"South Bend"

Hand Book No. 44

FOURTH PRINTING

For the Mechanic

SEPTEMBER, 1929

Tool Room Lathe on Precision Tool Work

New Model South Bend Lathes

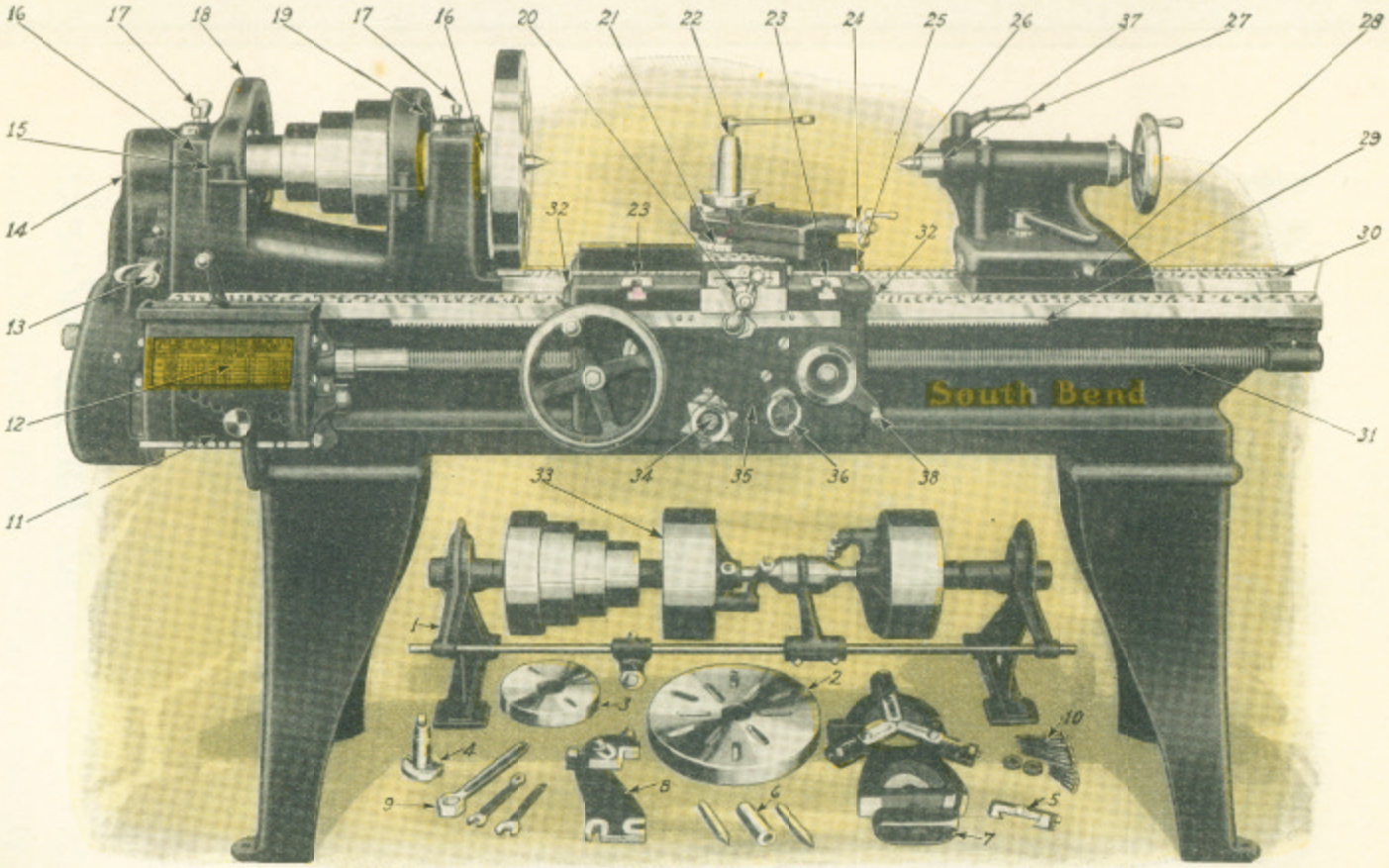
for use in

Manufacturing Plants
Tool Rooms
General Repair Shops
Engineering Shops
Airplane Mfg. and Airports
Machine Shops
Textile Mills
Power Plants
Mine Shops
Marine Shops

and Metal Working Industries of all kinds

South Bend Lathe Works

412 East Madison St., South Bend, Ind., U.S.A.



The Basic Design and Principal Features of All Types of New Model South Bend Lathes

11—Quick Change Gear Box.
12—Index Plate for Threads and Feeds.
13—Quick-acting Latch Reverse.
14—Special Carbon Steel Hollow Spindle.
15—Hardened and Ground Steel Thrust Collar.
16—Large Phosphor Bronze Bearings.
17—Patent Oil Cups.
18—Back Gears well guarded.
19—Wrenchless Bull Gear Clamp.
20—Micrometer Collar on Cross Feed Screw.
21—Compound Rest graduated 180 degrees.
22—Forged Steel Adjustable Tool Post.
23—"T" Slot for clamping work on Carriage.
24—Micrometer Collar on Compound Rest Screw.
25—Carriage Lock for facing.
26—Tool Steel Lathe Centers.
27—Tailstock Spindle Lock.
28—Set-over Tailstock for taper turning.
29—Steel Rack, cut from the solid.
30—Semi-steel seasoned Lathe Bed.
31—Precision Lead Screw, Acme Thread.
32—Felt Shear Wipers and Oilers.
33—Double Friction Countershaft.
34—Automatic Friction Feed Clutch.
35—Safety Device for Threads and Feeds.
36—Knob for Automatic Feed.
37—Graduated Tailstock Spindle.
38—Half-nut Lever for Thread Cutting.

New Model South Bend

Back Geared Screw Cutting Lathes

for use in

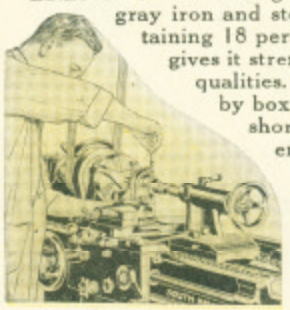
Manufacturing Plants
Tool Rooms
General Repair Shops
Engineering Shops
Airplane Mfg. and Airports
Machine Shops
Textile Mills
Power Plants
Mine Shops
Marine Shops

and Metal Working Industries of all kinds.

Features of the New Model South Bend Lathe

The illustration on the opposite page shows the basic design and principal features of all New Model South Bend Lathes.

Lathe Bed.—A close grained casting of gray iron and steel mixture, containing 18 per cent steel, which gives it strength and wearing qualities. It is reinforced by box braces cast in at short intervals its entire length. The lathe beds are rough planed and thoroughly seasoned, then finish planed and accurately hand scraped.



Headstock Unit.—Rigidly constructed and scientifically braced to insure permanent alignment of the spindle bearings. It has a Quick Acting Reverse Lever for changing the direction of the Automatic Feeds. A Quick Acting Bull Gear Clamp permits engaging or disengaging the back gears without using a wrench.

Spindle Cone.—A four-step Cone Pulley is used on all New Model Lathes, 13-inch size and larger, because of the wide speed range it provides. The Three-step Cone provides ample speed range on the smaller sizes. The Cone Pulley and Bull Gear are accurately balanced so that the lathe can be operated at high speed, without vibration. Back gears furnish slow speeds and power required for heavy roughing cuts.

Headstock Spindle.—Made of a special quality alloy spindle steel bored from solid bar. It has a hole its entire length for machining rods and bars. Spindle bearings are ground and seated in phosphor bronze boxes.

Bearings of Headstock.—Made of best quality phosphor bronze; are designed for heavy duty work, and are adjustable for wear. They are hand scraped to the spindle. Patent oil cups and felt wicks lubricate the spindle and protect the bearings.

Tailstock.—Heavily constructed and has long bearing on the lathe bed. It has a set-over for taper turning and is designed to allow the compound rest to swivel parallel to the bed. The tailstock spindle is graduated. A binding lever locks the spindle without disturbing the alignment.

Carriage.—Has a wide bridge and long bearings on the "V" ways of the bed. On the 13-inch size and larger it has "T" slots for clamping work. The carriage is hand scraped to the lathe bed. The cross feed screw has an Acme Thread and a micrometer graduated collar reading in thousandths of an inch.

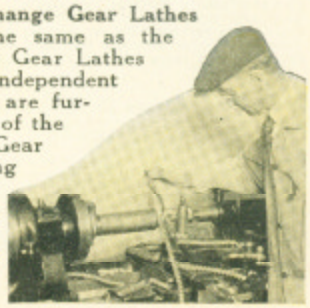
Apron.—Has automatic friction cross feed and automatic friction longitudinal feed. An automatic safety interlock prevents the half-nuts and automatic feeds from being engaged at the same time. The half-nuts are used for thread cutting only.

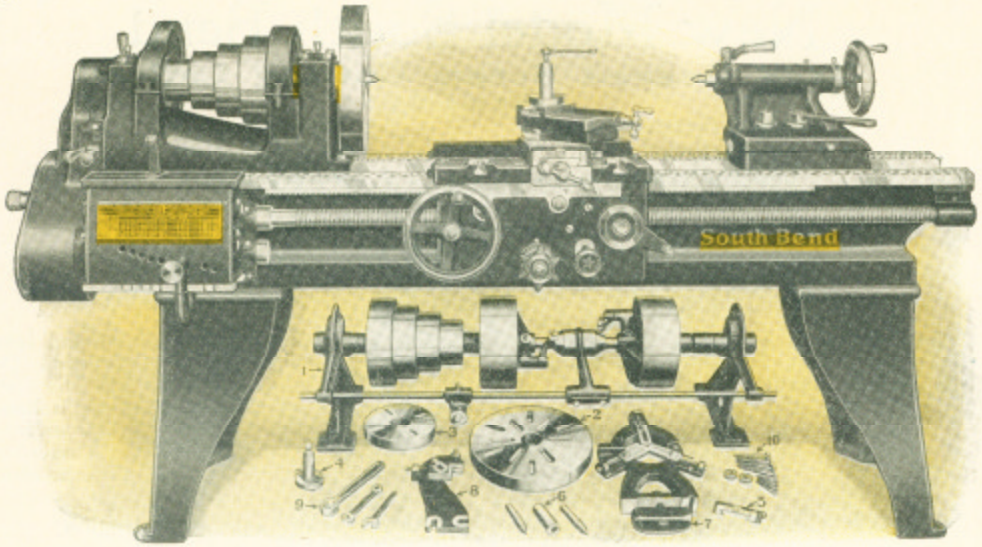
Precision Lead Screw.—Made of special steel and has Acme Thread cut on a special machine equipped with a Pratt & Whitney master lead screw. The lead screw is tested for form of thread and accuracy of lead and is guaranteed to meet the most exacting requirements. The lead screw is splined to drive the worm which operates the automatic feeds. **The Threads of the Lead Screw are used only for cutting screw threads** and not for operating the automatic feeds, and should last a lifetime.

Compound Rest.—Graduated in degrees reading from 0° to 90° from center to each extremity of the arc. It can be operated at any angle. The compound rest has Acme Thread and a micrometer graduated collar reading in thousandths of an inch.

Gear Box.—Used on all Quick Change Gear Lathes and provides forty-eight changes for cutting right or left hand standard screw threads from 2 to 112 per inch. It also provides for various adjustments of the automatic friction cross feed and automatic friction longitudinal feed.

Standard Change Gear Lathes are exactly the same as the Quick Change Gear Lathes except that Independent Change Gears are furnished instead of the Quick Change Gear Box for operating the automatic feeds and for cutting screw threads, right and left, from 4 to 40 per inch.





Regular equipment, as illustrated under Lathe, is included in price

18-in. x 8-ft. Quick Change Gear New Model Lathe - $763

Back Geared, Screw Cutting Lathe, Countershaft Drive

The 18-inch Quick Change Gear New Model Lathe illustrated above is a rigid, heavily built tool which has the power for doing the larger jobs in the machine shop, tool room and manufacturing plant. It also can be used for the smaller jobs and has the precision and accuracy for fine tool work. It is an excellent tool for the shop that wishes to handle a variety of work on one lathe. This lathe is also built in the Standard Change Gear type. The features and specifications are the same on both lathes.

For the Principal Features of the 18-inch lathe such as Headstock, Spindle, Apron, Bed, Carriage, Lead Screw, etc., see pages 2 and 3. Specifications for both the Quick Change Gear and Standard Change Gear Lathes are listed below.

The Gear Box on Quick Change Gear Lathes provides 48 changes without removing a gear, for cutting right or left-hand screw threads from 2 to 112 per inch as follows: 2, 2¼, 2½, 2¾, 2⅞, 3, 3¼, 3½, 4, 4½, 5, 5½, 5¾, 6, 6½, 7, 8, 9, 10, 11, 11½, 12, 13, 14, 16, 18, 20, 22, 23, 24, 26, 28, 32, 36, 40, 44, 46, 48, 52, 56, 64, 72, 80, 88, 92, 96, 104, 112. It also provides for a wide range of automatic feeds. Prices of transposing gears for cutting metric threads on application.

Standard Change Gear Lathes do not have the Quick Change Gear Box, but instead are equipped with independent change gears to cut the following screw threads per inch, right or left-hand, including 11½ pipe thread: 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 11½, 12, 13, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 36 and 40. By compounding the gears furnished many other threads can be cut.

Automatic Friction Feeds. All types of 18-inch Quick Change and Standard Change Gear Lathes have automatic cross and longitudinal feeds which are operated by a powerful worm drive in the apron. An automatic safety device prevents engaging of any two feeds at the same time.

The 18-inch Motor Driven Lathes are illustrated, described and priced on pages 16 and 17.

Regular Equipment consists of: Double Friction Countershaft, Large and Small Face Plates, Tool Post complete, Adjustable Thread Cutting Stop, two Lathe Centers and Spindle Sleeve, Center Rest, Follower Rest, Wrenches, and Change Gears with the Standard Change Gear Lathe.

Attachments such as Draw-in Collet Chuck, Taper Attachment, Milling Attachment, etc., may be fitted to this lathe for tool room, manufacturing and general work. See pages 26 and 27.

LATHE FEATURES

Back geared headstock gives 8 spindle speeds.
Automatic cross feed, automatic longitudinal feed.
Hollow spindle made of special alloy steel.
Spring latch reverse for feeds and threads.
Phosphor bronze bearings for spindle.
Graduated compound rest swivels to any angle.
Tailstock is arranged for set-over for taper turning.
Graduated collar on cross feed and compound rest screws.
Precision lead screw for cutting accurate threads.

LATHE SPECIFICATIONS

Head and Tail Spindle Centers.....No. 5, Morse Taper
Size of Spindle Nose.....2⅝ in. diam., 6 Threads
Precision Acme Lead Screw.....1⅜ in. diam., 4 Threads
Width of Cone Pulley Belt.....2½ in.
Spindle Speeds.....18, 28, 45, 70, 135, 200, 300, 465 R.P.M.
Countershaft Speed.....200 R.P.M.
Countershaft Friction Clutch Pulleys.....12 in. x 4½ in.
Angular Travel of Compound Rest Top.....4⅞ in.
Size of Lathe Tool Shank.....⅝ in. x 1⅜ in.

Net Factory Prices 18-inch Quick and Standard Change Gear Lathes, with Countershaft and Equipment

Lathe Specifications				Quick Change Gear			Standard Change Gear		
Swing Over Bed	Length of Bed	Between Centers	Power Required	Cat. No. of Lathe	Weight Crated	Price F.O.B. South Bend	Cat. No. of Lathe	Weight Crated	Price F.O.B. South Bend
18¼ in.	6 ft.	29½ in.	2 H.P.	94-C	2440 lbs.	$713.00	43-C	2400 lbs.	$623.00
18¼ in.	7 ft.	41½ in.	2 H.P.	94-D	2540 lbs.	738.00	43-D	2500 lbs.	648.00
18¼ in.	8 ft.	53½ in.	2 H.P.	94-E	2640 lbs.	763.00	43-E	2600 lbs.	673.00
18¼ in.	10 ft.	77½ in.	2 H.P.	94-G	2840 lbs.	817.00	43-G	2800 lbs.	727.00
18¼ in.	12 ft.	101½ in.	2 H.P.	*94-H	3140 lbs.	895.00	*43-H	3100 lbs.	805.00
18¼ in.	14 ft.	125½ in.	2 H.P.	*94-K	3540 lbs.	957.00	*43-K	3500 lbs.	867.00

*Lathes with 12-foot and 14-foot beds are equipped with center leg which is included in price of lathe.

Practical Jobs for New Model South Bend Lathes

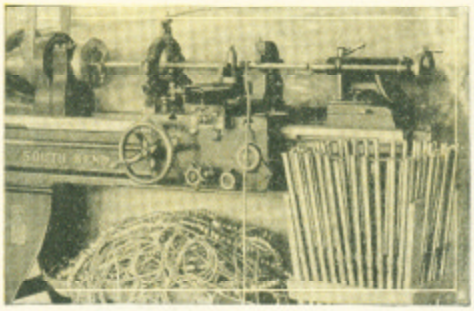


Fig. 1. Machining Long Shafts, Using Both Center Rest and Follower Rest.

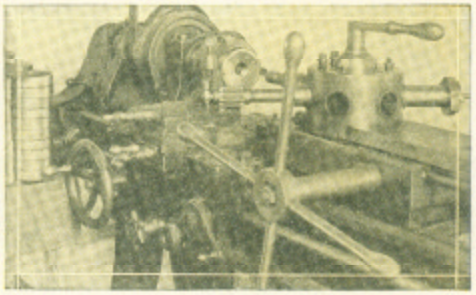


Fig. 2. Lathe Equipped with Turnstile Bed Turret for Manufacturing.

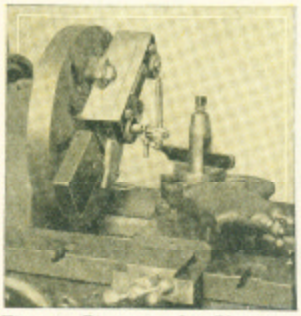


Fig. 3. Boring a Jig Plate on an 18-inch Lathe.

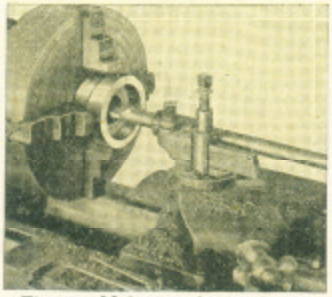


Fig. 4. Making a Large Bushing Held in a 4-Jaw Chuck.

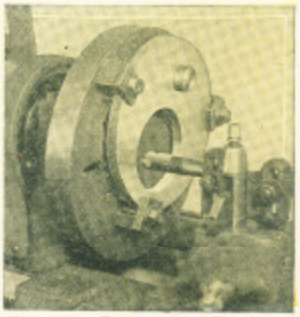


Fig. 5. Boring an Eccentric on an 18-inch Lathe.

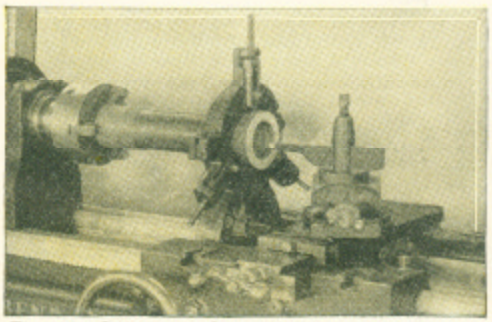


Fig. 6. Cutting an Internal Thread in a Large Piece of Work.

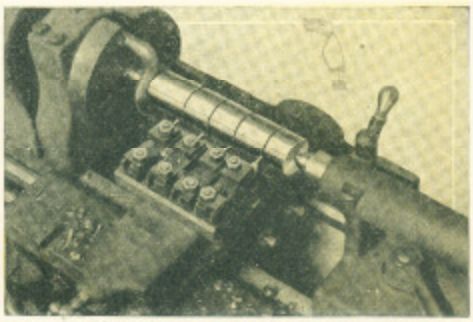


Fig. 7. Multiple Tool Block on Lathe Locating Shoulders and Recessing.

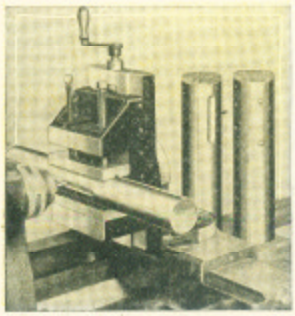


Fig. 8. Milling a Keyway with an End Mill.

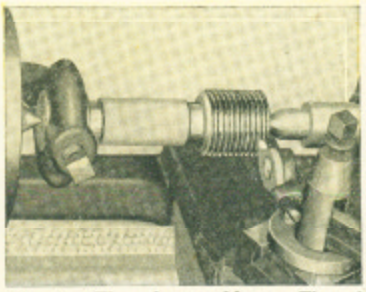


Fig. 9. Threading a Master Thread Gauge on a New Model Lathe.

