5\frac{31}{32}$″ Dia.
Style B 2	No. 4	6″ to 7″ Dia.

With this style, two cutter brackets with four set of interchangeable centers are used for the cutters listed in the table.

For sinking cutters one-half their diameter into dies



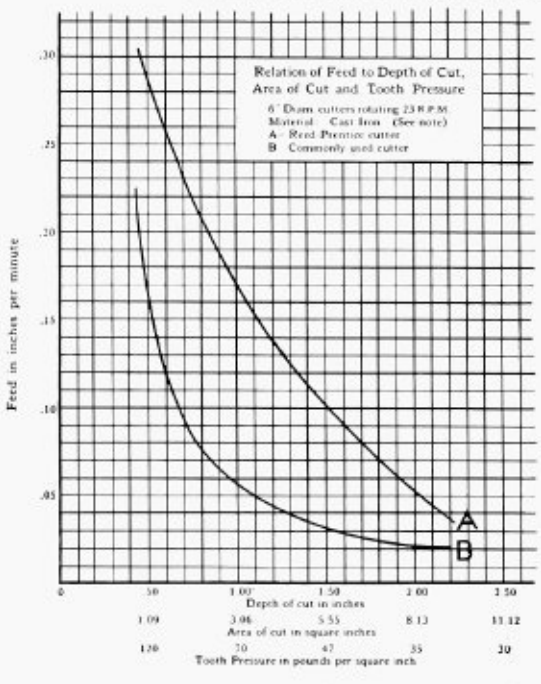
The Reed-Prentice Improved Cutter (right) reduces cutting time to one-third

Cherrying Cutters. Much time and effort have been given in obtaining an efficient cutter for die sinking and have resulted in the developing of a cutter far superior to any used in this class of work. There are two types of cutters here illustrated, the one on the left being the type most commonly used and the one on the right, the new developed Reed Prentice cutter having intermittent teeth on the periphery, and two sets of overlapping teeth unwinding themselves spirally from the center to the outside of the cutter in 180 degrees. This arrangement of teeth gives a large amount of chip clearance and a cutting action which is clean and breaks the cut into small chips, thus producing a smooth surface, free from chatter.

It is very interesting to compare the chips obtained from the two types of 6″ cutters. The chips shown were made during a test in which five series of cuts were taken, ranging from 2.250″ to .450″ in depth. The upper row of chips were produced by the standard type of cutter and the lower row by the improved type.

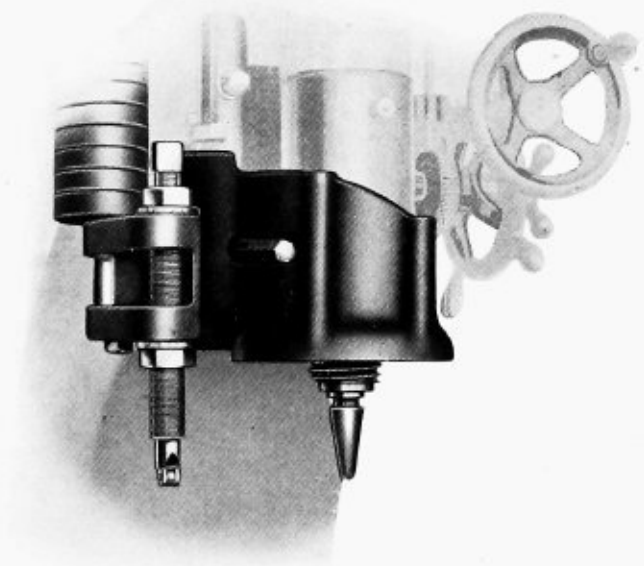
To bring this out more clearly, curves of the two types of cutters were prepared showing the relation between both the area and depth of cut and the tooth pressure to the feed. The upper curve, A, represents the Reed Prentice cutter and the lower one, B, the commonly used cutter. From these it may readily be seen that the Reed Prentice cutter approximates a straight line, indicating that the feed decreased nearly directly proportional to the increase of the depth and area of the cut. With the cutter, B, the feed drops very rapidly at first and then becomes fairly constant as the high values of depth of cut are approached. At the deeper cuts, the Reed Prentice cutter has a decidedly high productive value, as the feed relation between the cutters is approximately three to one.

These cutters are made of either high speed or tool steel, and are regularly furnished with the side of the cutter 7° from the vertical. Style A cutters have threaded holes and style B straight holes.



Note: Altho test was made in C. I., the same holds true in steel.

Profiling Attachment



Indespensible for Profiling

The head bracket used with the cherrying attachment forms the main portion of the profiling attachment. The forming bar is held by a projection on the bracket, and carefully aligned with the milling machine spindle. It can be adjusted vertically to suit the depths of cut to be taken, and the roll on the lower end is made the same size as the end of the cutter. An exact duplication of the pattern over which the roll travels is, therefore, cut into the work.

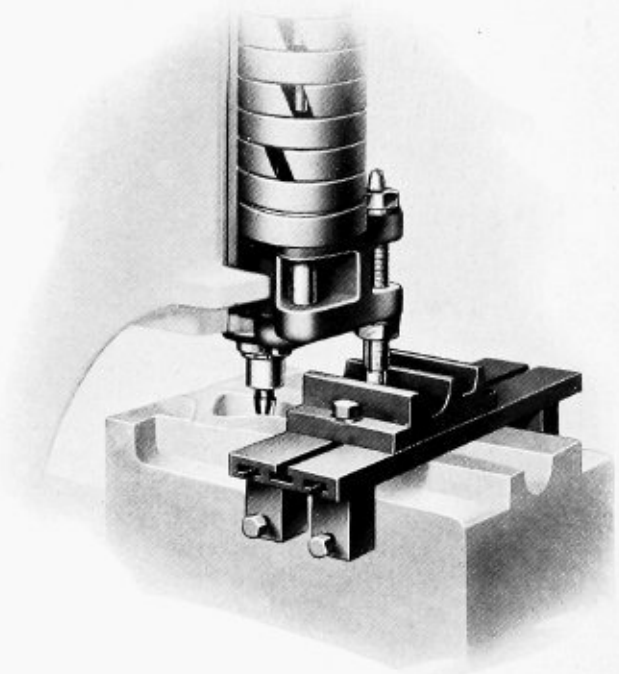
Ten 10-pound counterbalance weights are furnished for counter balancing the spindle. A rubber disc placed between the frame and weights absorbs the vibration and with the angular slots in the weights prevents their displacement. This makes a very sensitive construction for producing accurate work.

In setting the forming bar and the cutter in position, the same relation exists between their heights and the level of the table, as between the top of the work being milled, so that the correct depth of cut can be obtained.

The pattern or template which directs the movement of the milling machine head and the cutters is rigidly bolted to a supporting plate clamped to the piece of work being milled, or where possible, direct to the milling machine table. The illustration shows a template supporting plate furnished for this purpose. This plate has T-slots running lengthwise on its upper surface, to which the template block is clamped, and on the under side are two T-slots in which the four clamping blocks slide. Transverse recesses on the under side of this plate permit the T-headed clamping block to be screwed against the longitudinal movement when the clamping screws are tightened to the work, or to the milling machine table.

This profiling attachment also proves itself valuable in the milling of forming rolls, as are used for the rolling of axles, knives, and such.

Profiling Cutters. Profiling cutters are made with a shank to fit the taper hole of the milling machine spindle and the cutting surfaces have two specially formed lips designed for most severe uses. Ample chip clearance is provided and the properly shaped cutting angles give a clean cutting action and a smooth finish to the work. As these cutters vary in shape with each class of work, it has seemed most advisable to furnish them only upon application to suit customers' requirements.



An accurate method of reproduction

STANDARD EQUIPMENT

Cherrying Attachment. Head bracket; swivel plate; one cherrying cutter, (size optional); one style A cutter bracket, (size to suit cutter).

Profiling Attachment. Head bracket; ten counterbalance weights; forming bar with $\frac{3}{4}$" roll; former plate complete with clamps.

Combination Profiling and Cherrying Attachment. Head bracket; swivel plate; one cherrying cutter (size optional); one style A cutter bracket (size to suit cutter); ten counterbalance weights; forming bar with $\frac{3}{4}$" roll; former plate with clamps.

SPECIAL EQUIPMENT

Additional style A cutter brackets and cutters; style B cutter bracket with one cutter (size optional) and one set of centers (size to suit cutters); additional centers and cutters; profile cutters.

Maximum Distance Between Center of Cutter and Milling Machine Table

Style A Cutter Bracket	Milling Machine No. 5C	Milling Machine No. 6	Style B Cutter Bracket	Milling Machine No. 5C	Milling Machine No. 6
No. 1 Bracket	$16\frac{7}{8}$"	$25\frac{7}{8}$"	No. 1 Centers	$16\frac{13}{16}$"	$25\frac{13}{16}$"
No. 2 Bracket	$16\frac{7}{8}$"	$25\frac{7}{8}$"	No. 2 Centers	16"	25"
No. 3 Bracket	$16\frac{7}{8}$"	$25\frac{7}{8}$"	No. 3 Centers	$15\frac{3}{16}$"	$24\frac{3}{16}$"
No. 4 Bracket	$15\frac{13}{16}$"	$24\frac{13}{16}$"	No. 4 Centers	$14\frac{9}{16}$"	$23\frac{9}{16}$"
No. 5 Bracket	$15\frac{3}{4}$"	$24\frac{3}{4}$"			

