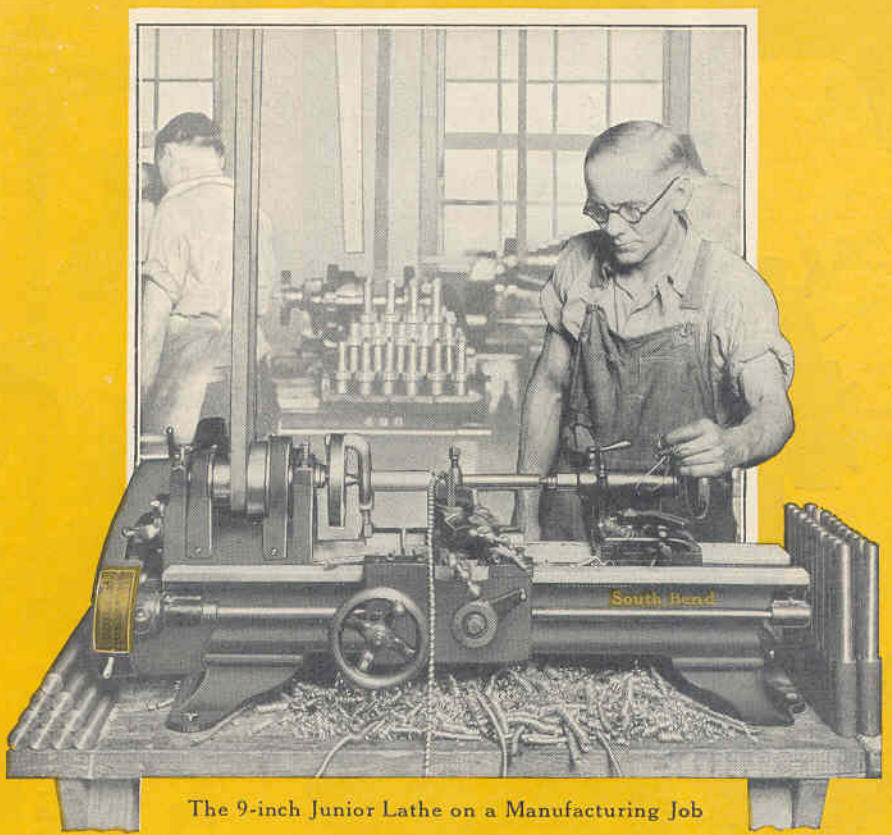
New Model South Bend
9-Inch Junior Lathe

A Back Geared Screw Cutting Precision Tool



The 9-inch Junior Lathe on a Manufacturing Job

Catalog No. 23

The 9-inch Junior Lathe for the

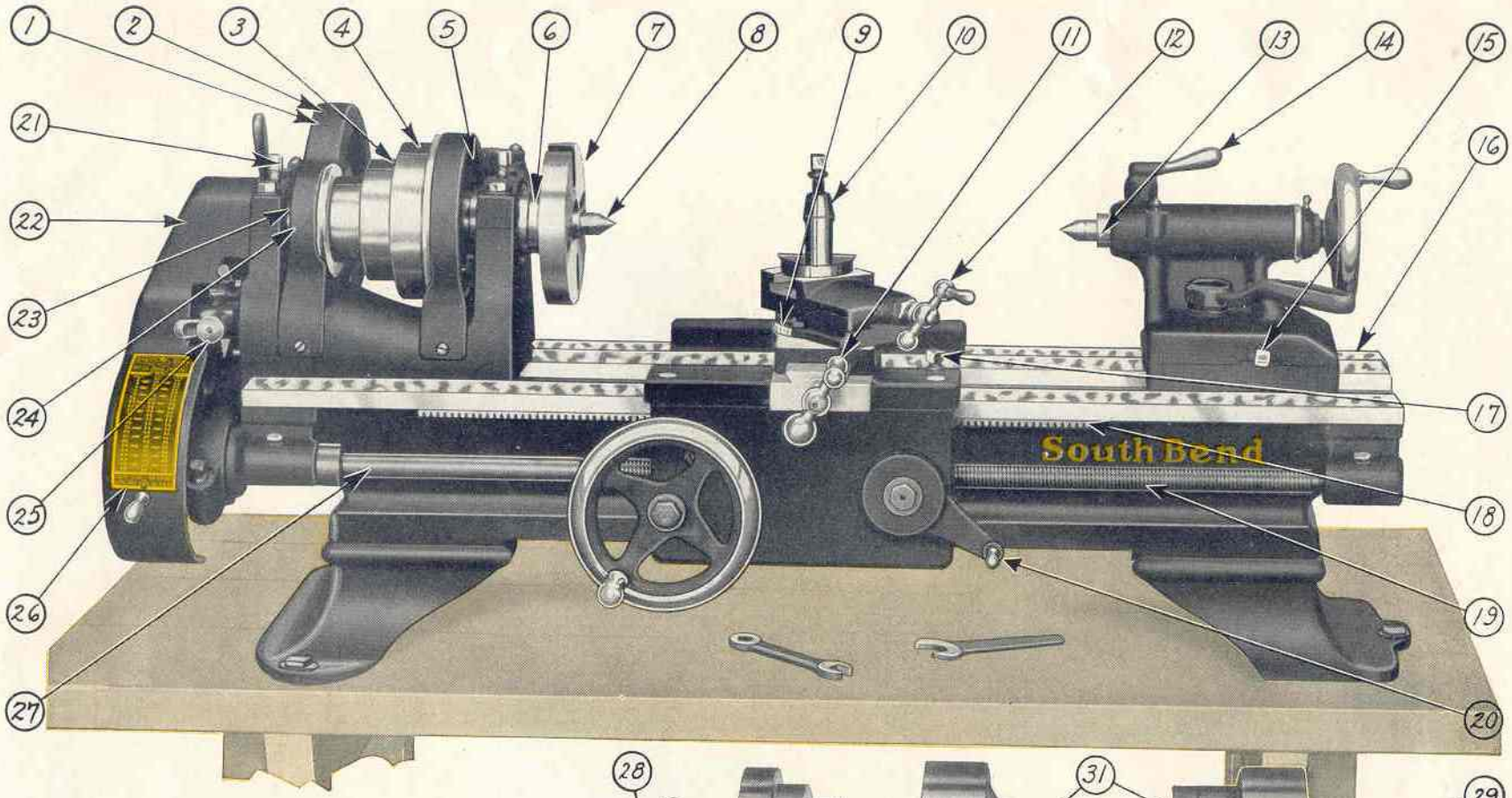
Manufacturing Plant	Machine Shop
Tool Room	Service Station
General Repair Shop	Electrical Shop
Engineering Shop	Laboratory

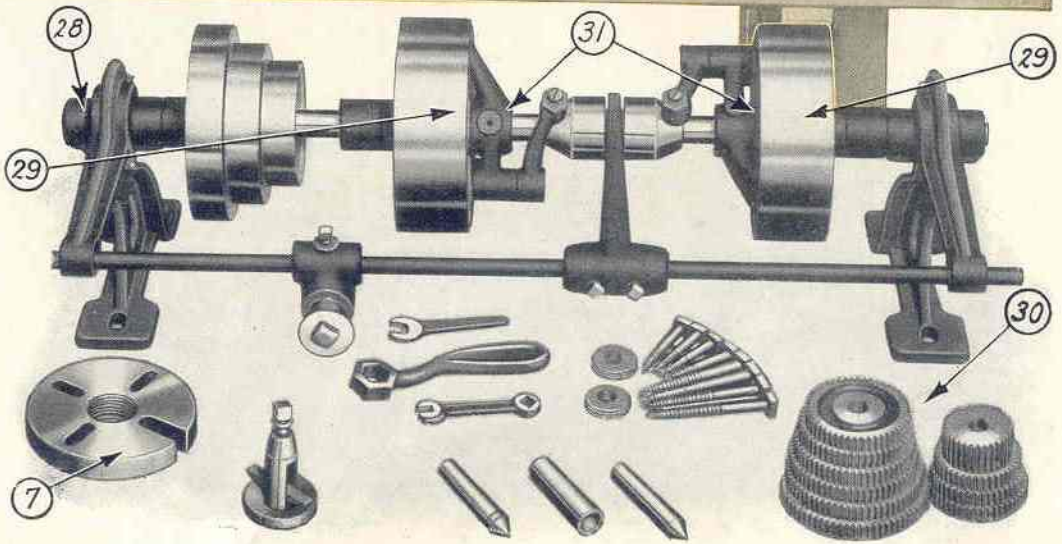
and Industries of all kinds.

NOVEMBER 1928

South Bend Lathe Works

404 East Madison Street **South Bend, Indiana**

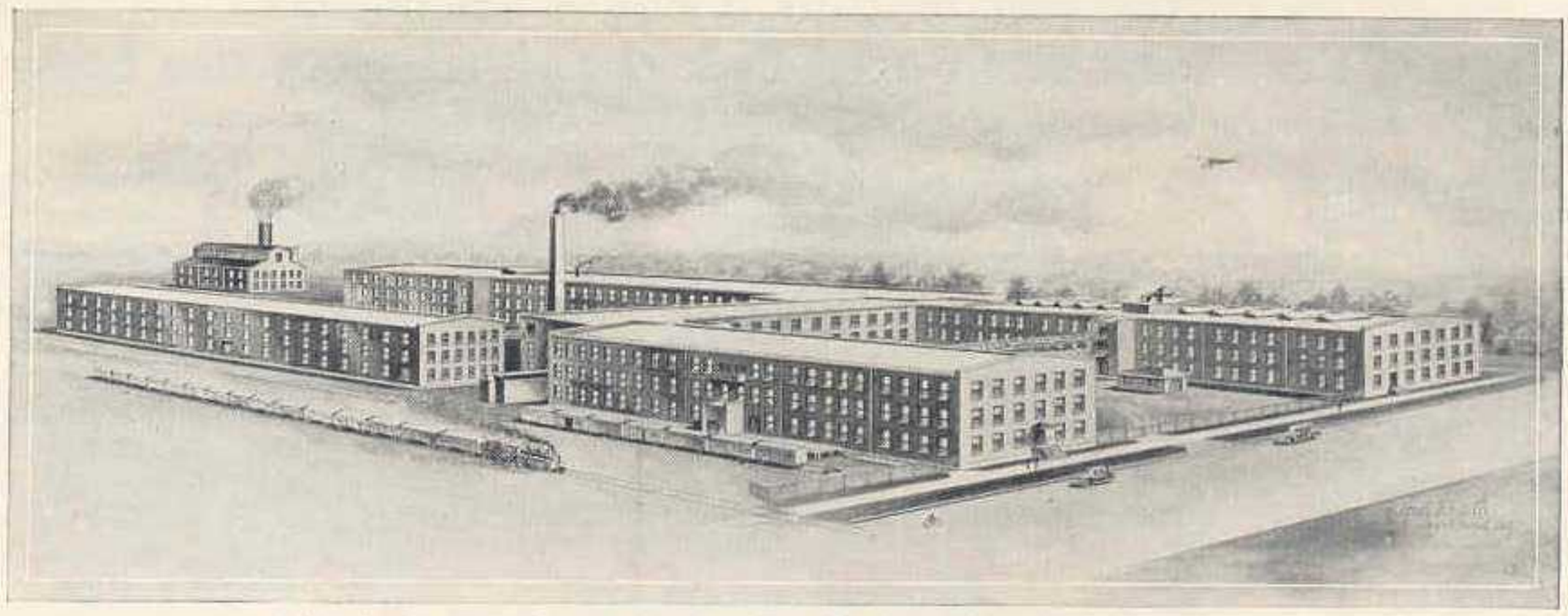




31 Features of the 9-Inch Junior New Model South Bend Back Geared Screw Cutting Lathe

The improved features of the 9-Inch Junior Lathe are indicated in the above illustration by arrows and numbers. These features apply to all 9-Inch Junior Lathes, countershaft and Motor Drive types shown in this catalog.