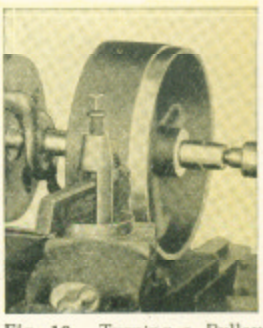
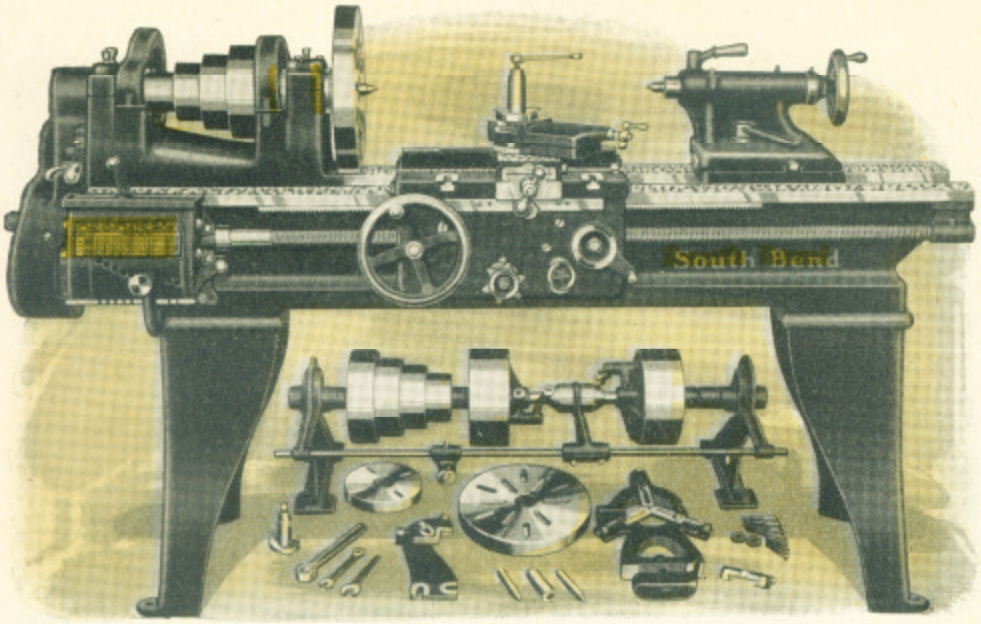


Fig. 10. Turning a Pulley on an Arbor Between Centers.

THE BOOKLET "HOW TO RUN A LATHE" IS INCLUDED WITH EACH LATHE



Regular equipment, as illustrated under Lathe, is included in price

16-in. x 6-ft. Quick Change Gear New Model Lathe - $598

Back Geared, Screw Cutting Lathe, Countershaft Drive

The 16-inch Quick Change Gear New Model South Bend Lathe is our most popular tool for the machine shop, tool room, and manufacturing plant. It is designed to do work on large and small jobs with equal ease. It has the power for heavy cuts, and the precision and accuracy for fine tool work. The swing and distance between centers permit it to be used for a wide variety of operations. This lathe is also built in the Standard Change Gear type. The features and specifications are the same on both lathes.

For the Principal Features of the 16-inch lathe such as Headstock, Spindle, Apron, Bed, Carriage, Lead Screw, etc., see pages 2 and 3. Specifications for both the Quick Change Gear and Standard Change Gear Lathes are listed below.

The Gear Box on Quick Change Gear Lathes provides 48 changes, without removing a gear, for cutting right or left-hand screw threads from 2 to 112 per inch as follows: 2, 2¼, 2½, 2¾, 2⅞, 3, 3⅛, 3½, 4, 4½, 5, 5½, 5⅝, 6, 6½, 7, 8, 9, 10, 11, 11½, 12, 13, 14, 16, 18, 20, 22, 23, 24, 26, 28, 32, 36, 40, 44, 46, 48, 52, 56, 64, 72, 80, 88, 92, 96, 104, 112. It also provides for a wide range of Automatic Feeds.

Prices of transposing gears for cutting metric threads on application.

Standard Change Gear Lathes do not have the Quick Change Gear Box, but instead are equipped with independent change gears to cut the following screw threads per inch, right or left-hand, including 11½ pipe thread: 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 11½, 12, 13, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 36 and 40. By compounding the gears furnished many other threads can be cut.

Automatic Friction Feeds. All types of 16-inch Quick Change and Standard Change Gear Lathes have automatic cross and longitudinal feeds which are operated by a powerful worm drive in the apron. An automatic safety device prevents engaging of any two feeds at the same time.

Regular Equipment consists of: Double Friction Countershaft, Large and Small Face Plates, Tool Post complete, Adjustable Thread Cutting Stop, two Lathe Centers and Spindle Sleeve, Center Rest, Follower Rest, Wrenches, and Change Gears with the Standard Change Gear Lathe.

Attachments such as Draw-in Collet Chuck, Taper Attachment, Milling Attachment, etc., may be fitted to this lathe for tool room, manufacturing and general work. See pages 26 and 27.

16-inch Motor Driven Lathes are illustrated, described and priced on pages 16 and 17.

LATHE FEATURES

Back geared headstock gives 8 spindle speeds.
Automatic cross feed, automatic longitudinal feed.
Hollow spindle made of special alloy steel.
Spring latch reverse for feeds and threads.
Phosphor bronze bearings for spindle.
Graduated compound rest swivels to any angle.
Tailstock is arranged for set-over for taper turning.
Graduated collar on cross feed and compound rest screws.
Precision lead screw for cutting accurate threads.

LATHE SPECIFICATIONS

Head and Tail Spindle Centers.....No. 3, Morse Taper
Size of Spindle Nose.....2⅜ in. diam., 6 Threads
Precision Acme Lead Screw.....1⅛ in. diam., 6 Threads
Width of Cone Pulley Belt.....2¼ in.
Spindle Speeds....20, 30, 50, 75, 140, 225, 360, 610 R.P.M.
Countershaft Speed.....225 R.P.M.
Countershaft Friction Clutch Pulleys.....10 in. x 3⅝ in.
Angular Travel of Compound Rest Top.....3¾ in.
Size of Lathe Tool Shank.....⅝ in. x 1⅛ in.

Net Factory Prices 16-inch Quick and Standard Change Gear Lathes, with Countershaft and Equipment

Lathe Specifications				Quick Change Gear			Standard Change Gear		
Swing Over Bed	Length of Bed	Between Centers	Power Required	Cat. No. of Lathe	Weight Crated	Price F.O.B. South Bend	Cat. No. of Lathe	Weight Crated	Price F.O.B. South Bend
16¼ in.	6 ft.	34 in.	1 H.P.	**92-C**	1875 lbs.	**$598.00**	**41-C**	1840 lbs.	**$518.00**
16¼ in.	7 ft.	46 in.	1 H.P.	**92-D**	1955 lbs.	**618.00**	**41-D**	1920 lbs.	**538.00**
16¼ in.	8 ft.	58 in.	1 H.P.	**92-E**	2035 lbs.	**638.00**	**41-E**	2000 lbs.	**558.00**
16¼ in.	10 ft.	82 in.	1 H.P.	**92-G**	2195 lbs.	**682.00**	**41-G**	2160 lbs.	**602.00**
16¼ in.	12 ft.	106 in.	1 H.P.	***92-H**	2355 lbs.	**745.00**	***41-H**	2320 lbs.	**665.00**

*Lathe with 12-foot bed is equipped with center leg which is included in the price of the lathe.

SOUTH BEND LATHE WORKS, 412 E. Madison St., SOUTH BEND, IND., U.S.A.

Practical Jobs for New Model South Bend Lathes

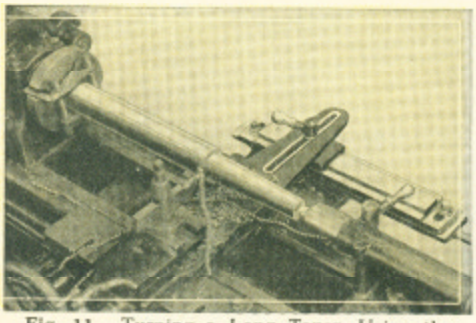


Fig. 11. Turning a Long Taper, Using the Taper Attachment.

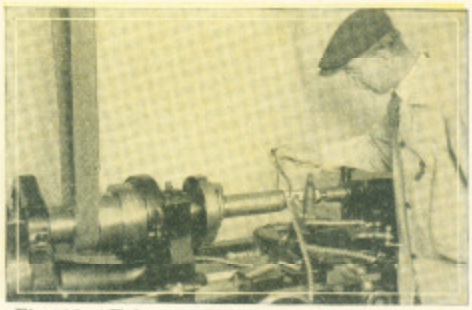


Fig. 12. Taking a Heavy Roughing Cut on a Steel Shaft.

Fig. 13. Boring the Taper of a Steel Conical Die.

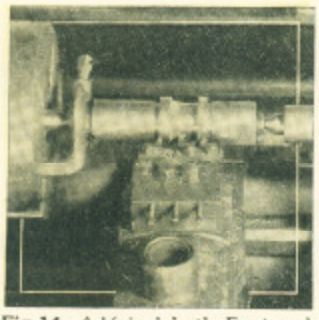


Fig. 14. A 16-inch Lathe Equipped with Triple Tool Block.

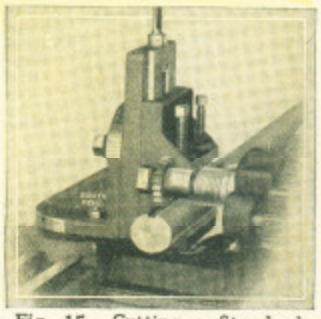


Fig. 15. Cutting a Standard Keyway in a Long Shaft.

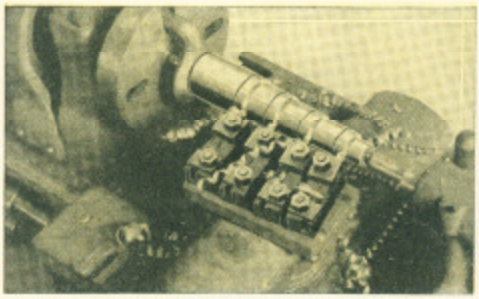


Fig. 16. Multiple Tool Block on a 16-inch New Model Lathe Turning Four Different Diameters.

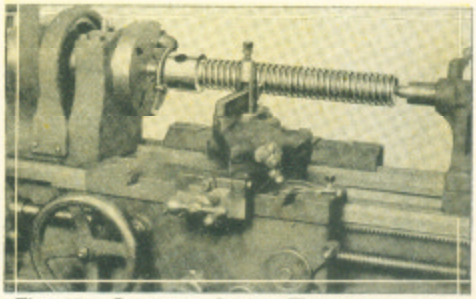


Fig. 17. Cutting a Square Thread, in a New Model South Bend Lathe.

Fig. 18. Sixteen Lathes in Operation in a Modern Industrial Plant.

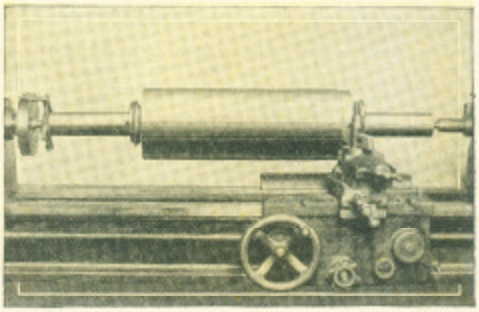
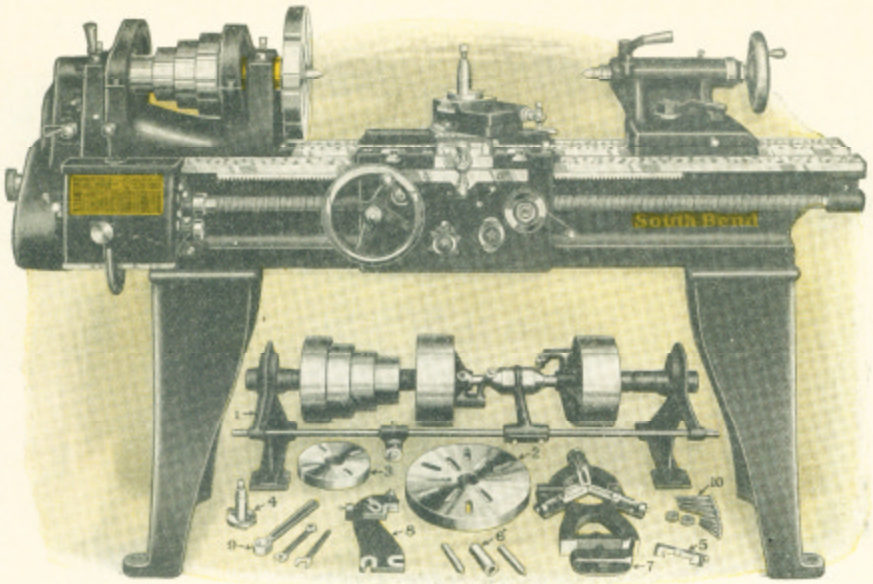


Fig. 19. Turning a Large Steel Roll on a 16-inch South Bend Lathe.

INTERESTING BOOKLETS ON EACH SIZE LATHE MAILED FREE



Regular equipment, as illustrated under Lathe, is included in price of Lathe

13-in. x 5-ft. Quick Change Gear New Model Lathe - $443
15-in. x 5-ft. Quick Change Gear New Model Lathe - $525

Back Geared, Screw Cutting Lathes, Countershaft Drive

The 13-inch and 15-inch Quick Change Gear New Model South Bend Lathes are efficient and powerful tools for the Machine Shop, Tool Room and Manufacturing Plant. These lathes have a capacity for many jobs that cannot be handled on the smaller lathes.

For the Principal Features of the 13 and 15-inch lathes such as Headstock, Spindle, Apron, Bed, Carriage, Lead Screw, Gear Box, etc., see pages 2 and 3.

The Gear Box on Quick Change Gear Lathes provides 48 changes for cutting right or left hand screw threads from 2 to 112 per inch, and for adjusting the automatic cross and longitudinal feeds without removing a gear.

Standard Change Gear Lathes have Independent Change Gears instead of the Quick Change Gear Box for automatic feeds and cutting screw threads. The thread cutting range is from 2 to 40 per inch, right or left hand.

Automatic Friction Feeds. All types of 13 and 15-inch Quick Change and Standard Change Gear Lathes have automatic cross and longitudinal feeds which are operated by a powerful worm drive in the apron. An automatic safety device prevents engaging of any two feeds at once.

Regular Equipment consists of: Double Friction Countershaft, Large and Small Face Plates, Tool Post complete, Adjustable Thread Cutting Stop, two Lathe Centers and Spindle Sleeve, Center Rest, Follower Rest, Wrenches, and a set of Independent Change Gears with the Standard Change Gear Lathe.

Attachments such as Draw-in Collet Chuck, Taper Attachment, Milling Attachment, Tools, etc., may be fitted to these lathes to equip them for tool room, manufacturing and general work. See pages 26 and 27.

Motor Driven Lathes in 13 and 15-inch sizes are described and priced on pages 16 and 17.

LATHE FEATURES

- Full quick change gear mechanism.
- Back geared headstock, 8 speeds.
- Automatic cross and longitudinal feed.
- Hollow spindle, special carbon steel.
- Spring latch reverse for feeds.
- Bronze spindle bearings.
- Graduated compound rest.
- Tailstock set-over for taper turning.
- Graduated collar on feed screws.
- Precision lead screw for accurate th'ds.

SPECIFICATIONS	13-inch Lathe	15-inch Lathe
Spindle Centers, Morse Taper	No. 3	No. 3
Spindle Nose	1⅞ in. dia., 8 Th'ds.	2⅛ in. dia., 6 Th'ds.
Acme Lead Screw	1 in. dia., 6 Th'ds.	1⅛ in. dia., 6 Th'ds.
Thread Cutting Range	2 to 112 per inch	2 to 112 per inch
Cone Pulley Belt	1¾ in.	2 in.
8 Spindle Speeds	25 to 685 R.P.M.	22 to 660 R.P.M.
Countershaft Speeds	275 R.P.M.	250 R.P.M.
Countershaft Friction Pulleys	8 in. x 2⅝ in.	10 in. x 3⅛ in.
Angular Travel of comp. rest	3 in.	3½ in.
Lathe Tool Shank	½ in. x 1⅛ in.	½ in. x 1¼ in.

Net Factory Prices of 13-inch Quick and Standard Change Gear Lathes, with Countershaft and Equipment*

Swing Over Bed	Length of Bed	Between Centers	Power Required	Quick Change Gear: Cat. No. of Lathe	Quick Change Gear: Weight Crated	Quick Change Gear: Price F.O.B. South Bend	Standard Change Gear: Cat. No. of Lathe	Standard Change Gear: Weight Crated	Standard Change Gear: Price F.O.B. South Bend
13¼ in.	4 ft.	16 in.	¾ H.P.	**86-A**	1060 lbs.	**$428.00**	**35-A**	1040 lbs.	**$368.00**
13¼ in.	5 ft.	28 in.	¾ H.P.	**86-B**	1110 lbs.	**443.00**	**35-B**	1090 lbs.	**383.00**
13¼ in.	6 ft.	40 in.	¾ H.P.	**86-C**	1160 lbs.	**458.00**	**35-C**	1140 lbs.	**398.00**
13¼ in.	7 ft.	52 in.	¾ H.P.	**86-D**	1210 lbs.	**475.00**	**35-D**	1190 lbs.	**415.00**
13¼ in.	8 ft.	64 in.	¾ H.P.	**86-E**	1260 lbs.	**494.00**	**35-E**	1240 lbs.	**434.00**

Net Factory Prices of 15-inch Quick and Standard Change Gear Lathes, with Countershaft and Equipment

15¼ in.	5 ft.	24½ in.	1 H.P.	**88-B**	1475 lbs.	**$525.00**	**39-B**	1450 lbs.	**$450.00**
15¼ in.	6 ft.	36½ in.	1 H.P.	**88-C**	1550 lbs.	**543.00**	**39-C**	1525 lbs.	**468.00**
15¼ in.	7 ft.	48½ in.	1 H.P.	**88-D**	1625 lbs.	**561.00**	**39-D**	1600 lbs.	**486.00**
15¼ in.	8 ft.	60½ in.	1 H.P.	**88-E**	1735 lbs.	**581.00**	**39-E**	1710 lbs.	**506.00**
15¼ in.	10 ft.	84½ in.	1 H.P.	**88-G**	1900 lbs.	**625.00**	**39-G**	1875 lbs.	**550.00**

*For 13-inch Lathe with Bench Legs instead of Floor Legs deduct $10.00 from above prices.

Practical Jobs for New Model South Bend Lathes

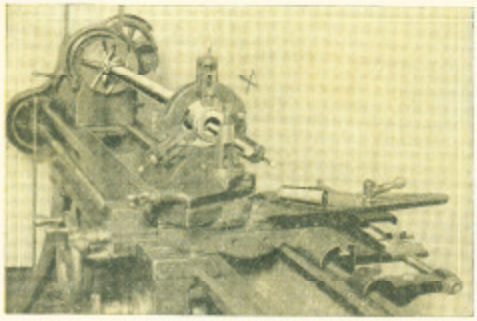


Fig. 20. Boring Taper in Long Shaft Held in Center Rest.

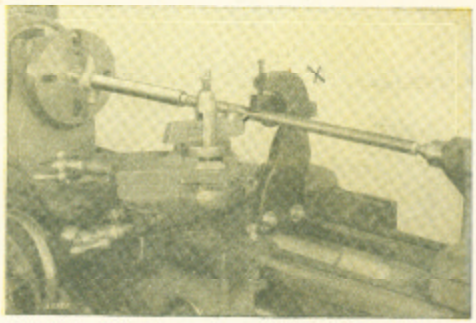


Fig. 21. Turning a Long Shaft of Small Diameter Supported by a Follower Rest.

Fig. 22. Two Tools in Operation at the Same Time.

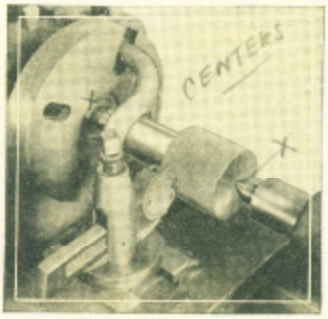


Fig. 23. Knurling a Large Handle Held Between Lathe Centers.

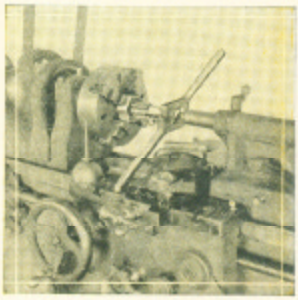


Fig. 24. Tapping a Large Nut in a 13-inch Lathe.

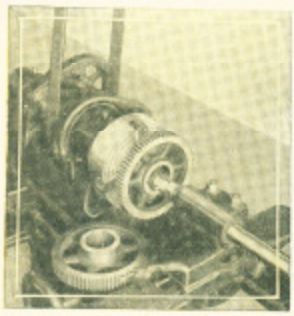


Fig. 25. Cutting a Keyway in a Gear on a 13-inch Lathe.

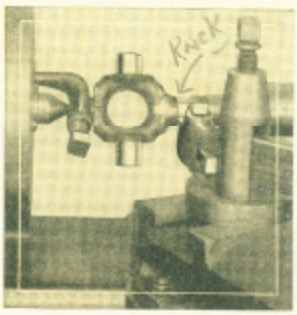


Fig. 26. Turning a Knuckle Between Centers in the Lathe.

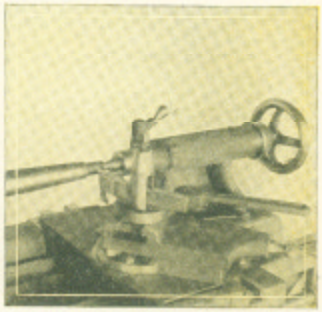


Fig. 27. Cutting Thread on the End of a Long Steel Shaft.

