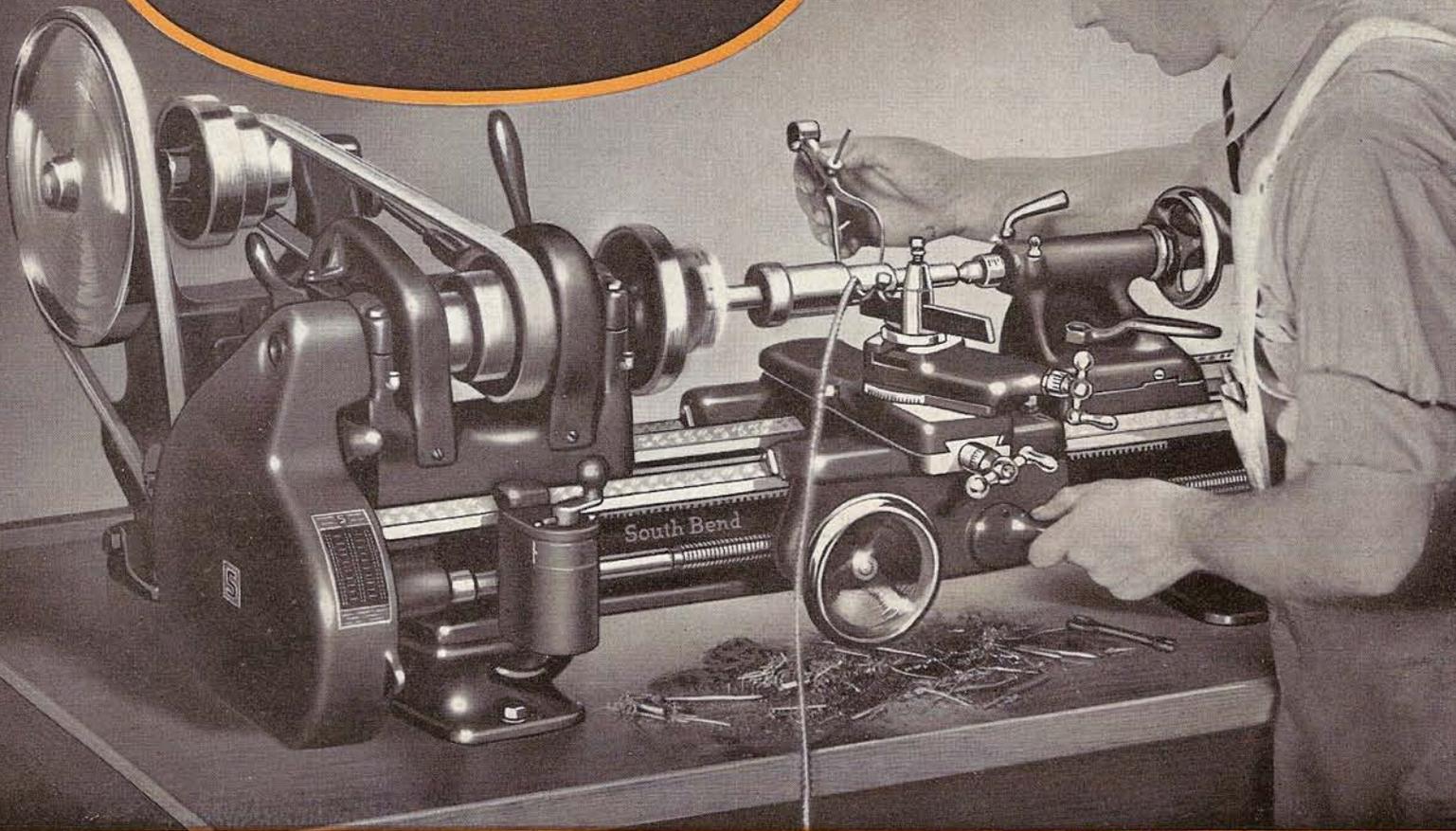


South Bend 9-inch  
**“WORKSHOP”**  
*Precision Lathes*



**TEN IMPORTANT FEATURES**

Of the New Model “Workshop” Back-Geared Screw Cutting Lathe

- Precision Accuracy
- Back-Geared Headstock
- All Steel and Iron Construction
- Hand-Scraped V-ways on Bed
- Hand-Scraped and Lapped Dovetails
- Precision Cut Gears
- Precision Graduated Micrometer Collars
- Machined and Balanced Cone Pulley
- Capillary Oiling System
- Complete Line of Attachments

**SOUTH BEND LATHE WORKS**

*Lathe Builders Since 1906*

575 Niles Avenue - - - South Bend, Indiana, U. S. A.



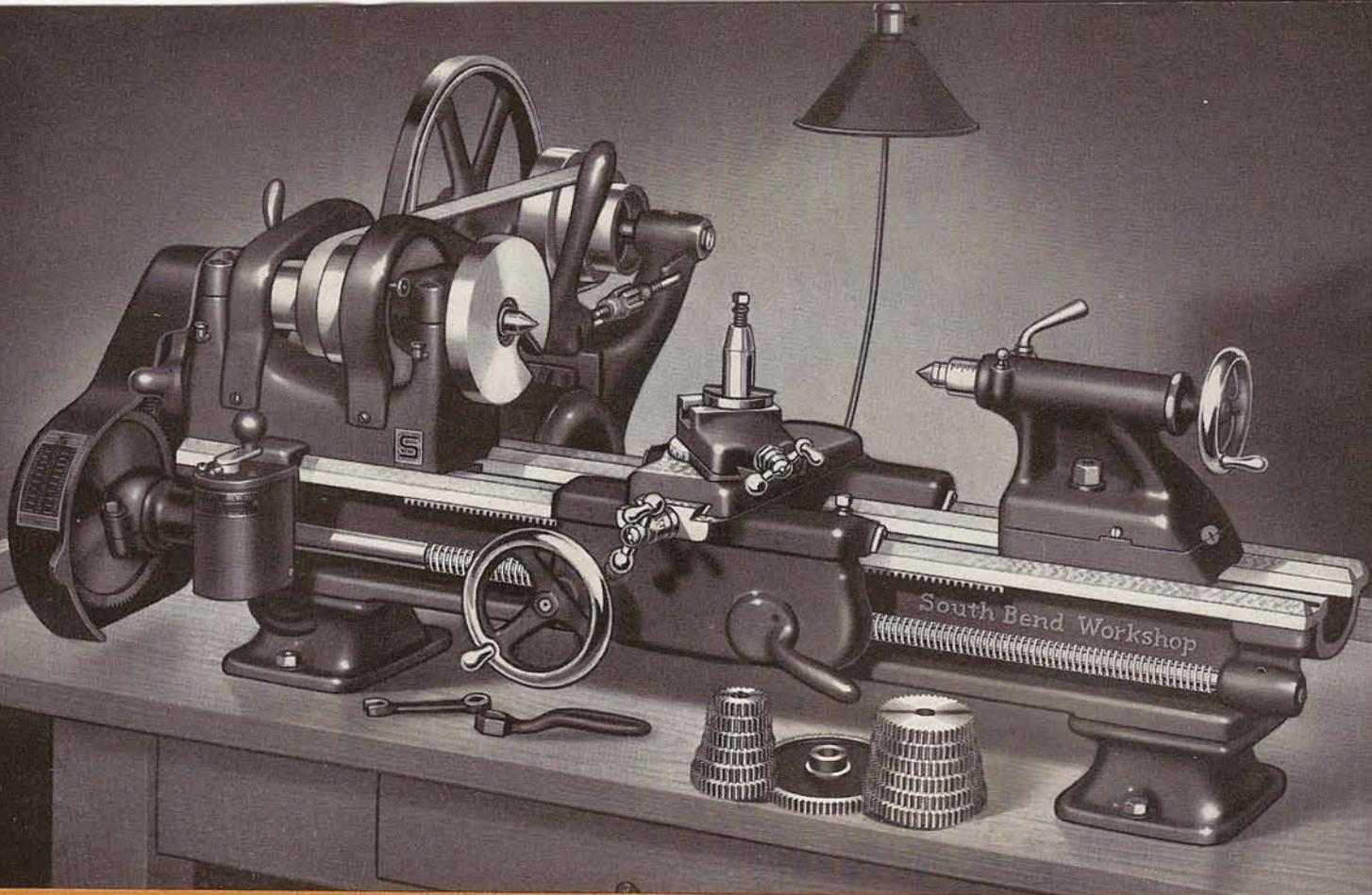


Fig. 1. Cat. No. 415-YA, 9"x3' "Workshop" Motor Driven Precision Bench Lathe, complete as shown, but less bench. (Ship. wt. crated 320 lbs.). \$117.00

## 9-inch "Workshop" Horizontal Motor Driven Precision Bench Lathe

Back-Geared—Cuts Threads 4 to 480—Power Longitudinal Feeds .002" to .015"

The New Model 9-inch "Workshop" Lathe is recommended for use in machine shops, repair shops, manufacturing plants, garages, laboratories, home workshops, and experimental shops where the finest type of back-geared, screw cutting precision lathe is required. Spindle speeds range from 40 to 630 R.P.M.

The Adjustable Horizontal Motor Drive, shown in Fig. 2, is practical, convenient and efficient. The countershaft has belt tension adjustment (A and B) for both the cone pulley belt and motor belt. A quick release (C) for cone pulley belt tension permits easy shifting of the belt for changing spindle speeds. Motor operates from electric lamp socket.

Improved Features including back-geared headstock, ball thrust bearing for spindle, new improved capillary oiling system, precision lead screw, compound rest, improved thread cutting equipment, etc., are illustrated and described on pages 9 to 17.

Regular Equipment included in price of lathe consists of: graduated compound rest; face plate 5 inches diameter; forged steel tool post; two 60-degree tool steel lathe centers, No. 2 Morse Taper; headstock spindle sleeve; wrenches; change gears for cutting screw threads 4 to 480 per inch; gears for power turning feeds .002" to .015"; installation plan and book, "How to Run a Lathe." Bench is not included. See page 24.

### Prices 9-inch "Workshop" Adjustable Horizontal Motor Driven Bench Lathe

9-inch "Workshop" South Bend Bench Lathe, with Graduated Compound Rest and Regular Lathe Equipment but without Motor Drive Equipment and less Bench. Price f.o.b. South Bend.....	Bed Length	3 ft.	3 ½ ft.	4 ft.	4 ½ ft.
	Distance Between Centers	17 in.	23 in.	29 in.	35 in.
		\$85.00	\$97.00	\$109.00	\$126.00
<b>MOTOR DRIVE EQUIPMENT</b>					
Motor Drive Equipment consists of: Adjustable Horizontal Countershaft; ¼ H.P. Start-Stop Reversing Split-Phase Motor,* 1725 R.P.M. (1 ph. 60-cy., A.C. 110 V.) 6-wire cable for connecting motor and switch; 6 ft. extension cable and plug; V-Groove Pulley for Motor; Drum Reversing Switch (Style R-12); Bracket for attaching Switch to Lathe; V-Belt, Motor to Drive Unit; Flat Leather Belt and Lacing.....		\$32.00	\$32.00	\$32.00	\$32.00
<b>Total Price, Lathe with Motor Drive Equip., Net F.O.B. . . . .</b>		<b>\$117.00</b>	<b>\$129.00</b>	<b>\$141.00</b>	<b>\$158.00</b>
Catalog Number, Lathe with Motor Drive Equipment.....	No. 415-YA	No. 415-ZA	No. 415-AA	No. 415-RA	
Code Word, Lathe with Motor Drive Equipment.....	Magla	Mahik	Manaf	Mandi	
Shipping Weight, Lathe and Motor Drive Complete	320 lbs.	345 lbs.	370 lbs.	395 lbs.	

\*Other types of motors supplied at extra cost. See page 24.  
†For omission of Motor deduct \$9.75.

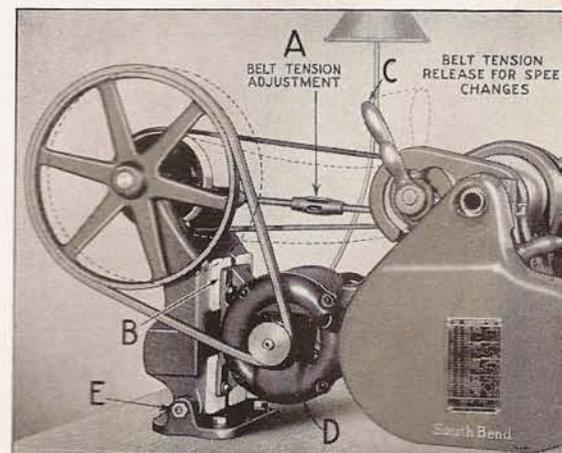


Fig. 2. End View of "Workshop" Lathe with Adjustable Horizontal Motor Drive Countershaft

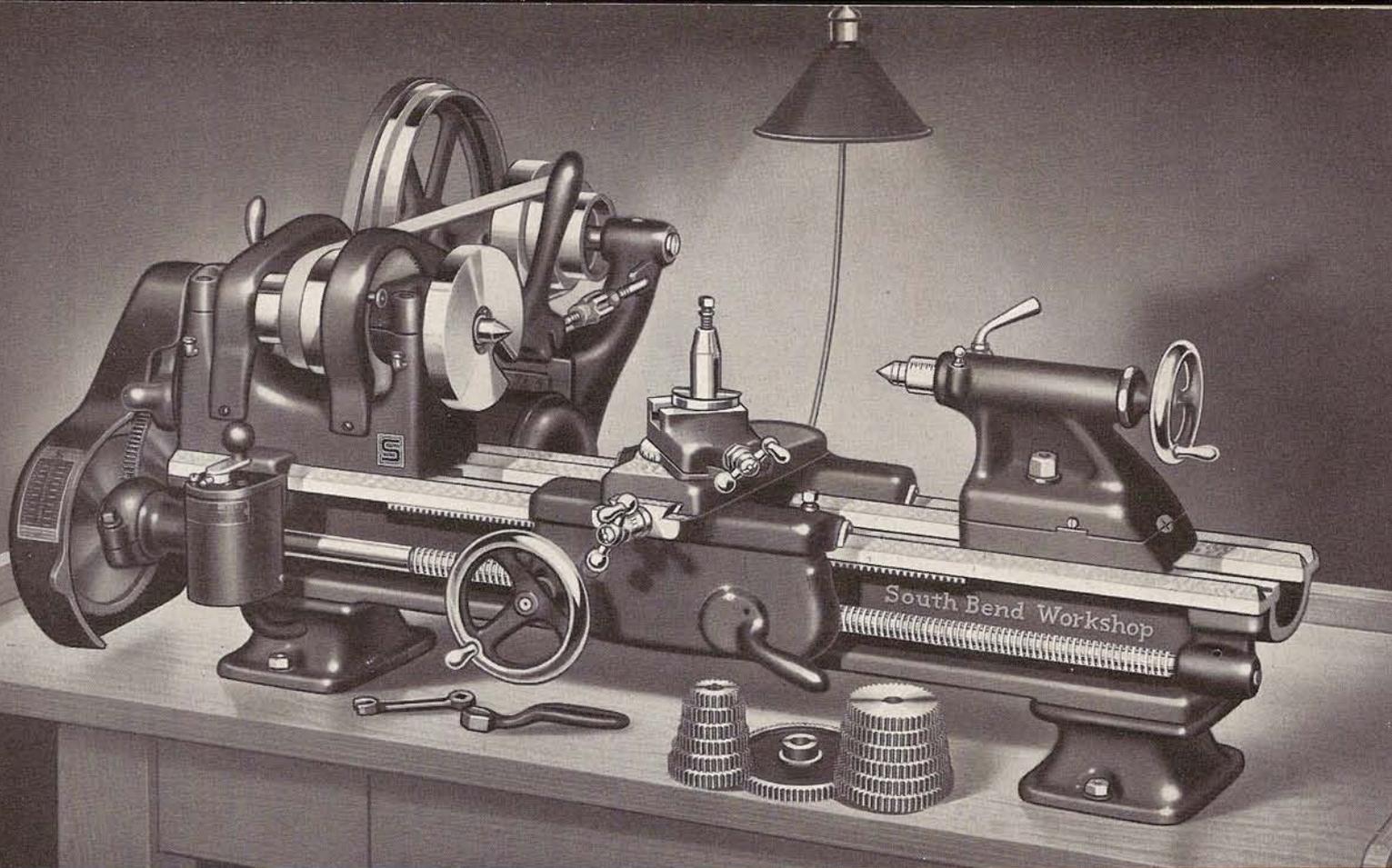


Fig. 3. Cat. No. 615-Y, 9"x3' "Workshop" Twelve-Speed Motor Driven Bench Lathe, complete as shown, but less bench. (Ship. wt. crated 335lbs.) . . \$140.00

## 9-inch "Workshop" Twelve-Speed Precision Bench Lathe

### With Two-Speed Adjustable Horizontal Motor Drive for High Spindle Speeds

Hardened Spindle—Back-Geared—Threads 4 to 480—Power Longitudinal Feeds .002" to .015"

The "Workshop" Twelve-Speed Lathe with Adjustable Motor Drive is exactly the same as the lathe shown on page 2, except that it is equipped with a hardened spindle and has a  $\frac{1}{3}$  H.P. motor and two-speed pulleys for the motor and countershaft. Twelve spindle speeds are provided ranging from 40 to 1200 R.P.M. This lathe is recommended for machining very small diameter parts of steel, cast iron, brass, aluminum, etc., also for turning and boring with diamond and tungsten-carbide tools, drilling, polishing and wood turning.

**Improved Features** of the lathe are illustrated and described on pages 9 to 17.

**Equipment included in price of lathe consists of:** Hardened head-stock spindle; adjustable horizontal motor drive; two-speed pulleys for motor and countershaft;  $\frac{1}{3}$  H.P. 1725 R.P.M. A.C., 1-phase, 110-volt, 60-cycle, capacitor type reversing motor†; 6-wire cable for connecting motor and switch; 6 ft. extension cable and plug; reversing switch; V-belt; graduated compound rest; face plate; tool post; two 60-degree centers; spindle sleeve; wrenches; change gears for cutting threads 4 to 480 per inch and for turning feeds .002" to .015"; installation plan and book, "How to Run a Lathe". Bench is not included, see page 24.

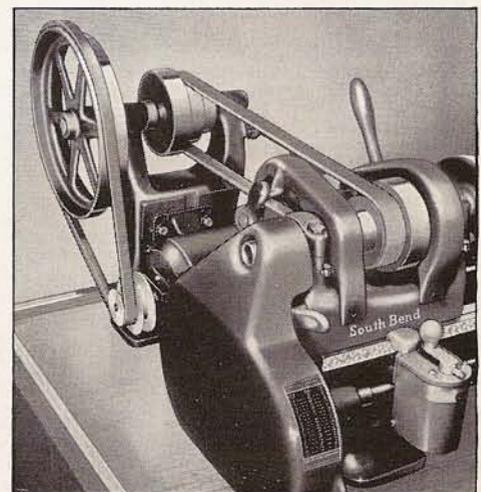


Fig. 4. End View of 9-inch "Workshop" Twelve-Speed Lathe Showing Two-Speed Countershaft

#### Prices of 9-inch "Workshop" Twelve-Speed Motor Driven Bench Lathes

Swing Over Bed Inches	Length of Bed Feet	Distance Between Centers Inches	Hole Through Spindle Inches	Swing Over Carriage Inches	Size of Motor H.P.	Approx. Ship. Wt. Crated Pounds	Catalog Number	Code Word for Lathe	Price F.O.B. Factory
9 $\frac{1}{4}$	3	17	$\frac{3}{4}$	5 $\frac{1}{2}$	$\frac{1}{3}$	335	615-Y	Sosan	\$140.00
9 $\frac{1}{4}$	3 $\frac{1}{2}$	23	$\frac{3}{4}$	5 $\frac{1}{2}$	$\frac{1}{3}$	360	615-Z	Sosiv	152.00
9 $\frac{1}{4}$	4	29	$\frac{3}{4}$	5 $\frac{1}{2}$	$\frac{1}{3}$	385	615-A	Sosoc	164.00
9 $\frac{1}{4}$	4 $\frac{1}{2}$	35	$\frac{3}{4}$	5 $\frac{1}{2}$	$\frac{1}{3}$	410	615-R	Sovop	181.00

† Prices with other types of motors quoted on request.

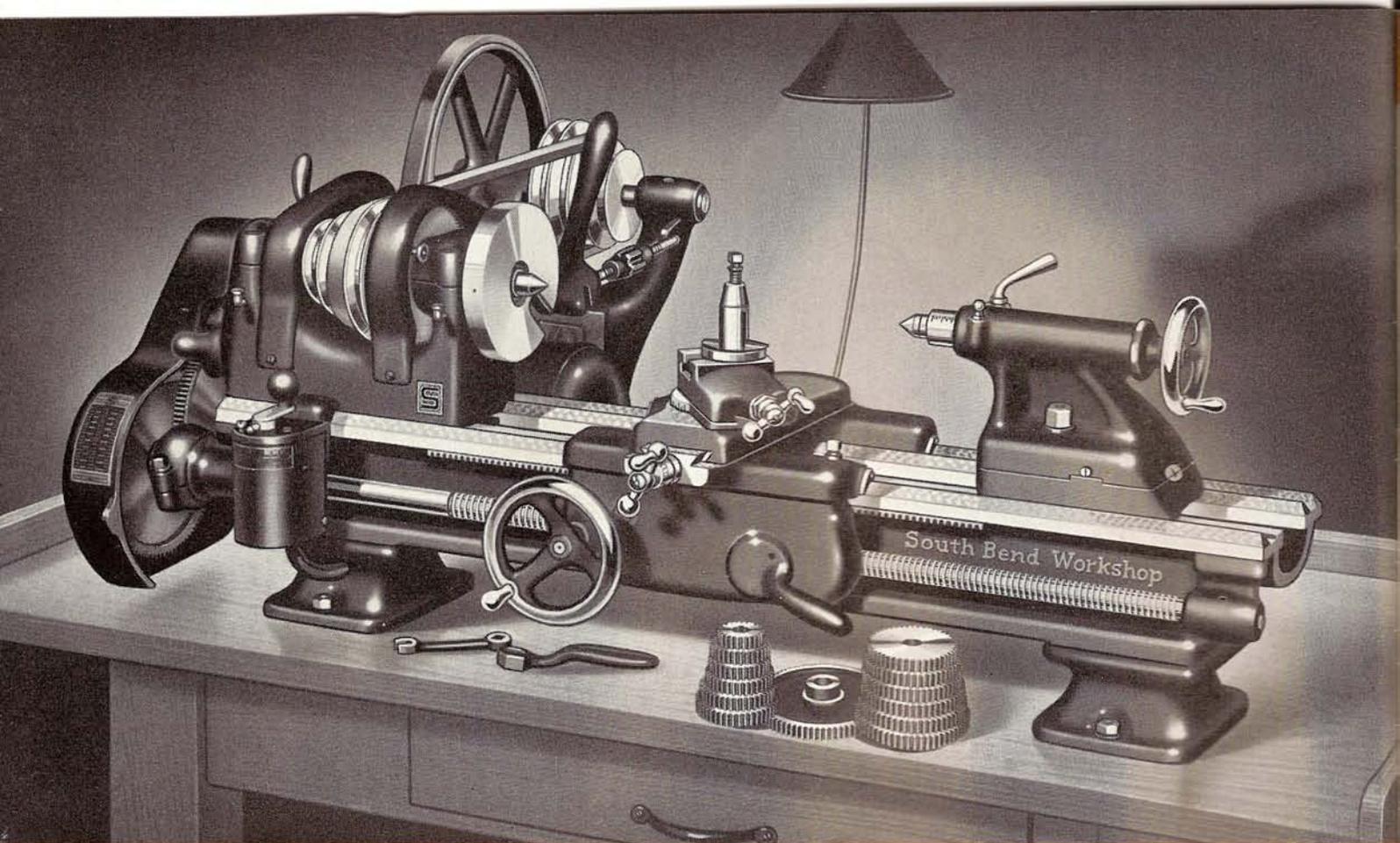


Fig. 5. Cat. No. 415-YV, 9"x3' "Workshop" Motor Driven Precision Bench Lathe, complete as shown but less bench. (Ship. wt. crated 320 lbs.) ..\$137.00

## 9-in. "Workshop" V-Belt Horizontal Motor Driven Precision Bench Lathe

Hardened Spindle—Back-Geared—Threads 4 to 480—Power Longitudinal Feeds .002" to .015"

The "Workshop" Lathe with V-Belt Adjustable Motor Drive is exactly the same as the lathe shown on page 2, except that it is equipped with V-belt cone pulleys instead of flat belt cone pulleys and has a hardened headstock spindle as standard equipment. Eight spindle speeds are provided as follows: 44, 60, 82, 113, 230, 313, 424 and 585 R.P.M.

**Improved Features** including back-geared headstock, ball thrust bearing for spindle, precision lead screw, compound rest, etc., are illustrated and described on pages 9 to 17.

**Equipment Included In Price** of lathe consists of: Hardened headstock spindle; V-belt cone pulleys; adjustable horizontal motor drive; 1/4 H.P. 1725 R.P.M., A.C. 1-phase, 110-volt, 60-cycle, start-stop reversing motor<sup>3</sup>; 6 wire cable for connecting motor and switch; 6 ft. extension cable and plug; reversing switch; V-belts; motor pulley; graduated compound rest; face plate; tool post; two 60-degree centers; spindle sleeve; wrenches; change gears for cutting threads 4 to 480 per inch and turning feeds .002" to .015"; installation plan and book, "How to Run a Lathe." Bench is not included, see page 24.

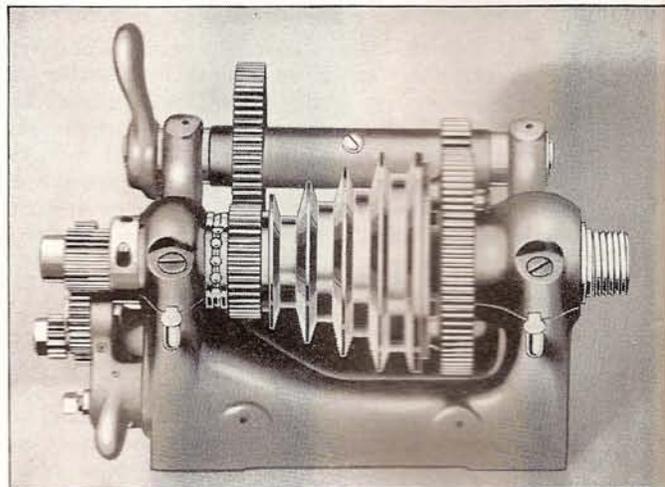


Fig. 6. Headstock of 9-inch "Workshop" Lathe (with Gear Guards Removed) Showing 4-Step Cone Pulley for V-Belt Drive.

