

16-in. x 6-ft. Series "N" South Bend Quick Change Gear Lathe and Equipment—Countershaft Drive

## Series "N" South Bend Precision Lathes Overhead Countershaft Drive and Silent Chain Motor Drive Types

For Prices and Specifications See Tabulation on Page 8

The Series "N" South Bend Back-Geared, Screw Cutting Lathe has Hardened Steel Headstock Spindle; Double Wall Apron with steel gears running in oil; Multiple Disc Friction Clutch in Apron; Cast Iron Bed containing 50% steel, and other important features. See pages 6 and 7. Power, rigidity and accuracy make this an excellent lathe for manufacturing and production work. We also recommend this lathe for the tool room as it has the accuracy and precision for making the finest types of tools, gauges, fixtures, etc.

**Convenience and Ease of Operation** are assured by the simple, practical design of the lathe. Few controls well placed, micrometer dials of unquestionable accuracy, quick acting spring latch reverse for threads and feeds, wrenchless bull gear lock, graduated tailstock spindle, large hand wheels, direct reading index chart on quick change gear box for screw threads and feeds, positive automatic safety feed interlock and other improvements reduce the possibility of mistakes, save time and effort.

**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 our special Attachment Bulletin No. 77, which will be mailed on request.

### Features of Series "N" South Bend Precision Lathes

- Hardened steel headstock spindle.
- Bronze or cast iron bearings for spindle.
- Felt pad wick oilers for spindle bearings.
- Double wall apron—all steel gears.
- Apron gears run in oil.
- Automatic cross feed—automatic longitudinal feed.
- Multiple disc friction clutch.
- Lathe bed 50% steel.
- Felt pad wipers to oil and clean "V" ways.

The Regular Lathe Equipment included with each Countershaft Driven Series "N" South Bend Lathe, standard or quick change gear type, consists of: double friction countershaft; 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; book "How to Run a Lathe" and a set of change gears with standard Change Gear lathes.

The Double Friction Countershaft supplied with Series "N" Countershaft Drive Lathes is simple, practical and powerful. It may be arranged as a two speed countershaft by using a pulley of large diameter on the lineshaft in place of the pulley regularly used for reversing. This arrangement gives eight additional higher speeds to the spindle, on 13", 15", 16" and 18" lathes, for machining brass, bronze, aluminum, wood, etc., while 9" and 11" lathes have six additional speeds.

**For Features and Specifications** of Series "N" Lathes, all sizes and types, see pages 2, 6 and 7. Specifications are the same for both Standard and Quick Change Gear Lathes.

**Metric Screw Threads** in the following pitches: .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 can be cut on the Series "N" Lathe when equipped with Metric Transposing Gear Attachment. Information and prices on request.

- Precision lead screw for cutting screw threads.
- Spindle thrust collar hardened and ground.
- Spring latch reverse for feeds and threads.
- Graduated compound rest, swivels to any angle.
- Tailstock has set-over for taper turning.
- Graduated collar on cross feed and compound rest screw.
- Graduated tailstock spindle.
- Automatic safety feed interlock in apron.
- Quick acting bull gear lock.



# Features and Specifications of Series "N" South Bend Lathes

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

For Prices Refer to Tabulation on Page 8

The Series "N" South Bend Back-Geared, Screw Cutting Precision Lathes in Overhead Countershaft Drive and Silent Chain Motor Drive types are illustrated, described and priced in this bulletin. New features of these lathes include: Hardened Steel Headstock Spindle; Double Wall Apron with steel gears running in oil; Multiple Disc Friction Clutch in Apron; Cast Iron Lathe Bed containing 50% steel, etc. These features are illustrated and described on pages 6 and 7 and apply to all lathes shown in this bulletin.

We recommend the Series "N" South Bend Lathe for production in the manufacturing plant and for the highest grade of tool room work in the modern tool room. The lathes can be fitted with 24 different attachments which are so necessary in modern production and tool room work.

The Double Wall Apron has steel gears running in oil and is equipped with a multiple disc friction clutch. For complete description and illustrations see page 6.

The Headstock Spindle is hardened and ground and has improved spindle bearings of either bronze or cast iron whichever purchaser desires. For illustration and description see page 7.

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 Headstock is braced and webbed to insure rigidity and permanent alignment of the spindle bearings. It is bolted direct to the lathe bed so that slipping is impossible. Back gears are enclosed in improved, close fitting guards.

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 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 7.

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 11½ pipe thread as follows: 2, 2¼, 2½, 2¾, 2⅞, 3, 3¼, 3½, 4, 4½, 5, 5½, 5¾, 6, 6½, 7, 8, 9, 10, 11, 11½, 12, 13, 14, 16, 18, 20, 22, 23, 24, 26, 28, 32, 36, 40, 44, 46, 48, 52, 56, 64, 72, 80, 88, 92, 96, 104 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 11½ pipe thread, as follows: 4, 5, 6, 7, 8, 9, 10, 11, 11½, 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.

