

(Patent Pending)

13" x 5' Underneath Belt Motor Driven Quick Change Gear Lathe

Series "O" Underneath Belt Motor Driven South Bend Lathes

Back-Geared, Screw Cutting Precision Lathes

The Series "O" Underneath Belt Motor Driven Lathe illustrated above is made in 9", 11", 13", 15", 16" and 18" sizes. The only difference between the Series "O" Underneath Belt Motor Driven Lathes and the Series "O" Lathes shown in Catalog 91-A, is in the form of the drive and in the construction of the headstock and cabinet leg. The specifications and features of Lathes described in Catalog 91-A also apply to the lathes with Underneath Belt Motor Drive shown in this bulletin.

The Series "O" Underneath Belt Motor Driven Lathe is a compact, self-contained unit with motor drive completely enclosed in the cabinet leg under the headstock. The Underneath Belt Drive is an improvement in design and appearance, and is also very powerful and efficient.

Features and Illustrations of the Underneath Belt Motor Drive mechanism are shown on page 3. Other lathe features including the apron, headstock spindle, spindle bearings, compound rest, lead screw, gear box, etc., are illustrated and described on pages 5 to 7 inclusive.

Noiseless Operation, Clear Vision, No Overhead Obstruction. This lathe is designed and built with precision accuracy and is recommended for production work in manufacturing, fine precision work in the tool room and for all classes of machine shop use in modern industry.

The Electrical and Regular Equipment included in the price of each Series "O" Underneath Belt Motor Driven Lathe consists of: complete motor drive mounted in cabinet

leg; reversing motor, 1200 R.P.M.; reversing switch (drum type); wiring between motor and switch; flexible metal conduit; leather belt and necessary "V" pulley belts; large face plate; small face plate; tool post complete; adjustable thread cutting stop; two lathe centers; spindle sleeve; center rest; follower rest; wrenches, installation plans and book "How to Run a Lathe."

Net Factory Prices and Specifications of Series "O" Underneath Belt Motor Driven Lathes in quick change gear and standard change gear types are shown on page 8. Prices of Series "O" Underneath Belt Motor Driven Tool Room Lathes are shown on page 2.

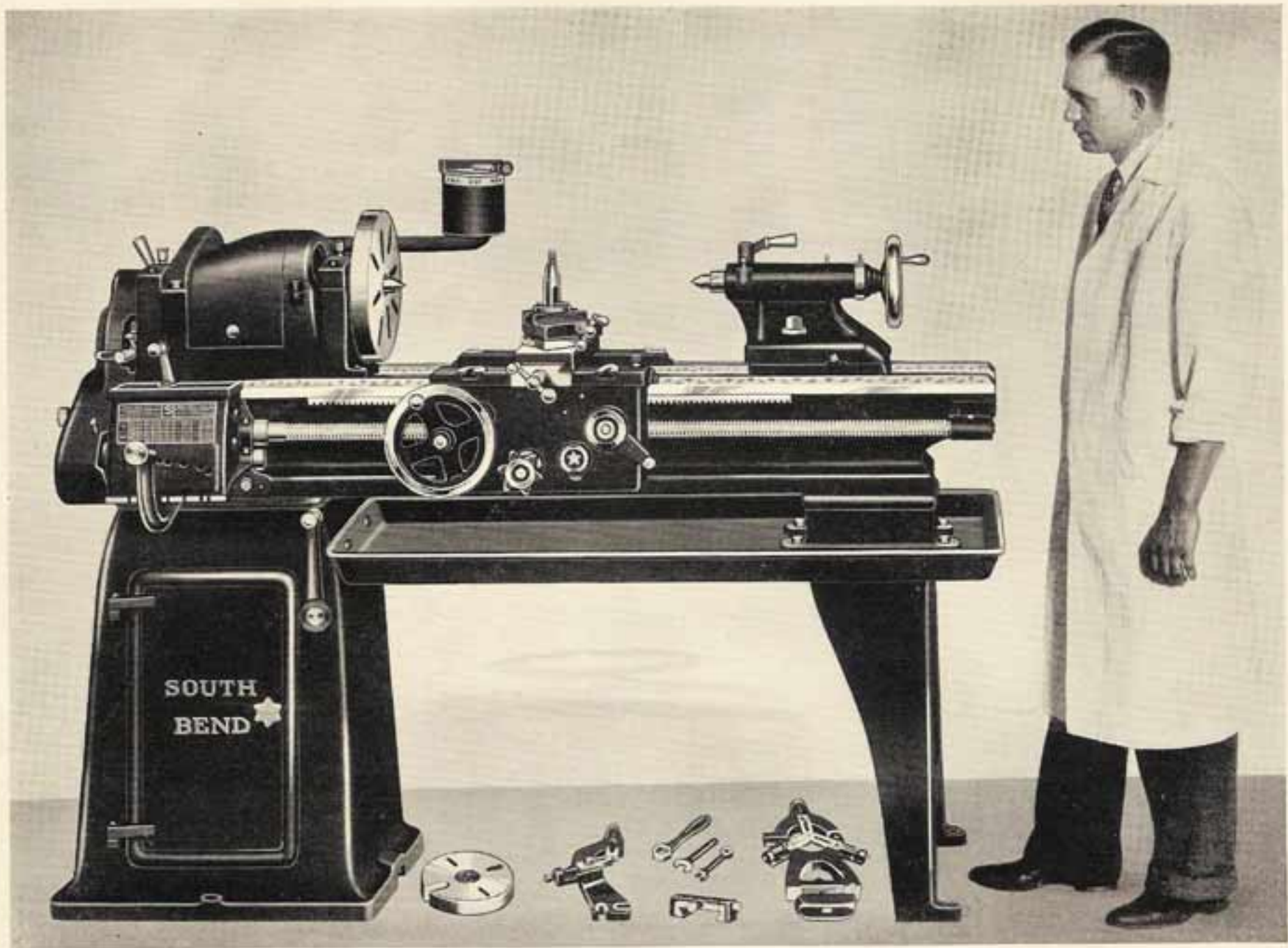
For Manufacturing or for Special Classes of Machine Work this lathe can be fitted with turret attachment, double tool slide, oil pan and pump, draw-in collet chuck, taper attachment, tools, chucks and attachments of all kinds. These are fully illustrated and described in Catalog No. 91-A and in our special Attachment Bulletin No. 77, copies of which will be mailed postpaid on request.

Bulletin No. 101—April, 1931

South Bend Lathe Works

406 East Madison St.,

South Bend, Indiana, U. S. A.



13-in. x 5-ft. Underneath Belt Motor Driven Tool Room Lathe

Series "O" South Bend Tool Room Precision Lathes Made in 9", 11", 13", 15", 16" and 18" Swing—Underneath Belt Motor Drive

The Series "O" Tool Room Precision Lathe with Underneath Belt Motor Drive is capable of turning out the finest tool room work with precision accuracy. It is practical for making precision taps, master thread gauges, special screws, dies, etc., to meet the demands of the expert mechanic on the most accurate work. The Tool Room Lathe has the same specifications as shown on the preceding page and in addition is equipped with special attachments for tool room work.

The Underneath Belt Motor Drive Tool Room Lathe will be found very desirable by the tool maker for doing fine accurate tool work. Noiseless in operation, no vibration, the belt drive to the spindle from underneath insures a smooth accurate surface on the work. We recommend this lathe to the plant that desires a high grade, modern tool room lathe.

Tool Room Attachments for the lathe are listed and priced separately so that the customer may select only those required for his work. The collet chuck, taper attachment, thread dial, carriage stop, etc., are illustrated and described in General Catalog No. 91-A and in Attachment Bulletin No. 77, copies of which will be mailed postpaid on request.

The Electrical and Regular Lathe Equipment included in the price of each size Series "O" Underneath Belt Motor Driven Tool Room Lathe consists of: Complete motor drive mounted in cabinet leg; reversing motor 1200 R.P.M.; reversing switch (drum type); full quick change gear mechanism for threads and feeds; large face plate; small face plate; tool post complete; adjustable thread cutting stop; two lathe centers; spindle sleeve; center rest; follower rest; wrenches; installation plans and book, "How to Run a Lathe."