Prices of 9-inch "Workshop" V-Belt Adjustable Horizontal Motor Driven Bench Lathes

Swing Over Bed Inches	Length of Bed Feet	Distance Between Centers Inches	Hole Through Spindle Inches	Swing Over Carriage Inches	Size of Motor H.P.	Approx. Ship. Wt. Crated Pounds	Catalog Number	Code Word for Lathe	Price F.O.B. Factory
9 1/4	3	17	3/4	5 1/2	1/4	320	415-YV	Kabli	\$137.00
9 1/4	3 1/2	23	3/4	5 1/2	1/4	345	415-ZV	Kabol	149.00
9 1/4	4	29	3/4	5 1/2	1/4	370	415-AV	Kabro	161.00
9 1/4	4 1/2	35	3/4	5 1/2	1/4	395	415-RV	Kacal	178.00

\*Other types of motors supplied at extra cost. See page 24.

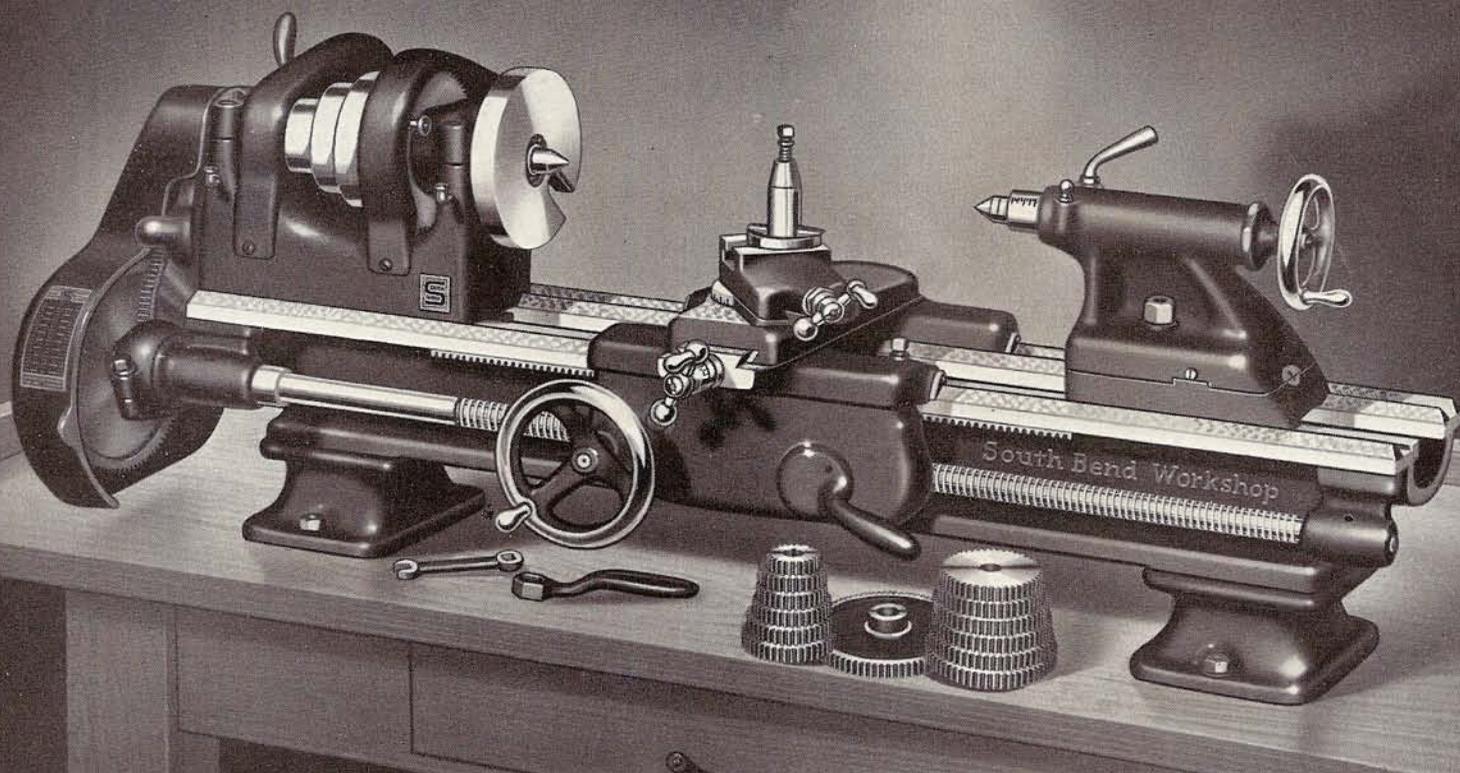


Fig. 7. Cat. No. 15-YBW, 9"x3' "Workshop" Bench Lathe, complete with countershaft as shown, but less bench. (Ship. wt. crated 300 lbs.) . . . . \$102.00

## 9-inch "Workshop" Countershaft Driven Precision Bench Lathe

Back-Geared—Cuts Threads 4 to 480—Power Longitudinal Feeds. .002" to .015"

The New Model 9-inch "Workshop" lathes with countershaft drive are exactly the same as the lathes shown on the preceding pages except for the type of drive. They are recommended for shops that are equipped with lineshaft for power.

These lathes are priced in the tabulation below with countershaft, also without countershaft for those who wish to arrange their own drive.

**Improved Features** including back-geared headstock, ball thrust bearing for spindle, new improved capillary oiling system, precision lead screw, compound rest, etc., are illustrated and described on pages 9 to 17.

**Countershaft** has two friction clutch pulleys, one of which may be driven with an open belt and the other with a crossed belt, which permits the lathe to be operated forward and in reverse.

**The Countershaft Drive** permits operating the lathe and several other machines from a lineshaft driven by a single motor and is the most economical type of

drive for the large shop where a number of machines are operated simultaneously.

**Regular Equipment** included in price of lathe consists of: graduated compound rest; face plate; tool post; two 60-degree centers; headstock spindle sleeve; change gears for cutting screw threads 4 to 480 per inch and for turning feeds .002" to .015"; wrenches; installation blue print and book, "How to Run a Lathe." Bench is not included, see page 24.

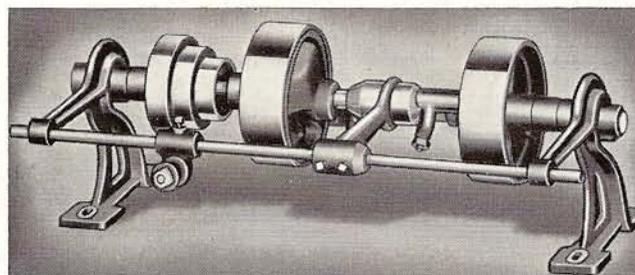


Fig. 8. Double Friction Countershaft for Lathe

### Prices of 9-inch "Workshop" Bench Lathe with Regular Equipment, but without Bench

Swing Over Bed Inches	Length of Bed Feet	Distance Between Centers Inches	Hole Through Spindle Inches	Maximum Collet Capacity Inches	Approx. Ship. Wt. Pounds	Prices Less Countershaft			Prices With Countershaft		
						Catalog Number	Code Word for Lathe	Price* F.O.B. Factory	Catalog Number	Code Word for Lathe	Price* F.O.B. Factory
9 1/4	3	17	3/4	1/2	300	15-YB	Manek	\$ 85.00	15-YBW	Makiz	\$102.00
9 1/4	3 1/2	23	3/4	1/2	325	15-ZB	Manze	97.00	15-ZBW	Makar	114.00
9 1/4	4	29	3/4	1/2	350	15-AB	Mapag	109.00	15-ABW	Makel	126.00
9 1/4	4 1/2	35	3/4	1/2	375	15-RB	Mapek	126.00	15-RBW	Makof	143.00

\* If floor legs are wanted instead of bench legs add \$10.00 to prices listed.

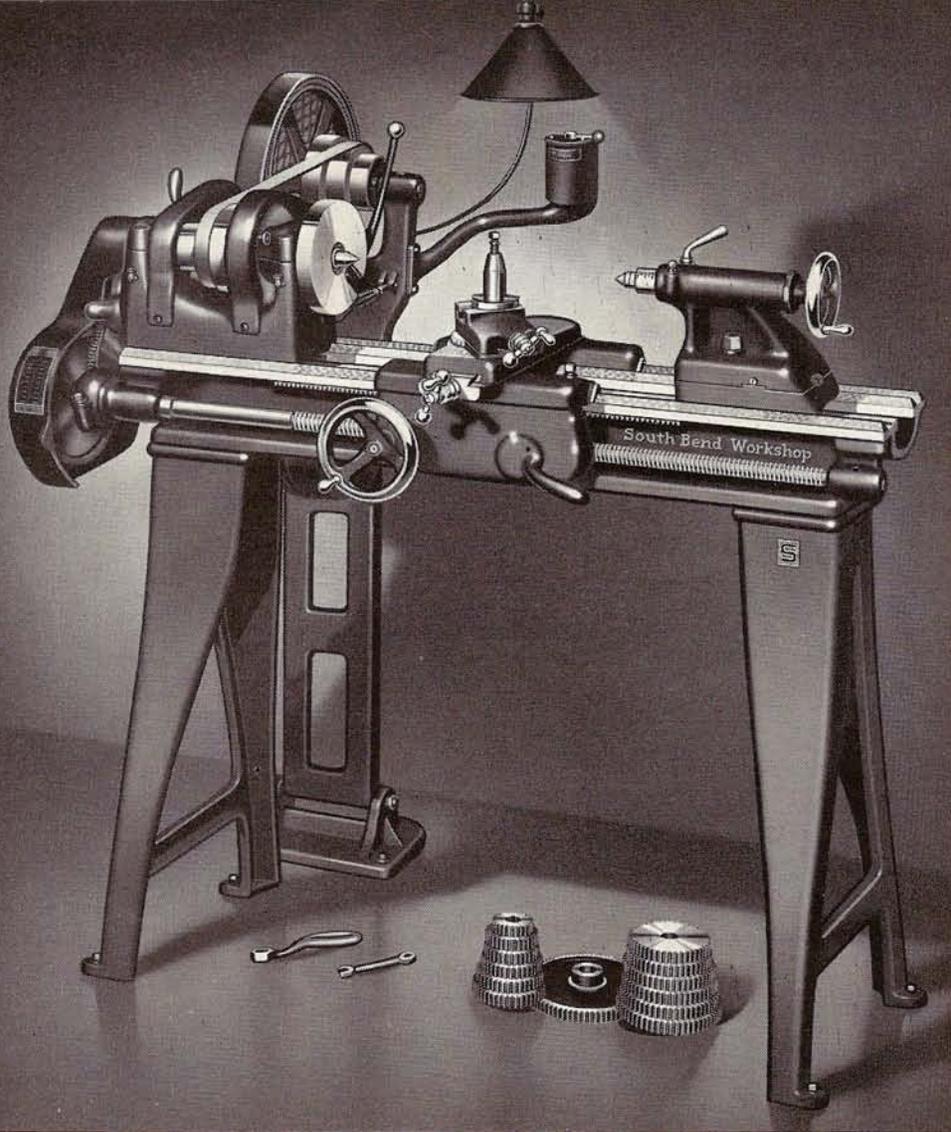


Fig. 9. Cat. No. 915-Y, 9" x 3' "Workshop" Pedestal Adjustable Motor Driven Precision Floor Leg Lathe, complete as shown. (Ship. wt. crated 560 lbs.) . . . . . \$142.00



Fig. 10. End View of Pedestal Motor Drive Showing Arrangement of Motor, Belt Adjustment, etc.

## 9-inch "Workshop" Pedestal Motor Driven Precision Lathe

Back-Geared—Cuts Threads 4 to 480—Power Longitudinal Feeds .002" to .015"—Floor Legs

The New Model 9-inch "Workshop" lathes with pedestal adjustable motor drive are recommended for shops requiring an efficient motor driven floor leg lathe. Except for the type of drive, these lathes are the same as those described on the preceding pages.

The Pedestal Motor Drive is very practical as it permits placing the lathe in any position in the shop. The lathe is relieved of all strain as the weight of the motor is supported by the pedestal, and an adjustable tension brace between the countershaft and the lathe headstock counteracts the pull of the belt.

Adjustment is provided for taking up belt stretch and a belt tension release permits easy shifting of belt.

Regular Equipment included in price consists of: graduated compound rest; face plate 5-inches diameter; forged steel tool post; two 60-degree tool steel lathe centers; No. 2 Morse Taper; headstock spindle sleeve; wrenches; change gears for cutting screw threads 4 to 480 per inch, and for turning feeds .002" to .015"; installation plan and book, "How to Run a Lathe."

Electrical Equipment included in price of lathe consists of: pedestal motor drive complete with 1/4 H.P. 110 Volt A.C. start-stop type reversing motor;\* 6-wire cable to connect motor and switch, 6 ft. extension cable and plug, reversing switch, motor pulley, and belting.

Net Factory Prices of 9-inch Pedestal Adjustable Motor Driven "Workshop" Lathes

Swing Over Bed Inches	Length of Bed Feet	Distance Between Centers Inches	Hole Through Spindle Inches	Swing Over Carriage Inches	Size Motor Used H.P.	Catalog Number	Approx. Weight Crated Pounds	Code Word for Lathe	Net Factory Price
9 1/4	3	17	3/4	5 1/2	1/4	915-Y	560	Harob	\$142.00
9 1/4	3 1/2	23	3/4	5 1/2	1/4	915-Z	585	Haret	154.00
9 1/4	4	29	3/4	5 1/2	1/4	915-A	610	Hemir	166.00
9 1/4	4 1/2	35	3/4	5 1/2	1/4	915-R	635	Hemar	183.00

\*Other types of motors supplied at extra cost. See page 24.

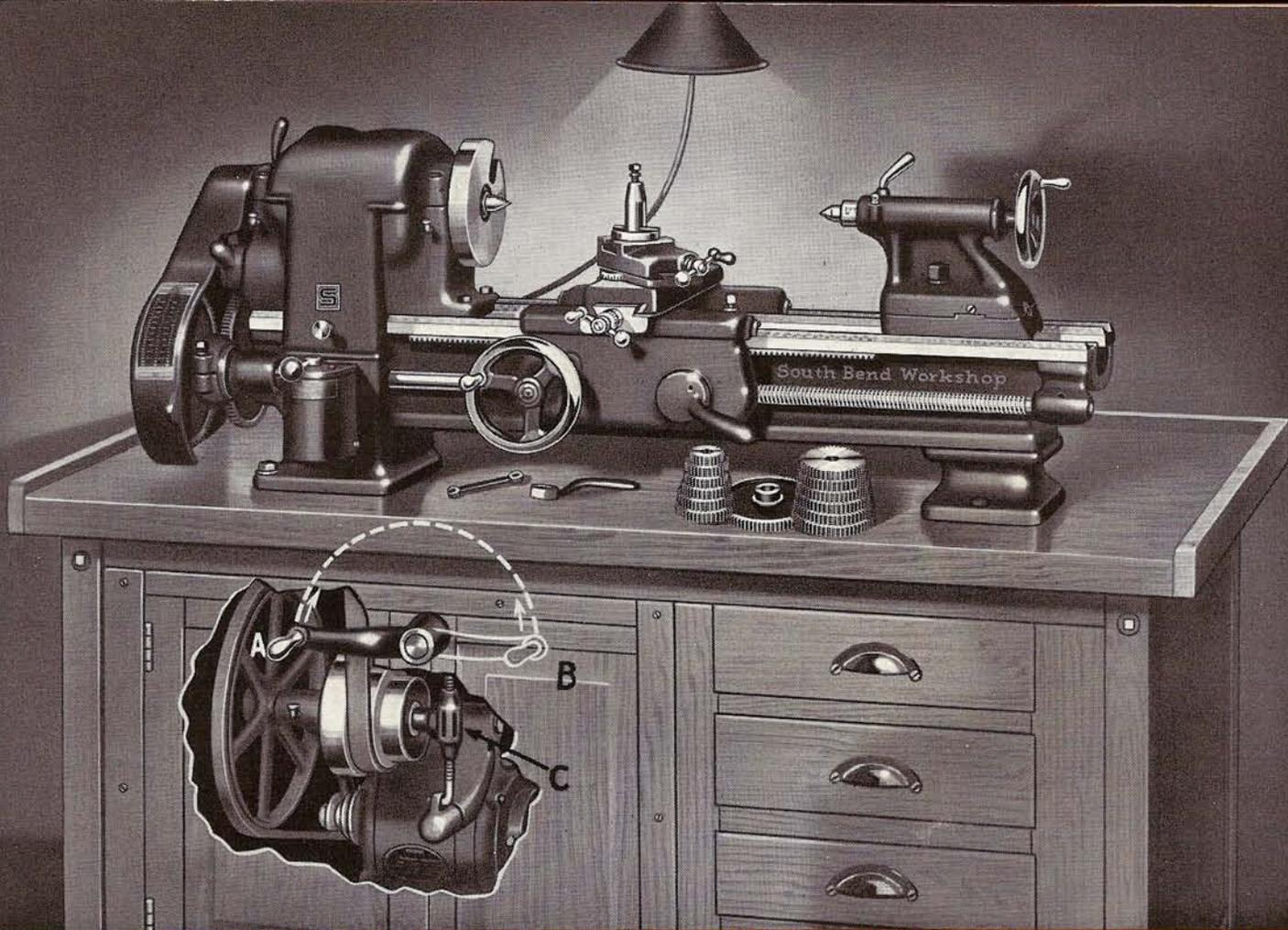


Fig. 11. Cat. No. 115-YB, 9"x3" "Workshop" Underneath Motor Driven Precision Bench Lathe, complete as shown, but less bench..... \$156.00  
(Shipping weight crated 370 lbs.)

## 9-inch "Workshop" Underneath Motor Driven Precision Bench Lathe With Enclosed Headstock and Hardened Spindle

Back-Geared—Cuts Threads 4 to 480—Power Longitudinal Feeds .002" to .015"

The New Model 9-inch "Workshop" Bench Lathe illustrated above is the same as the lathes shown on the preceding pages, except for necessary alterations in the headstock and bed to accommodate the underneath motor drive. The hinged cone pulley cover may be raised for belt shifting. Bed and legs are cast integral.

**Motor Drive Unit** is bolted under the bench top. The cone pulley belt tension is released for shifting the belt by moving the crank handle "A" to position "B". Any desired belt tension can be obtained by adjusting turnbuckle "C". Motor operates from lamp socket.

**Hardened Headstock Spindle** is included as regular equipment on all Underneath Motor Driven Lathes.

**Improved Features** including back-geared headstock, ball thrust bearing for spindle, precision lead

screw, improved capillary oiling system, compound rest, etc., are illustrated and described on pages 9 to 17.

**Regular Equipment** included in price of lathe consists of: graduated compound rest; face plate 5-inches diameter; forged steel tool post; two 60-degree tool steel lathe centers, No. 2 Morse Taper; headstock spindle sleeve; wrenches; change gears for cutting screw threads 4 to 480 per inch, and for turning feeds .002" to .015"; installation plan and book, "How to Run a Lathe." Bench is not included, see page 24.

**Electrical Equipment** included in price consists of: underneath motor drive complete with 1/4 H.P. 1725 R.P.M. 1-ph. 60-cycle, A.C. 110-V. start-stop reversing motor;\* 6-wire cable to connect motor and switch; 6 ft. extension cable and plug; reversing switch; motor pulley and belting.

Prices of 9-inch "Workshop" Adjustable Underneath Motor Driven Precision Bench Lathe—Less Bench

Swing Over Bed Inches	Length of Bed Feet	Distance Between Centers Inches	Hole Through Spindle Inches	Maximum Collet Capacity Inches	Swing Over Carriage Inches	Size of Motor H.P.	Approx. Ship. Wt. Crated Pounds	Catalog Number	Code Word for Lathe	Price F.O.B. Factory
9 1/4	3	17	3/4	1/2	5 1/2	1/4	370	115-YB	Edhar	\$156.00
9 1/4	3 1/2	23	3/4	1/2	5 1/2	1/4	395	115-ZB	Edhiz	168.00
9 1/4	4	29	3/4	1/2	5 1/2	1/4	420	115-AB	Edhof	180.00

\*Other types of motors supplied at extra cost. See page 24.

## 9-inch "Workshop" Precision Lathe With Raising Blocks

### 11¼-inch Swing Over Lathe Bed

Back-Geared—Cuts Screw Threads 4 to 480  
Power Longitudinal Feeds .002" to .015"

"Workshop" Lathes with Raising Blocks will take work up to 11¼" in diameter over the bed and up to 7⅛" in diameter over the tool rest.

Prices of three popular models of "Workshop" Lathes equipped with raising blocks are listed below. Regular lathe equipment is included in price listed. Prices of all motor driven lathes include ¼ h.p., 1-phase 60-cycle, A.C. start-stop reversing motor†, reversing switch, wiring, etc.

Raising Blocks may be ordered with any 9-inch "Workshop" Lathe except the Underneath Motor Drive Lathe. Prices of models not listed below with raising blocks may be determined by adding \$30.00 to price of regular lathe.



Fig. 12. Cat.No.6415-YA, 9"x3' "Workshop" Horizontal Motor Driven Precision Bench Lathe with Raising Blocks, complete as shown, but less bench. \$147.00

### Prices of 9-inch "Workshop" Lathe with Raising Blocks—Bench Not Included

Swing Over Bed Inches (with Raising Blocks)	Length of Bed Feet	Swing Over Carriage Inches	Approx. Ship. Wt. for Crated Adjustable Hor. Drive Lathe Pounds	Countershaft Driven Bench Lathe with Raising Blocks (See Page 5)			V-Belt Motor Driven Bench Lathe with Raising Blocks (See Page 4)			Horizontal Motor Driven Bench Lathe with Raising Blocks (See Page 2)		
				Cat. No.	Code	Price*	Cat. No.	Code	Price	Cat. No.	Code	Price
11¼	3	7⅛	340	6015-YBW	Jikag	\$132.00	6415-YV	Jiyoc	\$167.00	6415-YA	Jahon	\$147.00
11¼	3½	7⅛	365	6015-ZBW	Jilex	144.00	6415-ZV	Jobem	179.00	6415-ZA	Jakes	159.00
11¼	4	7⅛	390	6015-ABW	Jimub	156.00	6415-AV	Jobiq	191.00	6415-AA	Jalab	171.00
11¼	4½	7⅛	415	6015-RBW	Jiney	173.00	6415-RV	Jofak	208.00	6415-RA	Jalef	188.00

\*If countershaft is not wanted deduct \$17.00.

†For additional prices of other motors see page 24.

## 9-inch "Workshop" Precision Oil Pan Lathe

### With Countershaft Drive and Floor Legs

Back-Geared—Cuts Screw Threads 4 to 480  
Power Longitudinal Feeds .002" to .015"

The Oil Pan "Workshop" Lathe shown at the left is the same as the lathe illustrated and described on page 5, except that this lathe has floor legs and is equipped with a steel oil pan to catch oil and chips. Specifications and features are listed on pages 9 to 17. Prices listed below include double friction countershaft and regular lathe equipment.

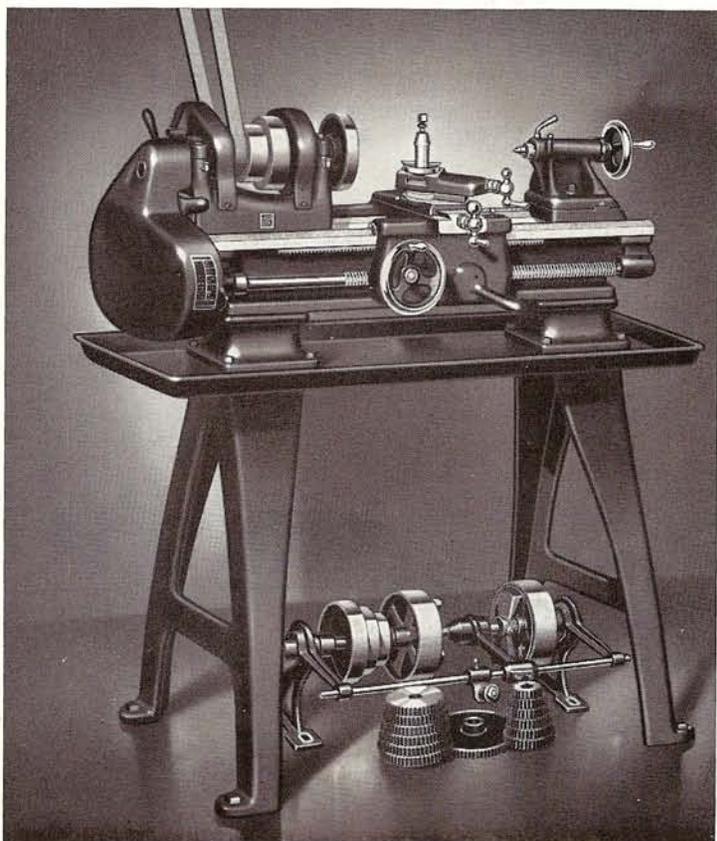
### 9-inch "Workshop" Countershaft Driven Oil Pan Lathes

Swing Over Bed Inches	Length of Bed Feet	Distance Between Centers Inches	Hole Thru Spindle Inches	Approx. Ship. Wt. Crated Pounds	Catalog Number	Code Word for Lathe	Price F.O.B. Factory
9¼	3	17	¾	435	215-YW	Marel	\$133.00
9¼	3½	23	¾	460	215-ZW	Marho	146.00
9¼	4	29	¾	485	215-AW	Marta	159.00
9¼	4½	35	¾	510	215-RW	Marub	177.00

### Oil Pan Equipment for Motor Driven 9-inch "Workshop" Lathes

Oil Pan and special oil pan legs can be fitted to the motor driven lathe shown on page 6 at the following prices when ordering with lathe: 9" x 3' lathe, \$21.00; 9" x 3½' lathe, \$22.00; 9" x 4' lathe, \$23.00; 9" x 4½' lathe, \$24.00. Prices of oil pan equipment for other lathes, oil pump, piping, etc. quoted on request.