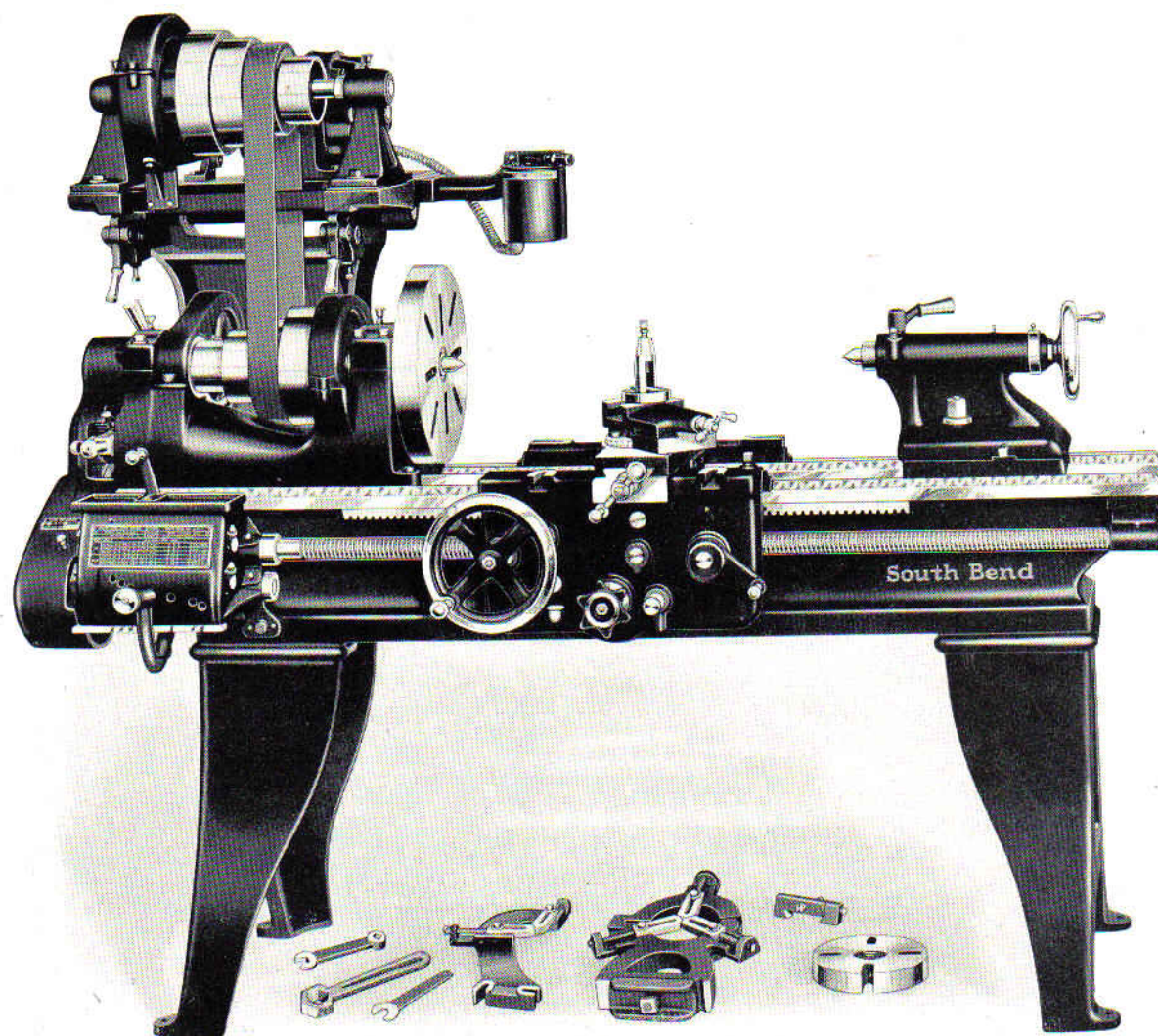
Accuracy Tests are made often during the process of manufacture of the different parts and before being assembled sixty-four different tests are made. After being assembled the lathe undergoes a series of final inspection tests under its own power. A record card showing the results of these tests is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

These Specifications Apply to the Lathes Illustrated and Listed on Pages 1, 3, 4, 5 and 8.

Size of Lathe	9-Inch	11-Inch	13-Inch	15-Inch	16-Inch	18-Inch
Swing over bed	9¼ in.	11¼ in.	13¼ in.	15¼ in.	16¼ in.	18¼ in.
Swing over carriage	6¾ in.	7¾ in.	9 in.	10½ in.	11½ in.	12½ in.
Height of centers from floor	41 in.	41 in.	41½ in.	41½ in.	42 in.	42 in.
Hole through spindle	¾ in.	¾ in.	1 in.	1 in.	1 in.	1 in.
Countershaft Speed, R. P. M.	255	255	250	225	225	167
Spindle speed range R. P. M.	39-596	34-482	23-605	20-579	18-598	16-383
Width of cone pulley belt	1½ in.	1½ in.	1½ in.	2 in.	2 in.	2 in.
Spindle nose diameter and thread	1½ in. 8	1½ in. 8	1½ in. 8	2¼ in. 6	2¾ in. 6	2¾ in. 6
Lathe centers Morse taper No.	2	2	3	3	3	3
Collet capacity maximum	½ in.	¾ in.	¾ in.	¾ in.	¾ in.	1 in.
Lead screw Acme thread	¾ in. diam. 8 threads	¾ in. diam. 8 threads	1 in. diam. 6 threads	1½ in. diam. 6 threads	1½ in. diam. 6 threads	1½ in. diam. 4 threads
Angular travel compound rest top	1½ in.	2 in.	3 in.	3 in.	3 in.	4 in.
Tool cross slide travel	7½ in.	8½ in.	9 in.	10 in.	10 in.	14 in.
Travel of tailstock spindle	2¼ in.	3 in.	4 in.	5 in.	6 in.	7 in.
Size of motor used	1 H.P.	1 H.P.	1 H.P.	1 H.P.	1 H.P.	2 H.P.
Size of lathe tool shank	1½ x 1½ in.	1½ x 1½ in.	1½ x 1½ in.	1½ x 1½ in.	1½ x 1½ in.	1½ x 1½ in.
Size of turning tool cutter bits	¾ in. sq.	¾ in. sq.	¾ in. sq.	¾ in. sq.	¾ in. sq.	¾ in. sq.

For weights of lathes see tabulation on page 8.





16-in. x 6-ft. Silent Chain Motor Driven Lathe and Equipment

## Series "N" South Bend Silent Chain Motor Driven Lathes

Made in 9", 11", 13", 15", 16" and 18" Swing—For Prices See Page 8.

The Series "N" Silent Chain Motor Driven Lathe is practical for the manufacturing plant, tool room and general machine shop. This lathe is a complete unit requiring no extra driving equipment of any kind. It occupies only the same amount of floor space as the regular countershaft driven lathe and is ready to operate as soon as it is connected to the electric current.