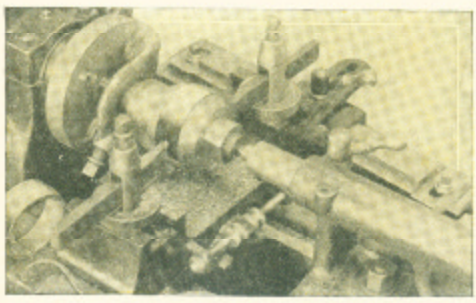


Fig. 28. Crowning a Pulley. Two Operations at Once by Using Double Tool Slide.

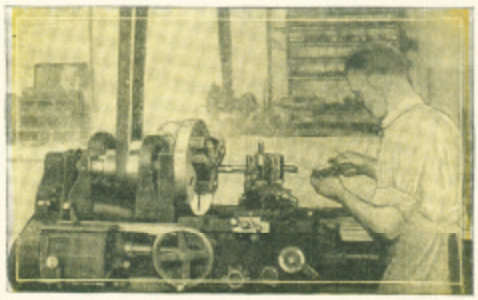
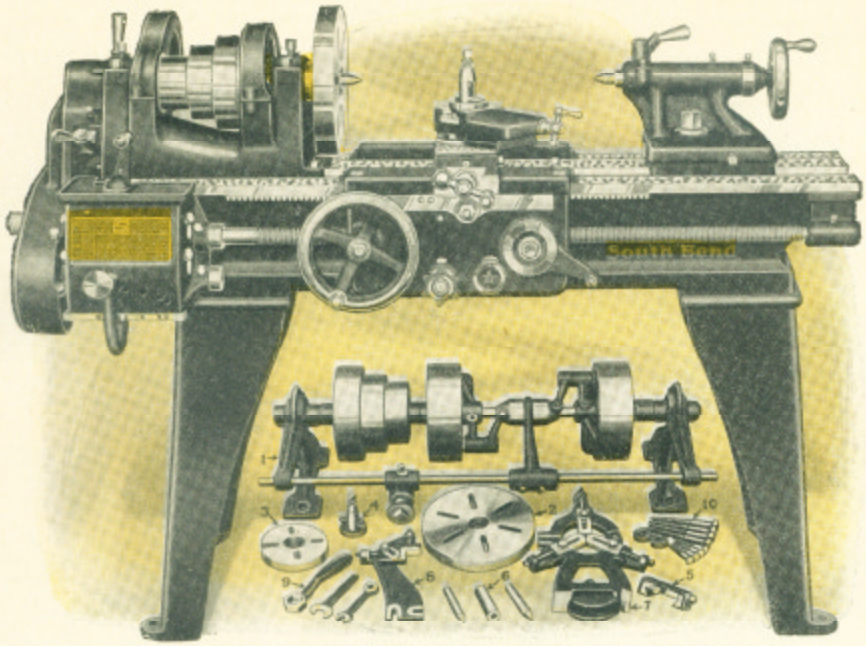


Fig. 29. Boring Special Tool Bolted on Face Plate.



Regular equipment, as illustrated under Lathe, is included in price

11-inch x 4-ft. Quick Change Gear New Model Lathe - $359

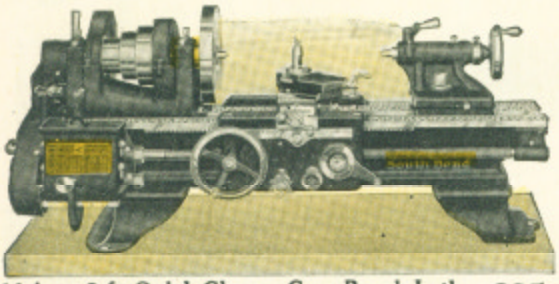
Back Geared, Screw Cutting Lathe, Countershaft Drive

The New Model 11-inch Quick Change Back Geared Screw Cutting Lathe is an excellent tool for the machine shop and for light production work in manufacturing. It has the precision and accuracy for the finest tool room work.

The Quick Change Gear Box provides 48 changes for cutting the following right or left hand screw threads from 2 to 112 per inch without removing a gear: 2, 2¼, 2½, 2¾, 2⅞, 3, 3¼, 3½, 4, 4½, 5, 5½, 5¾, 6, 6½, 7, 8, 9, 10, 11, 11½, 12, 13, 14, 16, 18, 20, 22, 23, 24, 26, 28, 32, 36, 40, 44, 46, 48, 52, 56, 64, 72, 80, 88, 92, 96, 104, 112. It also provides for the adjustment of the automatic cross and automatic longitudinal feeds.

The 11-inch Standard Change Gear New Model Lathe is the same as the Quick Change Gear Lathe except that it has Independent Change Gears instead of the Quick Change Gear Box, for automatic feeds and for cutting screw threads. Its range for cutting screw threads is from 4 to 40 per inch, right or left hand.

Regular Equipment included in price of lathe consists of: Double Friction Countershaft, Large and Small Face Plates, Tool Post complete, Adjustable Thread Cutting Stop, Two Lathe Centers and Spindle Sleeve, Center Rest, Follower Rest, Wrenches, and Change Gears with Standard Change Gear Lathes.



11-in. x 3-ft. Quick Change Gear Bench Lathe $335

Equipment illustrated above included in price.....

LATHE FEATURES—See Page 3

Back geared headstock gives 6 spindle speeds.
Automatic cross feed, automatic longitudinal feed.
Hollow spindle made of special alloy steel.
Spring latch reverse for feeds and threads.
Phosphor bronze bearings for spindle.
Graduated compound rest swivels to any angle.
Tailstock is arranged for set-over for taper turning.
Graduated collar on cross feed and compound rest screws.
Precision lead screw for cutting accurate threads.

LATHE SPECIFICATIONS

Head and Tail Centers.....No. 2 Morse Taper
Size of Spindle Nose.....1⅝" diam., 8 Threads
Precision Acme Lead Screw..⅞" diam., 8 Threads
Width of Cone Pulley Belt.....1½ in.
Spindle Speeds..40, 60, 100, 230, 360, 595 R.P.M.
Countershaft Speed.....290 R.P.M.
Countershaft Friction Clutch Pulleys..6⅞" x 2½"
Angular Travel of Compound Rest Top.....2⅜ in.

Net Factory Prices 11-inch Quick and Standard Change Gear Lathes, with Countershaft and Equipment

Lathe Specifications				Floor Leg Type Lathes*						Bench Type Lathes*					
				Quick Change Gear			Standard Change Gear			Quick Change Gear			Standard Change Gear		
Swing Over Bed	Length of Bed	Between Centers	Power Required	Cat. No. of Lathe	Weight Crated	Price F.O.B. South Bend	Cat. No. of Lathe	Weight Crated	Price F.O.B. South Bend	Cat. No. of Lathe	Weight Crated	Price F.O.B. South Bend	Cat. No. of Lathe	Weight Crated	Price F.O.B. South Bend
11⅛ in.	3 ft.	12 in.	½ H.P.	84-Y	675 lbs.	$345.00	33-Y	660 lbs.	$295.00	84-YB	575 lbs.	$335.00	33-YB	560 lbs.	$285.00
11⅛ in.	3½ ft.	18 in.	½ H.P.	84-Z	700 lbs.	352.00	33-Z	685 lbs.	302.00	84-ZB	600 lbs.	342.00	33-ZB	585 lbs.	292.00
11⅛ in.	4 ft.	24 in.	½ H.P.	84-A	725 lbs.	359.00	33-A	710 lbs.	309.00	84-AB	625 lbs.	349.00	33-AB	610 lbs.	299.00
11⅛ in.	5 ft.	36 in.	½ H.P.	84-B	805 lbs.	375.00	33-B	790 lbs.	325.00	84-BB	705 lbs.	365.00	33-BB	690 lbs.	315.00
11⅛ in.	5½ ft.	42 in.	½ H.P.	84-S	845 lbs.	384.00	33-S	830 lbs.	334.00	84-SB	745 lbs.	374.00	33-SB	730 lbs.	324.00

*11-inch Motor Driven Bench and Floor Leg types are described and priced on pages 16 and 17.

SOUTH BEND LATHE WORKS, 412 E. Madison St., SOUTH BEND, IND., U.S.A.

Practical Jobs for New Model South Bend Lathes

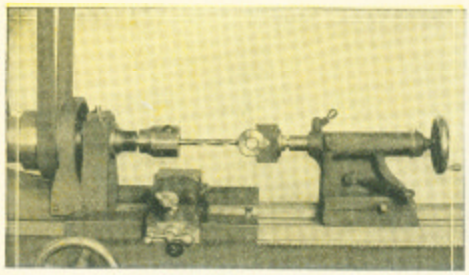


Fig. 30. Drilling Round Work Held in Crotch Center in Tailstock.

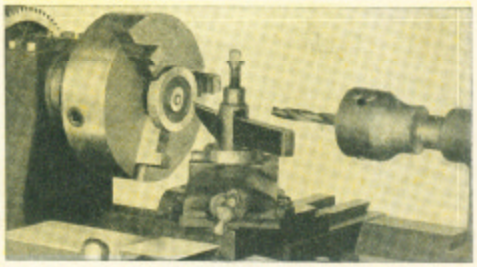


Fig. 31. Drilling and Facing a Cast Iron Gear Blank Held in a Three-jaw Chuck.

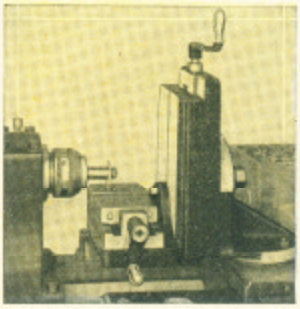


Fig. 32. Milling Attachment Fitted with Horizontal Vise Fixture.

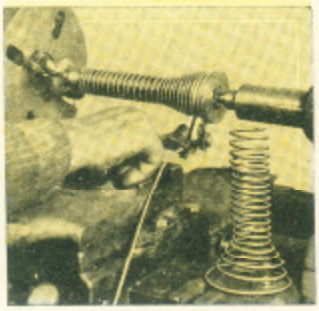


Fig. 33. Winding a Spring on the 11-inch Lathe.

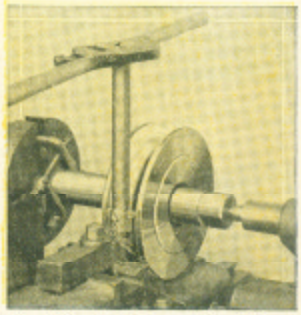


Fig. 34. Making a Pipe Bending Roll.

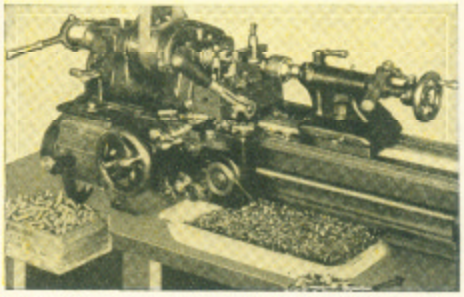


Fig. 35. Production Work with Lever Type Draw-in Chuck, Tailstock and Cross Slide.

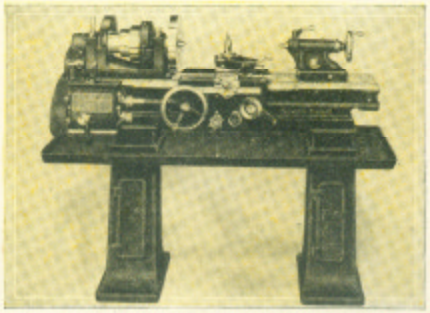


Fig. 36. 11-inch Lathe Fitted with Cabinet Legs and Oil Pan.

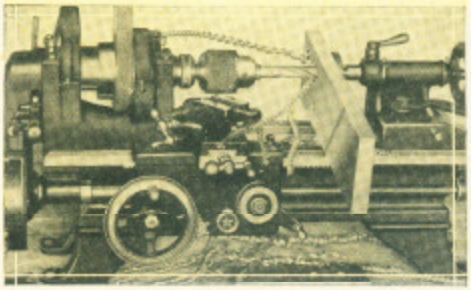


Fig. 37. Drilling a Piece of Flat Steel Held Against Drill Pad in Tailstock.

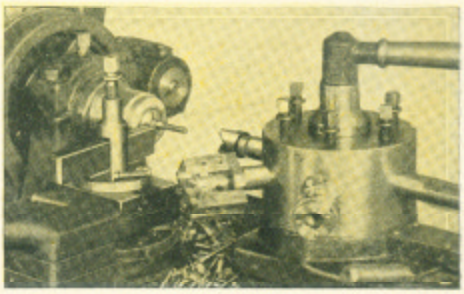
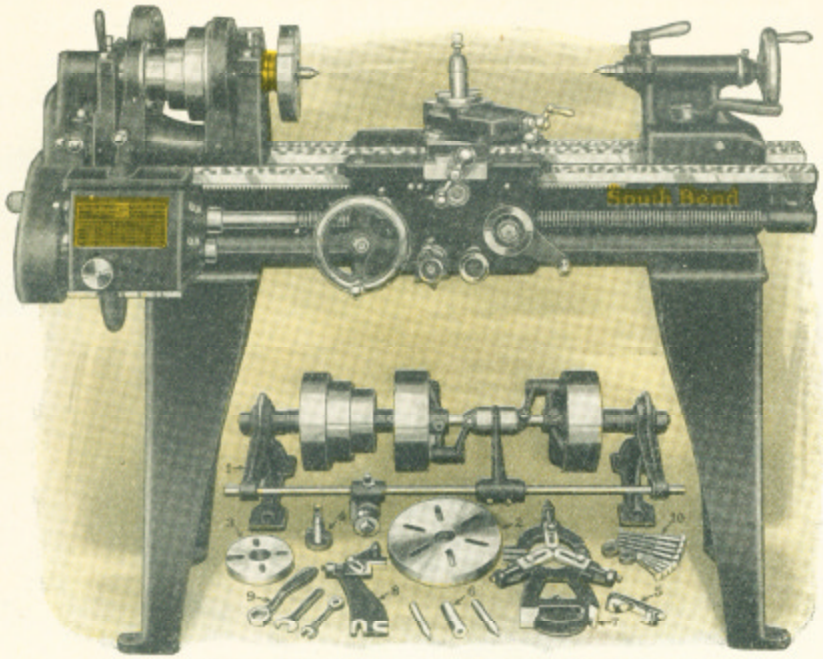


Fig. 38. Draw-in Collet Chuck and Turret for Manufacturing.

INTERESTING BOOKLETS ON EACH SIZE LATHE MAILED FREE



Regular equipment, as illustrated under Lathe, is included in price

9-inch x 3-ft. Quick Change Gear New Model Lathe - $294

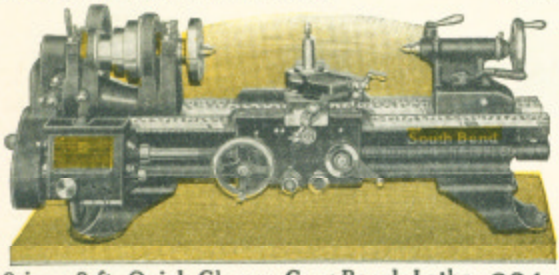
Back Geared, Screw Cutting Lathe, Countershaft Drive

The 9-inch New Model South Bend Quick Change Back Geared Screw Cutting Lathe is a sturdy and dependable tool for the shop where light accurate work is machined. It has the precision for work of the finest accuracy.

The Quick Change Gear Box provides 48 changes for cutting the following right or left hand screw threads from 2 to 112 per inch: 2, 2¼, 2½, 2¾, 2⅞, 3, 3¼, 3½, 4, 4½, 5, 5½, 5⅝, 6, 6½, 7, 8, 9, 10, 11, 11½, 12, 13, 14, 16, 18, 20, 22, 23, 24, 26, 28, 32, 36, 40, 44, 46, 48, 52, 56, 64, 72, 80, 88, 92, 96, 104, 112. It also provides for a wide range of the automatic cross and automatic longitudinal feeds.

The 9-inch Standard Change Gear New Model Lathe is the same as the Quick Change Gear Lathe except that it has Independent Change Gears instead of the Quick Change Gear Box, for automatic feeds and for cutting screw threads. Its range for cutting screw threads is from 4 to 40 per inch, right or left hand.

Regular Equipment included in price of lathe consists of: Double Friction Countershaft, Large and Small Face Plates, Tool Post complete, Adjustable Thread Cutting Stop, Two Lathe Centers and Spindle Sleeve, Center Rest, Follower Rest, Wrenches, and Change Gears with Standard Change Gear Lathes.



9-in. x 3-ft. Quick Change Gear Bench Lathe $284
Equipment illustrated above included in price.....

LATHE FEATURES—See Page 3

Back geared headstock gives 6 spindle speeds.
Automatic cross feed, automatic longitudinal feed.
Hollow spindle made of special alloy steel.
Spring latch reverse for feeds and threads.
Phosphor bronze bearings for spindle.
Graduated compound rest swivels to any angle.
Tailstock is arranged for set-over for taper turning.
Graduated collar on cross feed and compound rest screws.
Precision lead screw for cutting accurate threads.

LATHE SPECIFICATIONS

Head and Tail Centers.....No. 2 Morse Taper
Size of Spindle Nose.....1½" diam., 8 Threads
Precision Acme Lead Screw..¾" diam., 8 Threads
Width of Cone Pulley Belt.....1 in.
Spindle Speeds..40, 75, 128, 246, 410, 700 R.P.M.
Countershaft Speed.....390 R.P.M.
Countershaft Friction Clutch Pulleys..6⅞" x 2½"
Angular Travel of Compound Rest Top....1⅞ in.

Net Factory Prices 9-inch Quick and Standard Change Gear Lathes, with Countershaft and Equipment

Lathe Specifications				Floor Leg Type Lathes*						Bench Type Lathes*					
				Quick Change Gear			Standard Change Gear			Quick Change Gear			Standard Change Gear		
Swing Over Bed	Length of Bed	Between Centers	Power Required	Cat. No. of Lathe	Weight Crated	Price F.O.B. South Bend	Cat. No. of Lathe	Weight Crated	Price F.O.B. South Bend	Cat. No. of Lathe	Weight Crated	Price F.O.B. South Bend	Cat. No. of Lathe	Weight Crated	Price F.O.B. South Bend
9¾ in.	2½ ft.	11 in.	¼ H.P.	82-X	470 lbs.	$288.00	31-X	460 lbs.	$243.00	82-XB	405 lbs.	$278.00	31-XB	395 lbs.	$233.00
9¾ in.	3 ft.	18 in.	¼ H.P.	82-Y	490 lbs.	294.00	31-Y	480 lbs.	249.00	82-YB	425 lbs.	284.00	31-YB	415 lbs.	239.00
9¾ in.	3½ ft.	23 in.	¼ H.P.	82-Z	510 lbs.	300.00	31-Z	500 lbs.	255.00	82-ZB	445 lbs.	290.00	31-ZB	435 lbs.	245.00
9¾ in.	4 ft.	29 in.	¼ H.P.	82-A	530 lbs.	307.00	31-A	520 lbs.	262.00	82-AB	465 lbs.	297.00	31-AB	455 lbs.	252.00
9¾ in.	4½ ft.	36 in.	¼ H.P.	82-R	550 lbs.	315.00	31-R	540 lbs.	270.00	82-RB	490 lbs.	305.00	31-RB	480 lbs.	260.00

*9-inch Motor Driven Bench and Floor Leg types are described and priced on pages 16 and 17.

SOUTH BEND LATHE WORKS, 412 E. Madison St., SOUTH BEND, IND., U.S.A.

Practical Jobs for New Model South Bend Lathes

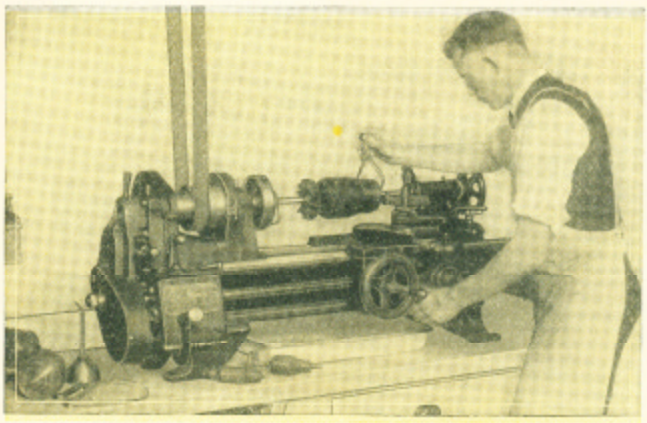


Fig. 39. The Above Illustration Shows a 9-inch Quick Change Gear Bench Lathe in Operation. This Lathe Is Equipped with Quick Change Gear Box and Automatic Friction Feeds.

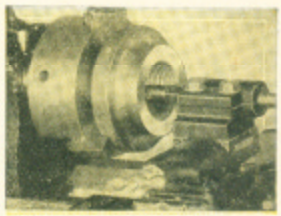


Fig. 40. Cutting Internal Thread.

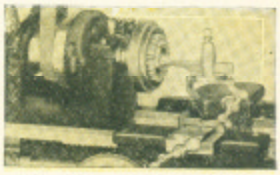


Fig. 41. Boring a Pinion Held in a Step Chuck.