AT LEFT—Fig. 13. Cat. No. 215-YW, 9"x3' "Workshop" Countershaft Driven Oil Pan Lathe, complete as shown.....\$133.00



## Features, Specifications, and Description of 9-inch "Workshop" South Bend Precision Lathes

The features, specifications and general description given below apply to all New Model 9-inch "Workshop" South Bend Lathes shown throughout this catalog.

**The New Model "Workshop" Lathe** is recommended for the production of small accurate parts in the manufacturing plant, for precision work in the tool room, for general use in the machine shop, auto service shop, laboratory, school shop, repair shop, home work shop and shops of all kinds engaged in the machining of steel, cast iron, bronze, tool steel and other metals; also fibre, bakelite, etc.

**Convenience and Ease of Operation** are assured by the simple, practical design of the lathe. Well placed controls, large easy reading micrometer dials, lever reverse for threads and feeds, graduated compound rest, wrenchless bull gear lock, large hand wheels, and other improvements, save time and effort. See pages 9 to 17 for description of features.

**Accuracy and Durability** are built into every South Bend "Workshop" Lathe. The workmanship and materials are the best that can be obtained. All parts are made of cast iron or steel—no lead, zinc or other soft die-cast metals are used. The substantial design assures permanent alignment of the headstock, tailstock and other major units. Unusually large bearing surfaces give this lathe the power and rigidity for taking heavy cuts and the precision accuracy for the most exacting tool and instrument work.

**Highest Standards** of inspection are maintained, from the planing of the lathe bed to the final inspection tests. All dovetails and V-ways are carefully hand-scraped and the headstock, tailstock, and other units are aligned to the most exacting specifications.

**Lathe Bed** is made of special quality gray iron with 50 per cent steel, which makes a hard, close grained metal having long wearing qualities. Bed is heavily constructed and reinforced by box braces its entire length. Three V-ways and one flat-way accurately planed and hand-scraped, align and support the headstock, carriage and tailstock. See page 11.

**Back-gear Headstock** is hand-scraped to lathe bed; has three-step cone pulley; six changes of spindle speeds, three direct and three back-gear; wrenchless bull gear lock; and lever reverse for threads and feeds.

**Bearings for Headstock spindle** are unusually large, and are line bored and lapped to fit the spindle.

Bearings are adjustable for wear, and have oil reservoirs with new improved capillary oiling system. See page 10 for description of headstock.

**Headstock Spindle** is made of a special quality spindle steel, finish ground. Spindle has ball thrust bearing and take-up for eliminating end play. A 3/4-inch hole is bored entire length of spindle with No. 3 Morse standard taper in front end. See page 10.

**Tailstock** is substantially designed with long hand-scraped bearing on bed. Tailstock top has set-over for taper turning. Tailstock spindle is graduated and is made of special quality spindle steel and has self-ejecting tool steel center.

**Carriage** has unusually long bearings (over 9 1/2-inches) on V-ways of lathe bed, providing a solid support for the cutting tool and reducing wear to a minimum. V-ways of saddle are hand-scraped to match V-ways of lathe bed perfectly and are fitted with felt wipers to clean and oil the bed. See page 10.

**Compound Rest** is graduated 180 degrees, swivels to any angle, and has improved locking device with double binder. Compound rest screw and cross feed screw have micrometer collars graduated to read in thousandths of an inch. Dovetails are hand-scraped and lapped and have adjustable gibs. See page 10.

**Metric graduated collars** for cross feed screw and compound rest screw can be supplied in lieu of regular graduated collars at extra cost. See page 25.

**Precision Lead Screw** is 3/4-inch diameter, 8 Acme standard threads per inch; guaranteed to meet the most exacting requirements. See page 12.

**Standard Screw Threads** 4 to 480 per inch, right or left-hand, including 1 1/2 pipe thread, can be cut on all 9-inch "Workshop" Lathes. See page 15.

**Automatic Longitudinal Feeds** for the carriage .002" to .015" as listed in tabulation below can be obtained with the change gears supplied with the lathe. See page 15. Cross feed is hand operated.

**Practical Attachments** for milling, keyway cutting, grinding, turning tapers, etc., can be supplied. Most of these attachments may be purchased with the lathe or ordered later. See pages 18 to 25.

### "Workshop" Lathe Features

Back-gear headstock, six spindle speeds.  
Hollow steel spindle, 3/4" hole for machining bars and rods.  
Ball thrust bearing for headstock spindle.  
Adjustable bearings for headstock spindle.  
Adjustable gibs on cross feed and compound rest.  
Three V-ways and one flat-way on lathe bed.  
Precision lead screw for accurate thread cutting.  
Half-nuts have long bearing on lead screw.  
Automatic longitudinal power feeds to carriage.  
Reverse lever for right and left-hand screw threads and automatic longitudinal feeds to carriage.  
Micrometer graduations on compound rest screw.  
Micrometer graduations on cross feed screw.  
Tailstock top has 1/8" set-over for taper turning.

### "Workshop" Lathe Specifications

Swing over bed.....	9 1/4"
Swing over carriage.....	5 1/2"
Collet capacity 1/16" up to 1/2".....	Hole through spindle 3/4"
Automatic longitudinal feeds per revolution of spindle: .0021"; .0031"; .0041"; .0052"; .0062"; .0083"; .0089"; .0096"; .0104"; .0108"; .0113"; .0125"; .0138"; .0156".	
Standard screw thread cutting range.....	4 to 480 per in.
Spindle speeds.....	40, 68, 122, 202, 353, 630, r.p.m.
Width of cone pulley belt.....	1"
Lathe tool shank 3/8"x3/4".....	Cutter bits..... 1/4"x1/4"x2"
Size of spindle nose.....	1 1/2" diam. 8 threads
Head and tail spindle lathe centers.....	No. 2 Morse Taper
Lead screw, Acme thread.....	3/4" diam. 8 threads
Tool cross slide travel.....	5 7/8"
Angular travel compound rest top.....	2 1/4"
Tailstock spindle travel.....	2 1/8"

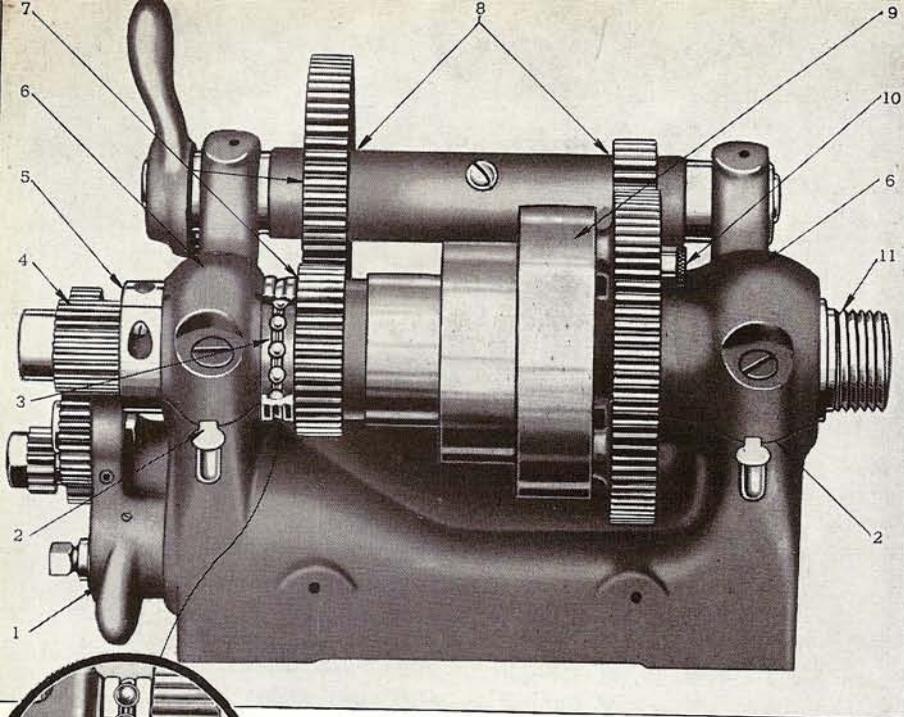


Fig. 14. "Workshop" Lathe Headstock With Guards Removed.

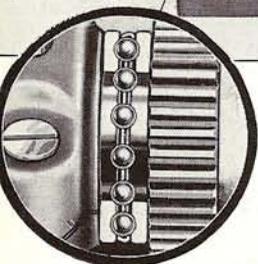


Fig. 15. Ball Thrust Bearing for Headstock Spindle.



Fig. 16.

### Alloy Steel Headstock Spindle for "Workshop" Lathes For General Machine Work at Normal Spindle Speeds

The regular headstock spindle for the New Model 9-inch "Workshop" Lathe is machined from a solid bar of alloy spindle steel. All bearing surfaces are finished by grinding and are tested for accuracy.

The front spindle bearing is  $1\frac{1}{8}$ " x  $2\frac{1}{4}$ " and the rear spindle bearing  $1\frac{3}{8}$ " x  $1\frac{3}{8}$ ". A  $\frac{3}{4}$ " hole is bored the entire length of the spindle. Spindle nose is  $1\frac{1}{2}$ " in diameter, 8 threads per inch.

### Hardened Headstock Spindle for High Speeds and Production

Included in Price of Lathes on Pages 3, 4, and 7—Optional on Other Models at \$6.00 Extra

The heat treated headstock spindle with hardened and ground bearing surfaces is recommended for lathes that are operated at high speed, or for production operations. This spindle is included in the price of the Twelve-Speed Drive Lathes on page 3, V-belt Cone Pulley Lathes on page 4, and Underneath Drive Lathes on page 7. For other models of "Workshop" Lathes, the

heat treated and hardened spindle can be supplied instead of the regular spindle at an additional cost of \$6.00.

### Improved Carriage

Carriage has unusually long bearings (over  $9\frac{1}{2}$ " ) hand-scraped to the front and rear V-ways of the lathe bed. Carriage lock is provided for facing and cutting-off.

Compound Rest is constructed entirely of best quality steel and iron—no die castings. Tool post is of drop forged steel, heat treated and hardened. Swivel is graduated 180 degrees and can be locked at any angle. Dovetails are carefully hand-scraped and lapped and have adjustable gibs. Cross feed and compound rest screws have large diameter adjustable micrometer collars graduated in thousandths of an inch. Metric graduated collars can be supplied, see page 25. Cross slide travel  $5\frac{1}{2}$ ". compound rest top angular travel  $2\frac{1}{4}$ ".

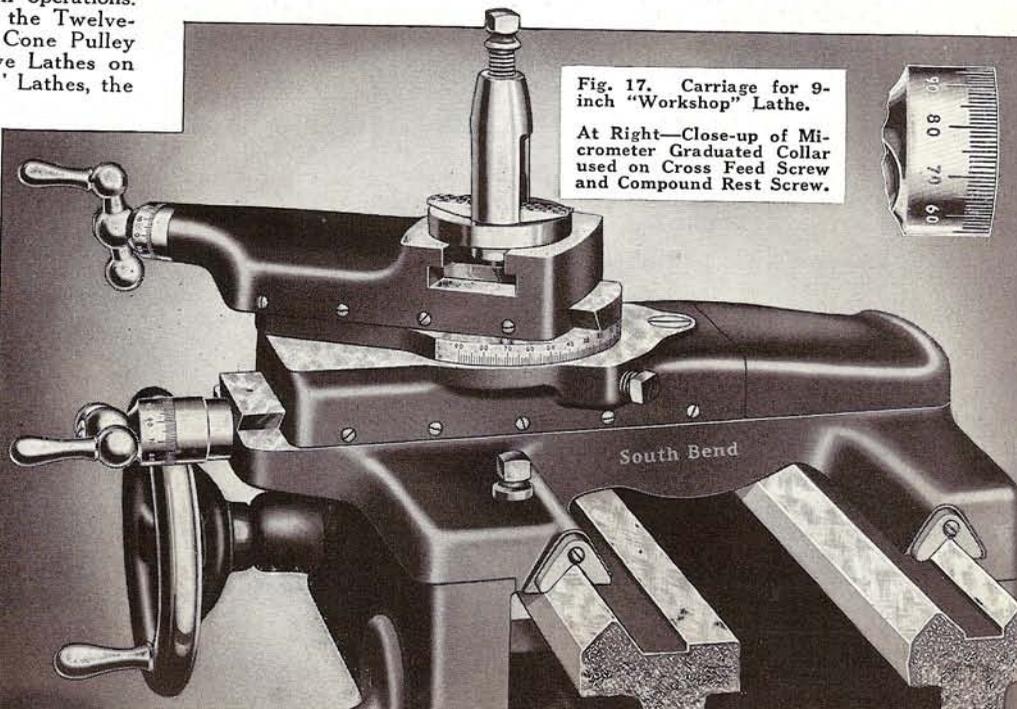


Fig. 17. Carriage for 9-inch "Workshop" Lathe.

At Right—Close-up of Micrometer Graduated Collar used on Cross Feed Screw and Compound Rest Screw.

## Back-Geared Headstock Has Ball Thrust Bearing

Headstock is reinforced and webbed giving it strength and rigidity. The base is hand-scraped and accurately aligned with the inside V-way and flat-way on the lathe bed.

### Improved Features

1. Reverse lever for screw threads and feeds.
2. Oil reservoir and new improved capillary oiling system for spindle bearings.
3. Ball thrust bearing for headstock spindle.
4. Accurate cut gearing for screw threads and longitudinal power feeds to carriage.
5. Take-up nut for eliminating end play of headstock spindle.
6. Large spindle bearings, adjustable for wear.
7. Smooth running machine-cut precision back gears, made of semi-steel—no die castings.
8. Back-gear ratio, 5 to 1, provides ample power for heavy cuts.
9. Cone pulley for 1" belt, machined and balanced for smooth operation.
10. Quick acting wrenchless bull gear lock.
11. Headstock spindle of special alloy spindle steel accurately threaded for face plates.

# Heavy Semi-Steel Lathe Bed

## Hand-Scraped V-Ways Assure Permanent Accuracy

The Bed for the 9-inch "Workshop" Lathe is heavily constructed, with three large V-ways and one flat way, which align the headstock, tailstock and carriage of the lathe. The carriage slides on the two out-side V-ways, as shown in Fig. 17, Page 10. The headstock and tailstock are aligned by the inside V-way and flat way. See Fig. 20, below.

The V-ways and flat way of the lathe bed are accurately machined and are then perfected by hand-scraping, as shown in Fig. 18. Prismatic V-ways similar to those used on this lathe bed are used for all sizes of South Bend Lathes, including the most expensive precision Tool Room Lathes, because this design assures permanent alignment of the headstock, tailstock and carriage.

The Metal from which the lathe bed is made is known as semi-steel. This is a mixture of 50% steel and 50% gray iron, which produces a hard, close-grained casting having unusual strength and long wearing qualities.

The Saddle V-ways are hand-scraped to conform with the V-ways of the lathe bed, and the saddle cross slide dovetail is scraped square with the saddle V-ways so that accurate facing is assured on the 9-inch "Workshop" Lathe.



Fig. 18. Hand-Scraping the Bed of a 9-Inch "Workshop" Lathe.

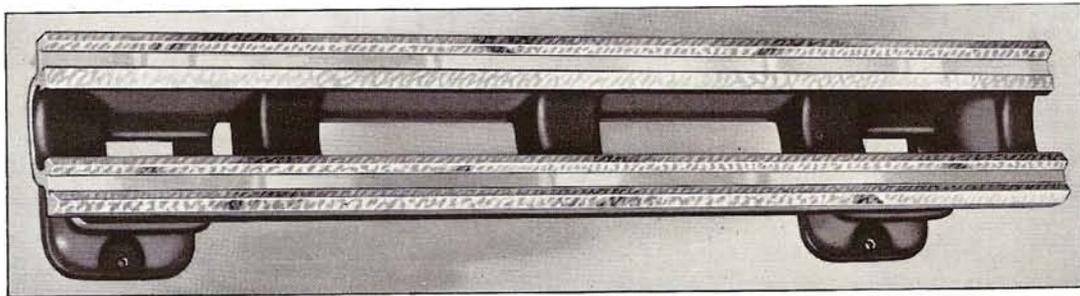


Fig. 19. Heavy Box Braces Cast in at Short Intervals Reinforce Bed.

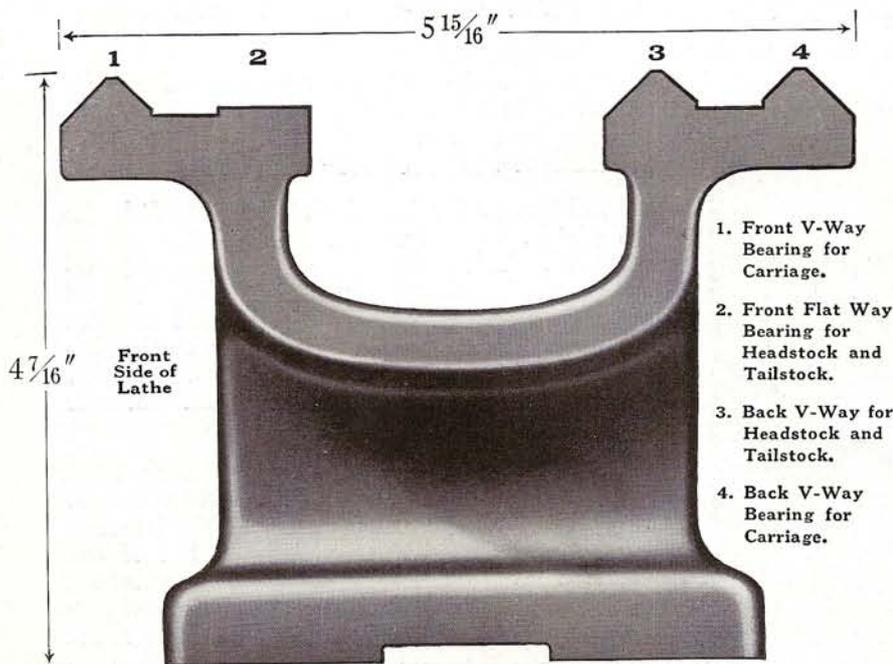


Fig. 20. End View of 9-inch "Workshop" Lathe Bed.

## Strength and Rigidity

Heavily constructed and scientifically designed, the lathe bed for the 9-inch "Workshop" Lathe has unusual strength and rigidity. The substantial one-piece casting has ample weight to withstand excessive strains and absorb vibration.

The Bearing Surfaces on the lathe bed for the carriage, headstock and tailstock are of generous proportions to assure smooth operation and long life. All V-ways must be straight and parallel. Careful inspection is made to be sure that a uniform bearing for the carriage is obtained the full length of bed.

Heavy Box Braces are cast in at short intervals, as shown in Fig. 19, to reinforce the bed, and give added strength and rigidity. From three to five braces are used, depending on the length of bed.

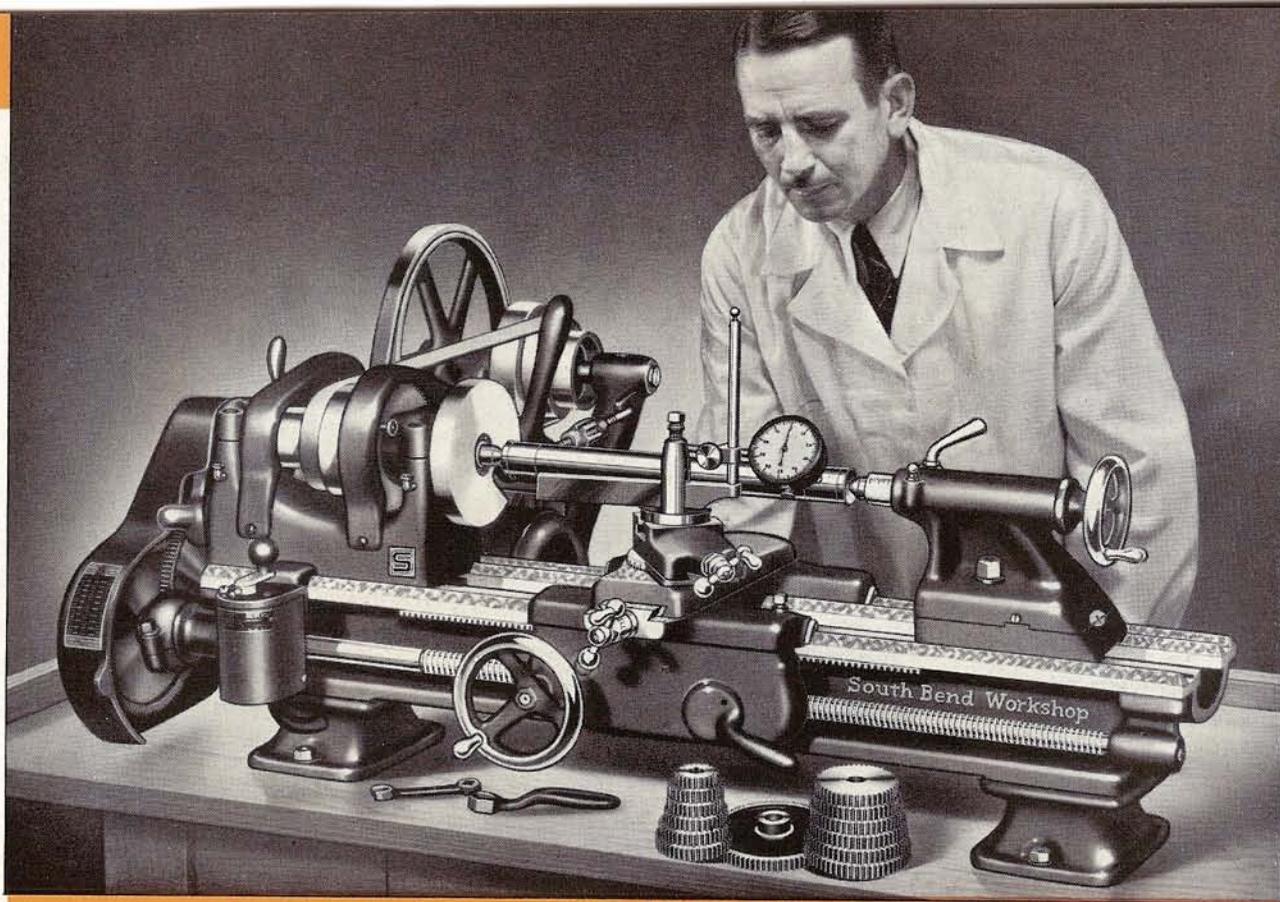


Fig. 22. Precision Accuracy Is Built Into Every South Bend 9-inch "Workshop" Lathe.

## How Precision Is Built Into the "Workshop" Lathe

Best Equipment Is Available for Manufacturing and Testing

**Precision Accuracy** is built into every 9-inch "Workshop" Lathe. From the planing of the lathe bed to the final testing of the finished lathe, the highest standards of inspection are maintained. All V-ways and dovetails are carefully hand-scraped, and all units are aligned to the most exacting specifications.

**Special Testing Equipment** is used throughout the process of manufacture to check the accuracy of all important lathe units and parts. An optical measuring device of unusual precision is used for testing the lead

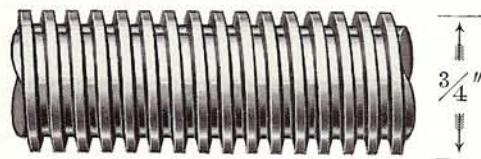


Fig. 23. Section of Acme Thread Lead Screw, Actual Size.

screw. This equipment, made especially for us by one of the largest manufacturers of optical measuring equipment in the world, is guaranteed to be accurate within .00005" in 30".

**Lead Screws** for the 9-inch "Workshop" Lathe are  $\frac{3}{4}$ " in diameter, 8 threads per inch Acme standard. The threads are cut on special machines equipped with master precision lead screws. The lead screw is guaranteed to meet the most exacting requirements for cutting accurate screw threads on master taps, precision gauges, etc. Fig. 23 shows the actual diameter of the lead screw.

**The Workmanship** on South Bend Lathes is a feature that will appeal to the good mechanic. This superior quality of workmanship is made possible by the highly specialized skill of our experienced employees and the excellent equipment of our shops. Any experienced mechanic can see at a glance that only the finest craftsmanship enters into the construction of South Bend Lathes.

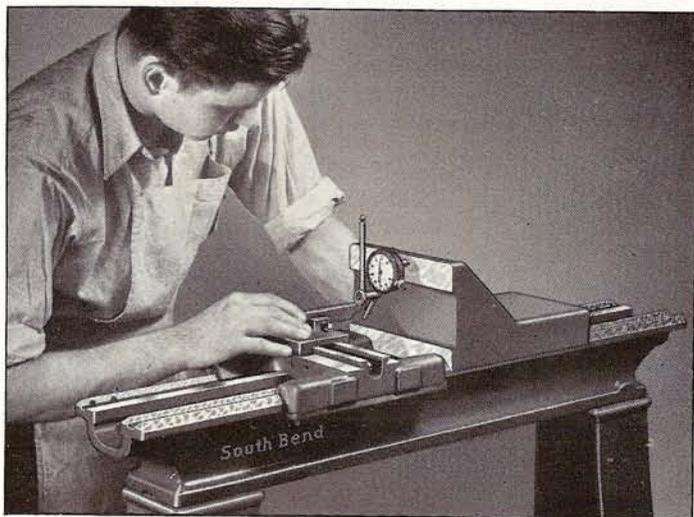


Fig. 24. Testing the Cross Slide of Saddle of a 9-inch "Workshop" South Bend Precision Lathe.

# Gears are Precision Cut and Tested for Accuracy

## Smooth Operation Assured

**Machine Cut Gears** are used on 9-inch "Workshop" Lathes to assure precision accuracy and smooth, quiet operation. All gears are made of steel or semi-steel blanks, and the teeth are precision cut from the solid on automatic gear hobbing machines.