The Silent Chain Motor Driven Lathe is supplied in either quick change or standard change gear type. The same features and description which apply to the countershaft driven lathe shown on page 1 also apply to each size Silent Chain Motor Driven Lathe. See pages 5, 6 and 7.

Electrical Equipment included in the price of each size Series "N" Silent Chain Motor Driven Lathe, both Quick Change Gear and Standard Change Gear types, consists of: 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 and leather belt.

The Regular Lathe Equipment included in price of each size Series "N" Silent Chain Motor Driven Lathe consists of: large face plate; small face plate; tool post complete; adjustable thread cutting stop; two lathe centers and spindle sleeve; center rest; follower rest; wrenches; (Change gears, with Standard Change Gear Lathes) installation plans, and book "How to Run a Lathe."

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

The Reversing Motor is mounted above the lathe on the tilting table and balanced, where it is free from dirt and chips. A flexible metal conduit encases wiring from motor to switch. The silent chain drive which connects the motor with the upper cone is provided with a felt wick oiler and is entirely enclosed by an improved gear guard.

The Reversing Switch (drum type) is conveniently located and provides for starting, stopping and reversing the lathe spindle.

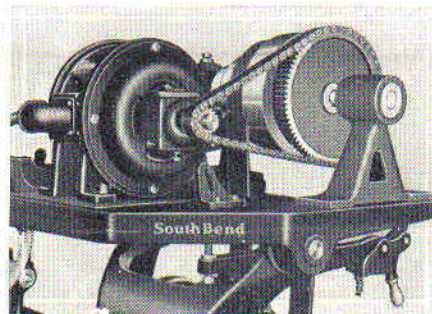
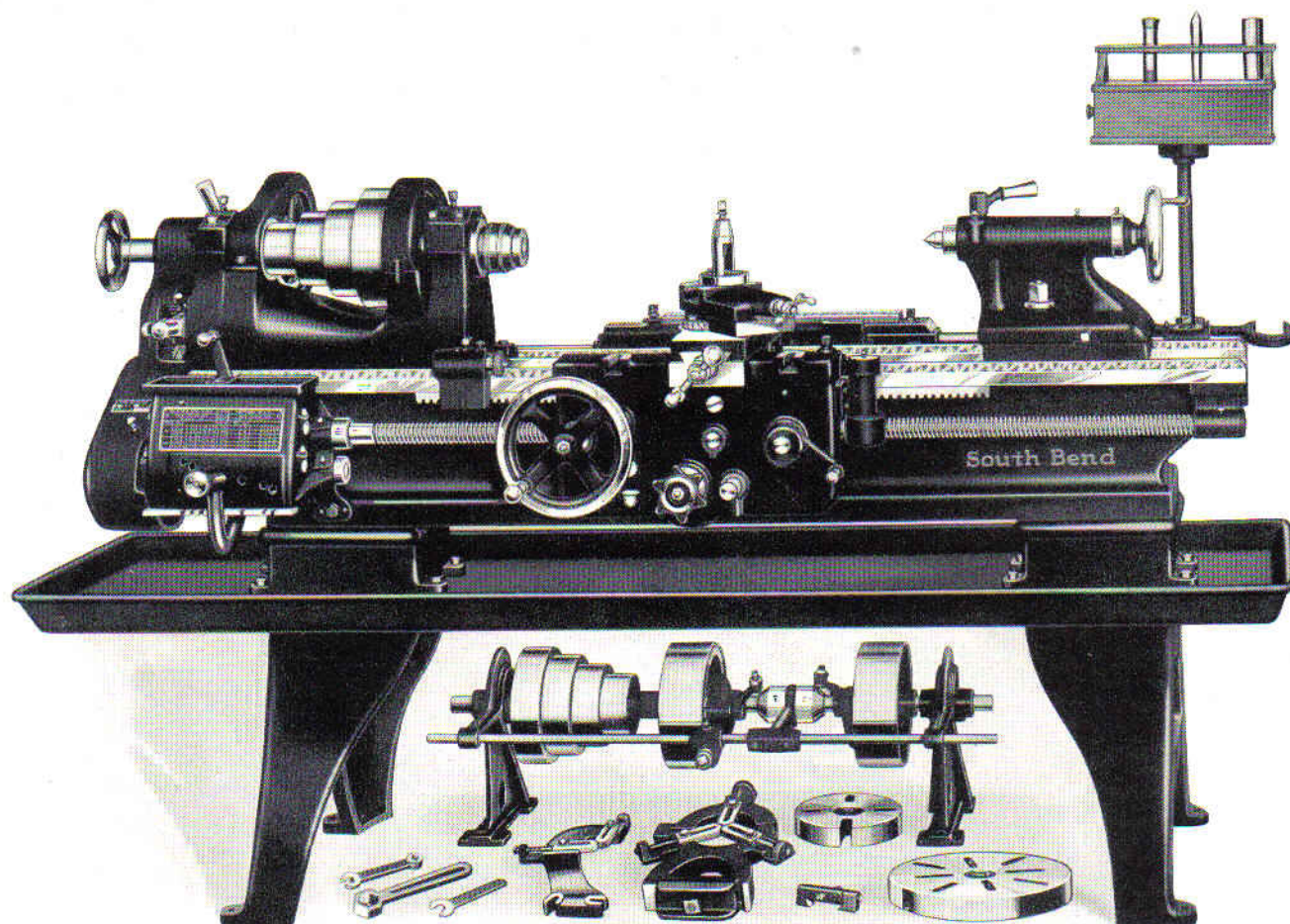


Fig. 1. Motor Drive Unit with guards removed to show drive mechanism.





16-in. x 6-ft. Tool Room Lathe and Attachments

## Series "N" South Bend Tool Room Precision Lathes Overhead Countershaft Drive

The Series "N" Tool Room Precision Lathe is recommended for fine tool room work. It is capable of turning out the most accurate work with definite precision and has the power for taking heavy cuts when necessary. Precision limit gauges, dies, master thread gauges, special taps and screws can be economically produced to the most exacting specifications.