1—Back Gears for Power.
2—Back Gears well guarded.
3—Three Cone Steps, six Spindle Speeds.
4—Belt, 1" wide.
5—Wrenchless Bull Gear Clamp.
6—Phosphor Bronze Bearings for Spindle.
7—Spindle Face Plate.
8—Head and Tail Centers, Carbon Steel, No. 2 Morse Taper.
9—Graduated Compound Rest, 180 degrees.
10—Forged Steel Adjustable Tool Post.
11—Micrometer Collar on Cross Feed Screw.
12—Micrometer Collar on Compound Rest Screw.
13—Graduated Tailstock Spindle.
14—Tailstock Spindle Lock.
15—Set-Over Tailstock for Taper turning.
16—Semi-steel Seasoned Lathe Bed.
17—Carriage Lock for facing.
18—Steel Rack for Hand and Power Feed to Carriage.
19—Precision Lead Screw, Acme Thread.
20—Half-Nut Lever for Thread Cutting.
21—Patent Oil Cups keep out dust.
22—¾" Hollow Spindle for working Rods and Bars.
23—Hardened and Ground Steel Thrust Collar.
24—Phosphor Bronze Bearing for Spindle.
25—Quick-acting Latch Reverse.
26—Index Plate for Threads and Feeds.
27—Automatic Power Feed thru Lead Screw.
28—Double Friction Countershaft.
29—Countershaft Friction Clutch Pulleys.
30—Change Gears for Cutting Standard Screw Threads from 4 to 40 per inch and for Automatic Feeds.
31—Lubricating Cups in Clutch Pulleys.



The Plant of the South Bend Lathe Works at South Bend, Indiana.

Twenty-Two Years Manufacturing South Bend Lathes

43,000 South Bend Lathes In Use in Industry

History. The South Bend Lathe Works was established in South Bend, Indiana, in 1906, and has operated continuously for twenty-two (22) years under the same management, devoting its entire time to the building of South Bend Back Geared Screw Cutting Lathes.

The Factory of the South Bend Lathe Works, illustrated above, represents an investment of over $1,000,000. The entire plant covers more than four (4) acres. In the buildings there is a total of 180,000 square feet of floor space used entirely for lathe building. Our manufacturing capacity is 4,800 lathes per annum.

Plant Facilities include the most modern machinery. Special machines, fixtures, jigs and tools built in our own shop for the manufacture of South Bend Lathes insure accuracy and interchangeability. Standardization in production enables us to build in large quantities and sell quality lathes at an exceedingly low price.

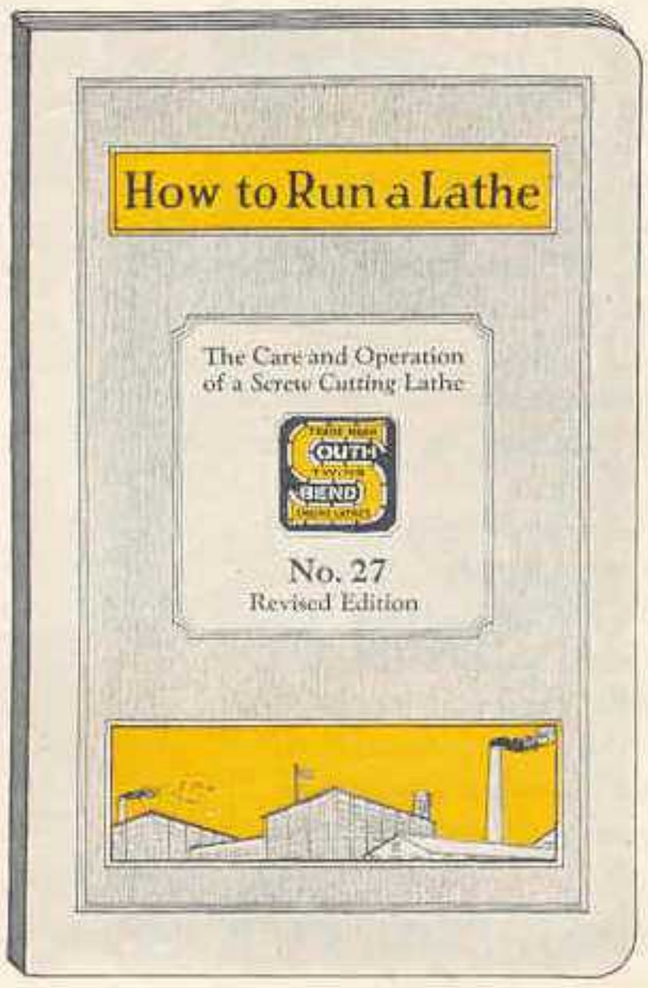
Three Hundred (300) Skilled and Trained Workmen are employed to build South Bend Lathes. These men have had an average of ten years' experience building South Bend Lathes, and are capable of doing the highest class of workmanship that is so necessary in building the lathe.

Net Factory Prices

F. O. B. South Bend, Indiana

The prices shown in this catalog are the Net Factory Prices, F. O. B. cars, South Bend, Ind. In setting the price on each lathe, tool and attachment shown, we have made the price as low as possible. Our policy is: One Quality, One Price to All.

For information on our Easy Payment Plan, see paragraph at bottom of page 3 of this catalog.



"How to Run a Lathe," a Valuable Reference Book

Copy of this book included with each 9-Inch Junior New Model Lathe

"How to Run a Lathe" is an authoritative manual covering the fundamental operations of the modern back geared screw cutting lathe. This 144-page book contains more than 300 practical views illustrating and describing the care and operation of the lathe and the use of various attachments. It is a valuable reference book for the mechanic.

It contains complete instructions on setting up the lathe, how to grind and set tools, the proper cutting feeds and speeds for machining metals, the cutting of screw threads and numerous other important subjects that the mechanic has occasion to refer to. A copy of this book is included with the equipment of each 9-Inch Junior South Bend Lathe.

Price, each, 25 cents. Mailed postpaid anywhere in the world. Coin or stamps of any country accepted.

PARTIAL LIST OF CONTENTS

Instructions for installing a lathe.
How to grind and set lathe tools.
Cutting screw threads, right and left.
Cutting Acme and Square threads.
Speeds and Feeds for cutting metals.
Turning and Boring tapers.
How to read a micrometer caliper.
Decimal equivalents of an inch.
Table of metric linear measure.
Operating longitudinal feeds.
Operating cross feeds.
Cutting internal screw threads.
Centering and Countersinking.
Drilling, Reaming, Tapping, Knurling.
The care of lathe centers.
Lining-up and hanging countershaft.
Calculating size and speed of pulleys.
Method for leveling a lathe.
And three hundred other shop kinks.

"HOW TO RUN A LATHE" INCLUDED WITH EACH 9-INCH JUNIOR LATHE

New Model South Bend Lathes and Attachments

Attachments for 9-Inch Junior Lathe

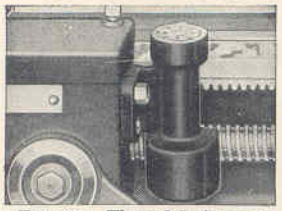


Fig. 57. Thread Indicator
Cat. No. 809. Price....$8.00

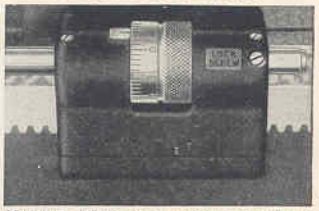


Fig. 58. Micrometer Carriage Stop
Cat. No. 971. Price.....$10.00

Extra Parts for 9-Inch Junior Lathes

Fig. 59. Center Rest.

Fig. 60. Large Face Plate.

Fig. 61. Follower Rest.

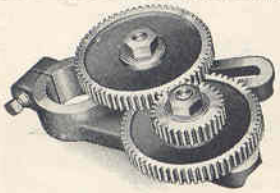
Fig. 62. Thread Cutting Stop.

Cat. No. 125. Center Rest. Price, each.....$10.00
Cat. No. 40. Large Face Plate. Price, each..... 10.00
Cat. No. 130. Follower Rest. Price, each..... 6.00
Cat. No. 67. Thread Cutting Stop. Price, each..... 2.50

Hand Rest for Wood Turning

Used for irregular work and pattern making. Clamps directly to ways of bed. Price includes clamps for attaching and two "T" rests.
Cat. No. 1071. Price.....$10.50

Fig. 63. Hand Rest.



Double Gear Bracket

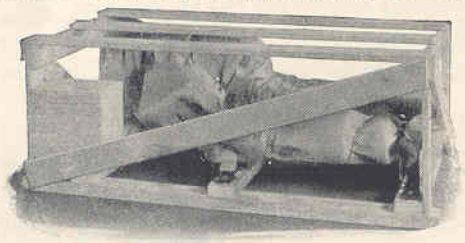
The Double Gear Bracket is used at the headstock end of the lathe when cutting very fine threads. Its use greatly increases the thread cutting capacity of the 9-Inch Junior Lathe.

Fig. 64. Double Gear Bracket. Cat. No. 1050. Price.....$15.00

Other Sizes of New Model South Bend Back Geared Screw Cutting Lathes

Net Factory Prices, Overhead Countershaft Drive, F.O.B. South Bend, Ind.

