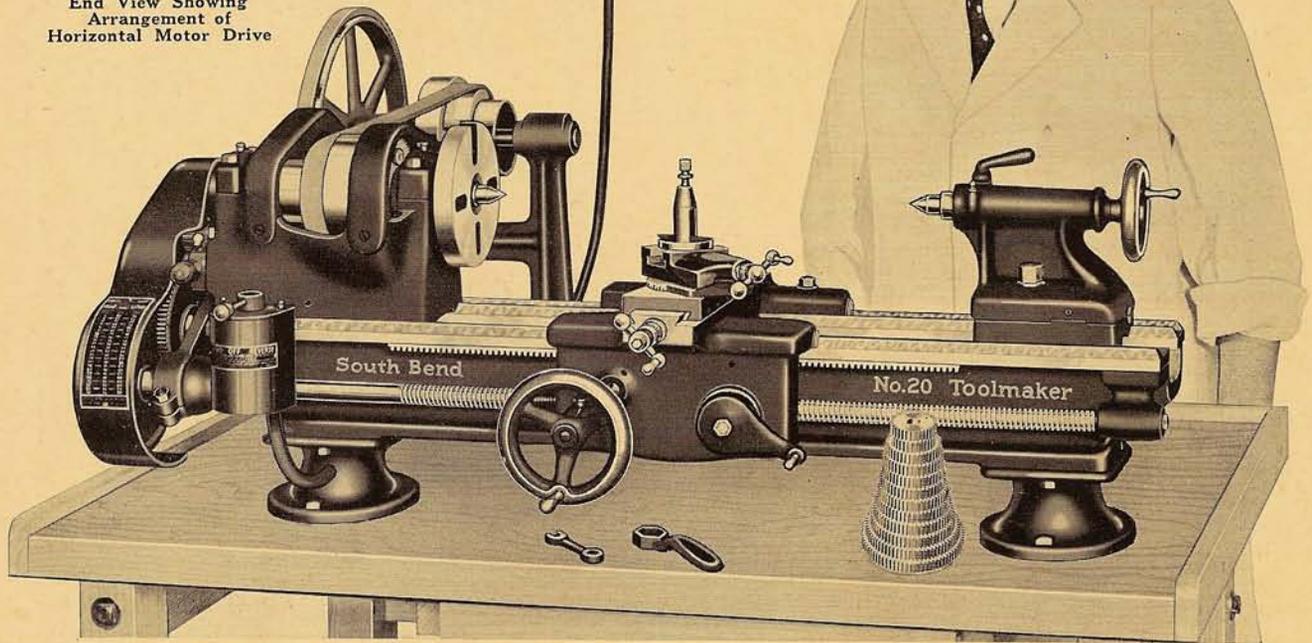


End View Showing Arrangement of Horizontal Motor Drive

Operates from Electric Lamp Socket



9' x 3' Toolmaker Horizontal Motor Driven Bench Lathe, with Compound Rest, but less bench.....\$134.40

## 9-in. No. 20 TOOLMAKER South Bend Horizontal Motor Driven Lathe

A Back-Geared, Screw Cutting Bench Lathe—Automatic Longitudinal Geared Screw Feed

*A Precision Lathe For Cutting Screw Threads and Machining All Kinds of Metals, Woods, Etc.*

To Meet the Demand for a Lathe Lower in Price than the South Bend 9-inch Junior Lathe, we have added the 9-inch No. 20 Toolmaker Light Pattern Back-Geared, Screw-Cutting Lathe to our line. The 9-inch No. 20 Toolmaker Lathe, as illustrated above, is equal in accuracy, workmanship and material to the 9-inch Junior South Bend Lathe. It is lighter in weight and does not have quite as much power as the 9-inch Junior Lathe, but has the same accuracy and precision. The 9-inch Toolmaker lathe has the power to reduce the diameter of a steel shaft  $\frac{1}{4}$ " in one cut.

The 9-inch No. 20 Toolmaker Lathe is a back-geared, screw cutting precision lathe. It can be supplied in several types and drives as illustrated in this circular. The principal features of the lathe, such as the headstock, tailstock, and carriage are illustrated and described on pages 5 and 8 of this circular. The lathe is built of cast iron and steel. There are no parts made of die cast metal. The popular lengths of lathe beds are 3' and  $3\frac{1}{2}$ '.

The Horizontal Motor Drive is compact, quiet and economical in operation. The V-Belt Countershaft is mounted on a bench (but may also be mounted on wall or ceiling) and operates from a  $\frac{1}{4}$  H.P. start-and-stop type reversing motor which may be connected to any 60-cycle, A.C. electric lamp socket. A drum reversing switch controls the motor. Power is supplied by V-belt from the motor to the V-Belt Countershaft and by flat leather belt to cone pulley of lathe. For Motor Information see page 4.

Regular Equipment Included in Price of 9-inch Toolmaker lathe consists of: Graduated compound rest; face plate; tool post, ring and wedge; two 60° lathe centers; spindle sleeve; change gears for threads and feeds; wrenches; lag screws; washers; installation plan and book, "How to Run a Lathe." Bench is extra.

### SCREW THREAD CUTTING CHART

THREAD	STUD	SCREW
4	64	32
5	64	40
6	64	48
7	64	50
8	32	32
9	32	42
10	32	40
11	32	44
11 1/2	32	46
12	32	48
13	32	52
14	32	56
16	32	64
18	32	72
20	32	80
22	32	84
24	16	48
26	16	52
28	16	56
30	16	60
32	16	64
36	16	72
40	16	80

Chart for Threads and Feeds

Screw Thread Cutting. The lathe is supplied with a set of change gears for cutting standard screw threads from 4 to 40 per inch, right or left hand, including  $1\frac{1}{2}$  pipe thread. A metal index chart, as illustrated at left, is attached to the lathe and lists the arrangement of gears for cutting the various screw threads. Extra gears can be supplied to cut screw threads finer than those shown on the chart. Prices on request.

Automatic Feeds. Automatic longitudinal geared screw feeds to carriage ranging from fine to coarse are available for turning and for boring. These feeds are obtained by clamping the half-nuts on the lead screw. The change gears supplied, provide for making the various feed changes.

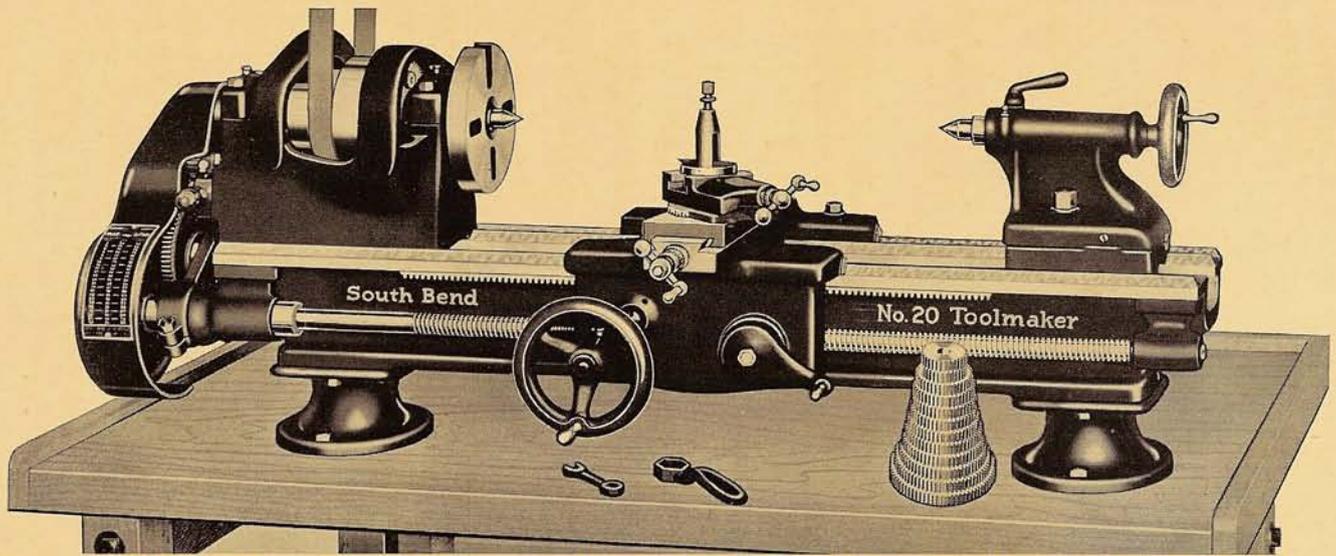
Attachments, Chucks and Tools for the lathe are shown and priced on pages 9, 10 and 11.

### SPECIFICATIONS

Swing over bed.....	9 1/4"
Swing over carriage.....	5 1/2"
Distance between centers 3' bed lathe.....	18"
Hole through spindle.....	3/4"
Screw thread cutting range.....	4 to 40 per in.
Spindle speeds.....	42, 71, 121, 221, 369, 631 R.P.M.
Horizontal Countershaft Pulleys.....	13" x 2 1/8"
Width of cone pulley belt.....	1"
Size of spindle nose.....	1 1/2" diam., 8 threads
Head and tail spindle centers.....	No. 2 Morse Taper
Lead screw, Acme thread.....	3/4" diam., 8 threads
Angular travel of compound rest top.....	2 1/8"
Travel of tailstock spindle.....	2"
Lathe tool shank.....	1 1/2" x 13/16"
Cutter bits.....	1/4" x 1/4"
Tailstock set-over for taper turning.....	5/8"
Horsepower motor required.....	1/4 H.P.
Cross slide travel of compound rest.....	2 1/8"

### Prices of 9-in. No. 20 TOOLMAKER Horizontal Motor Driven Bench Lathe

9-inch No. 20 Toolmaker South Bend Back-Geared, Screw Cutting Bench Lathe with Graduated Compound Rest, Regular Equipment but without bench.....	9" x 2 1/2' 420-X	9" x 3' 420-Y	9" x 3 1/2' 420-Z	9" x 4' 420-A
	\$100.00	\$110.00	\$120.00	\$130.00
Price of Motor Drive Equipment				
V-Belt Countershaft for Horizontal Motor Drive.....	7.00	7.00	7.00	7.00
1/4 H.P. Start-and-Stop Type Reversing Split-Phase Motor, 1725 R.P.M. (1-phase, 60-cycle, A.C. 110-volt)....	10.00	10.00	10.00	10.00
V-Groove Pulley for Motor.....	.50	.50	.50	.50
Reversing Switch (Drum Type) Bracket and Wiring.....	5.00	5.00	5.00	5.00
V-Belt, Motor to Drive Unit.....	.75	.75	.75	.75
Flat Leather Belt, 1" x 53".....	1.15	1.15	1.15	1.15
<b>Price, Lathe and Equipment, Complete.....</b>	<b>\$124.40</b>	<b>\$134.40</b>	<b>\$144.40</b>	<b>\$154.40</b>
Distance Between Spindle Centers of Lathe.....	12 in.	18 in.	24 in.	30 in.
Shipping Weight of Lathe and Motor Drive Equipment....	320 lbs.	340 lbs.	360 lbs.	380 lbs.



9" x 3' Toolmaker Bench Lathe, with Compound Rest and Double Friction Countershaft, but less bench...\$122.00

## 9-inch No. 20 TOOLMAKER South Bend Countershaft Driven Lathe A Back-Geared, Screw Cutting Bench Lathe—Automatic Longitudinal Geared Screw Feed

The 9-inch No. 20 Toolmaker South Bend Light Pattern Bench Lathe shown above is exactly the same as the lathe illustrated and described on page 1 and has the same mechanical features and specifications; the only difference is that it has Overhead Double Friction Countershaft Drive instead of Horizontal Motor Drive.

The Features and Specifications described on this page and on pages 1, and 5 to 8 apply to all 9-inch Toolmaker Lathes, countershaft and motor drive types, shown in this circular.

**Back-Geared Headstock** is hand-scraped to lathe bed, has three-step cone and takes 1-inch belt; has six changes of spindle speeds ranging from 42 to 631 R.P.M.; wrenchless bull gear lock and reverse for feeds and threads. Bearings are cast integral with headstock, are lapped to spindle, and have felt wick lubrication.

**Spindle** is made of special alloy steel, finish ground, and has 3/4" hole its entire length. Collet capacity 1/64" to 1/2". Size of spindle nose 1 1/2" diam., 8 threads, No. 2 Morse Taper Center.

**Precision Lead Screw**, 3/4" diameter, eight Acme threads per inch, for cutting accurate screw threads. See page 8.

**Tailstock** is hand-scraped to bed; has set-over for taper turning; improved spindle lock; self-ejecting center, No. 2 Morse Taper.

