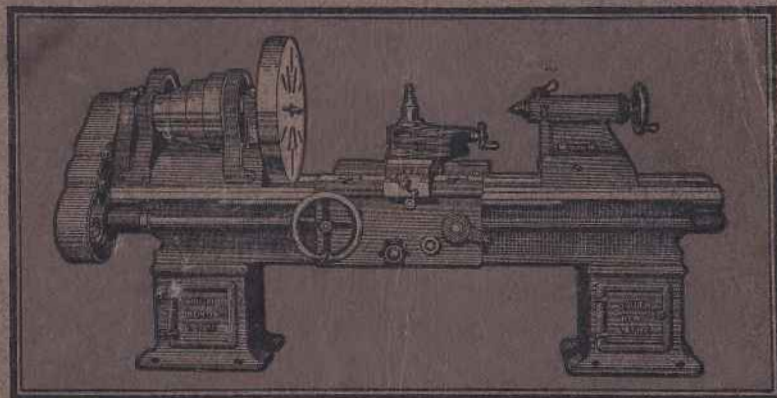


SOUTH BEND LATHES



Established 1906

SOUTH BEND LATHE WORKS

SOUTH BEND • INDIANA • U.S.A.

20,000 South Bend Lathes are in use in manufacturing, the general machine shop, and industrial work throughout the world. The lathe that is practical in commercial industry is also practical for your shop.

SOUTH BEND LATHES

**May be purchased from the Machinery or
Supply Dealers**

U. S. PRICE SHEET No. 57-A

Revised April 15, 1919

Applying to Catalog No. 57, 1919

**South Bend Screw Cutting Engine Lathes
Tools and Accessories**

Lathes and Equipment Securely Crated F. O. B. Cars South Bend, Ind.

Sole Manufacturers

SOUTH BEND LATHE WORKS

423, 425, 427 E. Madison Street

South Bend, Indiana, U. S. A.

U. S. PRICE SHEET 57-A

No. 27 11-INCH SOUTH BEND LATHE

Catalog Page	No. of Lathe	Swing Over Bed	Length of Bed	Approx. Weight Bench Legs Crated	Approx. Weight Long Legs Crated	Price F. O. B. South Bend Bench Legs	Price F. O. B. South Bend Long Legs
6-7	27-AA	11¼ in.	3 ft.	450	550	\$170.00	\$180.00
6-7	27-A	11¼ in.	4 ft.	500	600	180.00	190.00
6-7	27-B	11¼ in.	5 ft.	550	650	190.00	200.00

U. S. PRICE SHEET No. 57-A

Revised April 15, 1919

Applying to Catalog No. 57, 1919

South Bend Screw Cutting Engine Lathes Tools and Accessories

Lathes and Equipment Securely Crated F. O. B. Cars South Bend, Ind.

Sole Manufacturers

SOUTH BEND LATHE WORKS

423, 425, 427 E. Madison Street

South Bend, Indiana, U. S. A.

U. S. PRICE SHEET No. 57-A

Applying to Catalog No. 57

Catalog Page	No. of Lathe	Swing Over Bed	Length of Bed	Distance Between Centers	Hole Through Spindle	Approx. Weight on Skids Crated	Code Word	Price F. O. B. South Bend
No. 34 13-INCH SOUTH BEND LATHE								
10-11	34-A	13¼ in.	4 ft.	18 in.	¾ in.	950	Hail	\$256.00
10-11	34-B	13¼ in.	5 ft.	30 in.	¾ in.	1000	Heald	272.00
10-11	34-C	13¼ in.	6 ft.	42 in.	¾ in.	1050	Hire	287.00
10-11	34-D	13¼ in.	7 ft.	54 in.	¾ in.	1100	Home	301.00
10-11	34-E	13¼ in.	8 ft.	66 in.	¾ in.	1150	Husk	315.00

No. 37 15-INCH SOUTH BEND LATHE								
12-13	37-B	15¼ in.	5 ft.	27 in.	1½ in.	1350	Ideal	\$336.00
12-13	37-C	15¼ in.	6 ft.	39 in.	1½ in.	1425	Image	352.00
12-13	37-D	15¼ in.	7 ft.	51 in.	1½ in.	1500	Index	369.00
12-13	37-E	15¼ in.	8 ft.	63 in.	1½ in.	1650	Iris	385.00
12-13	37-G	15¼ in.	10 ft.	87 in.	1½ in.	1900	Issue	434.00

No. 40 16-INCH SOUTH BEND LATHE								
14-15	40-C	16¼ in.	6 ft.	36 in.	1½ in.	1700	Jamb	\$432.00
14-15	40-D	16¼ in.	7 ft.	48 in.	1½ in.	1750	Jelly	446.00
14-15	40-E	16¼ in.	8 ft.	60 in.	1½ in.	1825	Jinks	463.00
14-15	40-G	16¼ in.	10 ft.	84 in.	1½ in.	2025	Joist	511.00
14-15	40-H	16¼ in.	12 ft.	108 in.	1½ in.	2250	Jute	569.00

Catalog Page	No. of Lathe	Swing Over Bed	Length of Bed	Distance Between Centers	Hole Through Spindle	Approx. Weight on Skids Crated	Code Word	Price F. O. B. South Bend
No. 45 18-INCH SOUTH BEND LATHE								
16-17	45-C	18¼ in.	6 ft.	31 in.	1½ in.	2250	Kafir	\$600.00
16-17	45-D	18¼ in.	7 ft.	43 in.	1½ in.	2325	Khond	625.00
16-17	45-E	18¼ in.	8 ft.	55 in.	1½ in.	2450	Knack	668.00
16-17	45-G	18¼ in.	10 ft.	79 in.	1½ in.	2550	Kohl	710.00
16-17	45-H	18¼ in.	12 ft.	103 in.	1½ in.	2750	Kurd	790.00

No. 47 21-INCH SOUTH BEND LATHE								
18-19	47-D	21¼ in.	7 ft.	39 in.	1½ in.	2875	Paint	\$771.00
18-19	47-E	21¼ in.	8 ft.	51 in.	1½ in.	3085	Pear	795.00
18-19	47-G	21¼ in.	10 ft.	75 in.	1½ in.	3325	Photo	841.00
18-19	47-H	21¼ in.	12 ft.	99 in.	1½ in.	3750	Pike	931.00
18-19	47-K	21¼ in.	14 ft.	123 in.	1½ in.	4021	Plate	1000.00

No. 54 24-INCH SOUTH BEND LATHE								
20-21	54-E	24¼ in.	8 ft.	46 in.	1¾ in.	3975	Race	\$1085.00
20-21	54-G	24¼ in.	10 ft.	70 in.	1¾ in.	4475	Rend	1139.00
20-21	54-H	24¼ in.	12 ft.	94 in.	1¾ in.	4725	Rise	1218.00
20-21	54-K	24¼ in.	14 ft.	118 in.	1¾ in.	5150	Root	1275.00
20-21	54-M	24¼ in.	16 ft.	142 in.	1¾ in.	5385	Rung	1335.00

PRICE OF GAP AND BRIDGE IS EXTRA OVER PRICE OF STRAIGHT BED LATHE

No. of Gap Lathe	Swing Over Straight Bed	Swing Over Gap	Width of Gap	Lengths of Beds in Feet	Extra Weight of Gap Beds	Price Extra for Gap and Bridge
134	13 $\frac{1}{4}$ in.	19 in.	7 in.	4, 5, 6, 7, 8	100 lbs.	\$ 30.00
137	15 $\frac{1}{4}$ in.	22 in.	8 in.	5, 6, 7, 8, 10	125 lbs.	36.00
140	16 $\frac{1}{4}$ in.	24 in.	8 $\frac{3}{8}$ in.	6, 7, 8, 10, 12	140 lbs.	40.00
145	18 $\frac{1}{4}$ in.	26 in.	10 in.	6, 7, 8, 10, 12	170 lbs.	50.00
147	21 $\frac{1}{4}$ in.	30 in.	12 in.	7, 8, 10, 12, 14	250 lbs.	100.00
154	24 $\frac{1}{4}$ in.	36 in.	15 in.	8, 10, 12, 14, 16	350 lbs.	150.00

PRICE OF OIL PAN

Page	No. of Lathe	Size of Lathe	LENGTH OF BED				
			4-foot	5-foot	6-foot	7-foot	8-foot
24-25	No. 234	13-inch Tool Room Lathe.....	\$15.00	\$17.00	\$19.00	\$21.00	\$23.00
24-25	No. 237	15-inch Tool Room Lathe.....		20.00	22.00	24.00	26.00
24-25	No. 240	16-inch Tool Room Lathe.....			25.00	28.00	31.00
24-25	No. 245	18-inch Tool Room Lathe.....			28.00	31.00	35.00

BENCH LATHES

25	Size of Lathe.....	13"	15"	16"	18"
	For Bench Legs instead of long legs, deduct from list.....	\$5.00	\$6.00	\$7.00	\$8.00

**SILENT CHAIN MOTOR DRIVE ATTACHMENT
(Not Including Lathe or Motor)**

26-27	Size of Lathe used on.....	13"	15"	16"	18"	21"	24"
28	Price of Attachment.....	\$135.00	\$150.00	\$175.00	\$200.00	\$250.00	\$300.00
	Code	Orbit	Ordax	Orgay	Orphl	Ortis	Ortet

THREE-STEP CONE, SINGLE BACK GEAR

29	Size of Lathe.....	13"	15"	16"	18"	21"	24"
	Width of Belt.....	2"	2 $\frac{1}{4}$ "	2 $\frac{3}{4}$ "	3 $\frac{1}{4}$ "	4"	4 $\frac{3}{4}$ "
	Same price as Our Standard single back gear Lathe 4-step cone.						

DOUBLE BACK GEAR

30	Size of Lathe.....	13"	15"	16"	18"	21"	24"
	Price Extra, Double Back Gear.....	\$40.00	\$45.00	\$50.00	\$60.00	\$75.00	\$100.00

MILLING AND KEYWAY CUTTING ATTACHMENT

34-35	Size of Attachment.....	No. 3	No. 4	No. 5	No. 6	No. 7
	Size Lathe used on.....	13"	15"	16"-18"	21"	24"
	Price	\$35.00	\$37.50	\$40.00	\$50.00	\$60.00

MILLING ARBOR, CUTTERS AND END MILL

36	Milling Arbor	Net list as shown in Catalog
36	Milling Cutters and End Mill.....	Prices on application

PRICES OF RAISING BLOCKS FOR STRAIGHT OR GAP BED LATHES

40	Raising Blocks Prices.....	Net list as shown in Catalog
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TURNSTYLE TURRETS AND CARRIAGE TURRETS

- 42 Turnstyle Turret on Bed, and Carriage Turrets.....Prices on application

TOOL POST TURRETS

- 43 Tool Post Turrets....Style E....Style F.....Net list as shown in Catalog

TAPER ATTACHMENT

- | | | | | | | | |
|----|--------------------------|---------|---------|---------|---------|---------|---------|
| 46 | Size of Lathe..... | 13" | 15" | 16" | 18" | 21" | 24" |
| | Price of Attachment..... | \$40.00 | \$43.00 | \$45.00 | \$50.00 | \$65.00 | \$75.00 |

DRAW-IN CHUCK ATTACHMENT

- 47 Draw-in Chuck Attachment.....Net list as shown in Catalog

THREAD DIAL

- | | | | | | | | |
|----|--------------------|--------|---------|---------|---------|---------|---------|
| 50 | Size of Lathe..... | 13" | 15" | 16" | 18" | 21" | 24" |
| | Price of Dial..... | \$8.00 | \$10.00 | \$11.00 | \$12.00 | \$13.00 | \$14.00 |

CYLINDER BORING ATTACHMENT

- | | | | | | | | |
|-------|--------------------------|---------|---------|---------|---------|---------|----------|
| 52-53 | Size of Lathe..... | 13" | 15" | 16" | 18" | 21" | 24" |
| | Price of Attachment..... | \$55.00 | \$65.00 | \$75.00 | \$80.00 | \$90.00 | \$100.00 |

TRANSPOSING GEARS FOR METRIC THREAD

- | | | | | | | | |
|----|-------------------------|--------|---------|---------|---------|---------|---------|
| 54 | Size of Lathe..... | 13" | 15" | 16" | 18" | 21" | 24" |
| | Price of Gears Net..... | \$9.00 | \$10.00 | \$11.00 | \$12.00 | \$15.00 | \$20.00 |

LATHE GRINDER

- 56 Dumore Electric Tool Post Grinders.....Net list as shown in Catalog

CENTERS—DRILL PADS—ARBORS

- 57 Centers, Drill Pads, and Chuck Arbors.....Net list as shown in Catalog
57 Pipe CentersNet list as shown in Catalog

FORGED STEEL LATHE TOOLS

- 58 Forged Steel Lathe Tools, all sizes.....Discount per cent. 15

PATENT LATHE TOOLS

- 59 Turning Tools, Cut-off Tools, Boring Tools.....Net list as shown in Catalog

LATHE DOGS

- 60 Lathe DogsNet list as shown in Catalog

SEMI-MACHINED CHUCK PLATES, FITTING CHUCKS

- 61 Semi-Machined Chuck Plate.....Net list as shown in Catalog
61 Fitting Chuck to Lathe.....Net list as shown in Catalog

CHUCKS

- | | | |
|----|---|------------------------------|
| 62 | Standard Drill Chuck..... | Net list as shown in Catalog |
| 62 | Universal Geared Scroll Chuck..... | Net list as shown in Catalog |
| 63 | Independent Lathe Chuck..... | Net list as shown in Catalog |
| 63 | Combination Lathe Chuck Geared Screw..... | Net list as shown in Catalog |

On all small tools, which we list but do not make, but purchase from the manufacturer, prices are subject to change without notice.

M. W. O'Brien

O'BRIEN BROTHERS

J. J. O'Brien

Catalog No. 57—1919

Published February 15, 1919

ILLUSTRATING AND DESCRIBING

SOUTH BEND LATHES

ESTABLISHED IN 1906

Catalogues also printed in Spanish, and Portuguese languages

MANUFACTURED ONLY BY THE

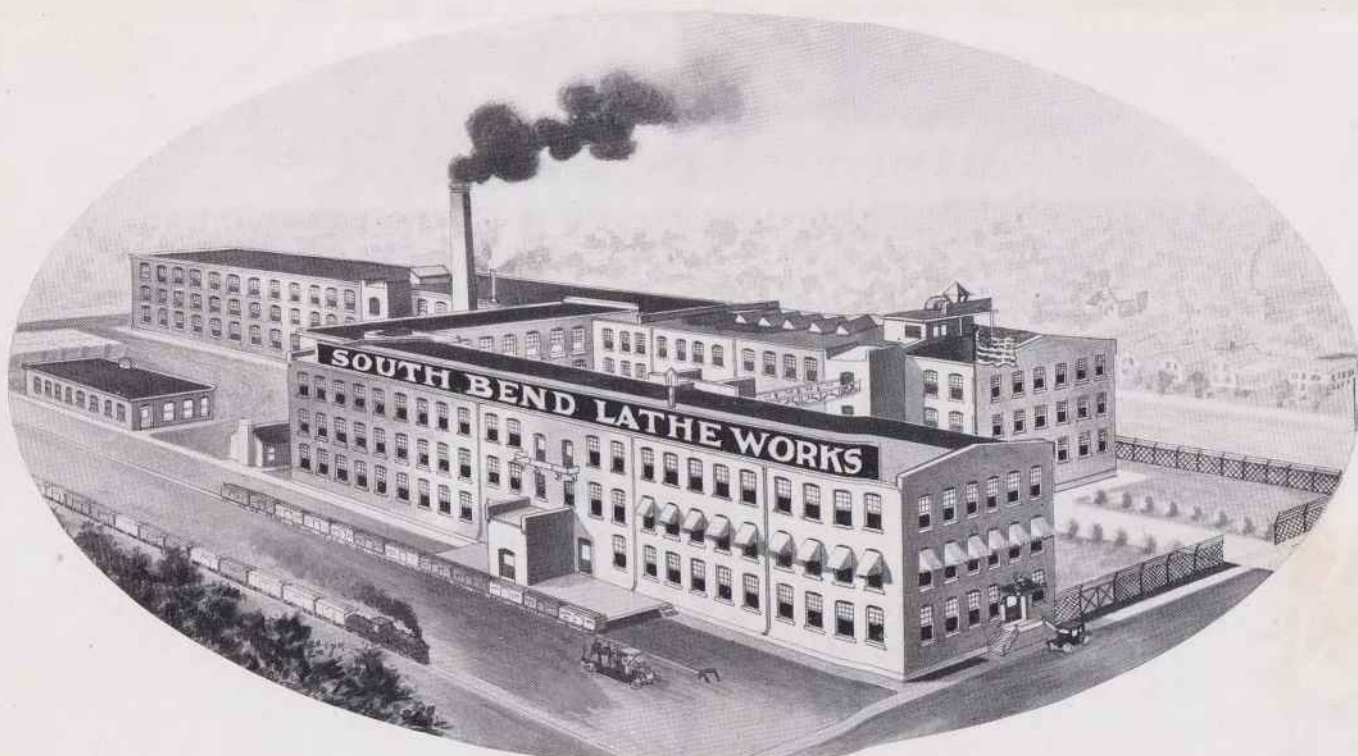
SOUTH BEND LATHE WORKS

(Incorporated)

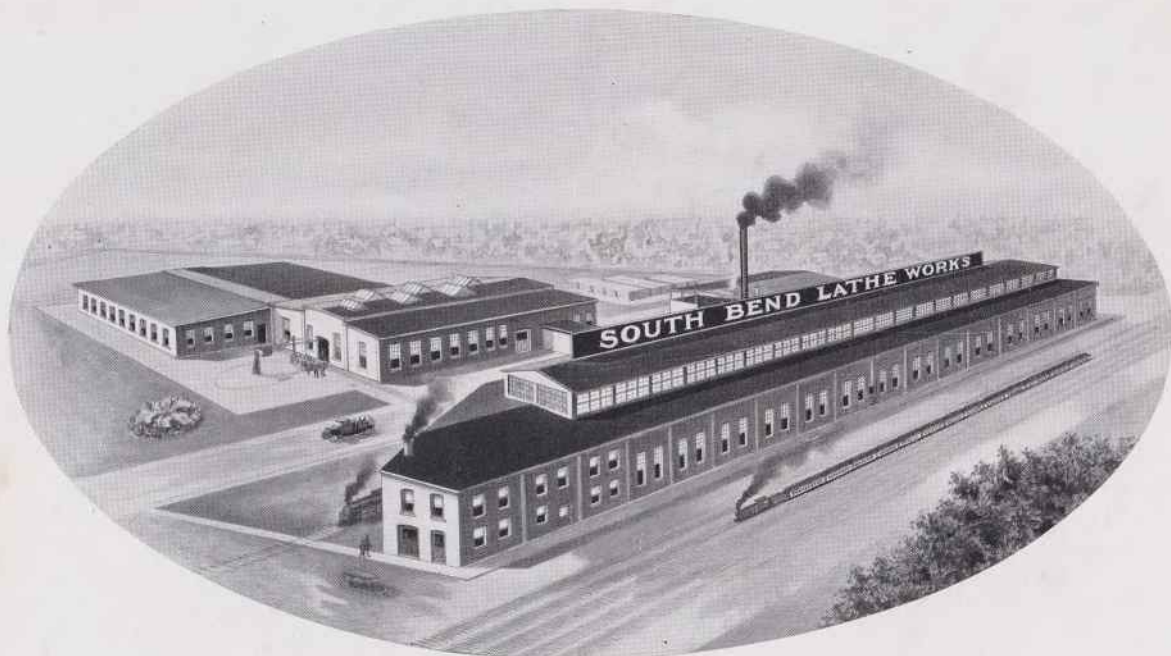
General Offices: 425 E. Madison St., South Bend, Ind., U. S. A.

Telegraph Codes—Western Union, Lieber's, A. B. C. and Bentleys

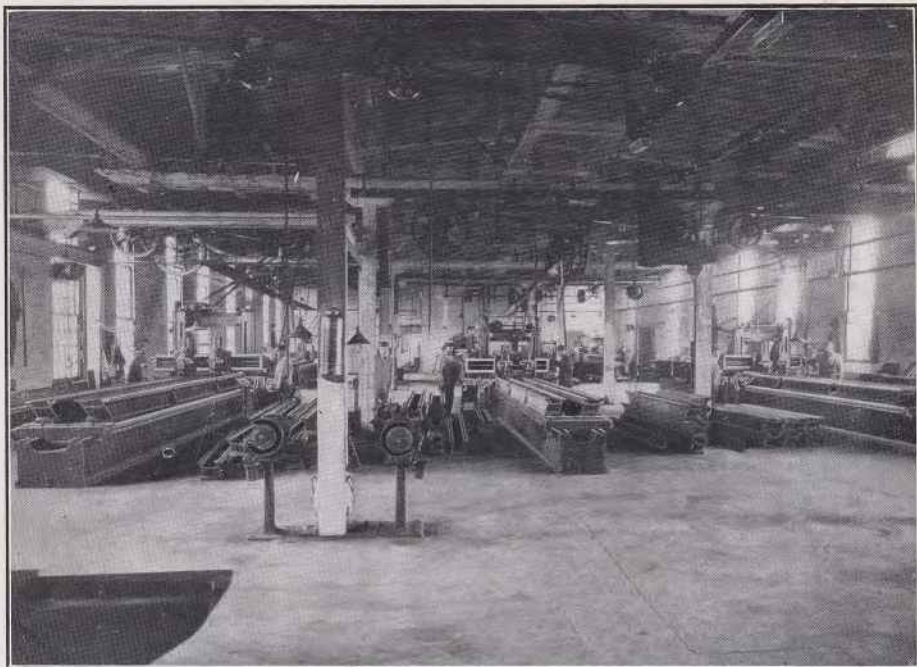
Cable Address—Twins, South Bend



EAST MADISON STREET SHOP, SOUTH BEND
20,000 South Bend Lathes in Use Throughout the World

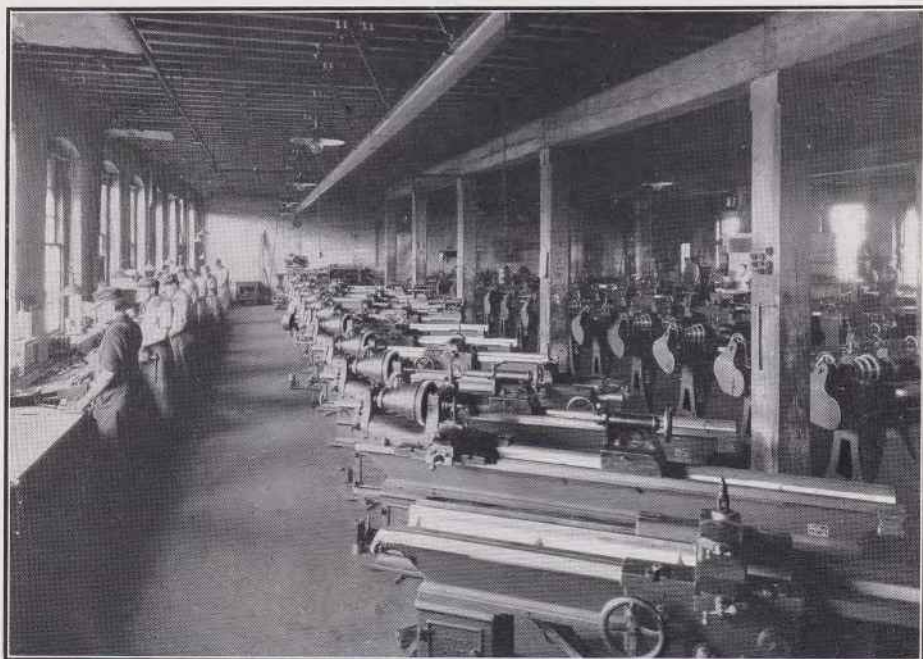


FELLOWS STREET SHOP, SOUTH BEND
Established in 1906—Making South Bend Lathes 13 Years

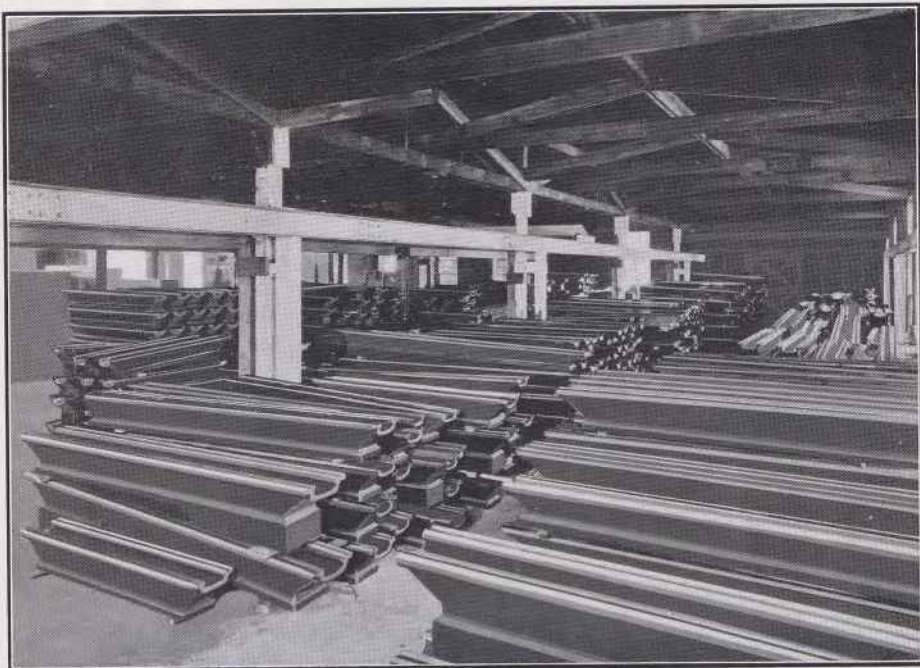


ONE END OF OUR PLANER DEPARTMENT

Three 24-foot Spiral Gear Planers in the foreground, with Four Heads, Two on Uprights and Two on Rails



Assembling Floor, 18, 21 and 24-inch Lathes

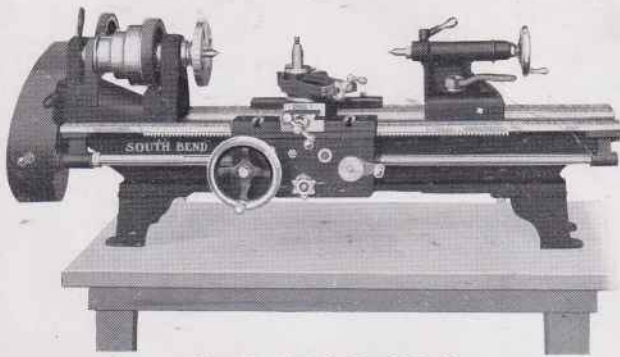


MORE THAN 1,000 FINISHED LATHE BEDS IN STOCK

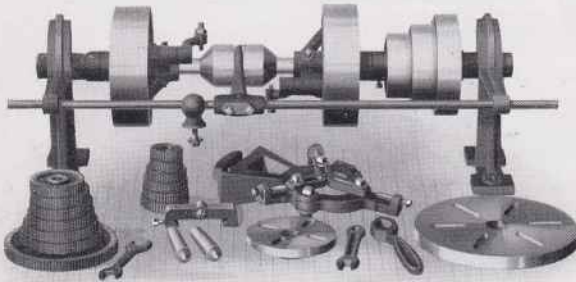
We carry a large stock of Lathe Beds, Heads, Tail Stocks, Carriages and other units so that delivery on standard lathes is a matter of assembling



Assembling Floor for 13, 15 and 16-inch Lathes



No. 27—11-Inch Bench Lathe



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

The No. 27 Lathe is practical in tool making where sensitive, accurate work is required. It is also used in large technical schools for preliminary exercises in machine work.