Swing over Bed Inches	Length of Bed Feet	Approx. Weight Crated Pounds	Quick Change Gear		Standard Change Gear	
			Cat. No. of Lathe	Price	Cat. No. of Lathe	Price
9-inch Quick Change and Standard Change Gear Lathes						
9¼	2½	470	82-X	$265.00	31-X	$230.00
9¼	3	490	82-Y	270.00	31-Y	235.00
9¼	3½	510	82-Z	275.00	31-Z	240.00
9¼	4	530	82-A	280.00	31-A	245.00
9¼	4½	550	82-R	285.00	31-R	250.00
11-inch Quick Change and Standard Change Gear Lathes						
11¼	3	675	84-Y	325.00	33-Y	290.00
11¼	3½	700	84-Z	330.00	33-Z	295.00
11¼	4	725	84-A	335.00	33-A	300.00
11¼	5	805	84-B	345.00	33-B	310.00
11¼	5½	845	84-S	350.00	33-S	315.00
13-inch Quick Change and Standard Change Gear Lathes						
13¼	4	1060	86-A	390.00	35-A	340.00
13¼	5	1110	86-B	402.00	35-B	352.00
13¼	6	1160	86-C	414.00	35-C	364.00
13¼	7	1210	86-D	426.00	35-D	376.00
13¼	8	1260	86-E	438.00	35-E	388.00
15-inch Quick Change and Standard Change Gear Lathes						
15¼	5	1475	88-B	475.00	39-B	415.00
15¼	6	1550	88-C	490.00	39-C	430.00
15¼	7	1625	88-D	505.00	39-D	445.00
15¼	8	1735	88-E	520.00	39-E	460.00
15¼	10	1900	88-G	550.00	39-G	490.00
16-inch Quick Change and Standard Change Gear Lathes						
16¼	6	1875	92-C	540.00	41-C	480.00
16¼	7	1955	92-D	555.00	41-D	495.00
16¼	8	2035	92-E	570.00	41-E	510.00
16¼	10	2195	92-G	600.00	41-G	540.00
16¼	12	2355	92-H	645.00	41-H	585.00
18-inch Quick Change and Standard Change Gear Lathes						
18¼	6	2440	94-C	650.00	43-C	585.00
18¼	7	2540	94-D	675.00	43-D	610.00
18¼	8	2640	94-E	700.00	43-E	635.00
18¼	10	2840	94-G	750.00	43-G	685.00
18¼	12	3140	94-H	815.00	43-H	750.00



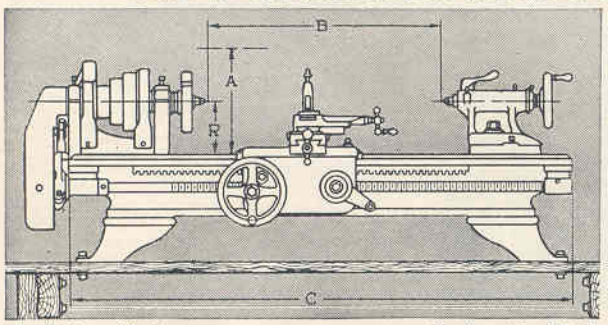
Safe Delivery Guaranteed

The South Bend Lathe Works has shipped more than 43,000 lathes in the past 22 years. From this past experience we have perfected a practical method of packing and crating that assures the safe delivery of your lathe. We can protect you against any loss or damage while your lathe is in transit.

A Lathe Crated for Domestic Shipment

The illustration above shows a 9-Inch Junior New Model Lathe skidded and crated for shipment to any point in the United States, Canada or Northern Mexico. All polished parts are heavily greased to prevent rusting. Each unit is wrapped securely with heavy, waterproof paper. The small parts are packed in a strong box which is nailed to the skids.

How to Determine the Size of a Lathe



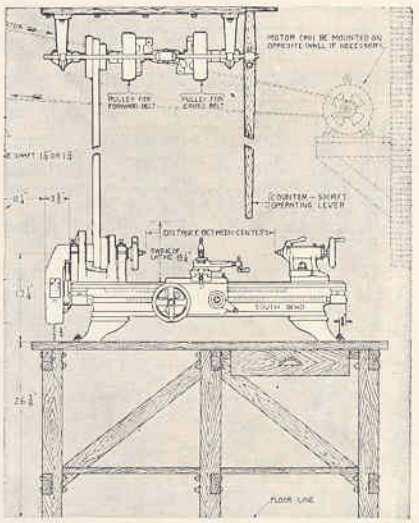
A—Swing of Lathe.
B—Distance between Centers.
C—Length of Bed.
R—Radius.

The size of a back geared screw cutting lathe is determined by the swing over the bed and the length of bed.

European tool manufacturers determine the size of a lathe by its radius or center distance. What the European terms an 8-inch center lathe, an American would call a 16-inch swing lathe.

Installation Plan Blue Prints

The illustration below is a reduction of a 12 x 18-inch blue print which gives information on installing the lathe and the correct size and speed of pulleys for the lineshaft. One of these blue prints in full size is furnished with each lathe. Full information for setting up lathe, levelling, operation and care of lathe will be found in the book "How to Run a Lathe," also included with each lathe.



Reduction of the 12" x 18" Installation Plan Blue Print. Another Blue Print of the same Size on Foundation Plans is Also Included with Lathe.

Tools, Chucks, Attachments and Accessories for 9-Inch Junior Lathes

Patent Tool Holders for 9-Inch Junior Lathes

Made of Drop Forged Steel. Price includes Wrench and One High Speed Steel Cutter Bit, not ground to shape.

Straight Shank Turning Tool.
Cat. No. 849-S. Price.....$2.40

Right-Hand Cutting-Off Tool.
Cat. No. 881-R. Price.....$2.60

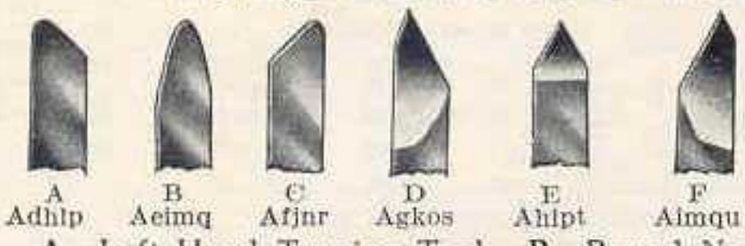
Left-Hand Off-Set Turning Tool.
Cat. No. 849-L. Price.....$2.40

Formed Threading Tool.
Cat. No. 865. Price.....$3.75

Right-Hand Off-Set Turning Tool.
Cat. No. 849-R. Price.....$2.40

Boring Tool, Style "B."
Two wrenches, 2 cutter bits included.
Cat. No. 429. Price.....$4.40

High Speed Cutter Bits for Tool Holders



A	B	C	D	E	F
Adhlp	Aeimq	Afjnr	Agkos	Ahlpt	Aimqu

Made of high speed steel, hardened, ground to shape and ready for use. Order by code word, not by letter.

A—Left-Hand Turning Tool. B—Round Nose Turning Tool.
C—Right-Hand Turning Tool. D—Left-Hand Side Tool.
E—Threading Tool. F—Right-Hand Side Tool.

Cat. No. 1304. Price of Cutter Bits, size ¼"x½"x2", each....$0.25
Set of six (Code Word "Asund"). Price..... 1.50

High Speed Steel Cutter Bits

Hardened only — not ground to shape — require grinding before being ready for use.
Cat. No. 1419. Price, size, ¼"x¼"x2", each.....$0.15

Standard Lathe Dogs

Made of heavy malleable iron, properly designed for strength and service. Price includes hardened tool steel set screw.

Capacity of Lathe Dog	MALLEABLE IRON		
	Catalog No.	Code Word	Price Each
⅝ in.	1-M	Xaced	$0.50
½ in.	2-M	Xedfe	.60
¾ in.	4-M	Xdegf	.70
1 in.	6-M	Xefhg	.80
1¼ in.	8-M	Xfgih	.90
1½ in.	10-M	Xghji	1.05
1¾ in.	11-M	Xhikj	1.15
2 in.	12-M	Xijlk	1.30

Combination Center Drill and Countersink

For drilling center holes and countersinking 60 degree angle for lathe centers.
Cat. No. 2-C, Price each...$0.30

Lathe Centers

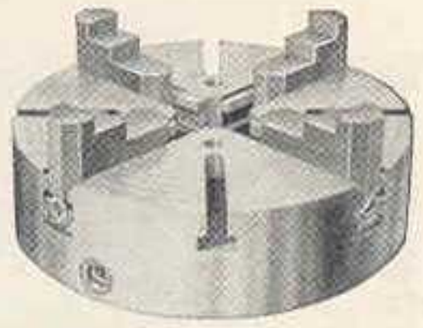
Head Spindle Center of tool steel, ground to No. 2 Morse Taper, not hardened.
Cat. No. 725-A. Price each.$2.00

Tail Spindle Center of tool steel, hardened and ground to No. 2 Morse Taper.
Cat. No. 726-A. Price each.$2.25

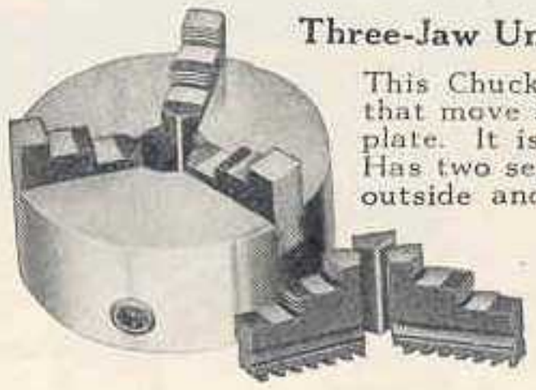
Four-Jaw Independent Lathe Chuck

This Chuck has four Independent Solid Jaws with individual screw adjustment. Jaws are reversible by running out and turning end for end. Screws have hardened steel bearings. Will hold about 7½ inches. Price includes wrench and screws for attaching chuck back.

Cat. No. 2106. Size 6". Price...$24.00



Three-Jaw Universal Geared Scroll Chucks



This Chuck has three Universal Geared Jaws that move simultaneously by a threaded scroll plate. It is intended for holding round work. Has two sets of jaws, one for holding work on outside and one for holding work internally. Will hold about 6⅛ inches. Price includes wrench, two sets of jaws and cap screws for attaching chuck back.

Cat. No. 2406. Size 6".
Price $31.00

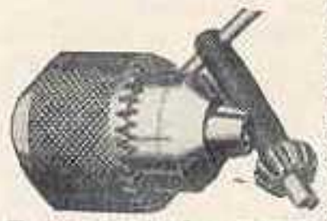
Semi-Machined Chuck Back

In order to mount a lathe chuck on the lathe the chuck must be fitted with a chuck back. The illustration shows a semi-machined cast iron chuck back which has been bored, faced and threaded to fit lathe spindle nose. Sufficient stock is left on flange to machine it to fit the recess on back of the chuck. In ordering a chuck, we recommend it being ordered at same time as lathe so we can fit chuck to lathe at the factory to insure accuracy.

Price of Semi-Machined Chuck Back.....$4.00
Fitting Chuck Back to Chuck and to Lathe..... 3.00

Total Price of Chuck Back and fitting to 9-Inch Junior Lathe..$7.00

Three-Jaw Drill Chuck



Has geared sleeve and key assuring powerful grip. Can easily be operated with one hand. Price includes pinion key but no arbor. Capacity of chuck, 0 to ½-inch.