Net Factory Prices Series "O" South Bend Underneath Belt Motor Driven Tool Room Precision Lathes
Prices Include Regular Lathe Equipment, 3-Phase, 60-Cycle A. C. Reversing Motor, 1200 R. P. M., Reversing Switch and Belts

Series "O" Underneath Belt Motor Driven Tool Room Quick Change Gear Lathe with 3-Phase, 60-Cycle A. C. Reversing Motor, 1200 R. P. M., Reversing Switch (drum type), and Regular Lathe Equipment but without Tool Room Attachments	Cat. No. 1884-A 11" x 4'		Cat. No. 1886-B 13" x 5'		Cat. No. 1888-C 15" x 6'		Cat. No. 1892-C 16" x 6'	
	Code Word	Price	Code Word	Price	Code Word	Price	Code Word	Price
.....	Dasem	\$ 498.00	Dawap	\$ 602.00	Deboe	\$ 720.00	Defif	\$ 777.09
TOOL ROOM ATTACHMENTS	Abode	38.00	About	44.00	Above	50.00	Adore	56.00
Hand Wheel Draw-in Collet Chuck with One Collet, Any Size	Cello	3.50	Chose	4.00	Civit	4.25	Clear	4.75
One Extra Collet Any Size up to Capacity of Lathe.....	Devor	60.00	Dieit	75.00	Doted	80.00	Dress	90.00
Taper Attachment.....	Aeres	8.00	Advia	10.00	Aesop	10.00	Afot	12.00
Thread Indicator.....	Bonul	19.00	Bonga	27.00	Boplo	34.00	Boplo	35.00
Oil Pan.....	Cedel	12.00	Chain	13.00	Cigar	14.00	Climb	15.00
Micrometer Carriage Stop.....	Crome	12.00	Cnoke	12.00	Cnarl	15.00	Cadro	15.00
Collet Cabinet and Bracket.....	Detar	\$ 650.50	Devet	\$ 787.00	Dewuz	\$ 927.25	Devoz	\$ 1004.75
Total Prices of Underneath Belt Motor Driven Tool Room Lathes, Complete with Tool Room Attachments as Listed Above.....								

Features of the New Underneath Belt Motor Drive

Used on All Sizes of Series "O" Underneath Belt Motor Driven South Bend Lathes

1. Multiple "V" driving belts from motor—adjustable.
2. Underneath belt drive to lathe spindle.
3. Independent adjustments for belt tension.
4. Reversing motor and reversing switch.
5. Silent in operation, no chatter, no vibration.
6. Spindle Cone Pulley completely enclosed.
7. No overhead obstruction, clear vision.
8. No exposed belts, pulleys or gears.
9. Increased power and efficiency.
10. Lower operating cost.
11. Wide range of spindle speeds.
12. Safety Devices on Working Units.

The Underneath Belt Motor Drive is a complete self contained unit enclosed in the cabinet leg under the headstock. The general construction and design of the Underneath Belt Motor Drive Unit is the same for all sizes and types of lathes, 9 inch to 18 inch swing.

The Underneath Belt Motor Drive will be appreciated by the engineer and mechanic in industry, because it enables the operator of the lathe to secure any power required for his work. This power is secured by adjusting the tension of the flat leather belt that drives the spindle cone. The adjustment is controlled by a cam in the cabinet leg directly in back of the belt adjusting lever.

There is also an independent adjustment between the motor and jackshaft, for the "V" belts.

To Shift the Belt is a very simple operation. Place the switch in neutral, raise the headstock cover and give the belt release lever at the front of the leg, a half turn to the left. This moves the lower cone pulley in the leg vertically two and one half inches. Place the belt on any desired step of the spindle cone and the lower end of the belt will swing automatically under the corresponding step of the lower cone pulley. Now close the headstock cover, return belt tension lever to its original position and start the lathe.

The Underneath Belt Motor Driven Lathe is Safe because motor and drive mechanism are fully enclosed. There are no moving parts exposed. Safety devices prevent accidents to the working units making the lathe practically 100% accident proof.

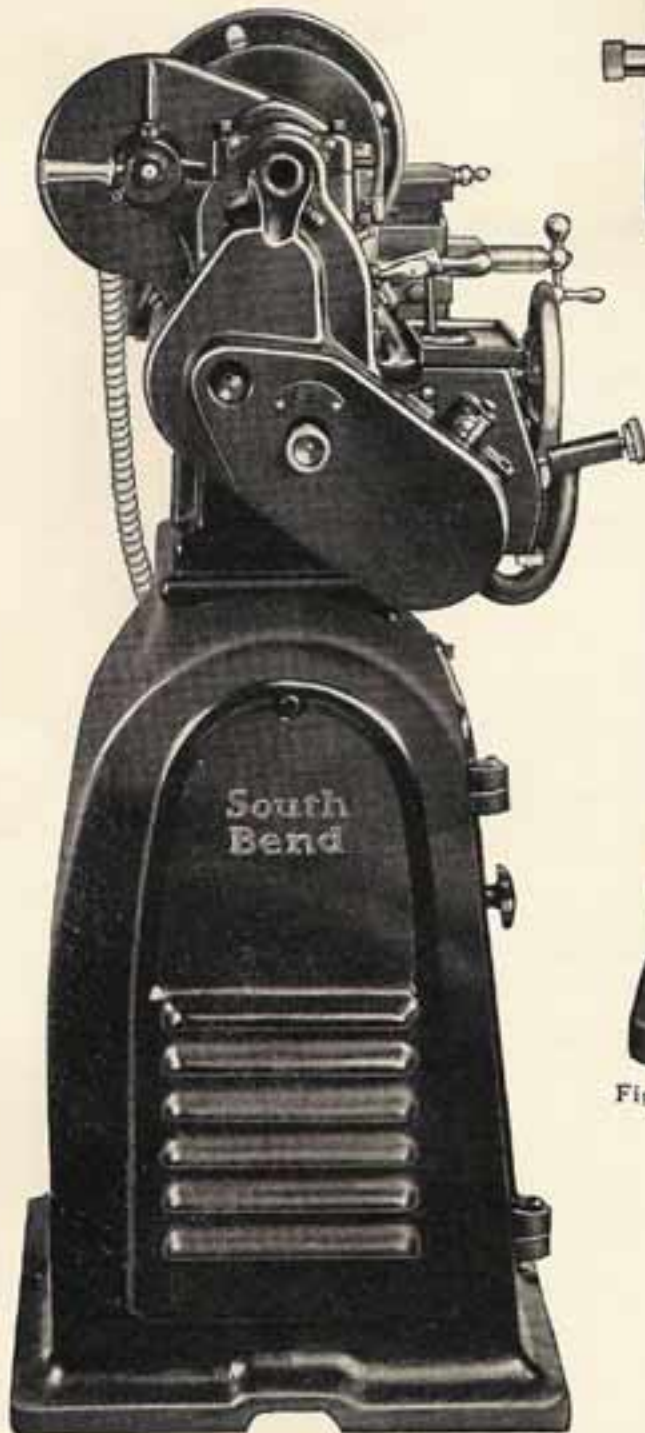


Fig. 1. End view of underneath belt motor drive lathe showing removable ventilated end plate.