No. 27—11-IN. SOUTH BEND SCREW CUTTING ENGINE LATHE

Fitted with Automatic Longitudinal Feed and Automatic Cross Feed

The No. 27 Lathe will be found very practical in tool making where sensitive, accurate work is required. It is also used in large technical schools for preliminary exercises in machine work

The No. 27 Small 11-inch Lathe, illustrated and described herewith, is intended only for very light work. This lathe is used principally in manufacturing in the production of small, accurate machine parts. It is also used to advantage in groups in large technical schools, being used for preliminary exercise work by classes of young boys who are beginners in the Machine Shop Course.

The tabulated list below refers to the Lathe equipped with long legs instead of Bench Legs as shown on the opposite page.

Tail Stock is offset to allow compound rest to swing parallel to bed. It is provided with set-over for turning taper. Tail stock center is self-ejecting.

Carriage is strong, with wide, deep bridge; has T slots for clamping work for **milling and boring**; has both automatic cross feed and automatic longitudinal feed, both of which are

operated from the front of apron and so arranged that only one feed can be engaged at a time. Both feeds are driven by a splined screw and worm so that the thread of the lead screw is used for screw cutting only.

Thread Cutting. Lathe is indexed to cut standard threads from 4 to 40, right or left, including 11½ pipe thread, and by compounding the gears furnished many other threads may be cut.

Graduation. The compound rest is graduated in degrees. The cross-feed screw has a graduated micrometer collar reading in one-thousandths of an inch.

Equipment shown in cut is included in the price and consists of large and small face plates, compound rest, two steel centers, center rest, change gears, adjustable stop for screw cutting, a set of feed gears, gear guards, necessary wrenches, and double friction countershaft.

Regular equipment, as illustrated under lathe, is included in price.

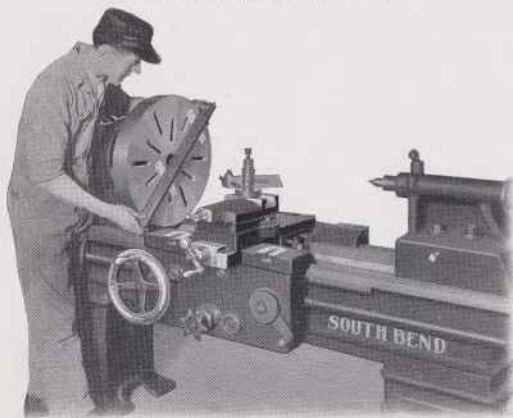
No. of Lathe	Swing Over Bed	Length of Bed	Distance Between Centers	Swing Over Carriage	Hole Through Spindle	Diameter of Spindle Nose	Opening Tool Post Inches	Countershaft Speed	Approx. Weight Long Legs Crated	Weight Boxed for Export
27AA	11¼ in.	3 ft.	12½ in.	7½ in.	¼ in.	1½ in.	¾ x ⅞ in.	275 R. P. M.	550	650
27A	11¼ in.	4 ft.	24 in.	7½ in.	¼ in.	1½ in.	¾ x ⅞ in.	275 R. P. M.	600	750
27B	11¼ in.	5 ft.	36 in.	7½ in.	¼ in.	1½ in.	¾ x ⅞ in.	275 R. P. M.	650	800



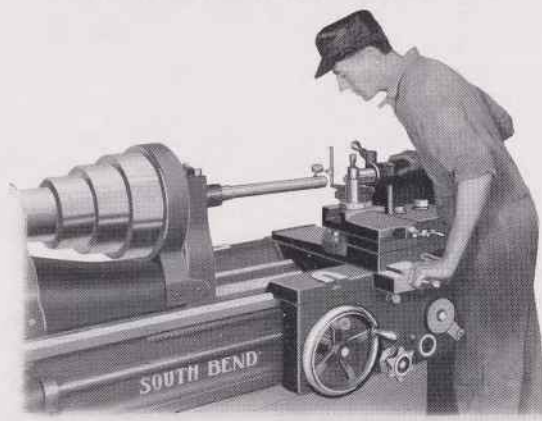
Testing Cross Side of Saddle



Testing Alignment of Head and Tail Stock



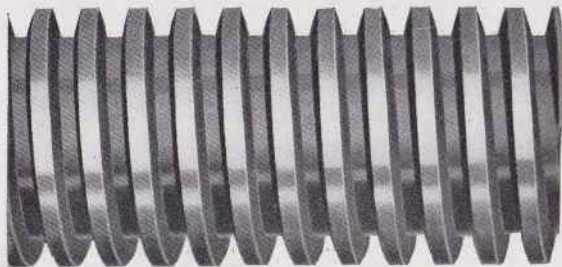
Testing Face Plate



Testing Alignment of Spindle

SECTION OF LEAD SCREW

The cut below shows a section of the Lead Screw that is used on the 18-inch South Bend Lathe. Our lead screws and racks are purchased from manufacturers that furnish lead screws and racks to makers of standard engine lathes.



Steel Lead Screw of 21-inch Lathe (Actual Size)

We guarantee the lead screws on South Bend Lathes to be accurate in every detail, so that the finest precision screw gauges, precision taps and special screws, etc., can be made on a South Bend Lathe to meet the most accurate requirements.

The Lead Screw on South Bend Lathes is of steel. The thread is Acme Standard. Each Lead Screw is splined and acts as a feed rod for driving the worm which operates both the automatic cross feed and the automatic longitudinal feed; therefore the thread of the Lead Screw should last a life time, as it is used only when cutting threads on the lathe.

ACCURACY

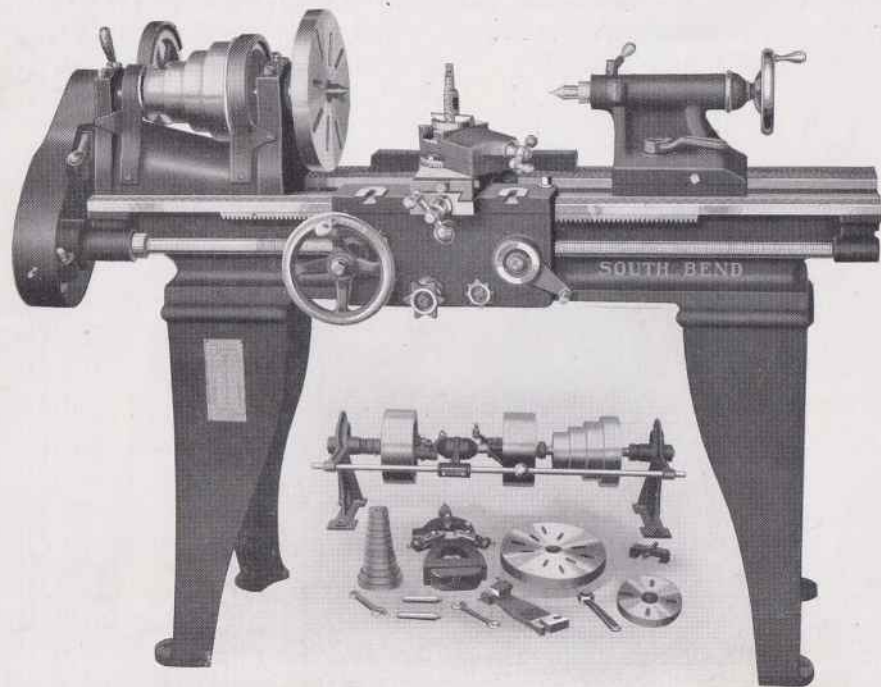
Every South Bend Lathe is operated, and tested before leaving the factory. A tag is attached to the lathe, upon which the various tests are recorded, and when the lathe is shipped this tag is filed in our office for future reference. The illustration on the right shows one of the tags.

OUR GUARANTEE

We guarantee that each and every South Bend Lathe is accurate, mechanically perfect, and is exactly as illustrated and described in this catalog; that each South Bend Lathe will give you perfect satisfaction, and that it will give you the service you have a right to expect, because you pay for reliable lathe value.

	
Date Tested	January 4, 1918
Size Lathe	16 x 8 ft.
Serial No. of Lathe	16024
Head Spindle Test	Less than .0005"
Tail Spindle Test	Perfect
Center Test	Perfect
Lead Screw Test	Perfect
Compared to master lead screw	
Saddle Test	Less than .0005"
Face Plate Test	Less than .0005"
Assembled By	E. B. Walliman
Inspected and Tested By	A. C. Schwartz
Lathe Shipped To	Snow Mfg. Co.
	Chicago, Ill.
Date Shipped	January 5, 1918
SOUTH BEND LATHE WORKS	

Test Tag



No. 34—13-Inch South Bend Screw Cutting Engine Lathe

No. 34—13-INCH SOUTH BEND SCREW CUTTING ENGINE LATHE

Fitted with Automatic Longitudinal Feed, Automatic Cross Feed and Compound Rest

The No. 34 Lathe is an excellent tool for the machine shop, for light work

Bed is rigid, cross ribbed by heavy box braces cast in at short intervals its entire length; has three V's and one flat way for front bearing of head stock, tail stock and carriage. The rack attached is of steel, cut from the solid bar.

Head Stock is equipped with improved reverse. Spindle cone has four steps for 1½-inch belt. Spindle is of special spindle steel accurately ground, has ¾-inch hole its entire length. Centers are No. 3 Morse taper. Bearings are the best phosphor bronze with ample oiling facilities, and are adjustable for wear.

Tail Stock is off-set to allow compound rest to swivel parallel to bed and is provided with set-over for turning taper. Tail stock center is self-ejecting.

Carriage is strong, with wide, deep bridge; has T slots for clamping work for milling and boring. Both automatic cross feed and automatic longitudinal feed are operated from the front

of apron and but one feed at a time can be engaged. Both feeds are driven by a splined screw and worm so that the thread of the lead screw is **used for thread cutting only**. (See automatic apron, page 45.)

Thread Cutting. Lathe is indexed to cut standard threads from 4 to 40, right or left, including 11½ pipe thread, and by compounding the gears furnished many other threads can be cut. (See page 45.)

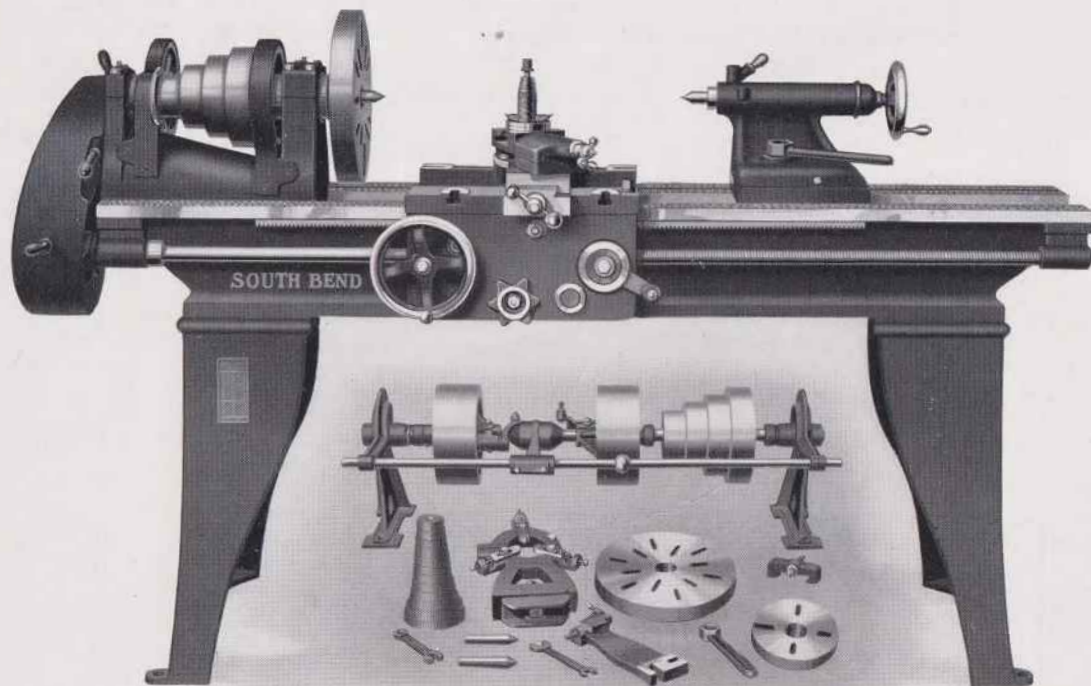
Graduation. The compound rest is graduated in degrees. (See page 31.) The cross-feed screw has micrometer graduated collar reading in one-thousandths of an inch.

Equipment, as shown in cut, is included in the price and consists of large and small face plates, compound rest, two steel centers, center rest, follower rest, change gears, adjustable stop for screw cutting, a set of feed gears, gear guards, necessary wrenches and double friction countershaft. (See page 44.)

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

No. of Lathe	Swing over Bed	Length of Bed	Distance Between Centers	Swing over Carriage	Hole Through Spindle	Diameter of Spindle Nose	Opening Tool Post Inches	Countershaft Speed	Approx. Weight on Skids Crated	Weight Boxed for Export
34-A	13½ in.	4 ft.	18 in.	9 in.	¾ in.	1¾ in.	½ x 1½ in.	275 R. P. M.	950	1050
34-B	13¼ in.	5 ft.	30 in.	9 in.	¾ in.	1¾ in.	½ x 1½ in.	275 R. P. M.	1000	1180
34-C	13¼ in.	6 ft.	42 in.	9 in.	¾ in.	1¾ in.	½ x 1½ in.	275 R. P. M.	1050	1200
34-D	13¼ in.	7 ft.	54 in.	9 in.	¾ in.	1¾ in.	½ x 1½ in.	275 R. P. M.	1100	1270
34-E	13¼ in.	8 ft.	66 in.	9 in.	¾ in.	1¾ in.	½ x 1½ in.	275 R. P. M.	1150	1350

Extras. The No. 34 Lathe may be supplied at extra cost with — Milling and Key-Way Cutting Attachment, Raising Blocks so lathe will turn and bore 18-inch swing, and Taper Attachment. Extras, except Taper Attachment, are interchangeable and may be attached after lathe has left the factory.



No. 37—15-Inch South Bend Screw Cutting Engine Lathe

No. 37—15-INCH SOUTH BEND SCREW CUTTING ENGINE LATHE

Fitted with Automatic Longitudinal Feed, Automatic Cross Feed and Compound Rest

The No. 37 Lathe is surpassed by none for manufacturing and for the machine and general repair shop

Bed is rigid, cross ribbed by heavy box braces cast in at short intervals its entire length; has three V's and one flat way for guiding the head stock, tail stock, and carriage. The rack attached is of steel, cut from the solid bar.

Head Stock is equipped with improved reverse. Spindle cone has four steps for 1¾-inch belt. Spindle is of special carbon steel accurately ground; has 1½-inch hole its entire length. Centers are No. 3 Morse taper. Bearings are of heavy phosphor bronze with ample oiling facilities and are adjustable for wear.

Tail Stock is off-set to allow compound rest to swivel parallel to the bed and is provided with set-over for turning taper. Tail stock center is self-ejecting.

Carriage is strong, with wide deep bridge; has T slots for clamping work for milling and boring. Both automatic cross feed

and automatic longitudinal feed are operated from the front of apron and but one feed at a time can be engaged. Both feeds are driven by a splined screw and worm so that the thread of the lead screw is used for thread cutting only. (See automatic apron, page 45.)

Thread Cutting. The lathe is indexed to cut standard threads from 4 to 40, right or left, including 11½ pipe thread. (See page 45.)

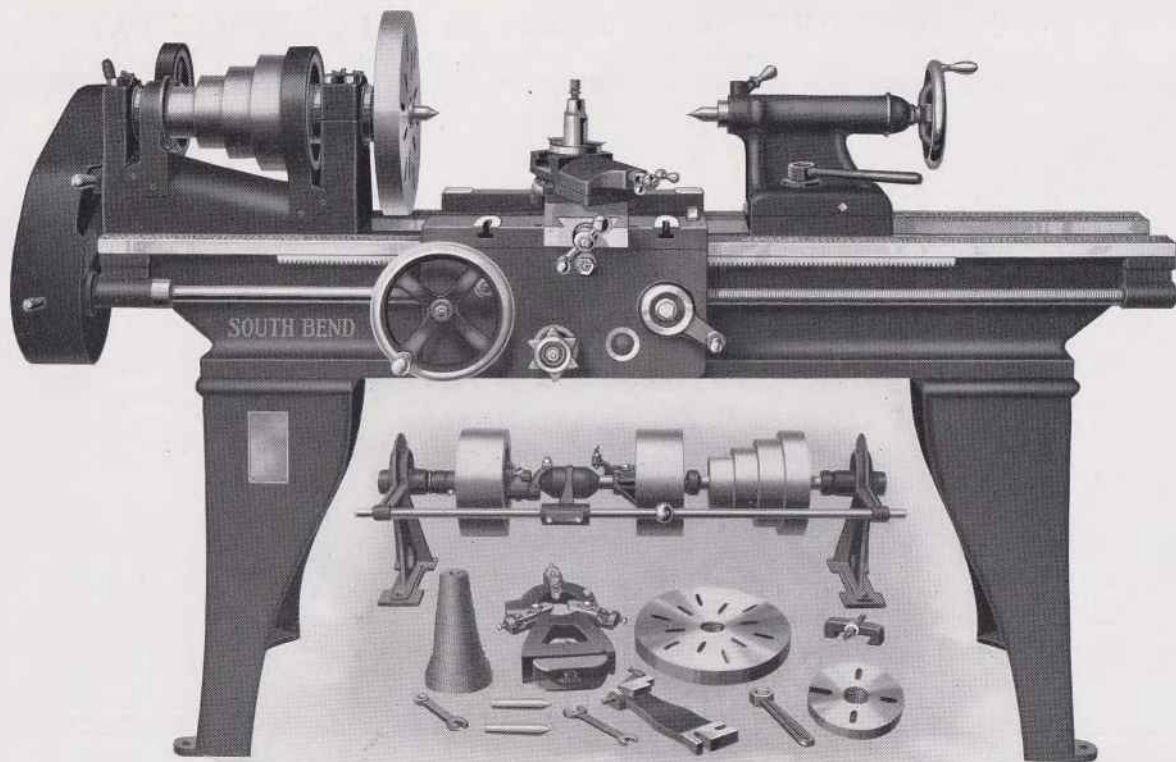
Graduation. The compound rest is graduated in degrees. (See page 31.) The cross-feed screw has micrometer graduated collar reading in one-thousandths of an inch.

Equipment, as shown in cut, is included in the price and consists of large and small face plates, compound rest, two steel centers, center rest, follower rest, change gears, adjustable stop for screw cutting, a set of feed gears, gear guards, necessary wrenches and double friction countershaft. (See page 44.)

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

No. of Lathe	Swing over Bed	Length of Bed	Distance Between Centers	Swing over Carriage	Hole Through Spindle	Diameter of Spindle Nose	Opening Tool Post Inches	Countershaft Speed	Approx. Weight on Skids Crated	Weight Boxed for Export
37-B	15¼ in.	5 ft.	27 in.	10⅝ in.	1⅞ in.	2¼ in.	⅝ x 1¼ in.	250 R. P. M.	1350	1600
37-C	15¼ in.	6 ft.	39 in.	10⅝ in.	1⅞ in.	2¼ in.	⅝ x 1¼ in.	250 R. P. M.	1425	1675
37-D	15¼ in.	7 ft.	51 in.	10⅝ in.	1⅞ in.	2¼ in.	⅝ x 1¼ in.	250 R. P. M.	1500	1725
37-E	15¼ in.	8 ft.	63 in.	10⅝ in.	1⅞ in.	2¼ in.	⅝ x 1¼ in.	250 R. P. M.	1650	1900
37-G	15¼ in.	10 ft.	87 in.	10⅝ in.	1⅞ in.	2¼ in.	⅝ x 1¼ in.	250 R. P. M.	1900	2250

Extras. The No. 37 Lathe may be supplied at extra cost with — Milling and Key-Way Cutting Attachment. Raising Blocks so lathe will turn and bore 20-inch swing, and Taper Attachment. Extras, except Taper Attachment, are interchangeable and may be attached after lathe has left the factory.



No. 40—16-Inch South Bend Screw Cutting Engine Lathe

No. 40—16-INCH SOUTH BEND SCREW CUTTING ENGINE LATHE

Fitted with Automatic Longitudinal Feed, Automatic Cross Feed and Compound Rest

The No. 40 Lathe is a heavy, reliable tool capable of taking powerful cuts with high-speed steel. We recommend it for manufacturing for the machine shop and general all-around work

Bed is rigid, cross ribbed by heavy box braces cast in at short intervals its entire length; has three V's and one flat way for guiding the head stock, tail stock, and carriage. The rack is of steel, cut from the solid bar.