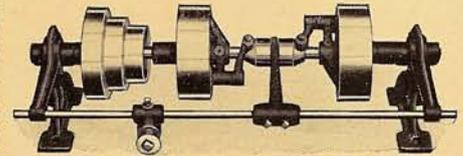
**Saddle of carriage** has long hand-scraped bearings on the ways of bed and is provided with an adjustable gib. A locking device is provided for facing and cutting-off work. The cross slide is hand-scraped and has an adjustable gib. The cross feed screw has a micrometer collar graduated in thousandths of an inch.

**Compound Rest** is graduated to 180-degrees, swivels to any angle, angular travel 2 1/8". Feed screw has micrometer collar graduated in thousandths. The dove-tail slide is hand-scraped and has an adjustable gib. A forged steel tool post takes tool holder shank 11/32" x 13/16" for cutters 1/4" x 1/4".

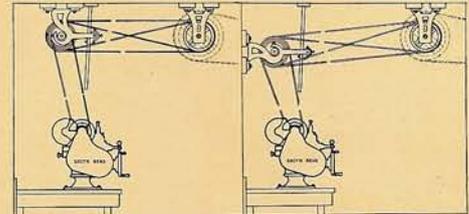
**Lathe Bed** is gray iron and 50% steel, heavily constructed and reinforced by box braces. Three V-ways and one flat way accurately hand-scraped, align headstock, carriage and tailstock.

**Lathe Equipment** consists of: Graduated compound rest; face plate; tool post complete; two 60° lathe centers; spindle sleeve; change gears for threads and feeds; wrenches; installation plan and book, "How to Run a Lathe." Bench is extra.

The **Double Friction Countershaft** supplied for the 9-inch Toolmaker Lathe is practical and powerful, with all parts balanced. The countershaft is equipped with two friction clutch pulleys one of which is operated by a straight belt and the other by a crossed belt. This permits the lathe to be operated both forward and in reverse.



Double Friction Countershaft

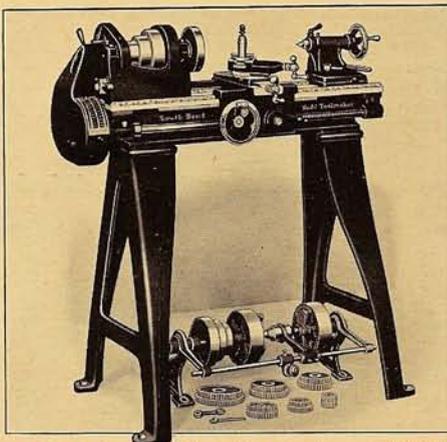


Countershaft on Ceiling Countershaft on Wall

### Prices 9-inch No. 20 TOOLMAKER South Bend Bench Lathe

Swing Over Bed Inches	Length of Bed Feet	Distance Between Centers Inches	Hole Thru Spindle Inches	Countershaft Speed R.P.M.	Power Required H.P.	Approx. Weight Crated Pounds	Without Countershaft		With Double Friction Countershaft	
							Cat. No.	Factory Price	Cat. No.	Factory Price
9/4	2 1/2	12	3/4	270	1/4	305	20-XB	\$100.00	20-XBW	\$112.00
9/4	3	18	3/4	270	1/4	325	20-YB	110.00	20-YBW	122.00
9/4	3 1/2	24	3/4	270	1/4	345	20-ZB	120.00	20-ZBW	132.00
9/4	4	30	3/4	270	1/4	365	20-AB	130.00	20-ABW	142.00

If Tight and Loose Pulley Countershaft is wanted in lieu of Double Friction Countershaft, deduct \$5.00.



9"x3' Toolmaker Floor Leg Lathe.....\$132.00

## 9-inch TOOLMAKER Countershaft Driven Floor Leg Lathe Back-Geared, Screw Cutting—Automatic Longitudinal Feed

The 9-inch No. 20 Toolmaker South Bend Floor Leg Lathe, illustrated at left, is the same as the 9-inch Countershaft Driven Lathe shown above and has the same features and specifications; the only difference is that it has Floor Legs instead of Bench Legs.

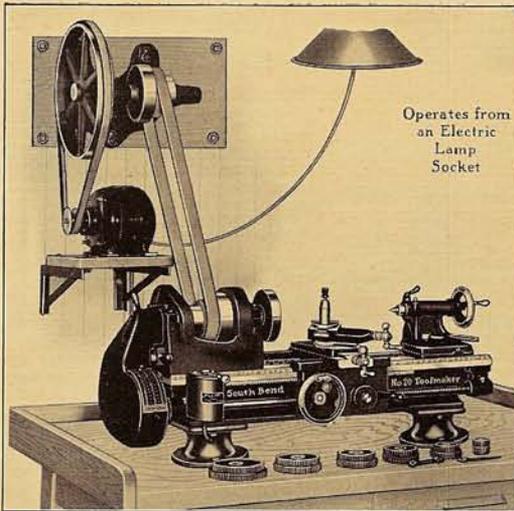
**Lathe Equipment** consists of: Double friction countershaft; graduated compound rest; face plate; tool post, ring and wedge; two 60° lathe centers; spindle sleeve; change gears for screw threads and feeds; wrenches; lag screws; washers; installation plan and book, "How to Run a Lathe."

**Double Friction Countershaft** supplied with this lathe permits the lathe to be operated both forward and in reverse. For illustration and description, see copy above.

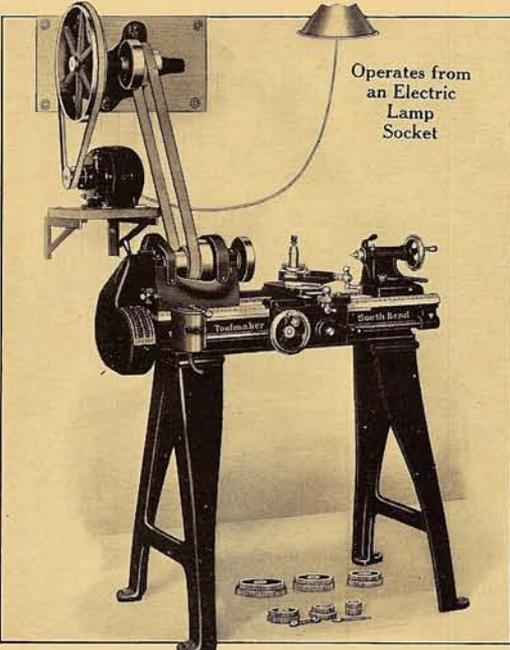
### Prices of 9-inch No. 20 Toolmaker Floor Leg Lathe—Countershaft Drive

Swing Over Bed Inches	Length of Bed Feet	Distance Between Centers Inches	Swing Over Carriage Inches	Power Required H.P.	Approx. Weight Crated Pounds	Without Countershaft		With Double Friction Countershaft	
						Cat. No.	Factory Price	Cat. No.	Factory Price
9/4	2 1/2	12	5 1/2	1/4	375	20-X	\$110.00	20-XW	\$122.00
9/4	3	18	5 1/2	1/4	395	20-Y	120.00	20-YW	132.00
9/4	3 1/2	24	5 1/2	1/4	415	20-Z	130.00	20-ZW	142.00
9/4	4	30	5 1/2	1/4	435	20-A	140.00	20-AW	152.00

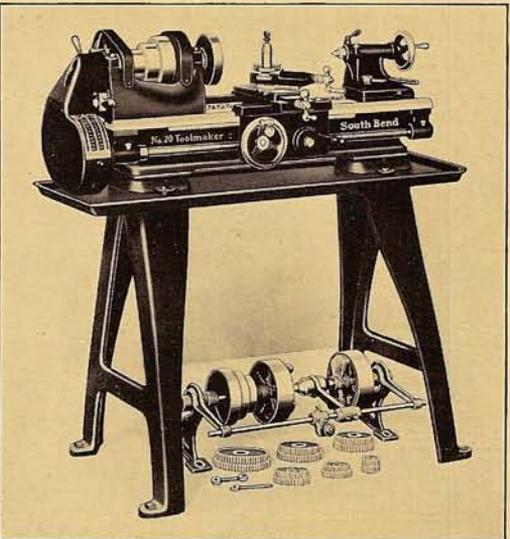
For Tight and Loose Pulley Countershaft in lieu of Double Friction Countershaft, deduct \$5.00.



9" x 3' Toolmaker Simplex V-Belt Motor Driven Lathe, with Compound Rest but Less Bench. \$134.50



9" x 3' Toolmaker Simplex V-Belt Motor Driven Floor Leg Lathe with Compound Rest. \$144.50



9" x 3' Toolmaker Lathe with Oil Pan. \$152.00

### 9-inch TOOLMAKER Simplex V-Belt Motor Driven Lathe Back-Gearred, Screw Cutting Precision Lathe—Bench Type Automatic Longitudinal Geared Screw Feed

The 9-inch No. 20 Toolmaker South Bend Bench Lathe illustrated at left is the same as the 9-inch lathe illustrated on page 1 and has the same mechanical features and specifications; the only difference is that it has Simplex V-Belt Motor Drive on the wall instead of Horizontal Bench Motor Drive.

The Drive is by V-belt from motor to drive unit and by flat leather belt to spindle cone. The motor is a 1/4 H.P. start-and-stop reversing type and operates from electric lamp socket. A reversing switch controls the motor.

Lathe Equipment consists of: Graduated compound rest; face plate; tool post, ring and wedge; two 60° lathe centers; spindle sleeve; change gears for screw threads and feeds; wrenches; installation plan; lag screws and washers, and book, "How to Run a Lathe."

#### Prices of 9-inch Toolmaker Simplex V-Belt Motor Driven Bench Lathe.

9-inch No. 20 Toolmaker South Bend Bench Lathe with Graduated Compound Rest and Regular Lathe Equipment, but not bench	9" x 2 1/2' 520-XB	9" x 3' 520-YB	9" x 3 1/2' 520-ZB	9" x 4' 520-AB
<b>Price of Motor Drive Equipment</b>				
V-Belt Countershaft for Simplex Drive....	7.00	7.00	7.00	7.00
1/4 H.P. Start-and-Stop Type Reversing Split-Phase Motor, 1725 R.P.M. (1-phase, 60-cycle, A.C. 110-volt).....	10.00	10.00	10.00	10.00
V-Groove Pulley for Motor.....	.50	.50	.50	.50
Reversing Switch, Bracket and Wiring....	5.00	5.00	5.00	5.00
V-Belt, Motor to Countershaft.....	.75	.75	.75	.75
Flat Leather Belt, 1" x 64".....	1.25	1.25	1.25	1.25
<b>Price, Lathe and Equipment, Complete....</b>	<b>\$124.50</b>	<b>\$134.50</b>	<b>\$144.50</b>	<b>\$154.50</b>
Distance Between Centers of Lathe.....	12 in.	18 in.	24 in.	30 in.
Shipping Weight Lathe and Drive Equipm't	320 lbs.	340 lbs.	360 lbs.	380 lbs.

### 9-inch TOOLMAKER Simplex V-Belt Motor Driven Lathe Back-Gearred, Screw Cutting Precision Lathe—Floor Leg Type Automatic Longitudinal Geared Screw Feed

The 9-inch No. 20 Toolmaker South Bend Lathe illustrated at left is the same as the 9-inch Lathe shown on page 1, and has the same mechanical features and specifications; the only difference is that it has Simplex V-Belt Motor Drive instead of Horizontal Bench Motor Drive and Floor Legs instead of Bench Legs.

The Simplex Motor Drive consists of a V-Belt Countershaft and motor which may be mounted on the wall, post or ceiling. Drive is by V-belt from motor to drive unit and by flat leather belt to spindle cone. The motor is a 1/4 H.P. start-stop reversing type and operates from a 60-cycle, A.C. electric lamp socket. A drum reversing switch controls the motor.

Lathe Equipment Included in Price of lathe is the same as is listed with the Simplex V-Belt Motor Driven Bench Lathe shown at the top of this page.