The Precision Lead Screw used on the Series "N" Tool Room Lathe is guaranteed for accuracy of lead, form of thread, and pitch diameter, and will meet the most exacting requirements in precision thread cutting.

For Specifications, Features and detailed description applying to the Tool Room Lathe illustrated above see pages 2, 6 and 7. The major units of this lathe are identical with those of the lathe illustrated and described on page 1. The Tool Room Lathe differs only in that it is fitted with special attachments for tool room work.

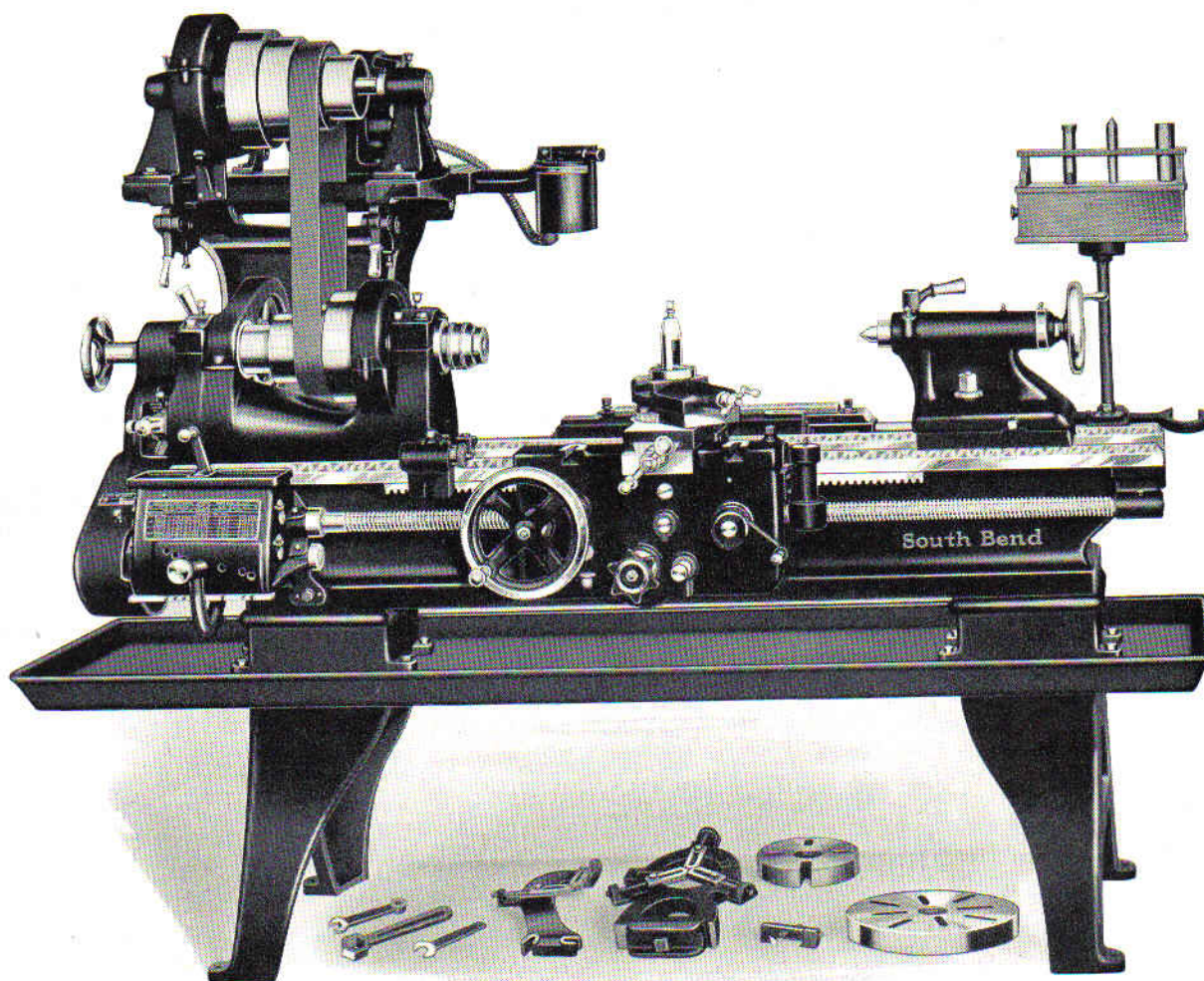
**Tool Room Attachments.** Each attachment for tool room work is listed and priced separately in the tabulation below so that the customer may select only those required for his work. A complete line of attachments including draw-in collet chuck attachment, spring collets, collet cabinet, taper attachment, thread indicator, micrometer carriage stop, relieving attachment, jig boring attachment, oil pan, cabinet legs, etc., are illustrated and described in our special Attachment Bulletin No. 77 which will be mailed postpaid on request.

**Regular Lathe Equipment** included in the price of each size Series "N" Countershaft Driven Tool Room Lathe is shown in the illustration above and consists of: double friction countershaft; large face plate; small face plate; tool post complete; adjustable thread cutting stop; two lathe centers and spindle sleeve; center rest; follower rest; wrenches; installation plans, and instruction book, "How to Run a Lathe."