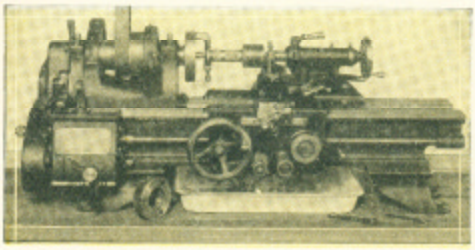


Fig. 42. Making a Master Tap in a 9-inch Quick Change Gear Bench Lathe

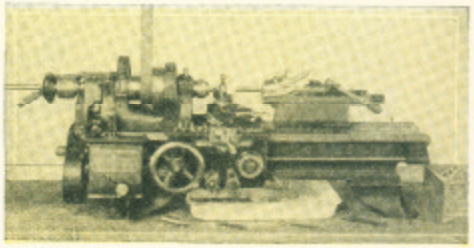


Fig. 43. Lathe with Hand Lever Type Draw-in Chuck and Semi-Automatic Bed Turret.

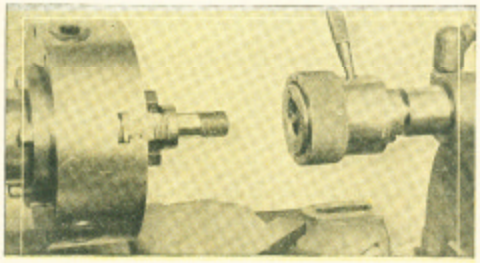


Fig. 44. Self-Opening Die Equipment for Rapid Thread Cutting on Manufacturing Job.

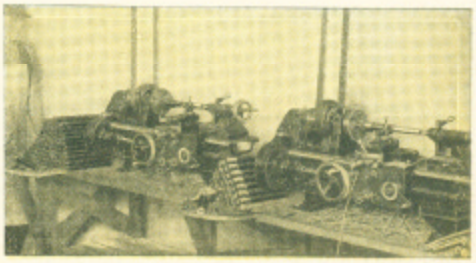


Fig. 45. Two 9-inch Bench Lathes on Production Work Operated by One Man.

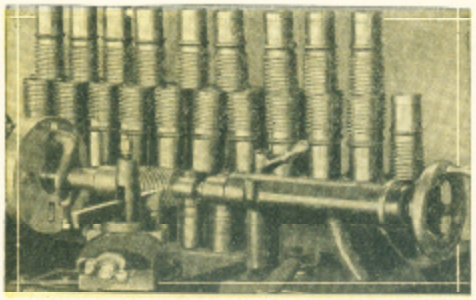


Fig. 46. Cutting an Acme Thread on Steel Worm

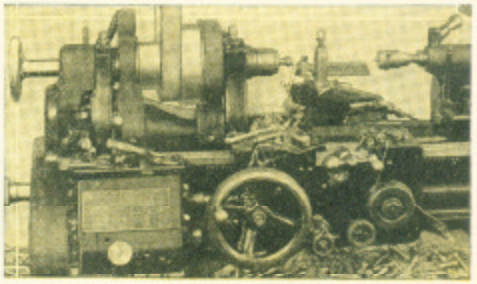
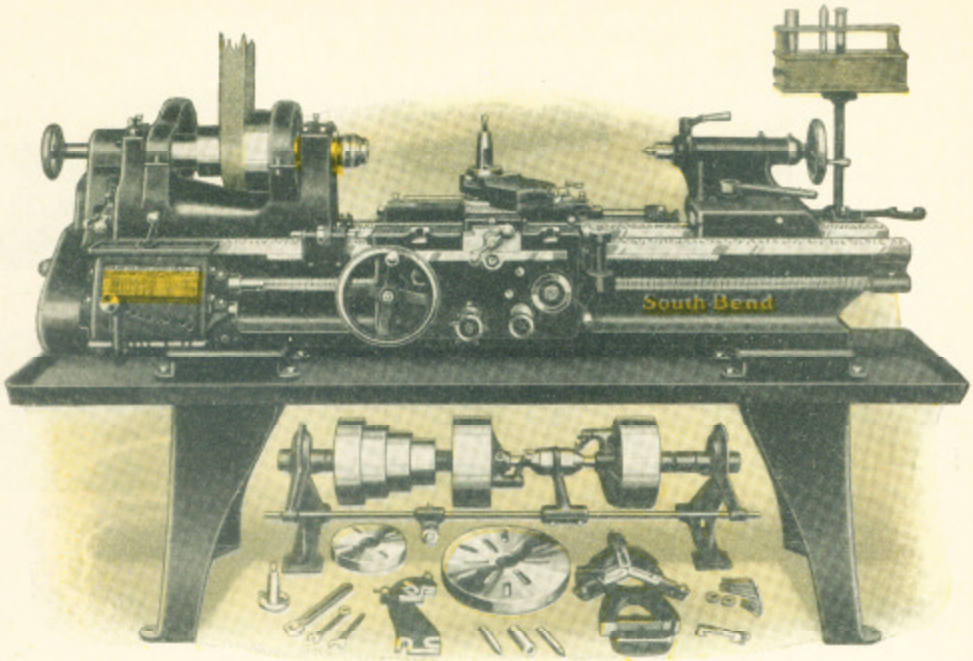


Fig. 47. Manufacturing Small Duplicate Parts on a Quick Change Gear Bench Lathe.



Equipment illustrated under Lathe is included in price

16-in. x 6-ft. New Model Tool Room Precision Lathe - $598

Overhead Countershaft Drive

The New Model South Bend Tool Room Lathe is recommended for fine tool work. It is widely used by many of the largest manufacturing plants in the United States because it is capable of turning out fine tool work with precision and accuracy. This lathe is practical for making precision taps, master thread gauges, special screws, dies, fixtures, tools, etc., and will meet the demands of the expert mechanic.

For Features and Specifications of Tool Room Lathes see page 3 and the page on which the corresponding size of Quick Change Lathe appears.

Regular Equipment included with Lathes priced below consists of: Double Friction Countershaft, Large Face Plate, Small Face Plate, Tool Post Complete, Adjustable Thread Cutting Stop, two Lathe Centers and Spindle Sleeve, Center Rest, Follower Rest and Wrenches, also Installation Plans, Floor Plans and book, "How to Run a Lathe." See pages 29 and 30.

Tool Room Lathes are furnished in 11-inch, 13-inch, 15-inch, 16-inch and 18-inch sizes in Countershaft Drive type (above) and Motor Drive type (next page).

Net Factory Prices Tool Room Precision Lathes—Countershaft Drive

Size of Lathe	11" x 4' Cat. No. 884-A		13" x 5' Cat. No. 886-B		15" x 6' Cat. No. 888-C		16" x 6' Cat. No. 892-C		18" x 8' Cat. No. 894-E	
Tool Room Lathe, Countershaft Drive, with Regular Equipment but without Special Attachments	Code Word	Price	Code Word	Price	Code Word	Price	Code Word	Price	Code Word	Price
	Emdor	$359.00	Gehos	$443.00	Lemon	$543.00	Malta	$598.00	Sibar	$763.00
TOOL ROOM ATTACHMENTS*										
Hand Wheel Type Draw-In Collet Chuck Attachment with One Collet	Abode	38.00	About	44.00	Above	50.00	Adore	56.00	Adult	63.00
Extra Collets 1/2 in. up to capacity by 64ths. Each	Cello	4.40	Chose	5.00	Civit	5.50	Clear	6.00	Comet	6.50
Taper Attachment	Devor	60.00	Digit	75.00	Doted	80.00	Dress	90.00	Dunns	95.00
Thread Indicator	Acres	8.00	Advis	10.00	Aesop	10.00	Adot	12.00	Agrol	12.00
Oil Pan	Odium	27.00	Obern	38.00	Okres	49.00	Okres	50.00	Omens	65.00
Micrometer Carriage Stop	Ceded	12.00	Chain	13.00	Cigar	14.00	Climb	15.00	Coral	17.00
Collet Cabinet and Bracket	Crome	12.00	Cooke	12.00	Cnarl	15.00	Cadro	15.00	Catch	15.00
Prices of Tool Room Lathe Complete	**Ewhot**	**$520.40**	**Grose**	**$640.00**	**Lomar**	**$766.50**	**Myajo**	**$842.00**	**Stove**	**$1036.50**

*Customer may select only those attachments required for his work. See pages 26 and 27.

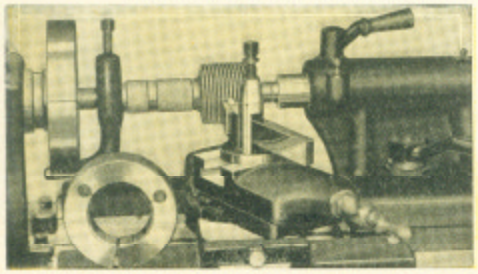


Fig. 48. Cutting the Thread on a Master Screw Thread Gauge.

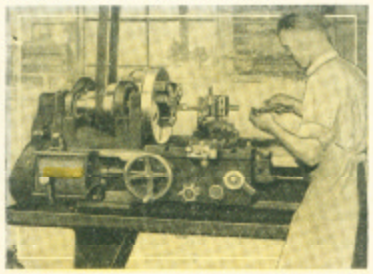
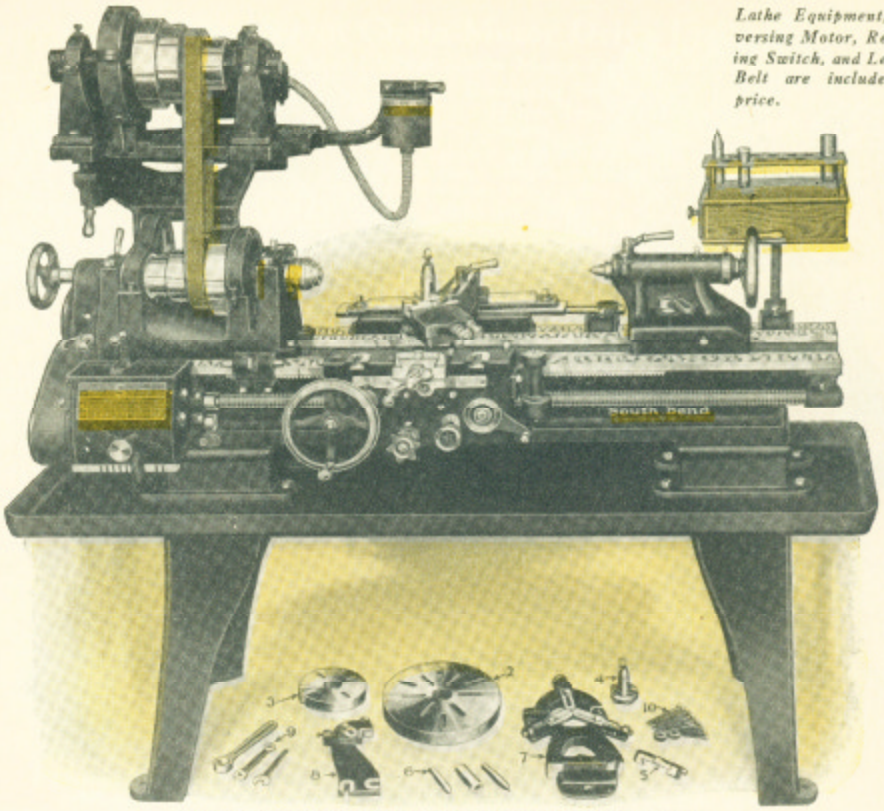


Fig. 49. Boring a Special Tool Bolted on Face Plate of Tool Room Lathe.

Lathe Equipment, Reversing Motor, Reversing Switch, and Leather Belt are included in price.



Equipment illustrated under Lathe is included in price

13-in. x 5-ft. New Model Tool Room Precision Lathe - $602

Silent Chain Motor Drive

The Silent Chain Motor Driven Tool Room Lathe is exactly the same as the Countershaft Driven Lathe except in the form of drive. For complete information on Motor Drive see pages 16 and 17.

Features and Specifications are described on page 3 and the page on which the corresponding size of Quick Change Gear Lathe is illustrated.

Regular Lathe Equipment included in the price of all Silent Chain Motor Driven Tool Room Lathes is illustrated above.

Electrical Equipment furnished consists of: Reversing Motor (Westinghouse, General Electric or equal make), Reversing Switch, Flexible Metal Conduit, Wiring Diagram and Leather Belt.

Net Factory Prices Tool Room Precision Lathes—Silent Chain Motor Drive

Prices Include Lathe Equipment, 3-phase, 60-cycle, A. C. Reversing Motor, Reversing Switch and Leather Belt

Size of Lathe	11" x 4' Cat. No. 3884-A		13" x 5' Cat. No. 3886-B		15" x 6' Cat. No. 3888-C		16" x 6' Cat. No. 3892-C		18" x 8' Cat. No. 3894-E	
	Code Word	Price	Code Word	Price	Code Word	Price	Code Word	Price	Code Word	Price
Tool Room Lathe, Silent Chain Motor Drive, with Electrical Equipment but without Special Attachments	Ecrow	$498.00	Gemic	$602.00	Leona	$720.00	Madge	$777.00	Semin	$997.00
TOOL ROOM ATTACHMENTS*										
Hand Wheel Type Draw-in Collet Chuck Attachment with One Collet	Abode	38.00	About	44.00	Above	$50.00	Adore	56.00	Adult	63.00
Extra Collets $\frac{1}{64}$ in. up to capacity by 64ths.	Cello	4.40	Chose	5.00	Civit	5.50	Clear	6.00	Comet	6.50
Taper Attachment	Dewar	60.00	Digit	75.00	Doted	80.00	Dress	90.00	Dunns	95.00
Thread Indicator	Acres	8.00	Advis	10.00	Aesop	10.00	Afot	12.00	Agrol	12.00
Oil Pan	Odium	27.00	Olera	38.00	Okra	49.00	Okres	59.00	Omera	65.00
Micrometer Carriage Stop	Ceded	12.00	Chain	13.00	Cigar	14.00	Climb	15.00	Coral	17.00
Collet Cabinet and Bracket	Croma	12.00	Choke	12.00	Cnarl	15.00	Cadre	15.00	Catch	15.00
Prices of Tool Room Lathe Complete	Emios	$659.40	Gazor	$799.00	Luped	$943.50	Mxate	$1021.00	Srode	$1270.50

*Customer may select only those attachments required for his work. See pages 26 and 27.

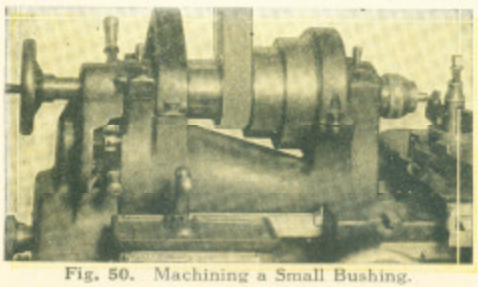


Fig. 50. Machining a Small Bushing.

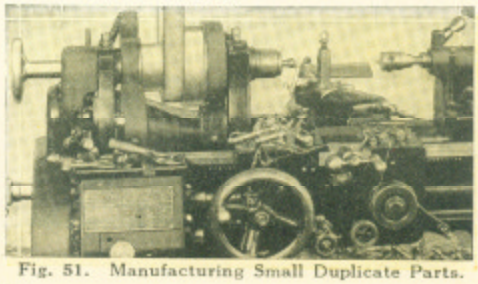
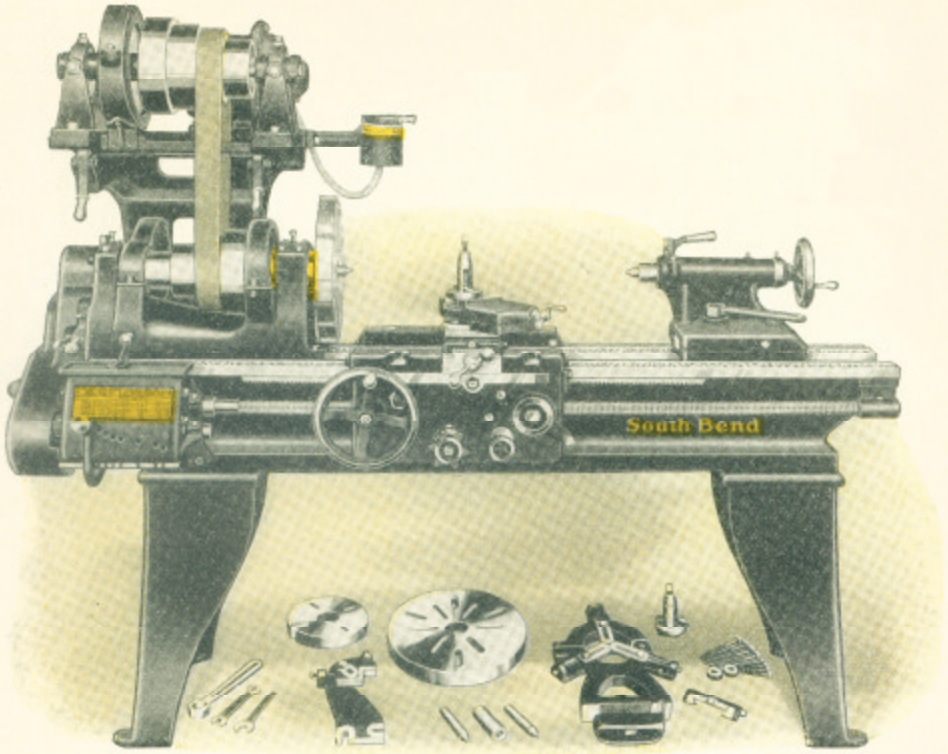


Fig. 51. Manufacturing Small Duplicate Parts.



Reversing Motor, Reversing Switch and Lathe Equipment are included in price

16-in. x 6-ft. Silent Chain Motor Driven Lathe - $777

Six Sizes—9-inch to 18-inch Swing—Standard and Quick Change Gear Lathes

The New Model South Bend Silent Chain Motor Driven Lathe is efficient and practical for use in manufacturing plant, tool room, and general machine shop. The lathe is a complete unit requiring no extra driving equipment of any kind. It occupies only the same amount of floor space as the regular belt driven lathe and is ready to operate as soon as it is connected to the electric current.

All Sizes of South Bend Quick Change Gear and Standard Change Gear Lathes illustrated and described on pages 4 to 12 inclusive also Tool Room Lathes and Large Swing Lathes are furnished in the Silent Chain Motor Drive Pattern. The same specifications and descriptions apply to the Silent Chain Motor Driven Lathes that apply to the Countershaft Driven Lathes, as the only difference between them is in the form of drive.

The Cone Pulleys and Back Gears of the lathe headstock provide a wide range of spindle speeds, eliminating the expense of special variable and adjustable speed motors, allowing standard, constant speed reversing motors to be used.

The Silent Chain Motor Drive used on South Bend Lathes was developed in the shops of the General Electric Company several years ago. It is the ideal electric drive for the screw cutting lathe as it is practical and powerful and eliminates vibration and noise. Power is delivered from the motor through the silent chain and then by belt to the lathe spindle. Driving the spindle cone by the belt does away with all vibration and permits the cutting tool to work efficiently and to leave a smooth surface on the work. The Silent Chain Motor Drive is by far the most popular form of motor drive.

Reversing Motors and Reversing Switches are furnished on all South Bend Motor Driven Lathes in order to provide instantaneous starting, stopping and reversing of the lathe spindle which is so important on a back geared screw cutting lathe. A complete stock of reversing motors is carried at our plant so that prompt delivery can be made. When customers wish to supply their own motors there will be an extra charge made for the special work involved in fitting the motor to the lathe.

When Ordering a Motor Driven Lathe give the following information regarding the electric current to be used, so that the proper style and type of reversing motor can be fitted to the lathe.

State the Exact Voltage of Motor Wanted, do not specify 110-220-volt motor as we cannot furnish motors for double voltage rating.

—If Alternating Current state exact voltage, phase, cycle, and number of wires.

—If Direct Current state exact voltage only.

You Can Secure your current specifications from the electric power company furnishing your current.

When Ordering Lathes by Telegram or Cablegram use code words to indicate motor specifications. The code words below cover the popular motor specifications.

If your motor specifications differ from those that we list below, give us the exact voltage, phase and cycle.

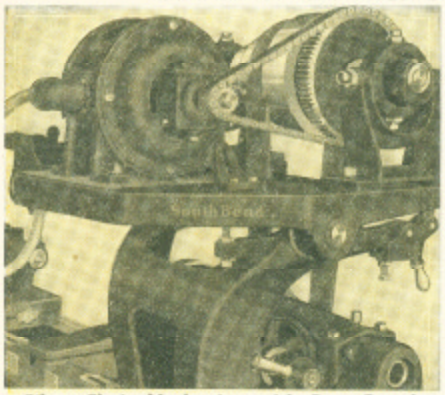
CODE WORD CURRENT SPECIFICATIONS

Zapin	1-phase, 60 cycle, 110-volt, A. C. Motor
Zbras	1-phase, 60 cycle, 220-volt, A. C. Motor
Zingo	3-phase, 60 cycle, 110-volt, A. C. Motor
Zompe	3-phase, 60 cycle, 220-volt, A. C. Motor
Zurik	115-volt D. C. Motor
Zuwel	230-volt D. C. Motor

CATALOG NO. 90-A DESCRIBES ENTIRE LINE NEW MODEL LATHES AND ACCESSORIES

The New Silent Chain Motor Drive Unit

Used on All New Model Silent Chain Motor Driven Lathes



Silent Chain Mechanism with Gear Guard Removed

The Reversing Motor is mounted above the lathe where it is free from dirt and chips. A flexible metal conduit encases wiring from motor to switch. The silent chain drive which connects the motor with the upper cone is provided with a felt wick oiler and is entirely enclosed by a gear guard made of cast iron.