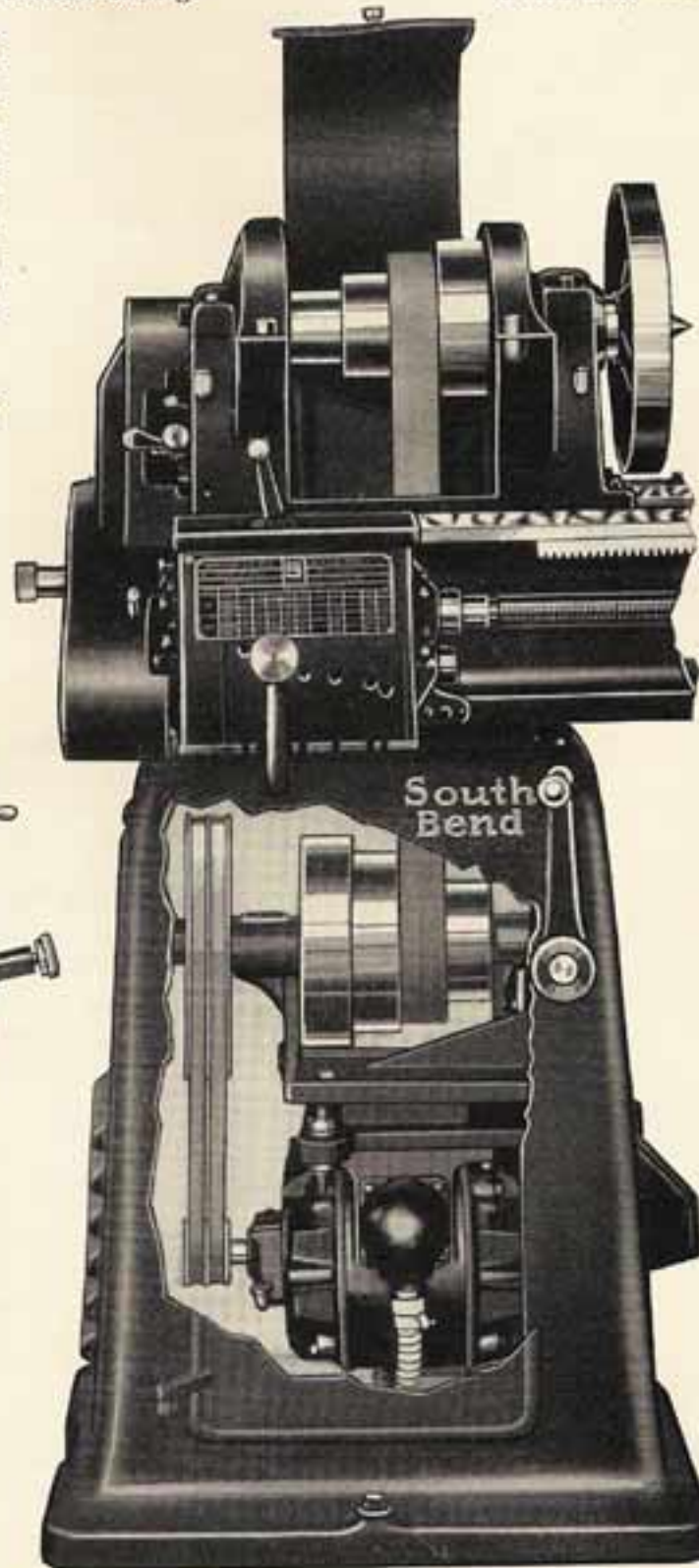


Fig. 2. Front view of lathe with door cut away showing arrangement of driving mechanism.

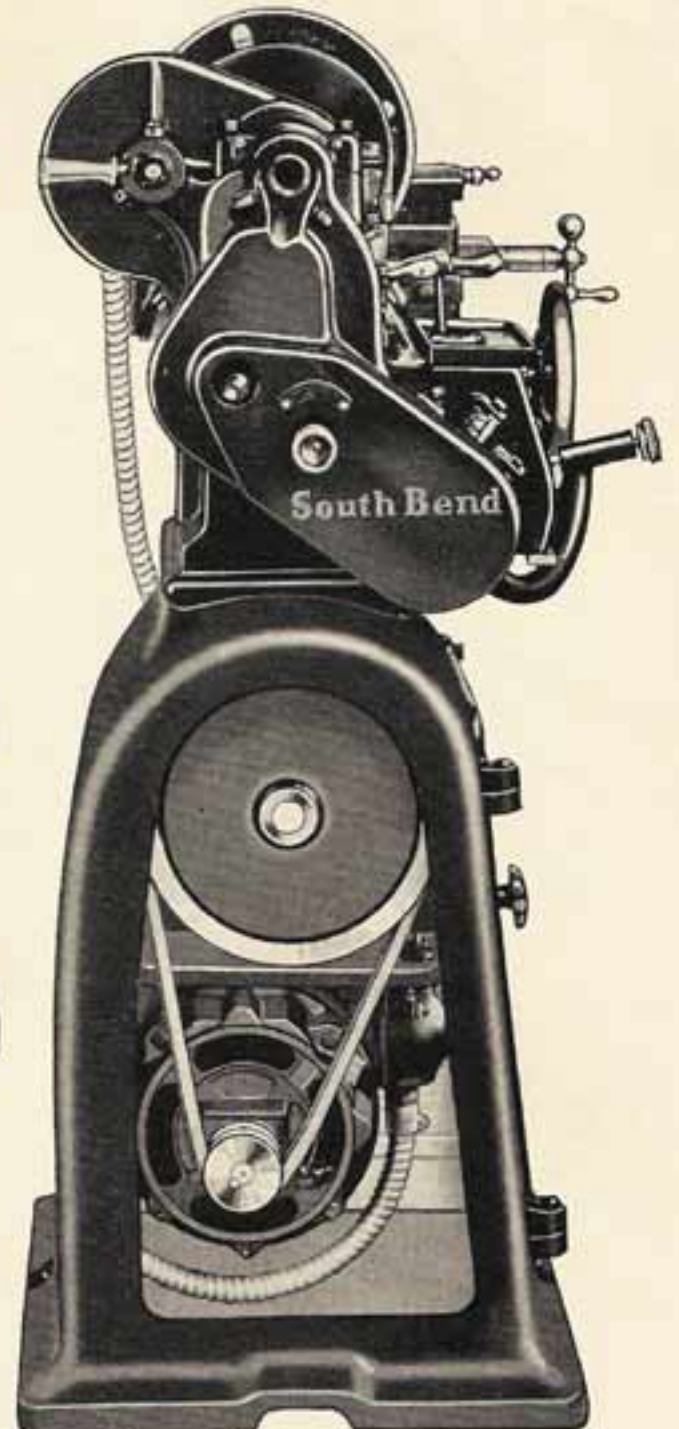


Fig. 3. End view of lathe with end plate removed to show multiple "V" belt drive from motor.

Features and Specifications of Series "O" South Bend Lathes

The description below applies to all sizes and types, 9-inch to 18-inch swing

For Prices Refer to Page 2 and to Tabulation on Page 8

The Series "O" Underneath Belt Motor Driven Lathe is recommended for the manufacturing plant, tool and die shop and general machine shop. It is practical for production work, tool and die work and general machine work of all kinds.

The Series "O" Lathes illustrated in this bulletin are exactly the same as the Lathes shown in General Catalog No. 91-A, except in the type of motor drive. The principal units of the Series "O" Lathe are described below and on pages 5, 6 and 7 of this bulletin.

The Headstock for the Underneath Belt Motor Drive Lathe is of special design, braced and webbed to insure rigidity and permanent alignment of the spindle bearings. It is fitted with a cover which completely encloses the headstock spindle cone. The headstock is bolted direct to the lathe bed so that slipping is impossible. Back-gears are enclosed in improved, close fitting gear guards.

The Headstock Spindle is made of a special alloy spindle steel and has a hole its entire length for machining rods and bars through the lathe chuck and draw-in collet chuck. The steel thrust collar is hardened and ground. See page 6.

Bearings for Headstock Spindle are phosphor bronze designed for heavy duty and are adjustable for wear. Patent oil cups and felt wicks lubricate the spindle and protect the bearings from dust and grit. See page 6.

The Apron has automatic friction cross feed and automatic friction longitudinal feed mechanism. It is also provided with split-nuts which are used only when cutting screw threads, and not for driving either of the automatic feeds. An automatic safety interlock prevents the split-nuts and automatic feeds from being engaged at the same time.