### Net Factory Prices Series "N" South Bend Tool Room Precision Lathes—Countershaft Drive Each Tool Room Attachment is Priced Individually so that Customer May Select Only Those Required

Series "N" Tool Room Quick Change Gear Precision Lathe, Countershaft Drive, with Regular Lathe Equipment, but without Tool Room Attachments...	Cat. No. 864-A 11" x 4'		Cat. No. 866-B 13" x 5'		Cat. No. 868-C 15" x 6'		Cat. No. 872-C 16" x 6'	
	Code Word	Price	Code Word	Price	Code Word	Price	Code Word	Price
<b>TOOL ROOM ATTACHMENTS</b>								
Hand Wheel Draw-in Collet Chuck with One Collet, Any Size...	Abode	33.00	About	37.00	Above	42.00	Adore	48.00
One Extra Collet Any Size up to Capacity of Lathe...	Cello	3.50	Chose	4.00	Civit	4.25	Clear	4.75
Taper Attachment...	Devor	60.00	Digit	75.00	Doted	80.00	Dress	90.00
Thread Indicator...	Aeres	8.00	Advis	10.00	Aesop	10.00	Aflot	12.00
Oil Pan...	Odium	27.00	Ohern	38.00	Okres	49.00	Okres	50.00
Micrometer Carriage Stop...	Ceded	12.00	Chain	13.00	Cigar	14.00	Climb	15.00
Collet Cabinet and Bracket...	Crome	12.00	Cnoke	12.00	Cnarl	15.00	Cadro	15.00
<b>Total Prices of Tool Room Lathe, Countershaft Drive, Complete with Tool Room Attachments as Listed Above</b>	Cevof	\$525.50	Bolig	\$632.00	Cezif	\$749.25	Bobiv	\$832.75





16-in x 6-ft. Silent Chain Motor Driven Tool Room Lathe and Equipment

## Series "N" South Bend Tool Room Precision Lathes

### Silent Chain Motor Drive

The Series "N" Silent Chain Motor Driven Tool Room Lathe shown above is the same as the lathe illustrated and described on page 1 except that it has Silent Chain Motor Drive instead of Overhead Countershaft Drive. This lathe is recommended for the finest of tool, jig and fixture work in the modern tool room where precision accuracy is required. For specifications and features see pages 2, 6 and 7.

**Tool Room Attachments** are listed and priced separately so that the customer may select only those required for his work. Draw-in collet chuck attachment, spring collets, collet cabinet, taper attachment, thread indicator, micrometer carriage stop, relieving attachment, jig boring attachment, oil pan, cabinet legs, etc., are illustrated and described in our special Attachment Bulletin No. 77 which will be mailed postpaid on request.

**Electrical Equipment** included in the price of each size Series "N" Silent Chain Motor Driven Tool Room Lathe consists of: Reversing motor, 1200 R.P.M. (Westinghouse, General Electric or equal make); reversing switch (drum type); wiring between motor and switch; flexible metal conduit; wiring diagram and leather belt. For illustration and description of the Silent Chain Motor Drive Unit see page 3. When ordering lathe be sure to give information on electric current specifications as shown on page 8.

**Regular Lathe Equipment** included in the price of each size Series "N" Silent Chain Motor Driven Tool Room Lathe consists of: large face plate; small face plate; tool post complete; adjustable thread cutting stop; two lathe centers and spindle sleeve; center rest; follower rest; wrenches; installation plans and instruction book, "How to Run a Lathe."

#### Net Factory Prices Series "N" South Bend Silent Chain 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 Leather Belt

Series "N" Silent Chain Motor Driven Tool Room Quick Change Gear Precision Lathe with 3-Phase, 60-Cycle A. C. Reversing Motor, 1200 R. P. M., Reversing Switch (Drum Type), Electrical Equipment and Regular Lathe Equipment but without Tool Room Attachments...	Cat. No. 3864-A 11" x 4'		Cat. No. 3866-B 13" x 5'		Cat. No. 3868-C 15" x 6'		Cat. No. 3872-C 16" x 6'	
	Code Word	Price	Code Word	Price	Code Word	Price	Code Word	Price
	Bubib	\$ 459.00	Boeve	\$ 569.00	Budec	\$ 669.00	Boald	\$ 734.00
<b>TOOL ROOM ATTACHMENTS</b>								
Hand Wheel Draw-in Collet Chuck with One Collet, Any Size	Abode	33.00	About	37.00	Above	42.00	Adore	48.00
One Extra Collet Any Size up to Capacity of Lathe	Cello	3.50	Chose	4.00	Civit	4.25	Clear	4.75
Taper Attachment	Devor	60.00	Digit	75.00	Doted	80.00	Dress	90.00
Thread Indicator	Acres	8.00	Advis	10.00	Aesop	10.00	Aflot	12.00
Oil Pan	Odium	27.00	Ohern	38.00	Okres	49.00	Okres	50.00
Micrometer Carriage Stop	Ceded	12.00	Chain	13.00	Cigar	14.00	Climb	15.00
Collet Cabinet and Bracket	Crone	12.00	Choke	12.00	Charl	15.00	Cadro	15.00
<b>Total Prices of Silent Chain Motor Driven Tool Room Lathe, Complete with Tool Room Attachments as Listed Above</b>	Cidal	\$614.50	Cifam	\$758.00	Cigep	\$883.25	Bonhe	\$968.75

Pg. 5 Bull. No. 200-10-20-33



# Features of the New Double Wall Apron

Used on All Sizes and Types of Series "N" South Bend Lathes

The new South Bend Apron is correctly designed for strength and durability. The double wall construction of the apron assures permanent rigidity and provides a substantial support for both ends of the gear shafts. The gears are of steel and run in oil.

## Convenient and Easy to Operate

A single clutch knob operates the automatic cross feed and the automatic longitudinal feed. Change of the automatic feeds is obtained by means of a sliding gear transmission. The gear shift knob has two positions, "In" for longitudinal feed and "Out" for cross feed.

## Automatic Feeds Same Ratio

The automatic cross feed and automatic longitudinal feed are both the same ratio making feed gear changes unnecessary when changing from one feed to the other. The thread cutting index chart may be used with the automatic cross feed for accurate scroll cutting as the feeds are exactly four times as fine as the threads.