#### Prices of 9-inch Toolmaker Simplex V-Belt Motor Driven Lathe.

9-inch No. 20 Toolmaker South Bend Floor Leg Lathe with Graduated Compound Rest and Regular Lathe Equipment.....	9" x 2 1/2' 520-X	9" x 3' 520-Y	9" x 3 1/2' 520-Z	9" x 4' 520-A
<b>Price of Motor Drive Equipment</b>				
V-Belt Countershaft for Simplex Drive....	7.00	7.00	7.00	7.00
1/4 H.P. Start-and-Stop Type Reversing Split-Phase Motor, 1725 R.P.M. (1-phase, 60-cycle, A.C. 110-volt).....	10.00	10.00	10.00	10.00
V-Groove Pulley for Motor.....	.50	.50	.50	.50
Reversing Switch, Bracket and Wiring....	5.00	5.00	5.00	5.00
V-Belt, Motor to Countershaft.....	.75	.75	.75	.75
Flat Leather Belt, 1" x 64".....	1.25	1.25	1.25	1.25
<b>Price, Lathe and Equipment, Complete....</b>	<b>\$134.50</b>	<b>\$144.50</b>	<b>\$154.50</b>	<b>\$164.50</b>
Distance Between Centers of Lathe.....	12 in.	18 in.	24 in.	30 in.
Shipping Weight Lathe and Drive Equipm't	390 lbs.	410 lbs.	430 lbs.	450 lbs.

### 9-inch TOOLMAKER Countershaft Driven Oil Pan Lathe Back-Gearred, Screw Cutting Precision Lathe—Floor Leg Type Automatic Longitudinal Geared Screw Feed

The 9-inch No. 20 Toolmaker South Bend Lathe illustrated at left is the same as the 9-inch Countershaft Driven Bench Lathe shown on page 2, and has the same mechanical features and specifications; the only difference is that it has Oil Pan, and Floor Legs instead of Bench Legs. The oil pan is pressed steel, one-piece construction which is oil tight and extends beyond the ends of the lathe bed and prevents oil and chips falling to the floor.

Oil Pans. All the 9-inch No. 20 Toolmaker South Bend Lathes shown on pages 1, 2 and 3 of this bulletin can be fitted with oil pans at extra cost. Prices for lathes with oil pans quoted on request.

Equipment Included in Price of lathe consists of: Double Friction Countershaft; pressed steel oil pan; graduated compound rest; face plate; tool post, ring and wedge; two 60° lathe centers; spindle sleeve; change gears for screw thread cutting and automatic longitudinal feeds; wrenches; lag screws and washers; installation plan and book, "How to Run a Lathe."

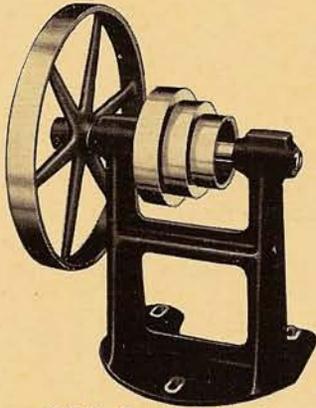
#### Prices of 9-inch Toolmaker Lathes with Oil Pan and Countershaft Drive

Swing Over Bed Inches	Length of Bed Feet	Distance Between Centers Inches	Swing Over Carriage Inches	Power Required H.P.	Approx. Weight Crated Pounds	Without Countershaft		With Double Friction Countershaft	
						Cat. No.	Factory Price	Cat. No.	Factory Price
9 1/4	2 1/2	12	5 1/2	1/4	415	220-X	\$129.00	220-XW	\$141.00
9 1/4	3	18	5 1/2	1/4	435	220-Y	140.00	220-YW	152.00
9 1/4	3 1/2	24	5 1/2	1/4	455	220-Z	151.00	220-ZW	163.00
9 1/4	4	30	5 1/2	1/4	475	220-A	162.00	220-AW	174.00

For Tight and Loose Pulley Countershaft instead of Double Friction Countershaft, deduct \$5.00.

# V-Belt Countershaft for Individual Motor Drive

May Be Used on Bench, Wall or Ceiling for Driving 9-inch No. 20 TOOLMAKER Lathe

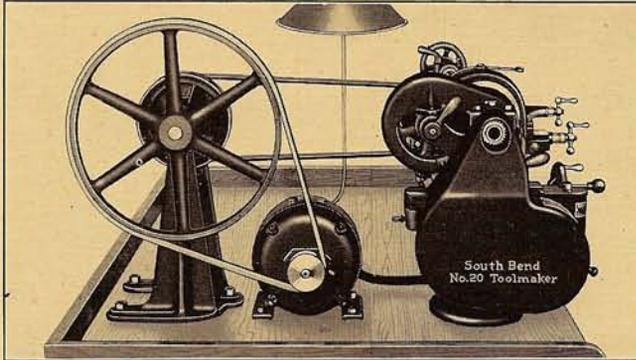


V-Belt Countershaft for V-Belt Motor Drive.

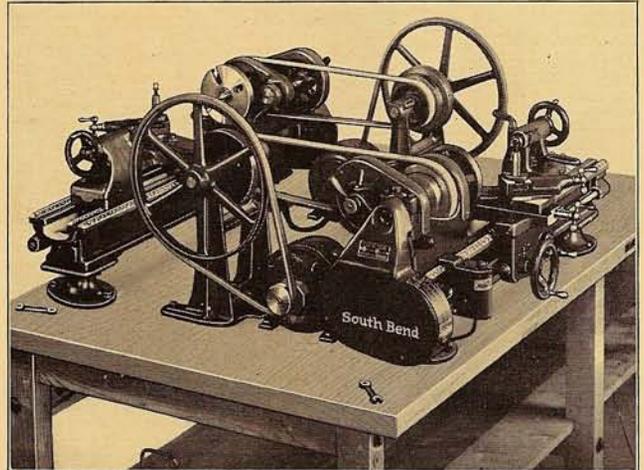
The V-Belt Countershaft, illustrated at left, is a simple and highly efficient type of Countershaft for individual V-belt motor drive of lathe. The large drive pulley has a flat face and is driven by a V-belt from the motor. A flat belt on the cone pulley drives the lathe. This V-Belt Countershaft is suitable for use on bench, wall, post or ceiling and may be used with either bench or floor leg lathes.

The 9-inch Horizontal Motor Driven Lathe illustrated on page 1 and on pages 6 and 7 of this bulletin is equipped with V-Belt Countershaft for Horizontal V-Belt Motor Drive. An end view of the Drive is shown below.

The 9-inch Toolmaker Simplex V-Belt Motor Driven Lathes illustrated on page 3 are also equipped with the V-Belt Countershaft for Simplex Motor Drive.



End View of Lathe with Horizontal V-Belt Motor Drive.



Two 9-inch No. 20 Toolmaker Lathes Mounted on Bench and Operated by Individual Motor Drive.

## Practical Motor Drive for TOOLMAKER Lathes Recommended for the School Shop

The illustration above shows a practical installation of two 9-inch No. 20 Toolmaker Motor Driven Bench Lathes. Each lathe has an individual motor drive which consists of a V-Belt Countershaft and motor, mounted on the bench top back of the lathe. This type of installation is very popular in school shops. Four, eight or ten of these lathes may be used by mounting two on each bench as shown in the illustration above. This installation requires a minimum amount of bench space and there are no overhead obstructions.

A V-Belt Countershaft and a 1/4 H.P. start-and-stop reversing motor controlled by a drum reversing switch are used for each lathe and may be operated from any ordinary 60-cycle, A.C. electric lamp socket. Drive is by V-belt from motor to V-Belt Countershaft and by flat leather belt to lathe. Mechanical features, specifications and equipment of lathes are the same as shown on page 1.

## Start and Stop Reversing Motors and Drum Type Reversing Switches

The Motor Driven Lathes shown in this bulletin are all operated by start-and-stop type reversing motors and drum type reversing switches, as illustrated and described at right.

When Cutting a Screw Thread, the operator should be able to reverse the direction of the power feed of the carriage after taking each chip in the cutting of the thread. This must be done by reversing the entire lathe mechanism. For this reason we use a reversing motor and a reversing switch on all 9-inch No. 20 Toolmaker South Bend Lathes.

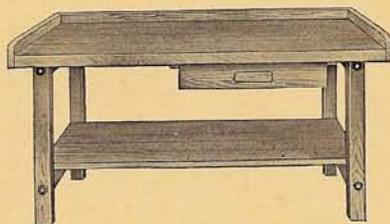
It is Possible for the expert mechanic to cut screw threads on a lathe without reversing the carriage by power after each chip, but it is difficult for anyone except the experienced operator and even he prefers the reversing by-power feature when cutting small precision screw threads of various kinds.

Other Jobs Requiring the Reversing Feature include tapping in the lathe, grinding in the lathe, special jobs using an inverted tool in the tool post.

### Instant Reversing Motors

Instant Reversing Motors can be supplied in lieu of the start-stop reversing type motor if desired. For instant reversing motor suitable for operation from 3-phase, 60-cycle, A.C., add \$14.00 to the price of the start-stop type reversing motor as listed in the price tabulations on pages 1, 2 and 3. For instant reversing motor suitable for operation from 1-phase, 60-cycle, A.C., add \$17.00. For instant reversing motor for direct current, add \$13.00.

Motors We Furnish are Westinghouse, General Electric, or equal make. A complete stock of motors, suitable for the most common electric current specifications, is carried in our factory so that deliveries can usually be made out of stock with motor and complete electrical equipment, wired and connected ready to use.



Frame Bench Equipped with Single Drawer. Shipped Knocked Down to Save Freight.

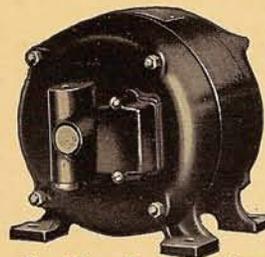
## Frame Benches for 9-inch TOOLMAKER Bench Lathes

The frame type of bench, with single drawer, for 9-inch Toolmaker Lathes is illustrated at left and priced below. Supplied in either hard maple or selected yellow pine.

Benches are doweled and mortised. The tops are made of heavy strips glued under heavy pressure. The finished thickness of bench tops is 1 1/4 inches or more. Drawer is mortised and grooved. Benches are shellacked and varnished in natural wood finish.

### Blueprints of Benches

If you wish to make your own bench, we will supply blueprints and detailed drawings of the type of bench you desire, free of charge with the 9-inch Toolmaker lathe.



Start-Stop Reversing Type Split-Phase Motor.

### Start-Stop Reversing Motor

All 9-inch Toolmaker Motor Driven Lathes illustrated in this bulletin are equipped with 1/4 H.P. start-stop reversing split-phase type motors, 1725 R.P.M., suitable for 1-phase, 60-cycle, alternating current, 110-volt. Motors may be operated from an ordinary lamp socket. Motor will operate in either direction at the will of the operator, by letting motor come to a full stop before throwing the switch lever across from forward to reverse or vice versa.

### Drum Type Reversing Switch

The drum reversing switch supplied with the 9-inch Toolmaker Lathes shown throughout this bulletin is a six contact reversing switch. The switch is used for starting, stopping and reversing the start-stop type reversing motors. It can also be used with instant reversing type motors. This switch is practical for the efficient operation of the back-gear, screw cutting lathe and conforms to the requirements of underwriter's specifications.



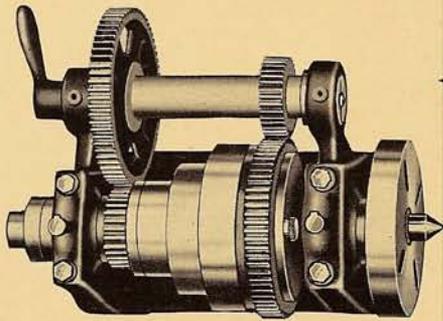
Drum Reversing Switch

### Prices of Frame Benches Equipped with One Drawer

Length Bench Top	Width Bench Top	Height of Bench	For Lathes with Bed Lengths of	Hard Maple Benches		Pine Benches	
				Cat. No.	Price	Cat. No.	Price
45"	28"	30 1/2"	2 1/4', 3'	128-L	\$33.00	915	\$20.00
54"	28"	30 1/2"	3 1/2', 4'	128-M	34.00	917	23.00

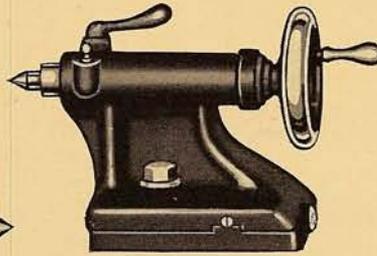
# Features of the 9-inch No. 20 TOOLMAKER South Bend Lathe

Applying to All Types of Lathes Shown Throughout This Bulletin



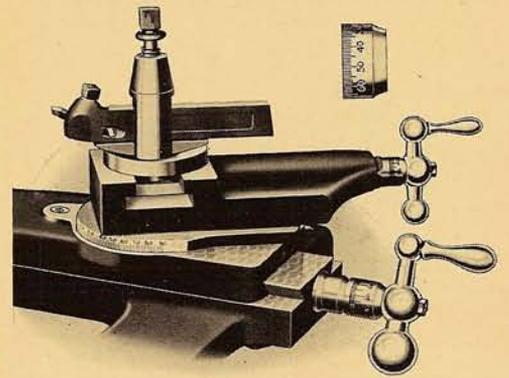
## Back-Geared Headstock

Provides six spindle speeds, three direct and three back-geared, by means of the three-step spindle cone and back gears as shown in the illustration above. Bull-gear plunger is quick-acting and requires no wrench. Bearings are cast integral with headstock, and are lapped to fit the spindle. Dust-proof, felt-wick oilers lubricate the spindle and bearings.