Head Stock is equipped with improved reverse. Spindle cone has four steps for 2-inch belt, which, with back gears, gives eight changes of spindle speeds. Spindle is of special carbon steel accurately ground; has $1\frac{1}{16}$ -inch hole its entire length. Centers are No. 3 Morse taper. Bearings are of heavy phosphor bronze with ample oiling facilities and are adjustable for wear.

Tail Stock is off-set to allow compound rest to swivel parallel to the bed and is provided with set-over for turning taper. Tail stock center is self-ejecting.

Carriage is strong, with wide, deep bridge; has T slots for clamping work for milling and boring. Has automatic cross feed

and automatic longitudinal feed, both of which are operated from front of apron and but one feed at a time can be engaged. Both feeds are driven by a splined screw and worm so that the thread of the lead screw is used for thread cutting only. (See automatic apron, page 45.)

Thread Cutting. The lathe is indexed to cut standard threads from 4 to 40, right or left, including $11\frac{1}{2}$ pipe thread. (See page 45.)

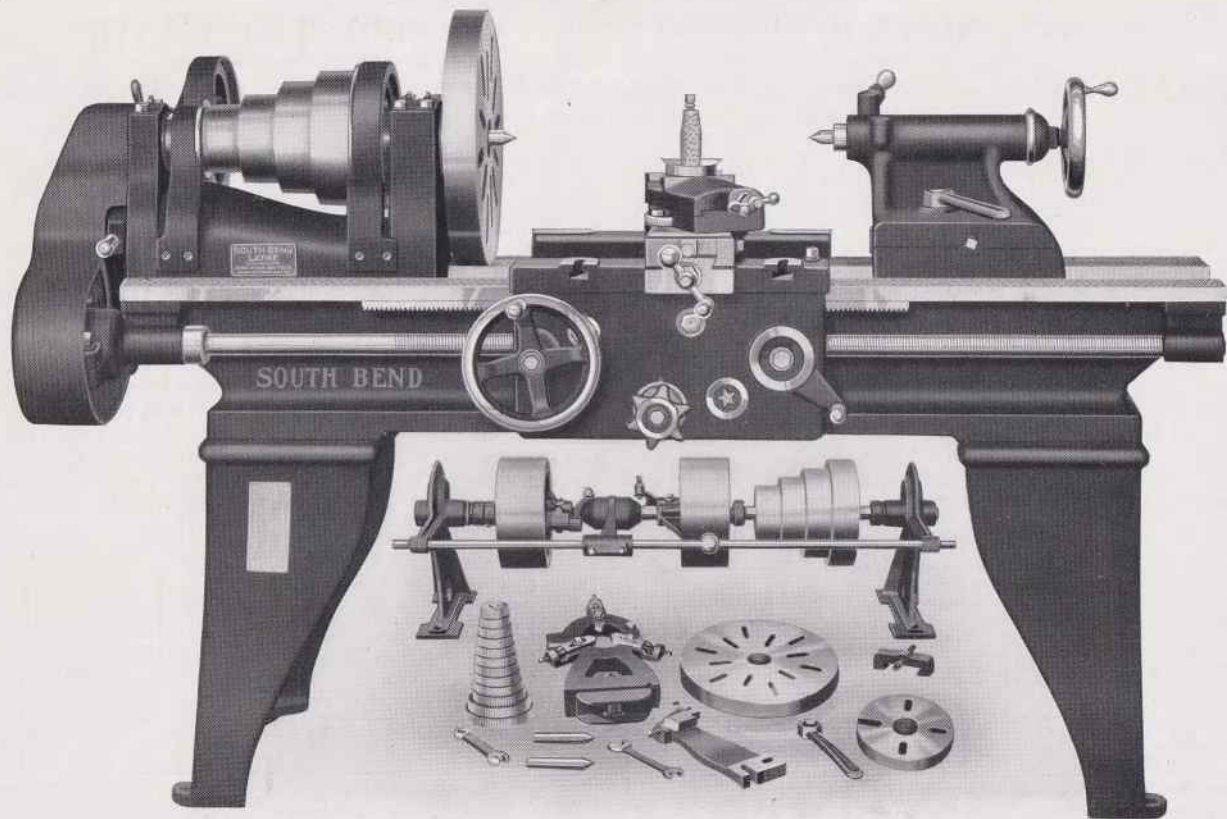
Graduation. The compound rest is graduated in degrees. (See page 31.) The cross-feed screw has a graduated micrometer collar reading in one-thousandths of an inch.

Equipment, as shown in cut, is included in the price and consists of large and small face plates, compound rest, two steel centers, center rest, follower rest, change gears, adjustable stop for screw cutting, a set of feed gears, gear guards, necessary wrenches and double friction countershaft. (See page 44.)

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

No. of Lathe	Swing over Bed	Length of Bed	Distance Between Centers	Swing over Carriage	Hole Through Spindle	Diameter of Spindle Nose	Taper in Spindle Morse	Opening Tool Post Inches	Countershaft Speed	Approx. Weight on Skids Crated	Weight Boxed for Export
40-C	16 $\frac{1}{4}$ in.	6 ft.	36 in.	11 $\frac{1}{8}$ in.	1 $\frac{1}{16}$ in.	2 $\frac{3}{8}$ x 8 th.	No. 3	$\frac{5}{8}$ x 1 $\frac{1}{8}$ in.	225 R. P. M.	1700	1875
40-D	16 $\frac{1}{4}$ in.	7 ft.	48 in.	11 $\frac{1}{8}$ in.	1 $\frac{1}{16}$ in.	2 $\frac{3}{8}$ x 8 th.	No. 3	$\frac{5}{8}$ x 1 $\frac{1}{8}$ in.	225 R. P. M.	1750	2000
40-E	16 $\frac{1}{4}$ in.	8 ft.	60 in.	11 $\frac{1}{8}$ in.	1 $\frac{1}{16}$ in.	2 $\frac{3}{8}$ x 8 th.	No. 3	$\frac{5}{8}$ x 1 $\frac{1}{8}$ in.	225 R. P. M.	1825	2050
40-G	16 $\frac{1}{4}$ in.	10 ft.	84 in.	11 $\frac{1}{8}$ in.	1 $\frac{1}{16}$ in.	2 $\frac{3}{8}$ x 8 th.	No. 3	$\frac{5}{8}$ x 1 $\frac{1}{8}$ in.	225 R. P. M.	2025	2150
40-H	16 $\frac{1}{4}$ in.	12 ft.	108 in.	11 $\frac{1}{8}$ in.	1 $\frac{1}{16}$ in.	2 $\frac{3}{8}$ x 8 th.	No. 3	$\frac{5}{8}$ x 1 $\frac{1}{8}$ in.	225 R. P. M.	2250	2350

Extras. The No. 40 Lathe may be supplied at extra cost with — Milling and Key-Way Cutting Attachment, Raising Blocks so lathe will turn and bore 22-inch swing, and Taper Attachment. Extras, except Taper Attachment, are interchangeable and may be attached after lathe has left the factory. Lathe with 12-ft. bed, equipped with Center Leg.



No. 45—18-Inch South Bend Screw Cutting Engine Lathe (Improved Pattern, Heavy Duty)

No. 45—18-INCH SOUTH BEND SCREW CUTTING ENGINE LATHE (Improved Pattern) Heavy Duty

Fitted with Automatic Longitudinal Feed, Automatic Cross Feed and Compound Rest

The No. 45 Lathe is designed to give service with high-speed steel. It has the strength for manufacturing and general all-around work in the machine shop

Bed is rigid, cross ribbed by heavy box braces cast in at short intervals its entire length; has three V's and one flat way for guiding the head stock, tail stock, and carriage. The rack is of steel, cut from the solid bar.

Head Stock is equipped with improved reverse. Spindle cone has four steps for a 2½-inch belt, which, with back gears, gives eight changes of spindle speeds. Spindle is of special carbon steel, accurately ground; has a 1¾-inch hole its entire length. Centers conform to No. 3 Morse taper. Bearings are of heavy phosphor bronze, with ample oiling facilities, and are adjustable for wear.

Tail Stock is off-set to allow compound rest to swivel parallel to the bed and is provided with set-over for turning taper. Tail stock center is self-ejecting.

Carriage is strong, with wide, deep bridge; has T slots for clamping work for milling and boring. Has automatic cross feed

and automatic longitudinal feed, both of which are operated from front of apron and so arranged that only one feed can be engaged at a time. Both feeds are driven by a splined screw and worm so that the thread of the lead screw is used for thread cutting only. (See automatic apron, page 45.)

Thread Cutting. The lathe is indexed to cut standard threads from 2 to 40, right or left, including 11½ pipe thread. (See page 45.)

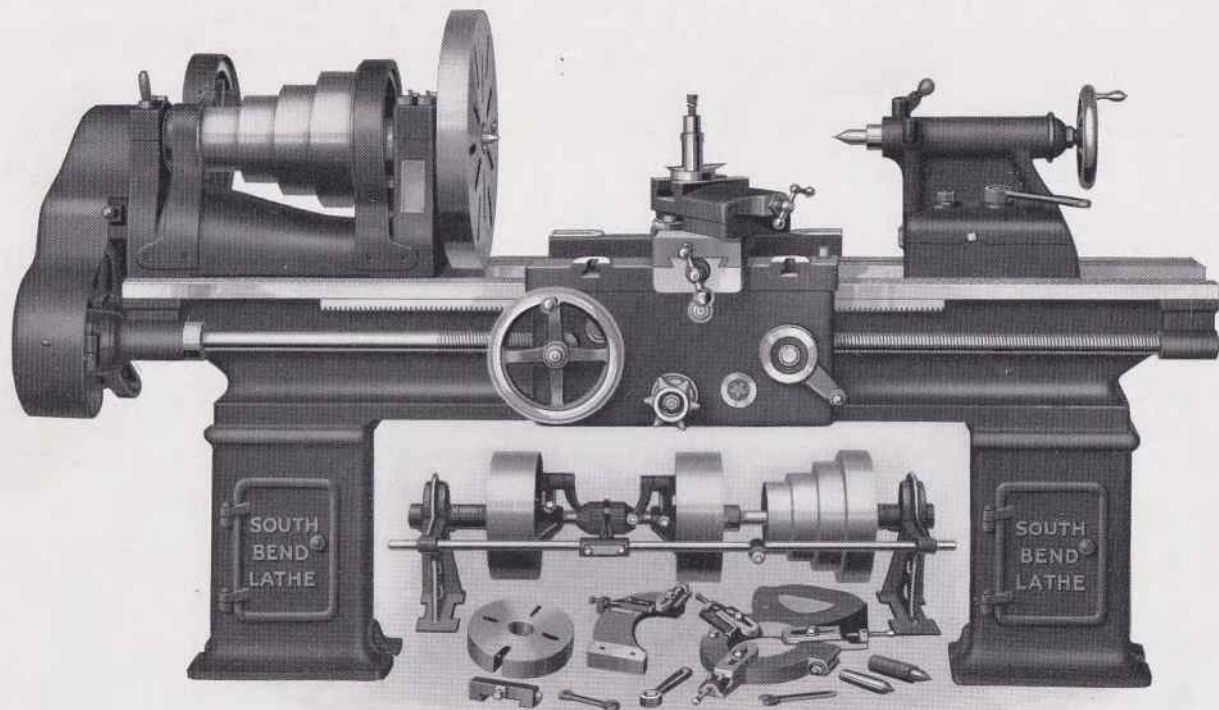
Graduation. The compound rest is graduated in degrees. (See page 31.) The cross-feed screw has a graduated micrometer collar reading in one-thousandths of an inch.

Equipment, as shown in cut, is included in the price and consists of large and small face plates, compound rest, two steel centers, center rest, follower rest, change gears, adjustable stop for screw cutting, a set of feed gears, gear guards, necessary wrenches and double friction countershaft. (See page 44.)

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

No. of Lathe	Swing over Bed	Length of Bed	Distance Between Centers	Swing over Carriage	Hole Through Spindle	Diameter of Spindle Nose	Taper in Spindle Morse	Opening Tool Post Inches	Countershaft Speed	Approx. Weight on Skids Crated	Weight Boxed for Export
45-C	18¼ in.	6 ft.	31 in.	12½ in.	1¾ in.	2½ x 6 th.	No. 3	⅝ x 1⅜ in.	200 R. P. M.	2250	2475
45-D	18¼ in.	7 ft.	43 in.	12½ in.	1¾ in.	2½ x 6 th.	No. 3	⅝ x 1⅜ in.	200 R. P. M.	2325	2550
45-E	18¼ in.	8 ft.	55 in.	12½ in.	1¾ in.	2½ x 6 th.	No. 3	⅝ x 1⅜ in.	200 R. P. M.	2450	2625
45-G	18¼ in.	10 ft.	79 in.	12½ in.	1¾ in.	2½ x 6 th.	No. 3	⅝ x 1⅜ in.	200 R. P. M.	2550	2825
45-H	18¼ in.	12 ft.	103 in.	12½ in.	1¾ in.	2½ x 6 th.	No. 3	⅝ x 1⅜ in.	200 R. P. M.	2750	3050

Extras. The No. 45 Lathe may be supplied at extra cost with—Milling and Key-Way Cutting Attachment, Raising Blocks so lathe will turn and bore 24-inch swing, and Taper Attachment. Extras, except Taper Attachment, are interchangeable and may be attached after lathe has left the factory. Lathe with 12-ft. bed, equipped with Center Leg.



No. 47—21-Inch South Bend Screw Cutting Engine Lathe (Heavy Duty)

No. 47—21-INCH SOUTH BEND SCREW CUTTING ENGINE LATHE (Heavy Duty)

Fitted with Automatic Longitudinal Feed, Automatic Cross Feed and Compound Rest

No. 47 Lathe makes an excellent all-around lathe for manufacturing, also for general machine and repair shop. It is a heavy tool, well built, and will stand up under unusual service

Bed is rigid, cross ribbed by heavy box braces cast in at short intervals its entire length; has three V's and one flat way for guiding the head stock, tail stock, and carriage. The rack is of steel, cut from the solid bar.

Head Stock is equipped with improved reverse. Spindle cone has four steps for a 3-inch belt, which, with back gears, gives eight changes of spindle speeds. Spindle is of special carbon steel accurately ground; has a 1½-inch hole its entire length. Centers conform to No. 4 Morse taper. Bearings are of heavy phosphor bronze, with ample oiling facilities, and are adjustable for wear.

Tail Stock is off-set to allow compound rest to swivel parallel to the bed and is provided with set-over for turning taper. Tail stock center is self-ejecting.

Carriage is strong, with wide, deep bridge; has T slots for clamping work for milling and boring. Has automatic cross feed

and automatic longitudinal feed, both of which are operated from front of apron and so arranged that only one feed can be engaged at a time. Both feeds are driven by a splined screw and worm so that the thread of the lead screw is used for thread cutting only. (See automatic apron, page 45.)

Thread Cutting. The lathe is indexed to cut standard threads from 2 to 40, right or left, including 11½ pipe thread. (See page 45.)

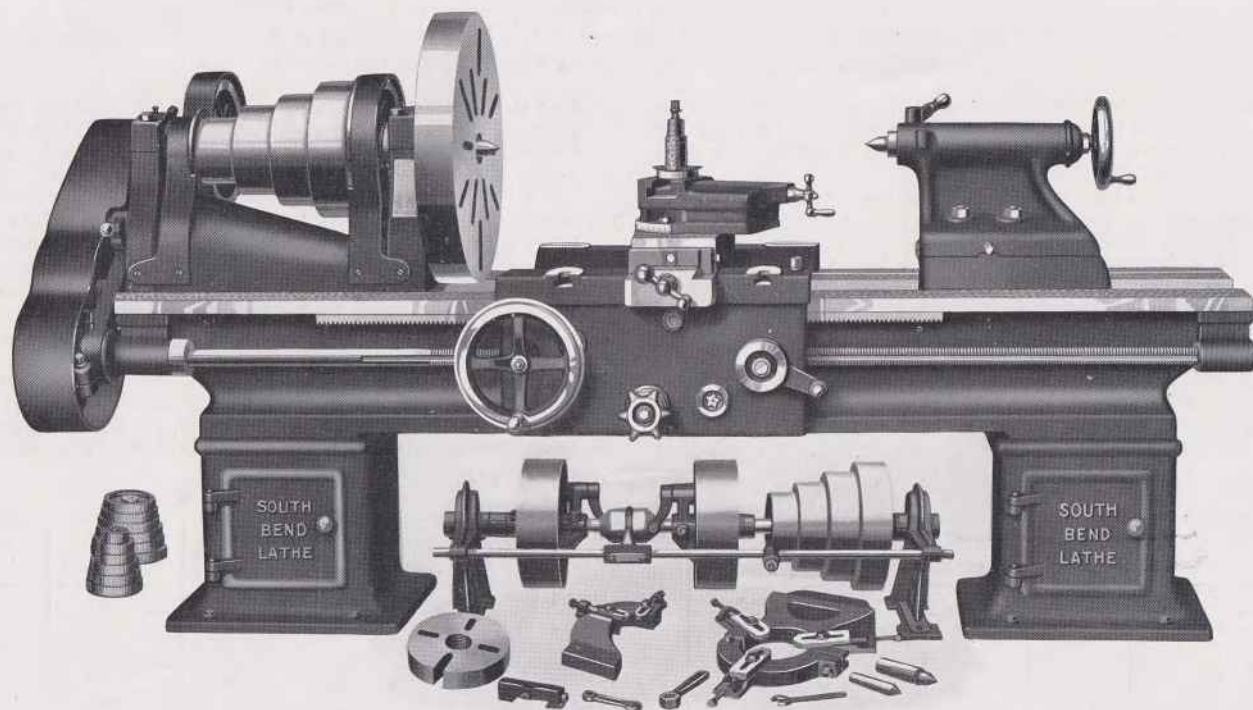
Graduation. The compound rest is graduated in degrees. (See page 31.) The cross-feed screw has a graduated micrometer collar reading in one-thousandths of an inch.

Equipment, as shown in cut, is included in the price and consists of large and small face plates, compound rest, two steel centers, center rest, follower rest, change gears, adjustable stop for screw cutting, a set of feed gears, gear guards, necessary wrenches and double friction countershaft. (See page 44.)

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

No. of Lathe	Swing over Bed	Length of Bed	Distance Between Centers	Swing over Carriage	Hole Through Spindle	Diameter of Spindle Nose	Taper in Spindle Morse	Opening Tool Post Inches	Countershaft Speed	Approx. Weight on Skids Crated	Weight Boxed for Export
47-D	21¼ in.	7 ft.	39 in.	15⅞ in.	1½ in.	3 x 5 th.	No. 4	⅞ x 2 in.	175 R. P. M.	2875	3285
47-E	21¼ in.	8 ft.	51 in.	15⅞ in.	1½ in.	3 x 5 th.	No. 4	⅞ x 2 in.	175 R. P. M.	3085	3450
47-G	21¼ in.	10 ft.	75 in.	15⅞ in.	1½ in.	3 x 5 th.	No. 4	⅞ x 2 in.	175 R. P. M.	3325	3775
47-H	21¼ in.	12 ft.	99 in.	15⅞ in.	1½ in.	3 x 5 th.	No. 4	⅞ x 2 in.	175 R. P. M.	3750	4225
47-K	21¼ in.	14 ft.	123 in.	15⅞ in.	1½ in.	3 x 5 th.	No. 4	⅞ x 2 in.	175 R. P. M.	4025	4650

Extras. The No. 47 Lathe may be supplied at extra cost with — Milling and Key-Way Cutting Attachment, Raising Blocks so lathe will turn and bore 27-inch swing, and Taper Attachment. Extras, except Taper Attachment, are interchangeable and may be attached after lathe has left the factory. Lathes with 12-ft. and 14-ft. Beds, equipped with Center Leg.



No. 54—24-Inch South Bend Screw Cutting Engine Lathe (Heavy Duty)

No. 54—24-INCH SOUTH BEND SCREW CUTTING ENGINE LATHE (Heavy Duty)

Fitted with Automatic Longitudinal Feed, Automatic Cross Feed and Compound Rest

No. 54 is a 24-inch Lathe, and the largest size we build. It is a heavy, powerful tool, designed to give service for general all-around work. We recommend it for manufacturing and for the general machine shop

Bed is rigid, cross ribbed by heavy box braces cast in at short intervals its entire length; has three V's and one flat way for guiding the head stock, tail stock, and carriage. The rack is of steel, cut from the solid bar.

Head Stock is equipped with improved reverse. Spindle cone has four steps for a $3\frac{1}{2}$ -inch belt, which, with back gears, gives eight changes of spindle speeds. Spindle is of special carbon steel, accurately ground; has a $1\frac{3}{4}$ -inch hole its entire length. Centers conform to No. 4 Morse taper. Bearings are of heavy phosphor bronze, with ample oiling facilities, and are adjustable for wear.

Tail Stock is off-set to allow compound rest to swivel parallel to the bed and is provided with set-over for turning taper. Tail stock center is self-ejecting.

Carriage is strong, with wide, deep bridge; has T slots for clamping work for milling and boring. Has automatic cross feed

and automatic longitudinal feed, both of which are operated from front of apron and so arranged that only one feed can be engaged at a time. Both feeds are driven by a splined screw and worm so that the thread of the lead screw is used for thread cutting only. (See automatic apron, page 45.)

Thread Cutting. The lathe is indexed to cut standard threads from 2 to 40, right or left, including $11\frac{1}{2}$ pipe thread. (See page 45.)

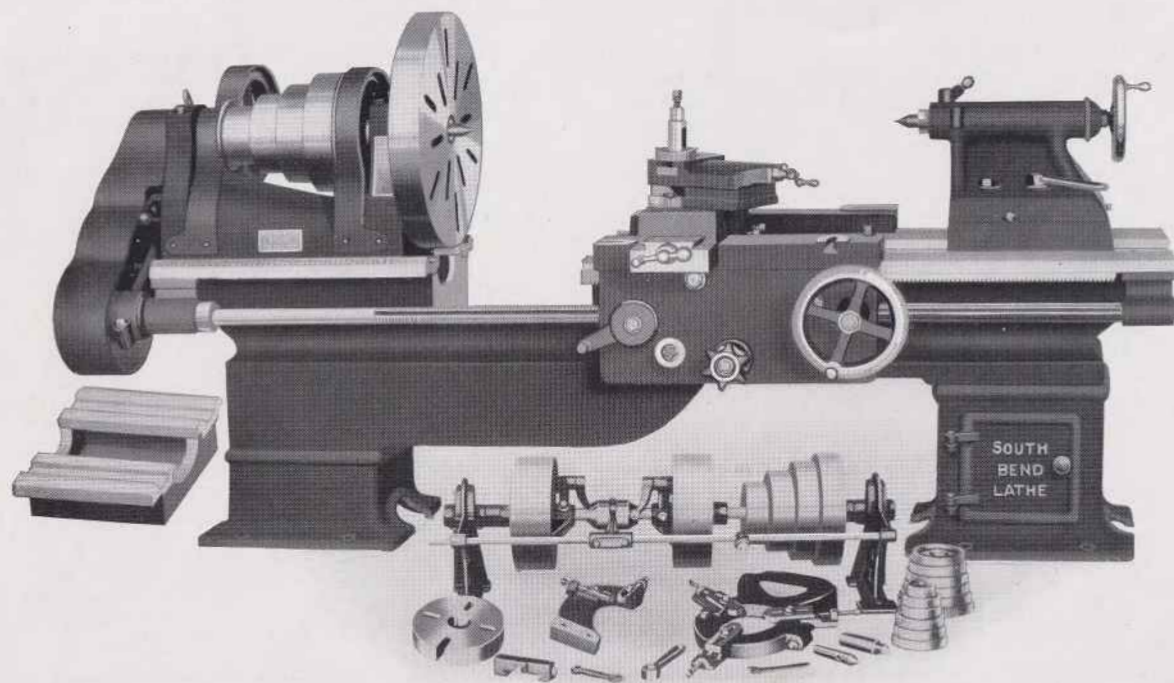
Graduation. The compound rest is graduated in degrees. (See page 31.) The cross-feed screw has a graduated micrometer collar reading in one-thousandths of an inch.

Equipment, as shown in cut, is included in the price and consists of large and small face plates, compound rest, two steel centers, center rest, follower rest, change gears, adjustable stop for screw cutting, a set of feed gears, gear guards, necessary wrenches and double friction countershaft. (See page 44.)