**Bar Steel** is used for the apron gears, reverse gears and all pinions. No lead, zinc or other soft metal alloy or die cast gears are used, as they are short lived and often have imperfect teeth which set up vibration, causing chatter and noise.

**The Gear Cutting Department** is equipped with 21 automatic gear hobbing machines, similar to the one shown in Fig. 27 below. These machines enable us to produce precision cut gears of uniform quality at a remarkably low cost. The saving is naturally reflected in the selling price of the lathe.

**A Precision Testing Machine**, shown in Fig. 25 at right, is used for testing all gears used on the 9-inch "Workshop" Lathe. This machine is equipped with a vernier scale and a sensitive dial indicator which will disclose the slightest error in pitch diameter, eccentricity of the pitch diameter, or irregularity in tooth form.



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PROVIDENCE, R. I., U. S. A.

Fig. 25. Above. Precision Gear Testing Machine.

Fig. 26. Left. Steel Gear Precision Cut from the Solid on Automatic Gear Hobbing Machine.

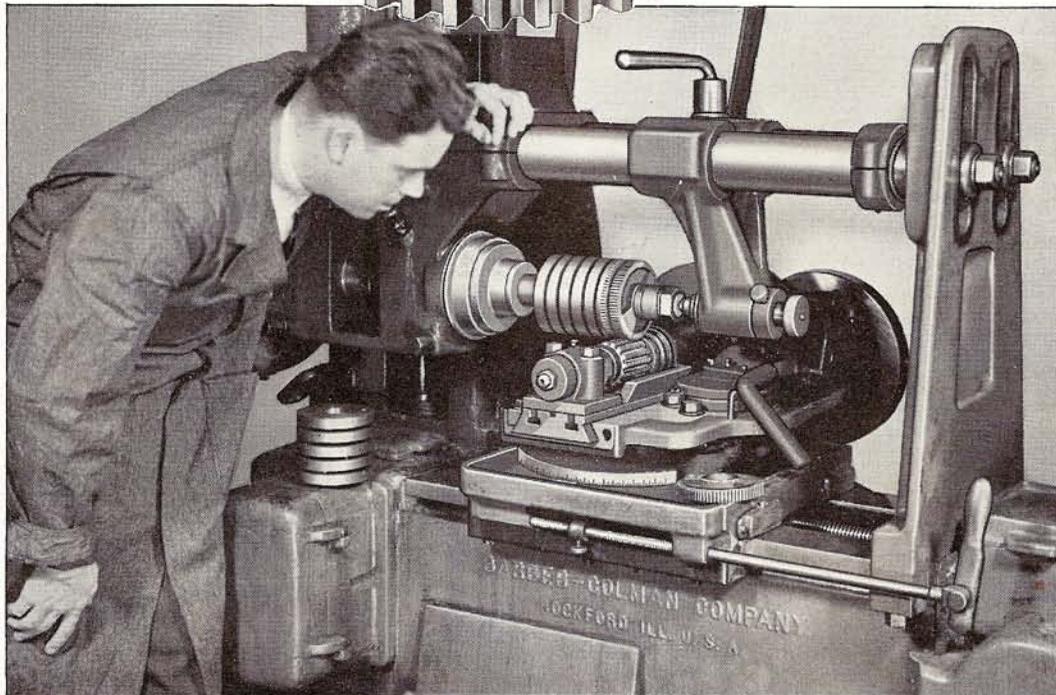
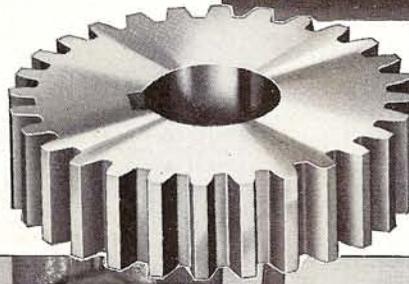


Fig. 27. One of 21 Automatic Gear Hobbing Machines in the Gear Cutting Department.

# Precision Accuracy Tests on "Workshop" Lathes

Each Lathe Is Carefully Tested

Sixty-four Major Accuracy Tests made on each 9-inch "Workshop" Lathe during the process of manufacturing assure interchangeability of parts and precision accuracy in the finished product. A few of the final inspection tests are illustrated below, Figs. 30 to 35 inclusive.

The Alignment of the Spindle with the lathe bed is tested with a sensitive dial indicator and test bar, as shown in Fig. 28 at right. The run-out at the outer end of the test bar, which is ten inches long, must be less than .001" and the alignment with the lathe bed in both the vertical and horizontal plane must be within .001" in ten inches. These are only a few of many rigid tests.

Built to Closer Tolerances than other lathes, the South Bend "Workshop" Lathes are more accurate and, what is more important, they will retain their precision accuracy through years of service. The scientifically correct design, the generous proportions of the bearing surfaces, and the excellent facilities for oiling assure permanent accuracy.

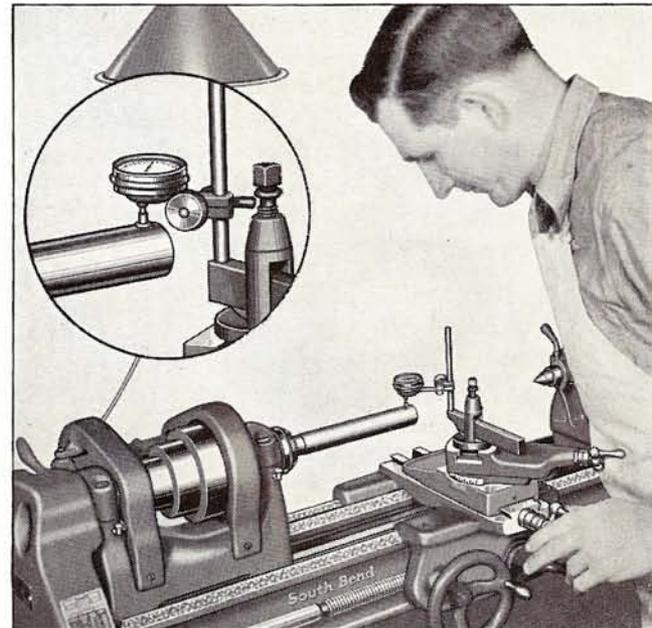


Fig. 28. Testing Alignment of Headstock Spindle with V-ways of Lathe Bed.

## Record of Factory Inspection Tests

Final Inspection of each lathe is made before it leaves the factory, and a permanent record of the final tests is kept on the Factory Test Card shown in Fig. 36. These tests can be duplicated in the customer's shop, provided the lathe is properly installed and the lathe bed is leveled with a highly sensitive precision level.

This Precision Level is recommended for leveling the lathe when it is installed. If the lathe is not carefully leveled, the lathe bed may be twisted, making it impossible for the lathe to do accurate work.



Fig. 29. A Precision Level.

No. 977. Precision Level. "Netaf" . . . . . \$7.50

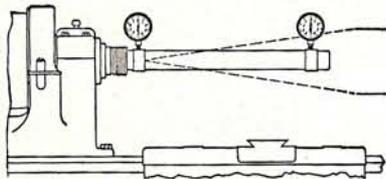


Fig. 30. Testing Alignment of Headstock Spindle in the Vertical Plane with Dial Indicator.

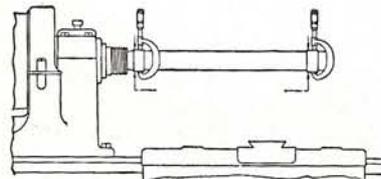


Fig. 31. Testing Alignment of Spindle by Machining a Piece in the Spindle.

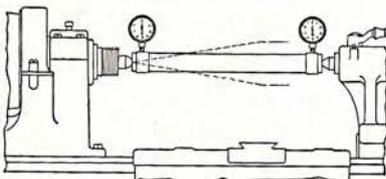


Fig. 32. Testing the Height of the Headstock Spindle and Tailstock Spindle with Dial Indicator.

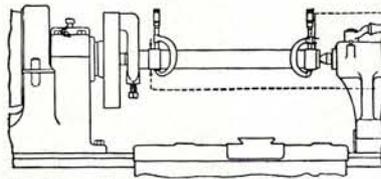


Fig. 33. Testing Alignment of Headstock and Tailstock by Machining a Piece Between Centers.

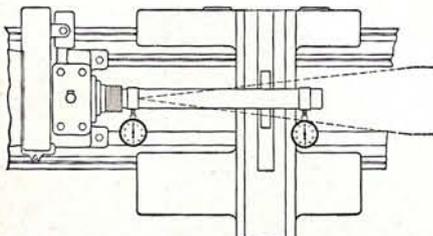


Fig. 34. Testing Alignment of Headstock Spindle in the Horizontal Plane with Dial Indicator.

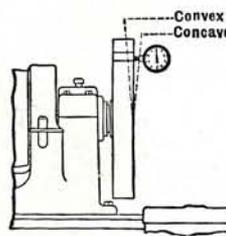


Fig. 35. Testing Squareness of Saddle Cross Slide by Machining the Face Plate and Testing with Indicator.

TESTS		Test Record	Tested By
<b>HEADSTOCK SPINDLE</b>			
Outer end of Test Bar runs true			
Test Bar parallel with Bed (Top)			
Test Bar parallel with Bed (Side)			
End Play Test			
Shoulder Test (Cam action)			
<b>HEADSTOCK &amp; TAILSTOCK ALIGNMENT</b>			
Parallel with Lathe Bed (Top)			
Tailstock Spindle In			
Parallel with Lathe Bed (Top)			
Tailstock Spindle Extended			
Parallel with Lathe Bed (Side)			
Tailstock Spindle In			
Parallel with Lathe Bed (Side)			
Tailstock Spindle Extended			
<b>FACE PLATE—Concave</b>			
LEAD SCREW—Cam Action, Forward			
LEAD SCREW—Cam Action, Reverse			
<b>SADDLE</b>			
Saddle Gb Adjustment			
Cross Slide Test			
Bearing on Lathe Bed			
<b>COMPOUND REST</b>			
Bearing on Swivel			
Bearing on Top Slide			
<b>COUNTERSHAFT—Clutch Test</b>			
ADJUSTMENTS MADE IN FINAL TEST			
ASSEMBLED BY			
GENERAL INSPECTION			
DATE TESTED			
Form 211 (Over)			

Fig. 36. Factory Test Record.

# Lathe Cuts Screw Threads 4 to 480 Per Inch

Has Power Longitudinal Carriage Feeds, .002" to .015"

## Improved Change Gear Equipment

An improved change gear equipment shown in Fig. 38, below, provides for an unusually wide range of screw threads and power turning feeds on the New Model 9-inch "Workshop" Lathe. All change gears are made of steel or semi-steel and are accurately cut from the solid on automatic gear hobbing machines. This assures precision accuracy and smooth operation.

## Cuts Standard Screw Threads

All standard screw threads, right or left hand, from 4 to 480 per inch, as listed on the gear chart, can be cut on the "Workshop" Lathe. In addition, standard pipe threads, including 11½ and 27 per inch, can be cut, also many special screw threads.

## Reverse Lever for Threads and Feeds

The reverse lever on the end of the headstock permits gearing the lathe for left hand threads and feeds as easily as for right hand. To change from one to the other, it is only necessary to change the position of the reverse lever.

## Power Turning Feeds

Power turning feeds from .0021" to .0156" per revolution of the spindle are available, as listed in the gear chart. The power feeds may be operated either from left to right or right to left.

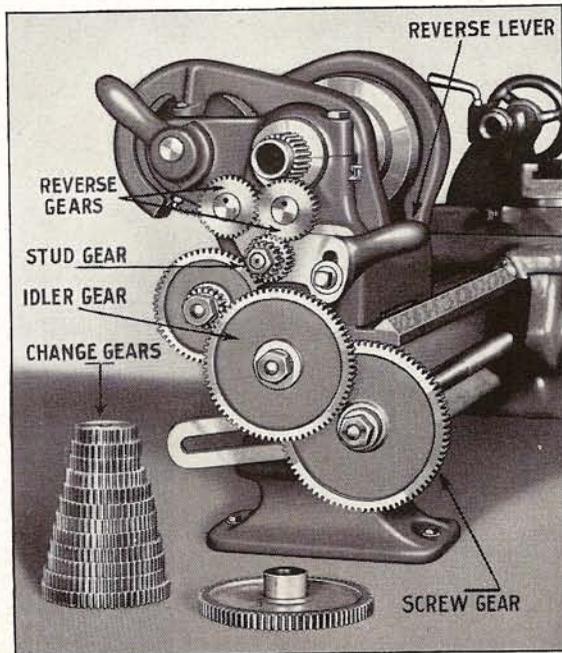


Fig. 38. End view of 9-inch "Workshop" Lathe showing change gear equipment for cutting screw threads and for power turning feeds.

## Complete Change Gear Equipment

Complete change gear equipment for all right and left hand screw threads and power turning feeds listed on the Index Chart, Fig. 39, is supplied as regular equipment with each 9-inch "Workshop" Lathe.



Fig. 37. Sample threaded piece showing variety of threads that can be cut on the 9-inch "Workshop" Lathe.

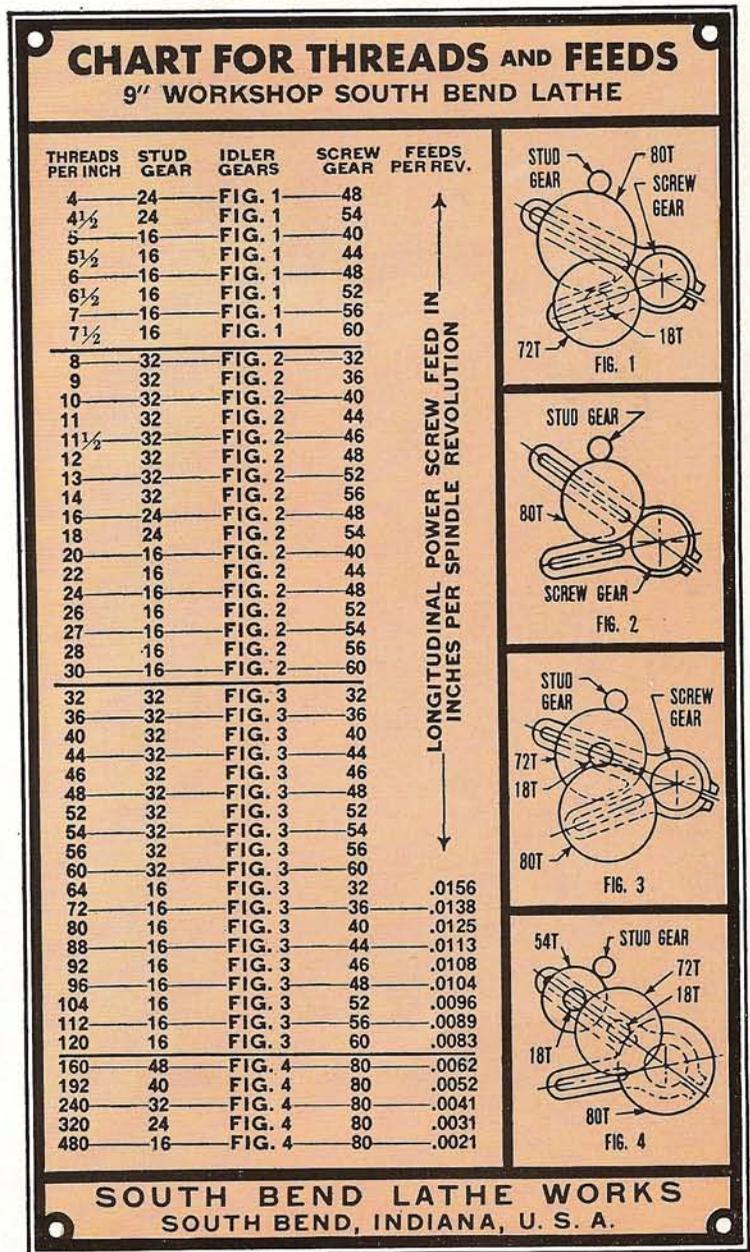
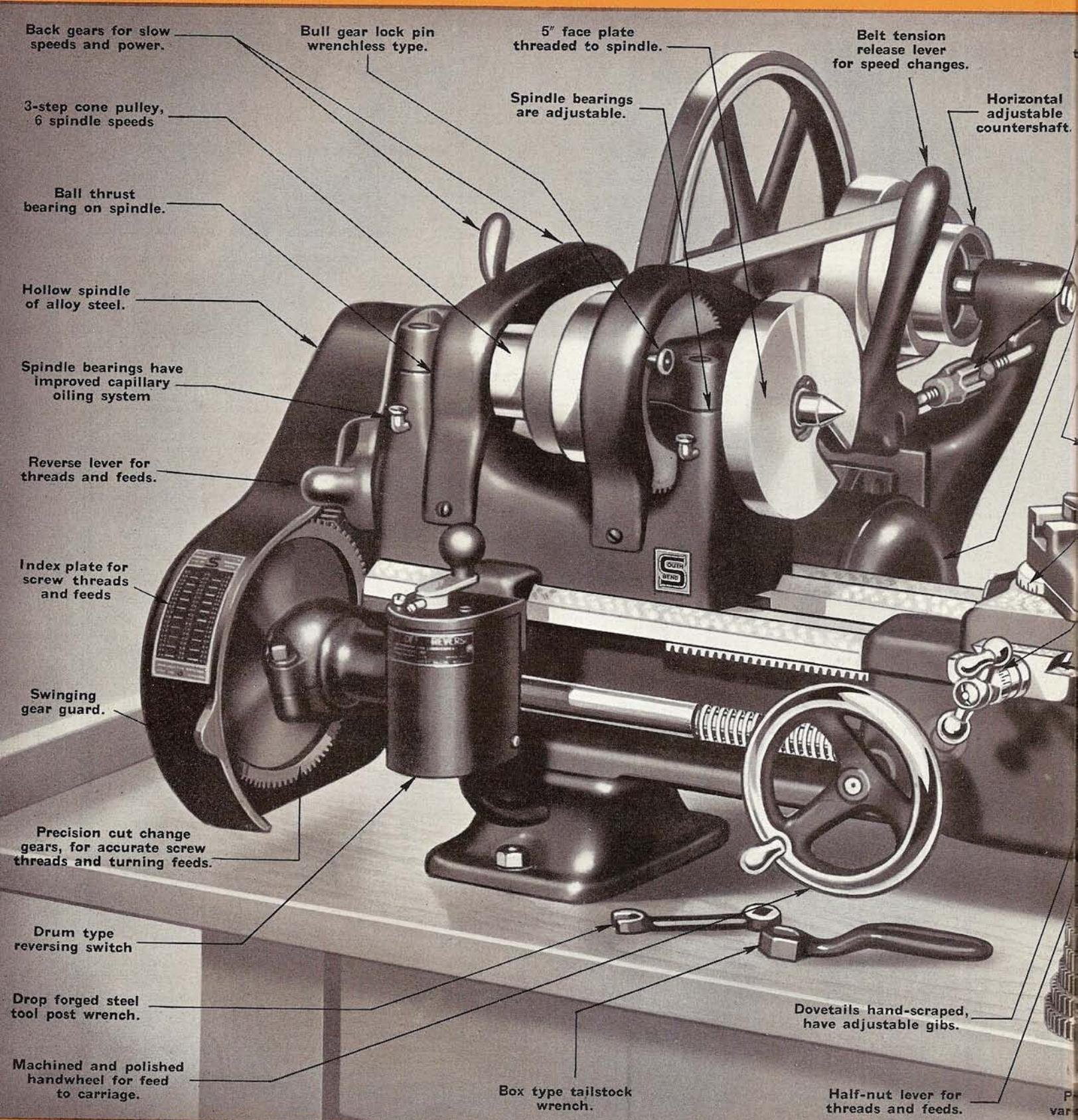


Fig. 39. Gear Chart showing arrangement of change gears for cutting various pitches of screw threads and for power turning feeds.

For Metric Screw Threads, See Page 25.



Weight of above 9"x3' Lathe crated for shipment 320 lbs.

## Features of The New Model 9-inch "Workshop" Lathe — Cuts Screw Threads 4 to 480 Per Inch —

This is an enlarged illustration of the New Model 9-inch "Workshop" South Bend Lathe shown on page 2. This Lathe is identical with all lathes shown in this catalog with exception of the type of drive. The features of the Lathe shown above will be found on all New Model "Workshop" South Bend Lathes. No die-cast parts used.

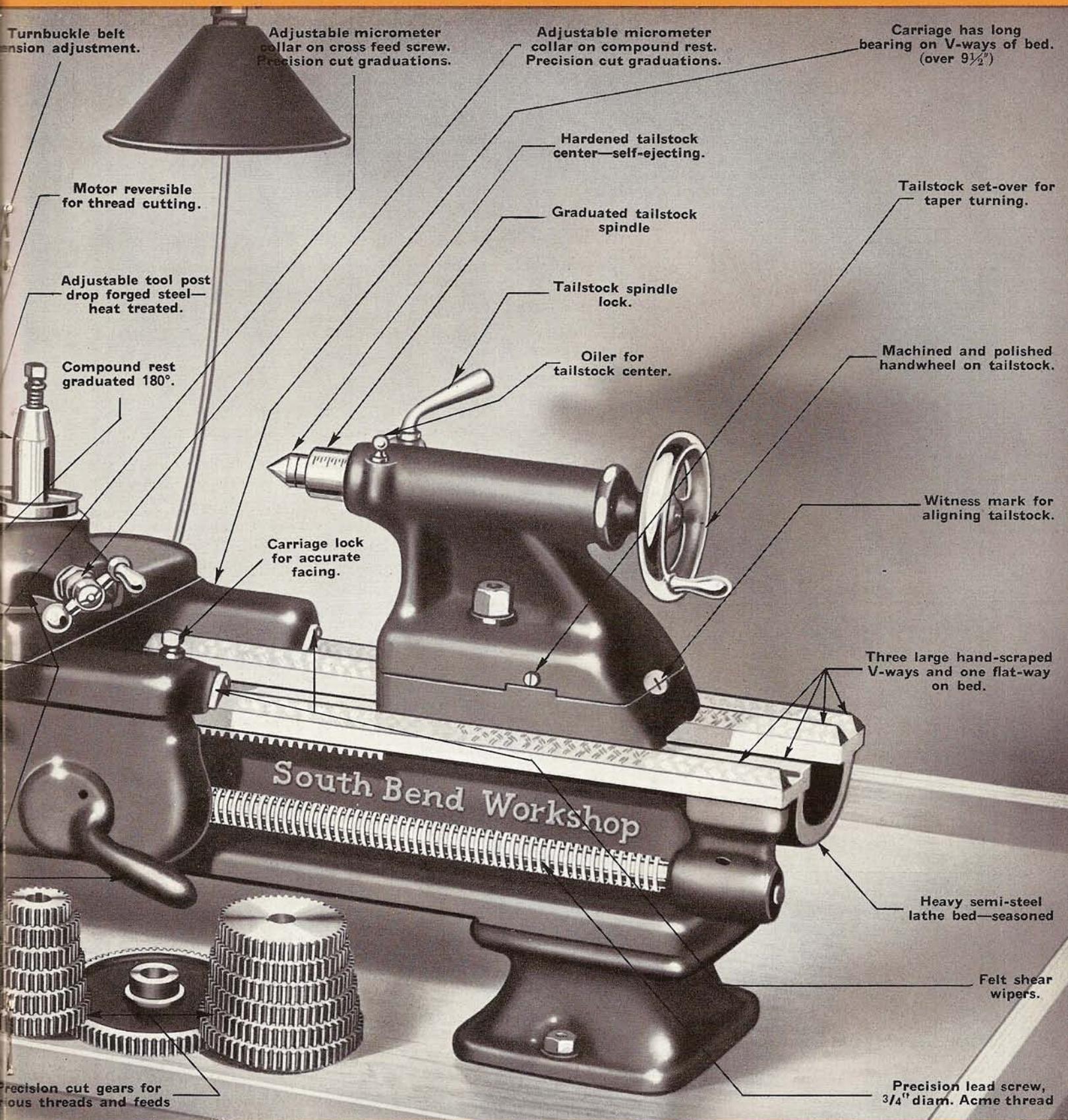


Fig. 100

## Workshop" South Bend Back-Geared Precision Lathe

—Power Longitudinal Feeds .002" to .015"

The illustration shows the 9-inch "Workshop" Lathe with 3-foot bed and adjustable Horizontal Motor Drive—the most popular size and type for general work. The "Workshop" Lathe is also made with 3½ foot, 4 foot and 4½ foot bed and with several other types of drive which are illustrated and priced on the preceding pages.

MURRAY HARDWARE CO.  
727 J ST.  
SACRAMENTO, CALIF.

# Attachments for 9-inch "Workshop" Lathe

Many practical attachments may be fitted to the New Model 9-inch "Workshop" Lathe for handling special classes of work. With these accessories the lathe is ideal for special machine operations of all kinds in the manufacturing plant, tool room, machine shop, garage, etc. These attachments may be used with any 9-inch "Workshop" Lathe and most of them may be ordered with the lathe or at any time later.

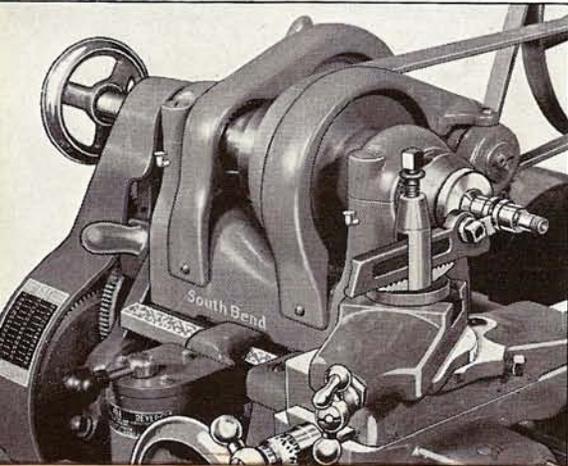


Fig. 40. Machining Small Part Held in Hand Wheel Collet Chuck Attachment.