## Tailstock

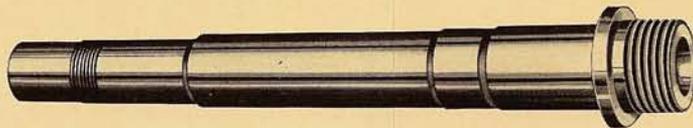
Has long accurately hand-scraped bearing on lathe bed; set-over for taper turning; improved spindle lock; and self-ejecting center, No. 2 Morse Taper, made of tool steel, hardened and ground. Spindle is made of alloy steel, finish ground. Off-set design of tailstock permits the compound rest to swivel parallel over the tailstock base.



## Graduated Compound Rest

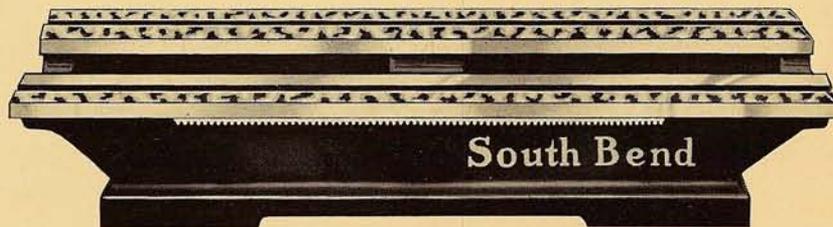
The compound rest swivel is graduated 180 degrees and swivels to any angle on a central stud. Has angular travel of  $2\frac{1}{8}$ " and can be clamped at any desired angle for machining and for turning or boring short tapers.

The lathe with compound rest is recommended for doing general machine and tool work. The illustration shows the advantage of the two feed screws—the compound rest screw for angular feed and the cross feed screw of the saddle for cross feed. In combination, these two feed screws permit the cutting tool to be fed to the work at any angle for straight or taper machining. That is why a compound rest is so valuable on a lathe for general machine work.



## Headstock Spindle

Made of special quality spindle steel with all bearing surfaces accurately ground. Has  $\frac{3}{4}$ " hole its entire length for machining rods and bars through chucks. Threads on spindle nose are cut to a precision gauge permitting the interchangeable use of chucks and face plates. Steel thrust collar is hardened and ground.



## Lathe Bed for 9-inch TOOLMAKER Lathes

The lathe bed is made of a mixture of gray iron and 50% steel which gives it strength and wearing qualities. Beds are of heavy construction, cast in one piece, and reinforced by box braces. After rough planing the lathe bed is permitted to season thoroughly before it is finish planed. The three V-ways and one flat way are then accurately finish planed and hand-scraped to align and support the headstock, carriage and tailstock.



## Micrometer Graduated Collars On Compound Rest and Cross Feed Screws

The compound rest feed screw and the cross feed screw of the saddle are each equipped with a micrometer collar, graduated in thousandths of an inch, for adjusting the depth of the cut in turning and boring. An adjustment is provided so that the operator can set the collar at zero whenever desired.

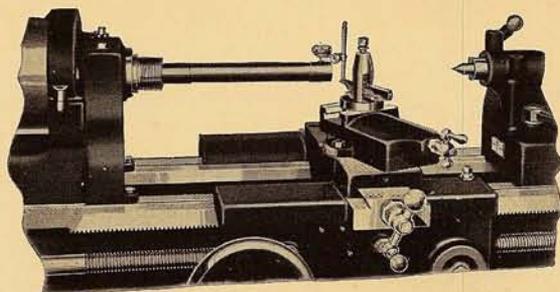
## Accuracy Tests Made on 9-inch TOOLMAKER Lathes

Every 9-inch Toolmaker South Bend Lathe is built with precision and accuracy for the finest tool work. The highest standards of accuracy are maintained, from the planing of the lathe bed to the final inspection tests of the lathe in actual operation.

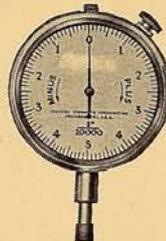
Sixty-Four Major Accuracy Tests are made on various parts and units of each 9-inch South Bend Toolmaker Lathe, such as the

headstock, tailstock, saddle, apron, compound rest, etc., during the process of manufacture and when being assembled.

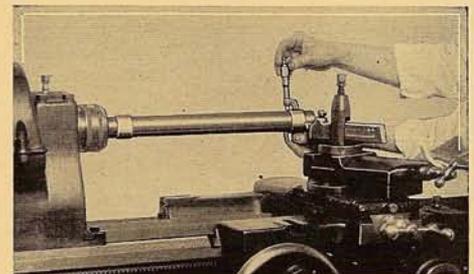
The Most Accurate Measuring Instruments, special gauges, test bars, master templets, etc., are used constantly throughout the process of construction. These tests assure the highest degree of precision-accuracy in the finished lathe.



Testing the Accuracy of Alignment of the Headstock Spindle Using a Test Bar and Dial Test Indicator.



DIAL TEST INDICATOR  
Face of dial is graduated to record an error of one ten-thousandth of an inch.



Taking Trial Cut to Test Alignment of Headstock with Lathe Bed.

# A Few Jobs Which Can Be Done on the 9-inch No. 20 TOOL

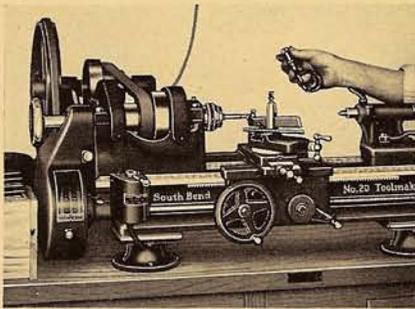


Fig. 1. Machining Small Duplicate Parts Held in the Draw-in Collet Chuck.

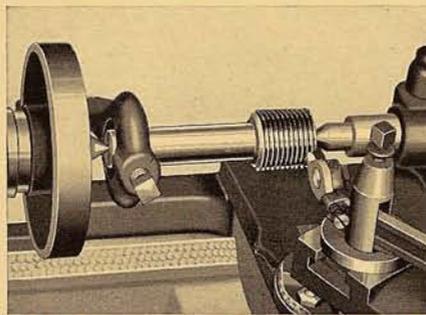


Fig. 2. Cutting the Thread on a Large Diameter Special Tap.

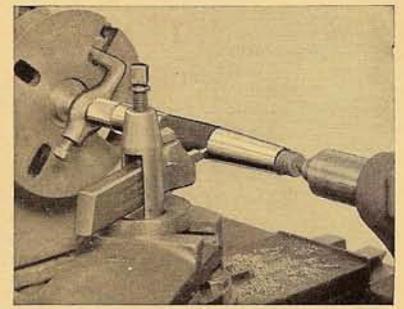


Fig. 3. Turning a Taper on a Shaft Using Tailstock Set-Over.

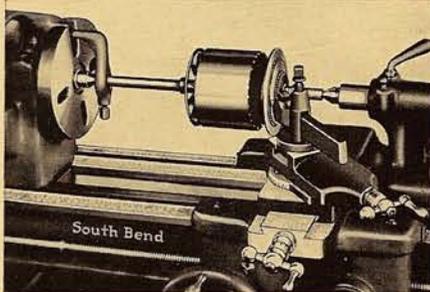


Fig. 6. Truing Contactor Rings of a Split-Phase Electric Motor.

## Features of Lathe

Applying to All Lathes in This Bulletin.  
 Back-Geared Headstock, 6 spindle speeds.  
 Hollow Steel Spindle,  $\frac{3}{4}$ " hole.  
 Reverse Lever for feeds and threads.  
 Compound Rest swivels to any angle.  
 Tailstock Set-Over for taper turning.  
 Carriage Lock for accurate facing.  
 Graduated Collar on cross feed screw.  
 Graduated Collar on comp'd rest screw.  
 Lead Screw for cutting screw threads.  
 Change Gears for threads and feeds.  
 Automatic longitudinal feed to carriage.  
 Half-Nuts for screw thread cutting.  
 Forged Steel Adjustable Tool Post.  
 Tailstock Spindle Lock.  
 Semi-Steel Seasoned Bed.  
 3 V-Ways and 1 Flat Way on lathe bed.  
 Steel Rack for hand power feed.

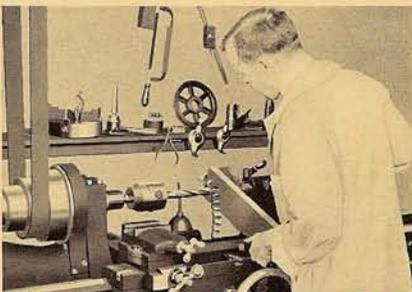


Fig. 8. Lathe Used as Drill Press for Drilling Hole in Flat Piece of Work.



Fig. 10. Home Shop of Rod La Roque, Movie Star. Equipped with South Bend Lathe.

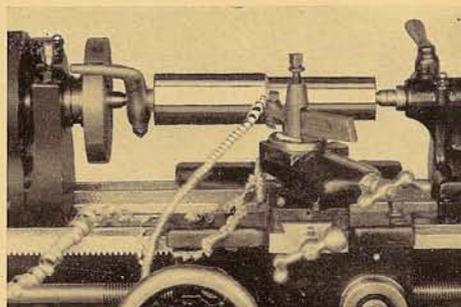


Fig. 11. Reducing the Diameter of a  $2\frac{1}{4}$ " Steel Shaft  $\frac{1}{4}$ " in diameter in one cut.

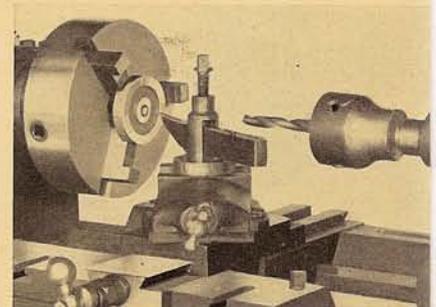
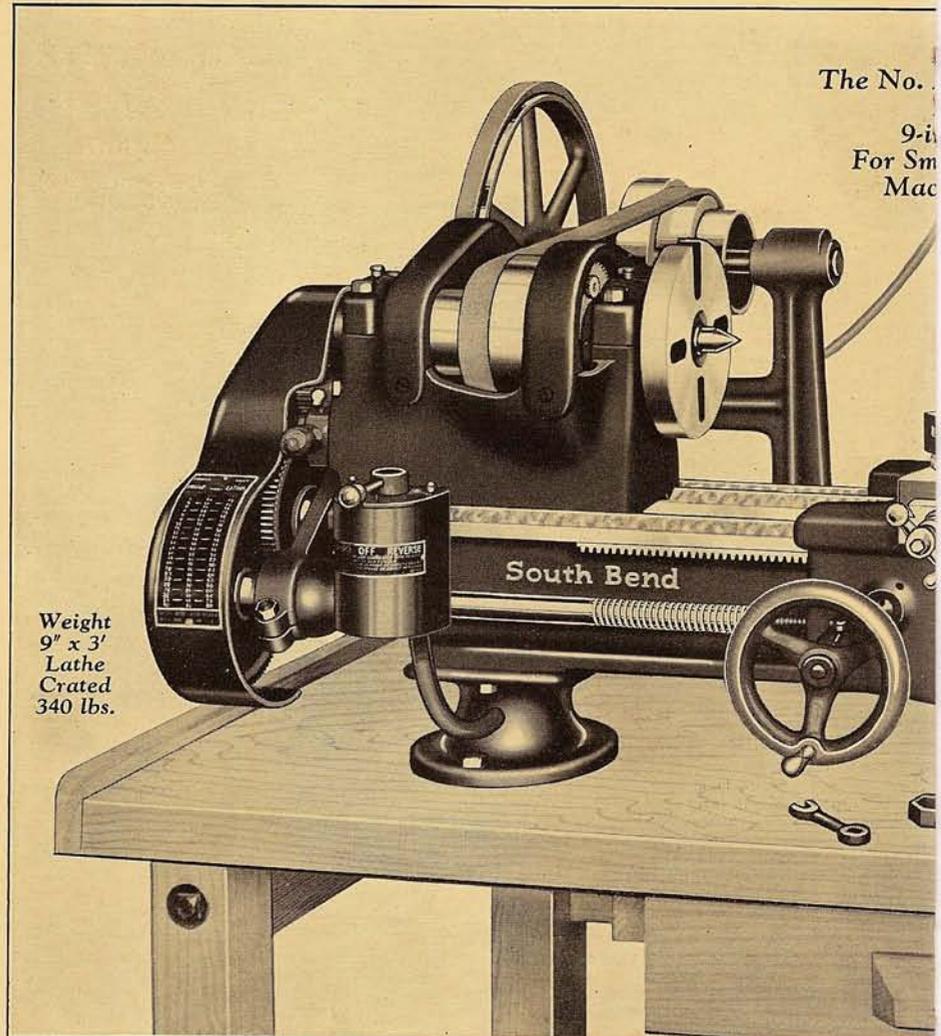


Fig. 12. Drilling and Facing Iron Blank. Drill Chuck Mounted in Tail Spindle.