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

No. of Lathe	Swing over Bed	Length of Bed	Distance Between Centers	Swing over Carriage	Hole Through Spindle	Diameter of Spindle Nose	Taper in Spindle Morse	Opening Tool Post Inches	Countershaft Speed	Approx. Weight on Skids Crated	Weight Boxed for Export
54-E	24 $\frac{1}{4}$ in.	8 ft.	46 in.	17 $\frac{3}{8}$ in.	1 $\frac{3}{4}$ in.	3 $\frac{3}{4}$ x 5 th.	No. 4	$\frac{7}{8}$ x 2 in.	150 R. P. M.	3975	4325
54-G	24 $\frac{1}{4}$ in.	10 ft.	70 in.	17 $\frac{3}{8}$ in.	1 $\frac{3}{4}$ in.	3 $\frac{3}{4}$ x 5 th.	No. 4	$\frac{7}{8}$ x 2 in.	150 R. P. M.	4475	4675
54-H	24 $\frac{1}{4}$ in.	12 ft.	94 in.	17 $\frac{3}{8}$ in.	1 $\frac{3}{4}$ in.	3 $\frac{3}{4}$ x 5 th.	No. 4	$\frac{7}{8}$ x 2 in.	150 R. P. M.	4725	5225
54-K	24 $\frac{1}{4}$ in.	14 ft.	118 in.	17 $\frac{3}{8}$ in.	1 $\frac{3}{4}$ in.	3 $\frac{3}{4}$ x 5 th.	No. 4	$\frac{7}{8}$ x 2 in.	150 R. P. M.	5150	5775
54-M	24 $\frac{1}{4}$ in.	16 ft.	142 in.	17 $\frac{3}{8}$ in.	1 $\frac{3}{4}$ in.	3 $\frac{3}{4}$ x 5 th.	No. 4	$\frac{7}{8}$ x 2 in.	150 R. P. M.	5385	6325

Extras. The No. 54 Lathe may be supplied at extra cost with—Milling and Key-Way Cutting Attachment, Raising Blocks so lathe will turn and bore 30-inch swing, and Taper Attachment. Extras, except Taper Attachment, are interchangeable and may be attached after lathe has left the factory. Lathes with 12-ft., 14-ft. and 16-ft. Beds, equipped with Center Leg.



South Bend Gap Lathe, 24-Inch, Swings 36 Inches Over Gap

SOUTH BEND LATHE WITH GAP BED AND BRIDGE

All Gap Lathes are Furnished Equipped with Compound Rest and Bridge

The practical Lathe for all-around work in the machine and repair shop, adapted to handling work of both large and small diameter

Sizes. We build any size South Bend Lathe with gap bed when desired. For description and dimensions of gap bed lathes, see that of straight bed lathes, as the only difference between straight bed lathes and gap bed lathes is the bridge, and gap construction of bed, which requires more strength.

Illustration shows our 24-36-inch No. 154 Lathe fitted with compound rest, gap bed and bridge. The bridge, it will be seen, has been removed from the bed and rests on the floor at the left end of lathe. The illustration shows carriage mechanism transposed. This allows the carriage to pass over the entire width of the gap without letting down.

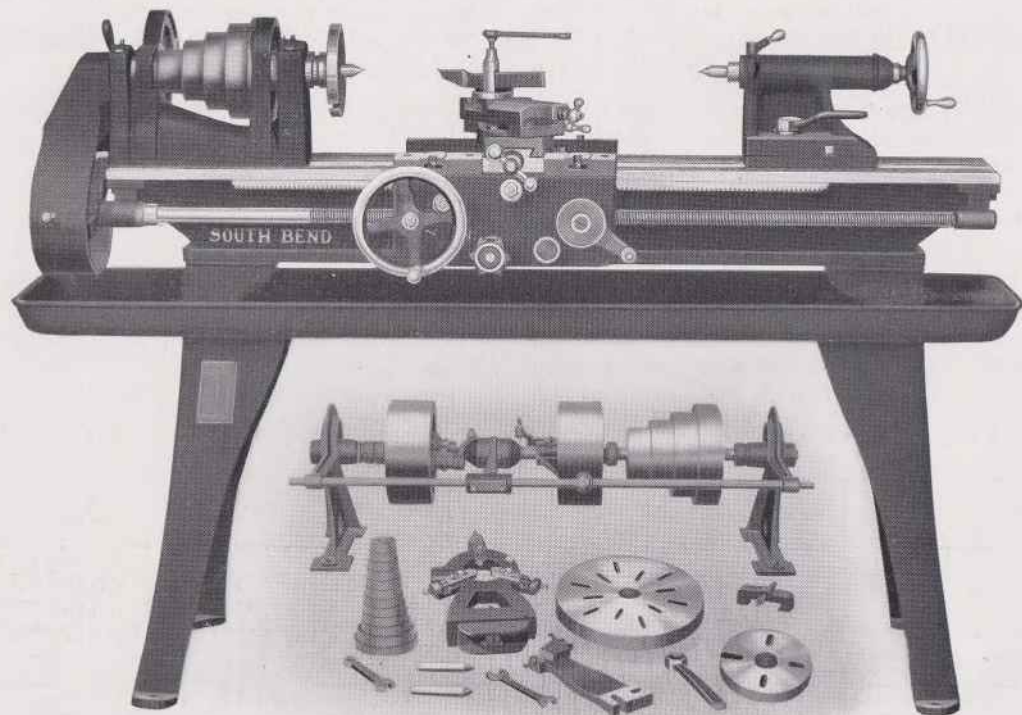
Bridge is used to close up the gap so that the lathe may be used as a straight bed for ordinary work. When work of large diameter is to be machined, bridge may be removed from bed in a few minutes, as it is accurately machined, scraped and fitted to gap, located by means of two steel dowel pins and held in position by four substantial bolts. Bridge must be fitted in lathe at factory.

Equipment, as shown in cut, is included in the price of lathe and consists of large and small face plates, graduated compound rest, two steel centers, center rest, follower rest, change gears, adjustable stop for screw cutting, a set of feed gears, gear guards, necessary wrenches, double friction counter-shaft and bridge. (See page 44.)

PRICE OF GAP AND BRIDGE IS EXTRA OVER PRICE OF STRAIGHT BED LATHE

No. of Gap Lathe	Swing over Straight Bed	Swing over Gap	Width of Gap	Length of Beds in feet	Extra Weight of Gap Beds	Price Extra for Gap and Bridge
134	13 $\frac{1}{4}$ in.	19 in.	7 in.	4, 5, 6, 7, 8	100 lbs.	\$ 30.00
137	15 $\frac{1}{4}$ in.	22 in.	8 in.	5, 6, 7, 8, 10	125 lbs.	36.00
140	16 $\frac{1}{4}$ in.	24 in.	8 $\frac{3}{8}$ in.	6, 7, 8, 10, 12	140 lbs.	40.00
145	18 $\frac{1}{4}$ in.	26 in.	10 in.	6, 7, 8, 10, 12	170 lbs.	50.00
147	21 $\frac{1}{4}$ in.	30 in.	12 in.	7, 8, 10, 12, 14	250 lbs.	100.00
154	24 $\frac{1}{4}$ in.	36 in.	15 in.	8, 10, 12, 14, 16	350 lbs.	150.00

Extras. The gap bed Lathe may be supplied at extra cost with — Milling and Key-Way Cutting Attachment, Raising Blocks, and Taper Attachment. Extras, except Taper Attachment, are interchangeable and may be attached after lathe has left the factory. When ordering Lathe with gap bed, add figure (1) to the number of straight bed lathe or the word "Gap" to the code word.



No. 234—13-Inch South Bend Tool Room Lathe

No. 234—13-INCH TOOL ROOM LATHE EQUIPPED WITH OIL PAN

With Automatic Longitudinal Feed, Automatic Cross Feed and Compound Rest

The illustration on the opposite page shows our No. 234, 13-inch Tool Room Lathe, with oil pan equipment. This is our regular No. 34, 13-inch lathe. When oil pan is added to the equipment of any South Bend Lathe, we place the figure (2) before the number of the lathe, as shown in tabulation below.

We can furnish oil pan equipped with reservoir if desired. Price of reservoir is \$5.00 extra on the 13 and 15-inch lathes;

\$7.00 on the 16 and 18-inch, and \$10.00 on the 21 and 24-inch lathes.

The South Bend Tool Room Lathe, equipped with oil pan, is very practical in the tool room and for light manufacturing, where oil or a cutting compound is used in various manufacturing operations.

We can equip any size lathe, up to and including beds 8-foot in length, with oil pan, as per tabulation shown herewith:

No. of Lathe	Size of Lathe	Oil Pans Fitted to Lathes as Follows:					
		13" x 4'	13" x 5'	13" x 6'	13" x 7'	13" x 8'	
234	13-inch Tool Room Lathe.....	13" x 4'	13" x 5'	13" x 6'	13" x 7'	13" x 8'	
237	15-inch Tool Room Lathe.....	15" x 5'	15" x 6'	15" x 7'	15" x 8'		
240	16-inch Tool Room Lathe.....	16" x 6'	16" x 7'	16" x 8'			
245	18-inch Tool Room Lathe.....	18" x 6'	18" x 7'	18" x 8'			

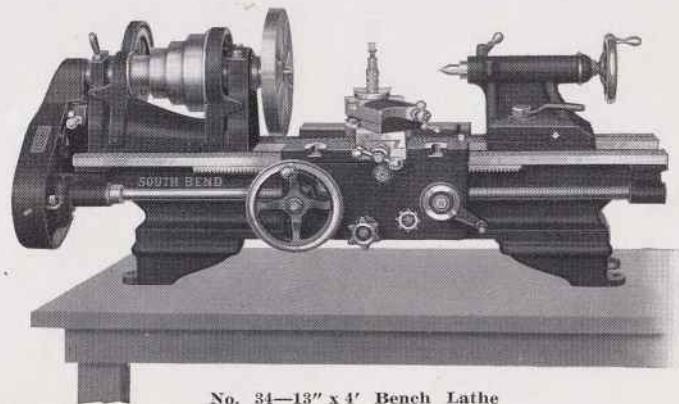
BENCH LATHES

For Single Purpose and Rapid Production

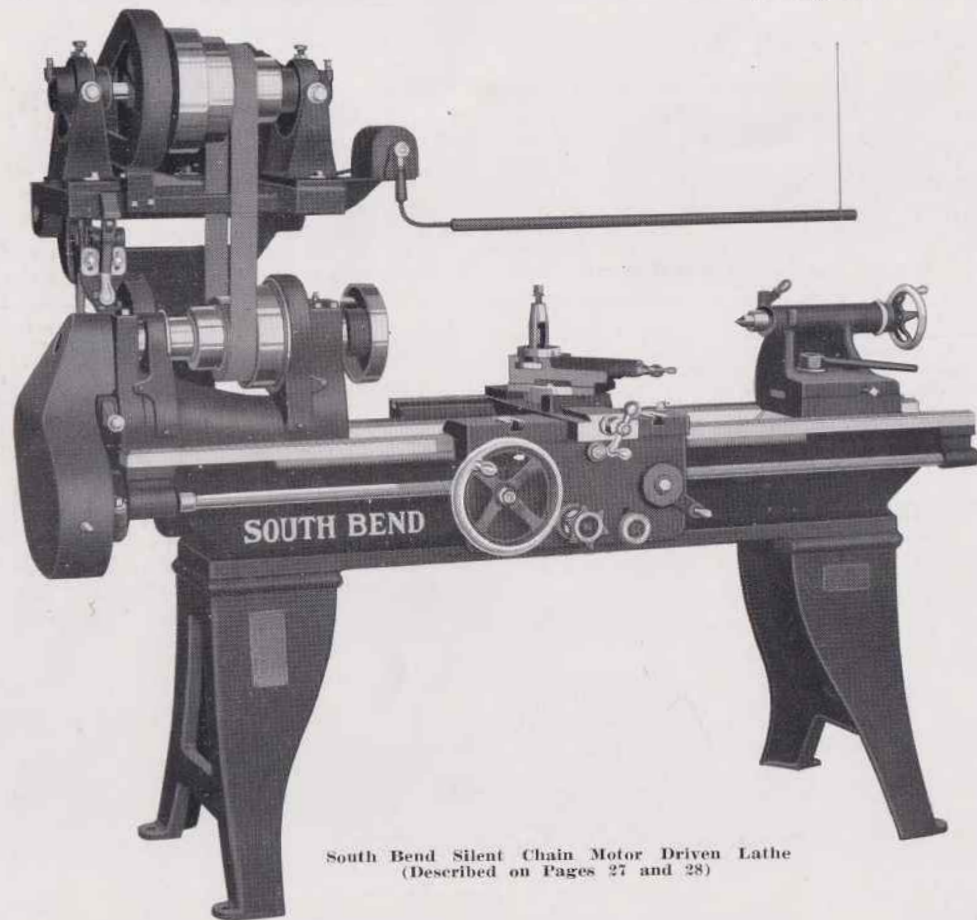
The 13, 15 and 16-inch standard lathes in 4, 5 or 6-foot beds, on bench legs, or fitted with 3-step cone for wide belt, make excellent production lathes for single purpose work.

When the lathe is wanted with bench legs instead of long legs, deduct from the list price as follows:

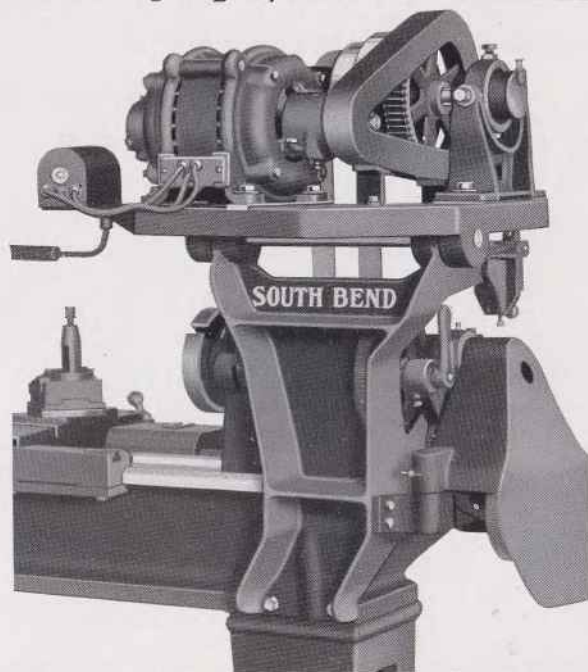
Size of Lathe	13"	15"	16"	18"
Deduct from list.....	\$5.00	\$6.00	\$7.00	\$8.00



No. 34—13" x 4' Bench Lathe



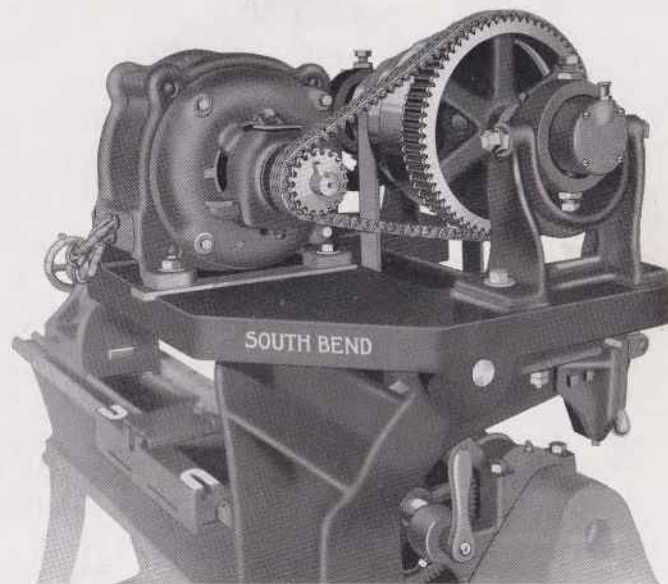
South Bend Silent Chain Motor Driven Lathe
(Described on Pages 27 and 28)



SILENT CHAIN MOTOR DRIVE ATTACHMENT

Rear View

The above illustration shows a rear view of the silent chain motor drive attachment fitted to a 15-inch South Bend Lathe. (Illustrated and described on pages 26 and 28.) Note that the attachment does not extend below the bottom of the bed; it is simply fitted to one of our standard stock lathes. We make this attachment in various sizes to fit all South Bend Lathes.



THE SILENT CHAIN DRIVE

Enlarged View

The illustration above shows a section of the silent chain drive with the gear guard removed so that the chain and gears may be seen. This silent chain drive is noiseless and efficient. Silent chains have been used for driving machinery for the last twenty-five years. The cut also shows the construction of the self-aligned countershaft boxes in which the roller bearings are immersed in oil.

SOUTH BEND SILENT CHAIN MOTOR DRIVEN LATHE

The illustrations on pages 26 and 27 show a South Bend Lathe equipped with the silent chain electric motor drive attachment.

A cast iron bracket is clamped to the rear V and bolted at the bottom to the lathe bed. (See page 27). To this bracket is attached a tilting table, which carries the motor and countershaft cone. The countershaft is driven direct from the motor by a silent chain drive. The tilting table has an adjustment of about one inch, operated by a small lever shown underneath left end of table, which drops front end of this table so as to allow the belt to be shifted on the cones. This can be done instantly and while the lathe is in operation. The small bracket carrying the lever also admits of an independent adjustment for the tightening of belt when necessary. The countershaft runs in roller bearings, immersed in oil. These bearings have a self-aligned pivoting adjustment.

The starting, stopping and reversing the direction of the rotation of spindle is controlled through a reversible switch. From this switch extends a horizontal shifting bar. To rotate the spindle forward, throw the switch lever to the left; to stop the spindle, throw the switch lever to the neutral point or central position, and to reverse, throw the switch lever to the right. Through this horizontal shifting bar the operator has complete control of the lathe as he can start, stop and reverse the spindle instantaneously, quicker than even possible with the overhead countershaft and shipper method.

The Silent Chain Motor Driven Lathe is a complete unit in itself and all the regular equipment illustrated and described under each size lathe in this catalog is included in the price.

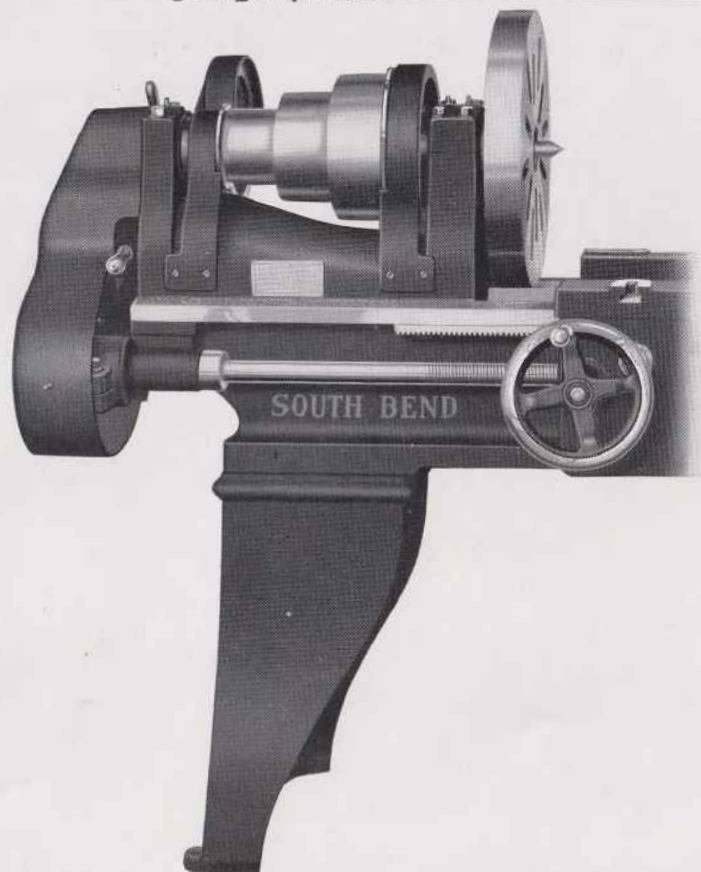
The electric motor drive attachment can be fitted to any of our regular stock lathes—either straight or gap bed. It is to be used only on South Bend Lathes. The price of the attachment does not include either motor or lathe, but is extra. There is no credit for countershaft when motor drive is used.

The Silent Chain Motor Drive Attachment is the result of years of experience and development. The word "silent" describes the drive, because when in operation there is no noise whatever; even in the instantaneous reverse there is no jar, vibration or grinding of gears such as is heard in many electric motor drives. This motor-driven lathe may be placed in an office room, put in operation, and the occupants in the adjoining office would not know it was there. The self-aligned roller bearings immersed in oil is a feature that will be appreciated by a mechanic; the instant release for belt shifting is of great advantage to the operator. The reversible switch makes it possible to do away with expensive reversing motors, and the cone on the countershaft does away with heavy and costly variable speed motors, allowing us to use the regular standard stock motor. All these features enable us to offer the most modern and practical motor-driven lathe in use today.

On account of the design a G. E. motor, alternating or direct current, having a speed of 900 R. P. M. is recommended. It is necessary that the motor be fitted to the electric drive attachment in our shop. We carry the motors in stock charging only the market price for 900 R. P. M. motors. In placing an order for a silent chain motor-driven lathe, please give the following specifications: Current, whether alternating or direct. If alternating, state voltage, phase and cycle. If direct, state voltage.

HORSE-POWER OF MOTOR REQUIRED FOR DRIVING SOUTH BEND LATHES

Size of Lathe.....	13"	15"	16"	18"	21"	24"
Horse-power of Motor.....	1	1	1	2	3	3
Countershaft, R. P. M.	275	250	225	200	175	150
Speed of Motor, R. P. M.	900	900	900	900	900	900



SINGLE PURPOSE LATHE 3-STEP CONE FOR WIDE BELT

**A Single Purpose Production Lathe for Manufacturing.
Furnished With Single Back Geared Head**

The accompanying illustration shows a No. 45—18" single back geared lathe fitted with a special 3-step cone to take a $3\frac{1}{4}$ " belt instead of the regular 4-step cone which takes a $2\frac{1}{2}$ " belt. We can furnish any size South Bend Lathe, single back gear, with a 3-step cone for wide belt. This feature is special and is furnished only when specified. There is no extra charge for lathes fitted with a 3-step cone for wide belt as described above.

The equipment of the manufacturing or single purpose lathe is exactly the same as that of the standard lathe, and includes the countershaft fitted with a 3-step cone. The various size lathes fitted with the special 3-step cone take the following size belts:

The 13-inch lathe, 3-step cone, takes a 2-inch belt, the 15-inch lathe, 3-step cone, takes a $2\frac{1}{4}$ -inch belt, the 16-inch lathe, 3-step cone, takes a $2\frac{3}{4}$ -inch belt, the 18-inch lathe, 3-step cone, takes a $3\frac{1}{4}$ -inch belt, the 21-inch lathe, 3-step cone, takes a 4-inch belt, and the 24-inch lathe, 3-step cone, takes a $4\frac{3}{4}$ -inch belt.

For bench legs in lieu of long legs, see page 25.



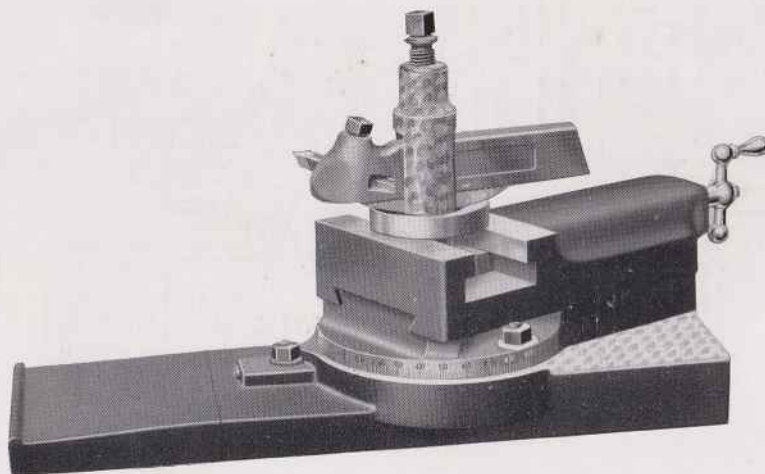
DOUBLE BACK GEAR

The illustration shows a head of a 21" lathe equipped with double back gear. The gear guards have been removed. We can equip any size South Bend Lathe with double back gear, if desired. The double back geared head is equipped with a 3-step cone; the width of each step is exactly the same as that of our regular 4-step cone on the standard lathes. One of the steps is omitted to allow the arrangement of the double back gear.