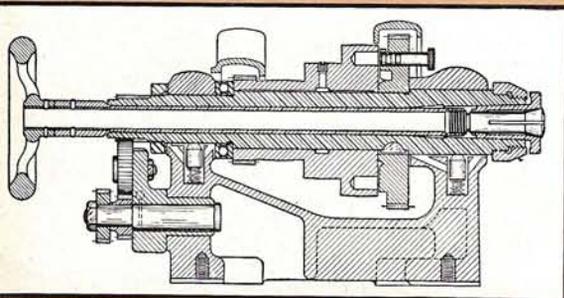


Fig. 41. Cross Section of Headstock Showing Collet Chuck Attachment.

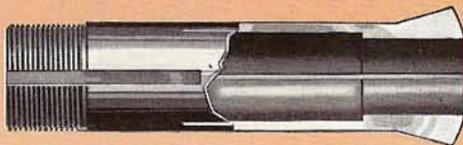


Fig. 42. Cross Section of Collet for 9-inch "Workshop" Precision Lathe.

## Step Chuck and Closer

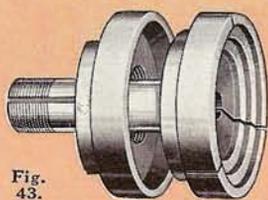


Fig. 43.

The Step Chuck and Closer are used with the draw-in chuck attachment for holding discs, flat work. The closer screws onto the threaded end of the lathe spindle nose and the step chuck screws into the threaded hole in the draw bar of either hand wheel or hand lever draw-in collet chuck attachment. Step chucks are split but not stepped and can be machined by customer. When ordering give sizes of blanks to be machined. Prices on request.

## Hand Wheel Type Draw-in Collet Chuck Attachment

The Draw-in Collet Chuck is the most accurate type of chuck made. The draw-bar of the attachment is hollow which permits bars and rods from  $\frac{1}{8}$ " in diameter up to and including  $\frac{1}{2}$ " in diameter to be passed through the spindle of the lathe and held in the collet for machining. The work is gripped in the collet by turning the hand wheel to the right and released by turning it to the left. The lathe spindle must be stopped in order to open or close the collet.

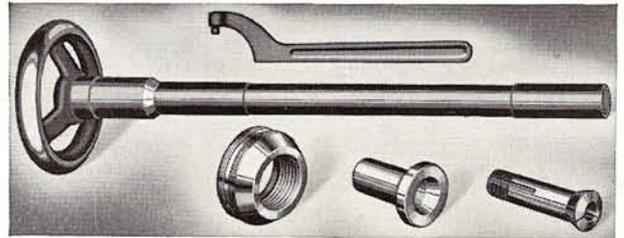


Fig. 44. Hand Wheel Draw-in Collet Chuck Attachment.

Equipment includes hand wheel and hollow draw-bar; spindle nose cap and spanner wrench; tapered closing sleeve made of tool steel, hardened, tempered and ground; and one split collet for round work. When ordering specify hole size of collet wanted.

Cat. No. 4306-W. Code Word "Acru". Shipping weight 4 lbs. Price.....\$25.00

## Split Collets for Round Work

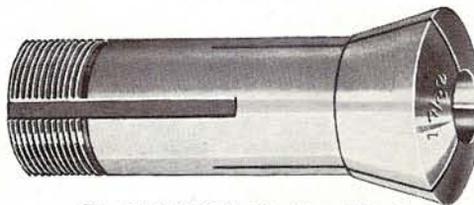


Fig. 45. Split Collet for Round Work.

Collets are made of tool steel hardened and tempered. Both outside and inside surfaces are ground to insure accuracy. The left end of collet is threaded for the hollow draw-bar. The other end of collet is tapered to conform with taper of closing sleeve.

Prices of Collets for square and hexagonal work and with special hole sizes on request. No. 609 $\frac{1}{2}$ . Special collet with  $\frac{3}{8}$ " hole in front end for Jewelers' Plunger Blanks. Code, "Hesol". \$4.25

### Range of Collet Sizes

Collet can be supplied with standard hole sizes from  $\frac{1}{16}$  inch up to and including  $\frac{1}{2}$  inch in diameter in steps of 64ths of an inch.

A standard size collet will hold only work that is within .001" of size specified. A separate collet must be used for each diameter.

### Collets for Round Work

Cat. No. 609-W. Collets,  $\frac{1}{16}$ " up to  $\frac{1}{2}$ " cap. "Catra". Wt. 6 oz. Each \$3.75  
Cat. No. 131-W. Collets smaller than  $\frac{1}{16}$ " cap. "Pyfag". Wt. 6 oz. Ea. \$4.25

### Metric Collets

Cat. No. 1150-W. Collets, 1.5 m.m. up to 12.7 m.m. capacity. "Galom". Wt. 6 oz. Each.....\$4.00  
Cat. No. 149-W. Collets smaller than 1.5 m.m. capacity. "Nyhot". Wt. 6 oz. Each.....\$4.50

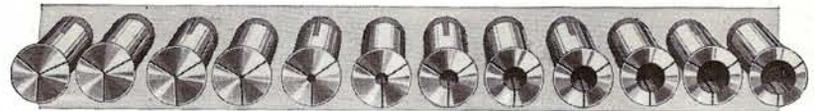


Fig. 46. Collets with Hole Sizes ranging from  $\frac{1}{16}$ " up by Steps of 64ths of an inch.

## Hand Lever Type Draw-in Collet Chuck Attachment

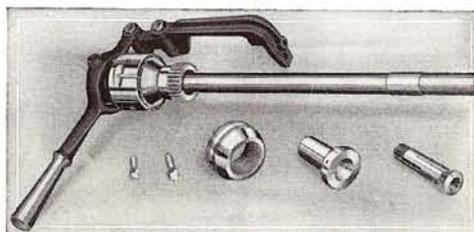


Fig. 47. Hand Lever Type Draw-in Collet Chuck Attachment. Must be fitted to Lathe at Factory.

This attachment is recommended for rapid production work on small parts. Permits releasing and feeding bar stock through the collet without stopping lathe. Collet can be adjusted to any desired tension. Capacity  $\frac{1}{16}$ " to  $\frac{1}{2}$ ". Takes collets listed above.

Cat. No. 5206-W. Code Word, "Abpat". Shipping Wt., 10 lbs. Price with one collet.....\$85.00

# Manufacturing Attachments for "Workshop" Lathes

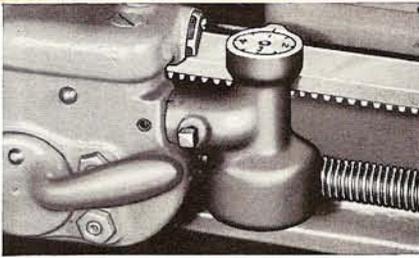


Fig. 48.

## Thread Dial Indicator

When cutting screw threads this attachment permits returning carriage by hand to the starting point of each cut. A graduated dial shows when to clamp half-nuts on lead screw for the next cut.

Cat. No. 810-W. Code Word "Adnok". Shipping weight, 2 lbs. Price each \$6.00



Fig. 49.

## Plain Carriage Stop

A practical and inexpensive stop for general facing, turning, boring, etc. Can be used on either side of carriage at any point along the lathe bed. Has clamp with collar screw for locking to lathe bed.

Cat. No. 758-W. Code Word "Tahro". Shipping wt. 1 1/4 lbs. Price each. \$3.00

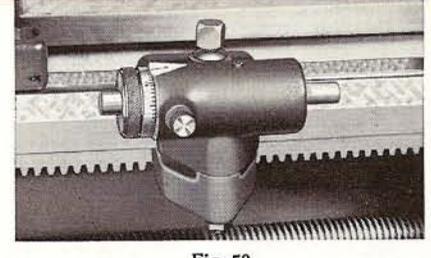


Fig. 50.

## Micrometer Carriage Stop

A precision stop with micrometer adjustment for accurate facing, turning, boring, etc. Does not stop carriage automatically. Has hardened stop which may be locked for doing duplicate work.

Cat. No. 968-W. Code Word "Capys". Shipping weight, 2 lbs. Price each. \$10.00

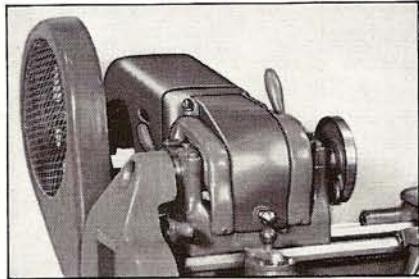


Fig. 51.

## Belt Guards

Cat. No. 1400-W. Cone Pulley Belt Guard for either Horizontal Motor Driven Bench Lathe or Pedestal Motor Driven Floor Leg Lathe. Code "Gicaz" ..... \$17.50  
 Cat. No. 1401-W. Motor Belt Guard (single pulley drive). Code "Giced" ..... \$7.50  
 Cat. No. 1402-W. Motor Belt Guard (double pulley drive). Code "Gicih" ..... \$9.00

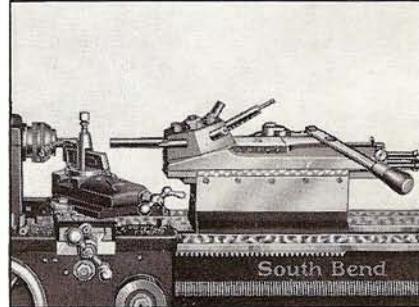


Fig. 52.

## Hand Lever Bed Turret

Hexagon turret head has six holes 5/8" diam. Indexes automatically on each backward movement of the lever. Has adjustable stops for each turret face.

Cat. No. 1509-W. Fitted and bored, "Jarim" \$350.00

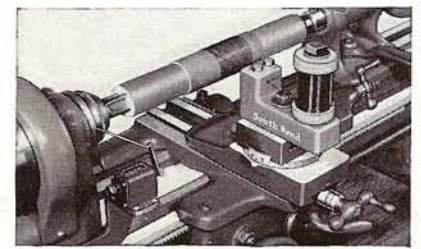


Fig. 53.

## Coil Winding in the Lathe

Electrical coils of all kinds may be wound on the 9-inch "Workshop" Lathe. An unusually wide range of threads and feeds can be obtained with the regular change gear equipment supplied with the lathe. Special change gear equipment can be furnished if desired. We do not supply fixture for coil winding—customer can make this in his own shop.

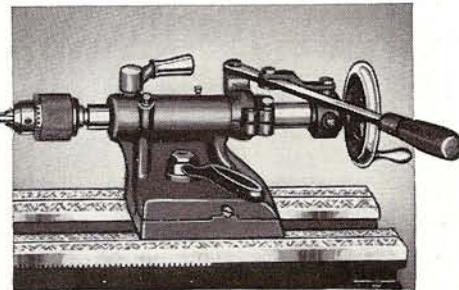


Fig. 54.

## Hand Lever Tailstock

A practical attachment for quantity drilling, reaming, tapping, and counterboring operations.

Cat. No. 519-W. Hand Lever Tailstock, when ordered with lathe, in lieu of Regular Tailstock. "Jibet" ..... \$50.00  
 (Drill chuck shown in illustration is not included in price.)

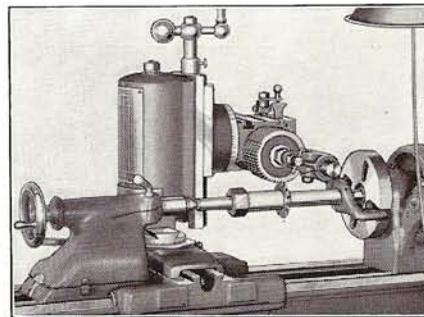


Fig. 55.

## Gear Cutting Attachment

Has index head for 2 to 360 divisions. Cuts spur and bevel gears up to 4 1/2" in diameter. Also for graduating, milling, cutting keyways and splines, etc.

Cat. No. 270-W. "Hapno", Fitted.....\$225.00

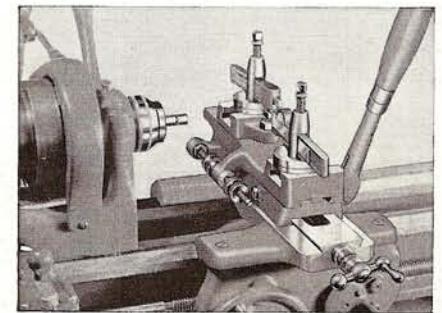


Fig. 56.

## Lever Double Tool Slide

Has adjustable stops. May be operated by either hand lever or cross feed screw. Includes one tool post complete but no tool holder.

Cat. No. 738-W. Double Tool Slide "Buwew" ..... \$60.00

All Attachments Shown Above in Figures 52, 54, 55 and 56 Must Be Fitted to Lathe at Factory

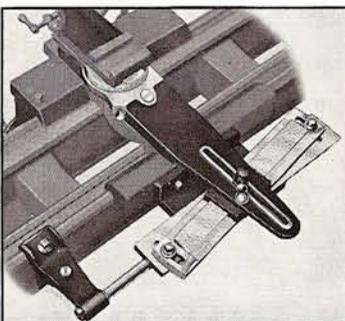


Fig. 57. Taper Attachment on Lathe.

## Taper Attachment

The graduated taper attachment is used for turning and boring all classes of taper work, and is practical for the rapid and accurate production of duplicate tapered parts and pieces. The attachment is bolted to the lathe carriage and can be used at any position along lathe bed. Does not interfere with straight turning. Attachment must be fitted to lathe at factory.

The swivel bar which controls the taper is graduated and can be set for cutting any taper up to 3" per foot and up to 7" in length at one setting; maximum taper in degrees, 14° in either direction.

Cat. No. 428-W. Code, "Hapwo". Wt. 35 lbs. \$55.00

## Open Side Tool Post

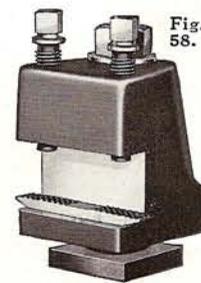


Fig. 58.

The Open Side Tool Post, sometimes called "European Tool Post" is convenient for working close to the face plate or chuck. Made of malleable iron and equipped with clamping bolt, two heat treated dog point screws, and drop forged rocker.

Cat. No. 1276-W. Code "Poraw" \$6.00

# Attachments and Accessories for "Workshop" Lathes

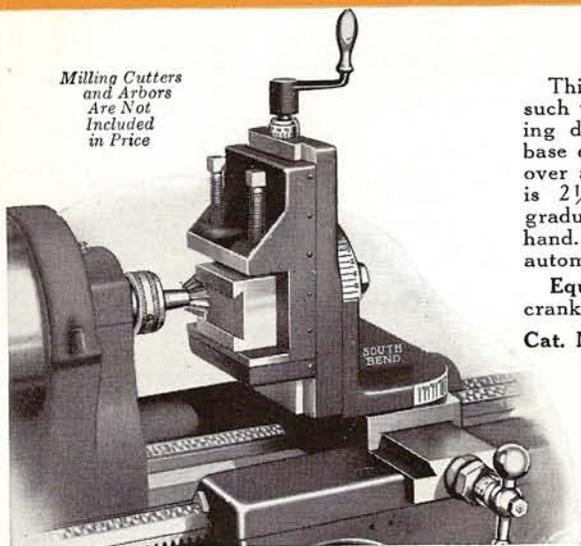


Fig. 59. Milling a Dovetail Using the Milling Attachment.

Milling Cutters and Arbors Are Not Included in Price

## Milling Attachment

This attachment is practical for the small shop handling such work as cutting keyways, squaring ends of shafts, milling dovetails, etc. Attachment fits on the compound rest base of the lathe and swivels both horizontally and vertically over arcs of 180°. Capacity of vise is 1 3/8". Vertical feed is 2 1/4". The vertical adjusting screw has a micrometer graduated collar. Cross feed is 5/8" and is operated by hand. Longitudinal feed can be operated by hand or by automatic feed to carriage. Jaw size 7/8"x3".

Equipment includes: Milling attachment, two V-blocks, crank for feed screw and wrench.

Cat. No. 9-W. "Vabif." Ship. Wt. 13 lbs. . . . . \$35.00

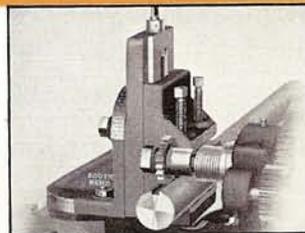


Fig. 60. Milling a Keyway in a Shaft.

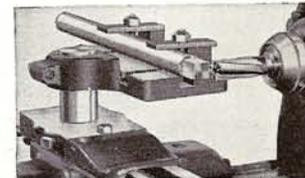


Fig. 61. Milling and Boring Table used to Square End of Shaft.

### Milling and Boring Table

The Milling and Boring Table shown in Fig. 61, at right, is practical for light milling, boring, keyway cutting, etc. The table swivels on a post attached to compound rest base and is adjustable for height. Has 3 T-slots for clamping work.

T-slots take 1/2" bolts. Table size 3 1/2"x7 1/2". Maximum distance from table top to center line of lathe 1 1/2". Clamps and bolts not furnished.

Cat. No. 904-W. Code "Yason." Ship. Wt. 8 lbs. . . \$12.50

## Milling Cutters and Arbors for Milling Attachment

All Cutters Are High Speed Steel

### Plain Milling Cutters

Cat. No.	Width	Code	Price
840-A	3/8"	Naber	\$3.10
840-B	1/2"	Nbokt	4.10
840-C	3/4"	Noerl	4.30
840-J	1"	Ndixo	4.60
840-X	1 1/8"	Nedop	4.90
840-F	1 1/2"	Nfenz	5.10
840-N	1 3/4"	Ngord	5.60

Cutter diam., 2 1/2"; hole diam. 1".

### Side Milling Cutters

Cat. No.	Width	Code	Price
850-A	1/2"	Oates	\$6.50
850-B	3/8"	Oband	6.90
850-C	3/4"	Ocpis	7.20
850-F	1"	Odate	7.60
850-J	1 1/2"	Oehlt	8.00

Cutter diam., 3"; hole diam. 1".



### Spiral End Mills

Cat. No.	Diam.	Morse Taper	Code	Price Each
868-B	1/2"	No. 2	Peals	\$4.80
868-J	3/8"	No. 2	Phial	4.90
868-L	3/4"	No. 2	Pinke	4.90
868-F	1"	No. 2	Plaid	5.70
868-N	1 1/4"	No. 2	Ponds	6.60



### Milling Arbor

For Plain and Side Milling Cutters. No. 109-W. Code "Kael". \$6.00



### Screw Arbor

For Angular Milling Cutters listed below. When ordering specify style number of cutter on which arbor is to be used. No. 829-W. Code "Jahut." Price . . . . . \$2.75



### Collet Chuck

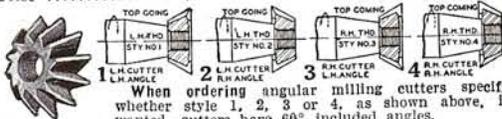
For Woodruff Milling Cutters. No. 101-W. Code "Askeb". \$4.00



### Prices Woodruff Milling Cutter

Cat. No.	Diam.	Width Face	Code Word	Price Each
897-A	1/2"	1 1/8"	Uabed	\$2.80
897-B	3/4"	1 1/4"	Uboas	2.80
897-C	1"	1 3/8"	Ucedx	2.80
897-D	1 1/4"	1 7/8"	Udwin	3.10
897-E	1 1/2"	2"	Ueyos	3.10
897-F	1 3/4"	2 1/8"	Ufent	3.40
897-G	2"	2 1/4"	Ugers	3.40
897-H	2 1/4"	2 3/8"	Uhomi	3.80
897-I	2 3/4"	2 7/8"	Uitoo	3.80
897-J	3"	3 1/8"	Ujbis	4.00

### Angular Milling Cutters



When ordering angular milling cutters specify whether style 1, 2, 3 or 4, as shown above, is wanted—cutters have 60° included angles.

Cat. No.	Cutter Diam.	Thickness of Cutter	Hole in Cutter	Threads Per Inch	Code Word	Price Each
667-W	1 1/4 in.	1/2 in.	3/4 in.	24 NF	Buwas	\$5.40

## Double Pulley Drive

For Spindle Speeds 40 to 1200 R. P. M.



Fig. 62. Two-Step Pulleys for Countershaft and Motor

Twelve spindle speeds ranging from 40 to 1200 R.P.M. can be obtained by using the 2-step pulleys illustrated at left on the motor and countershaft of Motor Drive "Workshop" Lathes. See Twelve-Speed Lathe on page 3.

The "Workshop" Lathe equipped with these pulleys has the high spindle speeds practical for machining small diameter steel and iron parts, aluminum, brass, cast resin plastics, wood turning, also for pattern making, etc. The standard spindle speeds are also available.

Since high spindle speeds require more power than normal speeds, a 1/4 H.P. motor should not be used with the double pulleys. For high speed work a 1/2 H.P. motor (capacitor type or instant reversing type) should be used. A 1/2 H.P. motor (capacitor type or instant reversing type) is preferable if lathe is to be used exclusively for high speed work. See page 24 for motor prices. When double pulleys are used lathe should be fitted with hardened headstock spindle, see page 10.

### Two-Step Pulleys for Countershaft and Motor

Description	Ship. Weight Lbs.	When Ordered in Lieu of Regular Countershaft Pulley and Motor Pulley			When Ordered as Separate Equipment		
		Cat. No.	Code	Price	Cat. No.	Code	Price
Pulley for Countershaft	12	426	Agbun	\$3.00	427	Agdin	\$4.00
Pulley for Motor . . . .	2 1/2	158	Agcup	2.00	159	Agfp	2.50

## Pattern Making Accessories

### Hand Rest for Wood Turning

The hand rest for wood turning shown at the right consists of a base and two T-rests 4" and 12" long. Made of cast iron. Fits on compound rest of lathe. No. 896-W. Code "Adows". \$5.00



(Shipping weight 6 lbs.)

Fig. 63



Fig. 64 No. 731-W. "Kalaf" \$2.50 (Ship. wt. 1 1/4 lbs.)



Fig. 65 CUP CENTER No. 733-W, "Jalak" \$2.00 (Shipping weight 12 oz.)



Fig. 66 SPUR CENTER No. 732-W, "Ikdoi" \$2.75 (Shipping weight 13 ozs.)

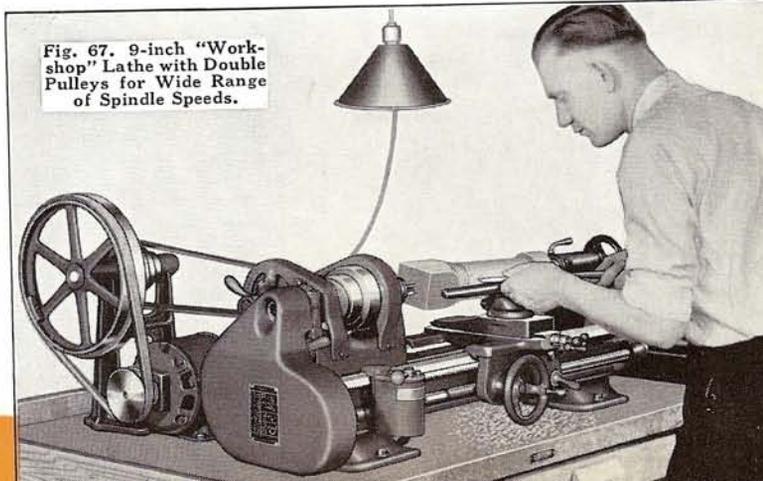


Fig. 67. 9-inch "Workshop" Lathe with Double Pulleys for Wide Range of Spindle Speeds.

# Attachments and Accessories for "Workshop" Lathes

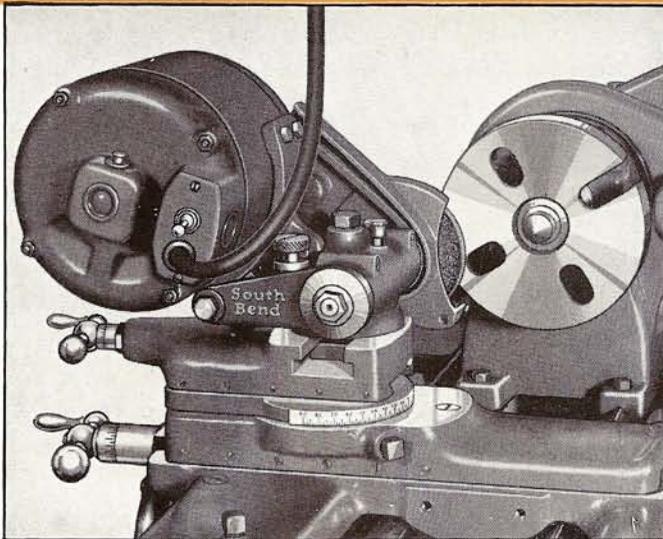


Fig. 68. Electric Grinder Mounted on Compound Rest of Lathe

## Electric Grinder for Lathe

### Ball Bearing Spindle and Motor

This powerful and efficient Grinding Attachment has a precision ball bearing spindle to reduce friction at the high speed at which it operates. Recommended for external grinding on work up to 5 1/4" in diameter.

The grinder clamps on compound rest in place of tool post, as shown in Fig. 68, at left. It can be swiveled to any angle for grinding reamers, lathe centers, milling cutters, valves, pistons, bushings, hardened tools and parts.

Price includes 1/4 H.P. Ball Bearing Motor, 1725 R.P.M. (1-phase, 60-cycle, 110-volt, A.C.)\*, switch, ball bearing grinding spindle, V-belt, belt guard, one 4"x1/2" Alundum grinding wheel (grain 46-N, grade 5-B)†, extension cord, and clamp for mounting. When ordering specify electric current available. Motor operates from lamp socket.

Cat. No. 30-W. Code "Tobas." Ship. wt. 55 lbs. . . . \$45.00

\*For Direct current motor add \$21.00 to above price.

†For 3-Phase current motor add \$12.00 to above price.

‡Extra Grinding Wheels, Code "Puvum." Price Each \$1.50. State class of work.

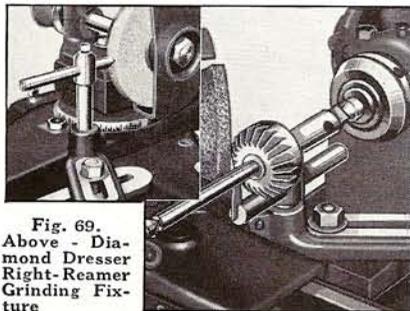


Fig. 69. Above - Diamond Dresser Right-Reamer Grinding Fixture

## Reamer and Cutter Grinding Fixture Spiral Reamer Grinding Stop

The reamer and cutter grinding fixture shown at left clamps direct to the lathe bed. Adjustable spring stops for sharpening reamers and cutters are included in price of fixture.