The Cone Pulley and Back Gears provide a wide range of spindle speeds as listed below under specifications. Both the cone pulley and the back gears have improved reservoir oiling systems. A quick acting, wrenchless bull gear lock is provided for engaging and disengaging the back gears.

A Spring Latch Reverse on the headstock permits instant changing of the direction of the automatic feeds. It also provides for cutting right or left hand screw threads. A neutral position completely disengages all feeds.

The Lathe Bed is heavily constructed and is reinforced by box braces cast in at short intervals. It is made of cast iron containing 50% steel. This produces a hard, close grained metal far superior to the ordinary gray iron casting.

The Carriage has a wide, deep bridge providing rigid support for the tool rest. "T" slots are provided for clamping work or fixtures on the 13-inch lathe and larger sizes. The carriage is carefully fitted to the lathe bed by improved scraping methods which are more accurate and provide a better bearing surface than ordinary methods. The cross feed screw has Acme thread and is fitted with a micrometer

collar reading in thousands of an inch, which may be set at zero at any time. A locking device clamps the carriage to the bed when using the cross feed for cutting off or facing.

The Tailstock is equipped with a graduated spindle for drilling to accurate depths. Improved binding plugs lock the tailstock spindle without altering the alignment of lathe centers. The tailstock center is made of tool steel correctly hardened and tempered for long wear and is self-ejecting. The tailstock top may be set over for taper turning, and is off-set to permit the compound rest to swivel over the tailstock base, parallel to the lathe.

The Compound Rest is graduated 180° and swivels all the way around for machining work at any angle. It has an angular travel as listed in specifications below. The compound rest screw has Acme thread and is fitted with a micrometer collar graduated in thousands of an inch, which may be set at zero at any time.

The Lead Screw is made of special quality carbon steel and has coarse pitch Acme thread cut on a special machine equipped with a Pratt and Whitney master lead screw. The thread of the lead screw is used only for cutting screw threads and not for operating the automatic feeds. See page 5.

The Quick Change Gear Type of Lathe is equipped with full quick change mechanism for automatic feeds and for cutting right or left hand screw threads from 2 to 112 per inch, including 1 1/2 pipe thread as follows: 2, 2 1/4, 2 1/2, 2 3/4, 2 7/8, 3, 3 1/4, 3 1/2, 4, 4 1/2, 5, 5 1/2, 5 3/4, 6, 6 1/2, 7, 8, 9, 10, 11, 11 1/2, 12, 13, 14, 16, 18, 20, 22, 23, 24, 26, 28, 32, 36, 40, 44, 46, 48, 52, 56, 64, 72, 80, 88, 92, 96, 104 and 112.

The Standard Change Gear Lathe is equipped with change gears for automatic feeds and for cutting right or left hand screw threads from 4 to 40 per inch, including 1 1/2 pipe thread, as follows: 4, 5, 6, 7, 8, 9, 10, 11, 11 1/2, 12, 13, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 36, and 40. Threads other than those enumerated may be cut by compounding the gears furnished with the lathe. A swinging gear guard permits easy access to the gears.

Attachments for special classes of machine work including taper attachment, milling attachment, draw-in collet attachment, transposing attachment for cutting metric threads, grinding attachment, etc. can be supplied at extra cost. A complete line of attachments is fully illustrated, described and priced in our Attachment Bulletin No. 77, copy of which will be mailed on request.

Accuracy Tests are made often during the process of manufacture of the different parts and before being assembled sixty-four different tests are made. After being assembled the lathe undergoes a series of final inspection tests under its own power. A record card showing the results of these tests is filed in our office.

These Specifications Apply to the Lathes Illustrated and Listed on Pages 1, 2 and 8

Size of Lathe	9-Inch	11-Inch	13-Inch	15-Inch	16-Inch	18-Inch
Swing over bed	9 1/4 in.	11 1/4 in.	13 1/4 in.	15 1/4 in.	16 1/4 in.	18 1/4 in.
Swing over carriage	6 3/8 in.	7 3/8 in.	9 in.	10 3/8 in.	11 3/8 in.	12 3/8 in.
Height of centers from floor	41 in.	41 in.	41 1/2 in.	41 1/4 in.	42 in.	42 in.
Hole through spindle	3/4 in.	3/8 in.	1 in.	1 1/8 in.	1 1/4 in.	1 1/2 in.
Spindle speed range R. P. M.	45-683	42-633	25-665	21-593	17-574	17-413
Width of cone pulley belt	1 1/2 in.	1 1/2 in.	1 3/4 in.	2 in.	2 1/4 in.	2 1/2 in.
Spindle nose diameter and thread	1 1/2 in. 8	1 1/2 in. 8	1 3/8 in. 8	2 1/8 in. 6	2 3/8 in. 6	2 3/4 in. 6
Lathe centers Morse taper No.	2	2	3	3	3	3
Collet capacity maximum	1 1/2 in.	1 1/2 in.	1 3/4 in.	1 3/4 in.	1 3/4 in.	1 3/4 in.
Lead screw Acme thread	3/4" dia. 8 thds.	3/8" dia. 8 thds.	1" dia. 6 thds.	1 1/8" dia. 6 thds.	1 1/4" dia. 6 thds.	1 1/2" dia. 4 thds.
Angular travel compound rest top	1 1/2 in.	2 1/4 in.	3 in.	3 1/2 in.	3 3/4 in.	4 1/2 in.
Tool cross slide travel	7 1/4 in.	8 1/4 in.	9 in.	10 in.	10 3/4 in.	14 1/4 in.
Travel of tailstock spindle	2 3/4 in.	3 1/4 in.	4 1/4 in.	5 1/4 in.	6 in.	7 in.
Size of motor used	1/2 H.P.	1/2 H.P.	3/4 H.P.	1 H.P.	1 H.P.	2 H.P.
Size of lathe tool shank	1 1/2 x 1 1/8 in.	1 1/2 x 1 1/8 in.	1 1/2 x 1 1/8 in.	1 1/2 x 1 1/8 in.	1 1/2 x 1 1/8 in.	1 1/2 x 1 1/8 in.
Size of turning tool cutter bits	1/2 in sq.	1/2 in sq.	1/2 in sq.	1/2 in sq.	1/2 in sq.	1/2 in sq.

For weight of lathes see tabulation on page 8.

Apron and Lead Screw Used On Series "O" South Bend Lathes

For Quick Change Gear and Standard Change Gear Lathes

The illustration at the right shows the construction and design of the apron used on all sizes of Series "O" South Bend Lathes 9" to 18" inclusive. The apron is strong and powerful and of simple construction. Note the double worm bracket which supports the steel worm while it is in operation. This valuable feature explains the cutting power of the South Bend Lathe.

Automatic Feeds

The lead screw is splined which permits it to serve as a feed rod for operating the automatic cross and longitudinal feeds. It is geared direct to the spindle and permits a wide variety of feed changes. The threads of the lead screw are used only when cutting screw threads and therefore should last a lifetime.

A single automatic friction clutch knob controls both the automatic longitudinal feed and automatic cross feed. Change of feed is obtained by means of a feed lever knob which has three positions: **Up** position for automatic longitudinal feed, **Down** position for automatic cross feed and **Central** position for neutral.

Automatic Safety Device

An automatic safety device in the apron prevents either of the automatic feeds from being placed in action while the split nuts are clamped on the lead screw for cutting screw threads. Vice versa, it prevents the split nuts from being clamped on the lead screw while either of the automatic feeds are in action. The device is fool proof and works without any attention from the operator. When one feed is engaged, the other is locked.