Cat. No. 1201. Price.....$8.50

Two-Jaw Drill Chuck

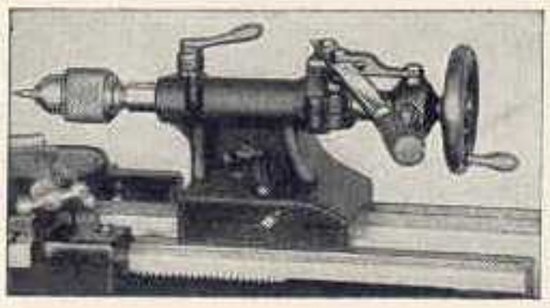
A strong, simple 2-jaw drill chuck operated by right and left hand screw. Jaws are made of tempered steel. Price includes key but no arbor. Capacity of chuck 0 to ½-inch.

Cat. No. 1301. Price.....$10.00

Finished Drill Chuck Arbor

Made of steel, accurately machined. Short taper fits drill chuck and long taper fits head and tail spindle of lathe. State size and make of Drill Chuck when ordering.

Cat. No. 709. Price, including fitting arbor to chuck.....$1.50



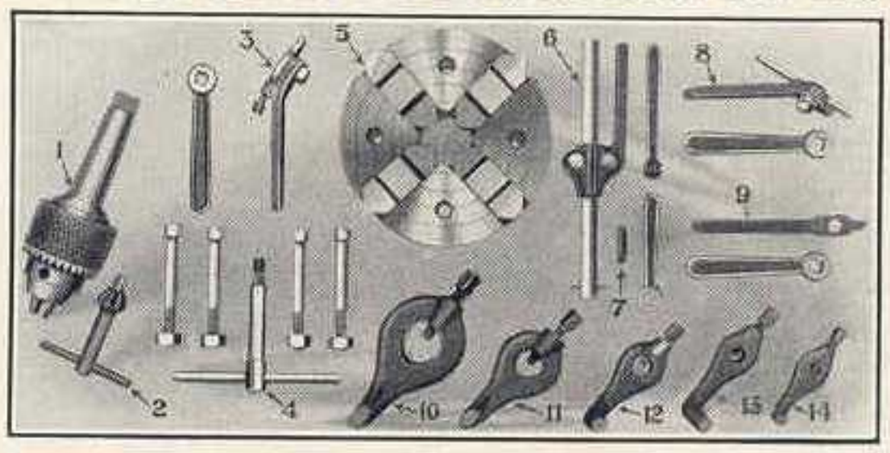
Hand Lever Tailstock

A quick-acting arrangement to speed up drilling when drill chuck is held in tail spindle. Especially practical for quantity centering and drilling jobs. Must be fitted to lathe at factory.

Cat. No. 900. Price...$35.00

No. 122 Chuck and Tool Assortment for All 9-Inch Junior Lathes

1. 3 Jaw Drill Chuck with Arbor Attached
2. Pinion Key for Drill Chuck
3. Formed Threading Tool
4. Wrench and Cap Screws for Lathe Chuck
5. Independent Lathe Chuck
6. Style "B" Patent Boring Tool and Wrenches
7. High Speed Steel Cutter Bit
8. Right Hand Patent Cutting-Off Tool and Wrench
9. Straight Shank Patent Turning Tool and Wrench
10, 11, 12, 13, 14. Are Malleable Lathe Dogs, ½", ¾", 1", 1¼" and 1½" capacity.



No. 122 Chuck and Tool Assortment

The Chuck and Tool Assortment listed here shows the popular sizes of chucks and tools for all types and drives of 9-Inch Junior New Model Back Geared Screw Cutting Lathes. We recommend this assortment as being the most practical for general shop use.

1 No. 2106	6-inch, 4-Jaw Independent Lathe Chuck	$24.00
	Fitting Chuck to Lathe including Chuck Back	7.00
1 No. 1201	3-Jaw Drill Chuck, ½-inch capacity	8.50
1 No. 709	Drill Chuck Arbor, fitted to Chuck	1.50
1 No. 849-S	Patent Turning Tool, straight shank	2.40
1 No. 865	Patent Threading Tool	3.75
1 No. 429	Patent Boring Tool, Style B	4.40
1 No. 881-R	Patent Cutting Off Tool (Right Hand)	2.60
1 Set (5)	Malleable Lathe Dogs, ½", ¾", 1", 1¼", 1½"	4.05

Cat. No. 122 (Code Word **Balor**) **Price..... $58.20**

Attachments for the 9-Inch Junior New Model Lathe

Graduated Taper Attachment

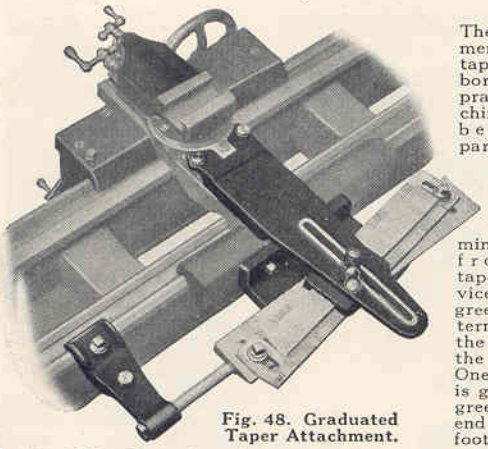


Fig. 48. Graduated Taper Attachment.

The Taper Attachment is used for taper turning and boring work and is practical for machining large numbers of duplicate parts. The attachment remains on the lathe at all times as it requires only a few minutes to change from straight to taper machining or vice versa. The degree of taper is determined by setting the swivel bar to the desired angle. One end of this bar is graduated in degrees, the other end in inches per foot of taper.

Cat. No. 209. Taper Attachment Complete. Price.....$50.00

Milling and Keyway Cutting Attachment

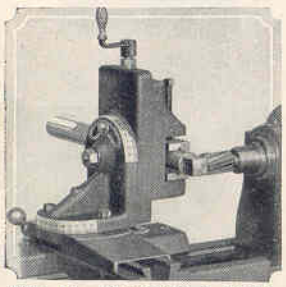


Fig. 49. Squaring a Shaft.

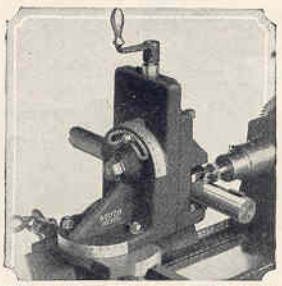


Fig. 50. Cutting a Keyway.

The Milling and Keyway Cutting Attachment equips the lathe for doing a great deal of work that otherwise could be done only by a shaper or milling machine.

Cat. No. 1. Milling and Keyway Cutting Attachment. Price...$36.00

Cat. No. 109. Plain Milling Arbor for above Attachment. Price.$8.00

No. 15 Electric Grinder for 9-in. Jr. Lathe

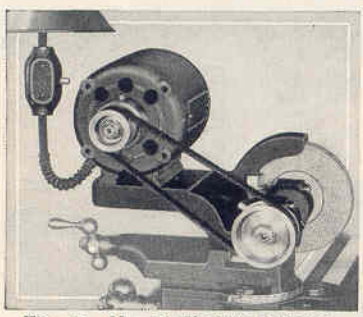


Fig. 51. No. 15 Electric Grinder.

A practical attachment for grinding reamers, milling cutters, taps, dies, valves, pistons, hardened bushings, shafts, etc. For application of Grinder see page 13.

The No. 15 Electric Grinder fits on the compound rest of the lathe in place of the tool post and can be operated from an electric light socket. Clamp for mounting and one grinding wheel included in price.

Cat. No. 15-I. No. 15 Electric Grinder, with ¼ H.P. Motor. Price $75.00

Adjustable Holding Fixture for Truing Diamond

Used to hold the Industrial Diamond when truing a grinding wheel. Can also be used to hold cutter stop when grinding cutters and reamers.

Cat. No. 19. Adjustable Holding Fixture. Price $8.00

Fig. 53. No. 18 Industrial Diamond Dresser, special metal mounting, one-third carat.

Cat. No. 18. Price, each.....$8.00

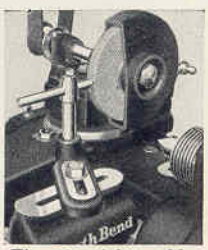
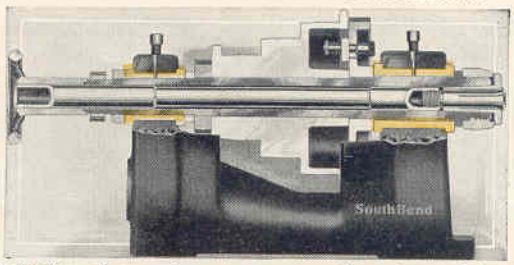


Fig. 52. Adjustable Holding Fixture.

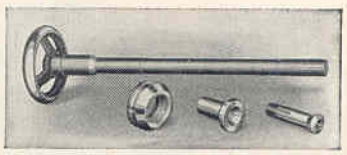
Draw-in Collet Chuck Attachment



The illustration above shows a cross section view of the 9-Inch Junior Lathe headstock fitted with a Hand Wheel Draw-In Collet Chuck Attachment.

Hand Wheel Draw-in Collet Chuck

This attachment is used extensively in making tools and parts that require precision. It is the most accurate type of chuck made and will center small work instantly. The price includes a Hand Wheel and Draw-tube, Nose Cap, Tapered Steel Sleeve and one Standard Collet of any size.



Cat. No. 4309. Hand Wheel Draw-In Collet Chuck. Price.....$33.00

Standard Collet for Round Work

Collets are made of tool steel, are hardened and tempered, and ground to insure accuracy. One end of the Collet is threaded to fit the draw-tube with a keyway to prevent it from turning.

Cat. No. 609. Standard Collet, price each.....$3.50

Holes in Collets range from 1/64-inch to ½-inch in steps of 64ths.

Hard Maple Benches for Bench Lathes

The bench shown in the illustration is made of the best quality hard maple and will give a lifetime of service. All benches are shipped knocked down to save freight charges. Bolts are furnished for assembling.

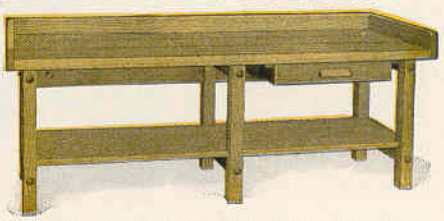


Fig. 54. Maple Bench with Drawer for Tools.

Specifications and Prices of Benches

Length Bench Top	Width Bench Top	Thickness Bench Top	For Lathes with Bed Lengths of	Code Word	Cat. No.	Price
†54 in.	32 in.	1½ in.	2½, 3, 3½	Cakes	128-X	$45.00
72 in.	32 in.	1½ in.	4, 4½, 5	Cedar	128-A	50.00

†54-inch Bench does not have center leg.