Cat. No. 19-W Reamer and Cutter Grinding Fixture. Code "Abnog." Ship. Wt. 5 1/2 lbs. . . . . \$8.00

Cat. No. 18-W Diamond Dresser to fit above fixture for truing grinding wheels. Code "Raduz." Ship. Wt. 3/4 lbs. . . . . \$6.00

Cat. No. 3236-W Cup Grinding Wheel for reamer grinding. Code "Lapaf." Ship. Wt. 14 oz. . . . . \$2.00

The cutter stop must travel with the grinding wheel when sharpening spiral fluted reamers. The adjustable stop shown at right is attached direct to the grinding attachment and may be used for grinding straight fluted or spiral fluted reamers.

Cat. No. 1362W. Code "Mavox." Shipping Weight 14 oz. . . . . \$2.00



Fig. 70. Spiral Reamer Stop

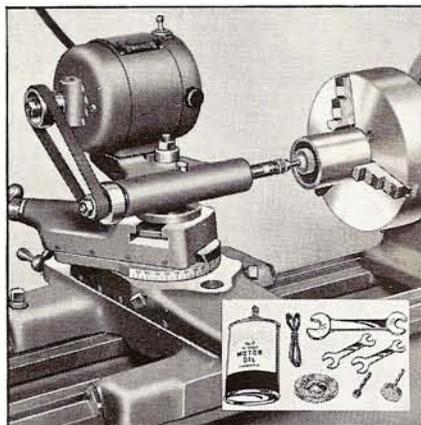


Fig. 71. High Speed Electric Grinder Mounted on Compound Rest of Lathe.

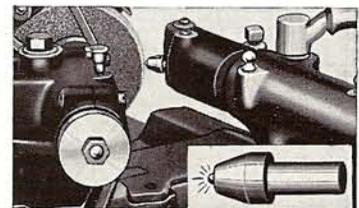
## High Speed Electric Grinder

### For Internal and External Grinding

This is a small grinding attachment for either internal grinding or light external grinding. Grinder clamps on compound rest in place of tool post, as shown in Fig. 71, at left. A double pulley drive provides two spindle speeds, one for internal, and the other for external grinding. The spindle has high speed ball bearings and operates smoothly at the maximum speed which is 19,000 R.P.M.

Equipment included in price consists of high speed 115-volt universal motor, switch, extension cord, wrenches, ball bearing grinding spindle, two belts, one wheel for external grinding (2"x1/4"), balanced chuck for mounting internal grinding wheels, and three mounted wheels for internal grinding (1/4"x1/4", 1/2"x1/4" and 3/4"x1/4").

Cat. No. 1204-W. Code "Gibuf." Ship. wt. 10 lbs. . . . . \$28.00



## Diamond Dresser and Holding Fixture

Grinding wheels must be trued by dressing frequently with a diamond, for satisfactory grinding. The Diamond Dresser is held in the Holding Fixture which is clamped onto tailstock spindle of lathe.

No. 406-W. Diamond Dresser. "Teboq" . . . . . \$6.00

No. 91-W. Holding Fixture "Kibaf" . . . . . \$4.00

## Adjustable Thread Cutting Stop



Fig. 73. Thread Cutting Stop.

Used when cutting screw threads for regulating depth of each chip that is cut. The attachment fits on the cross slide dovetail of the lathe. Thread stop can be adjusted and locked at any point on cross slide.

Cat. No. 67-W. Code Word. "Cegpy." Wt. 8 oz. . . . . \$2.50

## Large Face Plate



Fig. 74. Large Face Plate.

The Large Face Plate is 7 3/8" in diameter and is accurately threaded to fit the spindle nose of the lathe. Is equipped with six slots for clamping work.

Cat. No. 40-W. Code Word, "Cehak." Weight, 6 lbs. \$6.00

## Center Rest



Fig. 75.

Used to support long shafts, tubes, etc., up to 3" diameter for turning, boring, threading, drilling, etc.

Cat. No. 125-W. Code Word, "Cegke." Wt. 10 lbs. . . . \$6.00\*

\* Price when ordered for Raising Block Lathe Cat. No. 905. "Clane" . . \$8.00

## Follower Rest



Fig. 76. Follower Rest.

The Follower Rest is used when machining long slender work up to 2" diameter. It fastens to the saddle and travels with the cutting tool. Should be fitted to lathe at factory.

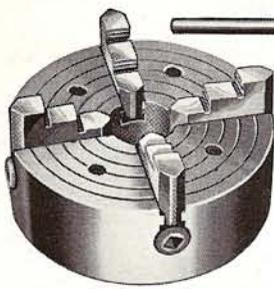
Cat. No. 34-W. Code Word, "Cegmo." Wt. 4 lbs. . . . \$4.00\*

\*Price when ordered for Raising Block Lathe. Cat. No. 938. "Bezok" . \$6.00

# Lathe Chucks and Drill Chucks for "Workshop" Lathes

## 4-Jaw Independent Lathe Chuck

Fitted with Chuck Plate Threaded for Lathe Spindle



Medium Duty

A good, substantial, accurate chuck for machining metals of all kinds. Has four reversible independent jaws with individual screw adjustment for chucking round or irregular work in a concentric or eccentric position. Width of jaws,  $1\frac{1}{8}$ ". Hole through chuck,  $1\frac{1}{8}$ " in diam. Chuck body is a ground semi-steel casting. Face is accurately graduated. Screws are hardened alloy steel. Price and Weight include: Wrench and

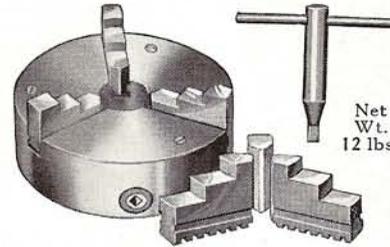
Net Wt. 12 1/2 lbs.

chuck plate threaded to fit lathe spindle and fitted to chuck.

Cat. No. 4006. Chuck. 6-inch Capacity. (Fitted to lathe.) Shipping weight 13 lbs. Code Word, "Fabew".....\$23.00

## 3-Jaw Universal Lathe Chuck

Fitted with Chuck Plate Threaded for Lathe Spindle



Medium Duty

A good, substantial, accurate chuck for machining metals of all kinds. Chuck is self-centering and holds round or hexagonal work. Has two sets of jaws, one set for outside chucking, the other for inside chucking. Width of jaws,  $17/32$ ". Hole through chuck,  $1\frac{1}{4}$ " in diam. Chuck body is a ground semi-steel casting. The scroll is of high grade steel; it is balanced and

Net Wt. 12 lbs.

accurate. Bevel pinion is hardened alloy steel. Price and Weight include: Wrench and chuck plate threaded to fit lathe headstock spindle nose and fitted to chuck and two sets of jaws.

Cat. No. 3005. Chuck. 5-inch Capacity. (Fitted to lathe.) Shipping weight 12 1/2 lbs. Code Word, "Faput".....\$28.00

## 4-Jaw Independent Lathe Chuck - Light Duty



Net Wt. 9 3/4 lbs.

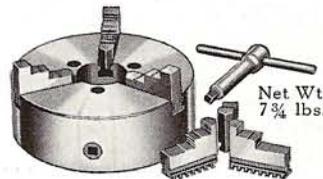
Fitted with Chuck Plate Threaded for Lathe Spindle

A low priced, light duty chuck. Width of jaws,  $1\frac{1}{8}$ ". Hole through chuck,  $1\frac{1}{8}$ " diam. Has four reversible jaws, wrench and chuck plate threaded to fit lathe spindle and fitted to chuck.

Cat. No. 4706. Chuck. 6-inch Capacity. (Fitted to lathe.) Code Word "Fetol." Shipping weight 10 1/4 lbs.....\$15.00

## 3-Jaw Universal Lathe Chuck - Light Duty

Fitted with Chuck Plate Threaded for Lathe Spindle



Net Wt. 7 3/4 lbs.

A low priced, light duty self-centering chuck. Width of jaws,  $1\frac{1}{8}$ ". Hole through chuck,  $1\frac{1}{8}$ " diam. Has wrench, two sets of jaws, and chuck plate threaded to fit lathe spindle and fitted to chuck.

Cat. No. 3705. Chuck. 5-inch Cap. (Fitted to lathe.) Code, "Fonis." Ship. Wt. 8 1/4 lbs.....\$18.00



Jacobs

### 3-Jaw Drill Chuck

A practical, powerful and accurate drill chuck. Jaws are of tempered steel. Prices and weights include pinion key, but not arbor.

Cat. No.	Capacity Inches	Net Wt. lbs.	Ship. Wt. lbs.	Code Word	Price
1200	0 to 3/8	1 1/8	1 3/8	Cleve	\$4.50
1201	0 to 1/2	1 3/4	2 3/8	Wauko	6.50
1202	0 to 3/4	3 3/8	3 3/2	Faloo	9.50



Almond

### 3-Jaw Drill Chuck

An accurate chuck for general drilling in the lathe. Jaws are of tempered steel. Prices and weights include pinion key but not arbor.

Cat. No.	Capacity Inches	Net Wt. lbs.	Ship. Wt. lbs.	Code Word	Price
219	0 to 3/8	1 3/8	1 7/8	Acpen	\$3.85
220	0 to 1/2	1 3/4	2 1/2	Aepip	5.25
327	1/2 to 3/4	3 3/8	3 3/4	Rulid	7.50

Jacobs Hollow Threaded Chuck



Chuck screws on spindle nose of lathe. Has hollow body for holding small rods and bar work, also automobile valves for refacing.

Almond Hollow Threaded Chuck



Chuck screws on spindle nose of lathe. Has hollow body for holding small rods and bar work, also automobile valves for refacing.

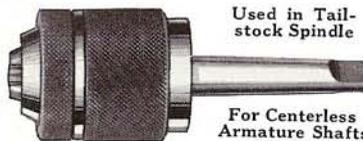
Cat. No.	Capacity Inches	Net Wt. Lbs.	Ship. Wt. Lbs.	Code Word	Price
907-W	1/8 to 5/8	3 3/8	3 3/4	Robal	\$12.50
925-W	3/8 to 3/4	3 3/4	4 1/4	Rodna	14.50

Cat. No.	Capacity Inches	Net Wt. Lbs.	Ship. Wt. Lbs.	Code Word	Price
1153-W	1/8 to 5/8	3 3/8	3 3/4	Hawas	\$ 9.50
1157-W	3/8 to 3/4	3 3/4	4 1/4	Hemud	12.00

## Armature Support Chuck

Used in the tailstock spindle of the lathe to support and center tailstock end of armature shaft. The chuck takes shafts from  $3/8$ " to  $3/4$ " in diameter. Has three brass jaws in which the armature shaft revolves. Jaws close simultaneously and may be locked in position.

Cat. No. 340-W. Armature Support Chuck with Arbor. "Katek"....\$9.00



Used in Tailstock Spindle

For Centerless Armature Shafts



### Drill Chuck Arbor

This arbor is required for fitting drill chucks to the lathe spindle. When not ordered with chuck, specify size and make of drill chuck to be used; otherwise a semi-finished arbor fitted to lathe spindle but not to drill chuck will be supplied.

Cat. No. 709-W. Arbor. No. 2 Morse Taper. Code, "Achuk." Shipping weight, 3/4 lb.....\$1.00

## Threaded Chuck Plate

For Mounting Lathe Chucks



Threaded to fit spindle nose of lathe. When ordering specify serial number of lathe and diameter of recess in back of chuck. Not required for lathe chucks listed above.

Cat. No. 126-W. Chuck Plate. Ship. wt. 5 lbs. "Somak".....\$3.00

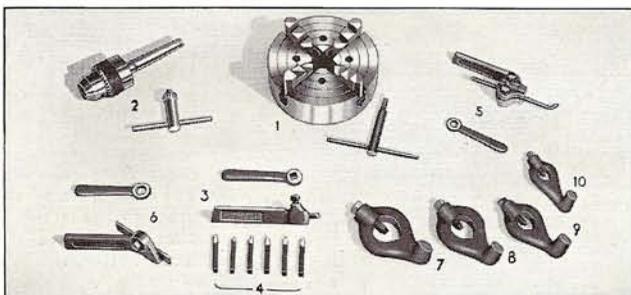


Fig. 77. No. 105-WT Chuck and Tool Assortment for 9-inch "Workshop" South Bend Lathes.

## Practical Chuck and Tool Assortment

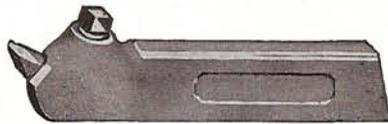
We recommend the chucks and tools shown in the assortment at left and listed below for use on the "Workshop" Lathe. This is the basic equipment required in the average shop for handling general machine jobs, such as turning, boring, drilling, cutting-off, chucking, etc.

Cat. No.	Description	Price
No. 4006	.6-inch 4-Jaw Independent Lathe Chuck (Medium Duty). Fitted to Lathe Ready for Use.....	\$23.00
No. 220	.5-inch 3-Jaw Drill Chuck.....	5.25
No. 709-W	Solid Arbor Fitted to above Drill Chuck.....	1.00
No. 847-S	Straight Shank Tool Holder with 1/2" Cutter Bit, Unground.....	1.25
No. 291	Six 1/4-inch High Speed Steel Cutter Bits, Ground.....	1.65
No. 505-F	Boring Tool Holder, Style "D," with 1/2-inch Boring Bar.....	3.00
No. 833-R	Cutting-off Tool Holder, Right Hand, with ground cutter.....	1.50
No. 178	.4 Standard Malleable Lathe Dogs, 1/2", 3/4", 1", 1 1/4" Cap.....	2.60
No. 105-WT	Chuck & Tool Assort. Code "Dakern." Ship. Wt. 17 lbs.....	\$39.25

NOTE: If No. 3005 Three Jaw Universal Chuck is wanted instead of the No. 4006 Four Jaw Independent Chuck add \$5.00 to above price.

# Tool Holders, Cutter Bits and Accessories

## Lathe Tool Holders



Straight Tool Holder



Right Hand Tool Holder



Left Hand Tool Holder

## Tool Holders—Forged Steel

Drop forged steel, heat treated and hardened lathe tool holders. Supplied in three styles: straight, right-hand and left-hand as illustrated above. Shank is  $\frac{3}{8}$ " x  $\frac{1}{4}$ " and takes  $\frac{1}{4}$ " square cutter bit. Price includes wrench and one high speed steel cutter bit, hardened but not ground. Shipping weight 1 lb.

Cat. No. 847-S. Straight Tool Holder "Acump".....\$1.25  
Cat. No. 847-R. Right-Hand Tool Holder "Acurt" 1.25  
Cat. No. 847-L. Left-Hand Tool Holder "Acvet"..... 1.25

## Ground High Speed Steel Cutter Bits



Made of good quality high speed steel, (Rex AA, Red Cut Superior, or equal) heat treated, hardened and ground to the forms shown and are ready to use. Size  $\frac{1}{4}$ " x  $\frac{1}{4}$ " for use with tool holders listed above. When ordering ground cutter bits, specify Catalog number and letter designating form wanted.



A L. H. Round Turning  
B R. H. Round Turning  
C L. H. Thread- ing  
D L. H. Thread- ing  
E R. H. Thread- ing  
F R. H. Thread- ing

One ground high speed steel cutter bit (choice of any of the forms A to F as shown above). Ship. wt. 2 oz. Cat. No. 1355. Code "Adwap". Price each ..... \$0.30

Set of 6 ground high speed steel cutter bits (forms A to F as shown above). Ship. wt. 10 oz. Cat. No. 291. Code "Adwos". Price ..... \$1.65

## Cutter Bits—Not Ground



## HIGH SPEED STEEL CUTTER BITS.

Made of good quality high speed steel, (Rex AA, Red Cut Superior, or equal) heat treated and hardened but not ground. Size  $\frac{1}{4}$ " x  $\frac{1}{4}$ " x 2" for use with tool holders listed above.

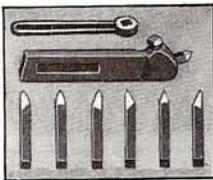
One unground high speed cutter bit, Ship. wt. 2 oz.

Cat. No. 1460. Code "Adwir". Price each .....\$0.17  
Set of 6 unground cutter bits, Ship. wt. 10 oz.

Cat. No. 1629. Code "Cixas". Price per Set .....\$0.90

## Tool Holder and Cutter Bit Set

Set consists of tool holder (choice of straight, right-hand or left-hand) with one unground H.S. Steel Cutter Bit and a set of 6 H.S. Steel Cutter Bits ground to forms A to F shown above. Ship. wt.  $1\frac{1}{2}$  lbs.



Cat. No. 323-A. Code "Actit". Price per Set \$2.90



## Style "C" Boring Tool

Combination boring and turning tool. Price includes holder, wrench,  $\frac{1}{4}$ " boring bar, and H. S. cutter. Ship. wt.  $1\frac{1}{4}$  lbs. No. 486. Code "Ipcen" \$3.00



## Style "D" Boring Tool

Made of drop-forged steel. Price includes holder, wrench,  $\frac{1}{4}$ " boring bar. Wt.  $1\frac{1}{4}$  lbs. No. 505-F. "Adyot" .....\$3.00



## Extra Boring Bars

For use with style D and C boring tools listed on this page. High speed steel tip welded on to carbon steel shank.

Cat. No.	Bar Inches	Code Word	Price Each
3856-A	$\frac{1}{4}$ x 5	Bebis	\$0.50
3856-B	$\frac{3}{16}$ x 6	Beboy	.60
3856-C	$\frac{3}{8}$ x 7	Bedit	.80
3856-D	$\frac{1}{2}$ x 8	Bedok	1.10



## Sleeve Boring Bar

For use in Style "D" Boring Tool Holder. Bar is  $\frac{1}{2}$ " dia. x  $7\frac{1}{2}$ " long. Practical for boring and turning at 90° and 45° angles. Price includes two cutters,  $\frac{1}{8}$ " x  $1\frac{1}{2}$ " and  $\frac{1}{8}$ " x  $1\frac{1}{2}$ ". No. 344. "Bewem".....\$3.00

## Extra Cutters for No. 344 Sleeve Boring Bar



Cutters are high speed steel. 1" cutter is for 90° angle work,  $1\frac{1}{2}$ " cutter for 45° angle work.

Size Cutter	Cat. No.	Code Word	Price Each
$\frac{3}{8}$ " x 1"	1067	Katam	\$0.12
$\frac{3}{8}$ " x $1\frac{1}{2}$ "	1068	Kaleg	.15



Drill Pad

Used in tail spindle. Supports flat work for drilling. Shipping wt.  $1\frac{1}{4}$  lbs. No. 727-W. "Donav" \$2.00



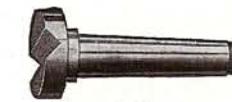
## Cutting-Off Tool

Made of drop-forged steel. Price includes holder, wrench, H.S. cutter, ground. Wt. 1 lb. No. 833-S. "Adcat" .....\$1.50  
Extra Cutter, No. 819, "Adsop". Ship. wt. 3 oz. .50



## Knurling Tool Holder

Made of drop-forged steel. Price includes holder and set of knurls. Wt.  $1\frac{1}{4}$  lbs. No. 820. Code, "Domta" \$3.00  
No. 817. Knurls (Pair) "Digmo". Ship. wt. 1 oz.....\$1.00



## Crotch Center

Used in tail spindle. Centers round work for drilling. Shipping wt. 10 oz. No. 728-W. "Fanid" \$2.50



## Head Spindle Center

Made of tool steel, ground. Ship. Wt. 8 oz. No. 725-W. "Adgud" \$2.00



## Tail Spindle Center

Made of tool steel, hardened and ground. Wt. 8 oz. No. 726-W. "Cenre" \$2.25



## Morse Taper Sleeve

No. 2 Morse Taper Sleeve, No. 1 Morse Taper Bore. No. 118-A "Corse" 6 oz. .75



## Center Drill and Countersink

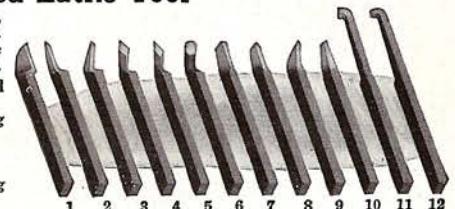
Made of carbon tool steel, hardened and ground. No. 898-A.  $1/16$ " dia. Code "Xmqib". Ship. wt. 3 oz. .30  
No. 898-B.  $3/32$ " dia. Code "Xnrjc". Ship. wt. 3 oz. .35  
No. 898-C.  $1/4$ " dia. Code "Xoskd". Ship. wt. 3 oz. .40

## Hand Forged Lathe Tool

These tools are properly forged to shape, tempered and ground and are ready for use. If ordering less than one complete set, be sure to state both Shape No. and Catalog No.

- L. H. Side Tool
- R. H. Side Tool
- R. H. Bent Tool
- R. H. Diamond Point
- L. H. Diamond Point
- Round Nose Tool
- Cutting-Off Tool
- Threading Tool
- Bent Threading Tool
- Roughing Tool
- Boring Tool
- Inside Threading Tool

Cat. No. 437-CW. Carbon Tool Steel Forged Lathe Tool. Price, each....."Kajef".....\$0.60  
Cat. No. 269-CW. Set of Twelve Forged Lathe Tools. Price per Set....."Kajop"..... 6.75



## R. H. Cutting-Off Tool

Made of drop-forged steel. Price includes holder, wrench, H.S. cutter, ground. Wt. 1 lb. No. 833-R. "Cemso" .....\$1.50  
Extra Cutter, No. 819, "Adsop". Ship. wt. 3 oz. .50



## Threading Tool Holder

Made of drop-forged steel. Price includes holder, wrench and formed H. S. single point cutter (V.U.S.S., or Whitworth). Specify pitch or threads per inch required. Shipping wt. 1 lb. No. 845. Code "Adfob" \$2.50  
Extra Cutter, No. 814. "Adurp". Ship. wt. 3 oz.....\$1.50



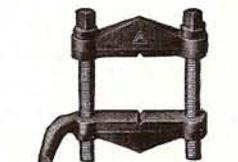
## Standard

## Safety

## Standard Lathe Dog

Made of heavy malleable iron, designed for strength and service. Ship. wt. 1 lb.

$\frac{3}{8}$ " cap. No. 1-MJ. "Kamuk" \$0.45  
 $\frac{1}{2}$ " cap. No. 2-MJ. "Kanad" .50  
 $\frac{3}{4}$ " cap. No. 4-MJ. "Kaneh" .60  
1" cap. No. 6-MJ. "Kanil" .70  
 $1\frac{1}{2}$ " cap. No. 8-MJ. "Kanar" .80  
 $1\frac{1}{2}$ " cap. No. 10-MJ. "Kanux" .95  
For Safety Type Lathe Dogs add 10c to above prices.



## Clamp Lathe Dog

Made of heavy drop forged steel, carefully machined and hardened. Practical for holding round, hexagonal or rectangular work. Each lathe dog is boxed separately.

Cat. No.	Cap. In.	Ship. Wt.	Code Word	Price
160	$1\frac{3}{4}$ "	1 lb.	Laqat	\$2.25
161	$2\frac{1}{4}$ "	$1\frac{1}{4}$ lbs.	Laqib	3.00



Center Gauge for testing lathe centers and setting threading tool. No. 650. "Xutje". wt. 3 oz. .50

# Motors and Switches for 9-inch "Workshop" Lathes

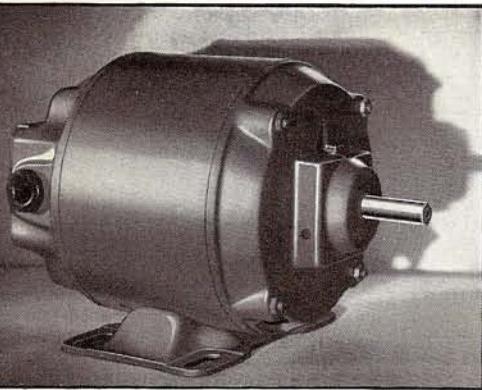


Fig. 78. Start-and-Stop Type Reversing Motor.

Prices of 9-inch "Workshop" motor drive lathes shown in this catalog include 1/4 h.p. start-stop reversing, split-phase motor 1725 R.P.M. for 1-phase 60-cycle alternating current, 110-volt.

If lathes are wanted with motors of other specifications in lieu of motor regularly supplied with lathe, add to the price of the lathe the amount shown in the tabulation below. Motors which we supply are of Westinghouse, General Electric, or equal make.

3/8 H.P. or 1/2 H.P. Motors (condenser type or instant reversing type) should be used for operating the "Workshop" lathe, (1) when greater power is required, (2) when countershaft and motor are fitted with 2-step drive pulleys (see page 20), for operating the lathe at high speeds (3) when motor pulley larger than standard diameter is to be used for obtaining spindle speeds higher than standard.

Capacitor Type Start-Stop Reversing Motors for Single Phase A.C. are recommended for driving the 9-inch "Workshop" Lathe. The electric current consumed in starting the capacitor type motor is lower than in starting the ordinary split-phase motor and the starting torque is higher. These features improve the efficiency of motor, resulting in better operation of lathe.

Instant Reversing Motors may be reversed instantly by throwing the reversing switch from forward to reverse. These motors are recommended for use with the 9-inch "Workshop" Lathe whenever a considerable amount of thread cutting is to be done on the lathe. The instant reversing motor is also preferable when heavy work is done continuously and when frequent starting and stopping of the lathe is required. This motor meets every requirement for starting torque, low power consumption, high efficiency and quiet operation.