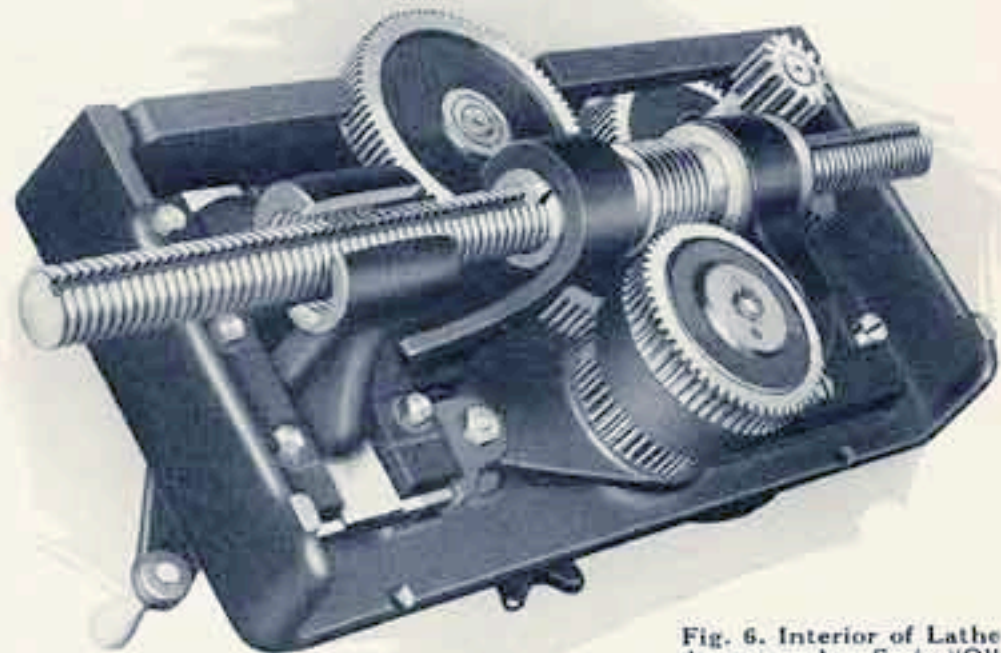


Fig. 6. Interior of Lathe Apron used on Series "O" South Bend Lathes.

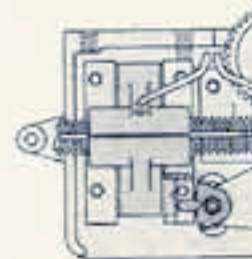


Fig. 7

Operation of the Safety Device

The safety device as shown in Figure 7 and Figure 8 prevents the engaging of the automatic feeds and the split nuts with the lead screw at the same time. Figure 7 shows the safety device locked for thread cutting. Figure 8 shows it locked for automatic feeds.

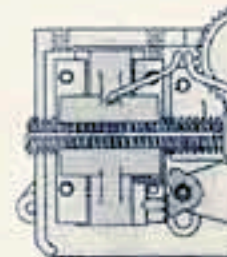


Fig. 8

Acme Thread Precision Lead Screw

The Lead Screw is made of a special quality steel, and has Acme standard threads. The threads are cut with precision accuracy on a machine built especially for that purpose and equipped with a Pratt and Whitney master lead screw. Each South Bend lead screw is guaranteed to be accurate and to meet the most exacting requirements in making the finest precision thread gauges, master taps, etc.

Thread of Lead Screw Used for Thread Cutting Only

The splined lead screw is used with the split half-nuts in the apron for cutting all sizes and types of screw threads. The spline in the lead screw is used to drive a worm and gearing which operates the automatic cross feed and automatic longitudinal feed. The threads of the lead screw are used only when cutting threads. This is the most modern and up-to-date design as it does away with the delicate mechanism that was used in our older type of lathe that was equipped with separate rod feeds.

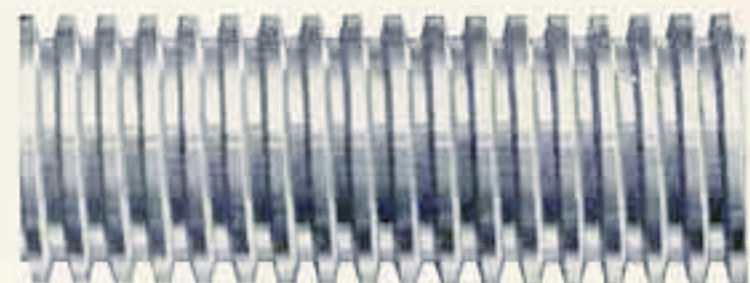


Fig. 9. Section of lead screw, actual diameter, used on the 13-inch South Bend Lathe.

Each Lead Screw is tested for accuracy of lead, form of thread and pitch diameter, and is guaranteed to meet the most exacting requirements in precision thread cutting.

ANNOUNCEMENT

We manufacture South Bend Lathes in two Series; Series "O" and Series "N"

SERIES "O" LATHES

Series "O" South Bend Lathes are built in Overhead Countershaft Drive and Silent Chain Motor Drive in addition to the Underneath Belt Motor Drive type shown in this bulletin. The Series "O" line of South Bend Back-Geared Screw Cutting Lathes, which we have manufactured for more than twenty-five years, are illustrated and described in Catalog No. 91-A, a copy of which will be mailed postpaid on request.

SERIES "N" LATHES

Series "N" South Bend Lathes which are higher in price than Series "O", are built in Overhead Countershaft Drive, Silent Chain Motor Drive and Underneath Belt Motor Drive, all of which are equipped with Hardened Steel Spindle in Headstock, new Double Wall Apron with steel gears running in oil and Multiple Disc Friction Clutch. Series "N" Lathes are illustrated in Bulletins No. 100 and 200. Copies mailed postpaid on request.

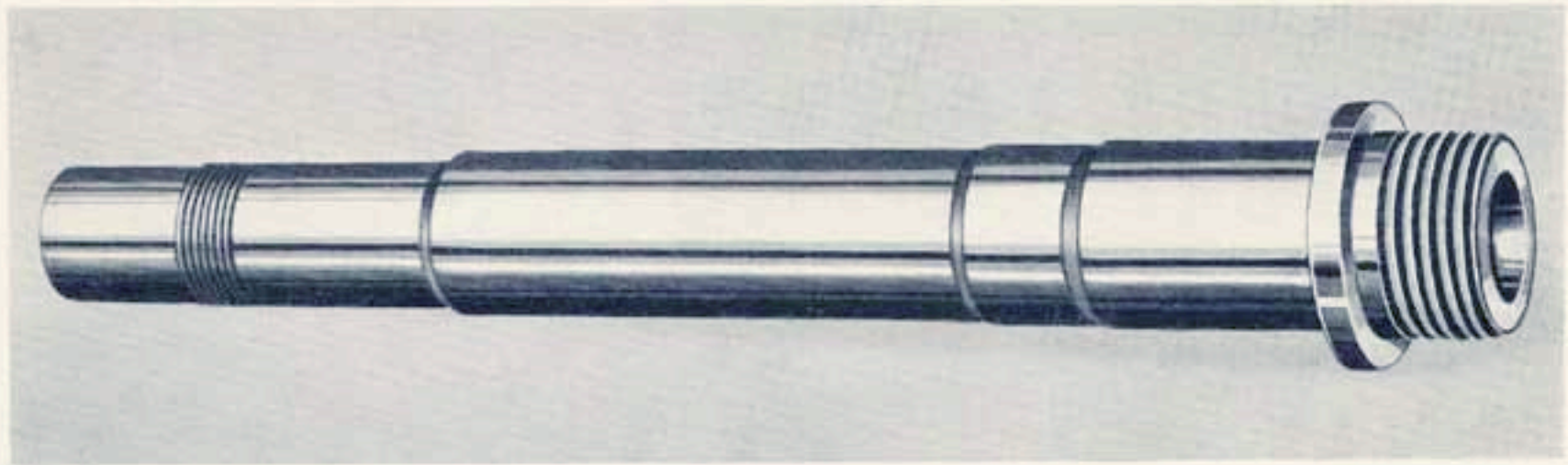


Fig. 10. The Illustration above shows the Headstock Spindle used on the 13" Series "O" Lathe.

Alloy Steel Headstock Spindle

The Headstock Spindle used on all Series "O" South Bend Lathes is made of a special quality alloy spindle steel. The spindle is turned to size and finished ground all over. Great strength, rigidity and perfect alignment make it practical for production work and for the finest tool room work.