Weight  
 9' x 3'  
 Lathe  
 Crated  
 340 lbs.

The No.  
 9-inch  
 For Small  
 Machine

# MAKER South Bend Back Geared Screw Cutting Precision Lathe



Operates from Electric Lamp Socket

No. 20 "Toolmaker"  
A New  
Precision Lathe  
for All Accurate  
Machine Work

No. 20 Toolmaker

This is a large illustration of the lathe shown on page one

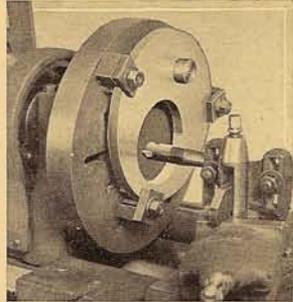


Fig. 4. Boring an Eccentric in work on Face Plate.

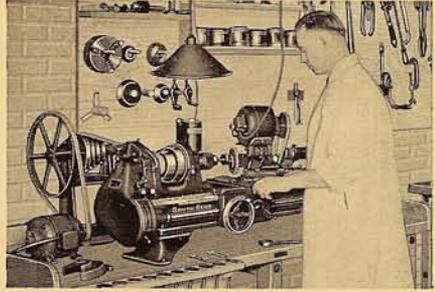


Fig. 5. Grinding a Valve Face in Lathe, Using Electric Valve Grinder

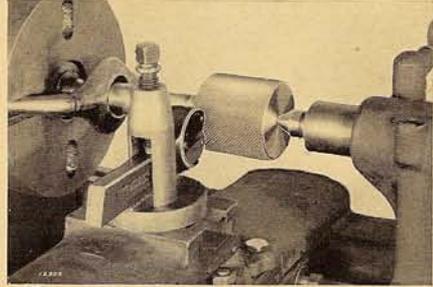


Fig. 7. Knurling Large Handle Mounted Between Centers in the Lathe.

## Specifications of Lathes

Applying to All Lathes in this Bulletin.

- Swing over bed.....9 1/4"
- Swing over carriage.....5 1/2"
- Dist. between centers 3' bed lathe...18"
- Hole through spindle.....3/4"
- Screw thread cutt'g range...4 to 40 per in.
- Spindle speeds, 42, 71, 121, 221, 369, 631
- Countershaft (all types) speed...270 r.p.m.
- Width of cone pulley belt.....1"
- Size of spindle nose...1 1/2" diam., 8 threads
- Head & Tail centers.No. 2 Morse Taper
- Lead screw, Acme thrd...3/4" dia., 8 thrds
- Angular travel, compound rest top...2 1/8"
- Travel of tailstock spindle.....2"
- Lathe tool shank.....11/32"x13/16"
- Cutter Bits.....1/4"x1/4"
- Tailstock set-over for taper turn'g...5/8"
- Horsepower motor required.....1/4 H.P.
- Cross slide travel of compound rest...2 1/8"

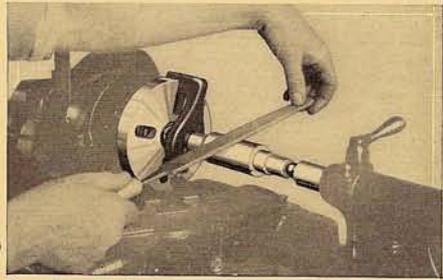


Fig. 9. Lathe is Practical for Filing and Polishing Bushings, Shafts, Parts, etc.

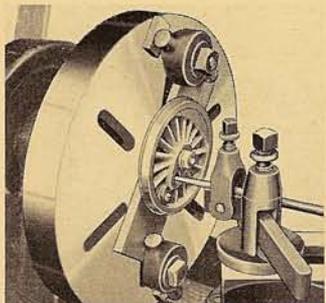


Fig. 13. Boring Hub of Wheel in the Lathe for Model Locomotive.

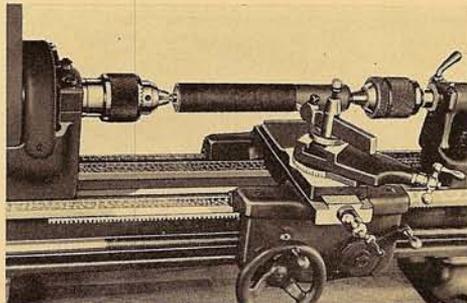


Fig. 14. Truing a Typewriter Platen. Lathe Trues All Types of Rollers.

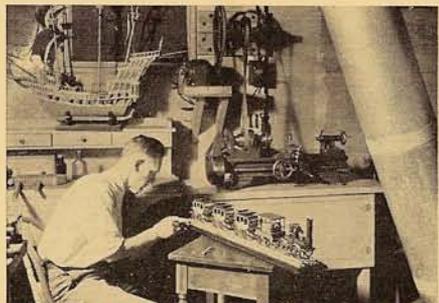
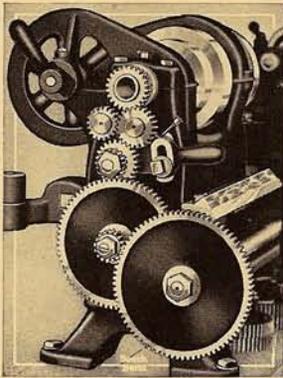


Fig. 15. Ivar Nordstrom, winner of Popular Mechanics' 1933 De Witt Clinton Model Railway Contest. South Bend Lathe Used.

# Screw Thread Cutting on 9-inch TOOLMAKER Precision Lathes

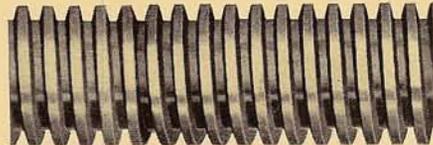
Gear Arrangement for Screw Thread Cutting and Automatic Feeds on All 9-inch Toolmaker Lathes



Arrangement of Gears for Screw Thread Cutting and Automatic Longitudinal Feed.

The Arrangement of Change Gears on the lathe for cutting screw threads and for obtaining automatic longitudinal geared screw feed to carriage is shown by the illustration at left. A set of change gears, as shown below, is furnished with each lathe for cutting screw threads from 4 to 40 per inch, right or left-hand, including 1 1/2 pipe thread, as shown by the chart at right. Change gears also provide for a wide range of automatic longitudinal geared screw feeds from fine to coarse. Extra gears can be supplied to cut screw threads finer than those indicated on chart at right. Prices on request.

The Precision Lead Screw of the 9-inch No. 20 Toolmaker Lathe is 3/4" in diameter, has eight Acme threads per inch and is guaranteed to meet the most exacting requirements in cutting the finest precision screw threads for taps, dies, etc.

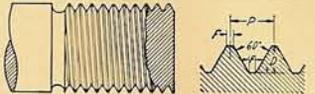


Section of Precision Lead Screw—Actual Size

THREAD	STUB	SCREW
4	64	32
5	64	40
6	64	48
7	64	56
8	32	32
9	64	72
10	32	40
11	32	44
1 1/2	32	48
12	32	48
13	32	56
14	32	64
16	32	72
18	32	80
20	32	80
22	32	84
24	16	48
26	16	52
28	16	56
30	16	60
32	16	64
36	16	72
40	16	80

Chart for Threads and Feeds

## SCREW THREAD FORMULAS



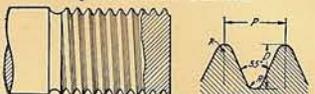
National Coarse Screw Thread



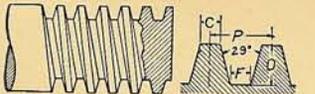
Acme Screw Thread



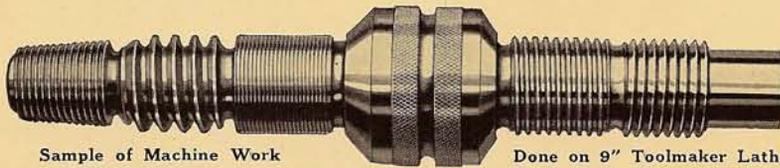
Square Screw Thread



Whitworth Screw Thread



Brown and Sharp 29° Worm Screw Thread



Sample of Machine Work

Done on 9" Toolmaker Lathe



Change Gears

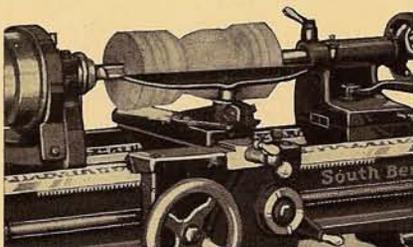
## 9-inch TOOLMAKER Lathe Services all Kinds of Small Mechanical Devices

The list below contains a few of the hundreds of mechanical devices used in factories, plants, offices, laboratories, homes, etc., that can be repaired and serviced on the new 9-inch No. 20 Toolmaker South Bend Screw Cutting Lathe.

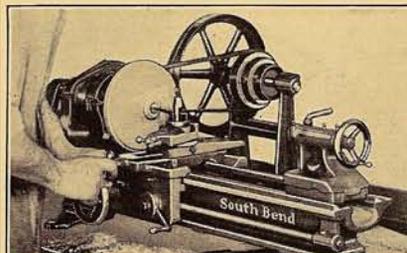
- |   |   |  |  |
|---|---|--|--|
| Typewriters<br>Calculating Machines<br>Bookkeeping Machines<br>Duplicating Machines<br>Time Registering Devices<br>Addressing Machines<br>Dictating Machines<br>Cash Registers<br>Firearms<br>Motors, Generators<br>Electrical Appliances<br>Auto Ignition Equipment<br>Auto, Bus and Truck Parts<br>Tractor Parts<br>Farm Equipment<br>Radio Equipment<br>Radio Broadcasting Stations<br>Refrigerators<br>Vacuum Sweepers<br>Aircraft Engines<br>Pumps<br>Cameras and Projectors<br>Vending Machines<br>Automatic Service Machines<br>Locks, Safe Mechanisms<br>Home Work Shops<br>Tool and Die Makers<br>Battery Service Stations<br>Scientific Apparatus Makers<br>Sewing Machine Manufacturers<br>Watches, Clocks & Chronometers<br>Musical Instrument Mfrs.<br>Bicycles, Motorcycles | Carburetors and Speedometers<br>Telegraph and Signal Equipment<br>Home Shops<br>Laboratory Equipment<br>Dental and Medical Instruments<br>Model Parts<br>Model Makers<br>Optical Instruments and Equip.<br>Microscopes<br>Astronomical Equipment<br>School Shop Projects<br>Experimental Work<br>Invention Development<br>Marine Engine Equipment<br>Office Building Equipment<br>Office Appliances<br>Oil Burners<br>Power Plants<br>Washing Machines<br>Laundry Equipment<br>Dry Cleaning Equipment<br>Shoe Repair Equipment<br>Barber Shop Electrical Equip.<br>Beauty Parlor Equipment<br>Pattern Makers<br>Novelty Makers<br>Artificial Limb Mfrs.<br>Blacksmith Shops<br>Toy Manufacturers<br>Radio Parts, Coils, etc.<br>Jewelry Manufacturers<br>Engineering Equipment<br>Fishing Tackle<br>Outboard Motors<br>Research Instruments | Railroad Traffic Signal Equip.<br>Lithographing Equipment<br>Excavating Equipment<br>Botanical Instruments<br>Construction Equipment<br>Metal Pattern Work<br>Burglar Alarm Systems<br>Canning Equipment<br>Carbonating Apparatus<br>Electrotyping Equipment<br>Chemical Lab'y Instruments<br>Cigarette Vending Machines<br>Sugar Manufacturing Plants<br>Cream Separators<br>Gasoline Pumps<br>Utensil Manufacturers<br>Photo Engravers' Equipment<br>Home Power Plants<br>Refining Apparatus<br>Self-Service Equipment<br>Bindery Equipment<br>Marine and Nautical Instruments<br>Tabulating Machinery<br>Television Apparatus<br>X-ray Equipment<br>Vehicle Manufacturers<br>Gas and Water Works<br>Compressors<br>Patent Development Shops<br>Tinsmith Equipment<br>Aeronautical Instruments<br>Agricultural Implements<br>Navigation Instruments<br>Distillery Equipment<br>Scales, Meters and Gauges | Weighing Machines and Equip.<br>Hydraulic Equipment<br>Traffic Signal Equipment<br>Barometrical Instruments<br>Counting Apparatus<br>Bottlers' and Brewers' Apparatus<br>Hardware Parts<br>Electrically Controlled Equip.<br>Electric Railway Equipment<br>Carpenters' Tools and Equipment<br>Engraving Equipment<br>Brass and Bronze Goods<br>Cooperage Shops<br>Silk, Cotton and Fabric Mills<br>Automatic Door Closers<br>Lubricating Instruments<br>Paint and Varnish Mfg. Equip.<br>Rayon Manufacturers<br>Resuscitating Apparatus<br>Die Stamping & Embossing Equip.<br>Spraying Equipment<br>Surgical Instruments<br>Steam Pressing Equipment<br>Telephone Instruments<br>Vacuum Controlled Equipment<br>Automatic Ventilating Systems<br>Woodworkers<br>Elevator Equipment<br>Pipe Fittings<br>Plumbing Shops<br>Hoists and Cranes<br>Pneumatic Devices<br>Police and Fire Alarm Systems<br>Acoustic Apparatus<br>Animated Signs |
|---|---|--|--|