## Extra Charges for Special Motors with 9-inch "Workshop" Lathe in Lieu of Standard 1/4 H.P. Motors\*

Add Amount Shown in Tabulation Below to Regular Price of Lathe to Obtain Price of Lathe with Special Motor Equipment in Lieu of the Standard 1/4 H.P. Start-Stop Type Reversing 1-ph., 60 cy., 110-V. Motor

Specifications of A. C. Motors				SINGLE PHASE A. C. MOTORS						THREE PHASE A. C. MOTORS*				D. C. INSTANT REVERSING MOTORS WITH No. 791 DRUM REV. SWITCH*				
Size of Motor H.P.	Speed of Motor R.P.M.	Voltage	Cycle	Split Phase Type Start-Stop Reversing Motor with No. 789 Drum Reversing Switch		Capacitor Type Start-Stop Reversing Motor with No. 789 Drum Reversing Switch		Instant Reversing Repulsion Induction Motor with No. 791 Drum Reversing Switch		Instant Reversing Induction Motor with No. 791 Drum Reversing Switch		Size of Motor H.P.	Speed of Motor R.P.M.	Voltage	Cat. No.	Price		
				Cat. No.	Price	Cat. No.	Price	Cat. No.	Price	Cat. No.	Price						Cat. No.	Price
1/4	1725	110	60	.....	.....	1151-X	Add \$7.00	714-X	Add \$27.00	717-X	Add \$14.00	1/4	1725	115	718-X	Add \$21.00		
1/4	1425	110	50	.....	.....	1152-X	Add 7.00	1156-X	Add 7.00	1164-X	Add 14.00	1/4	1725	230	718-AX	Add 21.00		
1/4	1725	220	60	.....	.....	127-AX	Add 3.00	1151-AX	Add 7.00	714-AX	Add 14.00	..	....	..	.....	.....		
1/4	1425	220	50	.....	.....	711-AX	Add 4.00	1152-AX	Add 7.00	717-AX	Add 14.00	..	....	..	.....	.....		
3/8	1725	110	60	.....	.....	.....	.....	1171-X	Add \$12.00	1176-X	Add \$18.00	1/2	1725	115	1191-X	Add \$25.00		
3/8	1425	110	50	.....	.....	.....	.....	1173-X	Add 12.00	1178-X	Add 18.00	1/2	1725	230	1191-AX	Add 25.00		
3/8	1725	220	60	.....	.....	.....	.....	1171-AX	Add 12.00	1176-AX	Add 18.00	..	....	..	.....	.....		
3/8	1425	220	50	.....	.....	.....	.....	1173-AX	Add 12.00	1178-AX	Add 18.00	..	....	..	.....	.....		
1/2	1725	110	60	.....	.....	1348-X	Add \$22.00	1193-X	Add \$40.00	1360-X	Add \$26.00	1/2	1725	115	1208-X	Add \$34.00		
1/2	1425	110	50	.....	.....	1349-X	Add 22.00	1195-X	Add 40.00	1361-X	Add 26.00	1/2	1725	230	1208-AX	Add 34.00		
1/2	1725	220	60	.....	.....	1348-AX	Add 22.00	1193-AX	Add 40.00	1360-AX	Add 26.00	..	....	..	.....	.....		
1/2	1425	220	50	.....	.....	1349-AX	Add 22.00	1195-AX	Add 40.00	1361-AX	Add 26.00	..	....	..	.....	.....		

No. 1618. Stand for mounting No. 791 Switch on bench top when used with 9-inch "Workshop" Underneath Belt Motor Driven Bench Lathe, \$1.50.  
\*Prices in this tabulation do not include wiring and do not apply to 12-speed lathe listed on page 3.

## Floor Space Required for "Workshop" Lathes

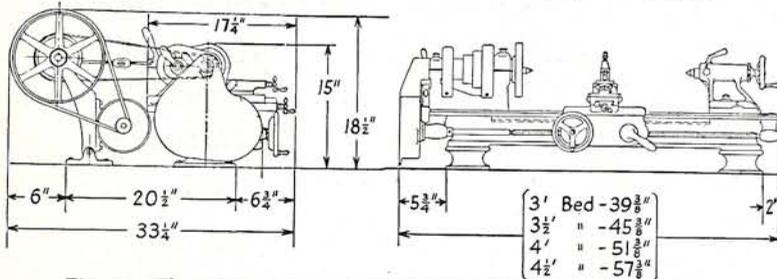


Fig. 79. Floor Space Required for 9-inch "Workshop" Bench Lathes.

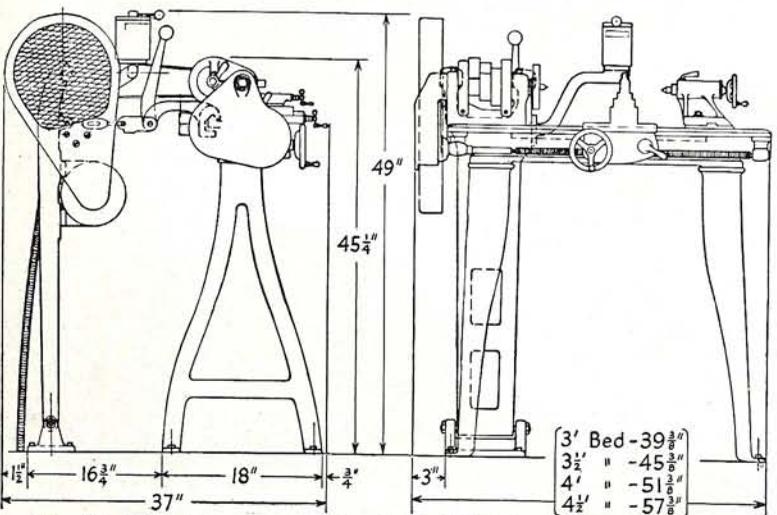


Fig. 80. Floor Space Required for 9-inch "Workshop" Floor Leg Lathes.

## Blue Print Plans for Making Your Own Bench

Blue print plans showing how to build either a cabinet type or an open type frame bench will be supplied on request post-paid, no charge, to any purchaser of a South Bend Bench Lathe.

Bench may be constructed of maple, hard pine or any other suitable, well seasoned wood, as these blue prints show construction and all principal dimensions. Specify size and type of lathe and whether you wish to build a cabinet bench or open frame bench when blue print is requested.

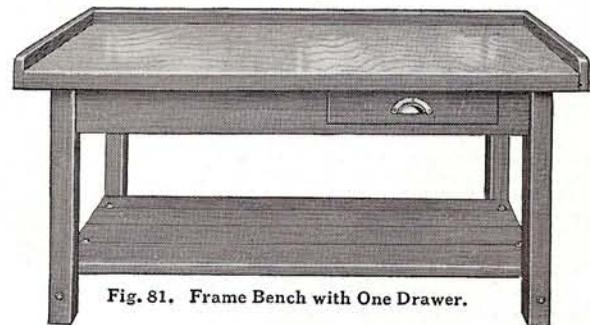


Fig. 81. Frame Bench with One Drawer.

## TOOL GRINDER (Electric)

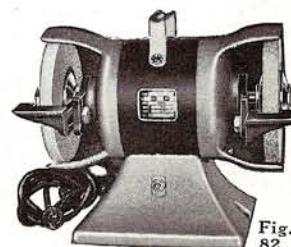


Fig. 82

A high grade ball-bearing grinder for grinding tool bits, drills, etc. Has 1/4 H.P. 1-ph., 60-cy., 110-v., A.C. capacitor motor, 3400 R.P.M.; 2 abrasive wheels, 6"x5/8"x1/2", one fine, one coarse; complete with guards, adjustable tool rests, 10-ft. cord and plug, and built-in switch. No. 1112-W. Code "Lidev," shipping weight 48 lbs. . . . \$21.00

Also available for other current specifications at extra cost.  
No. 1113-W. Eye Shields for Grinder. Per pair, Code "Lidof" . . . . . \$3.50

## Metric "Workshop" Lathes

All models of 9-inch "Workshop" Lathes can be supplied with full metric equipment consisting of a metric pitch lead screw and change gears to cut metric screw threads .10, .125, .15, .20, .22, .25, .3, .35, .4, .45, .5, .6, .7, .75, .8, .9, 1., 1.25, 1.5, 1.75, 2., 2.5, 3., 3.5, 4., 4.5, 5., 5.5, and 6 mm pitch, metric pitch cross feed screw and compound rest screw with micrometer collars graduated .02 mm, tailstock spindle with metric graduations, taper attachment graduated in degrees and mm (if ordered).

Prices of popular models of "Workshop" Metric Lathes are listed in tabulation below. If model wanted is not listed, use same price as for lathe with English equipment, but specify "Full Metric Equipment."

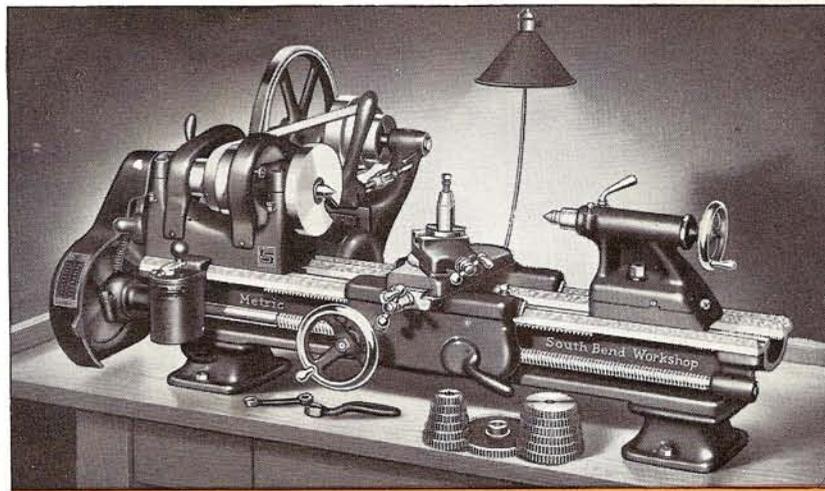


Fig. 83. Cat. No. 40415-YA. 9"x3' "Workshop" Precision Bench Lathe and Adjustable Motor Drive, with full Metric equipment for cutting metric threads, but less bench.....\$117.00

### Prices of Metric 9-inch "Workshop" Lathes with Full Metric Equipment—Bench Not Included

Swing Over Bed Inches	Length of Bed Feet	Swing Over Carriage Inches	Approx. Ship. Wt. for Bench Lathes Pounds	Countershaft Driven Bench Lathe			Horizontal Motor Driven Bench Lathe			Pedestal Motor Driven Floor Leg Lathes		
				Cat. No.	Code	Price	Cat. No.	Code	Price	Cat. No.	Code	Price
9 1/4	3	5 1/2	560	40015-YBW	Masav	\$102.00	40415-YA	Nuwaq	\$117.00	40915-Y	Haqet	\$142.00
9 1/4	3 1/2	5 1/2	585	40015-ZBW	Masid	114.00	40415-ZA	Nuwiy	129.00	40915-Z	Haqix	154.00
9 1/4	4	5 1/2	610	40015-ABW	Masoj	126.00	40415-AA	Nuwuk	141.00	40915-A	Haqod	166.00
9 1/4	4 1/2	5 1/2	635	40015-RBW	Masup	143.00	40415-RA	Nuwim	158.00	40915-R	Haquj	183.00

### Metric Cross Feed and Compound Rest Screws with Metric Collars

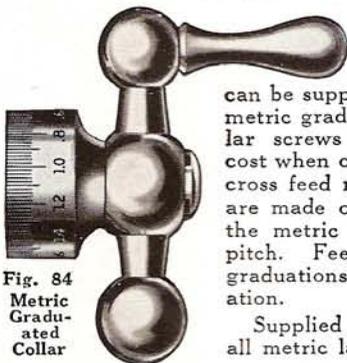


Fig. 84 Metric Graduated Collar

Cross feed screws and compound rest feed screws for the "Workshop" Lathe can be supplied with metric thread and metric graduated collar in lieu of regular screws and collars at no extra cost when ordered with the lathe. The cross feed nut and compound rest nut are made of bronze and tapped to fit the metric thread screws of 2.5 mm pitch. Feed screw collars have 125 graduations reading .02 mm per graduation.

Supplied as regular equipment on all metric lathes.

### Metric Graduations on Tailstock Spindle

The tailstock spindle can be supplied with graduations reading in the metric system in addition to English graduations at no extra cost.

Supplied as regular equipment on all metric lathes.



Fig. 85

### Metric Graduations on Taper Attachment

The taper attachment shown on page 19 can be supplied with metric graduations, in addition to the regular graduations, at no extra cost when ordered with the lathe.

Metric graduations supplied as regular equipment on all taper attachments ordered with metric lathes.



Fig. 86

## Metric Transposing Attachment

### For Cutting Metric Threads on "Workshop" Lathe with English Lead Screw

Metric screw threads equal in accuracy to threads cut on lathes having metric lead screws can be cut on the 9-inch "Workshop" Lathe with English lead screw, when equipped with metric transposing gears, shown in Fig. 87. Extra gears can be supplied for threads not shown on chart. Prices on request.

Metric Thread Equipment for cutting metric threads only in lieu of equipment for cutting English threads. Cat. No. 1758-W. Code "Kayok." No extra charge when ordered with lathe.

Metric Thread Equipment in addition to regular English equipment. Cat. No. 1759-W. Code "Kazaj".....\$5.00

Special Gear Guard. Cat. No. 1139-W Metric Gear Guard (not required when metric gears are ordered with lathe). Code "Kalac." Ship. wt. 20 lbs.....\$4.00

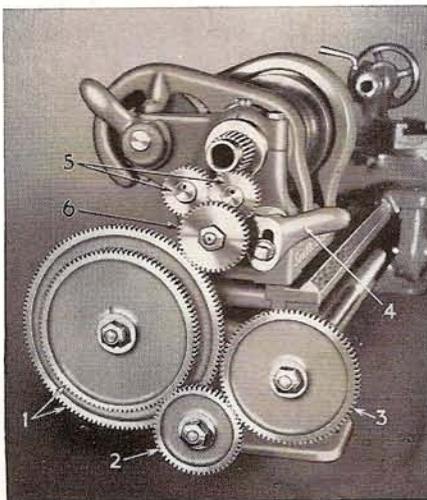


Fig. 87. Lathe Set up for Cutting Metric Screw Threads

METRIC THREAD CHART				9" "WORKSHOP" SOUTH BEND LATHE	
LEAD SCREW 8 THREADS PER INCH					
M. M. PITCH	STUD GEAR	IDLER GEARS	SCREW GEAR	FEEDS IN MM	
6.	48	FIG. 1	20	127T	STUD GEAR
5.5	44	FIG. 1	20	100T	SCREW GEAR
5.	40	FIG. 1	20	18T	FIG. 1
4.5	36	FIG. 1	20		
4.	32	FIG. 1	20		
3.5	28	FIG. 1	20		
3.	24	FIG. 1	20		
2.5	32	FIG. 1	32		
2.	32	FIG. 1	40		
1.75	28	FIG. 1	40		
1.5	24	FIG. 1	40		
1.25	40	FIG. 2	80	127T	STUD GEAR
1.	32	FIG. 2	80	100T	SCREW GEAR
.9	36	FIG. 2	100		
.8	32	FIG. 2	100		
.75	24	FIG. 2	80		
.7	28	FIG. 2	100		
.6	24	FIG. 2	100		
.5	20	FIG. 2	100		
.45	18	FIG. 2	100		
.4	16	FIG. 2	100		
.36	56	FIG. 3	100	127T	STUD GEAR
.3	48	FIG. 3	100	100T	SCREW GEAR
.25	40	FIG. 3	100		
.22	36	FIG. 3	100		
.20	32	FIG. 3	100		
.15	24	FIG. 3	100		
.125	20	FIG. 3	100		
.10	16	FIG. 3	100		

Fig. 88. Metric Thread Cutting Chart

# Time Payment Plan

Install Your Lathe Now Pay 10% Down—  
Balance in 18 Months

The South Bend Time Payment Plan is simple, economical and convenient. We offer this credit service to our customers because it is good business to buy income producing equipment on a deferred payment basis. The low financing charge covers the entire cost for the service rendered. There are no additional fees and there is no increase in the price of the lathe.

The Schedule of Terms, shown at right, gives the amount of the down payment, the average monthly payment, and the financing charge for orders totaling \$85.00 to \$300.00. The down payment is 10% of the total amount of the order (minimum down payment \$15.00). The balance, including the financing charge, is payable in 18 monthly payments, starting 30 days after the lathe is shipped from the factory. All payments are made direct to the factory as we have no connection with any finance company.

Special Terms can be arranged for those who wish to make a larger down payment or larger monthly payments in order to reduce the cost of financing. Complete information supplied on request. When writing for special terms be sure to state the amount of down payment and monthly payments you wish to make.

Thousands of Purchasers of South Bend Lathes have used this plan, and the increased income from the lathe has enabled many to complete their payments in advance of the stated time.

TIME PAYMENT SCHEDULE FOR SOUTH BEND LATHES

Total Amount of Order	Payment With Order	Average Monthly Payments	Number of Months to Pay	Charge for Financing Balance
\$ 85.00 to \$100.00	\$15.00	\$ 5.00	18	\$ 8.00
100.01 to 110.00	15.00	5.50	18	9.00
110.01 to 120.00	15.00	6.00	18	10.00
120.01 to 130.00	15.00	7.00	18	11.00
130.01 to 140.00	15.00	7.50	18	12.00
140.01 to 150.00	15.00	8.00	18	13.00
150.01 to 160.00	10% of Total	8.50	18	14.00
160.01 to 170.00	10% of Total	9.00	18	15.00
170.01 to 180.00	10% of Total	9.50	18	16.00
180.01 to 190.00	10% of Total	10.00	18	17.00
190.01 to 200.00	10% of Total	11.00	18	18.00
200.01 to 210.00	10% of Total	11.50	18	19.00
210.01 to 220.00	10% of Total	12.00	18	20.00
220.01 to 230.00	10% of Total	12.50	18	21.00
230.01 to 240.00	10% of Total	13.00	18	21.50
240.01 to 250.00	10% of Total	13.50	18	22.50
250.01 to 260.00	10% of Total	14.00	18	23.00
260.01 to 270.00	10% of Total	14.50	18	24.00
270.01 to 280.00	10% of Total	15.00	18	25.00
280.01 to 290.00	10% of Total	15.50	18	26.00
290.01 to 300.00	10% of Total	16.00	18	27.00

Note: Special terms can be arranged for those who wish to make larger down payments or larger monthly payments. See paragraph 3 at left.

## FACTORY ORDER BLANK

Use for Cash or Time Payment Orders

Date Dec. 8, 1928

SOUTH BEND LATHE WORKS  
Small Lathe Division  
Niles Ave., South Bend, Ind.

Please enter my order for the following items, subject to your "money-back guarantee," and make prompt shipment:

QUANTITY	CATALOG NUMBER	SIZE	DESCRIPTION	PRICE P. O. B. SOUTH BEND
1	415-YA	9"x3'	"WORKSHOP" Horizontal Motor Driven Bench Lathe, complete with 1/4 H.P. Start Stop Reversing Split Phase Motor (1ph. 60-cy. A.C. 110-v) and regular lathe equipment.	\$117.00
1	105-WT		Chuck and Tool Assortment	39.25

Total Amount of order ..... \$156.25  
 Less down payment (enclosed)..... 15.63  
 Balance due on order..... \$140.62  
 Plus financing charge ..... 14.00  
 Payable in 18 equal monthly payments..... \$154.62

PLEASE ANSWER THESE QUESTIONS

Buyer's Age 38 Married or Single Married Occupation Machinist  
 If in business, state nature of business and how long General Machine Work - 6 yrs.  
 Business Reference Apex Metal Corporation, Detroit, Michigan  
 Shipping Address 4271 E. 22nd Street, Detroit, Michigan  
 Mailing Address " " " " "  
 Buyer's Signature Huston Machine Shop by Ray C. Huston

## Example of Time Payment Order

The illustration at the left shows an example of a time payment order for a 9-inch "Workshop" South Bend Lathe and accessories.

The total amount of the order in this case is \$156.25. The amount of the down payment is \$15.63, as indicated in Column 2 of the tabulation at the top of the page. The financing charge is \$14.00, and the average monthly payment is \$8.50.

## Order Direct from Factory

Mail your order direct to the factory if there is no dealer in your locality selling South Bend Lathes. Your order will receive the same consideration as though it were placed by a large dealer, and the lathe will be shipped promptly.

## Safe Delivery of Lathe

South Bend Lathes are carefully packed and securely crated to assure safe delivery. The lathe is first bolted to substantial skids. All bright parts are then given a protective coating of heavy grease, and the lathe is wrapped with waterproof paper. Accessories, chucks, and tools are packed in a separate box which is nailed to the skids. A substantially braced crate of heavy lumber is then built around the lathe and nailed to the skids.

When left to our judgment, we ship by a financially responsible carrier, and can then guarantee delivery of the lathe and equipment in the same perfect condition as when it left our factory.

## An Old Reliable Manufacturer

The South Bend Lathe Works was established in 1906 and has been manufacturing fine lathes exclusively for the past 33 years. We invite inquiries as to our reputation and responsibility. Ask your banker about our standing and reputation, or write to the St. Joseph Loan & Trust Company, or the City National Bank, South Bend; the First National Bank, Chicago, or any Dun & Bradstreet agency.

Fig. 89. A Time Payment Order for a South Bend Lathe

## Popular in Industry

The 9-inch "Workshop" Lathe is used in some of the largest manufacturing plants in the United States on production operations manufacturing parts for typewriters, adding machines, electric lamps, radios, and other products demanding the most exacting type of precision machine work.

Do not compare the 9-inch "Workshop" Lathe with other small lathes of the amateur type. The 9-inch "Workshop" South Bend Lathe has standard engine lathe features, including a back-geared headstock, V-ways on lathe bed, hand-scraped bearing surfaces, adjustable dovetail gibs, and steel gears in apron.

Materials used in the construction of the 9-inch "Workshop" Lathe are cast iron, semi-steel (50% steel—50% gray iron), and steel. No die cast gears or other die cast parts are used in the construction of the lathe.



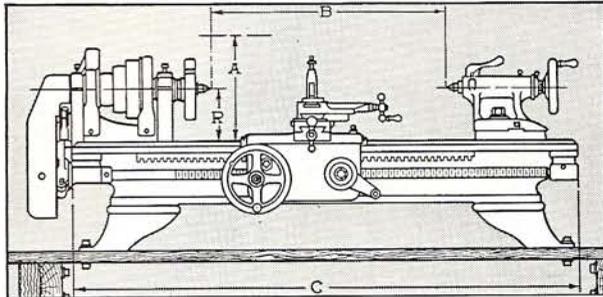
Fig. 90. A Battery of Eight "Workshop" Bench Lathes in a Radio Factory.

## Approximate Freight Rates From South Bend to Principal Cities

To determine the freight charges on your order, use the freight rate applying to the city nearest your shipping point—as shown in list at right. Multiply the total weight of your order by the rate given per hundred pounds and the result will be the approximate freight charges on your order.

**Example**—Freight charges on the 9"x3" "Workshop" Adjustable Horizontal Counter-shaft Motor Driven Bench Lathe as shown on page 2, weighing 320 lbs., to Omaha, Nebraska, at \$1.61 per 100 lbs.....\$5.15

	Rate per 100 lbs.	Rate per 100 lbs.	Rate per 100 lbs.
Baltimore, Md.....	\$1.21	Los Angeles, Calif.....	\$5.78
Boise, Idaho.....	5.04	Louisville, Ky.....	0.78
Boston, Mass.....	1.38	Miami, Fla.....	2.82
Chicago, Ill.....	0.53	Milwaukee, Wisc.....	0.66
Charleston, S. C.....	2.08	Minneapolis, Minn.....	1.51
Cleveland, Ohio.....	0.78	Montgomery, Ala.....	1.78
Denver, Colo.....	2.72	New York, N. Y.....	1.33
Detroit, Mich.....	0.67	New Orleans, La.....	2.07
Hartford, Conn.....	1.33	Oklahoma City, Okla.....	2.57
Helena, Mont.....	5.04	Omaha, Nebr.....	1.61
		Philadelphia, Pa.....	\$1.27
		Pittsburgh, Pa.....	0.90
		Portland, Ore.....	5.78
		Richmond, Va.....	1.30
		St. Louis, Mo.....	0.86
		Salt Lake City, Utah.....	4.91
		San Antonio, Tex.....	3.18
		San Francisco, Calif.....	5.78
		Seattle, Wash.....	5.78
		Wichita, Kan.....	2.05



### How to Determine the Size of a Lathe

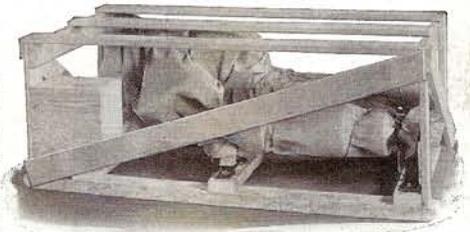
The letters in the illustration above show the various dimensions which determine the size of a Back-Geared, Screw Cutting Lathe: A—Swing over Bed; R—Radius or one-half the Swing; C—Length of Bed; B—Distance between Centers. If you desire, our engineers will recommend the size lathe best suited to your needs.

### Safe Delivery of Lathe

South Bend Lathes are carefully packed and securely crated to assure safe delivery.

The lathe is first bolted to substantial skids. All bright parts are then given a protective coating of heavy grease, and the lathe is wrapped with waterproof paper. Accessories, chucks, and tools are packed in a separate box which is nailed to the skids.

A substantially braced crate of heavy lumber is then built around the lathe and nailed to the skids. When left to our judgment, we ship by a financially responsible carrier, and can then guarantee delivery of the lathe and equipment in the same perfect condition as when it left our factory.



## Money Back Guarantee

### Purchaser Is Protected

You take no chance when you order a South Bend Lathe as you are fully protected by our guarantee which is printed at the right.