Countershaft Standards for Simplex Motor Driven Lathes

The Countershaft Standards illustrated at the right are used to support the hard maple cross board for Simplex Countershaft. Made of iron and painted black, drilled, and ready for mounting on bench.

Cat. No. 20-I. Countershaft Standards. Price, per pair $12.50

Fig. 56. Cross Board

Made of hard maple 40" x 10" x 2" thick.

Cat. No. 20-B. Maple Cross Board, drilled. Price, each $1.00

Fig. 55. Countershaft Standards.

Features of the 9-Inch Junior New Model South Bend Lathe

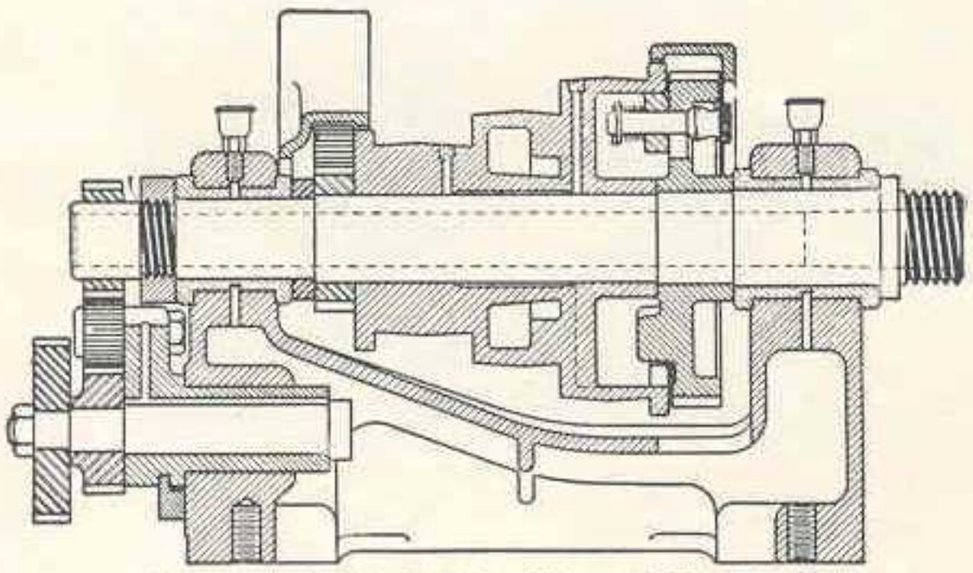


Fig. 41. Cross Section View of Headstock.

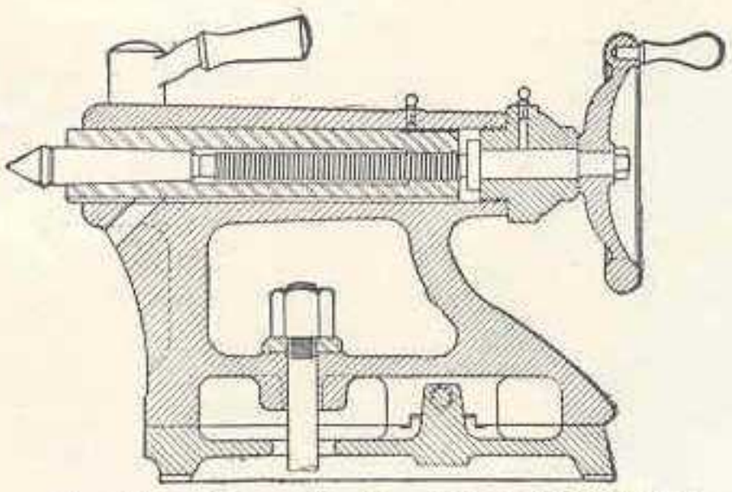


Fig. 43. Cross Section View of Tailstock.

Fig. 42. Graduated Tailstock Spindle.

Carbon Steel Headstock Spindle

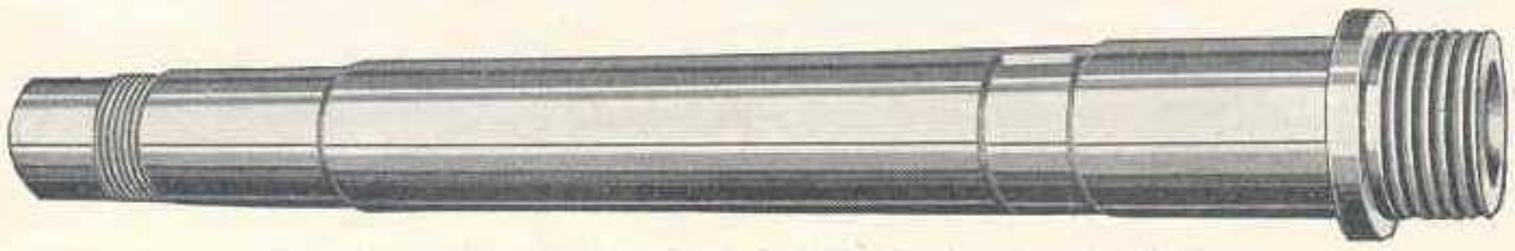


Fig. 44. Hollow Carbon Steel Spindle Finish Ground All Over.

All spindles are made of special carbon steel and are finish ground all over. A ¾-inch hole through the spindle permits the machining of rods, bars and tubing by the use of a lathe chuck or draw-in collet chuck.

Phosphor Bronze Bearings

The phosphor bronze bearings for the headstock spindle are of high quality material and are hand scraped to fit the spindle to insure perfect alignment. These bearings are adjustable for wear.

Fig. 45. Hand Scraped Phosphor Bronze Bearings.

Precision Lead Screw for the 9-inch Junior Lathe

Fig. 46. Section of Lead Screw—Actual Size.

The lead screws for all 9-Inch Junior New Model Lathes are ¾-inch in diameter Acme Thread, eight pitch, and are cut on a special machine equipped with a master lead screw. They are guaranteed to meet the most accurate requirements in cutting the finest precision screw threads for master gauges, taps, dies, etc.

Graduated Compound Rest

The illustration at the right shows the graduated compound rest of the 9-inch Junior Lathe mounted on the saddle of the lathe. In using this tool the operator has the advantage of two feed screws, the compound rest screw for angular feed and the cross feed screw. Each of these screws has a micrometer collar graduated in thousandths of an inch for regulating the depth of the cut.

The compound rest base is accurately graduated in degrees over an arc of 180 degrees. It swivels on a central stud and can be clamped in the desired position. It can be operated at any angle of the horizontal plane.

The use of the compound rest screw with the cross feed screw permits the operator to do all kinds of taper work with precision and accuracy, so necessary for tool and die work.

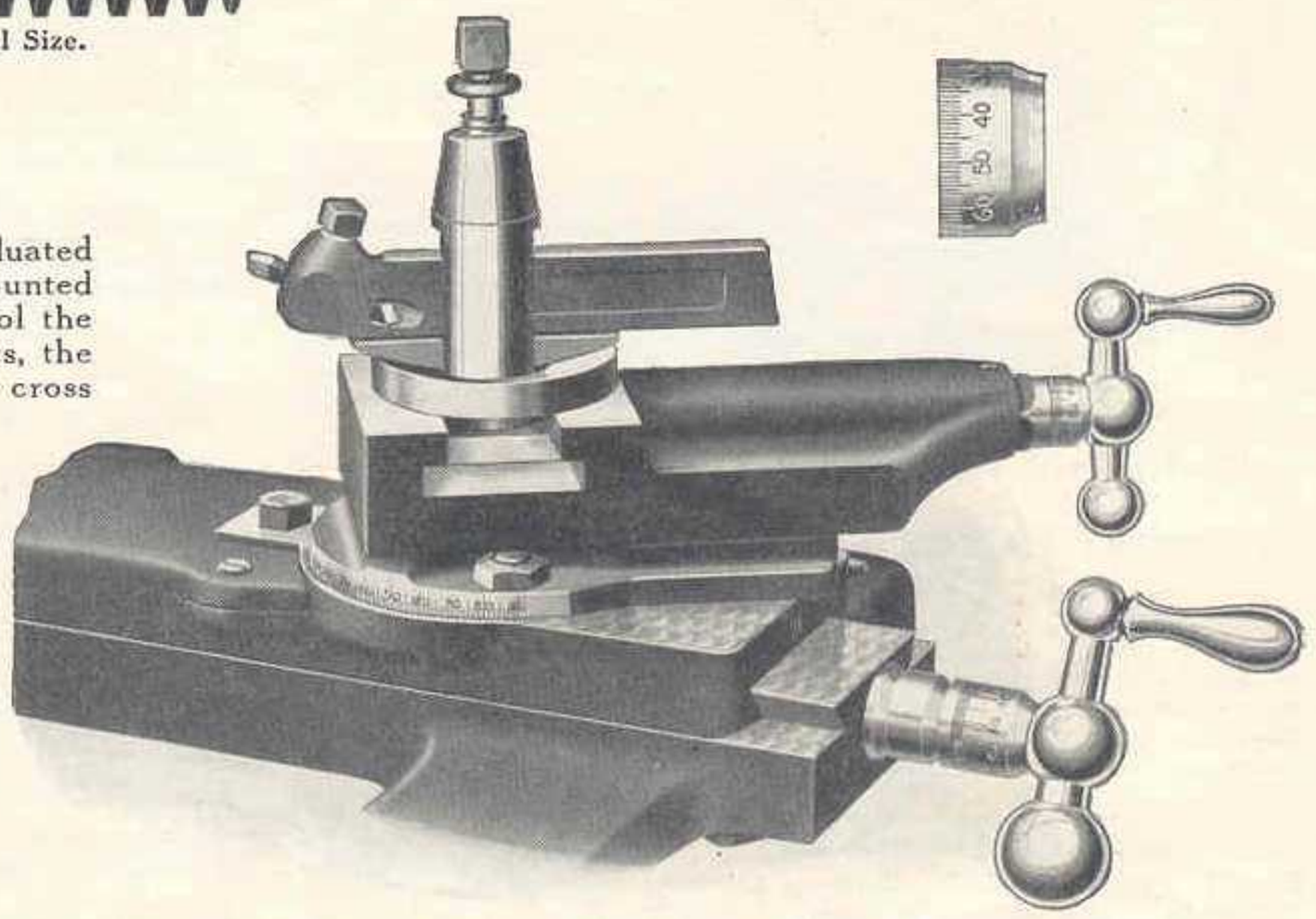


Fig. 47. Graduated Compound Rest—Insert shows Micrometer Collar.