Each Spindle is Thoroughly Tested for accuracy and perfect alignment before mounting in the headstock. A taper reducing sleeve is fitted to the spindle for receiving the headstock center. The spindle has a large hole through its entire length for machining bars and tubes, also for the use of large capacity draw-in chuck attachments and spring collets.

Threaded Spindle Nose.—The threads of the spindle nose are cut to a master precision thread gauge and are uniform in size. The shoulder back of the threads is accurately machined so that chucks and face plates will seat accurately.

Hardened Thrust Collar.—A hardened and ground thrust collar is fitted to each spindle. The face of the collar is lapped smooth and bears against the front end of the rear bearing for the headstock spindle. Two felt wick oilers provide ample lubrication of the bearing. An adjustable spindle take-up nut and fibre washer are provided for eliminating end play in the spindle.

Bronze Bearings For Spindle

Bearings for the Headstock Spindle used in all Series "O" South Bend Lathes are made of high quality phosphor bronze. The bearings are accurately fitted into the housings in the headstock, then line bored and lapped to size. This is the most accurate method known and is the latest development in finishing bearings for lathe spindles.

Perfect Lubrication is provided by improved felt pad oilers so that a film of oil is kept constantly on the bearing surfaces. Due to the efficient lubrication system used there is seldom need for adjustment and, if given proper care, the bearings will last a lifetime. Adjustment is provided for taking up the wear by using laminated shims.



Fig. 11. Front Bearing for Headstock Spindle. Rear Bearing is similar to Front Bearing, but smaller in size and is not shown here because of lack of space.

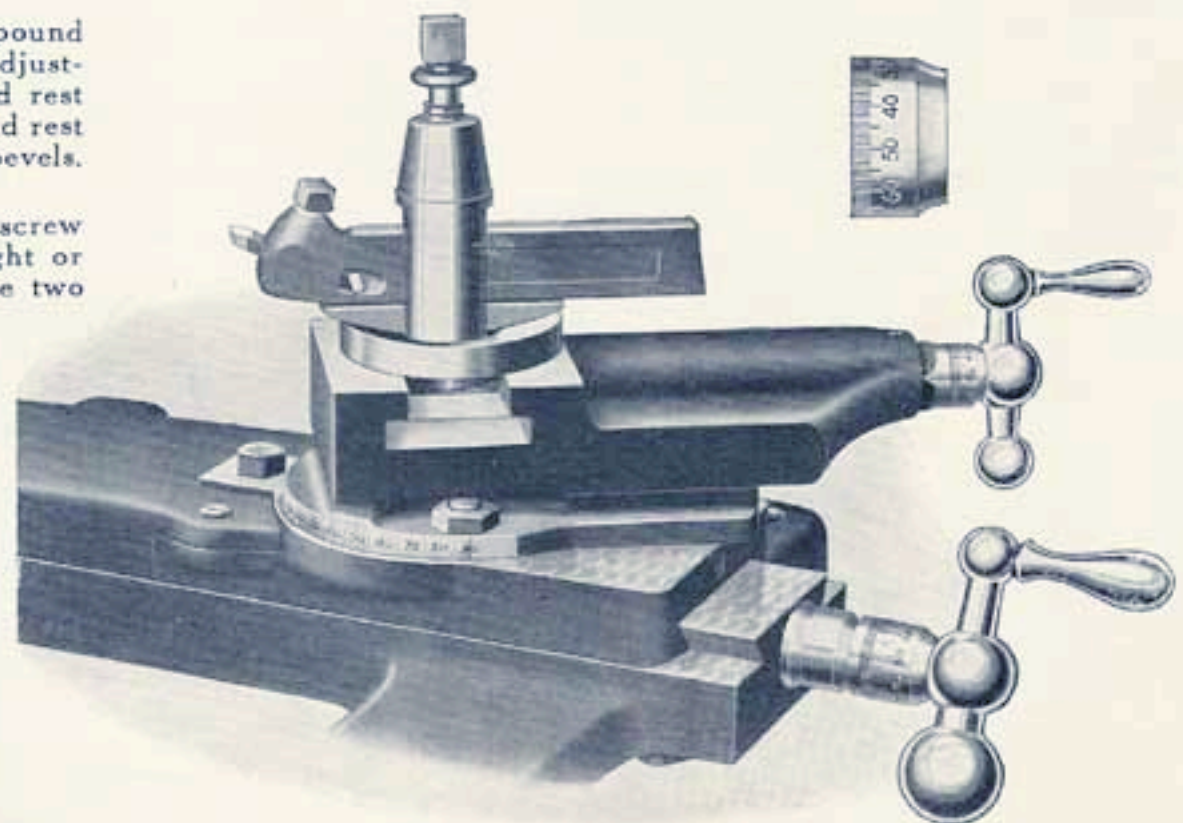
Graduated Compound Rest Used On All Series "O" South Bend Lathes

The illustration at the right shows the compound rest mounted on the saddle and shows the adjustment of the two feed screws—the compound rest screw and the cross feed screw. The compound rest is used for turning or boring short tapers or bevels.

The compound rest screw and cross feed screw permit the operator to do all kinds of straight or taper work because the combination of these two screws permit the cutting tool to be fed in any direction.

Both the compound rest screw and the cross feed screw of the saddle have coarse pitch Acme thread. Each is fitted with a micrometer collar reading in thousandths of an inch for adjusting the depth of cut.

The compound rest is accurately graduated over an arc of 180° reading from 0 to 90° from the center to each extremity of the arc. It swivels all the way round for machining work at any angle and can be rigidly clamped in any position. For angular travel of the compound rest see specifications on page 4.



Full Quick Change Gear Equipment for Lathe

Direct Reading Index Chart for Threads

Quick Change Gear Box Provides 48 Changes

The quick change gear box provides 48 changes for cutting right or left hand screw threads from 2 to 112 per inch without removing a gear. This same quick change mechanism also provides 48 different automatic cross feeds and automatic longitudinal feeds.

The index plate attached to the gear box is direct reading and shows the arrangement of the levers for cutting right or left hand screw threads including 1 1/2 pipe thread, as follows: 2, 2 1/4, 2 1/2, 2 3/4, 2 7/8, 3, 3 1/4, 3 1/2, 4, 4 1/2, 5, 5 1/2, 5 3/4, 6, 6 1/2, 7, 8, 9, 10, 11, 11 1/2, 12, 13, 14, 16, 18, 20, 22, 23, 24, 26, 28, 32, 36, 40, 44, 46, 48, 52, 56, 64, 72, 80, 88, 92, 96, 104, and 112.

Range of Automatic Feeds

The Gear Box provides a wide range of automatic feeds both fine and coarse for the automatic longitudinal feed and the automatic cross feed. Any desired feed from the finest to the coarsest may be instantly obtained by arranging the gear box levers in the required position. The full range of 48 different feeds is available for both the cross feed and longitudinal feed. All these feeds can be adjusted without removing a gear.

Easy to Operate

The quick change gear box of the New South Bend Lathe is one of the most complete, compact and best designed on the market. It is simple, accurate, durable and easy to operate. The operation of the quick change gear box is fully explained in the book entitled "How to Run a Lathe" which is included with the lathe.