We aim to carry in stock the double back geared heads, so that when a lathe is ordered with double back gear we hope to be able to ship promptly.

The extra price of the double back gear is shown on the tabulation herewith:

Size of Lathe	Extra for Double Back Gear
13"	\$ 40.00
15"	45.00
16"	50.00
18"	60.00
21"	75.00
24"	100.00

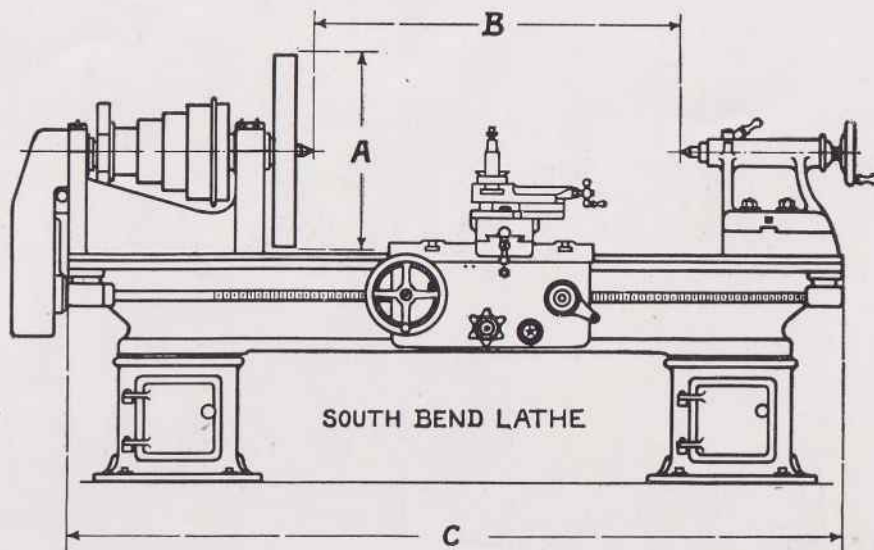


IMPROVED COMPOUND REST

The compound rest illustrated above is of an improved pattern. It is now being furnished on all size South Bend Lathes.

The improved compound rest is graduated in degrees ranging from 0 to 185 degrees, so that any angle desired may be obtained.

The compound rest base is scraped in and fitted to the saddle with a gib that is adjusted by set screws. The swivel is fastened to the base by two "T" bolts which hold it securely at any angle desired.



SIZE OF LATHE

The size of an Engine Lathe is determined by the SWING OVER BED and LENGTH OF BED.

- A—SWING OVER BED
- B—DISTANCE BETWEEN CENTERS
- C—LENGTH OF BED

The Europeans determine the size of a lathe by its radius or center distance, for example: An 8-inch center lathe is a lathe having a radius of 8 inches. What the European calls an 8-inch center lathe, we call a 16-inch swing lathe.

BOXING FOR EXPORT

In preparing a lathe for export, the parts are knocked down as much as possible and all machine parts greased and oiled. Each lathe is carefully packed complete in one box or case lined on the inside with oil-coated paper and bound on the outside by steel bands.

On page 33 will be found the dimensions of cases and weights boxed for Export on both straight and gap-bed lathes.

**DIMENSIONS OF CASES IN INCHES AND GROSS WEIGHT OF SOUTH BEND
LATHES BOXED FOR EXPORT, BOTH STRAIGHT AND GAP BED LATHES**

No. of Lathe	Swing Over Bed	Length of Bed	Dimensions of Cases of Straight Beds	Weight Boxed for Export Straight Beds	Dimensions of Cases of Gap Beds	Weight Boxed for Export Gap Beds	Code Word
-----------------	-------------------	------------------	---	---	---------------------------------------	---	-----------

No. 34 13-INCH SOUTH BEND LATHE

34-A	13¼ in.	4 ft.	59x29x28	1050	59x31x28	1100	Hail
34-B	13¼ in.	5 ft.	71x29x28	1180	71x31x28	1220	Heald
34-C	13¼ in.	6 ft.	82x29x28	1200	82x31x28	1265	Hire
34-D	13¼ in.	7 ft.	94x29x28	1270	94x31x28	1315	Home
34-E	13¼ in.	8 ft.	107x29x28	1350	107x31x28	1407	Husk

No. 37 15-INCH SOUTH BEND LATHE

37-B	15¼ in.	5 ft.	70x30x30	1600	70x31x30	1640	Ideal
37-C	15¼ in.	6 ft.	82x30x30	1675	82x31x30	1715	Image
37-D	15¼ in.	7 ft.	94x30x30	1725	94x31x30	1785	Index
37-E	15¼ in.	8 ft.	106x30x30	1900	106x31x30	1970	Iris
37-G	15¼ in.	10 ft.	129x30x30	2250	129x31x30	2362	Issue

No. 40 16-INCH SOUTH BEND LATHE

40-C	16¼ in.	6 ft.	82x30x31	1875	82x30x34	1965	Jamb
40-D	16¼ in.	7 ft.	94x30x31	2000	94x30x34	2080	Jelly
40-E	16¼ in.	8 ft.	106x30x31	2050	106x30x34	2150	Jinks
40-G	16¼ in.	10 ft.	129x30x31	2150	129x30x34	2205	Joist
40-H	16¼ in.	12 ft.	152x30x31	2350	152x30x34	2415	Jute

No. 45 18-INCH SOUTH BEND LATHE

45-C	18¼ in.	6 ft.	82x30x31	2475	82x30x34	2550	Kafir
45-D	18¼ in.	7 ft.	94x30x31	2550	94x30x34	2625	Khond
45-E	18¼ in.	8 ft.	106x30x31	2625	106x30x34	2725	Knack
45-G	18¼ in.	10 ft.	129x30x31	2825	129x30x34	2950	Kohl
45-H	18¼ in.	12 ft.	152x30x31	3050	152x30x34	3100	Kurd

No. 47 21-INCH SOUTH BEND LATHE

47-D	21¼ in.	7 ft.	94x40x37	3285	94x42x40	3700	Paint
47-E	21¼ in.	8 ft.	106x40x37	3450	106x42x40	3900	Pear
47-G	21¼ in.	10 ft.	130x40x37	3775	130x42x40	4325	Photo
47-H	21¼ in.	12 ft.	154x40x37	4225	154x42x40	4675	Pike
47-K	21¼ in.	14 ft.	178x40x37	4650	178x42x40	5100	Plate

No. 54 24-INCH SOUTH BEND LATHE

54-E	24¼ in.	8 ft.	106x40x40	4325	106x46x40	4400	Race
54-G	24¼ in.	10 ft.	130x40x40	4675	130x46x40	4950	Rend
54-H	24¼ in.	12 ft.	154x40x40	5225	155x46x40	5500	Rise
54-K	24¼ in.	14 ft.	178x40x40	5775	178x46x40	6050	Roat
54-M	24¼ in.	16 ft.	203x40x40	6325	203x46x40	6600	Ring

When ordering Lathe with Gap Bed, add figure (1) to the number of straight bed lathe or the word "Gap" to the code word.

Example: No. 47-G is 21" x 10' lathe with straight bed, code word "Photo."

No. 147-G is 21" x 10' lathe with gap and bridge, code word "Photo-gap."

SOUTH BEND MILLING AND KEY-WAY CUTTING ATTACHMENT FOR LATHES

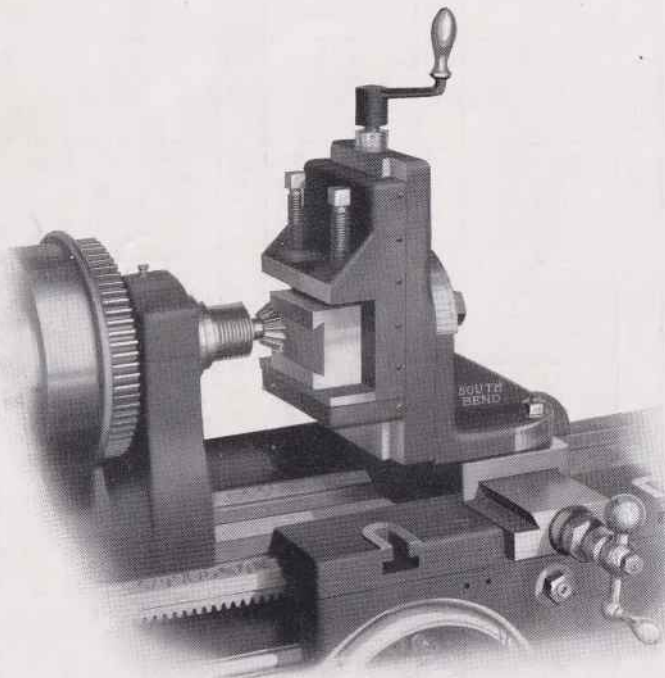
The illustration shows our improved Milling and Key-way Cutting Attachment fitted to the carriage of a 15-inch South Bend Lathe. The four illustrations shown are of the No. 4 attachment, same size on four different jobs.

The depth of the cut is controlled by the feed of the carriage, the length by the cross-feed screw, and the graduated screw at the top takes care of the vertical motion. The attachment swivels all the way around like the compound rest, and is graduated in degrees. In addition it swivels on the upright angle plate 180 degrees, and is graduated. There is a graduated collar on the vertical screw reading in one-thousandths of an inch.

This attachment is designed for South Bend Lathes, but it can also be fitted, by a mechanic, to lathes of other makes, that are equipped with a compound rest.

The regular equipment consists of Milling Attachment, two steel V blocks, one crank handle, one double-end wrench, and two bolts and nuts for attaching.

Arbors or cutters are not included in the price of the attachment, but are extra. (See page 36.)



South Bend Milling and Key-Way Cutting Attachment No. 4

Fitted to a No. 37—15" South Bend Lathe. This attachment is practical in the shop because it equips the lathe for doing a great deal of work that otherwise could be done only on the shaper or milling machine.

Size of Attachment	No. 3	No. 4	No. 5	No. 6	No. 7
Size Lathe used on	13"	15"	16", 18"	21"	24"
Vertical Feed.....	5"	6"	7"	8"	10"
Cross Feed	6"	7"	8"	9"	10"
Vise will hold.....	2¾"	3½"	4"	4½"	5"
Depth of Jaws.....	1⅝"	1¾"	2"	2¼"	2½"
Width of Base.....	5"	5½"	6"	7½"	8"
Width of Jaws.....	5"	5½"	6"	7½"	8"
Weight	40 lbs.	50 lbs.	65 lbs.	80 lbs.	100 lbs.
Price	\$35.00	\$37.50	\$40.00	\$50.00	\$60.00
Code	Victo	Visit	Volt	Vurry	Vusel

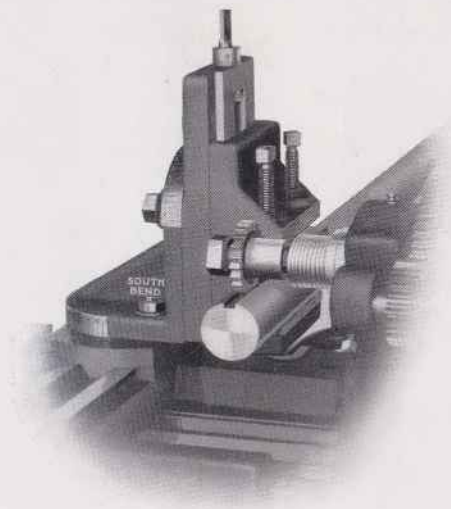


Fig. B.—Milling a Key-Way on the Lathe

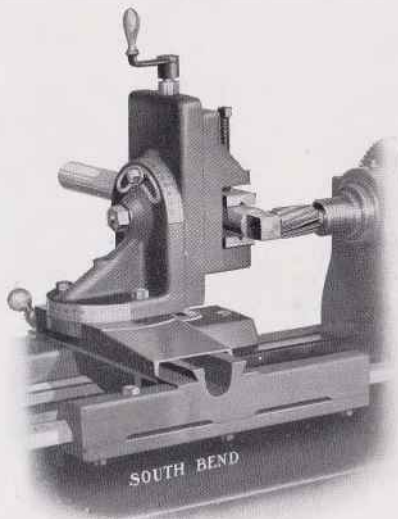


Fig. C.—Squaring a Steel Shaft on Lathe

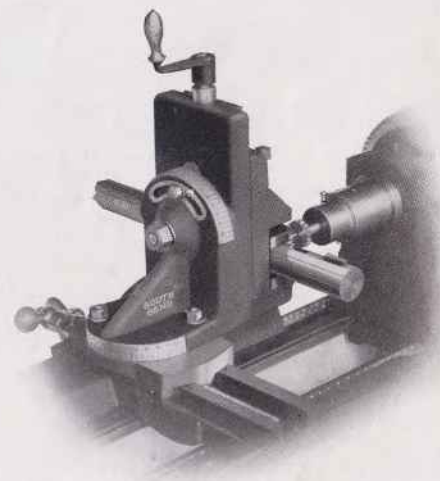


Fig. D.—Milling a Key-Way (Woodruff System)

SOUTH BEND MILLING AND KEY-WAY CUTTING ATTACHMENT FOR LATHES

No. 4 Attachment on a No. 37 15" South Bend Lathe

Illustration Fig. B is taken from the back of lathe showing a $\frac{3}{8}$ -inch key-way being milled in a 2-inch shaft. When shafts are taper where the key-way is to be milled, simply swivel the vertical to the desired angle.

The Arbor and Cutter shown above are further illustrated and described on page 36.

Illustration Fig. C. shows a No. 4 Attachment fitted to a lathe squaring a $1\frac{1}{2}$ -inch steel shaft. A spiral end mill is fitted into the taper of the spindle. The shaft is fed horizontally across the face of the end mill to the desired depth. Then by using the vertical feed you can get a clear sharp corner.

An end mill cutting in the above manner does not need near as much power as if it were cutting on the face, and it makes a much cleaner job.

On a No. 37—15" South Bend Lathe

Illustration Fig. D shows the Milling Attachment holding a shaft which is being key-seated for the Woodruff system of keying. The cutter is held in a special B Drilling Chuck, which screws on the nose of lathe spindle.

The Woodruff Key-way Cutter is illustrated on page 36.



Fig. G

MILLING ARBOR FOR LATHE

The cut shows arbor used in the lathe for holding cutters. See cut Fig. B, page 35. These arbors are made in three sizes, $\frac{3}{8}$ -inch, $\frac{7}{16}$ -inch and 1-inch in diameter, capacity between shoulder and nut $1\frac{3}{8}$ -inch. The 1-inch arbor is the most practical, as most cutters have a 1-inch hole.

In ordering specify both the diameter of arbor and the taper of shank. The price of the arbor is not included in the price of milling attachment, but is extra as shown.

Price of arbor, any size.....\$5.00



No. 16 CUTTER FULL SIZE

WOODRUFF SYSTEM MILLING CUTTER

The above illustration shows a Key Seat Cutter for Woodruff system of keying. In ordering a key seat cutter of this kind, give the diameter and the width of face of the cutter. Prices of any size cutter on application.

FACE MILLING CUTTERS



Width of Face Inches	Diam. of Hole Inches	Diameter Inches	Price Each
$\frac{3}{16}$	1	$2\frac{1}{2}$	
$\frac{1}{4}$	1	$2\frac{1}{2}$	
$\frac{5}{16}$	1	$2\frac{1}{2}$	
$\frac{3}{8}$	1	$2\frac{1}{2}$	
$\frac{7}{16}$	1	$2\frac{1}{2}$	
$\frac{1}{2}$	1	$2\frac{1}{2}$	
$\frac{5}{8}$	1	$2\frac{1}{2}$	
$\frac{3}{4}$	1	$2\frac{1}{2}$	
$\frac{7}{8}$	1	$2\frac{1}{2}$	
1	1	$2\frac{1}{2}$	

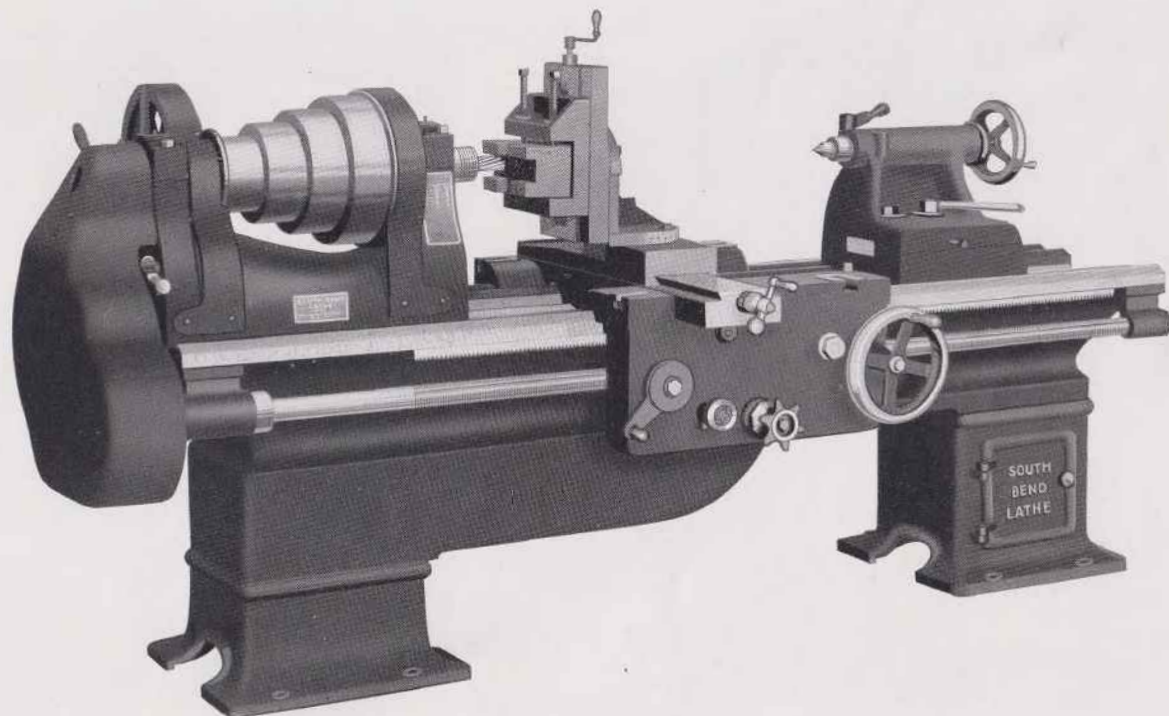
The milling cutters illustrated above are used with Milling and Key-way Cutting Attachment on a variety of jobs.



END MILL FOR LATHE SPINDLE

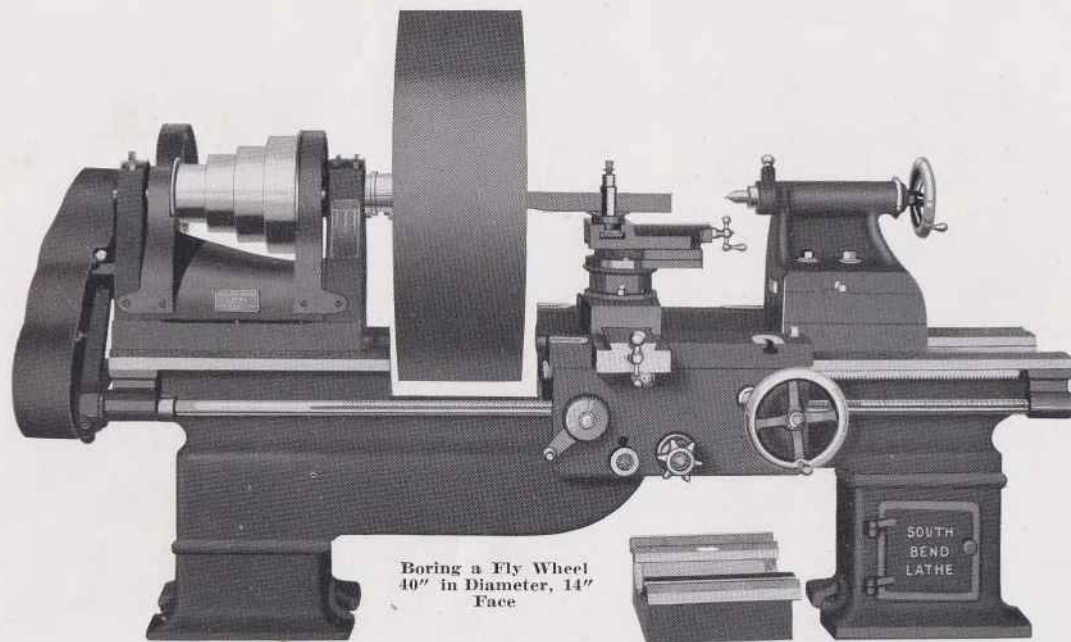
The End Mill shown above fits into the head spindle of lathe, as shown in Figure "C," page 35. These end mills can be supplied with a cutting edge from $\frac{1}{2}$ -inch to 3-inch in diameter, and fitted with either No. 3 or No. 4 Morse taper. Prices on application.

These cutters are not included in the price of the Milling and Key-way Attachment, but are extra. Prices on other standard cutters on application.



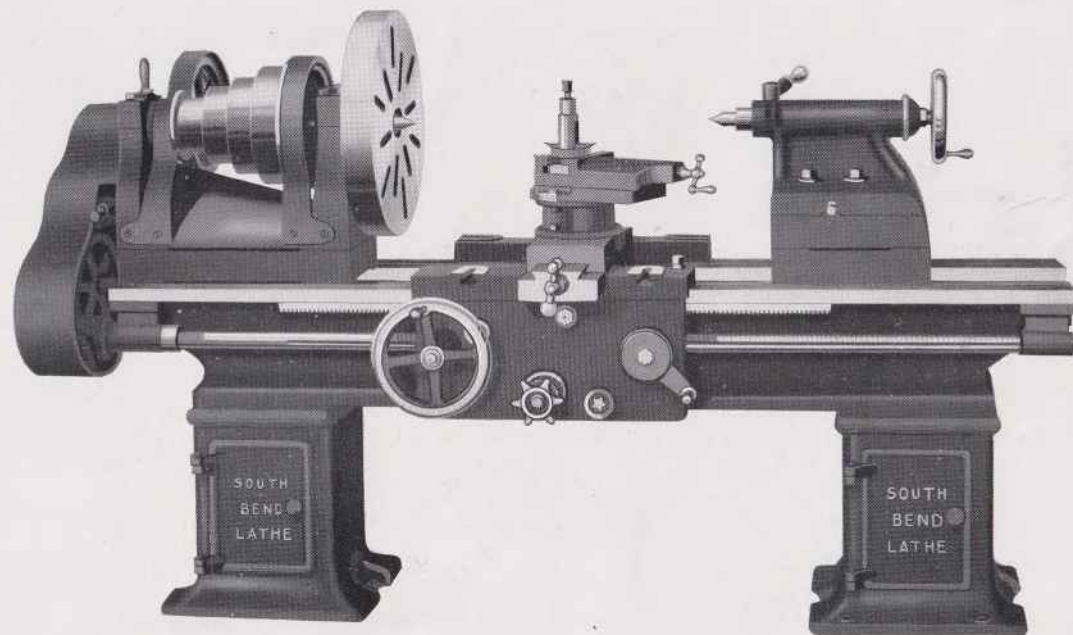
24-INCH GAP BED LATHE WITH BRIDGE IN PLACE

The Above Illustration Shows the No. 7 South Bend Milling and Key-Way Cutting Attachment on a 24-inch South Bend Lathe. The Milling Attachment is More Fully Described on Pages 34 and 35



24-INCH GAP BED LATHE EQUIPPED WITH RAISING BLOCKS

For Prices and Dimensions of Raising Blocks Fitted to Gap Bed Lathes, See Page 40



21-INCH LATHE FITTED WITH RAISING BLOCKS

Above Illustration Shows Lathe Blocked to Swing 27 Inches Over the Bed.
For Prices and Dimensions of Raising Blocks, See Page 40

RAISING BLOCKS FOR SOUTH BEND LATHES

BOTH STRAIGHT AND GAP BED

Illustrations on pages 38 and 39 show the general appearance of South Bend Lathes with raising blocks attached, which increases the swing of the lathe for turning and boring, etc., but not for thread cutting at the increased swing. Raising blocks may be ordered and shipped with the lathe, or they may be ordered and attached any time thereafter, as they are machined in jigs and are interchangeable.