Features of the 9-Inch Junior New Model South Bend Lathe

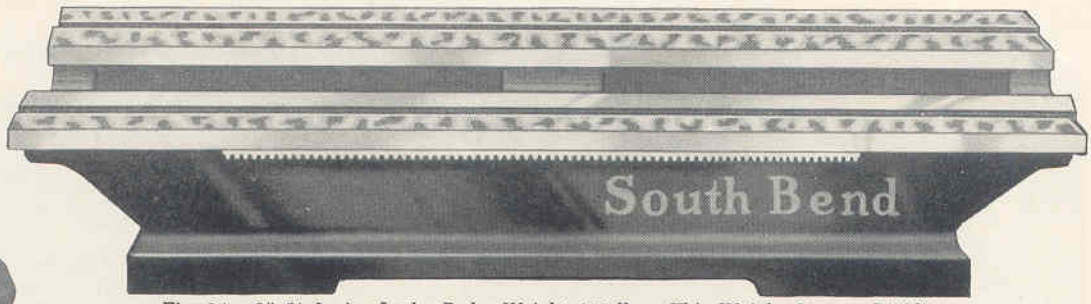


Fig. 34. 9"x3' Junior Lathe Bed. Weight 137 lbs. This Weight Insures Rigidity.

Fig. 35. Hand scraping the V-ways and Flat-way of the lathe bed.

Sixty-Four Tests for Accuracy

Sixty-four major accuracy tests are made during the process of manufacture of the 9-Inch Junior Lathe.

After being assembled the lathe is operated under its own power and a record of each test is filed in our office.

Fig. 36. The headstock, tailstock and saddle are hand scraped to a perfect bearing.

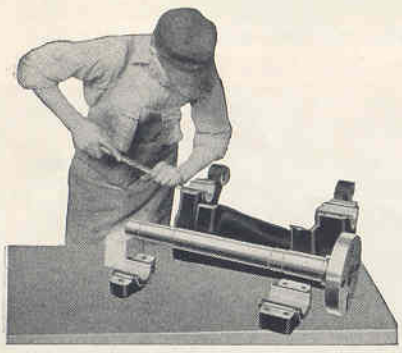


Fig. 37. The phosphor bronze bearings for the headstock spindle are hand scraped to fit the spindle.

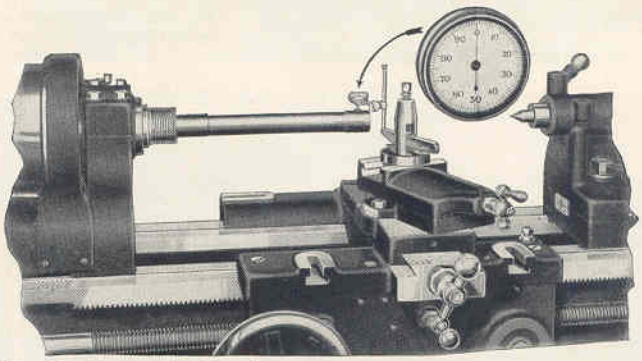


Fig. 38. Testing Headstock Spindle. A test bar, 12 inches long, is fitted to the spindle. The dial indicator registers in ten thousandths of an inch.

Back Gear Arrangement

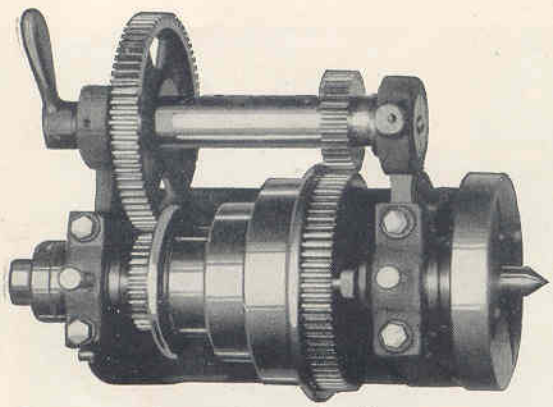


Fig. 39. Top view of headstock with gear guards removed to show back gears.

The back gears of the headstock are shown in the illustration at the left. Six spindle speeds, three with open belt for light work and three through the back gears for work requiring power and slow speed.

The arrangement of gears for cutting screw threads and the ranges of power feeds are shown at the right. A set of change gears for threads and feeds are included with each lathe.

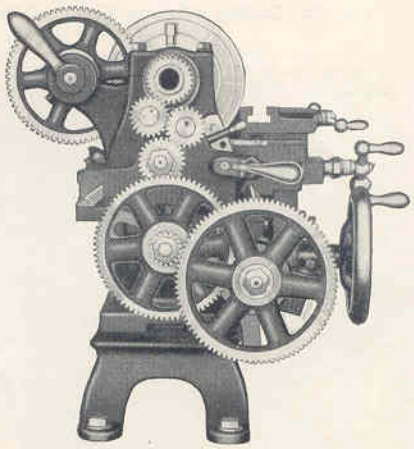


Fig. 40. End view of lathe and gears.

Practical Jobs for the 9-Inch Junior New Model South Bend Lathe

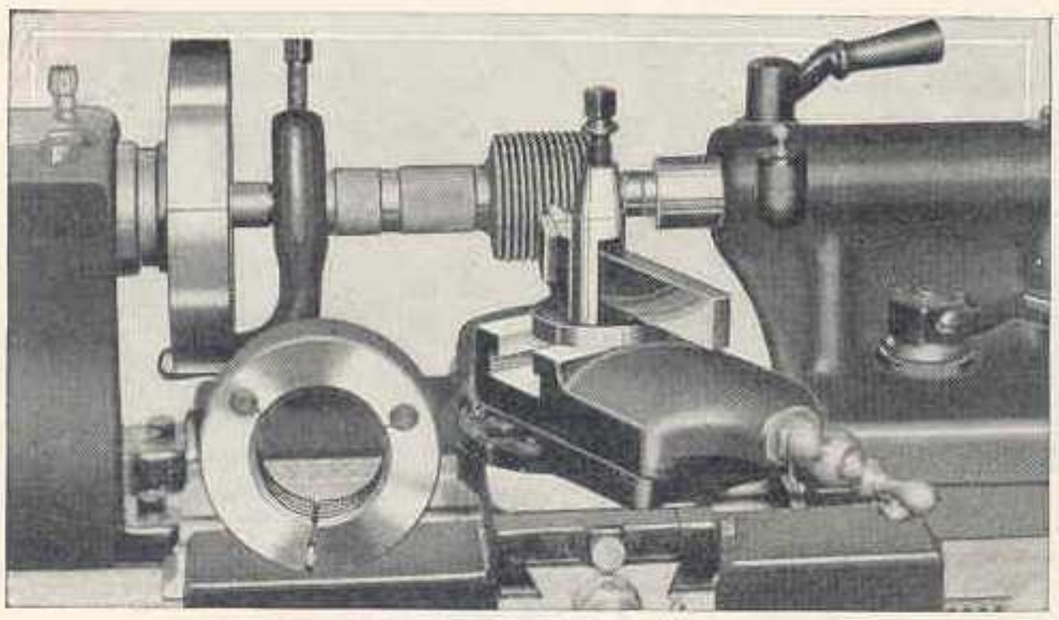


Fig. 24. Making a Master Thread Gauge.

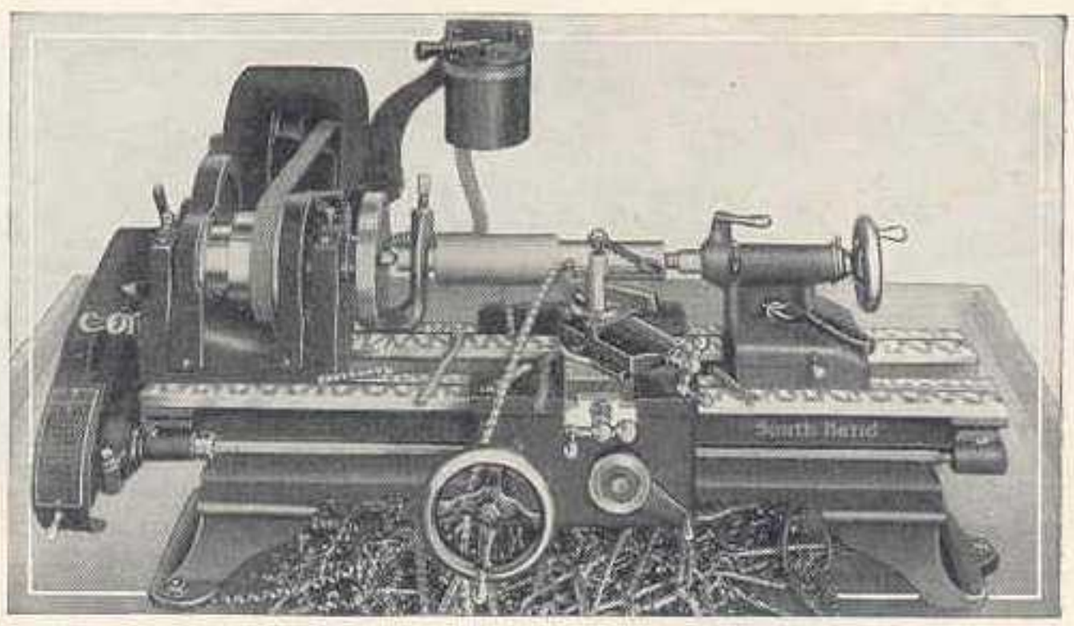


Fig. 25. 9-Inch Junior Horizontal Motor Driven Bench Lathe.

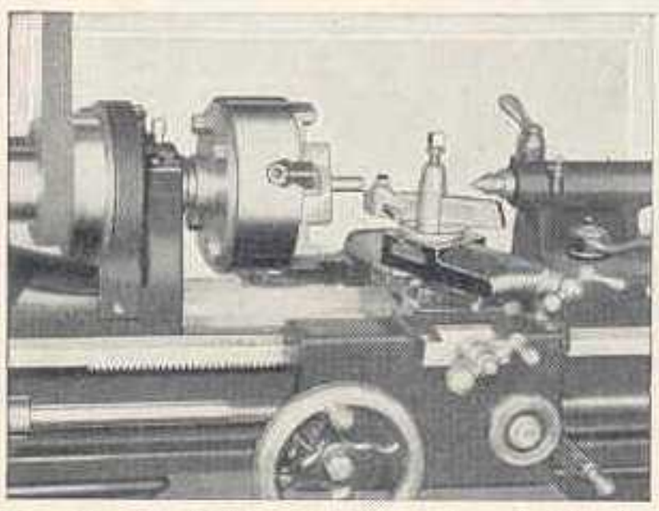


Fig. 26. Machining Jewelers' Punch Blank.

Fig. 27. Crankshaft of a Small Marine Motor, Cut from Solid Bar on a 9-Inch Junior Lathe—Actual Size, 8 Inches Long.