The Motor Table which supports the motor and driving cone is held by a heavy bracket mounted directly on the lathe bed. A small lever convenient to the operator allows the motor table to tilt forward and relieve the belt tension for easy shifting. An independent adjustment is provided for taking up the stretch in belt.

Reversing Switch (Drum Type)

The lever operates the switch in a rotary motion, left for starting, center for stopping and right for reversing the rotation of the lathe spindle and lead screw. This switch is included in the price of all types of Motor Driven South Bend Lathes, 9-inch to 18-inch swing.

Electrical Equipment Included in the Price of the Silent Chain Motor Driven Lathes, both Quick Change Gear and Standard Change Gear, consists of 1200 R. P. M. Reversing Motor (Westinghouse, General Electric, or equal make), Reversing Switch, wiring between motor and switch, flexible metal conduit, wiring diagram, and leather belt.

Regular Lathe Equipment included in price of all Silent Chain Motor Driven Lathes, Quick Change and Standard Change types is shown under the lathe illustrated on page 16.

The General Design of the Silent Chain Drive used on Silent Chain Motor Driven Lathes 9-inch swing to 18-inch swing, in both straight bed and gap bed types, Standard and Quick Change, is the same on all sizes although the actual dimensions of the drive unit vary according to the size lathe.

Each Motor Driven Lathe is Thoroughly Tested before shipping. We connect the motor and switch, test and inspect the wiring, then operate and test the lathe under its own power. When the lathe arrives it will be ready to operate.

Prices of New Model Silent Chain Motor Driven Lathes*

Prices Include Lathe Equipment, Reversing Motor, Reversing Switch and Leather Belt

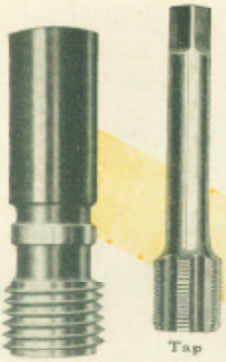
Swing Over Bed Inches	Length of Bed Feet	Distance Between Centers Inches	Size of Motor H. P.	Approx. Weight Crated Pounds	QUICK CHANGE GEAR LATHES					STANDARD CHANGE GEAR LATHES				
					Catalog Number of Lathe	Code Word	With 3 Phase 60 Cycle A.C. Motor	With Single Phase 60 Cycle A.C. Motor	With Direct Current Motor	Catalog Number of Lathe	Code Word	With 3 Phase 60 Cycle A.C. Motor	With Single Phase 60 Cycle A.C. Motor	With Direct Current Motor
9-inch Silent Chain Motor Driven Lathes														
9¼ in.	2½ ft.	11 in.	¼ H.P.	670 lbs.	382-X	Baten	$ 392.00	$ 407.00	$ 400.00	331-X	Bread	$ 347.00	$ 362.00	$ 355.00
9¼ in.	3 ft.	18 in.	¾ H.P.	690 lbs.	382-Y	Betal	398.00	413.00	406.00	331-Y	Bucar	353.00	368.00	361.00
9¼ in.	3½ ft.	23 in.	¾ H.P.	710 lbs.	382-Z	Binks	404.00	419.00	412.00	331-Z	Bvint	359.00	374.00	367.00
9¼ in.	4 ft.	29 in.	¼ H.P.	730 lbs.	382-A	Blast	411.00	426.00	419.00	331-A	Bwity	366.00	381.00	374.00
9¼ in.	4½ ft.	36 in.	¾ H.P.	750 lbs.	382-R	Bolan	419.00	434.00	427.00	331-R	Bzump	374.00	389.00	382.00
11-inch Silent Chain Motor Driven Lathes														
11¼ in.	3 ft.	12 in.	½ H.P.	870 lbs.	384-Y	Eadow	$ 484.00	$ 512.00	$ 495.00	333-Y	Eflam	$ 434.00	462.00	$ 445.00
11¼ in.	3½ ft.	18 in.	½ H.P.	895 lbs.	384-Z	Ebert	491.00	519.00	502.00	333-Z	Eguil	441.00	469.00	452.00
11¼ in.	4 ft.	24 in.	½ H.P.	920 lbs.	384-A	Ecrow	498.00	526.00	509.00	333-A	Ehams	448.00	476.00	459.00
11¼ in.	5 ft.	36 in.	½ H.P.	1035 lbs.	384-B	Edaze	514.00	542.00	525.00	333-B	Ehaw	464.00	492.00	475.00
11¼ in.	5½ ft.	42 in.	½ H.P.	1060 lbs.	384-S	Efpik	523.00	551.00	534.00	333-S	Ejpbx	473.00	501.00	484.00
13-inch Silent Chain Motor Driven Lathes														
13¼ in.	4 ft.	16 in.	¾ H.P.	1460 lbs.	386-A	Gazed	$ 587.00	$ 630.00	$ 598.00	335-A	Glubr	$ 527.00	$ 570.00	$ 538.00
13¼ in.	5 ft.	28 in.	¾ H.P.	1510 lbs.	386-B	Gemis	602.00	645.00	613.00	335-B	Guest	542.00	585.00	553.00
13¼ in.	6 ft.	40 in.	¾ H.P.	1560 lbs.	386-C	Giraf	617.00	660.00	628.00	335-C	Gramp	557.00	600.00	568.00
13¼ in.	7 ft.	52 in.	¾ H.P.	1610 lbs.	386-D	Gotam	634.00	677.00	645.00	335-D	Grief	574.00	617.00	585.00
13¼ in.	8 ft.	64 in.	¾ H.P.	1685 lbs.	386-E	Gneza	653.00	696.00	664.00	335-E	Gwilt	593.00	636.00	604.00
15-inch Silent Chain Motor Driven Lathes														
15⅛ in.	5 ft.	24½ in.	1 H.P.	1925 lbs.	388-B	Labor	$ 702.00	$ 734.00	$ 780.00	339-B	Loane	$ 627.00	$ 658.00	$ 705.00
15⅛ in.	6 ft.	36½ in.	1 H.P.	2025 lbs.	388-C	Leone	720.00	749.00	798.00	339-C	Longe	645.00	674.00	723.00
15⅛ in.	7 ft.	48½ in.	1 H.P.	2075 lbs.	388-D	Leper	738.00	767.00	816.00	339-D	Lotus	663.00	692.00	741.00
15⅛ in.	8 ft.	60½ in.	1 H.P.	2150 lbs.	388-E	Licen	758.00	787.00	836.00	339-E	Luala	683.00	712.00	761.00
15⅛ in.	10 ft.	84½ in.	1 H.P.	2360 lbs.	388-G	Lindy	802.00	831.00	880.00	339-G	Lyric	727.00	756.00	805.00
16-inch Silent Chain Motor Driven Lathes														
16¼ in.	6 ft.	34 in.	1 H.P.	2310 lbs.	392-C	Madge	$ 777.00	$ 806.00	$ 855.00	341-C	Mirac	$ 697.00	$ 726.00	$ 775.00
16¼ in.	7 ft.	46 in.	1 H.P.	2390 lbs.	392-D	Magil	797.00	826.00	875.00	341-D	Moats	717.00	746.00	795.00
16¼ in.	8 ft.	58 in.	1 H.P.	2470 lbs.	392-E	Mears	817.00	846.00	895.00	341-E	Moral	737.00	766.00	815.00
16¼ in.	10 ft.	82 in.	1 H.P.	2630 lbs.	392-G	Metro	861.00	890.00	939.00	341-G	Music	781.00	810.00	859.00
16¼ in.	12 ft.	106 in.	1 H.P.	2890 lbs.	392-H	Mires	924.00	953.00	1002.00	341-H	Myben	844.00	873.00	922.00
18-inch Silent Chain Motor Driven Lathes														
18¼ in.	6 ft.	29½ in.	2 H.P.	3040 lbs.	394-C	Sacks	$ 947.00	$ 999.00	$1044.00	343-C	Sober	$ 857.00	$ 909.00	$ 954.00
18¼ in.	7 ft.	41½ in.	2 H.P.	3140 lbs.	394-D	Sarge	972.00	1024.00	1069.00	343-D	Sorel	882.00	934.00	979.00
18¼ in.	8 ft.	53½ in.	2 H.P.	3240 lbs.	394-E	Semin	997.00	1049.00	1094.00	343-E	Sanro	907.00	959.00	1004.00
18¼ in.	10 ft.	77½ in.	2 H.P.	3440 lbs.	394-G	Seoul	1051.00	1103.00	1148.00	343-G	Sucre	961.00	1013.00	1058.00
18¼ in.	12 ft.	101½ in.	2 H.P.	3740 lbs.	394-H	Simpe	1129.00	1181.00	1226.00	343-H	Sugar	1039.00	1091.00	1136.00
18¼ in.	14 ft.	125½ in.	2 H.P.	4140 lbs.	394-K	Sinks	1191.00	1243.00	1288.00	343-K	Synth	1101.00	1153.00	1198.00

Prices of Silent Chain Motor Driven Lathes equipped with 50-cycle motor are the same as prices of Lathes with 60-cycle motor. Prices of Silent Chain Motor Driven Lathes equipped with 25-cycle motor will be quoted on request.

***NOTE—For 9-inch and 11-inch Silent Chain Motor Driven Lathes with Bench Legs deduct $7.50 from above prices.**

SOUTH BEND LATHES MAY BE PURCHASED ON EASY PAYMENTS—BOOKLET ON REQUEST

Screw Threads Cut on the New Model South Bend Lathe



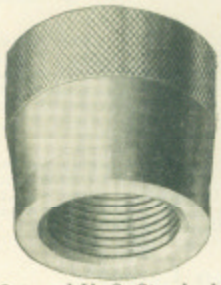
Thread Gauge

Tap

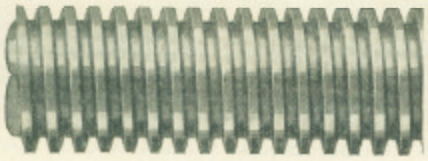
Cutting a Screw Thread

Tap

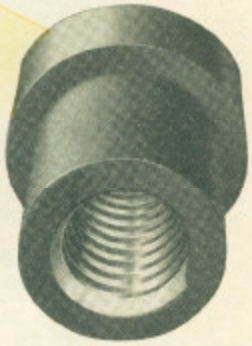
Thread Gauge



Internal U. S. Standard Thread



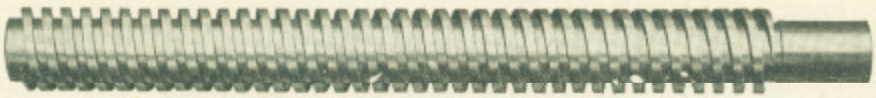
Precision Lead Screw—Acme Thread



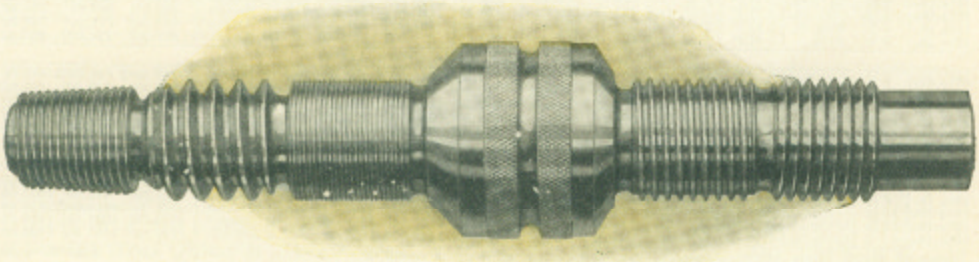
A Nut with Internal Square Thread

Right Hand Acme Double Screw Thread

U. S. Standard Thread



Right Hand Double Screw Square Thread

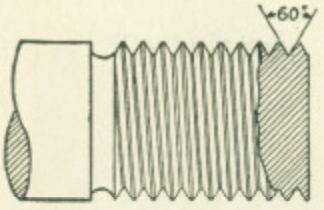


Special Screw Showing Various Types of Threads

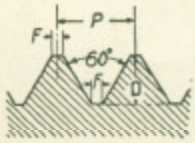
Standard Screw Threads and Formulas

From Book "How to Run a Lathe"

U. S. Standard Screw Thread



U.S. STANDARD SCREW THREADS



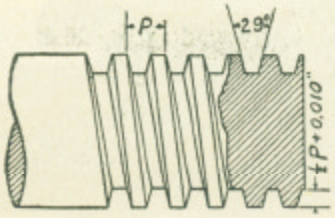
FORMULA

P = PITCH = $\frac{1}{\text{NO. THDS. PER IN.}}$

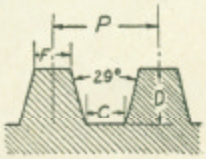
D = DEPTH = P X .64952

F = FLAT = $\frac{P}{8}$

Acme Screw Thread



ACME SCREW THREADS



FORMULA

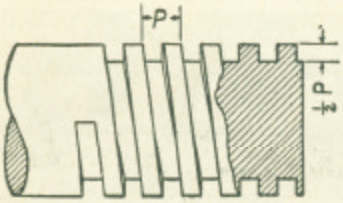
P = PITCH = $\frac{1}{\text{NO. THDS. PER IN}}$

D = DEPTH = $\frac{1}{2}$ P. + .010

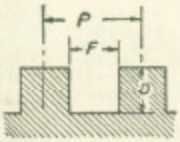
F = FLAT = .3707 P

C = FLAT = .3707 P − .0052

Square Screw Thread



SQUARE THREADS



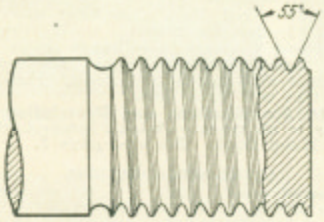
FORMULA

P = PITCH = $\frac{1}{\text{NO. THDS. PER IN.}}$

D = DEPTH = P X .500

F = SPACE = P X .500

Whitworth Screw Thread



WHITWORTH STANDARD SCREW THREADS

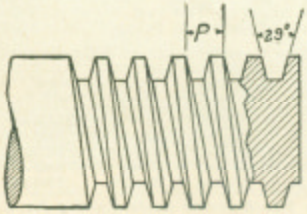
FORMULA

P = PITCH = $\frac{1}{\text{NO. THDS. PER IN.}}$

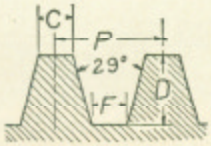
D = DEPTH = P X .6403

R = RADIUS = .1373 P = $\frac{1}{\text{NO. THDS. PER IN}}$

Brown & Sharpe 29° Worm Thread



BROWN & SHARPE 29° WORM THREAD



FORMULA

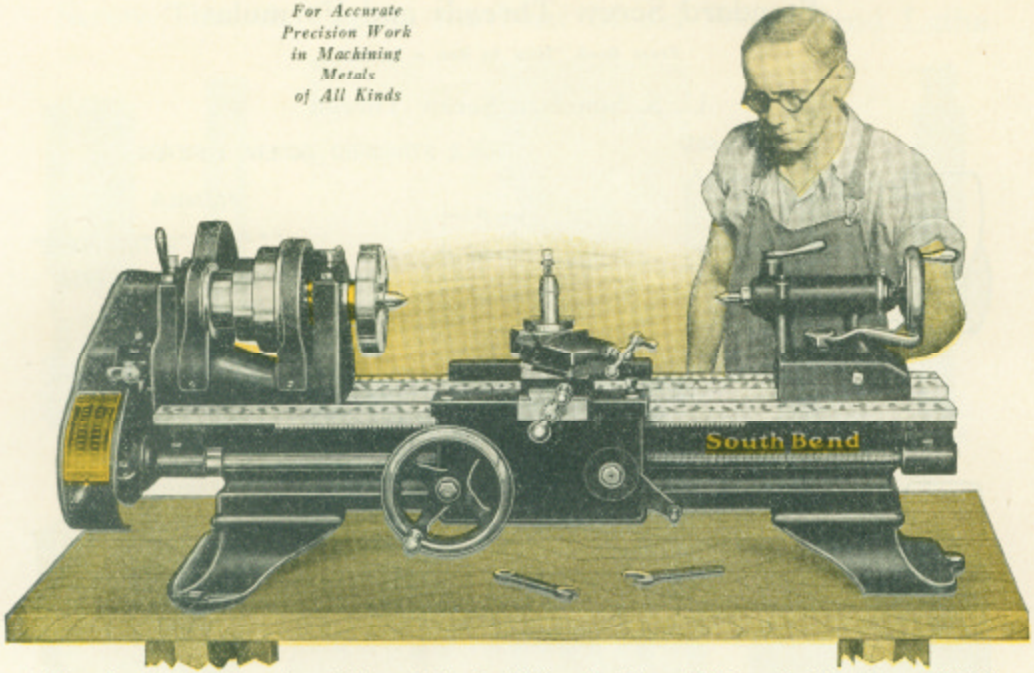
P = PITCH = $\frac{1}{\text{NO. THDS. PER IN.}}$

D = DEPTH = .6866 P.

F = FLAT = .31 P.

C = FLAT = .335 P.

For Accurate Precision Work in Machining Metals of All Kinds



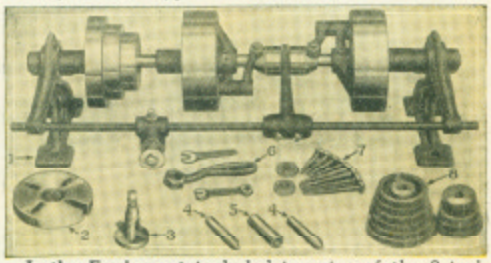
9-inch x 3-ft. Junior New Model South Bend Bench Lathe - $169

Back Geared, Screw Cutting Precision Tool, Bench Type—Countershaft Drive

The 9-inch Junior New Model South Bend Lathe is an excellent tool for taking care of the small machine work in the machine shop or manufacturing plant with the finest accuracy and precision. It is assembled from the standard parts of our 9-inch Standard Change Gear Lathe that we have been manufacturing for twenty-three years. The headstock, tailstock, bed, carriage, compound rest and lead screw on these lathes are identical. See page 3.

Our Price of $163.00 and up for this lathe is made possible by omitting the automatic friction feeds from the lathe and the large face plate, center rest, follower rest and thread cutting stop from the equipment, parts which are not always necessary for the work in the small shop.

A Metal Index Plate attached to each 9-inch Junior Lathe shows the gear arrangement for cutting threads from 4 to 40 per inch, right or left hand, including 11½-inch pipe thread. Change Gears are furnished for cutting these threads and for power longitudinal feeds.



Lathe Equipment included in price of the 9-inch Junior Lathe: 1—Double Friction Countershaft; 2—Face Plate; 3—Tool Post Complete; 4—Two Lathe Centers; 5—Spindle Sleeve; 6—Wrenches; 7—Lag Screws and Washers; 8—Change Gears for cutting Screw threads and for longitudinal feeds. Installation Plans and Instruction Book, "How to Run a Lathe" free with each lathe.

The Features, Specifications and Description on this page apply to all types of 9-inch Junior Lathes shown in this Hand Book. See also page 3.

LATHE FEATURES

Back geared headstock gives six spindle speeds.
Hollow spindle made of special alloy steel.
Phosphor bronze bearings for spindle.
Graduated compound rest swivels to any angle.
Precision lead screw for cutting accurate threads
Micrometer collar on cross feed and compound rest screws.
Tailstock set-over for turning and boring tapers.
Quick-acting spring latch, reverses carriage travel.
Power longitudinal screw feed to the carriage.
Graduated tailstock spindle.

LATHE SPECIFICATIONS

Countershaft Speed.....300 R.P.M.
Spindle Speeds...40, 75, 128, 246, 410, 700 R.P.M.
Width of Cone Pulley Belt.....1 inch
Acme Thread Lead Screw....⅜-inch diam. 8 pitch
Size of Lathe Centers.....No. 2 Morse Taper
Screw Thread Cutting Range.....4 to 40 per inch
Draw-in Collet Chuck Capacity..$\frac{1}{64}$ inch to ½ inch
Cross Slide Travel.....7 inches
Size of Tool Shank for Tool Post..½ inch x ½ inch
Double Friction Countershaft Pulleys.6⅞ in. x 2⅛ in.

Net Factory Prices of 9-inch Junior New Model Bench Lathe, Including Countershaft and Equipment*

Cat. No. of Lathe	Swing Over Bed	Length of Bed	Between Centers	Hole Thru Spindle	Swing Over Carriage	Power Required	Weight Crated	Code Word	Price F.O.B. South Bend
22-XB	9¼ in.	2½ ft.	11 in.	¾ in.	6⅝ in.	¼ HP.	350 lbs.	Bylow	**$163.00**
22-YB	9¼ in.	3 ft.	18 in.	¾ in.	6⅝ in.	¼ HP.	375 lbs.	Bhorn	**169.00**
22-ZB	9¼ in.	3½ ft.	23 in.	¾ in.	6⅝ in.	¼ HP.	400 lbs.	Bmatx	**175.00**
22-AB	9¼ in.	4 ft.	29 in.	¾ in.	6⅝ in.	¼ HP.	425 lbs.	Blear	**182.00**
22-RB	9¼ in.	4½ ft.	36 in.	¾ in.	6⅝ in.	¼ HP.	450 lbs.	Broil	**190.00**

*Prices do not include Bench.

Write for 9-inch Junior Lathe Catalog No. 23.

SOUTH BEND LATHE WORKS, 412 E. Madison St., SOUTH BEND, IND., U.S.A.