The raising block equipment, either on gap bed lathes or straight bed lathes, includes blocks for head stock, tail stock, tool rest, center rest and the necessary screws and nuts for attaching blocks to the lathe.

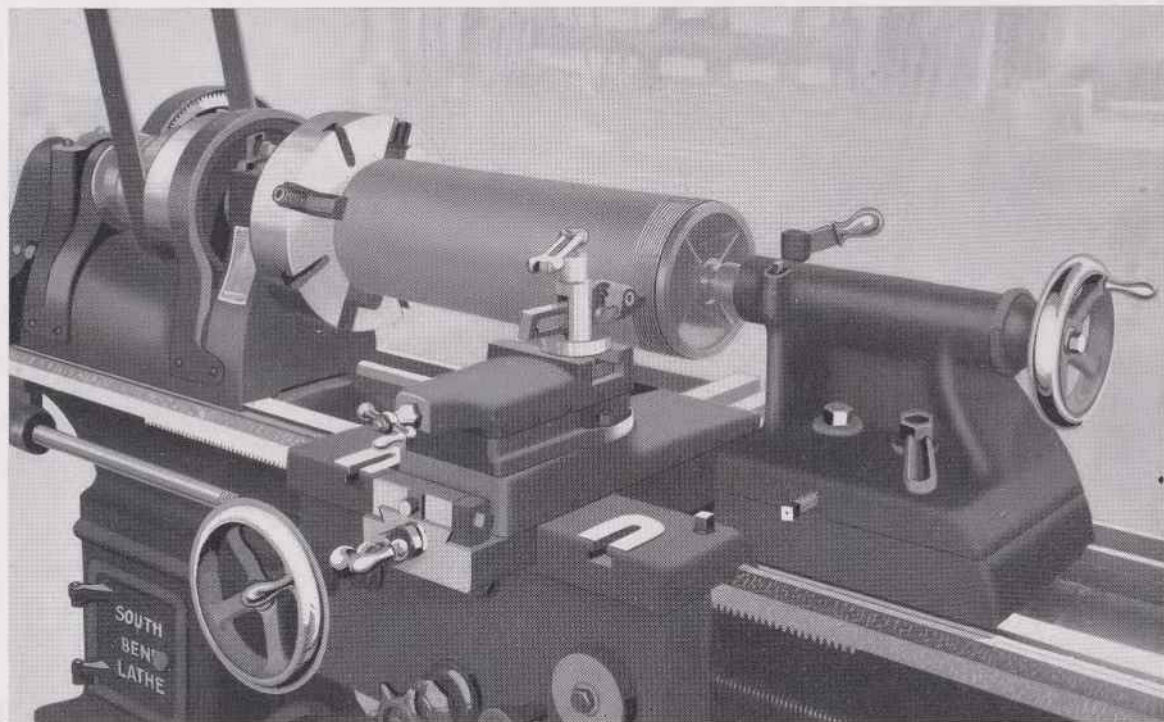
We furnish at extra cost, gear bracket and extra gear so that threads may be cut at the increased swing, and an end gear guard so that all change gears may be covered at the increased swing.

PRICES AND DIMENSIONS OF RAISING BLOCKS FITTED TO STRAIGHT BED LATHES

				Price Raising Blocks	Extra for Guard Bracket, Gear Bracket and Gear for Thread Cutting at Increased Swing
No. 34	13-inch Lathe swings over bed 13 inches.	Blocks to swing 18 inches.....	\$25.00		\$ 8.00
No. 37	15-inch Lathe swings over bed 15 inches.	Blocks to swing 20 inches.....	27.00		9.00
No. 40	16-inch Lathe swings over bed 16 inches.	Blocks to swing 22 inches.....	30.00		10.00
No. 45	18-inch Lathe swings over bed 18 inches.	Blocks to swing 24 inches.....	35.00		11.00
No. 47	21-inch Lathe swings over bed 21 inches.	Blocks to swing 27 inches.....	50.00		12.00
No. 54	24-inch Lathe swings over bed 24 inches.	Blocks to swing 30 inches.....	70.00		14.00

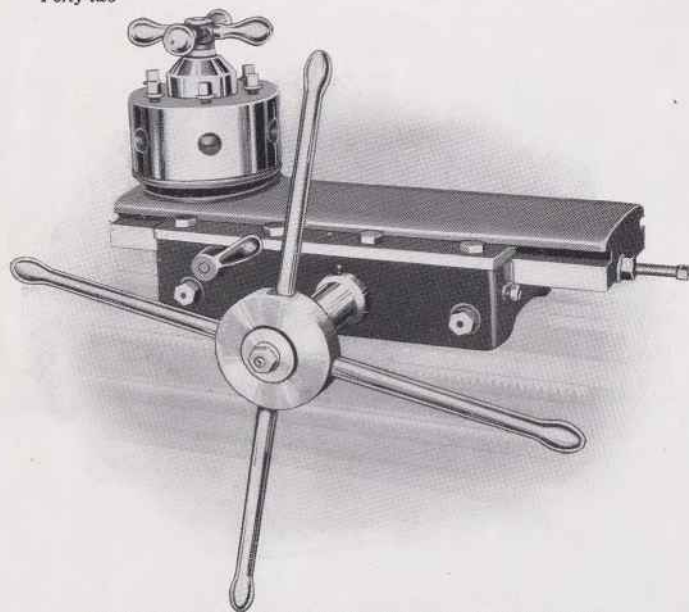
PRICES AND DIMENSIONS OF RAISING BLOCKS FITTED TO GAP LATHES

No. 134	13-inch Lathe swings over gap 19 inches.	Blocks to swing over gap 24 ins.....	\$25.00	\$ 8.00
No. 137	15-inch Lathe swings over gap 22 inches.	Blocks to swing over gap 27 ins.....	27.00	9.00
No. 140	16-inch Lathe swings over gap 24 inches.	Blocks to swing over gap 30 ins.....	30.00	10.00
No. 145	18-inch Lathe swings over gap 26 inches.	Blocks to swing over gap 32 ins.....	35.00	11.00
No. 147	21-inch Lathe swings over gap 30 inches.	Blocks to swing over gap 36 ins.....	50.00	12.00
No. 154	24-inch Lathe swings over gap 36 inches.	Blocks to swing over gap 42 ins.....	70.00	14.00



Threading an 8-Inch Pipe on the Lathe

The above cut shows a piece of 8-inch pipe being threaded on a 24-inch South Bend Lathe. One end of the pipe is held in the chuck, the other end is held in position by a pipe center in the tail stock. The Pipe Center is further illustrated and described on page 57. These pipe centers may be used on any size South Bend Lathe.

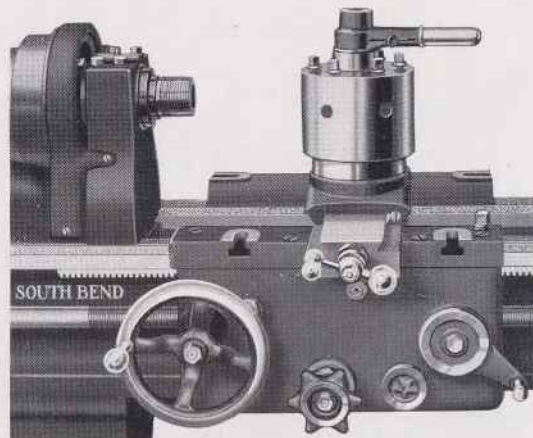


TURNSTYLE TURRET ON THE BED

The illustration shows a semi-automatic turnstyle turret on bed. Turret has six holes for tools. The turret base rests on the inside V and flat way of lathe bed which guide the head and tail stocks. The turret slide may be used in conjunction with the lathe carriage if required.

Turret should be fitted to lathe at factory.

Size of Lathe.....	13"	15"	16"	18"	21"	24"
Turnstyle Turret on Bed—Prices on application						



TURRET ON CARRIAGE

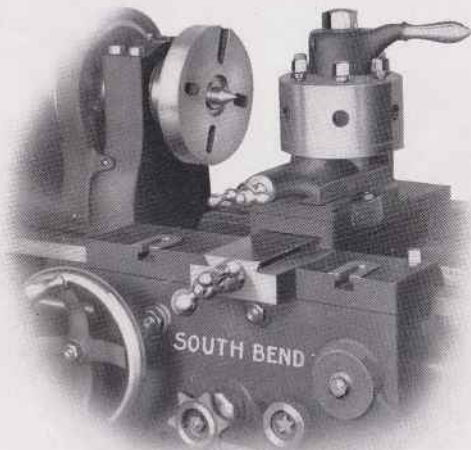
Semi-Automatic Turret Head

This 6-hole turret, semi-automatic turret head, can be attached to the carriage of South Bend Lathes. A taper pin is provided for locking through the base of turret into the carriage, which locates the turret hole in exact alignment with the lathe spindle.

The pin can be withdrawn when it is desired to face up work with the turret. Price of carriage turret fitted and bored for tools is furnished on application.

Turret should be fitted at factory.

Size Lathe.....	13"	15"	16"	18"	21"	24"
Price of Turret on Carriage—Prices on application						



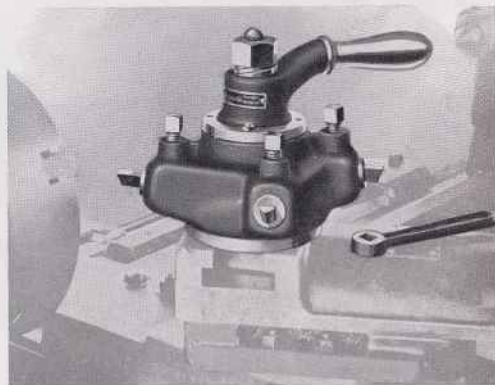
TOOL POST TURRETS

Immediate Delivery on 15", 16" and 18" Sizes

Above illustration shows the F-P-M Turret designed for inside work, such as drilling, boring, reaming, etc. Quickly attached directly to compound rest same as ordinary tool post. Indexing plunger actuated automatically with loosening and tightening of clamping handle. Furnished with six holes unless otherwise ordered. In ordering give size number, exact vertical distance from top of compound rest to lathe centers, and width of T slots at both top and bottom. Cannot be furnished for lathes whose center height is less than $1\frac{7}{16}$ inch.

PRICE LIST — STYLE E

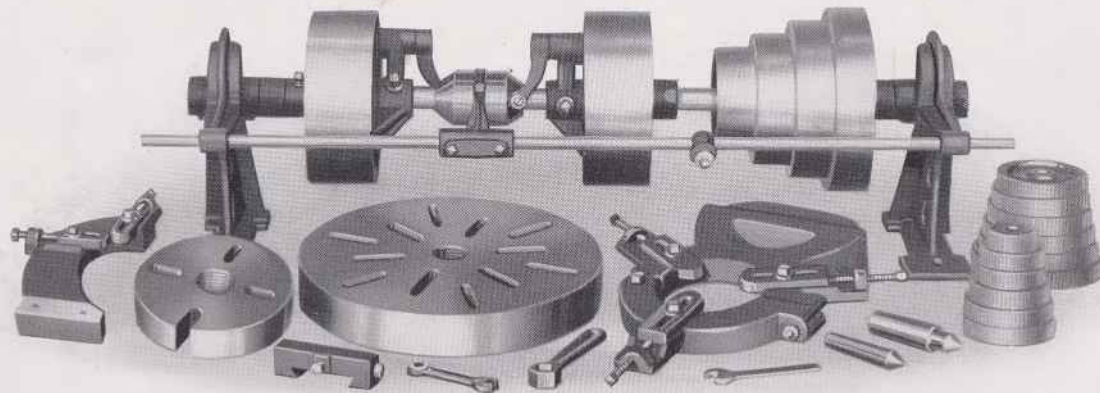
Size No.	Dia. of Turret	Dia. of Holes	Price Each with Wrench
E-6	6½"	1 inch to 1¼"	\$50.00



SPECIAL TOOL POST TURRET, STYLE F

The above cut illustrates a tool post turret which takes ordinary tool holder bits of high-speed steel, so that the four tools practically do the work of four patent tool holders, besides having the advantage of each tool being revolved quickly into position and locked. Each turret is furnished with a wrench.

Size No.	Takes Bits	Minimum Center Height	Price Each (without bits)	Extra for Cutoff tool holder
1	$\frac{5}{16}$ " sq.	1¼	\$40.00	\$3.00
2	$\frac{3}{8}$ " sq.	1½	42.00	3.00
3	$\frac{7}{16}$ " sq.	1½	56.00	4.00
4	1½" sq.	1¾	60.00	4.00



EQUIPMENT OF DETACHED PARTS ILLUSTRATED ABOVE IS INCLUDED IN PRICE OF SOUTH BEND LATHES

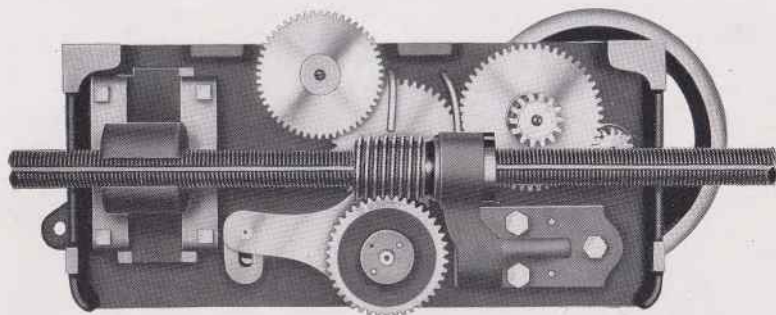
Friction Pulleys and Countershaft Boxes Have Wick Oiling Device

Equipment—In illustration above we show countershaft, large face plate, small face plate, center rest, follower rest, change gears, adjustable thread gauge, centers and necessary wrenches, all of which are included in the regular equipment covered by the prices quoted on South Bend Lathes. Tool post, ring and wedge are also included in equipment.

The cut shows our improved double friction, rim-grip countershaft, simple in design, easy in adjustment, powerful in grip, nothing to get out of order. It is one of the most efficient countershafts on the market.

Dimensions of Pulleys and Speed of Countershaft

Size of Lathe	Sizes of Friction Pulleys	Speed of Countershaft
13 in.	8 x 2½ in.	275 R. P. M.
15 in.	9 x 3 in.	250 R. P. M.
16 in.	10 x 3½ in.	225 R. P. M.
18 in.	12 x 4 in.	200 R. P. M.
21 in.	12 x 4½ in.	175 R. P. M.
24 in.	14 x 5 in.	150 R. P. M.



FEED MECHANISM OF AUTOMATIC APRON

Illustration shows the inside view of the automatic apron of all sizes of South Bend Lathes. Note that the lead screw is splined for driving the worm which operates both the automatic cross feed and the automatic longitudinal feed. This arrangement allows the thread of the lead screw to be used for **thread cutting only**. In thread cutting we use only the split half-nuts. For this reason a splined lead screw on the South Bend Lathe should last a lifetime, as the thread of the screw is not used to drive either the automatic longitudinal feed or the automatic cross feed, but is used only when cutting threads.

Another improved feature in this apron is that the automatic cross feed and the automatic longitudinal feed can be operated only one at a time, so that it is impossible for one feed to drop in while the other feed is in operation. The importance of this feature will be appreciated by the mechanic.

THREAD CUTTING CHART

The chart shows the arrangement of gears for cutting all standard threads, from 4 to 40, including 11½ pipe thread, on a 16" South Bend Lathe. One of these metal charts is attached to each lathe. Many threads other than shown may be cut on the lathe by compounding gears. The 18, 21 and 24-inch lathes are geared to cut two threads per inch.

FEED GEARS

Compound feed gears are included in the equipment without extra cost. These gears are not shown in chart.

METRIC THREADS

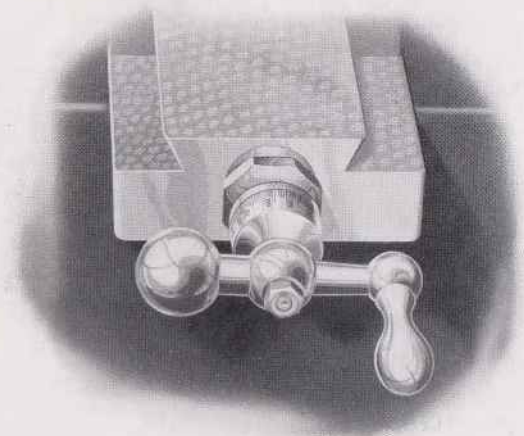
Metric Threads may be cut on South Bend Lathes with the standard English lead screw by using transposing gears, furnished in addition to the regular gears at a slight extra cost.

LEAD SCREW

The lead screws on South Bend Lathes are guaranteed to be accurate. The finest precision screw gauges, master taps, special screws, etc., can be cut on a South Bend Lathe to meet the most accurate requirements. We do not make our own lead screws but purchase them from large and well-known manufacturers who have special machinery for the manufacture of lead screws exclusively, and who supply lathe manufacturers with standard guaranteed lead screws. (See page 9.)

SOUTH BEND LATHE WORKS MANUFACTURERS OF SOUTH BEND LATHES		
THREAD	SPINDLE	SCREW
4	48	24
5	48	30
6	48	36
7	48	42
8	48	48
9	48	54
10	48	60
11	24	33
11 1-2	48	69
12	24	36
13	24	39
14	24	42
16	24	48
18	24	54
20	24	60
22	24 - 1-2	33
24	24 - 1-2	36
26	24 - 1-2	39
28	24 - 1-2	42
30	24 - 1-2	45
32	24 - 1-2	48
36	24 - 1-2	54
40	24 - 1-2	60
SOUTH BEND, IND. U.S.A.		

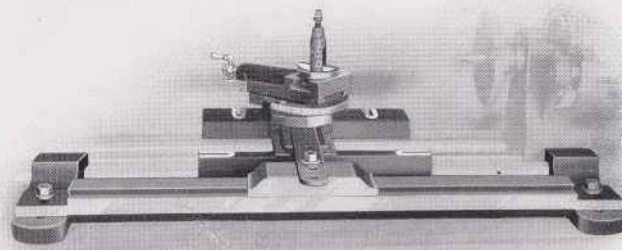
Thread Cutting Chart



MICROMETER GRADUATED COLLAR

The illustration above shows our micrometer graduated collar, one of which is attached to the cross-feed screw on all size South Bend Lathes. This collar is graduated to read in one thousandths of an inch, and is adjustable so that the operator may start at zero if it is desired.

The micrometer graduations on the cross-feed screw are practical, as they enable the operator to do fine, accurate work, such as thread cutting, finished turning, gauge-making, etc.



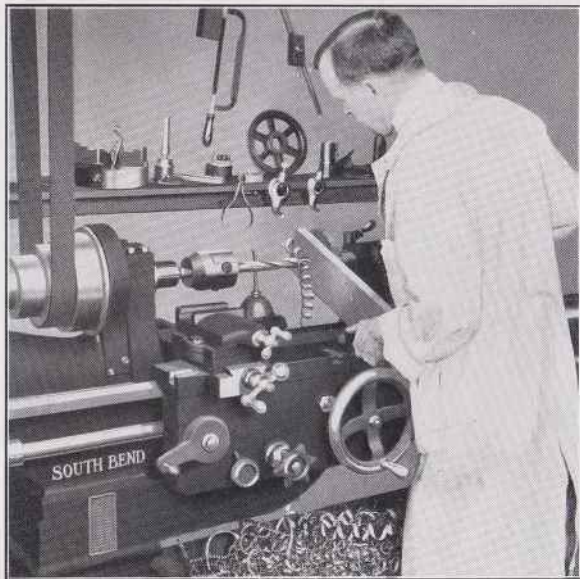
TAPER ATTACHMENT

Fitted to a 15-inch South Bend Lathe

The illustration shows our improved taper attachment fitted to a 15-inch South Bend Lathe. The attachment is fitted to the lathe bed proper, attached by two clamps to the rear V of the bed. This arrangement admits of the adjustment of the taper attachment along the entire length of the lathe.

This attachment may be fitted to any size lathe and should be fitted before the lathe leaves the factory.

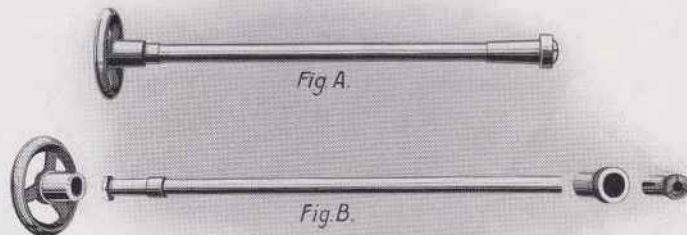
Size of Lathe	13"	15"	16"	18"	21"	24"
Price of Attachment....	\$40.00	\$43.00	\$45.00	\$50.00	\$65.00	\$75.00



USING THE LATHE AS A DRILL PRESS

The illustration shows a 1-inch drill boring through a piece of steel 1 inch thick on a 16-inch South Bend Lathe, the feed being operated by the hand wheel of tail stock. The back gears are in mesh, the power delivered at the point of the drill is equal to that of a 24-inch back gear drill press.

Practically any drilling job that can be done on the drill press may also be done on the lathe, ranging in size of hole from $\frac{1}{8}$ -inch to 2 inches in diameter.

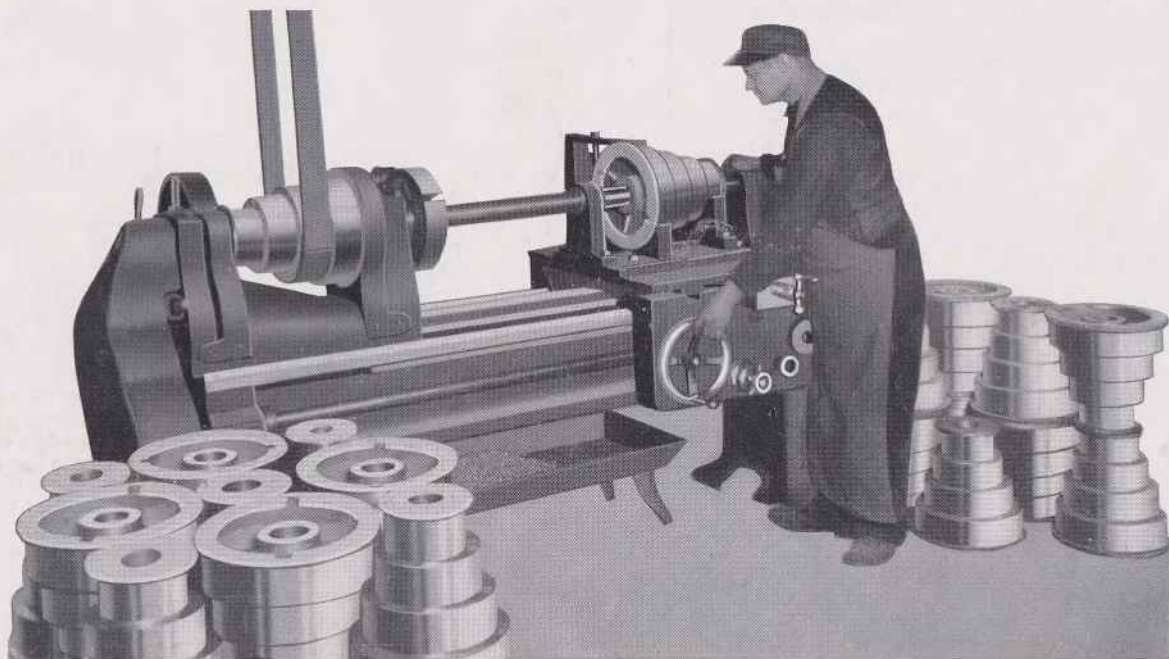


DRAW-IN CHUCK ATTACHMENT

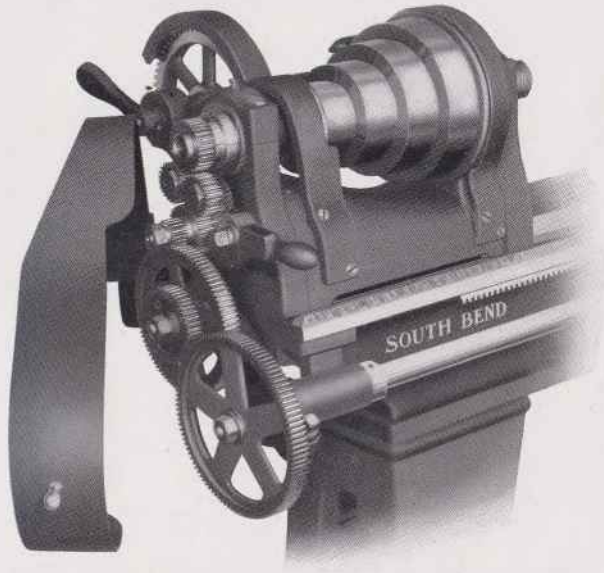
In the illustration above, Fig. A shows an assembled draw-in chuck attachment that may be used on all size South Bend Lathes. Fig. B shows the attachment unassembled, consisting of a draw-in tube, a hand wheel, a taper sleeve for collet and one split collet. A threaded hood is also supplied which acts as a spindle guard and a knock-off nut for removing taper sleeve.