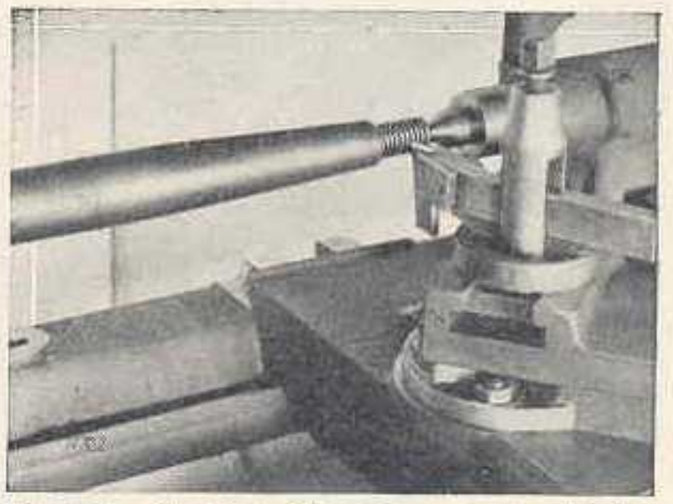


Fig. 28. Cutting Thread on Long Shaft.

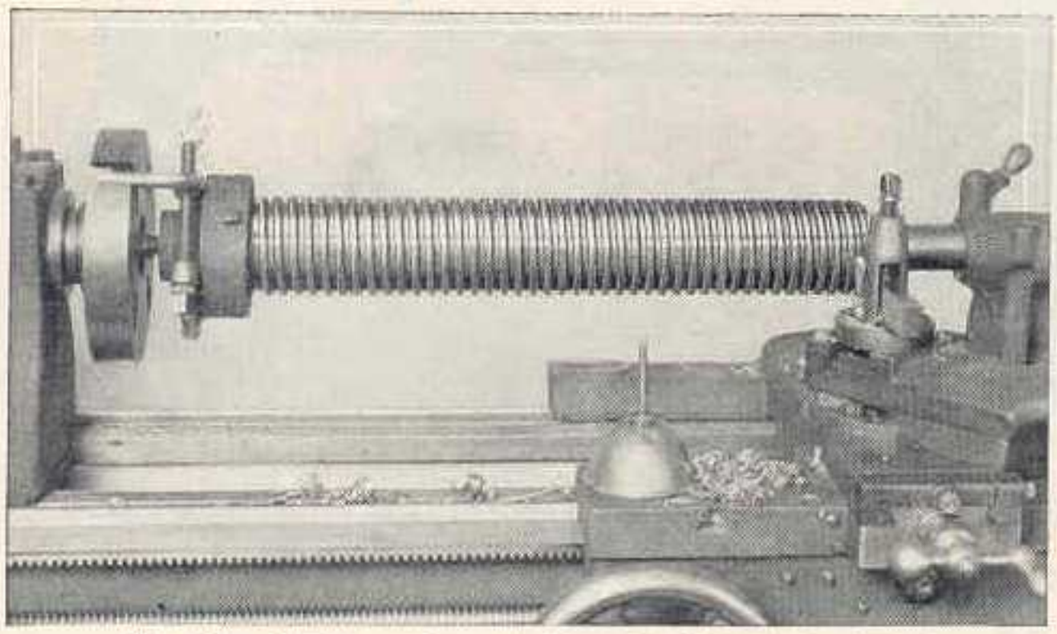


Fig. 29. Cutting a Square Thread of Large Diameter.

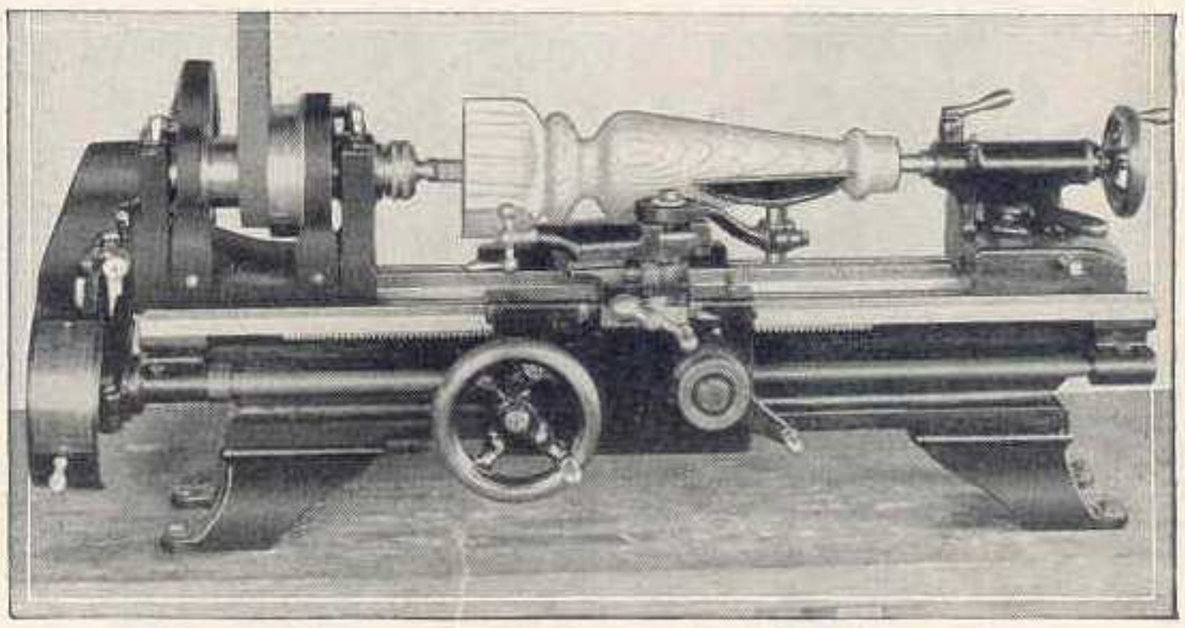


Fig. 30. 9-Inch Junior Lathe Equipped for Wood Turning.

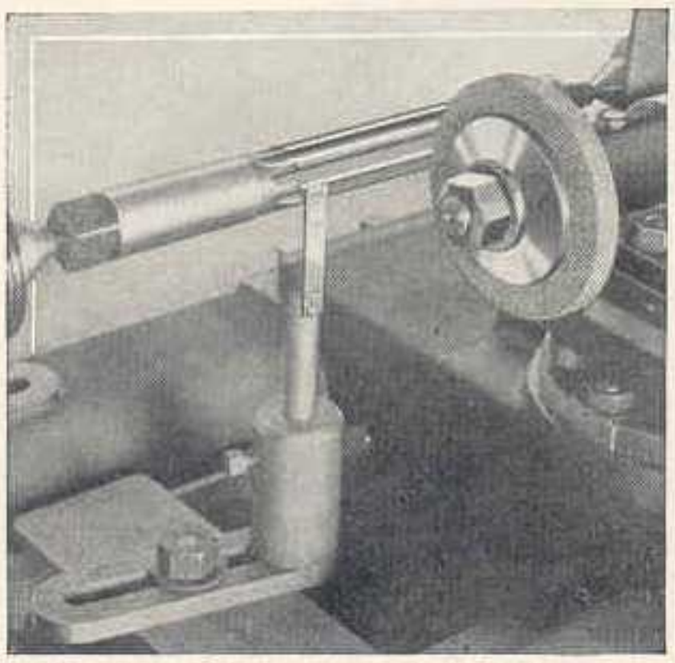


Fig. 31. Grinding a Straight Reamer.

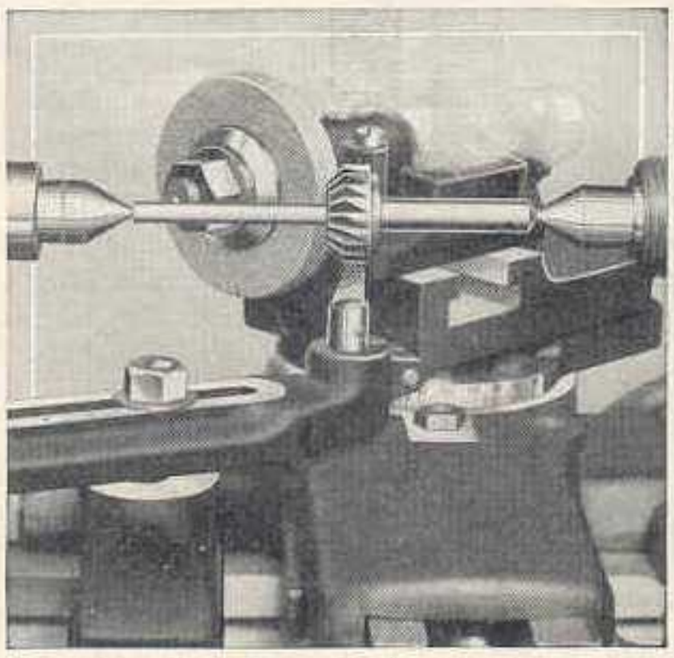


Fig. 32. Grinding a Valve Seat Reamer.

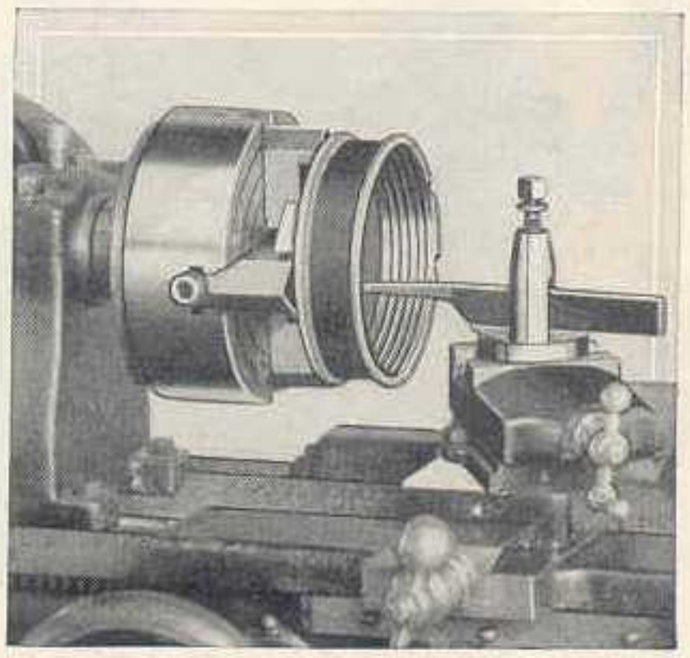


Fig. 33. Cutting an Internal Thread.

Practical Jobs for the 9-Inch Junior New Model South Bend Lathe

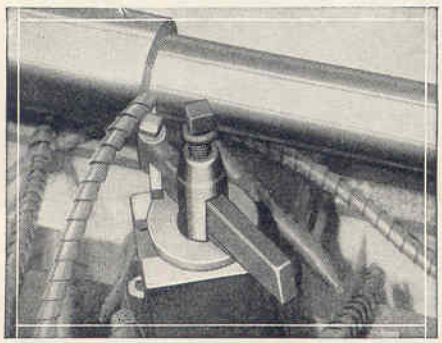


Fig. 15. Tool Taking a Heavy Cut.