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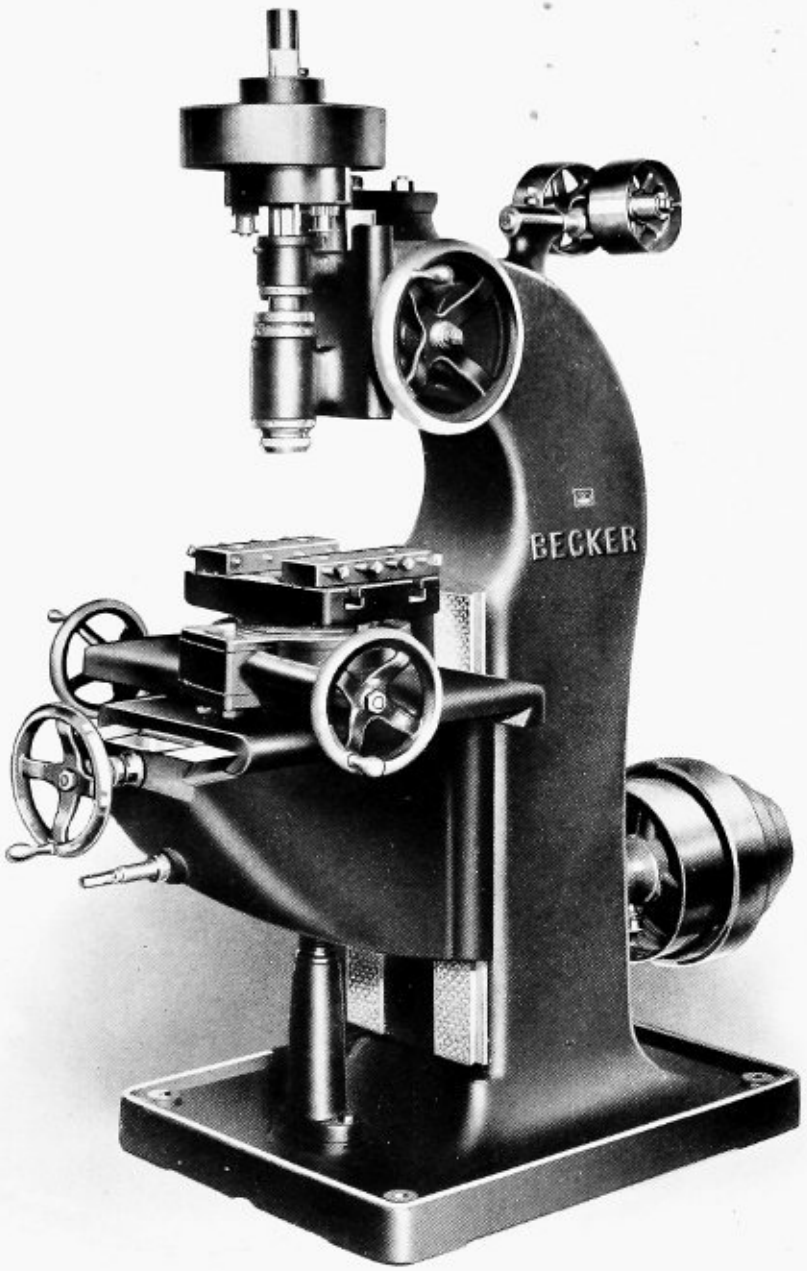

BECKER
No. 4
Die Sinker

SPECIFICATIONS

Longitudinal feed	14″	Ratio of back gears	4.82 to 1
Cross feed	14″	Spindle: Taper hole, No. 10 B. & S., Nose 2¼″, 8 Pitch, R. H.-U. S. Form, Hole through spindle	13/16″
Vertical feed of knee	19″	Spindle pulley	12 3/8″
Head travel	5″	Spindle driving pulley	12″
Maximum distance between spindle and table	18″	Width of driving belt	2¾″
Maximum distance between spindle and frame	15″	Diameter of countershaft pulley	14″ and 10″
Table, Working surface	13⅛″ x 19⅛″	Speed of countershaft, R. P. M.	100 and 400
Has 2 T-slots, width	13/16″	Floor Space, Length x width	59″ x 60″
Vise jaws, length by height	9″ x 1½″	Weight, net	2440 lbs.
Maximum opening of vise jaws	7″	Weight, boxed	3010 lbs.
Length of carriage	30″	Cubic feet	162
Dia. and length of main spindle bearing	2⅛″ x 6¼″	Code, Cone Drive	Die
Number of spindle speeds	12	Constant Speed Drive	Diebox
Range of spindle speeds, R. P. M.	11.5 to 686		

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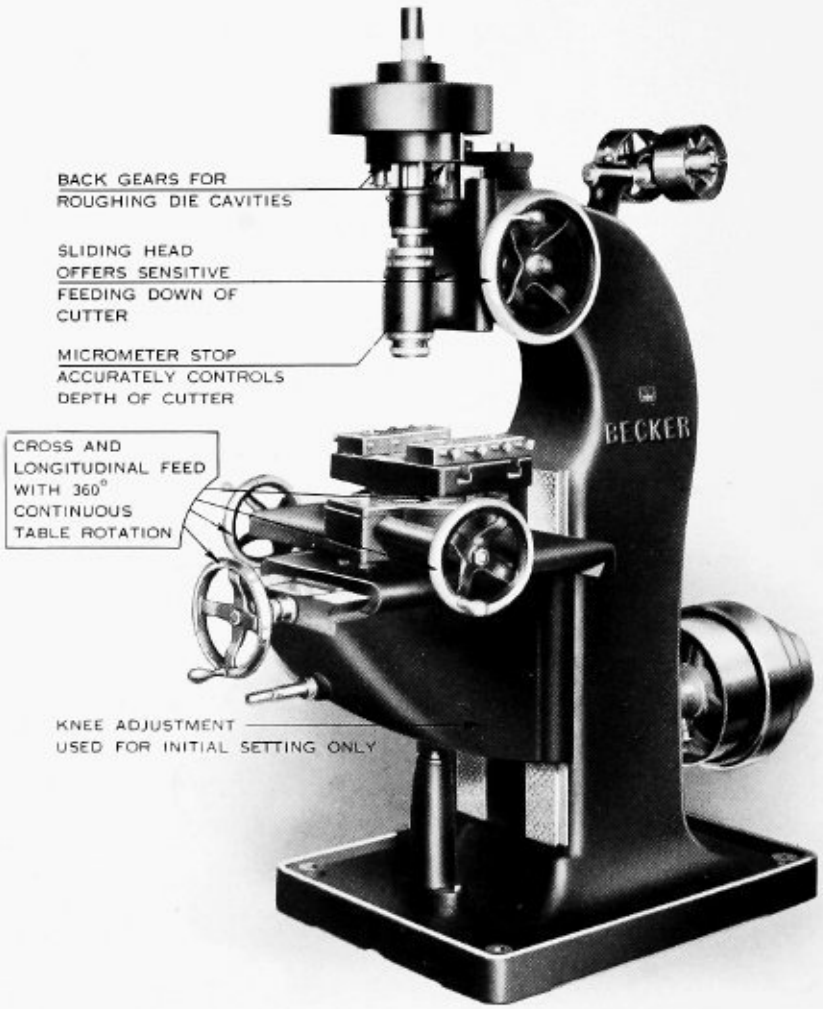
REED-PRENTICE MACHINE TOOLS

Becker No. 4 Die Sinker

For sinking forging dies these machines lend themselves most admirably to the requirements of forging plants. The capacity and rigidity provides for the handling of a large range of work. The vertical movement of the head permits an extremely sensitive feeding down of the cutter into the work, thus eliminating the necessity of raising and lowering the knee with heavy die blocks as presented by machines having stationary heads. In addition, the head is arranged with a micrometer adjustment for accurately controlling the depth of the cutter.

Special attention has been given to the spindle. It is made of a high grade steel with the journals hardened and ground, and runs in taper bronze bearings with adjustable collars for taking up the wear. The back gears located directly on the spindle furnish a powerful drive for roughing operations. The vertical movement of the spindle is controlled by a hand feed, while the cutters, arbors, and collets are secured by a draw bar passing through a hole in the spindle. The nose of the spindle is threaded for securing large surface mills or chucks.

The belt pressure on the spindle driving pulley is taken by an auxiliary bearing supported with an adjustable bracket at the top of the column. With this construction the strain of the belt pressure is not carried by the spindle.



The table is of liberal proportion, arranged with two T-slots travelling its entire length, and the two removable vise jaws clamped to the table provide for a simple means of holding the work. It is also equipped with a rotary mechanism so that it can be continually rotated 360° by a hand wheel conveniently located at the front of the machine. The circular dial just below the table is graduated to 360°.

The saddle has a wide center bearing on the knee and supports the table far beyond its full working surface. This unit is arranged with a hand cross-feed, while the carriage supporting the table is equipped with a hand longitudinal feed. The raising and lowering of the knee is accomplished by a screw located at the front of the knee and using the same handle as the cross-feed. Both of these screws are equipped with a hand wheel.

A quarter-inch collet is furnished as part of the standard equipment. Extra collets can be supplied in sizes ranging from $\frac{1}{8}$" to $\frac{1}{2}$" by $\frac{1}{16}$" increments.

This machine is regularly equipped with a cone pulley drive, but may be furnished with a constant speed single pulley gear box drive allowing the machine to be driven from a main line without the use of a countershaft. The gear box has seven speed changes and with the back gears located on the head gives fourteen spindle speeds.

The machine can also be arranged with constant and adjustable speed motor drives illustrated and described in the Becker No. 4B Vertical Milling Machine circular.

Standard Equipment. Cone drive, single friction countershaft, two vise jaws, two drawbars, one $\frac{1}{4}$" collet, one reducing bushing, hand wheel on cross slide and knee adjustment, micrometer stop on head, and all the necessary wrenches.

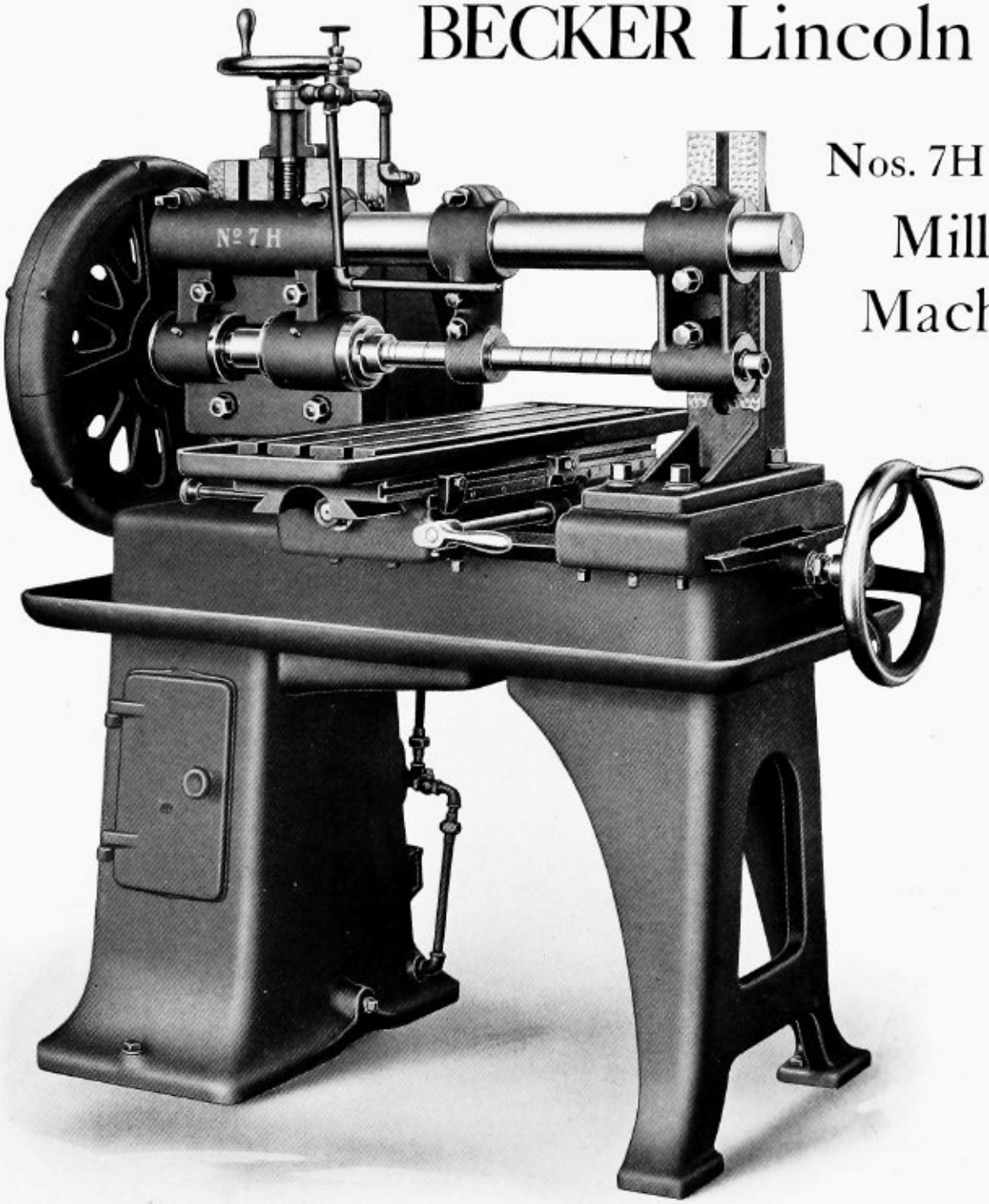
Additional Equipment. Single pulley gear box drive, $2\frac{3}{4}$" double driving belt, oil pump and piping.