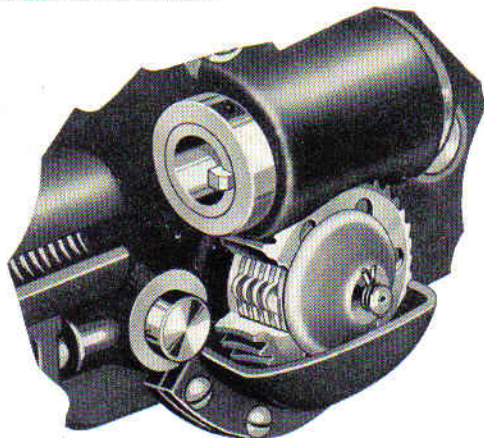


Fig. 3. Close-up showing construction of the multiple disc clutch and worm drive for automatic feeds. A part of the worm gear has been cut away to show the discs.

## Multiple Disc Clutch for Automatic Feeds

The new South Bend Multiple Disc Clutch shown in Figure 3 is powerful and efficient. A slight turn of the clutch knob will engage or disengage the automatic feeds. The clutch will not slip under the heaviest cuts and can be released instantly. The clutch discs are made of steel and run in oil. Alternate discs are keyed to the clutch shaft and worm wheel respectively.

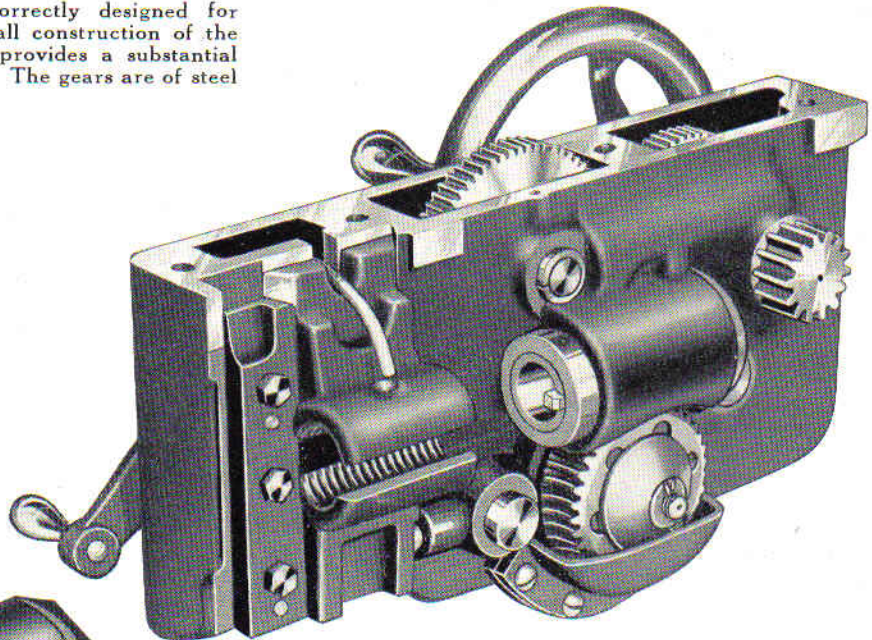


Fig. 2. Back view of new double wall apron.

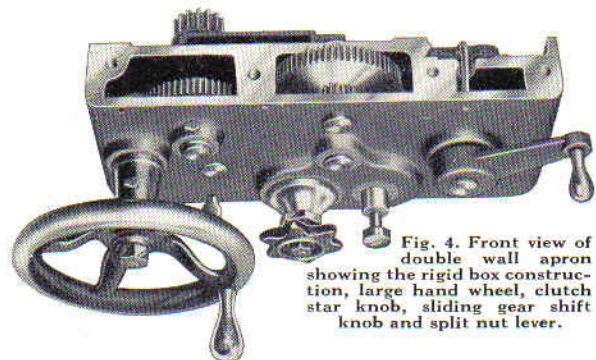


Fig. 4. Front view of double wall apron showing the rigid box construction, large hand wheel, clutch star knob, sliding gear shift knob and split nut lever.

## Automatic Safety Interlock

An Automatic Safety Interlock in the Apron prevents the Automatic Longitudinal Feed from being placed in action while the split nut is clamped on the lead screw for cutting screw threads. Vice versa, it prevents the split nut from being clamped on the lead screw while the Automatic Longitudinal Feed is in action. When one feed is engaged the other is locked.

## ANNOUNCEMENT

We are now manufacturing two Series of South Bend Lathes:

### 1—Series "N" Lathes

The Series "N" South Bend Lathes 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 this bulletin and in Bulletin No. 200, a copy of which will be mailed postpaid on request.

### 2—Series "O" Lathes

The Series "O" South Bend Lathes which are lower in price, are built in Overhead Countershaft Drive, Silent Chain Motor Drive and Underneath Belt Motor Drive types all of which are equipped with single wall apron. The Series "O" line of South Bend 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.



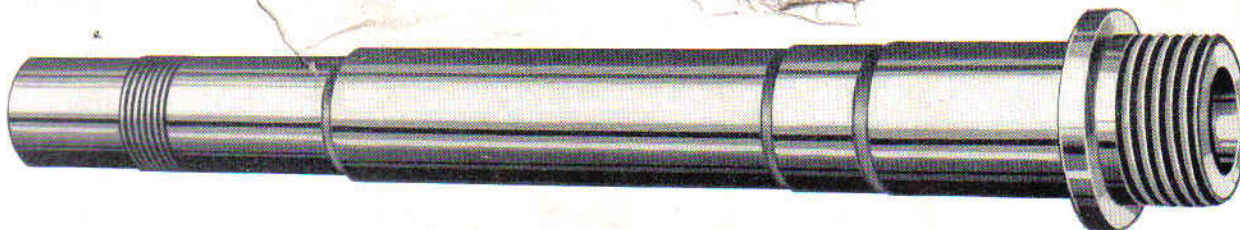


Fig. 5. The illustration above shows the Headstock Spindle of the 13-inch Lathe.

## Hardened Alloy Steel Headstock Spindle

**Hardened Spindle** is used on all Series "N" South Bend lathes. Spindle is made of a high quality spindle steel of high carbon content and alloyed with Chromium, Nickel, Molybdenum and Tungsten. The spindle is turned to size, heat treated, carbonized, hardened and drawn for maximum strength and durability. It is then finished ground to size all over. The scleroscope hardness is from 80 to 90.