Jobs for 9-inch Junior New Model South Bend Lathes

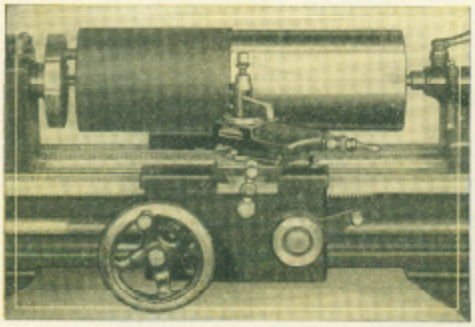


Fig. 52. Machining a Steel Roll 6¾ Inches in Diameter and 18 Inches Long.

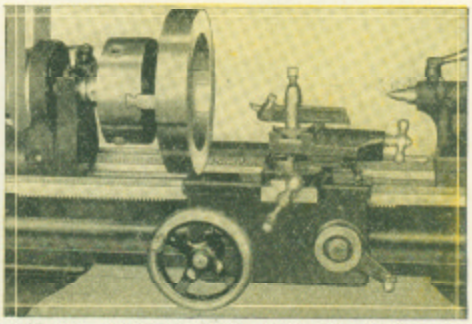


Fig. 53. Swinging Work, Over the Lathe Bed, That Measures 9¼ Inches in Diameter.

Fig. 54. Practical Method of Bench Lathe Installation in a Modern Shop.

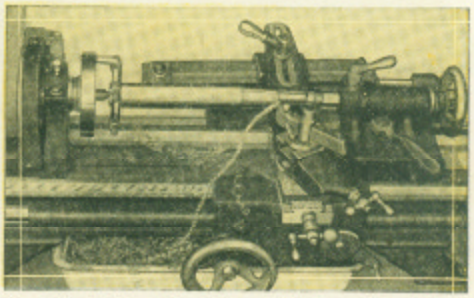


Fig. 55. Using the Taper Attachment to Turn a Long Taper.

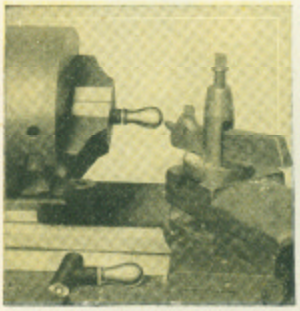


Fig. 56. Turning Irregular Work in a Two-jaw Chuck.

Fig. 57. Finishing Small Work on a Mandrel.

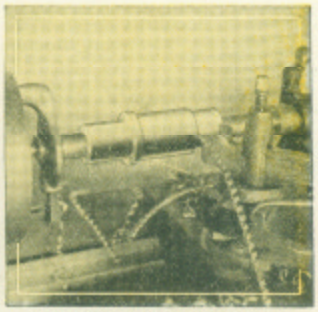


Fig. 58. Making a Steel Bushing.

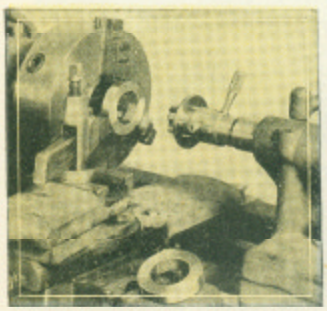


Fig. 59. Tapping Round Nuts with Collapsible Tap.

Fig. 60. Manufacturing Steel Gear Blanks in the Lathe.

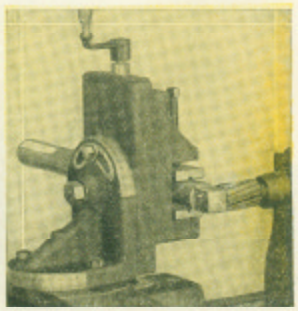
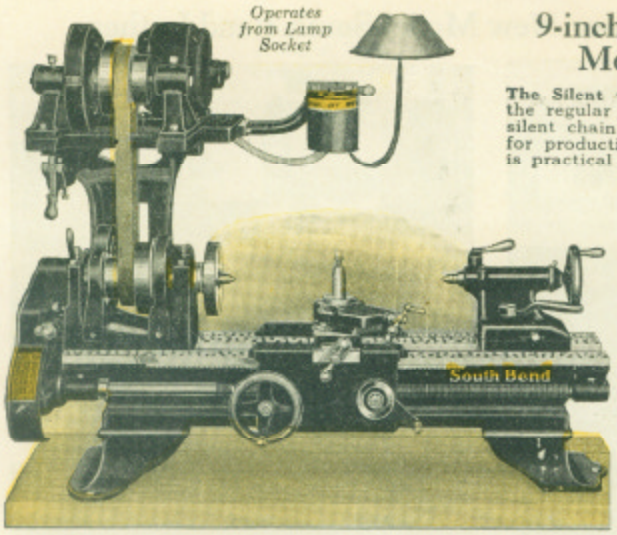


Fig. 61. Squaring the End of a Round Steel Shaft.

OUR CATALOG No. 23 SHOWS WIDE APPLICATION OF JUNIOR LATHES



Operates from Lamp Socket

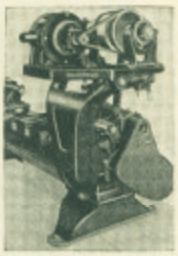
9-inch Junior Silent Chain Motor Driven Lathe

The Silent Chain Motor Driven Junior Lathe is the regular Junior Bench Lathe equipped with a silent chain motor drive. It is an excellent tool for production work in light manufacturing and is practical for machining fine, accurate work.

The Driving Cone receives its power from the motor through the silent chain which eliminates vibration and noise and is as powerful as if direct geared. The Spindle Cone is driven by belt. An extra wide and heavily constructed bench leg under the headstock end gives ample support to the motor drive unit. See illustration.

Electrical Equipment consists of ¼-H.P. Reversing Motor 1200 R.P.M., Reversing Switch (Drum Type), wiring between motor and switch, Flexible Metal Conduit, Wiring Diagram and Leather Belt.

Lathe Equipment consists of Face Plate, Tool Post complete, Two Lathe Centers, Spindle Sleeve, Change Gears, Wrenches, Installation Plans and book, "How to Run a Lathe."



Drive Unit, Gear Guard Removed

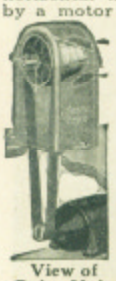
Prices 9-inch Junior Silent Chain Motor Driven Bench Lathe*

Cat. No. of Lathe	Swing Over Bed	Length of Bed	Size of Motor	Weight Crated	Code Word	3 Phase 60 Cycle A.C. Motor	1 Phase 60 Cycle A.C. Motor	Direct Current Motor
322-XB	9¼ in.	2½ ft.	¼ H.P.	565 lbs.	Rafes	$269.50	$284.50	$277.50
322-YB	9¼ in.	3 ft.	¼ H.P.	585 lbs.	Banur	275.50	290.50	283.50
322-ZB	9¼ in.	3½ ft.	¼ H.P.	605 lbs.	Bemox	281.50	296.50	289.50
322-AB	9¼ in.	4 ft.	¼ H.P.	625 lbs.	Bitun	288.50	303.50	296.50
322-RB	9¼ in.	4½ ft.	¼ H.P.	645 lbs.	Bunaz	296.50	311.50	304.50

*Prices Include Lathe Equipment, Reversing Motor, Reversing Switch and Leather Belt. Price of Bench on Application.

9-inch Jr. Horizontal Motor Driven Lathe

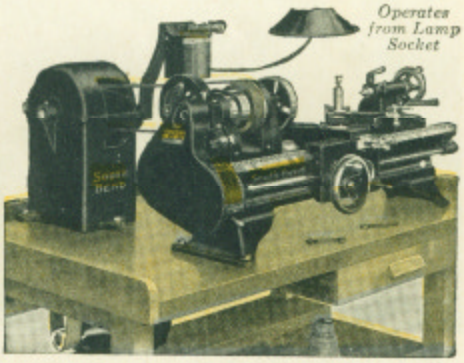
The Horizontal Motor Driven Junior Bench Lathe is the regular Junior Bench Lathe equipped with a horizontal motor drive mechanism, which is driven by a motor mounted on shelf beneath bench.



View of Drive Unit

Electrical Equipment consists of motor drive mechanism and same equipment as described above.

Lathe Equipment is the same as listed above for the Junior Silent Chain Motor Driven Bench Lathe.

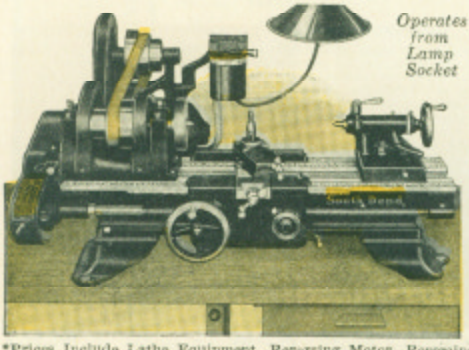


Operates from Lamp Socket

9-in. Jr. Horizontal Motor Driven Lathe*

Cat. No. of Lathe	Swing Over Bed	Length of Bed	3-Phase 60 Cycle A.C. Motor	1 Phase 60 Cycle A.C. Motor	Direct Current Motor
422-X	9¼ in.	2½ ft.	$233.00	$248.00	$241.00
422-Y	9¼ in.	3 ft.	239.00	254.00	247.00
422-Z	9¼ in.	3½ ft.	245.00	260.00	253.00
422-A	9¼ in.	4 ft.	252.00	267.00	260.00
422-R	9¼ in.	4½ ft.	260.00	275.00	268.00

*Prices Include Lathe, Drive Cabinet, Lathe Equipment, Reversing Motor, Reversing Switch, Two Belts, But Not Bench.



Operates from Lamp Socket

9-inch Junior Self-Contained Motor Driven Lathe

The Self-Contained Motor Driven Bench Lathe is the regular Junior Bench Lathe equipped with a motor drive unit mounted behind the lathe, which drives the countershaft cone through a silent chain.

Electrical and Lathe Equipment is the same as for the Silent Chain Motor Driven Lathe above.

9-in. Jr. Self-Contained Motor Driven Bench Lathe*

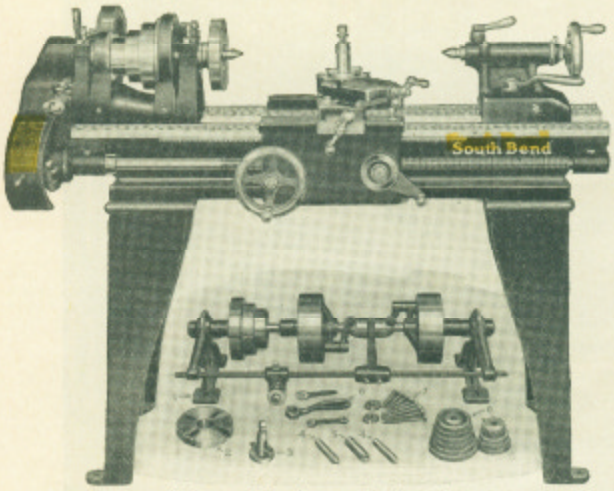
Cat. No. of Lathe	Swing Over Bed	Length of Bed	Size of Motor	Weight Crated	3 Phase 60 Cycle A.C. Motor	1 Phase 60 Cycle A.C. Motor	Direct Current Motor
722-X	9¼ in.	2½ ft.	¼ H.P.	440 lbs.	$245.00	$260.00	$253.00
722-Y	9¼ in.	3 ft.	¼ H.P.	470 lbs.	251.00	266.00	259.00
722-Z	9¼ in.	3½ ft.	¼ H.P.	500 lbs.	257.00	272.00	265.00
722-A	9¼ in.	4 ft.	¾ H.P.	530 lbs.	264.00	279.00	272.00
722-R	9¼ in.	4½ ft.	¼ H.P.	560 lbs.	272.00	287.00	280.00

*Prices Include Lathe Equipment, Reversing Motor, Reversing Switch and Leather Belt. Price of Bench on Application.

NOTE: Belt Guard for 9-inch Junior Motor Driven Lathes. Price, $12.00.

9-inch x 3-ft. Junior New Model South Bend Lathe - $179

Back Geared Screw Cutting Precision Lathe (Floor Leg Type)



Countershaft and Equipment Included in Price

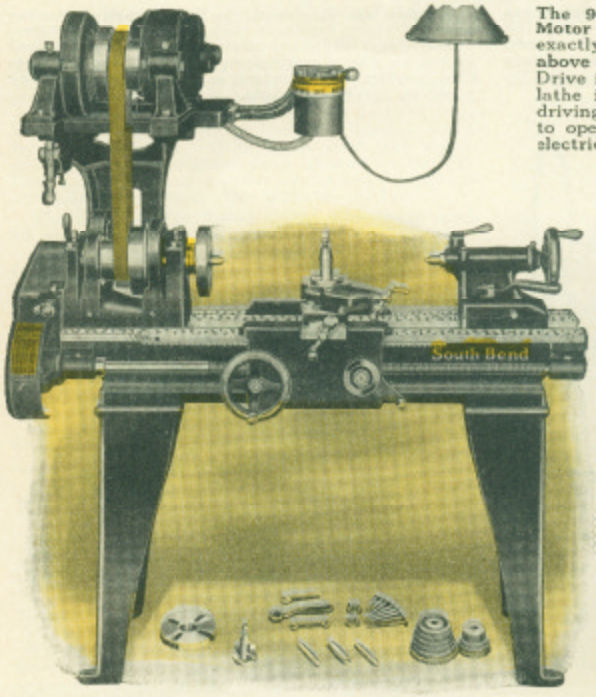
The 9-inch Junior New Model Lathe with floor legs is exactly the same lathe as shown on page 20, except instead of the short legs for bench use it is equipped with floor legs. This lathe is practical for fine precision work in the manufacturing plant, tool room, laboratory, experimental shop and engineering shop.

Equipment included in the price of each 9-inch Junior New Model Lathe, floor leg type, consists of: Double Friction Countershaft; Face Plate; Tool Post complete; two Lathe Centers; Spindle Sleeve; Change Gears for cutting screw threads and feeds; Wrenches; Lag Screws and Washers, also Installation Plans and Book, "How to Run a Lathe."

Prices of 9-in. Junior Floor Leg Lathe

No. of Lathe	Length of Bed	Weight Crated	Price F.O.B. South Bend
22-X	2½ ft.	415 lbs.	**$173.00**
22-Y	3 ft.	440 lbs.	**179.00**
22-Z	3½ ft.	465 lbs.	**185.00**
22-A	4 ft.	490 lbs.	**192.00**
22-R	4½ ft.	515 lbs.	**200.00**

9-inch x 3-ft. Junior Silent Chain Motor Driven Lathe - $283



The 9-inch Junior New Model Silent Chain Motor Driven Lathe illustrated at the left is exactly the same as the floor leg lathe shown above except that it has a Silent Chain Motor Drive instead of the Countershaft Drive. This lathe is a complete unit requiring no extra driving equipment of any kind. It is ready to operate as soon as it is connected to the electric current.

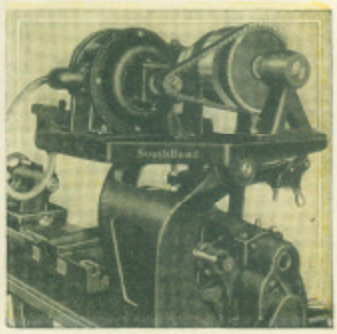
For Features and Specifications of this lathe, see those listed on page 20. For full description of Motor Drive Unit and electrical equipment, see pages 16 and 17.

The Constant Speed Reversing Motor of the Drive Unit can be operated from electric light socket for about 2 cents an hour. A drum type Reversing Switch provides instantaneous starting, stopping and reversing of the lathe spindle.

Prices of 9-inch Junior Silent Chain Motor Driven Lathe

Catalog No. of Lathe	Length of Bed	Weight Crated	3 Phase 60 Cycle A.C. Motor	Single Phase 60 Cycle A.C. Motor	Direct Current Motor
322-X	2½ ft.	630 lbs.	**$277.00**	**$292.00**	**$285.00**
322-Y	3 ft.	650 lbs.	**283.00**	**298.00**	**291.00**
322-Z	3½ ft.	670 lbs.	**289.00**	**304.00**	**297.00**
322-A	4 ft.	690 lbs.	**296.00**	**311.00**	**304.00**
322-R	4½ ft.	710 lbs.	**304.00**	**319.00**	**312.00**

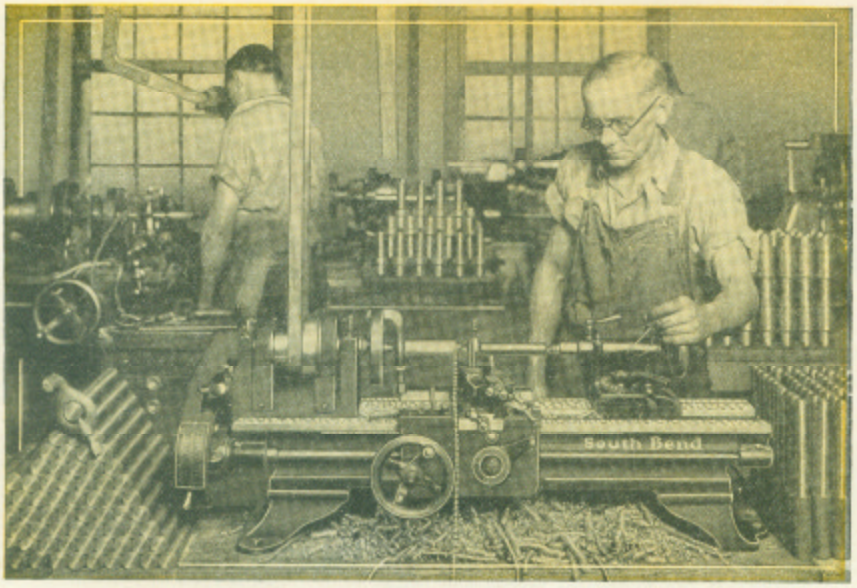
For 9-inch Silent Chain Motor Driven Lathe with Bench Legs deduct $7.50 from above prices.



The Silent Chain Drive Unit
Gear Guard Removed

Fig. 64. The Motor Drive Unit is located on a table directly above the lathe headstock. The driving cone receives its power from the motor through the Silent Chain which eliminates vibration and noise. The spindle cone is driven by belt.

CATALOG NO. 23 GIVES COMPLETE INFORMATION ON JUNIOR LATHES

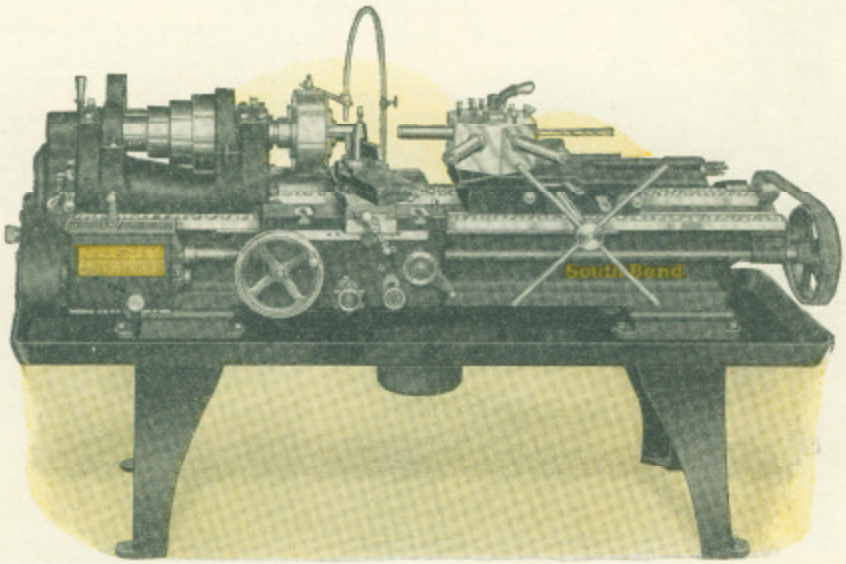


The Small Lathe as a Manufacturing Tool

In the Manufacture of Small Duplicate Parts on a Production Basis

The Best Shop Practice is to manufacture small parts on a small lathe because of the speed and accuracy with which operations can be performed. Two or more of these lathes are frequently operated on quantity production by one mechanic.

Production Engineers in large manufacturing plants making products such as: Sewing machines, typewriters, electrical parts, etc., are using small lathes in the manufacture of small metal parts that require the greatest accuracy because they must be interchangeable.