In order to get $\frac{1}{2}$ -inch split collet capacity on the 13-inch lathe, we attach a nipple to the spindle nose and fit the split collet to this nipple instead of to the taper sleeve, as illustrated above, as we can get only $\frac{13}{32}$ -inch collet capacity on the 13-inch lathe using the regular equipment.

Size of Lathe	13"	15"	16"	18"	21"	24"
Capacity of Collet up to	$\frac{1}{16}$ " - $\frac{1}{2}$ "	$\frac{1}{16}$ " - $\frac{5}{8}$ "	$\frac{1}{16}$ " - $\frac{3}{4}$ "	$\frac{1}{16}$ " - $\frac{3}{4}$ "	$\frac{1}{16}$ " - $\frac{7}{8}$ "	$\frac{1}{16}$ " - 1"
Price of Attachment including one Collet. . .	\$30.00	\$35.00	\$40.00	\$40.00	\$45.00	\$50.00
Price extra per Collet. . .	On application					



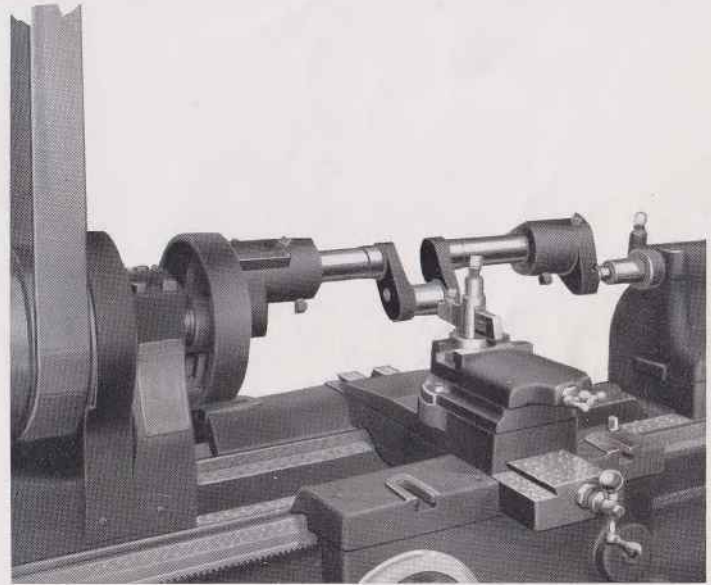
Boring in the Lathe



HINGED GUARD PARTLY OPEN

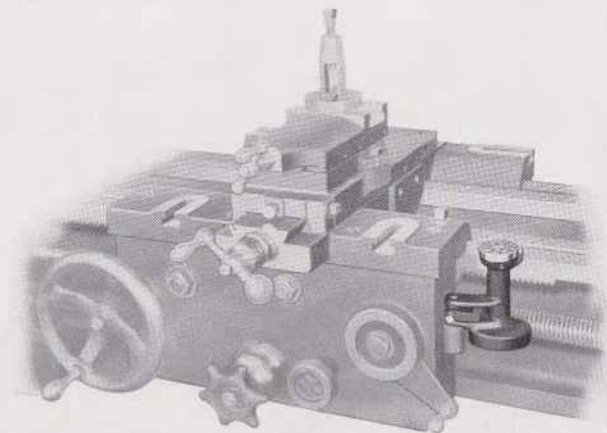
The above cut shows the head of the South Bend Lathe with end gear guard partly open.

The fixed guards cover the back gears. The hinge guard covers the reverse and change gears on the end of the lathe. These guards are made of cast-iron and when closed completely cover all gears.



TURNING A CRANK-SHAFT

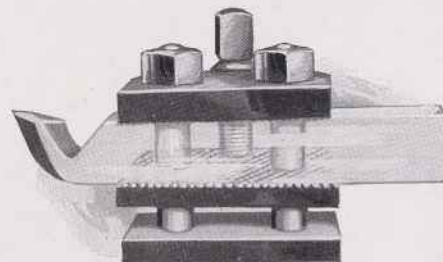
The above cut illustrates the method of machining a crankshaft in the lathe. A cast-iron jig is fastened to each end of the shaft. On each of these jigs there are center holes drilled and countersunk in such a position as to locate the center of each throw or offset of the crank. These jigs may be fitted to any style of crankshaft, including those of the automobile engine.



THREAD DIAL FOR THE LATHE

The illustration above shows a thread dial fitted to the South Bend Lathe for the purpose of enabling the operator to cut threads on the lathe without reversing the carriage automatically.

In cutting a thread on a lathe not equipped with a thread dial the operator may unclamp the split nut and reverse the carriage quickly by hand, providing that the thread he is cutting is a multiple of the thread of the lead screw on the lathe. If it is not a multiple then the carriage must be reversed automatically by power which is slower than by hand. If the lathe is equipped with a thread dial the split nut may be released, the carriage reversed by hand and the thread dial will aid the operator, showing just where the tool should enter the thread on the next chip. This is further explained in booklet entitled, "How to Run a Lathe."



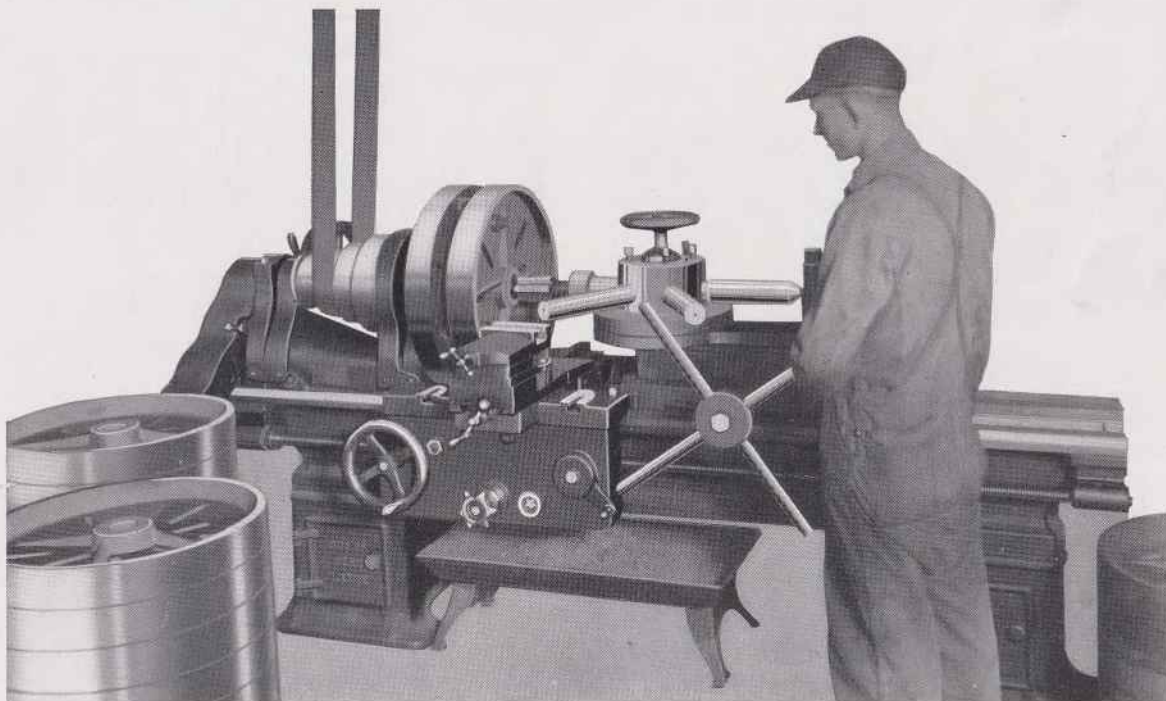
European Tool Post

EUROPEAN TOOL POST

Any size South Bend Lathe may be fitted with an European Tool Post, if desired, instead of our regular American Tool Post, at a slight extra cost.

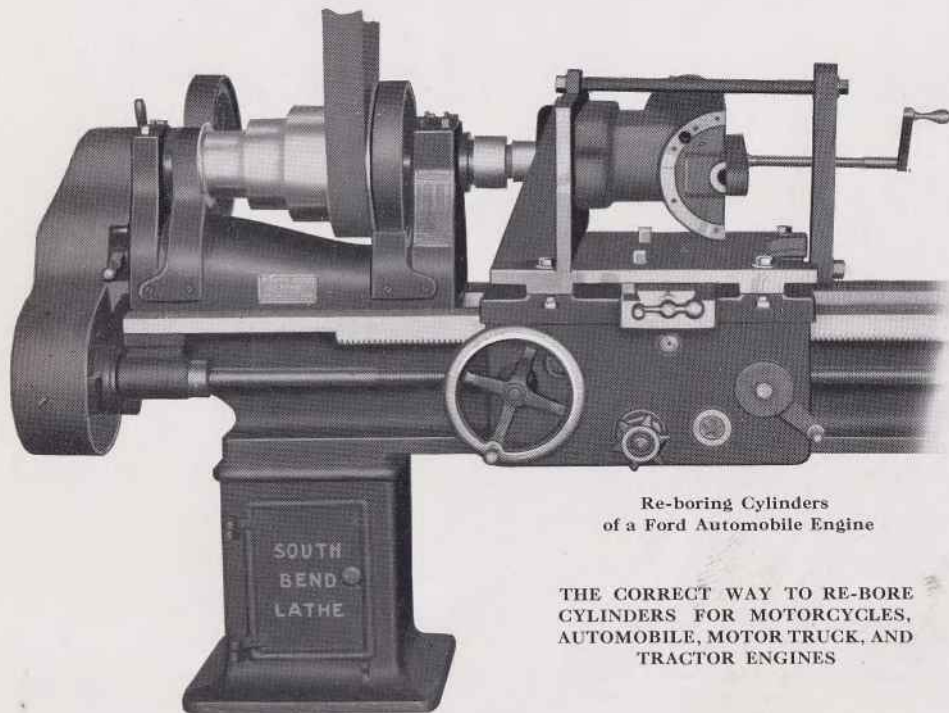
The European Tool Post is made of steel, and case-hardened. This tool post is to be used in conjunction with the compound rest.

The American Tool Post has one advantage over the European post, in that the operator can get an adjustment of about $\frac{3}{8}$ -inch at the cutting point of the tool.



Turnstyle Turret in the Lathe, Boring, Facing, Reaming and Tapping

SOUTH BEND CYLINDER BORING ATTACHMENT FOR LATHES



Re-boring Cylinders
of a Ford Automobile Engine

THE CORRECT WAY TO RE-BORE
CYLINDERS FOR MOTORCYCLES,
AUTOMOBILE, MOTOR TRUCK, AND
TRACTOR ENGINES

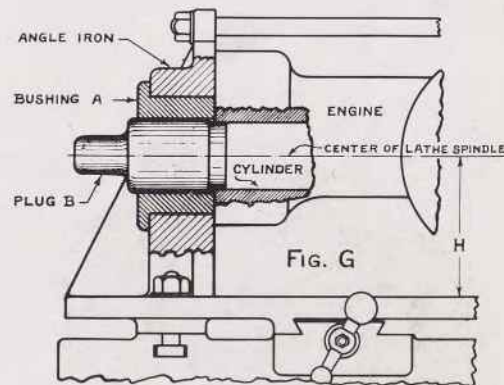
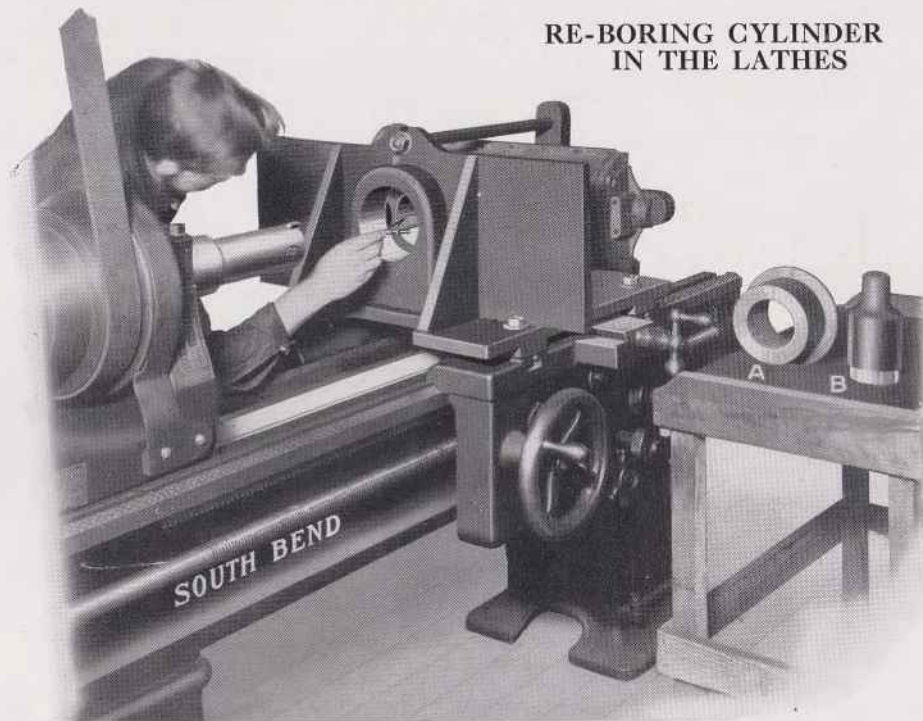
RE-BORING A CYLINDER OF AN AUTOMOBILE ENGINE

The illustration shows a cylinder of a Ford automobile engine being re-bored in the lathe. It is well known among mechanics that when an engine cylinder is scored or worn, and requires enlarging, that in order to get a true hole you must bore, and the practical machine to do this boring is the lathe.

The cut shows a boring attachment fitted to a 21" South Bend Lathe. The compound rest is removed from the saddle, and a jig is fitted to the carriage, lined up by the saddle slide, located and secured in position by two taper pins and bolted firmly to the carriage. The bushing A (see opposite page), has been machined on the inside to receive the plug B. Place plug B in bushing and the bushing in the jig. Plug B will now project through the bushing and the jig about $\frac{1}{2}$ ". Place the cylinder to be bored on this plug B which centers the hole, then clamp the engine cylinder to the jig. Now remove the bushing and plug from the jig, and cylinder is ready for boring. Continue this operation for each cylinder in the engine.

The boring bar fits into the taper of the lathe spindle. There is a knock-off nut on the spindle nose for removing the bar. The bar is provided with a cutting tool that can be adjusted to a thousandth of an inch if desired.

RE-BORING CYLINDER IN THE LATHES



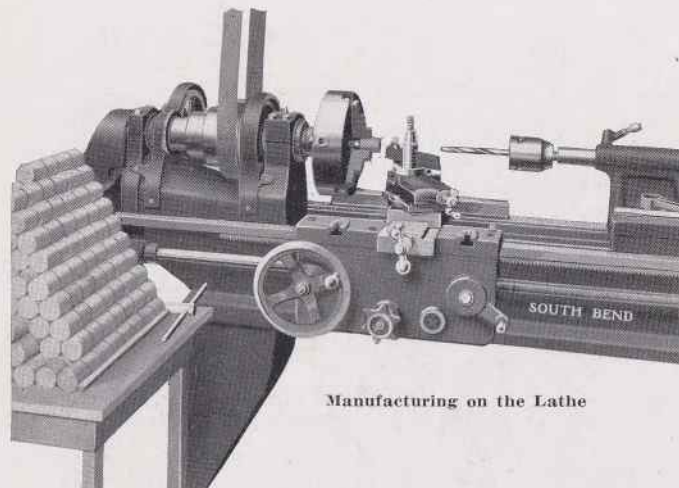
The above drawing, Fig. G, shows the method of centering the cylinder on the jig.

The half-tone shows a mechanic measuring the bore of the cylinder after he has taken a chip. In this manner he can bore to any diameter with accuracy. This method of re-boring engine cylinders applies to all makes of engines that come within the capacity of the jig.

The equipment of jig for the cylinder boring attachment is included in the price and consists of: Angle iron and clamp, bushing A, plug B, boring bar and cutter, knock-off collar, also bolts for fastening attachment to lathe carriage.

The plug B is machined a $\frac{1}{2}$ " from the end, so that it fits snugly into the cylinder to be bored.

Size of Lathe.....	No. 40—16"	No. 45—18"	No. 47—21"	No. 54—24"
Capacity of H (see drawing).....	4 $\frac{3}{4}$ "	5 $\frac{3}{8}$ "	6 $\frac{1}{2}$ "	7 $\frac{3}{4}$ "
Price of Boring Attachment.....	\$75.00	\$80.00	\$90.00	\$100.00
Weight of Boring Attachment.....	225 lbs.	275 lbs.	350 lbs.	400 lbs.

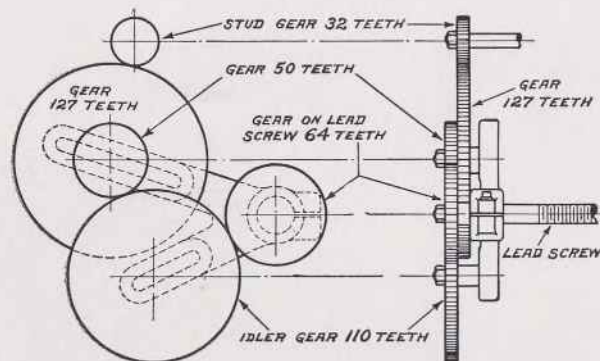


Manufacturing on the Lathe

DRILLING AND FACING OPERATION

The illustration above shows a number of steel parts that have been drilled and faced and reamed in one chucking on a South Bend Lathe. A Universal chuck is fitted to the spindle nose, and a drill chuck fitted to the tail spindle of the lathe.

A lathe can be rigged up with a few simple attachments to turn out a great many jobs at a productive cost equal to a high-priced special-type machine, while the cost of the lathe is perhaps only one-fourth of that of the special machine, and when the job is finished you may use your engine lathe for general machine work.



TRANSPOSING GEARS

Used for Cutting Metric Threads on an English Lead Screw

To cut Metric Threads on a South Bend Lathe equipped with Standard English lead screw, use the compound Idler or connecting gears 50 and 127, the No. 127 Gear to mesh with spindle stud. Use an idler to connect the 50-tooth gear with Gear on Lead Screw.

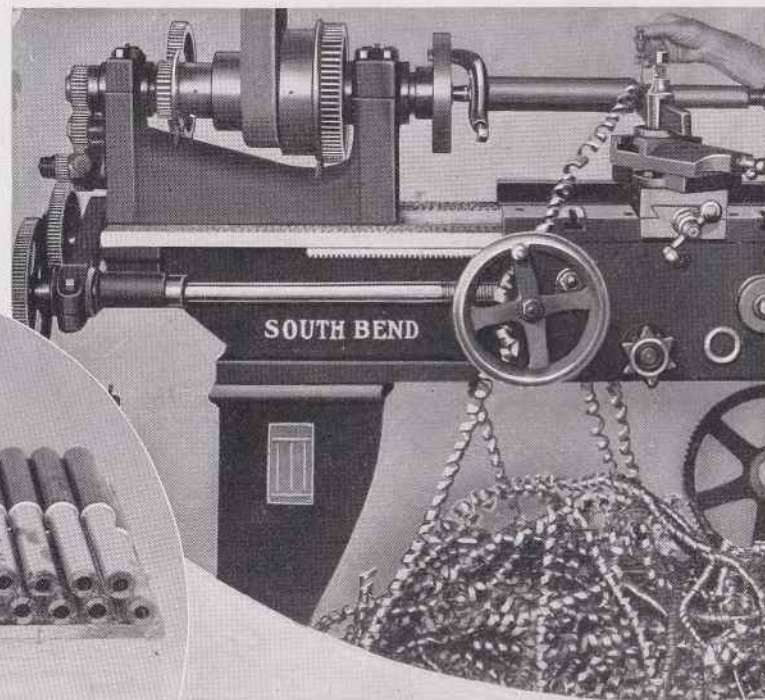
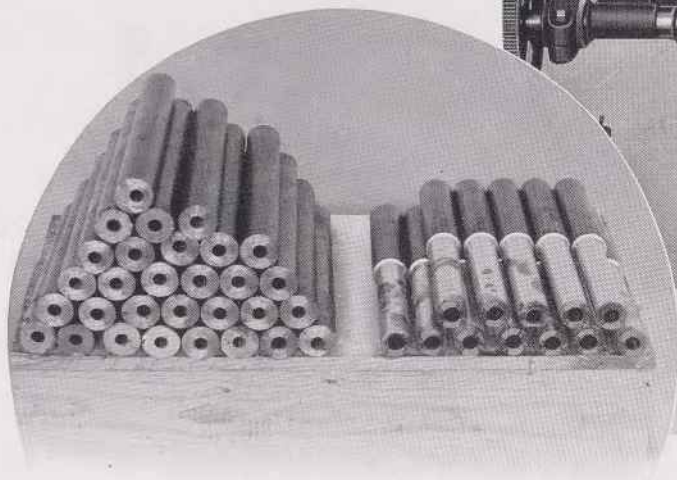
The above drawing shows the arrangement of gearing to cut 16 threads per centimeter on a No. 34 South Bend Lathe.

When Metric Threads are to be cut on an English lead screw, Index Chart of lathe may be used in selecting gears for the different pitches. Read the chart as so many threads per centimeter, instead of so many threads per inch. Transposing gears are not included in the equipment, but are extra.

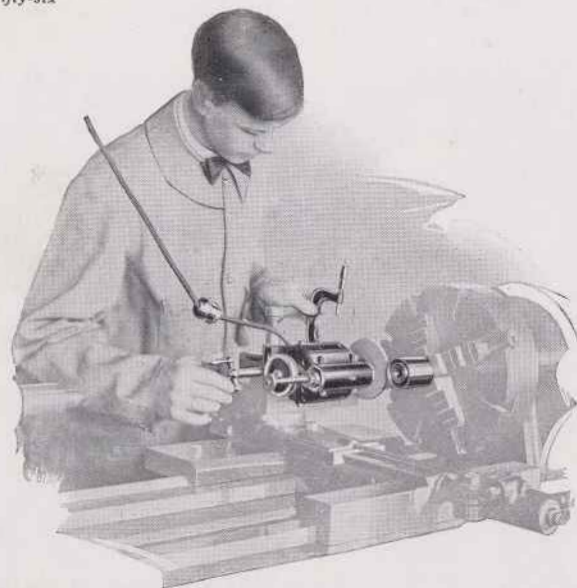
For price of Transposing Gears, see price sheet.

TAKING A CHIP ON A STEEL SHAFT

The illustration shows a manufacturing operation in the No. 40 16-inch South Bend Lathe. The pieces being machined are steel sleeves. They are first bored, then turned and finished complete in very good time. The steel sleeve in the lathe is being reduced from $2\frac{1}{2}$ -inch to $1\frac{1}{4}$ -inch in diameter in one cut. The cutting tool is an inserted bit that is of extra quality high-speed steel. Note the depth of cut and the coarseness of the chip.



The No. 40—16-Inch South Bend Lathe on a Manufacturing Operation

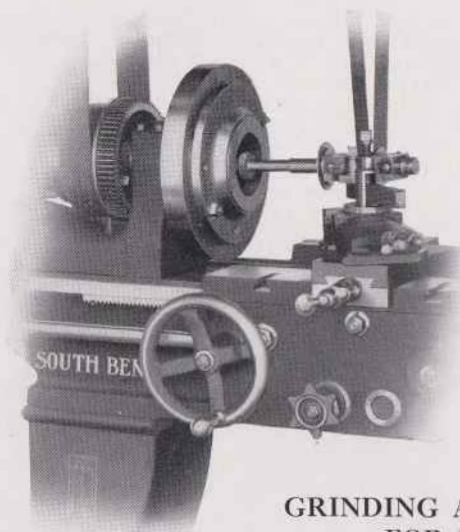


DUMORE ELECTRIC TOOL POST GRINDERS

Dumore Tool Post Grinders have no equal for tool and die work. The high speeds at which they run (10,000 and 30,000 R. P. M.), give the wheels the correct cutting speeds, operated by an ordinary electric lamp socket.