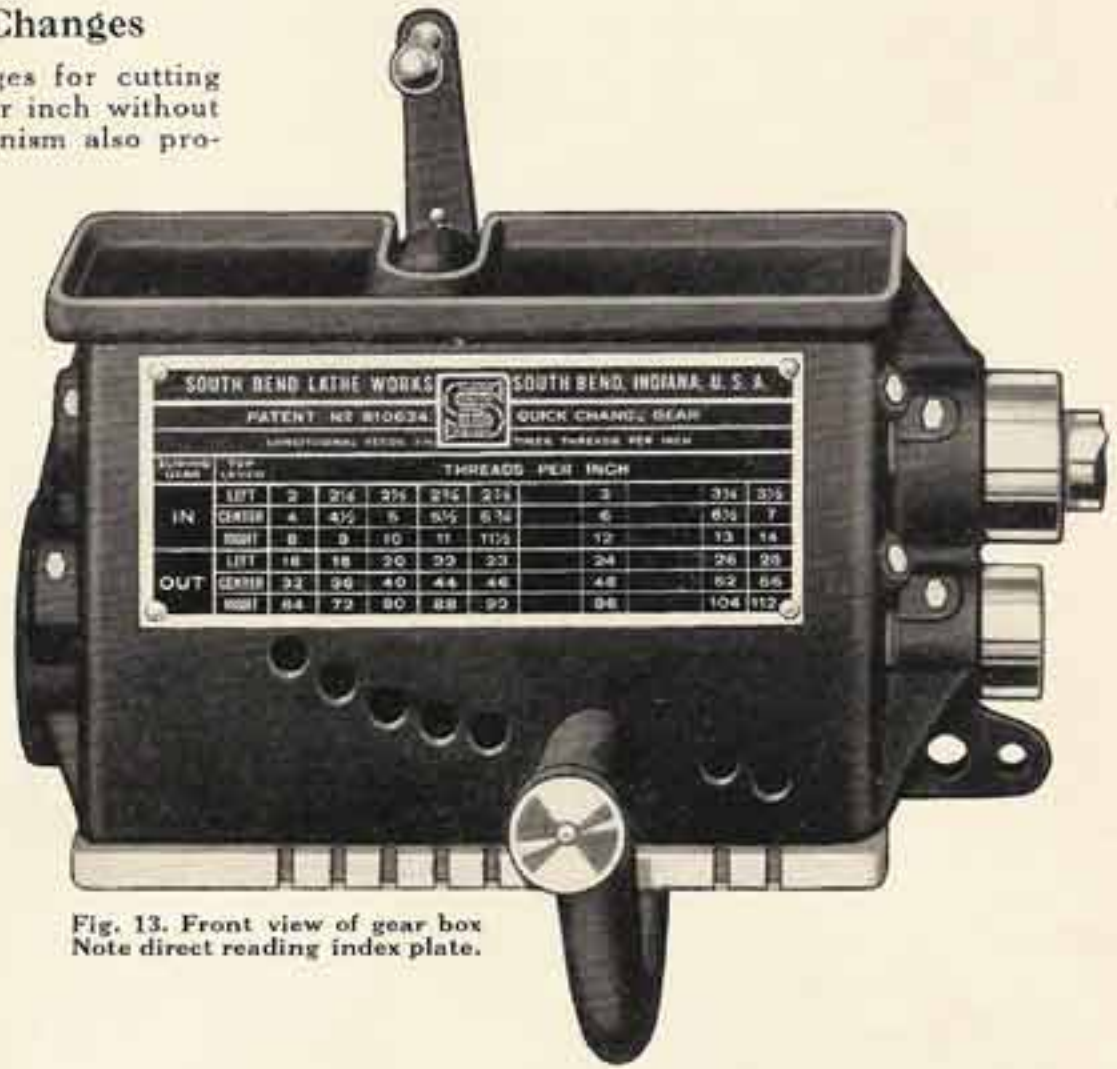


Fig. 13. Front view of gear box
Note direct reading index plate.

Screw Thread Cutting

Arranging the Gear Box for Thread Cutting is a simple matter. For example, to obtain 16 threads per inch the index plate shows that the sliding gear knob at the end of the lathe (not shown in the illustration) is pulled out, the top lever at the top of gear box is pushed to the left, and the plunger is placed in the extreme left hole, directly under the column in which the figure 16 appears.

Interior View of Gear Box

A group of eight steel gears is mounted on the center shaft, any one of which can be instantly engaged with the Lead Screw. The tumbler lever and the small top lever enable the operator to obtain 24 changes. By sliding the knob at the end of the lathe the number of changes is doubled, making 48 in all.

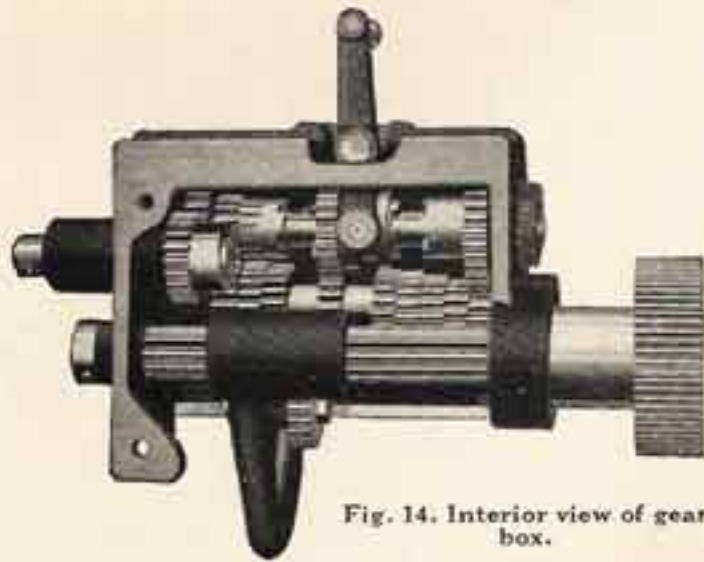


Fig. 14. Interior view of gear box.

Metric Transposing Gears

Transposing gears for cutting metric threads may be fitted to the quick change gear box as additional equipment. The Metric Transposing Gear Attachment permits the lathe to be used for cutting the following International Standard Metric Threads: .5, .75, 1., 1.25, 1.5, 1.75, 2., 2.5, 3., 3.5, 4., 4.5, 5., 5.5, 6., 6.5, 7., 7.5, 8 m/m pitch. Complete information and prices on application.

Practical Lathe Attachments For Manufacturing Work

The South Bend Lathe is noted for the variety of practical attachments with which it can be equipped for handling all classes of fine, accurate precision work in the modern industrial plant and shop.

The lathe when equipped with attachments serves the purpose of a special machine. When the special tools are removed the lathe can be used for regular work.

The screw cutting lathe equipped for manufacturing will often show better production than a special or single purpose machine. When a job is finished the lathe can be set up for another job and kept in constant operation, while a single purpose machine can do only one kind of job.

More than 28 practical attachments can be fitted to each size and type of Series "O" South Bend Lathe, a partial list of which is shown at right.

Principal Attachments

- Draw-in Collet Chuck Attachment
- Spring Collets
- Graduated Taper Attachment
- Micrometer Carriage Stop
- Thread Indicator
- Bed Turrets; Tool Post Turrets
- Milling and Keyway Cutting Attachment
- Electric Grinder Attachment
- Relieving Attachment
- Pressed Steel Oil Pan and Pump
- Metric Transposing Gear Attachment
- Chucks, Tools and Accessories

Series "O" Underneath Belt Motor Driven Lathes

Lathe Equipment Included in Price

The regular lathe equipment included in the price of each Series "O" Underneath Belt Motor Driven South Bend Lathe consists of: Cabinet Leg Under Headstock, Large and Small Face Plates, Tool Post complete, Adjustable Thread Cutting stop, (Change Gears, with Standard Change Gear Lathes) and two Lathe Centers and Spindle Sleeve, Center Rest, Follower Rest, Wrenches, Installation Plans, and book, "How to Run a Lathe."

Electrical Equipment Included in Price

The electrical equipment included in the price of each Series "O" Underneath Belt Motor Driven South Bend Lathe, both Quick Change and Standard Change Gear Types, consists of: A 1200 R.P.M. Reversing Motor (Westinghouse, General Electric or equal make), Reversing Switch (Drum Type), Wiring between Motor and Switch, Flexible Metal Conduit, Wiring Diagram, one Flat Leather Belt and the necessary "V" Belts.