THE DAVIS PRESS WORCESTER MASS. U.S.A.—3M-2-25-24.

"The Machine That Gives the Smooth Finish"

BECKER Lincoln Type

Nos. 7H & 7HS Milling Machines



REED-PRENTICE COMPANY

MACHINE TOOLS

WORCESTER MASS., U.S.A.

Circular 18-2201-1

REED-PRENTICE MACHINE TOOLS

Specifications—Nos. 7H and 7HS

	7H	7HS
RANGE:		
Longitudinal feed (power)	19½″	36″
Cross feed	7″	6″
Vertical adjustment of spindle	9″	9″
Maximum distance between spindle and arbor bushing	19″	19″
Maximum distance between center of spindle and top of table	9½″	9½″
Maximum distance between center of spindle and bottom of arm	5⅛″	5⅛″
TABLE:		
Working surface	9″ x 29″	11″ x 40″
Size overall	11⅝″ x 38″	13⅝″ x 48″
Has 3 T slots, ⅝″ wide.		
Length of carriage	28½″	43½″
Number of feeds per spindle speed	8	8
Longitudinal feed per revolution of spindle	.018″ to .1892″	.018″ to .1892″
Longitudinal feed per minute	.293″ to 7.45″	.293″ to 7.45″
Improved saddle permits rigid locking with knee.		
Feed gear mechanism is fully protected by gear case.		
SPINDLE:		
Diameter of main bearing	2½″	2½″
Length of main bearing	6¼″	6¼″
Number of spindle speeds	4	4
Range of spindle speeds	35 to 85 R. P. M.	35 to 85 R. P. M.
Ratio of back gears	6.5 to 1	6.5 to 1
Taper hole No. 10 B. & S. Taper.		
Spindle is provided with automatic feed and quick return hand wheel, also micrometer stop gauge which accurately controls depth of cut. Main bearing is unusually long and bushed with hard bronze. The back gears are fully enclosed.		
PULLEYS:		
Diameter of countershaft pulleys double friction	10″ and 14″	10″ and 14″
Speed of countershaft	400 R. P. M.	230 R. P. M.
Belt pull is taken up by an adjustable auxiliary bearing		
FLOOR SPACE:		
Length x width x height	61½ x 58″ x 63″	61½″ x 84″ x 63″
WEIGHTS AND SHIPPING DIMENSIONS:		
Machine, net about	2400 lbs.	2500 lbs.
Machine, boxed for ocean shipment, about	3120 lbs.	3280 lbs.
Contents, boxed (length x width x height)	63″ x 44″ x 67″	63″ x 54″ x 67″

STANDARD EQUIPMENT:

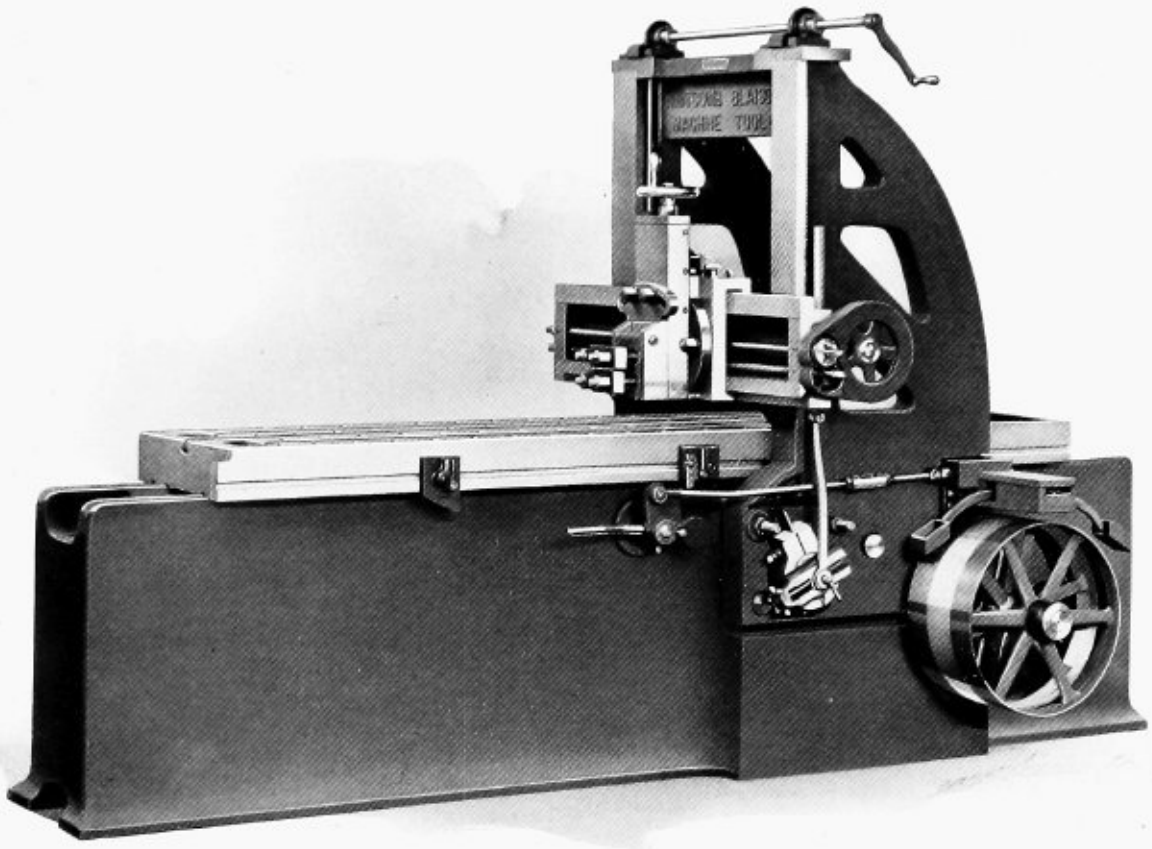
Regular: Wrenches, hand wheel, double friction countershaft.

Special Equipment: 6″ flat vise.
Oil pump and connection.
Back gears of other ratios than specified.
Driving and feed belts.

CODE WORDS:		
Quick Return and Cabinet Leg	Amod	Eser

THE DAVIS PRESS WORCESTER MASS. U.S.A. 1M 1-20-26

The Whitcomb
24-Inch Second-Belt Drive Planer



The Standard Machine with one head or cross-rail

SPECIFICATIONS

Width between housings	24½"
Height under cross-rail—maximum	24½"
Length of table—(standard machine)	6′
Width of table	21¼"
Length of bed, 6 foot table	9′ 7"
Length of down feed	11¾"
Minimum distance between centers of tool blocks	6½"
Face of housings, width	4⅛"
Height of table above floor	32½"
Depth of cross-rail	10"
Thickness of cross-rail at housings	3½"

Table Rack, width, thickness, pitch	4¼" x 1¼" x 4" dp.
Width of driving belts	1¾"
Countershaft pulleys, diameter	10" x 4¼"
Countershaft speed—45 feet cutting speed	434 R. P. M.
Horsepower required	5 to 7½
Floor space	
Length including table travel	15′
Width	5′ 1"
Height over all	6′ 5"
Weight, 6 foot table	6600 lbs.
Weight, per foot extra	600 lbs.

MACHINE TOOLS

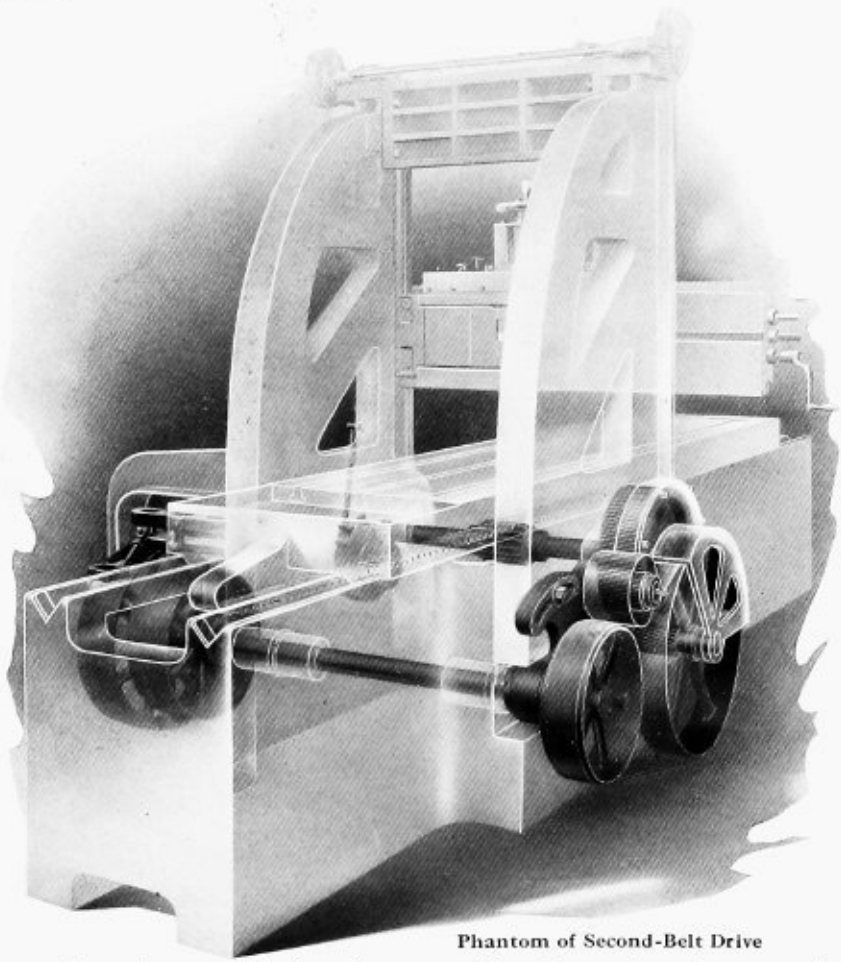
REED-PRENTICE COMPANY

WORCESTER MASS., U. S. A.