## Wood Turning Jobs on the 9-inch TOOLMAKER Lathe

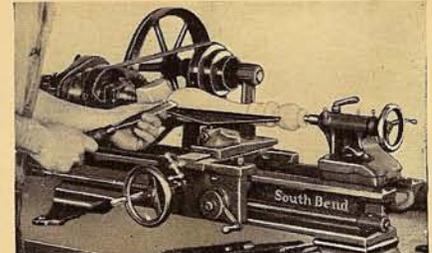
The 9-inch Toolmaker Lathe is an excellent tool for wood turning and pattern making in both soft and hard woods. For pattern making and model work many mechanics prefer the back-geared, screw cutting lathe because the automatic carriage feed and compound rest permit accurate finishing. The lathe can also be used for boring wood.



All kinds of Woods—hard and soft—may be turned in the 9-inch Toolmaker Lathe.



Boring a Wood Disc Held on the Face Plate of the New 9-inch Toolmaker Lathe.



Turning a Large Diameter Ornamental Wood Column. Wood Turning Tools, page 11.

# Automotive Service Jobs Handled in the 9-inch TOOLMAKER Lathe

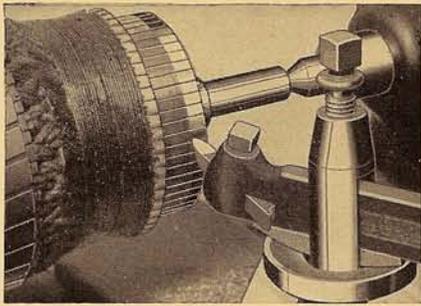


Fig. 16. Armature Commutators of Generators and Starting Motors are Accurately Trued.

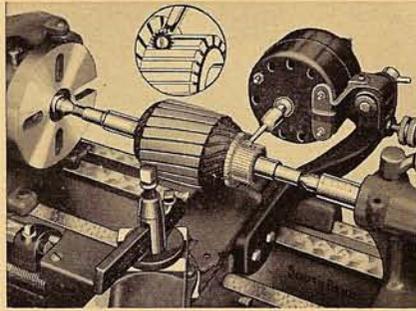


Fig. 17. Undercutting Insulation with Rotary Electric Undercutting Attachment.

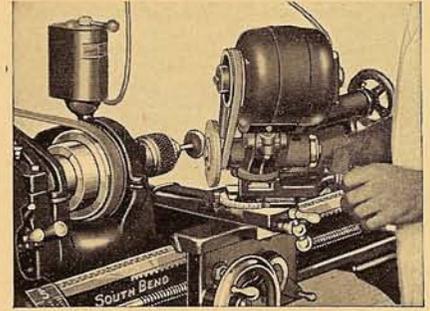


Fig. 18. Grinding a Valve Face in the Auto Shop Lathe, using Electric Valve Grinder.

## Equipments for Servicing Armatures, Valves, Pistons, Bushings and Connecting Rods in the 9-inch Toolmaker Lathe

Automotive Equipments for 9-inch Toolmaker Lathe are listed and priced below and consist of fixtures, chucks and tools for servicing armatures, valves, pistons, bushings and connecting rods. These equipments may be fitted to all 9-inch Toolmaker Lathes shown in this bulletin for servicing light passenger cars and trucks. For large cars, trucks and buses similar attachments are made for larger lathes ranging from 9-inch to 18-inch swing. Information on request.

**Omit Items Not Wanted.** All attachments and accessories listed below or any combination of them may be ordered. If any of the items in the equipments are not desired they may be omitted.

### Armature Commutator Truing Equipment for the 9" Toolmaker Lathe

- 1—Headstock Driving Chuck with Taper Arbor and Key for centerless armature shafts up to  $\frac{3}{4}$ " diam., complete. No. 327..... \$ 7.35
  - 1—Tailstock Adjustable Bushing for centerless armature shafts from  $\frac{3}{8}$ " to  $\frac{3}{4}$ " diam., with No. 2 Morse Taper Shank. No. 361-B..... 8.10
  - 1—Straight Shank Turning Tool with H. S. steel cutter. No. 849-S..... 2.20\*
  - 1—Electric Rotary Undercutter for 110-volt, 1-phase, A. C. current, complete with five cutters, assorted widths. No. 544-H..... 25.00
- \$42.65**

### Bushing Equipment for the 9" Toolmaker Lathe

- 1—3-Jaw Universal Lathe Chuck, 5" cap., fitted to lathe. No. 741..... \$26.50
  - 1—3-Jaw Drill Chuck,  $\frac{1}{2}$ " cap., with arbor fitted to lathe. No. 326..... 5.85
  - 1—Right-Hand Cutting-Off Tool with H. S. steel cutter. No. 881-R..... 2.35
  - 1—Straight Shank Turning Tool with H. S. steel cutter. No. 849-S..... 2.20\*
  - 1—Boring Tool, Style "D," with  $\frac{1}{4}$ " bar. No. 505-A..... 2.50
  - 2—Malleable Lathe Dogs,  $\frac{1}{2}$ " cap., No. 2-MJ; and 1" cap. No. 6-MJ..... 1.20
  - 2—Comb. Center Drills and Countersinks, @ \$0.20 each. No. 898-B..... .40
- \$41.00**

### Valve Service Equipment for the 9" Toolmaker Lathe

- 1—Electric Grinder with  $\frac{1}{4}$  H.P. Motor, 110-volt, A.C. 1725 R.P.M., switch, extension cord, Grinding Wheel 4"x $\frac{1}{2}$ ", and V-belt. No. 14-J..... \$50.00
  - 1—Precision Valve Chuck,  $\frac{5}{8}$ " capacity, fitted to lathe. No. 907-A..... 9.00
  - 1—Diamond for truing grinding wheel. No. 406..... 4.50
  - 1—Diamond Holding Fixture. No. 91-J..... 2.25
  - 1—Holding Fixture & Spring Stop for reamer & cutter grinding. No. 19-J..... 8.00
  - 1—V-Block for holding valves when grinding end of stem. No. 545..... 3.00
  - 1—Rocker Arm Grinding Fixture. No. 703..... 3.00
- \$79.75**

### Piston (Round) Finishing Equipment for the 9" Toolmaker Lathe

- 1—Piston Adapter with Driving Dog and No. 1-D Cone Ring for Round Pistons  $2\frac{1}{2}$ " to  $3\frac{1}{8}$ " diam. No. 44-A..... \$ 9.00
  - 1—Cone Ring for pistons  $3\frac{1}{8}$ " to  $3\frac{3}{8}$ " diam. No. 2-D..... 1.75
  - 1—Piston Skirt Reamer for pistons  $2\frac{1}{2}$ " to  $3\frac{1}{8}$ " diam. No. 1-R..... 6.00
  - 1—Piston Skirt Reamer for pistons  $3\frac{1}{8}$ " to  $3\frac{3}{8}$ " diam. No. 2-R..... 6.50
  - 1—Straight Shank Turning Tool with H. S. steel cutter. No. 849-S..... 2.20\*
- \$25.45**

### Connecting Rod Boring Equipment for the 9" Toolmaker Lathe

- 1—Connecting Rod Boring Attachment consisting of holding jig, V-block and adjustable clamping device for connecting rods from  $2\frac{3}{4}$ " up to 13" between centers and 5" across bolt lugs. No. 1229-T..... \$30.00
  - 2—Boring Bars with 4 high speed steel cutter bits for boring, facing, rounding and trimming bearings. No. 461-B..... 13.00
  - 1—Centering Cone and Driver for boring bars. No. 908..... 3.50
- \$46.50**

\* These items appear in several equipments and need not be duplicated when ordering.

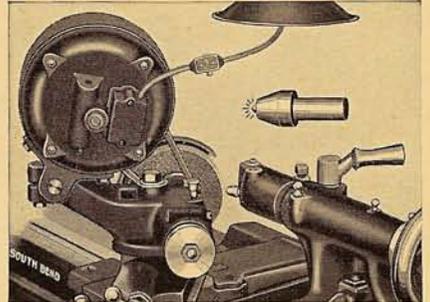


Fig. 19. Truing a Grinding Wheel Using Tailstock Diamond Holding Fixture.

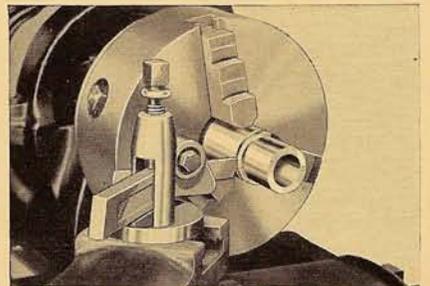


Fig. 20. Cutting-Off a Bushing, made complete, in one set-up, in Chuck.

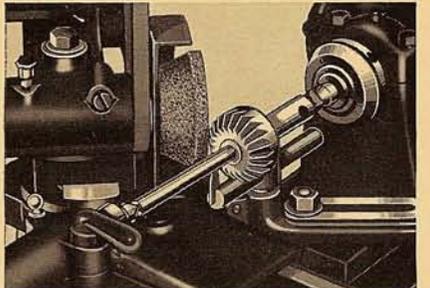


Fig. 21. Sharpening a Valve Seat Reamer using Holding Fixture with Spring Stop.

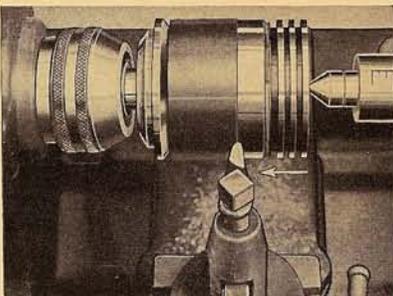


Fig. 22. Finishing a Round Semi-Machined Cast Iron Piston M't'd on Piston Adapter.

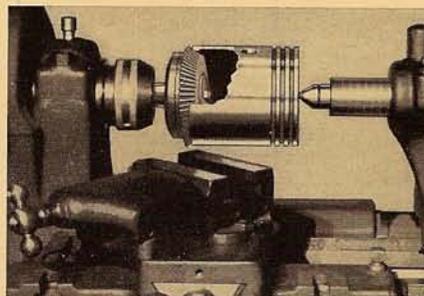


Fig. 23. Reaming the Skirt of a Piston. Reamer is Held on Piston Adapter Shank.