**Ground Taper Hole.**—The taper hole at the threaded end of the headstock spindle is also hardened and finished by grinding in a special machine with the spindle running on its own journals to assure perfect alignment.

**Threaded Spindle Nose.**—The threads on the spindle nose are cut to master precision thread gauges and are uniform in size so that chucks or face plates may be fitted accurately. The shoulder back of the threads is hardened and ground 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. An adjustable spindle take-up nut and fibre washer are provided for eliminating end play in the spindle.

## Bearings for Spindle (Bronze or Cast Iron Optional)

Bearings for the headstock spindle can be had in either phosphor bronze or cast iron. The bearings are accurately fitted into the housing of the headstock then line bored and lapped to size. This is the most accurate method known and the latest shop practice in fitting bearings to spindles. Lubrication is provided by an improved felt pad oiling system.

**Bronze Bearings.**—A high quality phosphor bronze has been used in the bearings of South Bend Lathes for many years. Adjustment is provided in these bearings for taking up the wear as may be needed. Laminated shims are used.

**Cast Iron and Steel Alloy Bearings** are excellent for a hardened and ground lathe spindle. There is very little wear on these bearings and being porous they absorb a film of oil which perfectly lubricates the hardened spindle.

**Either Phosphor Bronze or Cast Iron Bearings are Optional.**—In the matter of choice, phosphor bronze bearings and cast iron bearings have about an equal number of advocates. We are inclined to favor cast iron bearings. However, the customer may have which ever type he desires and at no additional cost.

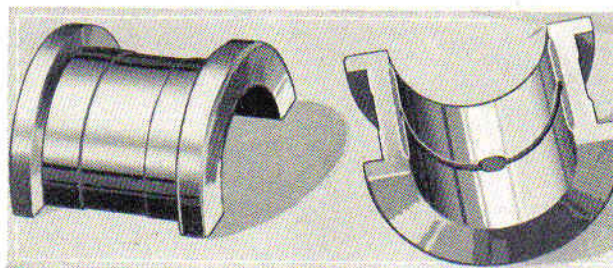


Fig. 6. Front Bearing for Headstock Spindle. Rear Bearing is similar to Front Bearing, but smaller in size and is not shown here because of lack of space.

## Quick Change Gear Box For Threads and Feeds

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 threads, including 11½ pipe thread, as follows: 2, 2½, 3, 3½, 4, 4½, 5, 5½, 6, 6½, 7, 8, 9, 10, 11, 11½, 12, 13, 14, 16, 18, 20, 22, 23, 24, 26, 28, 32, 36, 40, 44, 46, 48, 52, 56, 64, 72, 80, 88, 92, 96, 104, and 112.

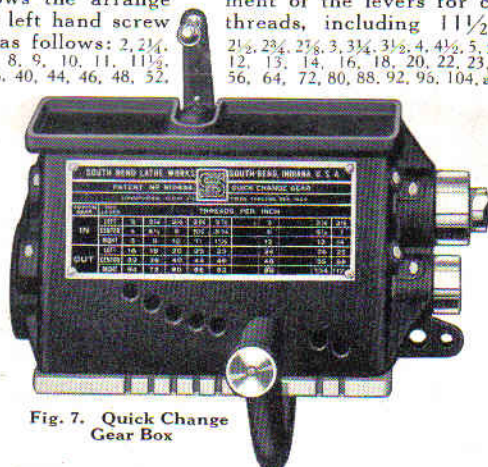


Fig. 7. Quick Change Gear Box

The Automatic Feeds Provided through the quick change gear box are exactly four times the threads per inch. 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 the longitudinal feed.

**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.

The Lead Screw used on each Series "N" Lathe is tested for accuracy of lead, form of thread and pitch diameter, and is guaranteed to be accurate and to meet the most exacting requirements in making the finest precision thread gauges, master taps, etc.

The threads of the lead screw are used only when cutting screw threads. A spline in the lead screw permits it to be used as a feed rod to drive the worm for operating the automatic cross feed and the automatic longitudinal feed. This in no way affects the accuracy of the lead screw. With the proper care the thread of the lead screw should remain accurate throughout the life of the lathe.



# Prices and Specifications of Series "N" South Bend Precision Lathes Overhead Countershaft Drive and Silent Chain Motor Drive Types

The Net Factory Prices of the Series "N" South Bend Lathes with Overhead Countershaft Drive and Silent Chain Motor Drive are shown below in Quick Change Gear and Standard Change Gear Types. These prices are net list F. O. B. South Bend, Indiana for lathes skidded and crated for domestic shipment, and include regular equipment as listed with lathes.

Prices of Series "N" South Bend Lathes—Overhead Countershaft Drive and Silent Chain Motor Drive Types