The armatures are dynamically balanced, eliminating vibration and chatter marks on work. Equipped with S. K. F. ball bearings. An extension arm, with 10-inch reach, can be furnished to handle deep internal work.

Dumore Grinder, as illustrated.....	\$80.00
Extension Arm B (10-inch reach).....	35.00



GRINDING ATTACHMENT FOR LATHE

The above illustration shows the application of a Grinding Attachment held in the tool post of an engine lathe. The emery wheel is driven by a wooden drum overhead that is usually from 10 to 14 inches in diameter, and from 3 to 4 feet long. This drum is in turn driven from countershaft of lathe.

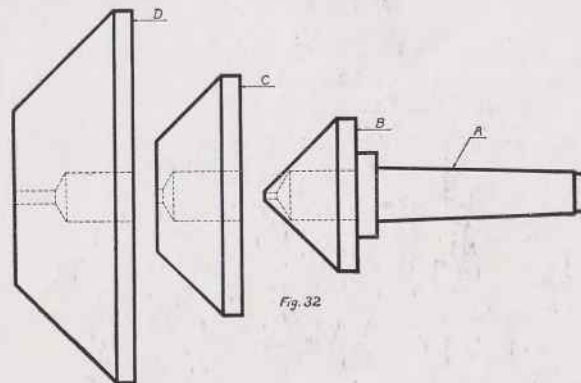
We do not manufacture this Grinding Attachment, as the requirements of different shops vary so. Most shops prefer to build an attachment that is suitable for the work that they have on hand, such as grinding rolls for printing machinery, or grinding engine cylinders, valve stems, etc.

CENTERS, DRILL PADS AND ARBORS

A number of accessories which are very useful for various classes of lathe work. These parts are machined and fitted to both head and tail spindles of the various size lathes. They are finished complete and ready for use.

Size of Lathe		13"	15"	16"-18"	21"-24"
	Drill Pad.....	\$1.50	\$1.50	\$1.50	\$2.00
	Crotch Center...	1.50	1.50	1.50	2.00
	60-degree Lathe Center...ea.	1.25	1.25	1.25	1.75
	Semi-Machined Drill Chuck Arbor..... fitted to lathe spindle.	1.00	1.00	1.00	1.50
	Drill Chuck Arbor finished	1.25	1.25	1.50	2.00

Any drill chuck fitted with finished arbor, for head spindle of the lathe, will also fit the tail spindle, because the tapers are the same size.



PIPE CENTERS FOR LATHE

The above drawing shows a practical pipe center for the engine lathe. The taper shank "A" fits into the head spindle and tail stock spindle. The conical disc "B" fits loosely and revolves on taper shank "A."

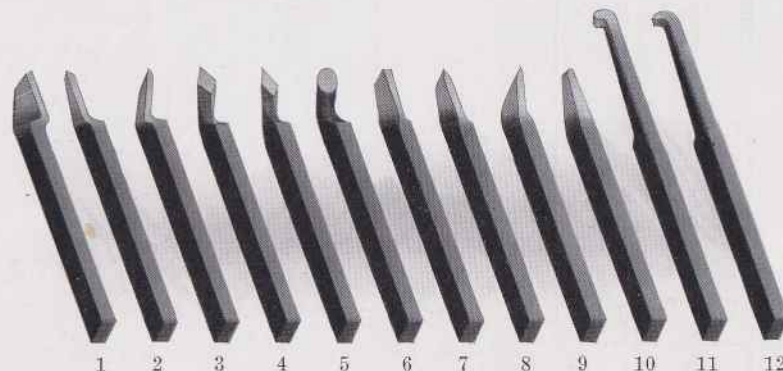
If a pipe is to be machined or threaded in the lathe, hold one end of the pipe in the chuck, and the other end on the pipe center in the tail stock. (See page 41.)

Price of Taper Shank "A".....	\$3.50
Disc "B" takes from 1/2" to 3" Pipe.	Price..... 2.00
Disc "C" takes from 3" to 5" Pipe.	Price..... 2.50
Disc "D" takes from 5" to 8" Pipe.	Price..... 3.00
Disc "E" takes from 8" to 12" Pipe.	Price..... 4.00
Disc "G" takes from 12" to 16" Pipe.	Price..... 7.00
Disc "H" takes from 16" to 20" Pipe.	Price..... 10.00
Disc "K" takes from 20" to 24" Pipe.	Price..... 15.00

FORGED STEEL LATHE TOOLS

An equipment of Lathe Tools is necessary for a lathe. Owing to long experience, we are in a position to furnish lathe tools, made of a good quality carbon tool steel, carefully forged, hardened, tempered and ground, ready for use. All are made in suitable sizes to fit South Bend Lathes.

This set of twelve lathe tools is selected as the most suitable for all-around lathe work.



1. Left-hand Side Tool	4. Right-hand Diamond Point	7. Cutting-off Tool	10. Roughing Tool
2. Right-hand Side Tool	5. Left-hand Diamond Point	8. Threading Tool	11. Boring Tool
3. Right-hand Bent Tool	6. Round Nose Tool	9. Bent Threading Tool	12. Inside Threading Tool

For 13" Lathes.....	Size of steel, $\frac{1}{2}$ " x 1"	Length 7".....	Price each.....	\$1.00	Set of 12.....	\$10.00	Torne
For 15" Lathes.....	Size of steel, $\frac{5}{8}$ " x $1\frac{1}{4}$ "	Length 9".....	Price each.....	1.50	Set of 12.....	16.00	Torse
For 16" Lathes.....	Size of steel, $\frac{5}{8}$ " x $1\frac{1}{4}$ "	Length 9".....	Price each.....	1.50	Set of 12.....	16.00	Tory
For 18" Lathes.....	Size of steel, $\frac{5}{8}$ " x $1\frac{1}{4}$ "	Length 9".....	Price each.....	1.50	Set of 12.....	16.00	Toll
For 21" Lathes.....	Size of steel, $\frac{3}{4}$ " x $1\frac{1}{2}$ "	Length 12".....	Price each.....	3.00	Set of 12.....	32.00	Toast
For 24" Lathes.....	Size of steel, $\frac{3}{4}$ " x $1\frac{1}{2}$ "	Length 12".....	Price each.....	3.00	Set of 12.....	32.00	Turly

PATENT LATHE TOOLS

TURNING TOOLS

Each tool is carefully packed in a cardboard box, and price includes one Drop Forged Wrench and one High Speed Steel Cutter, ground to shape.

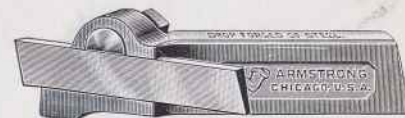


Size of Lathe	No. L. Hand	No. R. Hand	No. Straight	Size of Shank	Size of Cutter	Price Complete
13", 15".....	1-L.....	1-R.....	1-S.....	$\frac{1}{2}$ x $1\frac{1}{8}$ x 6"	$\frac{5}{16}$ in. sq.....	\$2.15
16", 18".....	2-L.....	2-R.....	2-S.....	$\frac{5}{8}$ x $1\frac{3}{8}$ x 7"	$\frac{3}{8}$ in. sq.....	2.70
21", 24".....	3-L.....	3-R.....	3-S.....	$\frac{3}{4}$ x $1\frac{5}{8}$ x 8"	$\frac{7}{16}$ in. sq.....	3.60

CUTTING-OFF TOOLS

Price List—Complete with Drop Forged Wrench and one High Speed Cutter.

Size of Lathe	Right-Hand Off-Set	Size of Shank	Size of Blades	Price Complete
13", 15".....	No. 31-R.....	$\frac{1}{2}$ x $1\frac{1}{8}$ "	$\frac{1}{8}$ x $\frac{3}{4}$ "	\$2.15
16", 18".....	No. 32-R.....	$\frac{5}{8}$ x $1\frac{3}{8}$ "	$\frac{1}{8}$ x $\frac{7}{8}$ "	2.75
21", 24".....	No. 33-R.....	$\frac{3}{4}$ x $1\frac{5}{8}$ "	$\frac{3}{16}$ x 1"	3.60

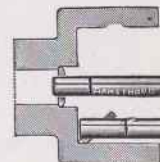


BORING TOOLS

Each set is carefully packed in a cardboard box. It consists of Holder and Bar, with straight and 45-degree End Caps, two High Speed Cutters (ground for boring) and a Double End Wrench.

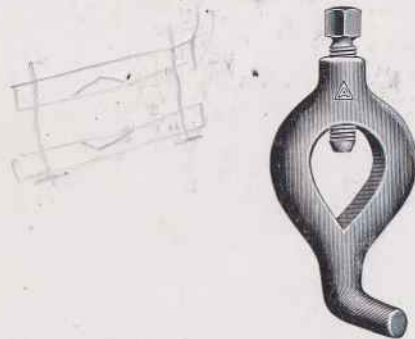


Size of Lathe	No.	Size of Shank	Size of Bar	Size of Cutter	Price Complete
13", 15".....	9.....	$\frac{1}{2}$ x $1\frac{1}{8}$ "	$\frac{3}{4}$ " dia.....	$\frac{1}{4}$ " sq.....	\$3.85
16", 18".....	10.....	$\frac{5}{8}$ x $1\frac{3}{8}$ "	$\frac{1}{2}$ " dia.....	$\frac{1}{8}$ " sq.....	5.10
21", 24".....	11.....	$\frac{3}{4}$ x $1\frac{5}{8}$ "	$1\frac{1}{8}$ " dia.....	$\frac{3}{8}$ " sq.....	7.25



LATHE DOGS

These lathe dogs are heavy malleable iron with hardened tool steel set screw. We can furnish forged steel dogs at higher prices, if desired.

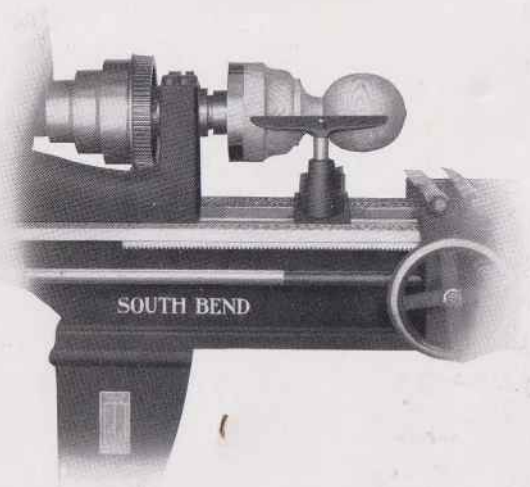


	Size	Price Each		Size	Price Each
No. 1	1/4"....	\$. 30	No. 7	1 3/4"....	\$. 85
No. 2	1/2"....	.40	No. 8	2"	.90
No. 3	3/4"....	.50	No. 9	2 1/2"....	1.10
No. 4	1"	.55	No. 10	3"	1.20
No. 5	1 1/4"....	.65	No. 11	3 1/2"....	1.35
No. 6	1 1/2"....	.75	No. 12	4"	1.60
		<u>\$3.15</u>			<u>\$7.00</u>

Set of 6A \$3.00

Set of 6B \$6.50

Set of 12—6A and 6B.....\$9.00



PATTERN MAKING, WOOD TURNING AND HAND REST

South Bend Lathes may also be used for wood turning, as the necessary high speed may be obtained through the counter-shaft.

For wood turning on straight work the operator may fasten the cutting tool in the tool post and operate the lathe carriage by the automatic feed. For irregular work a hand rest may be fastened in the tool post, or we can supply a hand rest like the above. Price of special hand rest complete, including two T rests and bolts for attaching to any size lathe, \$4.00.

CHUCK FITTED TO LATHE AT FACTORY

When ordering a lathe with chuck included, the chuck should be fitted to the lathe before it leaves the factory, because it is a difficult job for one to fit a chuck accurately, especially without the proper tools for doing this work.

We have a special equipment for threading chuck plates and fitting chucks to lathes, charging only the actual cost of the labor and material. We do this as an accommodation to the customer, so that the chuck will fit the lathe accurately and run true.

SEMI-MACHINED CHUCK PLATE



No. 301

Fig. 301 shows a cast iron semi-machined chuck plate; semi-machined because it has been bored, faced, and threaded to fit the spindle nose of various sizes of South Bend Lathes.

For fitting Lathe Chuck to lathe spindle, see book, "How to Run a Lathe" (page 64), where this subject is explained in detail.

SIZE OF CHUCKS FOR A LATHE

Size of Lathe Chuck most practical for South Bend Lathes, viz.:

13-inch Lathe.....	5" to 9" chuck inclusive
15-inch Lathe.....	6" to 10" chuck inclusive
16-inch Lathe.....	6" to 12" chuck inclusive
18-inch Lathe.....	8" to 14" chuck inclusive
21-inch Lathe.....	10" to 15" chuck inclusive
24-inch Lathe.....	12" to 18" chuck inclusive



No. 302
View of Back of Lathe Chuck

The recess on the back of the chuck is to receive the semi-machined chuck plate. For fitting chuck backs to chuck, see book "How to Run a Lathe," where this subject is fully explained.

PRICE OF SEMI-MACHINED CHUCK PLATE AND FITTING CHUCK TO LATHE

The price of the semi-machined chuck plate, and the fitting of chuck to lathe complete is not included in the price of the lathe or chuck, but is extra as shown herewith.

Size of Lathe	13"	15"	16-18"	21"	24"
Price Semi-Machined Chuck Plate.....	\$2.00	\$2.25	\$2.50	\$3.50	\$4.50
Price Fitting Chucks to Lathes, including S. M. Chuck Plate.	3.00	3.50	4.00	5.00	7.00

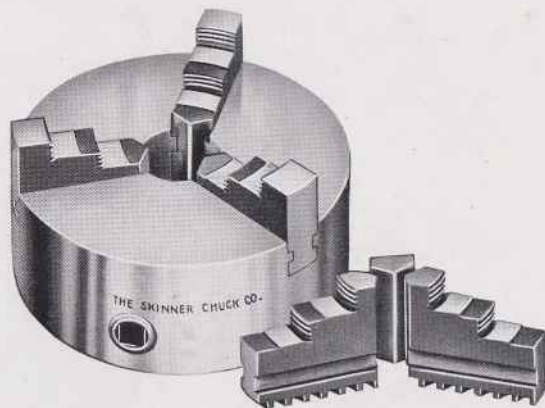


"STANDARD" DRILL CHUCK

It is very powerful and guaranteed to hold true and not injure the shanks of the drills. It holds round and square work. The jaws and screws are made from cast steel carefully tempered. The hole in the hub is made to fit taper arbor, which will fit both head and tail spindle of lathe. Price includes wrench.

No.	Capacity, Inches	Diameter, Inches	Price Each
41.....	0 to $\frac{1}{4}$	$1\frac{3}{8}$	\$ 6.00
42.....	0 to $\frac{3}{8}$	$1\frac{1}{2}$	6.50
43.....	0 to $\frac{1}{2}$	$2\frac{3}{16}$	7.00
44.....	0 to $\frac{3}{4}$	$2\frac{7}{8}$	8.00
45.....	0 to 1	$3\frac{1}{16}$	10.00

For Fitting Drill Chucks to Lathe, See Bottom of Page 57



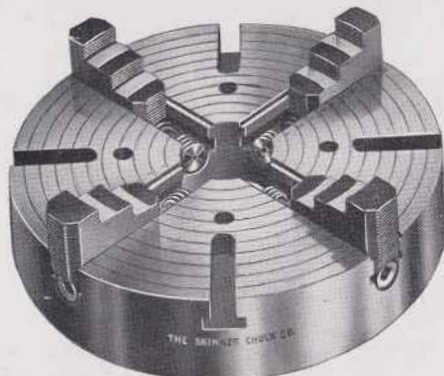
UNIVERSAL GEARED SCROLL CHUCK

With Two Sets of Jaws

This style of Chuck is used for holding round pieces. It is strictly a universal chuck, the jaws being moved simultaneously by the scroll threaded plate. Price includes wrench.

Normal Size Inches	No.	3-Jaw Price 2 Sets Jaws
4	200	\$22.00
5	201	24.00
6	203	28.00
$7\frac{1}{2}$	204	32.00
9	205	38.00
$10\frac{1}{2}$	206	44.00
12	207	52.00
15	208	70.00

For Fitting Chuck to Lathe, See Page 61



INDEPENDENT LATHE CHUCK

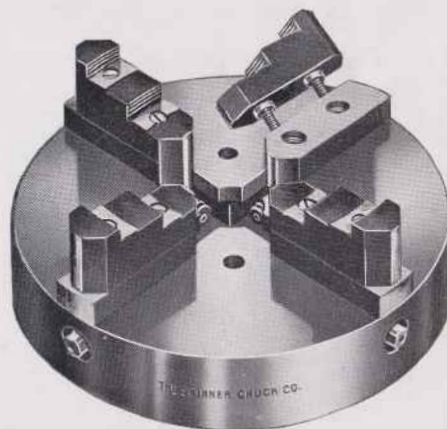
With Four Independent Reversible Jaws

This Chuck has four solid jaws with half nut, reversible by running out of Chuck at the periphery, and turning end for end. The jaws are hardened, have raised and ground steps. The face of Chuck is ground true to straight edge and is accurately graduated in inches. T slots are furnished only on chucks 12 inches and larger.

They are all made with **Hardened Steel Bearings** for the screws. Price includes wrench.

Rated Size of Chuck, Inches	No.	Will Hold About, Inches	Price
6"	301	7½"	\$22.00
7½"	302	8¾"	25.00
8"	302½	9½"	26.00
9"	303	11½"	28.00
10"	304	12½"	30.00
12"	305	14½"	35.00
14"	306	16½"	40.00
15"	307	18"	43.00
16"	307½	18"	46.00
18"	308	21"	54.00

For Fitting Chuck to Lathe, See Page 61



COMBINATION CHUCK, GEARED SCREW

With Patent Reversible Jaws

Rated Size, Inches	No.	Will Hold Approximately Inches	Price, 4 Jaws
4"	420	4 1/8"	\$36.00
5"	421	5 3/4"	39.00
6"	422	7 1/4"	42.00
8"	423	8 5/8"	50.00
9"	424	9 1/2"	54.00
12"	425	12 7/8"	66.00
15"	426	16 5/8"	82.00

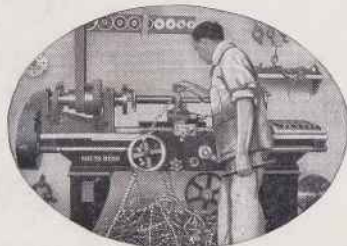
A Combination Chuck is a combination of a Universal and an Independent Chuck. The jaws work universally to and from the Center, but by shifting a stud on the back of chuck, throwing gears out of mesh, the jaws work independently. Price includes wrench.

For Fitting Chuck to Lathe, See Page 61

HOW TO RUN A LATHE

REVISED EDITION NO. 19

PRICE 10 CENTS



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A copy of this valuable little 80-page book will be sent, postpaid, to any address on receipt of 10c. Coin or stamps of any country accepted.

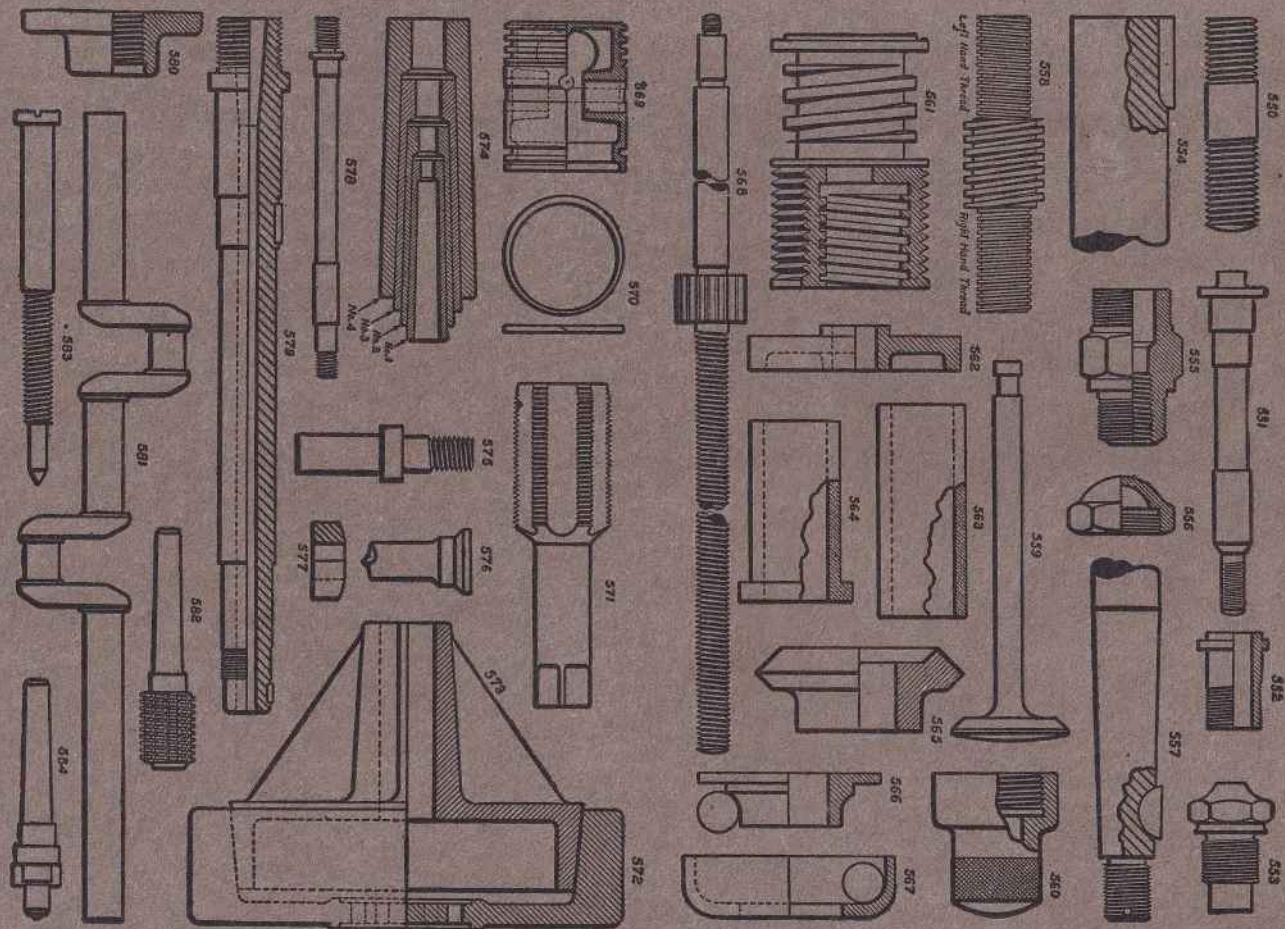
"HOW TO RUN A LATHE"

A Partial List of Contents

Layout for a small machine shop.
Speed and diameter of line shaft.
Horse power required to drive a lathe.
Rules for figuring size of pulleys.
How to find the pitch of a screw.
Milling and keyseating in the lathe.
How to case-harden a piece of mild steel.
How to harden and temper a lathe tool.
Rule for gearing any lathe for thread cutting.
How to fit a lathe chuck to a lathe.
Cutting speeds for different metals.
How to make a boring bar for the lathe.
Cutting a key-way in the lathe.
Application and use of lathe tools.
Boring in the lathe.
Turning taper in the lathe.
How to reseal a valve in the lathe.
Grinding in the lathe.
The book also contains a number of complete drawings and instruction sheets on various jobs that the repair shop is likely to meet with, viz.:
Making and fitting of piston rings.
Making of ball race and cone.
Hardening, tempering and annealing steel.
Case hardening, etc., etc.

HOW TO RUN A LATHE

This booklet is valuable as a text-book for apprentices in the large industrial plants and for students taking machine-shop work in Vocational, Industrial and Manual Training Schools. Printed in Spanish, and Portuguese.



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