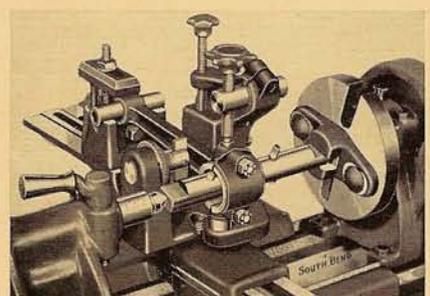


Fig. 24. Boring, Facing and Rounding a Rebabbitted Connecting Rod in the Lathe.

# Practical Attachments for the 9-inch TOOLMAKER Lathe

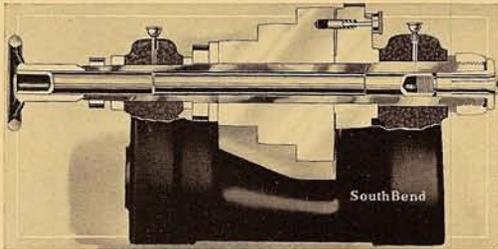
The 9-inch No. 20 Toolmaker South Bend Lathe is a universal tool because it can be fitted with a variety of attachments for doing work that would ordinarily require a milling machine, shaper, drill press, grinder, etc. Most of the South Bend attachments can be ordered with the lathe or at any time thereafter, when needed.

When selecting a lathe for your work, carefully examine the attachments that may be fitted to that lathe because the variety of work that comes to the modern shop is very great, and you will find that practical lathe attachments will increase the value of the lathe and also increase the capacity of your shop equipment.

## A Partial List of Attachments for 9-inch TOOLMAKER Lathes

Draw-in Collet Chuck	Hand Lever Tailstock	Electric Mica Undercutter
Round Split Collets	Metric Transposing Gears	Electric Valve Grinder
Step Chuck and Closer	Oil Pan, Pressed Steel	V-Block for grinding valve stems
Spindle Nose Collet Chuck	Oil Pump and Reservoir	Rocker Arm Grinding Fixture for Valves
Taper Attachment	Cabinet for Collets	Bushing for holding Centerless Armatures
Milling Attachment	Hard Maple Benches	Piston Adapters, Adapter Rings, Skirt Reamers
Milling Cutters	Hand Rest for Wood Turning	
Electric Grinder	Spring Winding Attach.	
Thread Indicator	Double Gear Bracket	
Micrometer Carriage Stop		

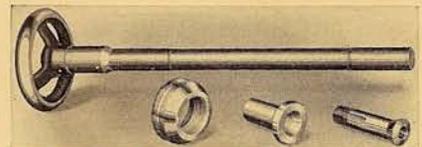
## Hand Wheel Type Draw-in Collet Chuck Attachment



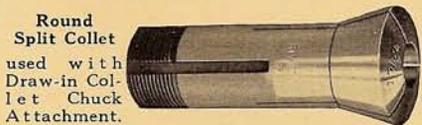
A Cross Section View of the Headstock on the 9-inch Toolmaker Lathe Showing Hand Wheel Type Draw-In Collet Chuck Attachment.

The draw-in collet chuck attachment is practical for fine tool work and for making small accurate parts. The hollow draw bar, used in headstock as shown at left, permits bars and rods being passed lengthwise through lathe spindle and held in the collet for machining. Price includes one round split collet of any size desired from 1/64" up (by 64ths) to 1/2" capacity. Cat. No. 4307.....\$29.00

Split Collets for Round Work as illustrated at right, are made of tool steel, hardened, tempered and ground. Hole sizes range from 1/64" up to 1/2" (by 64ths). Cat. No. 609.....\$2.50



Hand Wheel Type Draw-in Collet Chuck Attachment for Lathe.



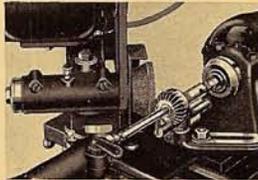
Round Split Collet used with Draw-in Collet Chuck Attachment.



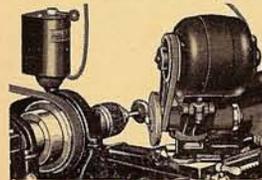
No. 14-B Electric Grinder Mounted on Compound Rest of Lathe.

## No. 14 Electric Grinder

Grinds hardened or tempered tools and parts. Operates from electric light socket. Price includes 1/4 H.P. motor, 1725 R.P.M. (1-phase, 60-cycle, 110-volt, A.C.), V-belt, one 4"x1/2" aluminum grinding wheel, extension cord, switch and clamp for mounting to compound rest. Spindle speed of grinder 4000 R.P.M. Cat. No. 14-J.....\$50.00



Sharpening a Reamer



Grinding a Valve Face

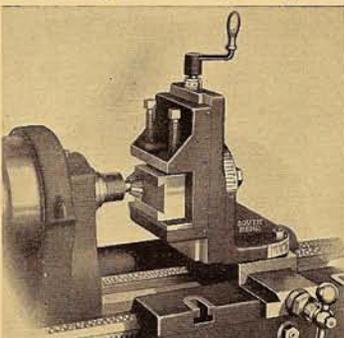
## Adjustable Holding Fixture



Holds the industrial diamond for true grinding wheels. Also holds the cutter stop for reamers, cutters, etc. Cat. No. 19-J, Adjustable Holding Fixture \$8.00

No. 18 Industrial Diamond, Special Metal Mount, 1/3 Carat...\$5.00

## Milling and Keyway Cutting Attachment



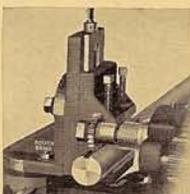
Milling a Dovetail on the Lathe Using the Milling Attachment

A practical attachment for the small shop that has not enough work to invest in a milling machine.

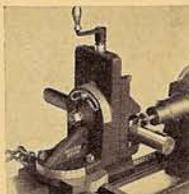
The attachment fits on the saddle of the lathe and swivels both horizontally and vertically over an arc of 180 degrees. The vertical adjusting screw at the top of the attachment has a micrometer graduated collar. Cat. No. 9. Milling and Keyway Cutting Attachment. Price.....\$40.00

### Milling Arbor

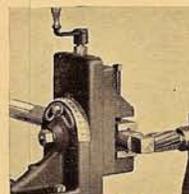
No. 109-M, \$7.50  
Prices of milling cutters will be supplied on request.



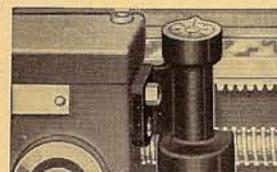
Milling a Standard Keyway



Milling a Woodruff Keyway

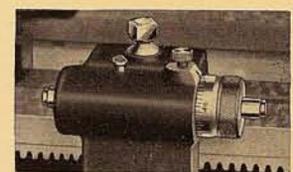


Squaring the End of a Round Shaft



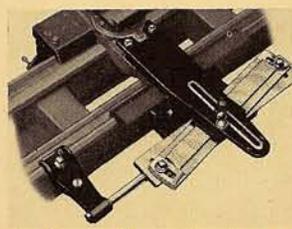
## Thread Indicator

This attachment permits running the carriage back by hand, when cutting screw threads, to eliminate the necessity of reversing the travel of the carriage by power to the starting point to catch the thread at the beginning of each cut. Cat. No. 807.....\$8.00



## Micrometer Carriage Stop

This attachment is useful in accurate facing, turning, boring, etc. It is used for stopping the carriage at any point along the lathe bed. Has a micrometer adjustment. Can be used on either side of carriage. Cat. No. 968.....\$10.00

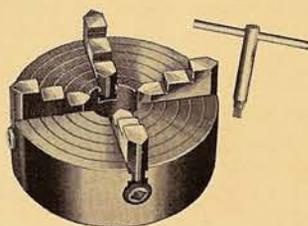


Graduated Taper Attachment Fitted to the Lathe

## Taper Attachment

The taper attachment is practical for turning and boring taper work. Bolts on lathe carriage and can be used at any point along lathe bed. Requires only a few minutes to change from taper to straight work or vice versa. Can be left on lathe at all times. Attachment should be fitted to lathe at factory. Cat. No. 207. Graduated Taper Attachment. Price ...\$50.00

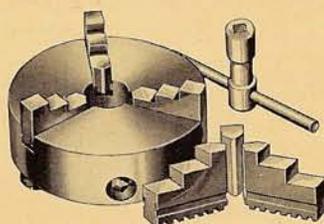
# Attachments, Chucks and Tools for the 9-inch TOOLMAKER Lathe



**4-Jaw Independent Chuck**  
With Four Reversible Jaws (Iron Body)

This chuck has four reversible independent jaws with individual screw adjustment for chucking round or irregular work either in a concentric or an eccentric position. The face of chuck is ground true to a straight edge and is accurately graduated in inches. Prices include wrench and cap screws for fastening chuck-back to chuck.

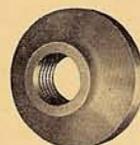
- No. 659—4" Independent Chuck (5" cap.)...\$17.00
- No. 660—5" Independent Chuck (6" cap.)... 19.00
- No. 661—6" Independent Chuck (7 1/4" cap.)... 22.00



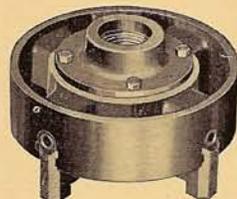
**3-Jaw Universal Lathe Chuck**  
With Two Sets of Jaws (Iron Body)

This self-centering chuck holds round and hexagonal work in a concentric position. The jaws are moved simultaneously by the scroll threaded plate. Two sets of jaws are furnished—one set for gripping work on the outside—the other set for holding work internally. Wrench and screws for fastening chuck-back to chuck also included in price.

- No. 740—4" Universal Chuck (4 1/4" cap.)...\$18.00
- No. 741—5" Universal Chuck (5" cap.)... 20.00
- No. 742—6" Universal Chuck (6 1/4" cap.)... 23.00



Semi-Machined Chuck Back for Lathe Chuck.



Chuck Fitted with Chuck-Back.

## Fitting Chucks to Lathes

In fitting a 4-Jaw chuck or 3-Jaw chuck to the spindle of a lathe, a semi-machined chuck-back which is bored and threaded to fit the spindle nose is required. The chuck-back is then accurately faced and turned to fit the recess on the back of the chuck. The chuck-back is attached to the chuck by four cap screws as shown above.

This is a precision job and we recommend that it be done before lathe leaves factory.

- Semi-Machined Chuck-Back .....\$4.00
- Fitting Chuck-Back to the Chuck..... 2.50

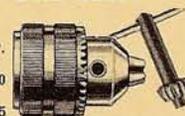
## 3-Jaw Drill Chuck

(Light Duty).

with Wrench but not Arbor.

No. 325—3/4" cap...\$3.50

No. 326—1/2" cap...\$5.25



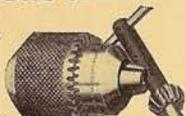
## 3-Jaw Drill Chuck

(Heavy Duty).

with Wrench but not arbor.

3/8" No. 1200, cap...\$4.25

1/2" No. 1201, cap...\$6.75



## Solid Arbor for Drill Chucks

The solid steel arbor is used for fitting 3-jaw drill chucks to the lathe, also for headstock spindle chuck when used in tailstock.

No. 709. Solid Steel Arbor.....\$0.60



## Headstock Chuck

Has hollow spindle. Screws on lathe spindle nose. Also fits tailstock by means of arbor.

No. 907-A—5/8" capacity .....\$9.00



## Tool Holder & Cutter Bits



Cutter Bits Ground to Form.  
A—L. H. Turning; B—Round Nose; C—R. H. Turning; D—L. H. Side; E—Threading; F—R. H. Side.

Tool Holder and Cutter Bit Set, consists of: Tool holder (choice of straight, right-hand or left-hand), wrench, unground cutter bit and six high speed steel cutter bits ground to forms A, B, C, D, E, F, above.  
No. 603-B. Price, complete...\$3.50

## Turning Tool Holders

With wrench and unground cutter bit.  
No. 849-S Straight Turn. Tool...\$2.20  
No. 849-L L. H. Turning Tool... 2.20  
No. 849-R R. H. Turning Tool... 2.20

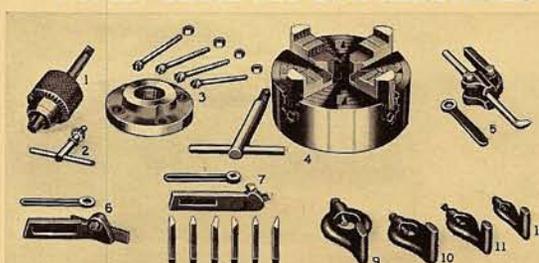
## High Speed Steel Cutter Bits

Not Ground High Speed Steel Cutter Bits  
No. 1419. Size 3/4"x3/4"x2". Each...\$0.13  
Ground High Speed Steel Cutter Bits  
No. 1304. Ground to forms A to F above, size 3/4"x3/4"x2". Each...\$0.23  
No. 1110. Set of six high speed cutter bits ground to forms A to F...\$1.30

## Hand Forged Lathe Tools

Carbon and High Speed Steel  
1. L. H. Side Tool 7. Cutting-off Tool  
2. R. H. Side Tool 8. Threading Tool  
3. R. H. Bent Tool 9. Bent Threading  
4. R. H. Diamond 10. Roughing Tool  
5. L. H. Diamond 11. Boring Tool  
6. Round Nose 12. Inside Thread'g  
Carbon Steel Lathe Tools  
No. 438-C. Price, each...\$0.50  
No. 270-C. Set of 12...\$5.50  
High Speed Steel Lathe Tools  
No. 438-HS. Price, each...\$2.00  
No. 270-HS. Set of 12...\$22.00

## No. 120 Chuck and Tool Assortment for 9-inch TOOLMAKER Lathes



A Practical Assortment for General Machine Work.