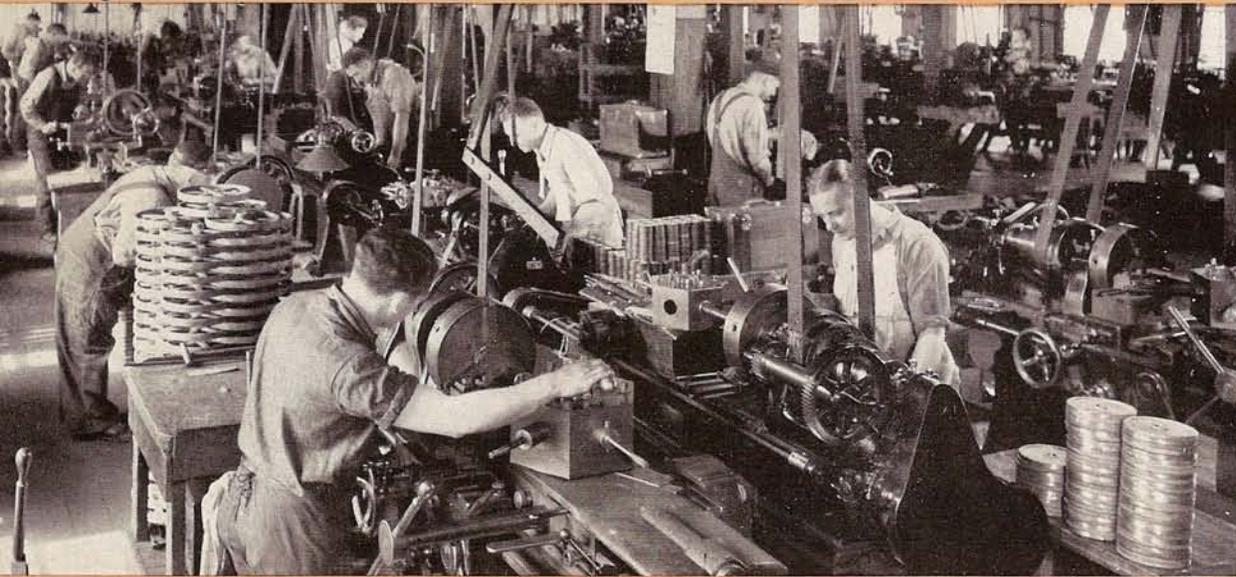
Safe delivery of the lathe is assured as our Traffic Department is especially careful to forward all shipments by a responsible carrier.

Ask any banker about our business reputation and financial responsibility. We invite inquiries regarding our reputation and responsibility.

**WE GUARANTEE** every South Bend Lathe to be accurate and mechanically perfect; to give you entire satisfaction and the service you have a right to expect. We will replace free of charge, F.O.B., South Bend, Indiana, U.S.A., within one year from the date of purchase, any lathe part that proves defective, either in material or workmanship.

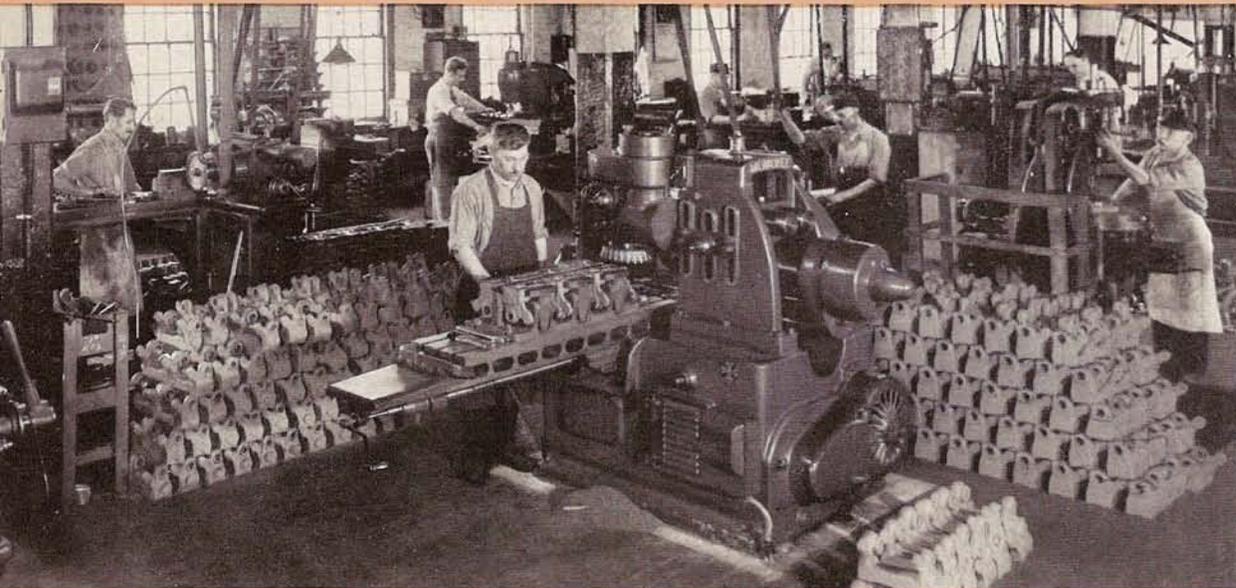
If you are interested in a lathe and are not familiar with the quality and workmanship of South Bend Lathes, we will, on request, ship any size or type of South Bend Lathe anywhere in the United States for use in your shop. If for any reason you are not satisfied, you may return it to us within thirty days and we will pay the return freight charges and refund your money.

SOUTH BEND LATHE WORKS



### PARTS

In this room there are more than 50 South Bend Lathes in operation machining parts for South Bend Lathes.



### PRODUCTION

The shops where parts for South Bend Lathes are machined are equipped with the most modern type of production machinery.

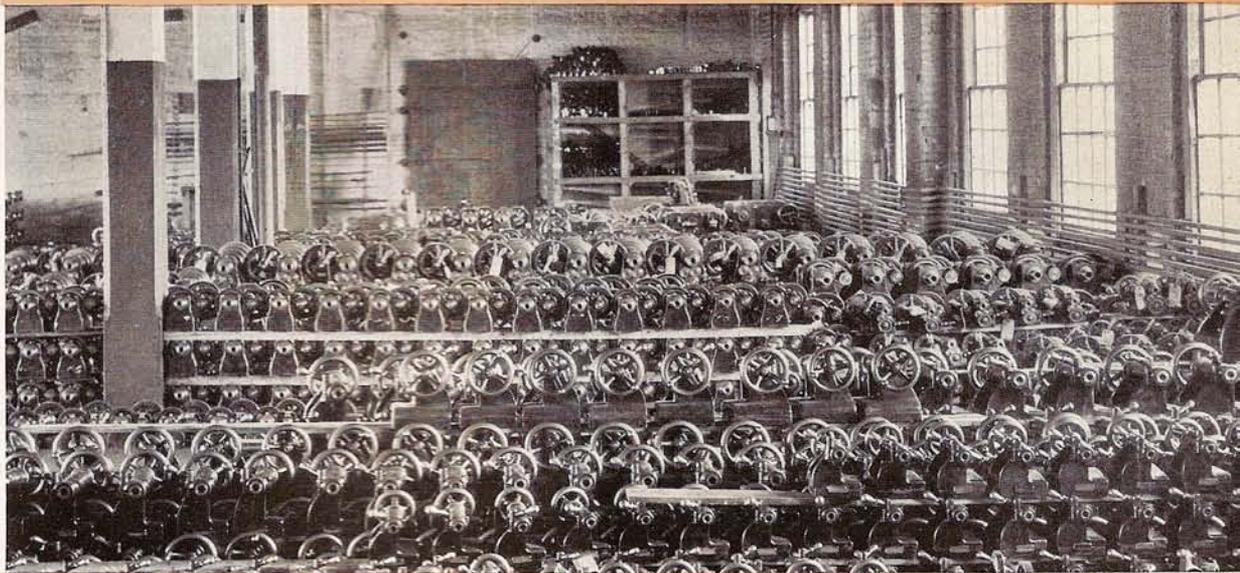


### BEDS

The illustration at the left shows a portion of the large stock of finished lathe beds for 9-inch "Workshop" Lathes.

## STOCK

Units for each size lathe are manufactured in lots of 300 to 1000 and are carried in stock ready for assembling any size or type of lathe.



## ASSEMBLY

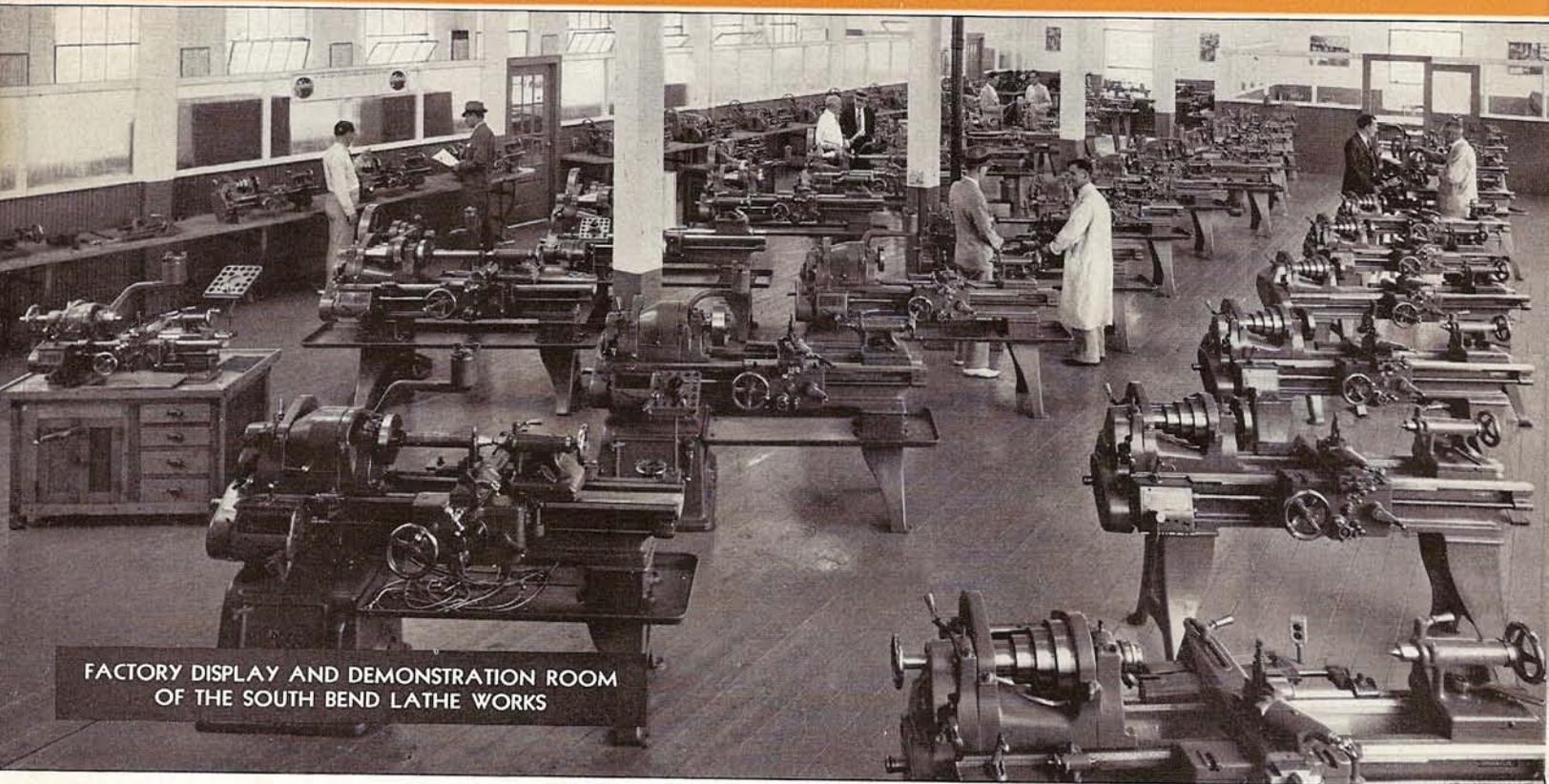
This is the assembly floor where the 9-inch "Workshop" Lathes are assembled complete in large lots.



## LATHES

Part of the large stock of 9-inch "Workshop" Lathes at our factory ready for immediate shipment.





FACTORY DISPLAY AND DEMONSTRATION ROOM  
OF THE SOUTH BEND LATHE WORKS

## Factory Display of South Bend Lathes

You Are Invited to See These Lathes in Operation

Forty-eight different sizes and types of South Bend Back-Geared Screw Cutting Precision Lathes ranging in size from 9-inch swing to 16-24-inch swing are on display at all times on our factory display floor. If you are interested in lathes you are cordially invited to visit this display floor at any time you may happen to be in or near South Bend.

Many of the lathes are connected with electric current and can be demonstrated in operation. These lathes are equipped with various kinds of attachments, tools and accessories; so practically any type of operation may be performed.

The display floor is open daily from 8:00 A.M. until 5:00 P. M., except Saturdays, when it is open from 8:00 A.M. to 12:00 Noon; other times by appointment. Competent engineers and mechanics are available to assist you in selecting the lathe and equipment best suited to your requirements.

The factory of the South Bend Lathe Works, shown below, is located in South Bend, Indiana, which is ninety miles east of Chicago on U. S. Highway No. 20. South Bend can also be reached by the New York Central Railroad, Pennsylvania Railroad, Grand Trunk Railroad, and South Shore Electric Line.



FACTORY OF THE SOUTH BEND LATHE WORKS,  
SOUTH BEND, INDIANA, U.S.A.

## A Few Prominent Industries Using 9-inch "Workshop" South Bend Lathes

### MACHINERY MANUFACTURERS

Allis Chalmers Mfg. Co.  
Barber-Greene Co.  
Black & Decker  
Brown & Sharpe Mfg. Co.  
Chrysler Corporation  
Cutler-Hammer, Inc.  
Fafnir Bearing Co.  
Harnischfeger Corp.  
Houghton Elevator & Machine Co.  
Ingersoll Milling Machine Co.  
John Bath & Co.  
Norton Grinder Co.  
Otis Elevator Co.  
Porter-Cable Machine Co.  
Reece Buttonhole Machinery Co.  
Robbins & Meyers, Inc.  
The Bullard Co.  
Toledo Scale Mfg. Co.  
Warner & Swasey Co.  
Worthington Pump & Machine Co.  
Yates-American Machine Co.

### AUTOMOTIVE INDUSTRIES

Cadillac Motor Car Co.  
DeSoto Motor Co.  
Dodge Manufacturing Co.  
Ford Motor Co.  
General Motors Truck & Coach Corp.  
Indian Motorcycle Co.  
International Harvester Co.  
Muncie Gear Works  
Packard Motor Co.  
Studebaker Corp.  
Stewart-Warner Alemite Corp.  
United Motors Service

### OFFICE EQUIPMENT MFRS.

Cleveland Calculating Machine Co.  
Ditto, Inc.  
Monroe Calculating Machine Co.  
National Cash Register Co.  
Parker Pen Co.  
Pitney-Bowes Postage Meter Co.  
Remington-Rand Co.

### RUBBER INDUSTRY

B. F. Goodrich Co.  
Firestone Tire & Rubber Co.  
General Tire & Rubber Co.  
Goodyear Tire & Rubber Co.  
Hood Rubber Co.

### RADIO AND ELECTRICAL EQUIPMENT

Bell Telephone Laboratories  
Delta Radio Company  
Eastman Electric X-Ray Corp.  
General Electric Co.  
Philco Radio & Television Co.  
Western Electric Co.  
Western Union Telegraph Co.  
Westinghouse Electric & Mfg. Co.

### INSTRUMENT MFRS.

Boehmke Optical Co.  
Eastman Kodak Co.  
Eugene Dietzgen Co.  
Hauser Instrument Co.  
High Standard Mfg. Co.  
Koehler Instrument Co.  
Leeds & Northrup Co.  
Lyon Band Instrument Co.  
Martin Band Instrument Co.  
Remington Arms Co.  
Rudolph Wurlitzer Mfg. Co.  
St. Louis Band Instrument Co.  
Taylor Instrument Co.  
Triplett Electrical Instrument Co.  
U. S. Gage Co.  
Wicks Pipe Organ Co.  
York Safe & Lock Co.

### STEEL AND IRON MFRS.

American Steel & Wire  
Bethlehem Steel Corp.  
Carnegie-Illinois Steel Corp.  
Crucible Steel Co. of America  
Mid-States Steel & Wire  
Republic Steel Corporation

### OIL INDUSTRY

Atlantic Refining Co.  
Gulf Refining Co.  
Prior Oil Co.  
Shell Petroleum Products, Inc.  
Sinclair Refining Co.  
Standard Oil Co.  
Sun Oil Co.  
The Texas Co.

### AIRCRAFT INDUSTRY

Aircraft, Inc.  
Bendix Aviation Corp.  
Curtiss-Wright Aeroplane & Motor Co.  
Fairchild Aircraft Corp.  
Fleetwing, Inc.  
Howard Aircraft Co.  
Sikorsky Aircraft Corp.  
Starling Aircraft Corp.  
Universal Aircraft Co.

### TEXTILE INDUSTRY

A. C. Lawrence Leather Co.  
American Woolen Co.  
Cannon Manufacturing Co.  
Celanese Corporation of America  
Holeproof Hosiery Co.  
Monticello Cotton Mill Co.  
South Mills Corp.  
Wilson Bros.

### MISCELLANEOUS MFRS.

Aero Spark Plug Co.  
Aladdin Industries, Inc.  
Aluminum Co. of America

### MISC. MFRS.—Cont.

Ball Bros.  
Brown Shoe Co.  
Budd Wheel Co.  
Carbide & Carbon Chemical Co.  
Congoleum-Nairn Co.  
Continental Can Co.  
Corning Glass Co.  
Crane Co.  
E. I. Dupont de Nemours & Co.  
Duro Pump & Softener Co.  
General Mills, Inc.  
Libby-Owens-Ford Glass Co.  
Los Angeles Railway Co.  
Malleable Iron Range Co.  
Metropolitan Life Insurance Co.  
National Biscuit Co.  
Richmond Bros. Co.  
Scientific Glass Co.  
Singer Mfg. Co.  
Sunbeam Electric Mfg. Co.  
Synthane Corp.  
Tappan Stove Co.  
Tennessee Coal, Iron & R. R. Co.  
Thompson Products Co.  
Tycoon Tackle Co.  
Waterbury Screw Mach. Prod. Co.  
Wheeling Stamping Co.  
Winthrop Chemical Co.

### U. S. GOVERNMENT SHOPS

U. S. Bureau of Reclamation  
U. S. Bureau of Standards  
U. S. Coast & Geodetic Survey  
U. S. Dept. of Agriculture  
U. S. Dept. of State  
U. S. Forest Service  
U. S. Geological Survey  
U. S. Naval Air Station  
U. S. Naval Observatory  
U. S. Naval Torpedo Station  
U. S. Signal Corps  
U. S. Weather Bureau  
U. S. Bureau of Mines  
U. S. Bureau of Marine Fisheries  
Civil Aeronautics Authority  
Tennessee Valley Authority

### EDUCATIONAL INSTITUTIONS

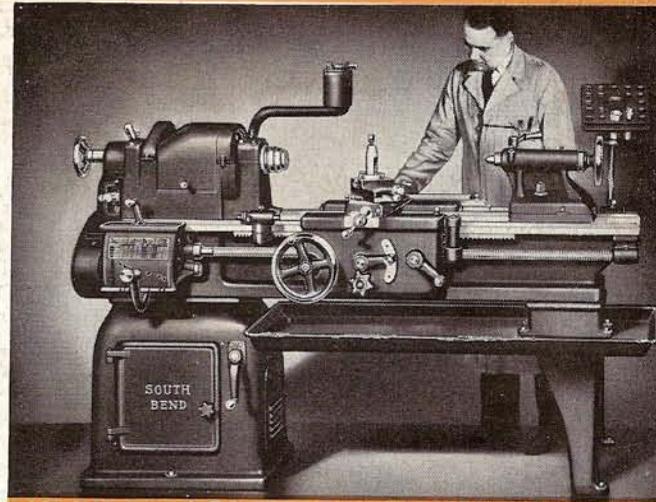
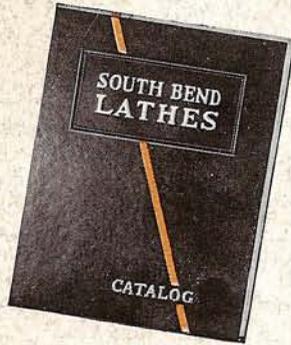
Michigan State College  
University of Pennsylvania  
Purdue University  
Pennsylvania State College  
University of California  
Brigham Young University  
University of Kentucky  
Yale University  
University of Idaho  
Rockefeller Institute  
Stanford University  
University of Maryland  
University of Tennessee  
Western Reserve University

# General Catalog

## Describing Entire Line of South Bend Lathes

In addition to the lathes shown in this catalog, South Bend Lathes are also made in the following sizes: 9-inch, 11-inch, 13-inch, 15-inch, 16-inch, and 16-24-inch swing. Each size is made in Standard and Quick Change Gear type, with Countershaft Drive or Individual Motor Drive. Prices range from \$85.00 up.

These lathes are fully illustrated and described in our new General Catalog, size 8 1/4"x10 1/2". Attachments, chucks and tools for the various sizes of lathes are also listed and priced. A copy of this catalog will be mailed to any address, postpaid, no charge.



16"x6' Underneath Belt Motor Driven Quick Change Gear Precision Lathe Equipped with Tool Room Attachments

**MURRAY HARDWARE CO.**  
727 J ST.  
SACRAMENTO, CALIF.

## Valuable Books on Lathe Work

### Bulletins and Booklets

The bulletins listed below are 6 inch by 9 inch, and contain from 8 to 28 pages each. When ordering specify titles of bulletins wanted. Coin or stamps of any country accepted.

"How to Grind Lathe Tool Cutter Bits" Bulletin No. 35. 16 pages, size 6 inch by 9 inch, 50 illustrations. Price postpaid.....10c

"How to Cut Screw Threads" Bulletin No. 36-A. 24 pages, size 6 inch by 9 inch, 65 illustrations. Price postpaid.....10c

"How to True Armature Commutators and Undercut Mica" Bulletin No. 2-A. (Automotive.) 12 pages, size 6 inch by 9 inch, 35 illustrations. Price postpaid.....10c

"How to Grind Valves and Sharpen Reamers" Bulletin No. 1. (Automotive.) Contains information on refacing automobile engine valves, sharpening valve seat reamers, cutters, etc. 12 pages, size 6 inch by 9 inch, 23 illustrations. Price postpaid.....10c

"How to Finish Pistons" Bulletin No. 9. (Automotive.) Contains detailed information on finishing semi-machined pistons in the lathe. 12 pages, size 6 inch by 9 inch, 31 illustrations. Price postpaid.....10c

"How to Make Bushings" Bulletin No. 7-S. 12 pages, size 6 inch by 9 inch, 28 illustrations. Price postpaid.....10c

"How to Bore Rebabbed Connecting Rods" Bulletin No. 6-C. (Automotive.) 8 pages, size 6 inch by 9 inch, 25 illustrations. Price postpaid 10c

"How to Test and True Differentials" Bulletin No. 5-A. (Automotive.) On removing the old ring gear, testing and truing the ring gear seat, etc. 8 pages, size 6 inch by 9 inch, 20 illustrations. Price postpaid.....10c

"How to True Brake Drums" Bulletin No. 4-A. (Automotive.) Shows how to mount various types of brake drums in the lathe for truing the drum. 16 pages, size 6 inch by 9 inch, 40 illustrations. Price postpaid.....10c

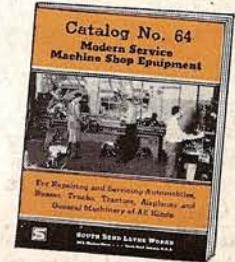
"What to Make in the Lathe" Bulletin No. 34. Illustrates over 65 projects for the home and shop, including models of steam and gas engines, locomotives, airplanes, etc. 28 pages, size 6 inch by 9 inch, 75 illustrations. Price postpaid.....10c

"The Home Workshop" Handbook No. 11-Y. Contains many good shop kinks, rules and tables, etc. 24 pages, size 6 inch by 9 inch, 70 illustrations. Mailed postpaid, no charge.

### Automotive Catalog

Catalog No. 64 illustrated at the right describes and prices 9-inch, 13-inch, 16-inch and 16-24-inch South Bend Motor Driven Lathes and attachments used in the automotive service shop for: refacing valves, truing and undercutting armature commutators, finishing semi-machined pistons, making bushings, truing differential gear case flanges, boring rebabbitted connecting rods, truing brake drums, etc.

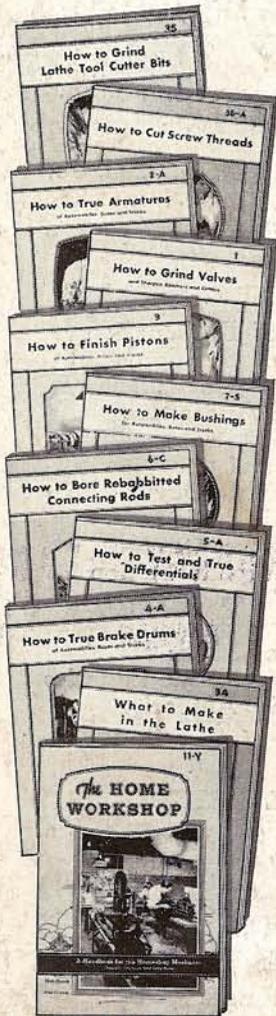
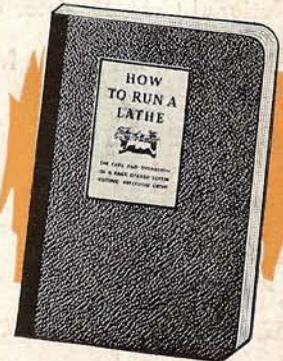
A copy of this 36-page Catalog No. 64, which is 8 1/2 inch by 11 inch, will be mailed to any address on request postpaid, no charge.



### "How to Run a Lathe"

This is an authoritative and instructive manual on the care and operation of a back-gear screw cutting lathe. It outlines the fundamental lathe operations in detail, with illustrations of various classes of work. Contains 128 pages, size 5 1/8 inch by 8 inch, and more than 360 illustrations.

This book is a handy reference book for machinists and apprentices in industrial plants, railroad shops and machine shops. Also used as a text book by students in educational institutions. More than a million and a half copies are now in use. Price postpaid (coin or stamps of any country accepted).....25c



Send for Some of These Valuable Instruction Books



**SOUTH BEND LATHE WORKS — Lathe Builders Since 1906**

575 Niles Avenue - - - - - South Bend, Indiana, U.S.A.

DEALERS IN ALL TRADE CENTERS IN THE UNITED STATES AND CANADA.  
WRITE FOR NAME OF DEALER NEAR YOU.