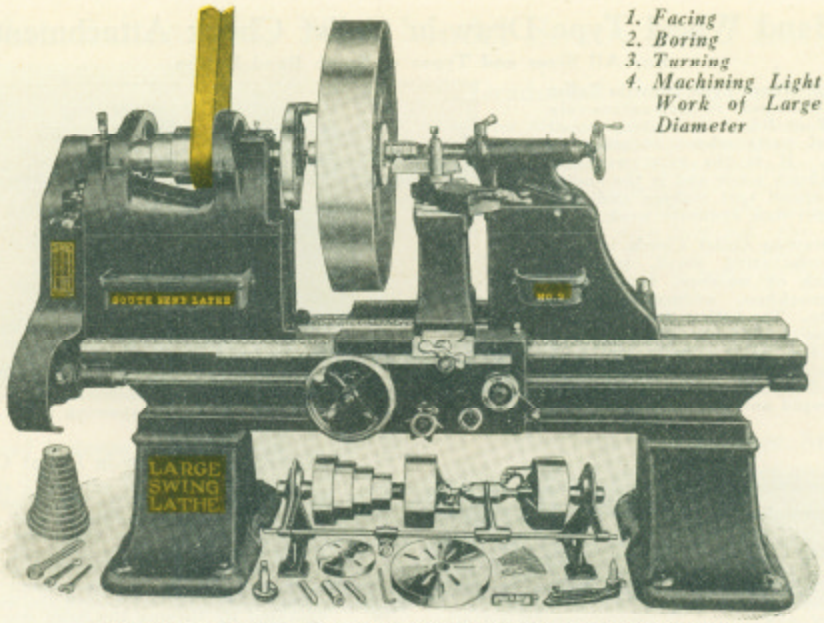


The New Model Lathe Equipped for Manufacturing Work

New Model South Bend Back Geared Screw Cutting Lathes can be fitted with attachments and used for many manufacturing operations. A lathe thus equipped serves the purpose of a special machine and when the special tools are removed the lathe can be used for regular work. The screw cutting lathe cannot be excelled for accuracy and precision.

The Screw Cutting Lathe equipped for manufacturing will show better production than a special or single purpose machine. When one job is finished the lathe can be set up for other jobs and kept in constant operation while the single purpose machine can do only one kind of a job which makes it an expensive and sometimes unprofitable investment.

SOUTH BEND LATHE WORKS, 412 E. Madison St., SOUTH BEND, IND., U.S.A.



1. Facing
2. Boring
3. Turning
4. Machining Light Work of Large Diameter

Equipment as Illustrated under Lathe is Included in Price of Lathe.

36-in. x 6-ft. New Model Large Swing Lathe - $688

Back Geared, Screw Cutting Precision Lathe, Countershaft and Motor Drive Types

The No. 2 Large Swing Lathe will swing work up to 36¼ inches in diameter. This back geared screw cutting precision lathe is practical for large swing jobs, fine tool work and all regular lathe work, and can be fitted with all regular South Bend attachments. It is made from the standard parts of our regular Back Geared Screw Cutting Lathe with a raised Headstock, Tailstock and Compound Rest. See features on page 3.

The No. 3 Large Swing Lathe will swing work up to 42¼ inches in diameter.

Lathe Equipment included in price consists of: Double Friction Countershaft, Large Face Plate, Small Face Plate, Tool Post Complete, Thread Cutting Stop, two Lathe Centers, Spindle Sleeve, Rubber Belts and Springs, Wrenches and a Set of Independent Change Gears for cutting Standard Screw Threads and for Automatic Feeds.

The Silent Chain Motor Driven Brake Drum Lathe, priced below, differs from the Countershaft Driven Lathe above in the form of drive only. For Silent Chain Motor Drive description see pages 16 and 17.

Industries Using Large Swing Lathes: Brake Service Stations, Garages, Railroad Shops, Machine Shops, Electrical Shops, Public Utilities, Marine Shops, Automobile Mfrs., Aircraft Mfrs., Machinery Mfrs., Shipbuilding Yards, Implement Mfrs., Hardware Mfrs., Printing Plants, Refrigerator Plants, Paper Mills, Steel Mills, Textile Mills, Highway Depts., Government Depts., Mines, Rubber Mfrs., Lumber Mills, Chemical Mfrs., Fire Arms Mfrs., Flour Mills, Oil Fields, Furniture Mfrs., General Mfrs., and Many Other Industries.

FEATURES OF LARGE SWING LATHE

Back geared headstock gives 8 spindle speeds.
Automatic cross feed, automatic longitudinal feed.
Independent change gears for threads and feeds.
Spring latch reverse for feeds and threads.
Hollow spindle made of special carbon steel.
Phosphor bronze bearings scraped to spindle.
Graduated Compound rest swivels to any angle.
Precision lead screw for cutting accurate threads.

Net Factory Prices of New Model Large Swing Lathes—Countershaft and Motor Drive Types

Specifications of Lathes				Countershaft Drive Type			Silent Chain Motor Drive Type				
Swing Over Bed	Length of Bed	Distance Between Centers	Horse Power Required	Cat. No. of Lathe	Code Word	Price F. O. B. South Bend	Cat. No. of Lathe	Code Word	3 Phase 60 Cycle A. C. Motor	1 Phase 60 Cycle A. C. Motor	Direct Current Motor
No. 2 and No. 302 New Model Large Swing Lathes											
36¼ in.	6 ft.	27 in.	1 H.P.	No. 2-BC	Cocoa	$ 688.00	302-BC	Claud	$ 867.00	$ 896.00	$ 945.00
36¼ in.	7 ft.	39 in.	1 H.P.	No. 2-BD	Carlo	709.00	302-BD	Coast	888.00	917.00	966.00
36¼ in.	8 ft.	51 in.	1 H.P.	No. 2-BE	Cuxom	730.00	302-BE	Croze	909.00	938.00	987.00
36¼ in.	10 ft.	75 in.	1 H.P.	No. 2-BG	Clair	776.00	302-BG	Culex	955.00	984.00	1033.00
No. 3 and No. 303 New Model Large Swing Lathes											
42¼ in.	8 ft.	38 in.	3 H.P.	No. 3-BE	Daisy	$1470.00	303-BE	Dawdy	$1855.00	$1926.00	$1989.00
42¼ in.	10 ft.	62 in.	3 H.P.	No. 3-BG	Debar	1552.00	303-BG	Ducat	1937.00	2008.00	2071.00
42¼ in.	12 ft.	86 in.	3 H.P.	No. 3-BH	Doubt	1659.00	303-BH	Drive	2044.00	2115.00	2178.00

Quick Change Gear Box is extra: For No. 2 Lathe add $80.00 to above prices, for No. 3 Lathe add $120.00.

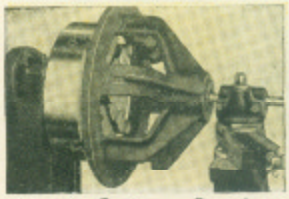


Fig. 65. Boring a Cast Iron Motor Housing.

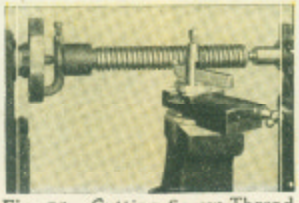


Fig. 66. Cutting Screw Thread on a Jack Screw.

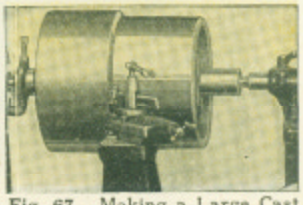


Fig. 67. Making a Large Cast Iron Pulley.

WRITE FOR 24-PAGE BULLETIN No. 29 ON LARGE SWING LATHES

Hand Wheel Type Draw-in Collet Chuck Attachment

For All Sizes and Types of South Bend Lathes

The Hand Wheel Type Draw-in Collet Chuck Attachment is used extensively in the Tool Room in making small tools and parts where accuracy is essential. It is the most accurate type of chuck made and is the choice of experienced tool makers and machinists for fine, accurate work.

The Draw-in Collet Chuck is used for manufacturing small, precision parts such as watches, typewriters, sewing machines, adding machines, radios, etc. The hollow draw bar permits bars and rods being passed through the lathe spindle and held in the chuck for machining. This method of manufacturing small parts is both rapid and economical.

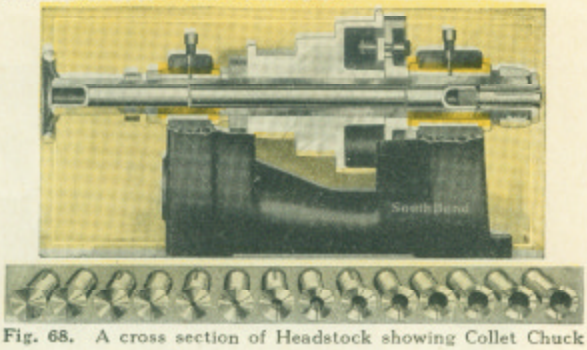


Fig. 68. A cross section of Headstock showing Collet Chuck

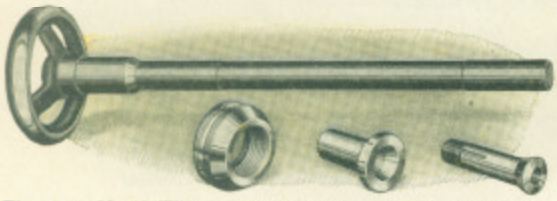


Fig. 69. Hand Wheel Draw-in Collet Chuck Attachment

Equipment Included in Price of Draw-in Collet Chuck consists of hand wheel and hollow draw bar, nose cap for protecting threads of spindle nose, tapered steel closing sleeve (hardened and ground) and one round split collet of any size desired up to the maximum capacity of the lathe.

Prices Draw-in Chuck Attachment with One Collet

Size of Lathe	Catalog No.	Hole in Lathe Spindle	Collet Capacity in Sixty-Fourths (for Round Work)	Code Word	Price Each
9 in.	4309	¾ in.	$\frac{1}{64}$ in. up to ½ in.	Aaron	$33.00
11 in.	4311	⅞ in.	$\frac{1}{64}$ in. up to $\frac{7}{16}$ in.	Abode	38.00
13 in.	4313	1 in.	$\frac{1}{64}$ in. up to ⅝ in.	About	44.00
15 in.	4315	1⅛ in.	$\frac{1}{64}$ in. up to ¾ in.	Above	50.00
16 in.	4316	1⅜ in.	$\frac{1}{64}$ in. up to ⅞ in.	Adore	56.00
18 in.	4318	$1\frac{7}{16}$ in.	$\frac{1}{64}$ in. up to 1 in.	Adult	63.00

Operation of Draw-in Collet Chuck

The hollow draw bar extending through the lathe spindle as in the illustration above operates the hardened and ground steel split collet. As the draw bar is rotated the threads in the end of the draw bar cause the collet to tighten or release the work. In the Hand Wheel Type Draw-in Collet Chuck the collet is operated by turning the hand wheel.

Made in Six Sizes

The Draw-in Collet Chuck Attachment is made in six (6) different sizes to conform to the six different sizes of New Model South Bend Lathes. The capacity of the Draw-in Collet Chuck is limited by the size of the hole in the spindle of the lathe on which it is used.

Sizes and Types of Collets Furnished

Collets are furnished for the hand wheel draw-in collet chuck in sizes ranging from $\frac{1}{64}$ inch hole diameter to hole capacity of lathe by 64ths, 32nds, and 16ths, as shown in the tabulation below.

Split Collets for Round Work

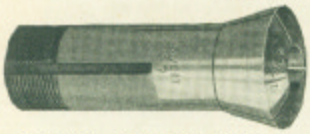


Fig. 70. Round Split Collet

Collets are made of tool steel, hardened and tempered. They are ground outside and inside to insure accuracy.

Net Factory Prices of Split Collets for Round Work

Size of Lathe	Catalog No.	Hole in Lathe Spindle	Collet Capacity in Sixty-Fourths (for Round Work)	Code Word	Price Each
9 in.	609	¾ in.	$\frac{1}{64}$ in. up to ½ in.	Cabot	$3.85
11 in.	611	⅞ in.	$\frac{1}{64}$ in. up to $\frac{7}{16}$ in.	Cello	4.40
13 in.	613	1 in.	$\frac{1}{64}$ in. up to ⅝ in.	Chose	5.00
15 in.	615	1⅛ in.	$\frac{1}{64}$ in. up to ¾ in.	Civit	5.50
16 in.	616	1⅜ in.	$\frac{1}{64}$ in. up to ⅞ in.	Clear	6.00
18 in.	618	$1\frac{7}{16}$ in.	$\frac{1}{64}$ in. up to 1 in.	Comet	6.50

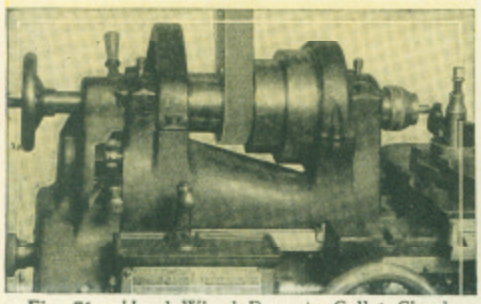


Fig. 71. Hand Wheel Draw-in Collet Chuck Attachment on a Tool Making Job

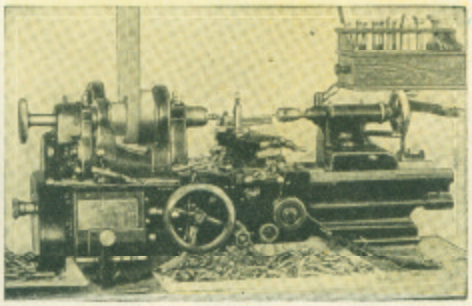


Fig. 72. 9-inch Quick Change Gear Bench Lathe with Hand Wheel Draw-in Collet Chuck

Attachments for New Model South Bend Lathes

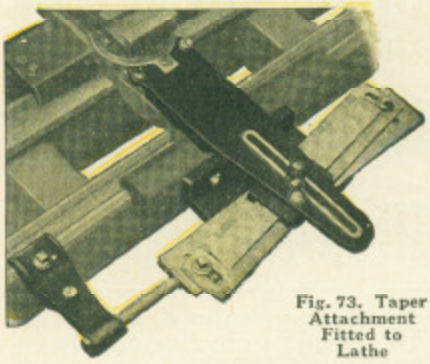


Fig. 73. Taper Attachment Fitted to Lathe

Graduated Taper Attachment

The Taper Attachment is used for tool room work, manufacturing and production work for turning and boring all classes of taper work. It is especially practical on production work where a large number of duplicate parts are to be taper machined. It bolts on lathe carriage and can be used at any point along lathe bed. Can be left on lathe bed at all times. The swivel bar which controls the taper is graduated—one end in inches per foot of taper and the other end in degrees.

Net Factory Prices of Graduated Taper Attachment

Size of Lathe	9 in.	11 in.	13 in.	15 in.	16 in.	18 in.
Price Each	$50.00	$60.00	$75.00	$80.00	$90.00	$95.00

Thread Indicator

Shows when to clamp half-nuts on lead screw at starting point of thread on each successive cut.

Prices of Thread Indicator

9-11 in.	13-15 in.	16-18 in.
$8.00	$10.00	$12.00

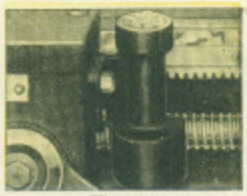


Fig. 74

Micrometer Carriage Stop

Used as permanent or adjustable stop for accurate facing, turning, boring, cutting-off, etc. Fits lathe bed on either side of carriage.

Prices of Micrometer Stop

9"	11"	13"	15"	16"	18"
$10	$12	$13	$14	$15	$17

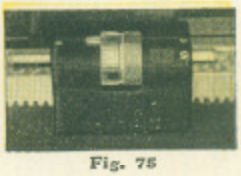
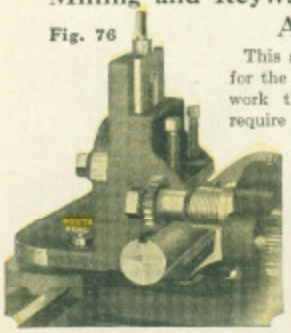


Fig. 75

Milling and Keyway Cutting Attachment

Fig. 76



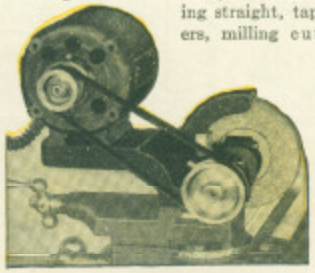
This attachment is valuable for the small shop as it does work that otherwise would require a shaper or milling machine. Fits on the saddle of the lathe and swivels 180° in either a vertical or horizontal plane. Vertical Screw has micrometer collar.

Prices of Milling and Keyway Cutting Attachment

Size Lathe	9 in.	11 in.	13 in.	15 in.	16 in.	18 in.
Cat. No.	No. 1	No. 2	No. 3	No. 4	No. 5	No. 5½
Price	$40.00	$45.00	$50.00	$65.00	$75.00	$85.00

No. 15 Electric Grinder

Fig. 77



A practical attachment for grinding straight, taper or spiral reamers, milling cutters, taps, dies, valves, pistons, steel bushings, hardened shafts, etc. It operates from an electric light socket. Prices include one grinding wheel and clamp for mounting.

Net Factory Prices of No. 15 Electric Grinder

Size of Lathe	Size of Wheel	Size of Motor	Price Complete
9-11 in.	4x⅜ in.	¼ H.P.	$75.00
13-18 in.	5x½ in.	⅓ H.P.	90.00

No. 116 Chuck and Tool Assortment for All 16-inch Lathes

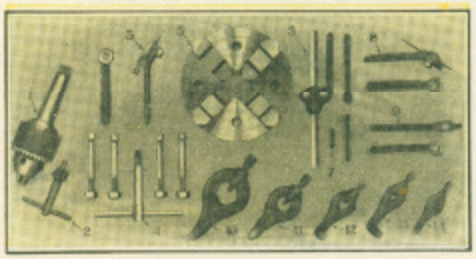


Fig. 78. Practical Chuck and Tool Assortment For All Size Lathes

1—3-Jaw Drill Chuck; 2—Pinion Key for Drill Chuck; 3—Formed Threading Tool; 4—Wrench and Screws for Chuck; 5—Independent Lathe Chuck; 6—Style "B" Boring Tool; 7—H. S. Steel Cutter Bit; 8—Right Hand Cutting Off Tool; 9—Straight Shank Turning Tool; 10-14—Malleable Lathe Dogs.

The Chuck and Tool Assortment illustrated at the left and listed below has the practical sizes of chucks and tools for all 16-inch South Bend Lathes. Assortments for other size lathes are priced below.

Cat. No.	Description	Price
1 No. 2110	10-inch, 4-Jaw Independent Lathe Chuck	$40.00
	Fitting Chuck to Lathe including Chuck Back	9.00
1 No. 1303	2-Jaw Drill Chuck, 1-inch capacity	15.00
1 No. 716	Drill Chuck Arbor, fitted to Chuck	2.00
1 No. 853-S	Patent Turning Tool, straight shank	3.60
1 No. 868	Patent Threading Tool	5.75
1 No. 432	Patent Boring Tool, Style B	6.90
1 No. 881-R	Patent Cutting Off Tool (Right Hand)	4.00
1 Set (5)	Malleable Lathe Dogs, ½", ¾", 1", 1½", 2"	4.45
Net Factory Price (Code Word **Margo**)		**$90.70**

Chuck and Tool Assortments for Other Size Lathes

No. 122	Assortment for 9-inch Jr. Lathes (**Balor**)	$ 62.20
No. 109	Assortment for 9-inch Lathes (**Celet**)	62.20
No. 111	Assortment for 11-inch Lathes (**Denob**)	63.00
No. 113	Assortment for 13-inch Lathes (**Enbal**)	70.95
No. 115	Assortment for 15-inch Lathes (**Goreb**)	80.95
No. 118	Assortment for 18-inch Lathes (**Somer**)	101.45

96 Sizes and Types of New Model South Bend Lathes

Net Factory Prices F.O.B. Cars, South Bend, Indiana; Crated for Domestic Shipment