REED-PRENTICE MACHINE TOOLS

Whitcomb 24-Inch Second-Belt Drive Planer

WHITCOMB Second-belt Drive Planers are the result of more than sixty years study in the design and manufacture of metal planers. This experience has enabled the producing of planers noted for their rigidity, durability, simplicity of design, smoothness of action, power and high cutting speed. The construction is from new patterns of improved design throughout and well proportioned, extra heavy, adapted for both heavy and light work.



Phantom of Second-Belt Drive

Each planer is fully tested for accuracy and made to do actual work before leaving the factory. These have the inspectors' approval only after thorough demonstration of perfect action and ability to cut smooth, accurate work of the finest kind.

Bed. The bed is of a heavy box section of great width, having a bearing full length on the floor. Heavy box girders at frequent intervals tie the walls securely together. The tracks are of extra width, V-shaped, having proper provision for self-oiling, and are carefully fitted by scraping.

Table. The table is made extra heavy, of unusual width and thickness and is braced at short intervals with heavy ribs to guard against any possibility of springing. T-slots are planed from the solid metal, the center T-slot extending the full length of table beyond the chip pockets. Protecting ledges on the under side of table prevent chips from dropping through the holes into the tracks. Generous chip pockets are also provided at both ends of table.

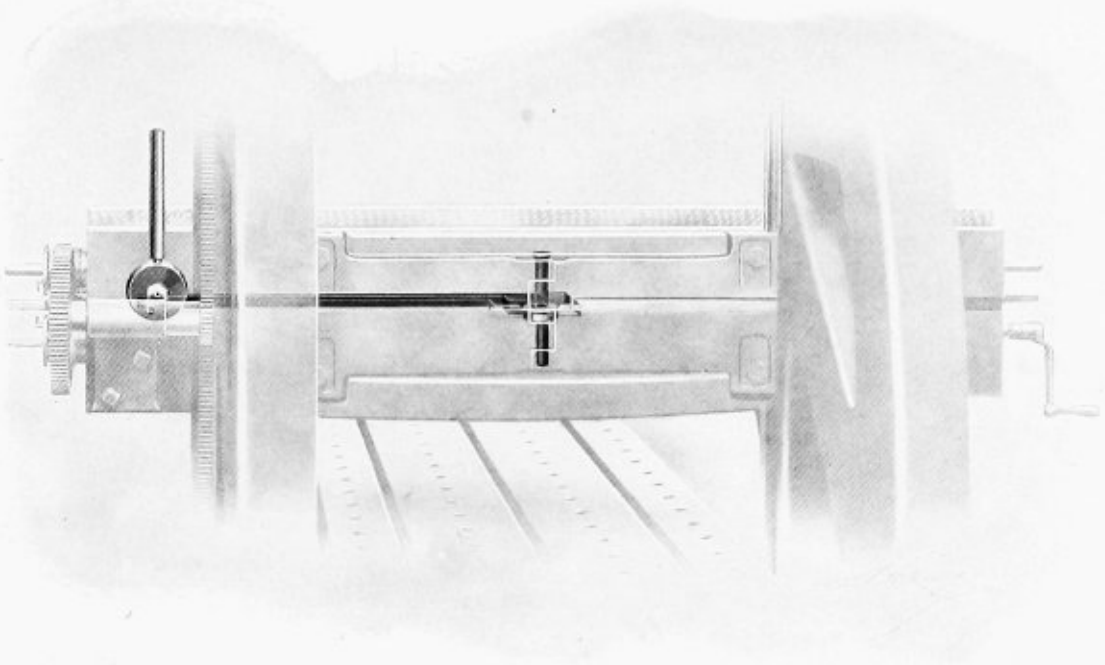
Oiling the Tracks. Provision is made for lubricating the tracks of the bed by a simple oil leveling system, each track being fitted with a series of automatic oil rollers. They keep the tracks throughly lubricated and are easily removed for cleaning the pockets.

Housings. The housings are of box form, deep, heavy and stiff, strongly bolted to bed and rigidly connected together at the top by a heavy rail of deep section, insuring rigidity when the cross-rail is at its highest position.

Second-Belt Drive. The machine is designed with a special drive known as the patented Second-belt Drive by means of which a number of gears under the bed are eliminated. This gives a more direct drive to the table and reduces the shocks and jars at the reversal of the table by means of the cushion effect of the second belt. The driving shaft runs clear through the bed. On one end are the tight and loose pulleys and on the other end is the Second-belt Pulley. The Second-belt Pulley is belted to a larger pulley which carries a spiral pinion meshing with a large spiral gear mounted on the table driving shaft. Rack pinion driving the table is integral with this shaft—shaft and pinion being cut from a single forging. Power is conveyed between the two pulleys by means of an endless double belt known as the second-belt which is kept taut by an adjustable idler pulley, as shown in illustration. This form of drive not only delivers considerable power, but assists greatly in turning out smooth, finely finished work, and also actually prolongs the life of the entire machine.

Belt-Shifting Mechanism. The shifting mechanism shifts the belts very quickly and noiselessly, moving the working belt entirely off the tight pulley before starting to move the other on. It is of very simple construction, producing all the good results of any cam shifter, and avoiding the complications commonly found in planer belt-shifting mechanisms. Adjustments are provided which keep the belts in their proper positions at all times. Shifting levers can be operated from both front and rear of planer, by which the operator can control the motion of the table without walking around the planer.

A safety-locking device is provided which positively locks the entire shifting mechanism, preventing the planer table from starting accidentally.



A simple patented Cross-Rail Binder.

Aluminum Pulleys. Drive pulleys, also second-belt pulleys are made of a special aluminum alloy which greatly reduces their weight and consequent inertia, thereby reducing the horse power required to drive the planer. Repeated tests show that planers equipped in this way reverse much more quickly and smoothly with less slipping of the belts than when equipped with cast iron pulleys.

Patented Cross-Rail Binder. This binder saves considerable of the operator's time and is so constructed that the rail can be locked to the housing by the simple movement of a lever without the use of wrenches or moving from the operating side of the planer. The attachment consists of a powerful compound lever clamp hinged together in the center forming a toggle joint. The outside ends of the clamp form the nuts for the elevating screws, while the cross-rail is fastened to the clamp. The simple operation of the lever forces the toggle joint from the cross-rail, thereby pinching the inside of the housing places between the cross-rail and toggle levers with enormous force. This action clamps the rail positively to the housing.

Cross-Rail and Double Heads. The cross-rail is made heavy and deep, having an extra deep rib at the back, giving additional stiffness. It is accurately scraped to straight edges and surface plates, and fitted at the back to bearings on housings of planer. When double heads are used the cross-rail is made of such length as to allow either head to be run entirely out of the way, allowing the other head to plane the full width of machine.

Rail heads are graduated to swivel through an angle of 180 degrees, having automatic feeds in all directions, and can be operated from either side of the planer. When using two heads on the cross-rail, they are made right and left hand, allowing the cutting tools to come very close together.

The heads are carefully scraped and fitted to the cross-rail, the end of the tool blocks and slide being beveled to avoid interference, when heads are set for angular work.

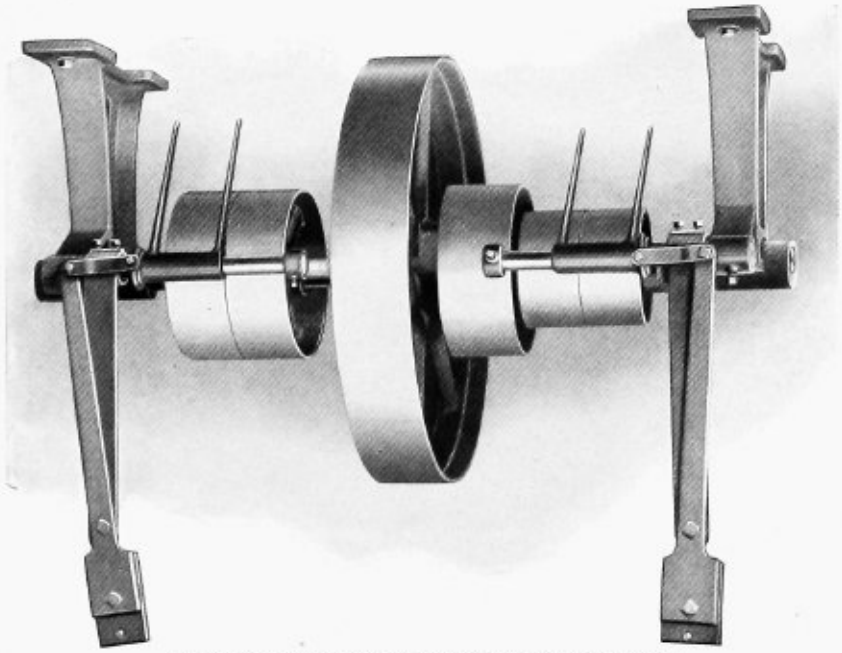
Power Elevating Device. This is a very simple device and is an improvement over the ordinary type power elevating devices inasmuch as it is running only when in use. It is operated by a lever conveniently located on the operator's side of the machine, by which the cross-rail may be raised or lowered at will, according to the position in which the lever is thrown.

Feed Gear. The patented feed gear is of an improved design, having all of the pawl and spring mechanism enclosed, making a very compact and self-contained feed mechanism. The construction of the gear is such that in removing it from the feed rod or screw, all parts remain assembled.

Patented Self-Locking Shipper Dogs. No wrenches are required for shifting the shipper dogs. They are self-locking and are released by finger pressure upon a small lever. An adjusting screw is provided, which should be set so that the lever just allows the dogs to slide in either direction when released for changing their position. If adjusted in this way there will be no danger of slippage.