Chucks and Tools in the most practical sizes for use on all 9-inch Toolmaker Lathes are included in the assortment priced below. We recommend this assortment for general machine work. The assortment is itemized so that the purchaser may add to or omit any tool not wanted.

Cat. No.	Description	Price
660	5", 4-Jaw Ind. Chuck with rev. jaws, including Fitting Chuck to Lathe, including	\$19.00
	Semi-machined Chuck-Back	6.50
325	3/4" 3-Jaw Drill Chuck	3.50
709	Drill Chuck Arbor, fitted to chuck	.60
849-S	St. Tool Holder & unground cutter bit	2.20
1110	(6) Cutter Bits ground to forms A-F	1.30
505-A	Boring Tool Holder and boring bar	2.50
881-R	R. H. Cutting-Off Tool and ground cutter blade	2.35
1 set (4)	Lathe Dogs 1/2", 3/4", 1", 1 1/4"	2.60
	No. 120 Assortment, Complete	\$40.55

## Formed Threading Tool

With one formed cutter.  
No. 865 .....\$3.35

## Knurling Tool

With one set of knurls.  
No. 891 .....\$4.50

## Center Rest

No. 125-T .....\$7.00

## Thread Cutting Stop

No. 67-T .....\$2.00

## Large Face Plate

No. 40 .....\$3.50

## Follower Rest

No. 34-T .....\$3.00

## Cutting-Off Tool

With One Ground Cutter.  
Right-Hand—No. 881-R .....\$2.35  
Left-Hand—No. 881-L ..... 2.35  
Straight—No. 881-S ..... 2.35

## Boring Tool Holder (Style "B")

With wrenches and two unground cutters.  
No. 429 .....\$4.00  
Extra cutters, 5/8" x 5/8" x 1 1/2".  
No. 454, each.....\$0.10

## Boring Tool Holder (Style "D")

With Wrench and 1/4" boring bar.  
No. 505-A .....\$2.50  
Extra Boring Bar, 5/16". No. 498-B .45

## Lathe Centers, Drill Pads, and Countersinks

Head Center  
No. 725-A.....\$2.00  
Drill Pad  
No. 727-A.....\$3.00  
Tail Center  
No. 726-A.....\$2.25  
Center Drill and Countersink  
No. 898-B.  
3/32" diam.  
Price .....\$0.20  
No. 898-C.  
1/8" diam.  
Price .....\$0.20  
Crotch Center  
No. 728-A.....\$3.00

## Standard Lathe Dogs

Made of heavy malleable iron. Designed for strength and service.  
3/8" cap. No. 1-MJ .....\$0.40  
1/2" cap. No. 2-MJ ..... .50  
3/4" cap. No. 4-MJ ..... .60  
1" cap. No. 6-MJ ..... .70  
1 1/4" cap. No. 8-MJ ..... .80  
1 1/2" cap. No. 10-MJ ..... .95

## Sanding and Polishing Disc

For wood, steel, iron, etc. Screws on headstock spindle. Size 8 3/4" in diameter.  
Disc with emery cloth or sandpaper attached.  
No. 507-B. Price, \$5.00  
Price of extra emery cloth or sandpaper disc on request.

## Wood Turning Tools, Etc.

Hand Rest  
For wood turning  
No. 896. \$5.00  
No. 1, Base only .....\$2.50  
No. 2, Hand Rest 12" ..... 1.25  
No. 3, Hand Rest 7" ..... 1.00  
No. 4, Hand Rest 4" ..... .75  
Cup Center  
No. 733-A.....\$3.00  
Spur Center  
No. 732-A.....\$3.00  
Screw Center  
No. 731-A.....\$3.00

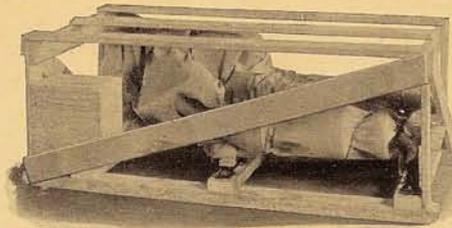
## Guarantee of Lathe

We guarantee each 9-inch No. 20 Toolmaker 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, anywhere in the United States any part that proves defective either in material or workmanship within one year from the date of purchase.

We will ship a 9-inch No. 20 Toolmaker South Bend Lathe anywhere in the United States for a free 30-day trial in your own shop. If for any reason you are dissatisfied you may return the lathe in good condition at our expense and we will refund the money you paid, including transportation charges.

SOUTH BEND LATHE WORKS.



## Safe Delivery Guaranteed

Every South Bend Lathe is carefully packed and crated to reach you in perfect condition, free from rust and breakage. We guarantee you against any loss or damage while your lathe is in transit.

## Lathe Crated for Domestic Shipment

The illustration above shows a 9-inch No. 20 Toolmaker South Bend Lathe skidded and crated for domestic shipment, that is by rail to any point in the United States, Canada or Northern Mexico. In preparing lathes for shipment all finished or polished parts are greased to prevent rusting and each unit is wrapped securely in heavy paper to protect it from dust and dirt.

The lathe is skidded and crated and the small parts are packed in a box which is nailed to the skids.

Lathes for domestic shipment are not knocked down but are crated and shipped completely assembled. All that is necessary on arrival is to remove the crating and wrapping and install the lathe.

## Installation and Erection Plan Blue Prints

To customers interested in the purchase of a 9-inch No. 20 Toolmaker South Bend Lathe we will supply, free of charge, an installation and erection plan blue print giving the principal dimensions of the lathe, such as over-all length, width, height, location of bolt holes, proper speed and size of pulleys, lineshaft, etc.

## Domestic and Export Prices

This circular shows the net factory prices for lathes skidded and crated f.o.b. cars South Bend, Indiana, for domestic shipment. There is no discount from these prices.

Lathes for Export are boxed securely for ocean shipment and prices are slightly higher. We will gladly quote c.i.f. to any port in the world on request.

## South Bend Lathes are Built in 96 Sizes and Types

South Bend Lathes are made in several other sizes and types in addition to the 9-inch Toolmaker Lathe shown in this Circular, including: 9-inch, 11-inch, 13-inch, 15-inch, 16-inch, 18-inch and 36-inch swing, Countershaft Drive and Motor Drive.

These Lathes are made in such types as Junior, Quick Change Gear, Standard Change Gear, Bench Lathes, Tool Room Lathes, Cam Piston Finishing Lathes, Brake Drum Lathes, Newspaper Rubber Roller Grinding Lathes and several others.

## Bulletins on Each Size Lathe

An Individual Bulletin is available on each size and type of Lathe listed above. Each bulletin illustrates, describes and prices the Lathe together with a complete line of attachments, chucks and tools.

Tell us the size and type of lathe in which you are interested, and we will send you a Bulletin describing that Lathe, free, postpaid.

## South Bend Easy Payment Terms

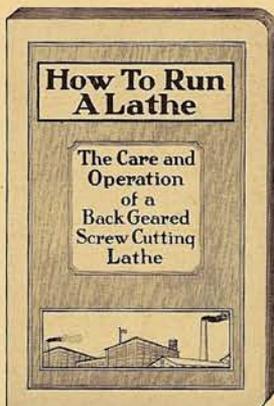
Twelve Months to Pay

Any of our customers in the United States and Canada may purchase any of the 9-inch No. 20 Toolmaker South Bend Lathes illustrated in this circular on the South Bend easy payment plan, by making a small down payment with the order and paying the balance monthly. The schedule of easy payment terms is given below.

Mail your order with down payment and as soon as these are received, the lathe will be shipped to you immediately. You deal direct with the factory, all accounts are carried in our own office and you make your payments directly to us each month.

### SCHEDULE OF EASY PAYMENT TERMS

If Total Price of Your Order Amounts to (1)	Amount to Add for Financing (2)	Amount of Down Payment (4)	Payment Each Month (5)	Approx. No. of Payments (6)
\$100.00 to \$110.00	\$ 7.50	\$ 28.00	\$ 7.00	12
110.01 to 120.00	7.50	29.00	8.00	12
120.01 to 130.00	8.00	30.00	8.50	12
130.01 to 140.00	8.50	31.00	9.00	12
140.01 to 150.00	9.00	32.00	10.00	12
150.01 to 175.00	10.00	35.00	11.50	12
175.01 to 200.00	11.50	40.00	13.00	12
200.01 to 225.00	13.00	45.00	15.50	12
225.01 to 250.00	14.50	50.00	17.00	12
250.01 to 275.00	16.00	55.00	18.50	12
275.01 to 300.00	17.50	60.00	19.50	12
300.01 to 325.00	19.00	65.00	22.00	12



## "How to Run a Lathe"—30th Edition For the Mechanic and Apprentice

A copy of this authoritative manual covering the fundamental operations of the modern back-geared, screw cutting engine lathe is supplied free with each 9-inch No. 20 Toolmaker South Bend Lathe.

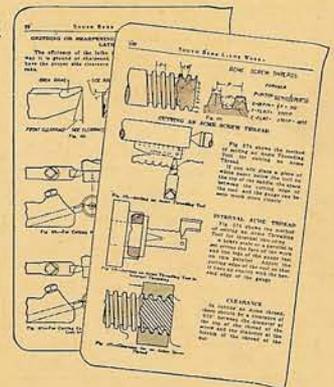
This book contains 160 pages, 5 1/4" x 8" and more than 300 illustrations, all devoted to the erection, installation and operation of the screw cutting lathe. The modern methods for handling over 400 machine operations in the lathe are fully described and illustrated.

More than 1,250,000 copies of this book are in use throughout the world in plants, repair shops, auto shops, home shops, etc.

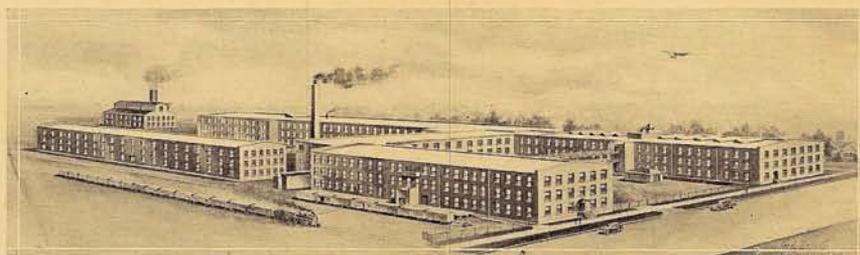
Regular price mailed anywhere in the world, postpaid, 25 cents. Coin or stamps of any country accepted.

### THIS VALUABLE BOOK SHOWS

- How to set up the lathe.
- How to care for the lathe.
- How to lay out a shop.
- How to calculate size and speed of pulleys.
- How to grind and set lathe tools.
- How to cut screw threads.
- How to turn and bore tapers.
- How to do grinding and milling work.
- How to do centering and countersinking.
- How to drill, bore and ream.
- How to use chucks and arbors.
- The cutting speeds & feeds for metals.
- Tables of information.
- 300 other shop kinks.



Two Sample Pages



## Factory of South Bend Lathe Works

The illustration at the left shows the factory of the South Bend Lathe Works established in 1906. For more than twenty-seven years this organization has been devoted exclusively to the manufacture of South Bend Lathes, a large number of which are in use in the United States and eighty-eight other countries.

When in this vicinity stop off and visit our plant. We have an interesting demonstration room where you may operate and examine many models of the ninety-six sizes and types of lathes which we manufacture.

# South Bend Lathe Works

Established 1906

Lathe Builders for 27 Years

425 East Madison Street,  
South Bend, Indiana, U. S. A.