Specifications			COUNTERSHAFT DRIVE					SILENT CHAIN MOTOR DRIVEN LATHES								
			Quick Change Gear			Standard Change Gear		Weight Crated Pounds	Quick Change Gear				Standard Change Gear			
Swing Over Bed Inches	Length of Bed Feet	Between Centers Inches	Weight Crated Pounds	Catalog No. of Lathe	Net Factory Price	Catalog No. of Lathe	Net Factory Price		Catalog No. of Lathe	3-Phase 60 Cycle A.C. Motor	1-Phase 60 Cycle A.C. Motor	Direct Current Motor	Catalog No. of Lathe	3-Phase 60 Cycle A.C. Motor	1-Phase 60 Cycle A.C. Motor	Direct Current Motor
9-inch Series "N" South Bend Precision Lathes																
9 1/4	2 1/2	9 3/4	472	60-X	\$ 286.00	36-X	\$ 246.00	665	360-X	\$ 355.00	\$ 350.00	\$ 355.00	336-X	\$ 316.00	\$ 320.00	\$ 315.00
9 1/4	3	16 1/4	497	60-Y	296.00	36-Y	256.00	690	360-Y	366.00	370.00	365.00	336-Y	326.00	330.00	325.00
9 1/4	3 1/2	21 3/4	522	60-Z	306.00	36-Z	266.00	715	360-Z	376.00	380.00	375.00	336-Z	336.00	340.00	335.00
9 1/4	4	27 3/4	547	60-A	316.00	36-A	276.00	740	360-A	386.00	390.00	385.00	336-A	346.00	350.00	345.00
9 1/4	4 1/2	34 3/4	572	60-R	326.00	36-R	286.00	765	360-R	396.00	400.00	395.00	336-R	356.00	360.00	355.00
11-inch Series "N" South Bend Precision Lathes																
11 1/4	3	12	680	64-Y	346.00	38-Y	306.00	875	364-Y	435.00	439.00	443.00	338-Y	395.00	399.00	403.00
11 1/4	3 1/2	18	710	64-Z	358.00	38-Z	318.00	905	364-Z	447.00	451.00	455.00	338-Z	407.00	411.00	415.00
11 1/4	4	24	740	64-A	370.00	38-A	330.00	935	364-A	459.00	463.00	467.00	338-A	419.00	423.00	427.00
11 1/4	5	30	810	64-B	382.00	38-B	342.00	1005	364-B	471.00	475.00	479.00	338-B	431.00	435.00	439.00
11 1/4	5 1/2	42	845	64-S	394.00	38-S	354.00	1040	364-S	483.00	487.00	491.00	338-S	443.00	447.00	451.00
13-inch Series "N" South Bend Precision Lathes																
13 1/4	4	16	1075	66-A	\$ 428.00	46-A	\$ 378.00	1475	366-A	\$ 554.00	\$ 558.00	\$ 564.00	346-A	\$ 504.00	\$ 508.00	\$ 514.00
13 1/4	5	28	1125	66-B	443.00	46-B	393.00	1525	366-B	569.00	573.00	579.00	346-B	519.00	523.00	529.00
13 1/4	6	40	1175	66-C	458.00	46-C	408.00	1575	366-C	584.00	588.00	594.00	346-C	534.00	538.00	544.00
13 1/4	7	52	1230	66-D	475.00	46-D	425.00	1630	366-D	601.00	605.00	611.00	346-D	551.00	555.00	561.00
13 1/4	8	64	1290	66-E	494.00	46-E	444.00	1690	366-E	620.00	624.00	630.00	346-E	570.00	574.00	580.00
15-inch Series "N" South Bend Precision Lathes																
15 1/4	5	24 1/2	1500	68-B	\$ 517.00	48-B	\$ 462.00	1950	368-B	\$ 651.00	\$ 685.00	\$ 733.00	348-B	\$ 596.00	\$ 630.00	\$ 678.00
15 1/4	6	36 1/2	1575	68-C	535.00	48-C	480.00	2025	368-C	669.00	703.00	751.00	348-C	614.00	648.00	696.00
15 1/4	7	48 1/2	1650	68-D	553.00	48-D	498.00	2100	368-D	687.00	721.00	769.00	348-D	632.00	666.00	714.00
15 1/4	8	60 1/2	1730	68-E	573.00	48-E	518.00	2180	368-E	707.00	741.00	789.00	348-E	652.00	686.00	734.00
15 1/4	10	84 1/2	1895	68-G	617.00	48-G	562.00	2345	368-G	751.00	785.00	833.00	348-G	696.00	730.00	778.00
16-inch Series "N" South Bend Precision Lathes																
16 1/4	6	34	1925	72-C	\$ 598.00	50-C	\$ 538.00	2360	372-C	\$ 734.00	\$ 768.00	\$ 816.00	350-C	\$ 674.00	\$ 703.00	\$ 756.00
16 1/4	7	46	2005	72-D	618.00	50-D	558.00	2440	372-D	754.00	788.00	836.00	350-D	691.00	728.00	776.00
16 1/4	8	58	2085	72-E	638.00	50-E	578.00	2520	372-E	774.00	808.00	856.00	350-E	714.00	748.00	796.00
16 1/4	10	82	2215	72-G	682.00	50-G	622.00	2680	372-G	818.00	852.00	900.00	350-G	758.00	792.00	840.00
16 1/4	12	106	2475	72-H	745.00	50-H	685.00	2910	372-H	881.00	915.00	963.00	350-H	821.00	855.00	903.00
18-inch Series "N" South Bend Precision Lathes																
18 1/4	6	29 1/2	2500	74-C	\$ 723.00	52-C	\$ 653.00	3100	374-C	\$ 906.00	\$ 971.00	\$1005.00	352-C	\$ 836.00	\$ 901.00	\$ 935.00
18 1/4	7	41 1/2	2600	74-D	748.00	52-D	678.00	3200	374-D	931.00	996.00	1030.00	352-D	861.00	926.00	960.00
18 1/4	8	53 1/2	2700	74-E	773.00	52-E	703.00	3300	374-E	956.00	1021.00	1055.00	352-E	886.00	951.00	985.00
18 1/4	10	77 1/2	2900	74-G	827.00	52-G	757.00	3500	374-G	1010.00	1075.00	1109.00	352-G	940.00	1005.00	1039.00
18 1/4	12	101 1/2	3200	74-H	905.00	52-H	835.00	3800	374-H	1088.00	1153.00	1187.00	352-H	1018.00	1083.00	1117.00
18 1/4	14	125 1/2	3425	74-K	967.00	52-K	897.00	4025	374-K	1150.00	1215.00	1249.00	352-K	1080.00	1145.00	1179.00
Lathes with 12-foot bed and 14-foot bed are equipped with center leg which is included in price of lathe.																

Pr. 8 Bull. No. 200-10-20-33

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

Pg. 8 Bull. No. 200—10-20-33

## Information on Ordering Motor Drive Lathes

When Ordering a Series "N" Silent Chain 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.

# South Bend Lathe Works

407 East Madison St.

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

3-15-31

Page 8

Printed in U. S. A.