These dogs are superior in that they ship positively with no danger of the operator being caught between the table and housing of the planer while changing the stroke of the table. The instant that he removes his finger from the lever they lock automatically.

Automatic Feed Stops. Automatic stops can be furnished at an additional cost for both cross and down feeds and can be set for any required length or depth of feed within the capacity of the machine.



Two Speed Countershaft giving two cutting speeds with constant return speed.

Patent Two-Speed Countershaft. A two-speed countershaft has been designed to meet the demand for more than one cutting speed on a planer and is furnished with standard equipment. It is very simple in construction, giving two cutting speeds with a constant return speed, the changing of speeds being readily accomplished without stopping the planer.

Bushings and Oiling Devices. The main shaft and pulley shaft are supported on bushings of generous proportions, containing bronze self-oiling bearings, and are closely fitted into hole bored into bed. All loose pulleys are fitted with bronze self-oiling bearings, second-belt pulleys, running on tool steel studs hardened and ground.

Motor Drives. Three different types of motor drives can be used in connection with these planers.

Plain Overhead Motor Drive consists of a motor and countershaft mounted on the top of the housings, the drive being delivered to the machine by a belt from the countershaft pulleys to the main driving pulleys of the machine. The motor is either gear or directly connected by a coupling attached to the end of the motor shaft.

Either constant or adjustable speed motors of 5 to 7½ H. P. may be used. For direct current a compound motor of 1150 R.P.M. and a two to one adjustable speed motor of 600 to 1200 R.P.M. is recommended. The adjustable speed motor provides for a wide variation of cutting and return speeds.

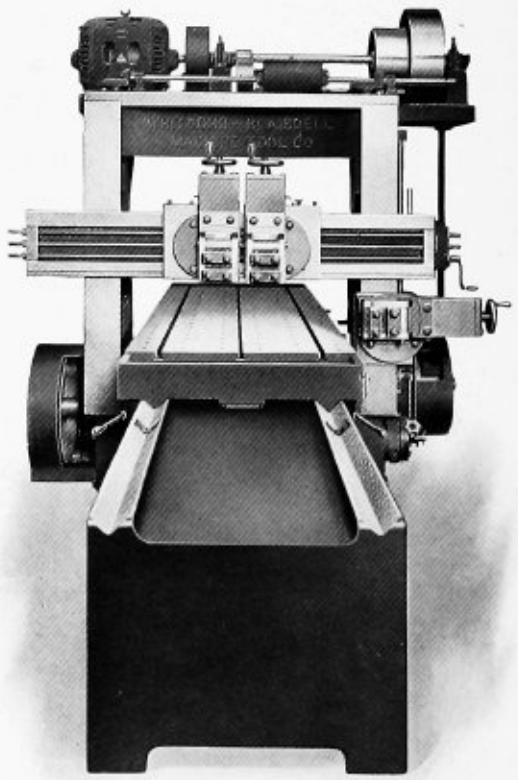
When using alternating current, a constant speed induction motor of 1200 R.P.M. is recommended only, as standard multi-speed motors at the present time are not made of sufficient horse-power for this size of planer.

Belted Motor Drive. This motor drive has a self-contained countershaft mounted on the housings and belted to the motor, which may be located either on the floor at the rear of the planer or on a building wall.

Reversing Motor Drive. With this type of drive the motor is mounted on the floor in place of the shipper pulleys, and is directly connected to the main drive shaft of the planer. As the reversing of the table is accomplished direct from the motor, a reversing type of motor is required. The standard motor of this type is regularly made with adjustable speeds ranging from 250 to 1000 R.P.M., and for 230 volts direct current.

Standard Equipment. Single head on cross rail, two-speed countershaft, six-foot table and all necessary wrenches.

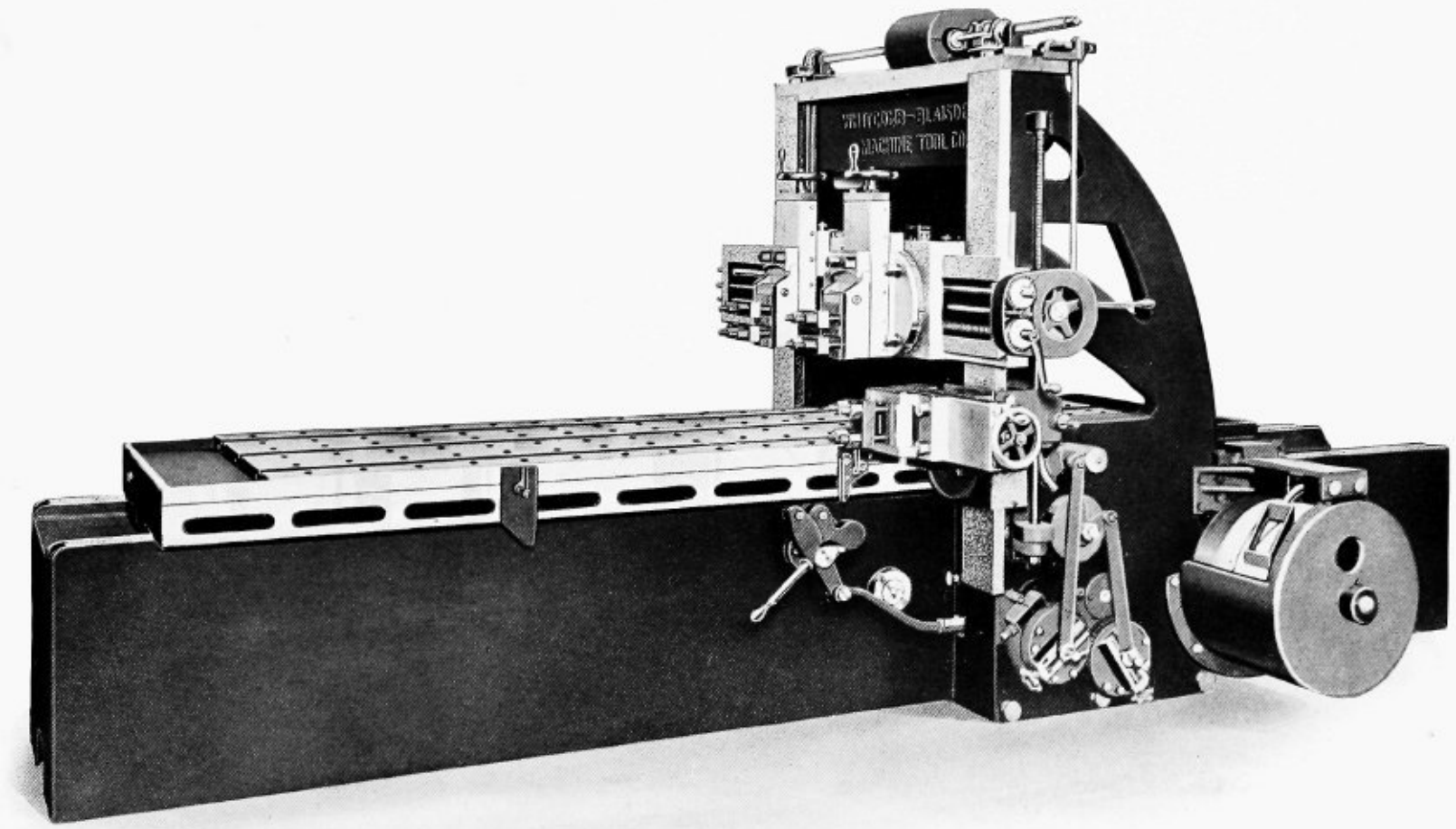
Additional Equipment. Extra head on cross rail, one-speed countershaft, steel gears, steel rack, self contained countershaft, plain overhead motor drive, belted motor drive, reversing motor drive, automatic feed stops, parallel belt drive.



Plain Overhead Motor Drive

THE DAVIS PRESS WORCESTER MASS. U.S.A. 3M-2-19-24

The Whitcomb
32-Inch Second-Belt Drive Planer



The Standard Machine complete with two rail heads and one side head.

SPECIFICATIONS

CODE—FIB

Planes width	32"
Width between housings, actual	36"
Height under cross-rail—maximum	32¾"
Length of table (standard machine)	10'
Width of table	28"
Length of bed, 10 foot table	16'
Length of down feed	13"
Minimum distance between centers of tool blocks	7¼"
Face of housings, width	7"
Height of table above floor	32½"
Depth of cross-rail	12½"
Thickness of cross-rail at housings	3⅞"
Table Rack, width x thickness x pitch	5" x 1¼" x 3"dp
Width of driving belts	3"
Countershaft pulleys, diameters	12" x 6½"
Countershaft speed—45 ft. cutting speed	449 R.P.M.
Horsepower required	10 to 15
Floor space:	
Length, including table travel	24' 6½"
Width	7' 3½"
Height over all	7' 2½"
Weight, 10 foot table	17,500 lbs.
Weight, per foot extra	900 lbs.

MACHINE TOOLS

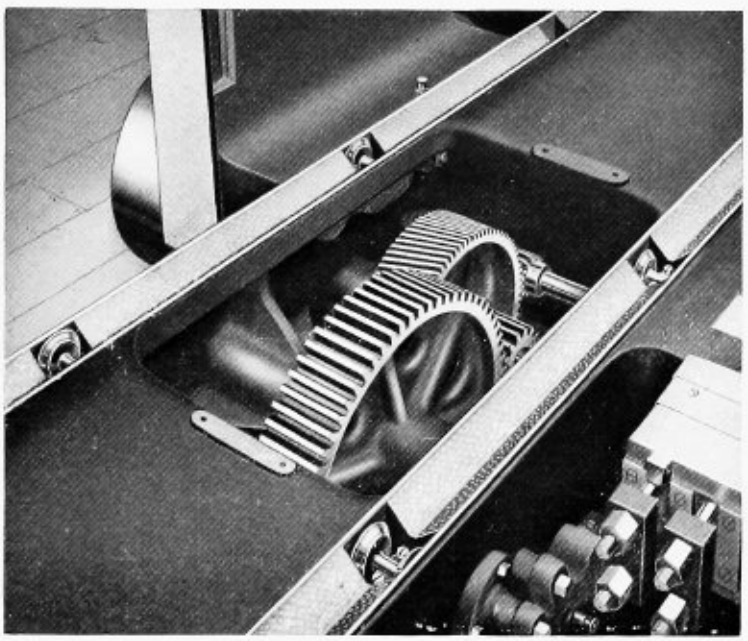
REED-PRENTICE COMPANY

WORCESTER MASS., U. S. A.