Brief Specifications				Countershaft Drive Lathes				Silent Chain Motor Drive Lathes							
				Quick Change Gear Lathes		Standard Change Gear Lathes		Quick Change Gear Lathes				Standard Change Gear Lathes			
Swing Over Bed Inches	Length of Bed Feet	Between Centers Inches	Power Required H.P.	Catalog No. of Lathe	Price	Catalog No. of Lathe	Price	Catalog No. of Lathe	3-Phase 60-Cycle A.C. Motor	1-Phase 60-Cycle A.C. Motor	Direct Current Motor	Catalog No. of Lathe	3-Phase 60-Cycle A.C. Motor	1-Phase 60-Cycle A.C. Motor	Direct Current Motor
9-inch Junior New Model South Bend Screw Cutting Lathes. See pages 20, 23															
9¼	2½	11	⅛	Not Made in Quick Change Gear Type		22-XB	$163.00	Not Made in Quick Change Gear Type				322-X	$277.00	$292.00	$285.00
9¼	3	18	¼			22-YB	169.00					322-Y	283.00	298.00	291.00
9¼	3½	23	¼			22-ZB	175.00					322-Z	289.00	304.00	297.00
9¼	4	29	¼			22-AB	182.00					322-A	296.00	311.00	304.00
9¼	4½	36	¼			22-RB	190.00					322-R	304.00	319.00	312.00
9-inch New Model South Bend Quick Change and Standard Change Gear Screw Cutting Lathes. See pages 12-16-17															
9¼	2½	11	⅛	82-X	$288.00	31-X	$243.00	382-X	$392.00	$407.00	$400.00	331-X	$347.00	$362.00	$355.00
9¼	3	18	¼	82-Y	294.00	31-Y	249.00	382-Y	398.00	413.00	406.00	331-Y	353.00	368.00	361.00
9¼	3½	23	¼	82-Z	300.00	31-Z	255.00	382-Z	404.00	419.00	412.00	331-Z	359.00	374.00	367.00
9¼	4	29	¼	82-A	307.00	31-A	262.00	382-A	411.00	426.00	419.00	331-A	366.00	381.00	374.00
9¼	4½	36	¼	82-R	315.00	31-R	270.00	382-R	419.00	434.00	427.00	331-R	374.00	389.00	382.00
11-inch New Model South Bend Quick Change and Standard Change Gear Screw Cutting Lathes. See pages 10-16-17															
11¼	3	12	½	84-Y	$345.00	33-Y	$295.00	384-Y	$484.00	$512.00	$495.00	333-Y	$434.00	$462.00	$445.00
11¼	3½	18	½	84-Z	352.00	33-Z	302.00	384-Z	491.00	519.00	502.00	333-Z	441.00	469.00	452.00
11¼	4	24	½	84-A	359.00	33-A	309.00	384-A	498.00	526.00	509.00	333-A	448.00	476.00	459.00
11¼	5	36	½	84-B	375.00	33-B	325.00	384-B	514.00	542.00	525.00	333-B	464.00	492.00	475.00
13-inch New Model South Bend Quick Change and Standard Change Gear Screw Cutting Lathes. See pages 8-16-17															
13¼	4	16	¾	86-A	$428.00	35-A	$368.00	386-A	$587.00	$630.00	$598.00	335-A	$527.00	$570.00	$538.00
13¼	5	28	¾	86-B	443.00	35-B	383.00	386-B	602.00	645.00	613.00	335-B	542.00	585.00	553.00
13¼	6	40	¾	86-C	458.00	35-C	398.00	386-C	617.00	660.00	628.00	335-C	557.00	600.00	568.00
13¼	7	52	¾	86-D	475.00	35-D	415.00	386-D	634.00	677.00	645.00	335-D	574.00	617.00	585.00
15-inch New Model South Bend Quick Change and Standard Change Gear Screw Cutting Lathes. See pages 8-16-17															
15¼	5	24½	1	88-B	$525.00	39-B	$450.00	388-B	$702.00	$731.00	$780.00	339-B	$627.00	$656.00	$705.00
15¼	6	36½	1	88-C	543.00	39-C	468.00	388-C	720.00	749.00	798.00	339-C	645.00	674.00	723.00
15¼	7	48½	1	88-D	561.00	39-D	486.00	388-D	738.00	767.00	816.00	339-D	663.00	692.00	741.00
15¼	8	60½	1	88-E	581.00	39-E	506.00	388-E	758.00	787.00	836.00	339-E	683.00	712.00	761.00
16-inch New Model South Bend Quick Change and Standard Change Gear Screw Cutting Lathes. See pages 6-16-17															
16¼	6	34	1	92-C	$598.00	41-C	$518.00	392-C	$777.00	$806.00	$855.00	341-C	$697.00	$726.00	$775.00
16¼	7	46	1	92-D	618.00	41-D	538.00	392-D	797.00	826.00	875.00	341-D	717.00	746.00	795.00
16¼	8	58	1	92-E	638.00	41-E	558.00	392-E	817.00	846.00	895.00	341-E	737.00	766.00	815.00
16¼	10	82	1	92-G	682.00	41-G	602.00	392-G	851.00	890.00	939.00	341-G	781.00	810.00	859.00
18-inch New Model South Bend Quick Change and Standard Change Gear Screw Cutting Lathes. See pages 4-16-17															
18¼	7	41½	2	94-D	$738.00	43-D	$648.00	394-D	$972.00	$1024.00	$1069.00	343-D	$882.00	$934.00	$ 979.00
18¼	8	53½	2	94-E	763.00	43-E	673.00	394-E	997.00	1049.00	1094.00	343-E	907.00	959.00	1004.00
18¼	10	77½	2	94-G	817.00	43-G	727.00	394-G	1051.00	1103.00	1148.00	343-G	961.00	1013.00	1058.00
18¼	12	101½	2	94-H	895.00	43-H	805.00	394-H	1129.00	1181.00	1226.00	343-H	1039.00	1091.00	1136.00
New Model South Bend Brake Drum and General Purpose Screw Cutting Lathes. See page 25															
36¼	6	27	1	2-BCQ	$768.00	2-BC	$688.00	302-BCQ	$947.00	$ 976.00	$1025.00	302-BC	$867.00	$896.00	$945.00
36¼	8	51	1	2-BEQ	810.00	2-BE	730.00	302-BEQ	989.00	1018.00	1067.00	302-BE	909.00	938.00	987.00
42¼	8	38	3	3-BEQ	1590.00	3-BE	1470.00	303-BEQ	1975.00	2046.00	2109.00	303-BE	1855.00	1926.00	1989.00

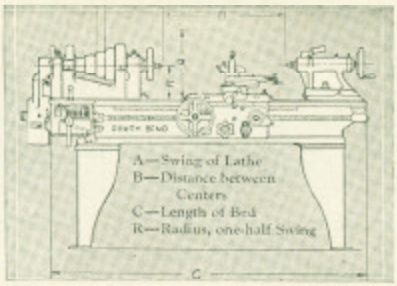
General Information on New Model South Bend Lathes

Net Prices

The prices shown in this Hand Book are net f.o.b. cars South Bend, Indiana, and are our lowest selling prices on South Bend Lathes, tools and attachments. There is no reduction from these prices. Our policy is: One Quality, One Price to all whether you purchase one lathe or a number of lathes.

Easy Payment Plan

Any of the New Model South Bend Lathes, chucks, tools and attachments illustrated in this Hand Book may be purchased on the South Bend Easy Payment Plan. Terms. 20% cash down payment with order, balance in 12 equal monthly payments plus a small carrying charge. For full details write for Catalog No. 90-P which gives complete information on the plan and also illustrates and describes the entire line of New Model South Bend Lathes, tools and attachments.

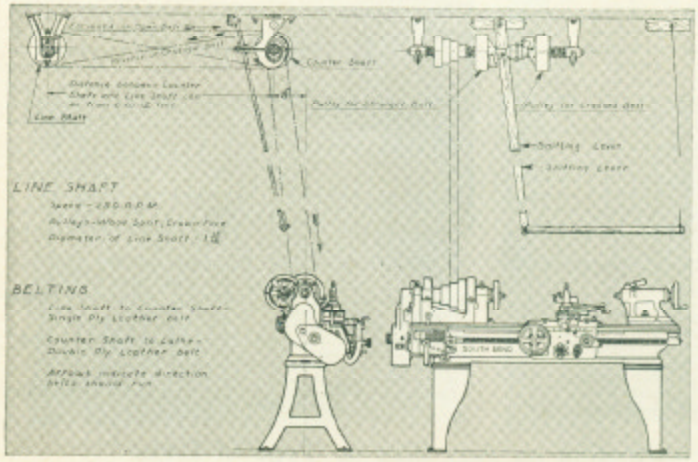


How to Determine Size of a Lathe

The size of a back geared screw cutting lathe is determined by the swing over the bed and the length of the bed.

A—Represents the swing over bed.
B—Represents the distance between centers.
C—Represents the length of bed.
R—Represents the radius or one-half swing.

Installation Plan Blue Prints Free with Each Lathe

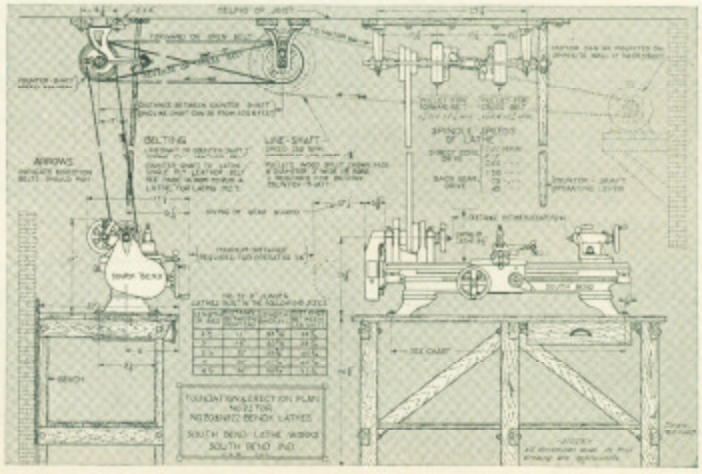


Erection Plan for Floor Leg Lathes

The illustration at left shows a reproduction of the Foundation and Erection Plan giving all necessary information for installing South Bend Floor Leg Lathes, Countershaft Drive. A 12x18-inch Blue Print similar to the illustration at left is furnished with each size South Bend Floor Leg Lathe, Countershaft or Motor Drive Type.

Erection Plan for Bench Lathes

The illustration at right shows a reproduction of the Foundation and Erection Plan giving all necessary information for installing South Bend Bench Lathes, Countershaft Drive. A 12x18-inch Blue Print similar to the illustration at right is furnished with each size South Bend Bench Lathe, Countershaft or Motor Drive Type.



Interesting Booklets for the Mechanic

Special Bulletins on Each Size Lathe

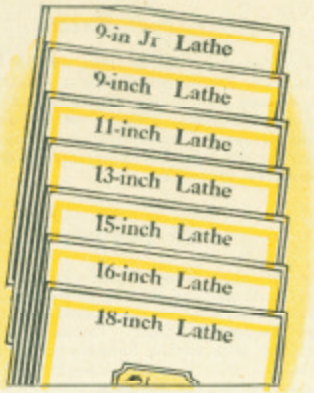
Special Bulletins of sixteen pages each, 8½x11 inches, are being printed in attractive colors for each size New Model South Bend Lathe. These Bulletins show much larger illustrations than those shown in this handbook and each illustrates and describes in detail the lathe and its various types, drives, tools and attachments.

If interested in any particular size of lathe and more detailed information is desired than is shown in this catalog, write for special bulletin specifying size of lathe.

Mailed Anywhere in the World, Postpaid, No Charge.

PARTIAL LIST OF CONTENTS

Quick Change Gear Lathes
Standard Change Gear Lathes
Silent Chain Motor Driven Lathes
Tool Room Precision Lathes
Gap Bed Lathes
Taper Attachment
Grinding Attachments
Draw-in Collet Chuck Attachment
Milling and Keyway Cutting Attachment
Chucks, Tools and Accessories



General Catalog No. 90-A

Our General Catalog, No. 90-A, contains illustrations, descriptions, and prices of the entire line of New Model South Bend Back Geared Screw Cutting Lathes, 9-inch to 18-inch swing, countershaft and motor drive. Also a full line of chucks, tools, attachments and accessories for use on South Bend Lathes. It is a reference book of considerable value to anyone who is interested in mechanical equipment.

Mailed Anywhere in the World. Postpaid.

PARTIAL LIST OF CONTENTS

Quick Change Gear Lathes
Standard Change Gear Lathes
Tool Room Precision Lathes
Gap Bed Lathes
Large Swing Lathes
Taper Attachment
Grinding Attachment
Silent Chain Motor Driven Lathes
Self-Contained Motor Driven Lathes
Simplex Motor Driven Lathes
Junior Bench and Floor Leg Lathes
Draw-in Collet Chuck Attachment
Chucks, Tools and Accessories

How to Run a Lathe

"How to Run a Lathe" is an authoritative manual covering the fundamental operations of the modern back geared screw cutting lathe. It is a valuable book as it contains complete instructions on the setting up, the operation and care of the screw cutting lathe. This booklet has 144 pages which include more than 300 illustrations of practical lathe jobs. This book is included with each New Model South Bend Lathe.

Mailed Anywhere, Postpaid. Price 25c.

PARTIAL LIST OF CONTENTS

How to Set Up a Lathe
Hanging a Countershaft
Calculating Size of Pulleys
Calculating Speed of Pulleys
Grinding Lathe Tools
How to Set Lathe Tools
Cutting Standard, Acme, Square Screw Threads
Straight and Taper Turning and Boring
The Automatic Feeds
Drilling, Reaming, Tapping
Reading a Micrometer
Decimal Equivalents
Table of Metric Measure
Centering and Countersinking
General Care of Lathe

Complete Information on Any Size or Type of Lathe

If you wish further information on any size or type of Lathe, fill out the coupon below and mail it to us, and we will send you a Catalog and Bulletins showing complete illustrations, specifications, descriptions and prices of the Lathe and Tools in which you are interested.

Filling out this coupon places you under no obligation. There is no charge for this service.

(Cut Out and Mail This Coupon to Us for Additional Information)

Date.....

SOUTH BEND LATHE WORKS
412 E. Madison St., South Bend, Ind.

We are interested in receiving further information on the Lathe shown on page.....

Size of Lathe..... Type of Drive.....

Work Lathe is to be used for.....

What method of purchasing do you prefer? ☐ Easy Payment Plan ☐ Cash with Order

Remarks.....

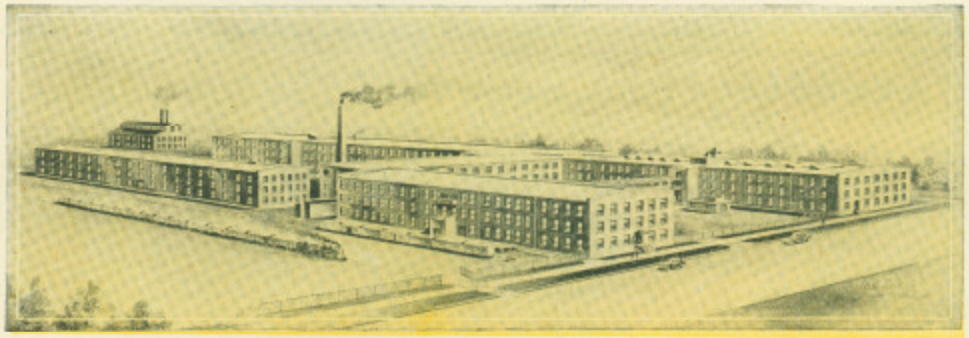
Name..... **Kind of Business**.....

Street and Number.....

City..... **State**.....

44-8-'29

Cut Out Along Dotted Line



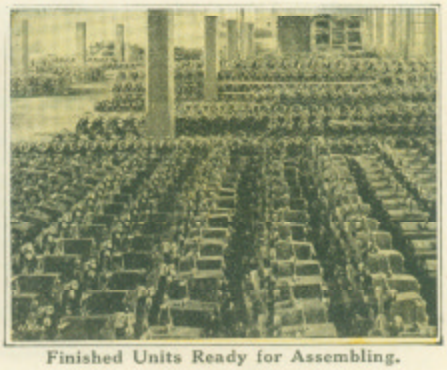
Plant of the South Bend Lathe Works, at South Bend, Indiana.

Facts About the South Bend Lathe Works

The South Bend Lathe Works was established at South Bend, Indiana, in 1906, and incorporated in 1914. For twenty-three years the entire plant has been devoted exclusively to the manufacture of South Bend Back Geared Screw Cutting Lathes. There are now 45,000 South Bend Lathes in use in the United States and 78 other countries.

The Factory of the South Bend Lathe Works represents an investment of more than one million dollars. The plant facilities include the best modern machine and tool equipment to insure accuracy and interchangeability of parts. We build 96 sizes, types and drives of New Model South Bend Lathes, and our production capacity is 4,800 lathes a year.

Lathes in Line Ready for Testing.



Finished Units Ready for Assembling.

The Back Geared Screw Cutting Lathes, attachments, and tools illustrated and described in this booklet are only a few of the many types and sizes for working metals, such as: steel, iron, cast steel, wrought iron, forgings, brass, bronze, aluminum, babbit and other alloys. Also hard rubber, fibre, wood, etc.

Sixty-four Major Accuracy Tests are made on each New Model South Bend Lathe by precision instruments during the process of manufacture. A rigid system of inspection is maintained and all parts are carefully checked after each operation. Constant testing insures accuracy and precision in the finished lathe.

Our Guarantee is that each South Bend Lathe is accurate and mechanically perfect; that we will ship a South Bend Lathe anywhere in the United States for a 30-day trial in your own shop. Read this guarantee in full on page 32.

A Group of Employees of the South Bend Lathe Works.

A Partial List of U.S.A. Industries Using South Bend Lathes

Names taken from a list of more than 45,000 users.

A printed list of recent purchasers mailed postpaid on request.

Manufacturing Plants

Nicholson File Co.
Kohler Co. of Kohler, Wis.
Federal Bearings Co.
Kirsch Mfg. Co.
Defiance Automatic Screw Co.
Link Belt Co.
Yale & Towne Mfg. Co.
Corbin Cabinet Lock Co.
Victor Adding Machine Co.
Carborundum Co.
Kelvinator Corp.
Auto Strop Safety Razor Co.
Clipper Tool Co.
Endicott-Johnson Corp.
The Hoover Sweeper Co.
Buescher Band Instrument Co.
Cincinnati Ball Crank Co.
Lester Piano Co.
Eastman Kodak Co.
National Cash Register Company
Hercules Powder Co.
Remington Arms U.M. Company
Standard Oil Co.
Air Reduction Sales Co.
Elgin National Watch Co.
Frigidaire Corp.
Eclipse Machine Co.
Bell Telephone Laboratories
Sylvania Products Co.
Premier Adding Machine Company
American Can Co.
Formica Insulation Co.

Implement Mfrs.

Oliver Farm Equip. Co.
Internat'l Harvester Co.
Hummer Plow Works
American Separator Co.
John Deere Co.
Field Force Pump Co.
Advance Rumely Co.
Nichols & Shepard Co.

Textile Mills

Amoskeag Textile Mills
Chenango Silk Co.
Southern Mills Corp.
Century Ribbon Mills
Fidelity Knitting Mills
Pelham Mills
Southern Worsted Mills
Lockmere Mills

Electric Parts Mfrs.

Western Electric Co.
Westinghouse Lamp Co.
Nilco Lamp Works, Inc.
Fibroc Insulation Co.
Blizzard Mfg. Co.
Graybar Electric Co.

Accessory Parts Manufacturers

Fisher Body Corp.
Chicago Flexible Shaft Co.
Weaver Manufacturing Co.
Timken Roller Bearing Co.
Houde Engineering Corp.
Black & Decker Mfg. Co.
Piston Ring Co., The
Monroe Auto Equipment Co.
Wel-Ever Piston Ring Co.

Accessory Parts Mfrs.—Cont'd

Bendix Brake Co.
Rich Steel Products Co.
McQuay-Norris Mfg. Co.

Tool Manufacturers

United Shoe Machinery Corp.
Champion Shoe Machinery Co.
Elco Tool Corporation
Gustafson-Scott Mfg. Co.
Covel-Hanchett Co.
Cleveland Planer Co.
Woodworkers' Tool Co.
Ex-Cell-O Tool Mfg. Co.
Gairing Tool Co.
Engineering Tool Corp.
Watts Bros. Tool Works

Guarantee

WE GUARANTEE every South Bend Lathe to be accurate and mechanically perfect; to give you entire satisfaction and the service you have a right to expect.

30 Day Trial

We will ship a South Bend Lathe anywhere in the United States for a thirty day trial in your own shop. If you are dissatisfied in any way, within that time, ship it back to us; we will pay the return freight charges and refund your money.

SOUTH BEND LATHE WORKS

Tool and Die Shops

Doehler Die Casting Co., Inc.
Liberty Tool & Die Corp.
Keeley Tool & Die Co.
Detroit Die Casting Co.
Superior Tool & Die Co.
Ajax Tool & Die Works

Steel Mills

Bethlehem Steel Corp.
Inland Steel Co.
U. S. Steel Corp.
Youngstown Sheet & Tube Co.
Walter Bates Steel Corp.
Carnegie Steel Co.
Cambria Steel Co.

Radio Mfrs.

Radio Corp. of America
A. H. Grebe and Co.
The Sparks-Withington Co.
Fansteel Products Co.
Atwater-Kent Mfg. Co.
Howard Radio Co.

Railroad Shops

Railway Express Agency, Inc.
New York Central R. R.
A. T. & S. F. R. R.
Michigan Central R. R.
Pennsylvania R. R.
Union Pacific R. R.
Louisville & Nashville R. R.
Canadian Pacific R. R.
Illinois Central R. R.
Northern Pacific R. R.
Southern Pacific R. R.
Great Northern Railway Co.

Aircraft Manufacturers

Pratt Whitney Aircraft Co.
Byrd Expedition
Stearman Aircraft Co.
Stout Airplane Co.
Universal Air Lines
Travel Air Mfg. Co.
Fokker Co.
Commandair Inc.
Pan American Airways

Automobile Mfrs.

Studebaker Corporation
Ford Motor Co.
Chevrolet Motor Co.
Packard Motor Car Co.
Lincoln Motor Co.
Chrysler Motor Corp.
Buick Motor Co.
Olds Motor Works
Pierce Arrow Motor Co.
Pontiac Motor Car Co.
Reo Motor Car Co.
Rolls-Royce of America

U. S. Government

U. S. Naval Vessels
U. S. Navy Air Service
U. S. Engineers
U. S. Signal Corps
U. S. Marine Corps
U. S. Veterans Bureau
West Point Academy
Smithsonian Institution
U. S. Aviation Corps
U. S. Dept. of Interior
U. S. Coast Guard
U. S. Geodetic Survey

Electric Motor Mfrs.

Western Electric Co.
Westinghouse Electric Mfg. Co.
General Electric Co.
Wagner Electric Mfg. Co.
Allis-Chalmers Mfg. Co.

Steamship Companies

American Hawaiian S. S. Co.
Black Diamond Steamship Co.
Galena Navigation Co.
Kerr Steamship Co., Inc.
Munson Steamship Lines
Panama Mail Steamship Co.
Peninsular & Occidental S. S. Co.
Pittsburgh Steamship Co.
U. S. Shipping Board
Wilson Transit Company
Olympic Steamship Company

Engineering Schools

Massachusetts Institute of Technology
Purdue University
Carnegie Institute of Technology
University of Michigan
Ohio State University
Yale University

South Bend Lathe Works

412 East Madison St. **South Bend, Indiana, U. S. A.**

300M—8—'29 Printed in U.S.A.