Net Factory Prices of Series "O" Underneath Belt Motor Driven South Bend Lathes Crated For Domestic Shipment

SPECIFICATIONS OF LATHE						SERIES "O" UNDERNEATH BELT MOTOR DRIVEN LATHES									
						QUICK CHANGE GEAR					STANDARD CHANGE GEAR				
Swing Over Bed Inches	Length of Bed Feet	Between Centers Inches	Hole Thru Spindle Inches	Swing Over Carriage Inches	Size of Motor H.P.	Catalog No. of Lathe	Weight Crated Pounds	3-Phase 60 Cycle A.C. Motor	1-Phase 60 Cycle A.C. Motor	Direct Current Motor	Catalog No. of Lathe	Weight Crated Pounds	3-Phase 60 Cycle A.C. Motor	1-Phase 60 Cycle A.C. Motor	Direct Current Motor
9-inch Series "O" Underneath Belt Motor Driven South Bend Lathes															
9 1/4	2 1/2	9 3/8	3/4	6 3/8	3/4	180-X	670	\$ 389.00	\$ 404.00	\$397.00	130-X	660	\$ 344.00	\$ 359.00	\$352.00
9 3/4	3	16 3/8	3/4	6 3/8	3/4	180-Y	690	398.00	413.00	406.00	130-Y	680	353.00	368.00	361.00
9 3/4	3 1/2	21 3/8	3/4	6 3/8	3/4	180-Z	710	404.00	419.00	412.00	130-Z	700	359.00	374.00	367.00
9 3/4	4	27 3/8	3/4	6 3/8	3/4	180-A	730	411.00	426.00	419.00	130-A	720	366.00	381.00	374.00
9 3/4	4 1/2	34 3/8	3/4	6 3/8	3/4	180-R	750	419.00	434.00	427.00	130-R	740	374.00	389.00	382.00
11-inch Series "O" Underneath Belt Motor Driven South Bend Lathes															
11 1/4	3	12	7/8	7 3/8	1/2	184-Y	870	\$ 484.00	\$ 512.00	\$495.00	133-Y	855	\$ 434.00	\$ 462.00	\$445.00
11 1/4	3 1/2	18	7/8	7 3/8	1/2	184-Z	895	491.00	519.00	502.00	133-Z	880	441.00	469.00	452.00
11 1/4	4	24	7/8	7 3/8	1/2	184-A	920	498.00	526.00	509.00	133-A	905	448.00	476.00	459.00
11 1/4	5	30	7/8	7 3/8	1/2	184-B	1035	514.00	542.00	525.00	133-B	1020	464.00	492.00	475.00
11 1/4	5 1/2	42	7/8	7 3/8	1/2	184-S	1060	523.00	551.00	534.00	133-S	1045	473.00	501.00	484.00
13-inch Series "O" Underneath Belt Motor Driven South Bend Lathes															
13 1/4	4	16	1	9	3/4	186-A	1460	\$ 587.00	\$ 630.00	\$598.00	135-A	1440	\$ 527.00	\$ 570.00	\$538.00
13 1/4	5	28	1	9	3/4	186-B	1510	602.00	645.00	613.00	135-B	1490	542.00	585.00	553.00
13 1/4	6	40	1	9	3/4	186-C	1560	617.00	660.00	628.00	135-C	1540	557.00	600.00	568.00
13 1/4	7	52	1	9	3/4	186-D	1610	634.00	677.00	645.00	135-D	1590	574.00	617.00	585.00
13 1/4	8	64	1	9	3/4	186-E	1685	653.00	696.00	664.00	135-E	1665	593.00	636.00	604.00
15-inch Series "O" Underneath Belt Motor Driven South Bend Lathes															
15 1/4	5	24 1/2	1 1/8	10 3/8	1	188-B	1925	\$ 702.00	\$ 731.00	\$780.00	139-B	1900	\$ 627.00	\$ 656.00	\$705.00
15 1/4	6	36 1/2	1 1/8	10 3/8	1	188-C	2025	720.00	749.00	798.00	139-C	2000	645.00	674.00	723.00
15 1/4	7	48 1/2	1 1/8	10 3/8	1	188-D	2075	738.00	767.00	816.00	139-D	2050	663.00	692.00	741.00
15 1/4	8	60 1/2	1 1/8	10 3/8	1	188-E	2150	758.00	787.00	836.00	139-E	2125	683.00	712.00	761.00
15 1/4	10	84 1/2	1 1/8	10 3/8	1	188-G	2300	802.00	831.00	880.00	139-G	2275	727.00	756.00	805.00
16-inch Series "O" Underneath Belt Motor Driven South Bend Lathes															
16 1/4	6	34	1 3/8	11 3/8	1	192-C	2310	\$ 777.00	\$ 806.00	\$855.00	141-C	2275	\$ 697.00	\$ 726.00	\$775.00
16 1/4	7	46	1 3/8	11 3/8	1	192-D	2390	797.00	826.00	875.00	141-D	2355	717.00	746.00	795.00
16 1/4	8	58	1 3/8	11 3/8	1	192-E	2470	817.00	846.00	895.00	141-E	2435	737.00	766.00	815.00
16 1/4	10	82	1 3/8	11 3/8	1	192-G	2630	861.00	890.00	939.00	141-G	2595	781.00	810.00	859.00
16 1/4	12	106	1 3/8	11 3/8	1	192-H	2800	924.00	953.00	1002.00	141-H	2855	844.00	873.00	922.00
18-inch Series "O" Underneath Belt Motor Driven South Bend Lathes															
18 1/4	6	29 1/2	1 7/8	12 3/8	2	194-C	3040	\$ 947.00	\$ 999.00	1044.00	143-C	3000	\$ 857.00	\$ 909.00	\$954.00
18 1/4	7	41 1/2	1 7/8	12 3/8	2	194-D	3140	972.00	1024.00	1069.00	143-D	3100	882.00	934.00	979.00
18 1/4	8	53 1/2	1 7/8	12 3/8	2	194-E	3240	997.00	1049.00	1094.00	143-E	3200	907.00	959.00	1004.00
18 1/4	10	77 1/2	1 7/8	12 3/8	2	194-G	3440	1051.00	1103.00	1148.00	143-G	3400	961.00	1013.00	1058.00
18 1/4	12	101 1/2	1 7/8	12 3/8	2	194-H	3740	1129.00	1181.00	1226.00	143-H	3700	1039.00	1091.00	1136.00
18 1/4	14	125 1/2	1 7/8	12 3/8	2	194-K	4140	1191.00	1243.00	1288.00	143-K	4100	1101.00	1153.00	1198.00

Lathes with 12 foot and 14 foot bed are equipped with center legs which are included in price of lathe.

Information on Ordering Lathes

When Ordering a Series "O" Underneath Belt Motor Driven South Bend Lathe give the following information regarding electric current to be used so that the proper style and type of reversing motor can be fitted to the lathe.

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

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

—If Direct Current state exact voltage only.

When Giving Voltage state whether 110 volt motor or 220 volt motor is wanted. Do not specify 110-220 volt motor as we cannot furnish motors for double voltage rating.

Pressed Steel Oil Pan

Series "O" Underneath Belt Motor Driven Lathes can be supplied with oil pan if desired. Oil pans furnished are of heavy one piece steel construction. Prices below are for oil pan fitted to lathe as shown on page 2.

Size of Lathe	Cat. No.	LENGTH OF LATHE BED								
		3'	3 1/2'	4'	4 1/2'	5'	5 1/2'	6'	7'	8'
9 in.	134	\$14.00	\$15.00	\$16.00	\$17.00					
11 in.	135	17.00	18.00	19.00		\$21.00	\$22.00			
13 in.	136			24.00		27.00		\$30.00	\$33.00	\$36.00
15 in.	137					30.00		34.00	38.00	42.00
16 in.	138							35.00	40.00	45.00
18 in.	139							37.00	42.00	47.00
Code Words		Bonmy	Bonok	Bonul	Bopah	Bonga	Bopik	Boplo	Bopny	Bopol

South Bend Lathe Works

406 East Madison St.

South Bend, Ind., U. S. A.