REED-PRENTICE MACHINE TOOLS

Whitcomb 32-Inch Second-Belt Drive Planer

WHITCOMB Second-belt Drive Planers are the result of more than sixty years study in the design and manufacture of metal planers. This experience has enabled the producing of planers noted for their rigidity, durability, simplicity of design, smoothness of action, power and high cutting speed. The construction is from new patterns of improved design throughout, and well proportioned, extra heavy, adapted for both heavy and light work.



The Double Reduction Drive to the Table, also the Track Oiling Device.

Each planer is fully tested for accuracy and made to do actual work before leaving the factory. These have the inspectors' approval only after thorough demonstration of perfect action and ability to cut smooth, accurate work of the finest kind.

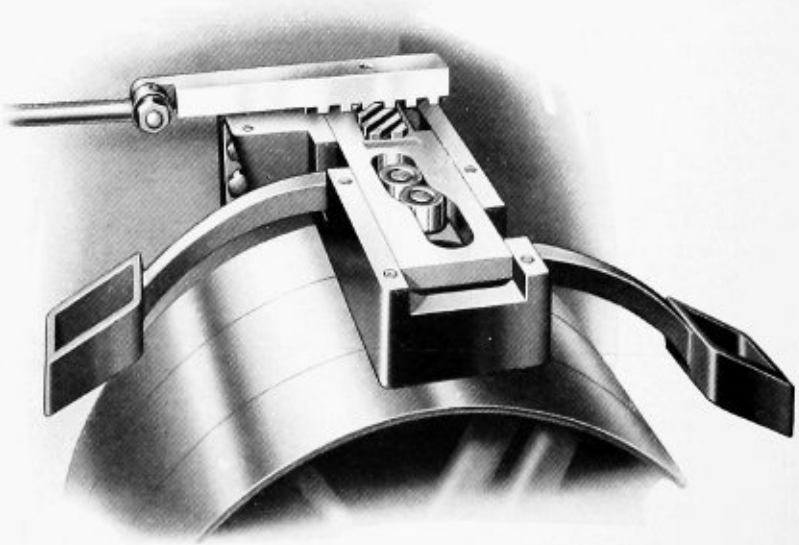
Bed. The bed is of a heavy box section of great width, having a bearing full length on the floor. Heavy box girders at frequent intervals tie the walls securely together. The tracks are of extra width, V-shaped, having proper provision for self-oiling, and are carefully fitted by scraping.

Table. The table is made of extra heavy box section, of unusual width and thickness and is braced at short intervals with heavy ribs to guard against any possibility of springing. T-slots are planed from the solid metal, the center T-slots extending the full length of table beyond the chip pockets. Protecting ledges on the under side of table prevent chips from dropping through the holes into the tracks. Generous chip pockets are also provided at both ends of table.

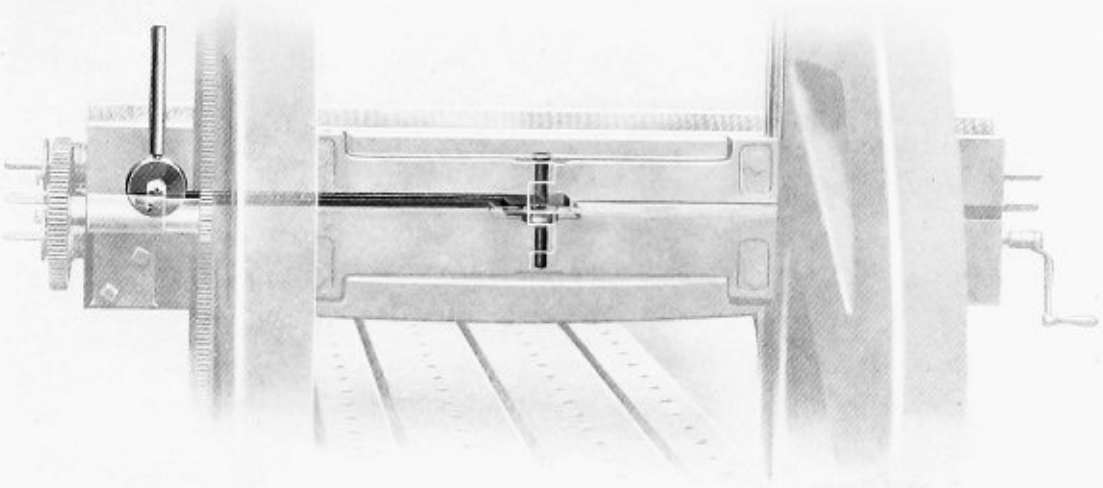
Oiling the Tracks. Provision is made for lubricating the tracks of the bed by a simple oil leveling system, each track being fitted with a series of automatic oil rollers, as shown in illustration. They keep the tracks thoroughly lubricated and are easily removed for cleaning the pockets.

Second - Belt Drive. The machine is designed with a special drive known as the patented Second-belt Drive by means of which a number of gears under the bed are eliminated. This gives a more direct drive to the table and reduces the shocks and jars at the reversal of the table by means of the cushion effect of the second belt. The second-belt unit is located in the table drive mechanism on the rear housing. The power is conveyed between two pulleys by means of an endless belt known as the second belt, which is kept taut by an adjustable idler pulley. The driving power is then transmitted through double reduction gears to the table. This form of drive not only delivers considerable power, but assists greatly in turning out smooth, finely finished work, and also actually prolongs the life of the entire machine.

Belt-Shifting Mechanism. This mechanism shifts the belts very quickly and noiselessly, moving the working belt entirely off the tight pulley before starting to move the other on. It is of very simple construction, producing all the good results of any cam shifter,



The Belt Shifting Mechanism with Aluminum Pulleys



A simple patented Cross-Rail Binder

and avoiding the complications commonly found in planer belt-shifting mechanisms. Adjustments are provided which keep the belts in their proper positions at all times. Shifting levers can be operated from both front and rear of planer, by which the operator can control the motion of the table without walking around the planer. A safety-locking device is provided which positively locks the entire shifting mechanism, preventing the planer table from starting accidentally.

Patented Cross-Rail Binder. This binder saves considerable of the operator's time and is so constructed that the rail can be locked to the housing by the simple movement of a lever without the use of wrenches or moving from the operating side of the planer. The attachment consists of a powerful compound lever clamp hinged together in the center forming a toggle joint. The outside ends of the clamp form the nuts for the elevating screws, while the cross-rail is fastened to the clamp. The simple operation of the lever forces the toggle joint from the cross-rail, thereby pinching the inside of the housing faces between the cross-rail and toggle levers with enormous force. This action clamps the rail positively to the housing.

Aluminum Pulleys. Drive pulleys, also second-belt pulleys, are made of a special aluminum alloy which greatly reduces their weight and consequent inertia, thereby reducing the horsepower required to drive the planer. Repeated tests show that planers equipped in this way reverse much more quickly and smoothly with less slipping of the belts than when equipped with cast iron pulleys.

Housings. The housings are of box form, deep, heavy and stiff, strongly bolted to bed and rigidly connected together at the top by a heavy rail of deep section, insuring rigidity when the cross-rail is at its highest position.

Cross-Rail and Double Heads. The cross-rail is made heavy and deep, having an extra deep rib at the back, giving additional stiffness. It is accurately scraped to straight edges and surface plates, and fitted at the back to bearings on housings of planer. When double heads are used the cross-rail is made of such length as to allow either head to be run entirely out of the way, allowing the other head to plane the full width of machine.

Rail heads are graduated to swivel through an angle of 180 degrees, having automatic feeds in all directions, and can be operated from either side of the planer. When using two heads on the cross-rail, they are made right and left hand, allowing the cutting tools to come very close together.

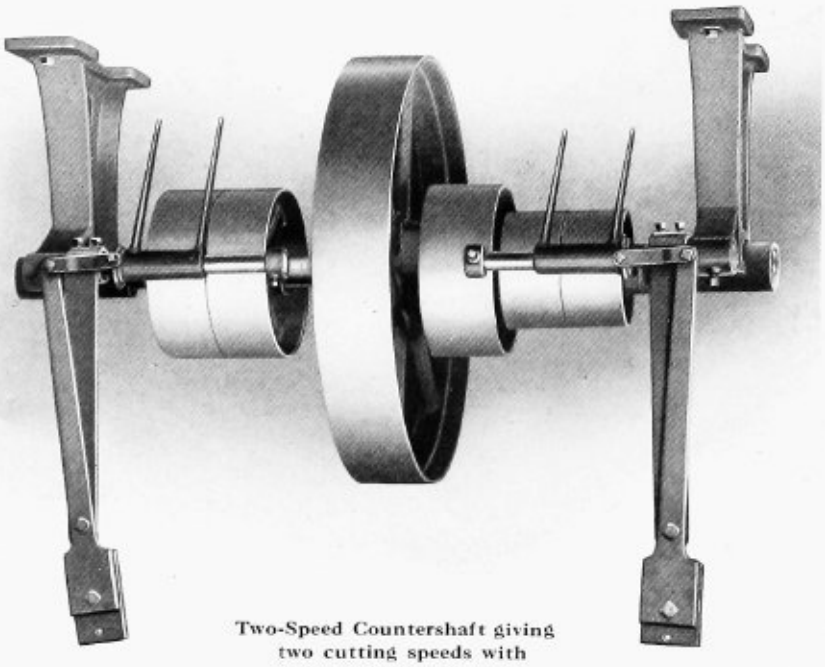
The heads are carefully scraped and fitted to the cross-rail, the end of the tool blocks and slide being beveled to avoid interference, when heads are set for angular work.

Patented Self-Locking Shipper Dogs. No wrenches are required for shifting the shipper dogs. They are self-locking and are released by finger pressure upon a small lever. An adjusting screw is provided, which should be set so that the lever just allows the dogs to slide in either direction when released for changing their position. If adjusted in this way there will be no danger of slippage.

These dogs are superior in that they ship positively with no danger of the operator being caught between the table and housing of the planer while changing the stroke of the table. The instant that he removes his finger from the lever they lock automatically.

Self-Locking Shipper Dogs.

Power Elevating Device. This is a very simple device and is an improvement over the ordinary type power elevating devices inasmuch as it is running only when in use. It is operated by a lever conveniently located on the operator's side of the machine, by which the cross-rail may be raised or lowered at will, according to the position in which the lever is thrown.



Two-Speed Countershaft giving two cutting speeds with constant return speed.

Patent Two-Speed Countershaft. A two-speed countershaft has been designed to meet the demand for more than one cutting speed on a planer and is furnished with standard equipment. It is very simple in construction, giving two cutting speeds with a constant return speed, the changing of speeds being readily accomplished without stopping the planer.

Automatic Feed Stops. Automatic stops can be furnished at an additional cost for both cross and down feeds and can be set for any required length or depth of feed within the capacity of the machine.

Feed Gear. The patented feed gear is of an improved design, having all of the pawl and spring mechanism enclosed, making a very compact and self-contained feed mechanism. The construction of the gear is such that in removing it from the feed rod or screw, all parts remain assembled.

Bushings and Oiling Devices. The main shaft and pulley shaft are supported on bushings of generous proportions, containing bronze self-oiling bearings, and are closely fitted into holes bored into the bed. All loose pulleys are fitted with bronze self-oiling bearings, second-belt pulleys running on tool steel studs hardened and ground.

Motor Drives. Three different types of motor drives can be used in connection with these planers.

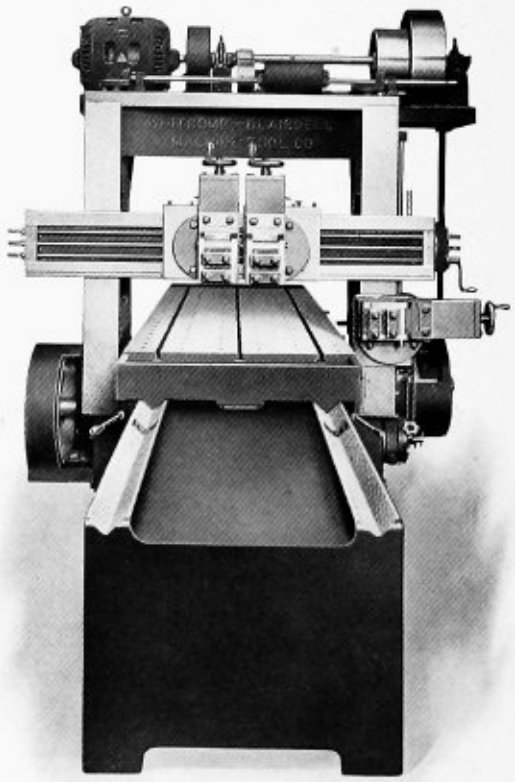
Plain Overhead Motor Drive consists of a motor and countershaft mounted on the top of the housings, the drive being delivered to the machine by a belt from the countershaft pulleys to the main driving pulleys of the machine. The motor is either gear or directly connected by a coupling attached to the end of the motor shaft.

Either constant or adjustable speed motors of 10 to 15 H.P. may be used. For direct current a compound motor of 1150 R.P.M. and a two to one adjustable speed motor of 600 to 1200 R.P.M. is recommended. The adjustable speed motor provides for a wide variation of cutting and return speeds.

When using alternating current, a constant speed induction motor of 1200 R.P.M. is recommended only, as standard multi-speed motors at the present time are not made of sufficient horsepower for this size of planer.

Belted Motor Drive. This motor drive has a self-contained countershaft mounted on the housings and belted to the motor, which may be located either on the floor at the rear of the planer or on a building wall.

Reversing Motor Drive. With this type of drive the motor is mounted on the floor in place of the shipper pulleys, and is directly connected to the main drive shaft of the planer. As the reversing of the table is accomplished direct from the motor, a reversing type of motor is required. The standard motor of this type is regularly made with adjustable speeds ranging from 250 to 1000 R.P.M., and for 230 volts direct current.



Plain Overhead Motor Drive also showing box table and solid top of bed.

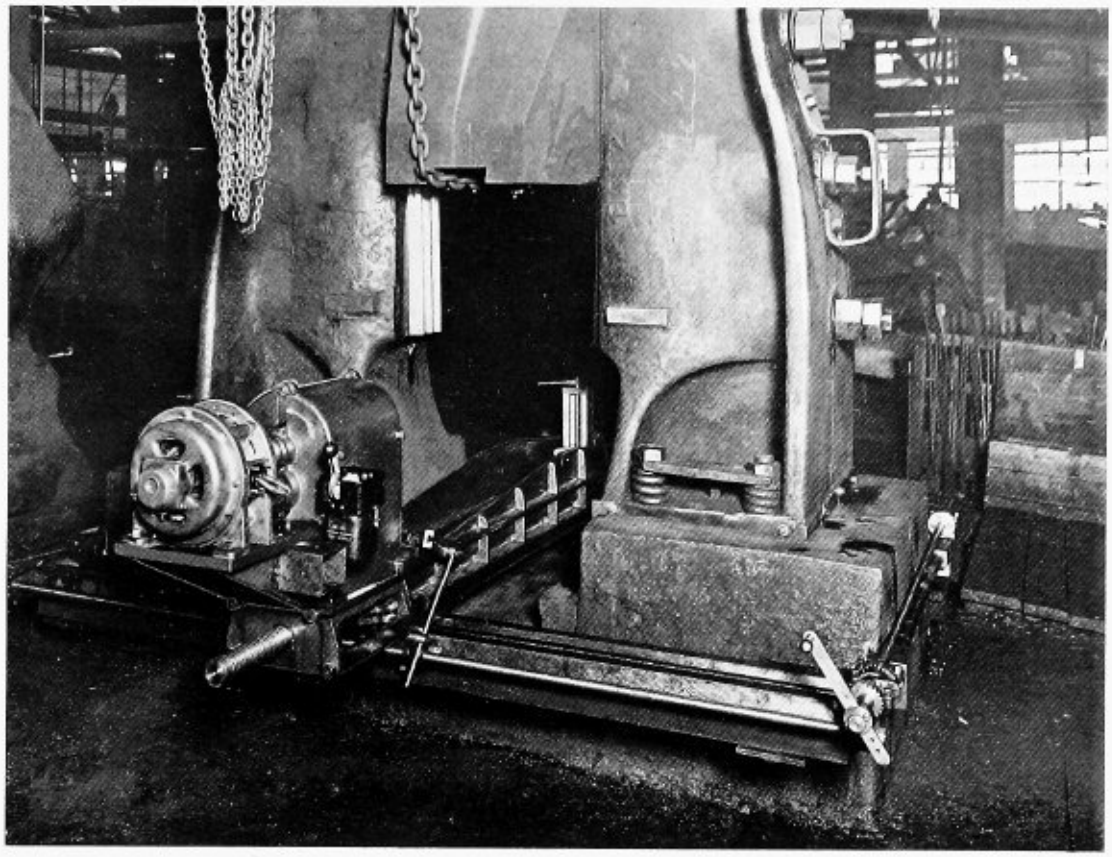
Standard Equipment. Single head on cross rail, two-speed countershaft, ten-foot table and all necessary wrenches.

Additional Equipment. Extra head on cross rail, front side head, rear side head, one-speed countershaft, steel gears, steel rack, self contained countershaft, plain overhead motor drive, belted motor drive, reversing motor drive, automatic feed stops, parallel belt drive.

THE DAVIS PRESS WORCESTER MASS. U.S.A.—3M-2-19-24

Whitcomb Portable Shaper

Damerell Patents



Showing application of shaper for replaning of hammer base

SIZE, will plane surface (Horizontal Power Feed)	48″ x 48″	66″ x 66″
Applicable for Hammers up to	2,000 lbs.	15,000 lbs.
Vertical Travel of Head, Hand Feed	8″	8″
Head Swivel Adjustment, each side of vertical	15°	15°
Size of Tool	5/8″ x 1¼″	5/8″ x 1¼″
Cutting Stroke	55″	73″
Cutting Stroke, feet per minute	20	20
Return Stroke, " " "	40	40
Number of Feeds (Horizontal)	8	8
Range of feeds	.010 to .080	.010 to .080
Motor recommended, Induction Type for A. C. 1800 R. P. M. Compound Type for D. C. 1700 R. P. M.	3 H. P.	3 H. P.
Net Weight	2,600 lbs.	3,077 lbs.
CODE	Sed	Led

The Whitcomb Portable Shaper is a time and money saver for planing ram and sow blocks, new seats for hammer uprights and for squaring the base of hammers. It is also adaptable in working on heavy castings in railroads, marine, engine repair and erection shops. The machines are built in two sizes. The 48″ size will plane any part of a surface 48″ square and is used on hammers up to 2,000 lbs. The 66″ size takes up to 66″ square and hammers up to 15,000 lbs.

MACHINE TOOLS

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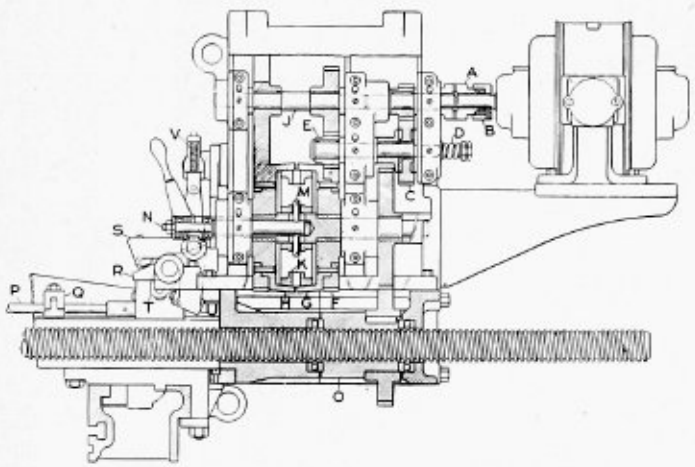
Head. The clapper box is mounted on front of head and is similar to that of the standard shaper, permitting the use of ordinary forged tools. It is constructed so the tool, which is adjustable vertically through screw and handle at top of head, may be held with cutting edge up or down, thus allowing in one setting the machining of the ram and sow block of the hammer. Where necessary to plane deep and narrow openings, a tool extension can be furnished at extra charge. The head slides in ways on the inside of the bridge and can be swung to each side of the vertical, similar to the standard shaper. The reciprocating movement is controlled by a driving screw.

Bridge and Rails. The bridge is of heavy angle cross section ribbed at short intervals, supported at each end by a saddle scraped to rails. It is operated through long screws, and by a crank handle at front end of one rail may be brought to the position desired. Both rails are connected by a cross rod.

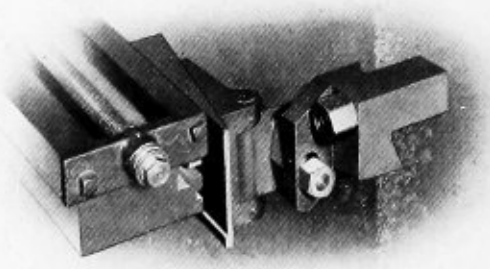
Driving and Clutch Mechanism. No damage can result through starting motor in wrong direction, due to improper wiring as it is connected to gear box mechanism by ratchet tooth clutch, A, firmly held in engagement by spring, B, and which drives only in correct direction. Drive to screw that reciprocates head is through two friction discs on either side of gear, C, friction between discs and gear being determined by pressure obtained by adjusting spring, D. This construction provides a safety feature for driving mechanism and tool by permitting a slower cutting speed when tool strikes a hard spot in the metal. From C, drive is to gear, E, keyed to shaft and supplying through gears on quill shaft, J, cutting stroke and through ring gear, F, return stroke. Change of drive to nut, O, is controlled by sliding friction spool, K, operated by shifter shaft, N, and pin, M, and drive and reverse frictions, G, and K. Nut, O, is long and like friction spool shaft in shifter motion, end thrust is taken up by ball thrust bearings.



Shifter Mechanism. The control of stroke will stop and reverse within $\frac{1}{8}''$ of the desired point, allowing tool to cut close to corners or shoulders and reducing hand chipping to a minimum. The length of the cutting stroke is determined by two adjustable tripping dogs set on reverse rod, P, which runs the entire length of the bridge. At end of cutting stroke, head strikes the dog, Q, forcing cam, R, forward and engages friction spool, K, mentioned above, through bell crank, S. At end of return stroke it strikes other dog, Q, forcing lever, T, in contact with lower end of bell crank, U, and engaging friction spool with driving friction, H. The change of stroke is instantaneous through operation of spring, V. Shipper bell crank may be operated through hand lever if desired.

Clamping Dogs. The rails are clamped to the base of the hammer by special designed clamping dogs with hardened edges that universally adapt themselves to any irregular surface. Tie rods take the clamping strain and pass along the outside of the base of the hammer.

When there is considerable difference in the width of work to be planed, it is advisable to make special lengths of rods for the clamping dogs.



Clamping Dog and Rail Adjustment

Parallel Adjustment of Rails. Fastened to the side of the rail and attached to the clamping dogs, is a wedge-shaped adjustment that permits the rails to be set parallel with each other after the clamping dogs have been properly set. This wedge adjustment is also equipped with screws for raising and lowering each end of the rail, and with this combination of adjustments, the rails can be set absolutely level and parallel with each other very quickly and accurately, even though they may be out of line as much as 1″.

Lubrication. All moving parts are provided for proper lubrication, and special attention has been given to the oiling of the reversing clutch in the head. The clutch spool has a helical oil groove cut on the beveled surface that gives a constant film of oil over the entire friction surface at all times.

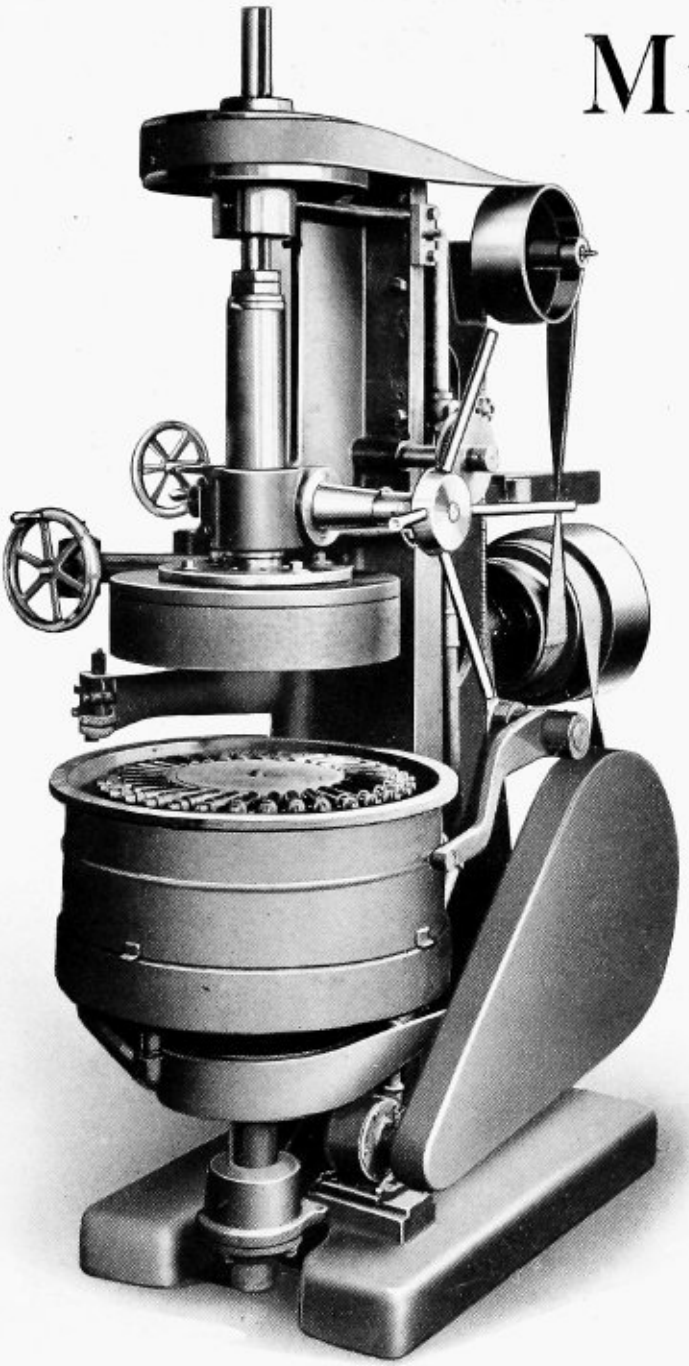
Cutting Capacity. An essential feature of the machine is its rigidity, permitting considerable stock to be removed easily. With tools properly ground a cut $\frac{3}{8}''$ deep and $\frac{3}{32}''$ feed with a stroke of 36″ has been taken in steel with one chip. In another case 1″ was removed from the top of a sow block and 4″ from each side of the sow block dovetail. The cutting stroke is 20′ per minute and the return stroke 40′ per minute, with eight horizontal feeds ranging from .010″ to .080″, adjusted by crank on side of head.

Motor Equipment. The machine is regularly furnished arranged for motor drive and exclusive of electrical equipment. A 3 H.P. induction motor of 1800 R.P.M. is recommended for alternating current, and a 3 H.P. compound type motor of 1750 R.P.M. for direct current. It is optional whether the customer purchases electrical equipment or whether we purchase it. In the former case, however, it is necessary that the customer adhere strictly to equipment recommended and supply motor diagram.

THE DAVIS PRESS WORCESTER MASS. U.S.A. 3M-7-10-26

"Lapping on a Production Basis"

Mirra Cylindrical Lapping Machine



Standard belt driven machine equipped for lapping piston pins

SPECIFICATIONS

CODE — LAP

Diameter of wheels	24″
Max. size work, diam. by length	2½″ x 5″
Speed of driving pulley, R. P. M.	230
Diameter of driving pulley	16″
Width of belt (double)	3½″
Motor recommended, H. P.	5
Motor recommended, R. P. M.	850 or 900
Floor space, length by width	6′ x 4′
Net weight, approximately	3000 lbs.
Boxed weight, approximately	3600 lbs.
Cubic dimensions, boxed	6½′ x 4½′ x 8′
Cubic feet, boxed	234

REED-PRENTICE COMPANY

MACHINE TOOLS

WORCESTER, MASS., U.S.A.

Circular 23-100-1

REED-PRENTICE MACHINE TOOLS

Mirra Cylindrical Lapping Machine

THIS machine provides for a new process of lapping cylindrical work. It is now being used for the lapping of piston pins for a large number of automobile and stationary engines. It is applicable to all of the standard makes of automobile piston pins.

The method consists of placing a number of piston pins loosely on a quick loading spider which is located between two lapping wheels rotating on vertical axes. Both wheels rotate in opposite directions, and at a slightly different speed.

The illustration on the previous page shows the spider in the loaded position, and the piston pins are resting on the lower wheel. When lapping, the upper wheel is brought down onto the pins under pressure, and the variations in wheel speeds cause the pins to rotate between the lapping wheels and creep slowly in a circular path.

The projecting arms on the spider are not radial with the center of the spider, thereby causing the piston pins when rotating to have a rotating sliding action between the wheels. The center of the spider roating on an eccentric gives three distinct actions of the work on the wheels.

First. The creeping of the work caused by the variation in wheel speeds.

Second. The sliding rotating action caused by the work being set on an angle instead of being radial to the center of the wheel.

Third. The eccentric spider motion giving an in and out sliding action of the piston pin from the center of the wheel.

This process furnishes a finished surface which is highly polished and absolutely free from grooves. The highly finished accurate surface is obtained through two operations, one of rough lapping and one of finish (polishing) lapping. The rough lapping is obtained by the use of fine grinding wheels, while the finish lapping is obtained through soft elastic wheels giving a highly polished surface. The roundness is easily kept with .0001, the taper variation in length .0002, and the diameter plus or minus .0001. The variation in the accuracy of the taper depends upon the length of time given to the lapping. In commercial practice a .0002 limit is usually allowed, but the work can be kept within .0001 by allowing a slight increase over the time ordinarily required. This method not only provides for extremely accurate work, but the high wheel speeds used give 30% to 50% more production than any other method used to date.

The machine is made with two wheels located on vertical axes and independently driven from a pulley shaft at the rear of the machine. The wheels are located in separate heads mounted on an extra heavy column. The lower wheel has no vertical adjustment in its head, while the upper one slides vertically. The vertical movement of the upper wheel spindle is controlled from a pilot hand wheel and a worm mechanism on the side of the machine. The pilot hand wheel provides for bringing the upper wheel quickly onto the work, and then the worm mechanism is engaged, thus allowing a heavy pressure to be placed by the upper wheel on the work, with a minimum amount of effort on the part of the operator.

The wheel bearings are well proportioned, while the spindle journals are hardened and ground. The end thrust of both wheels is taken by ball thrust bearings. Close attention is given to the careful aligning of the wheel spindles, and with the extra heavy construction, provides for continued accuracy.

A double end diamond wheel dresser equipped with independent micrometer adjustment is located on the side of the machine. This permits both wheels to be dressed independently from the same mechanism, which is operated by a hand wheel conveniently located for the operator.

A pump is completely piped from a water tank to the wheel spindle, and furnishes a constant flow of lubricant on the work. A special compound is used to prevent rusting. Also a circular guard surrounding the work and the wheel prevents the compound from flying off from the wheel. When the upper wheel is lowered onto the work this circular guard is automatically raised into position.

Suitable work carriers can be furnished for the various classes of work at a slight extra charge.

The standard machine, although regularly furnished with belt drive, can be arranged for direct connected motor drive at an additional charge. A 5 H. P. motor of 850 or 900 R. P. M. is recommended.

Standard Equipment. Belt driven machine (without belts) as illustrated, with two wheels to suit work; diamond dresser; pump complete with tank and piping.

Additional Equipment. Belts; work carriers; work holding tooling; motor drive.

THE DAVIS PRESS WORCESTER MASS. U.S.A.—3M-9-5-24