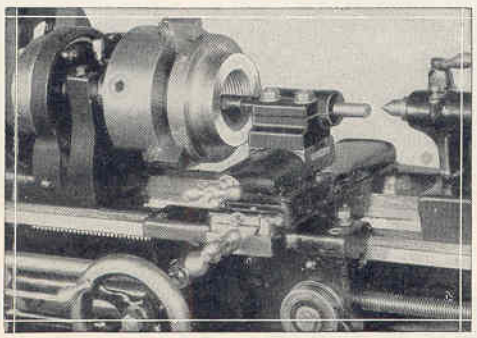


Fig. 16. Cutting a U. S. Standard Internal Thread.

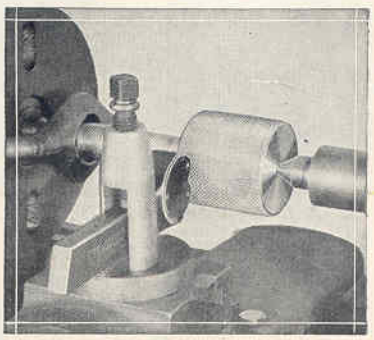


Fig. 17. Knurling a Steel Handle.

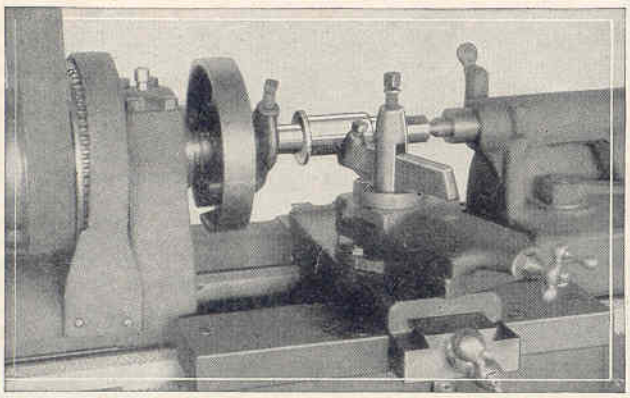


Fig. 18. Finishing a Bushing Mounted on a Mandrel.

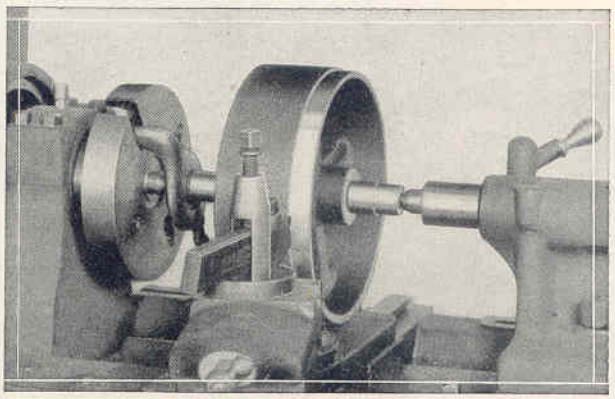


Fig. 19. Machining a Cast Iron Pulley Mounted on a Mandrel.

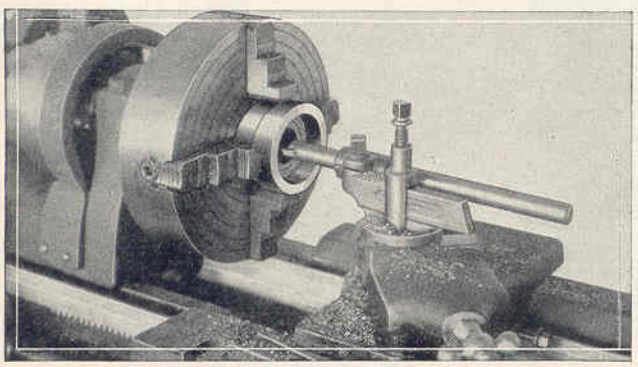


Fig. 20. Boring a Cast Iron Gear Blank Held in a Chuck.

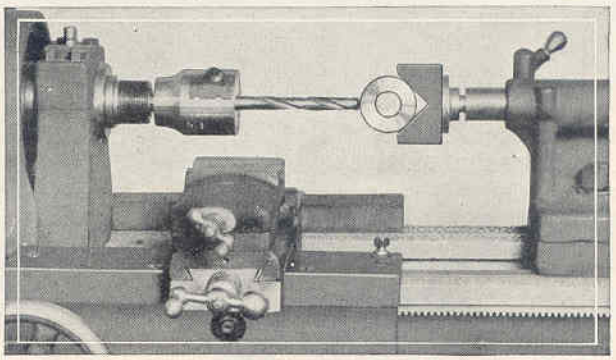


Fig. 21. Drilling Round Work Held in a Crotch Center.

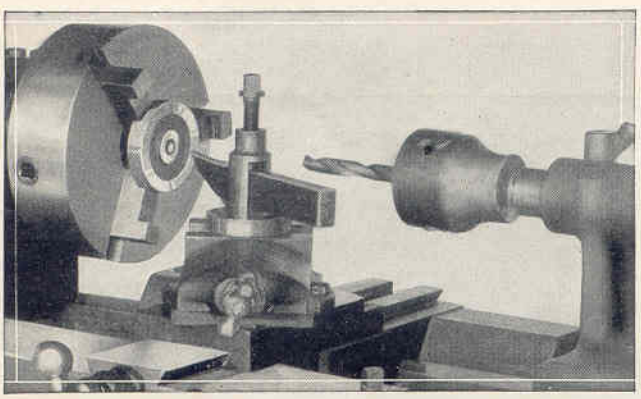


Fig. 22. Drilling and Facing a Forged Steel Gear Blank.

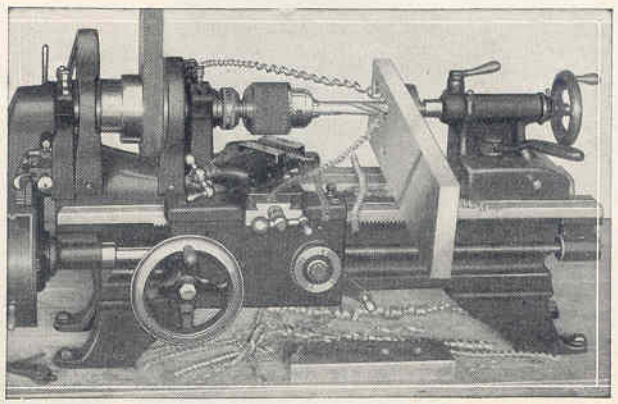
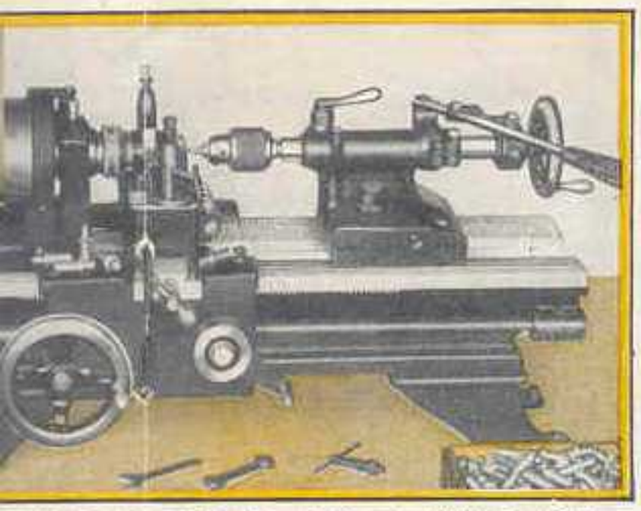


Fig. 23. Drilling a Piece of Flat Steel.



unior Lathe with Hand Lever Attachments.

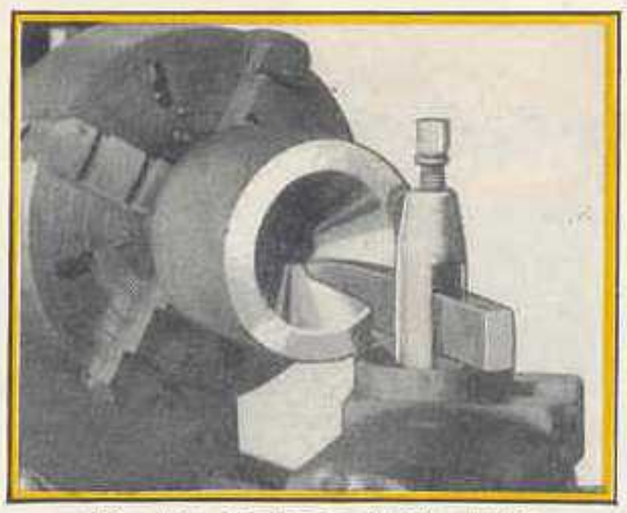


Fig. 11. Boring a Conical Die.

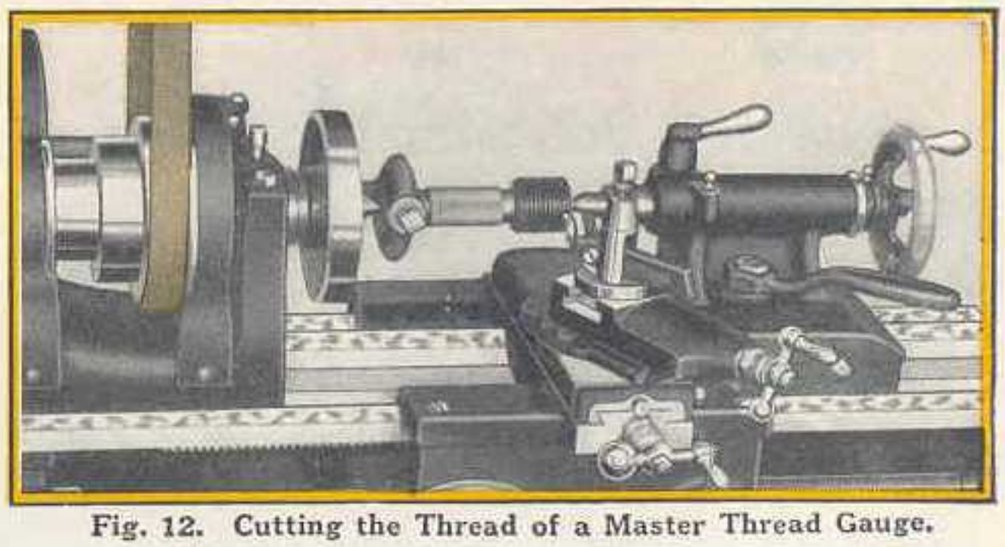
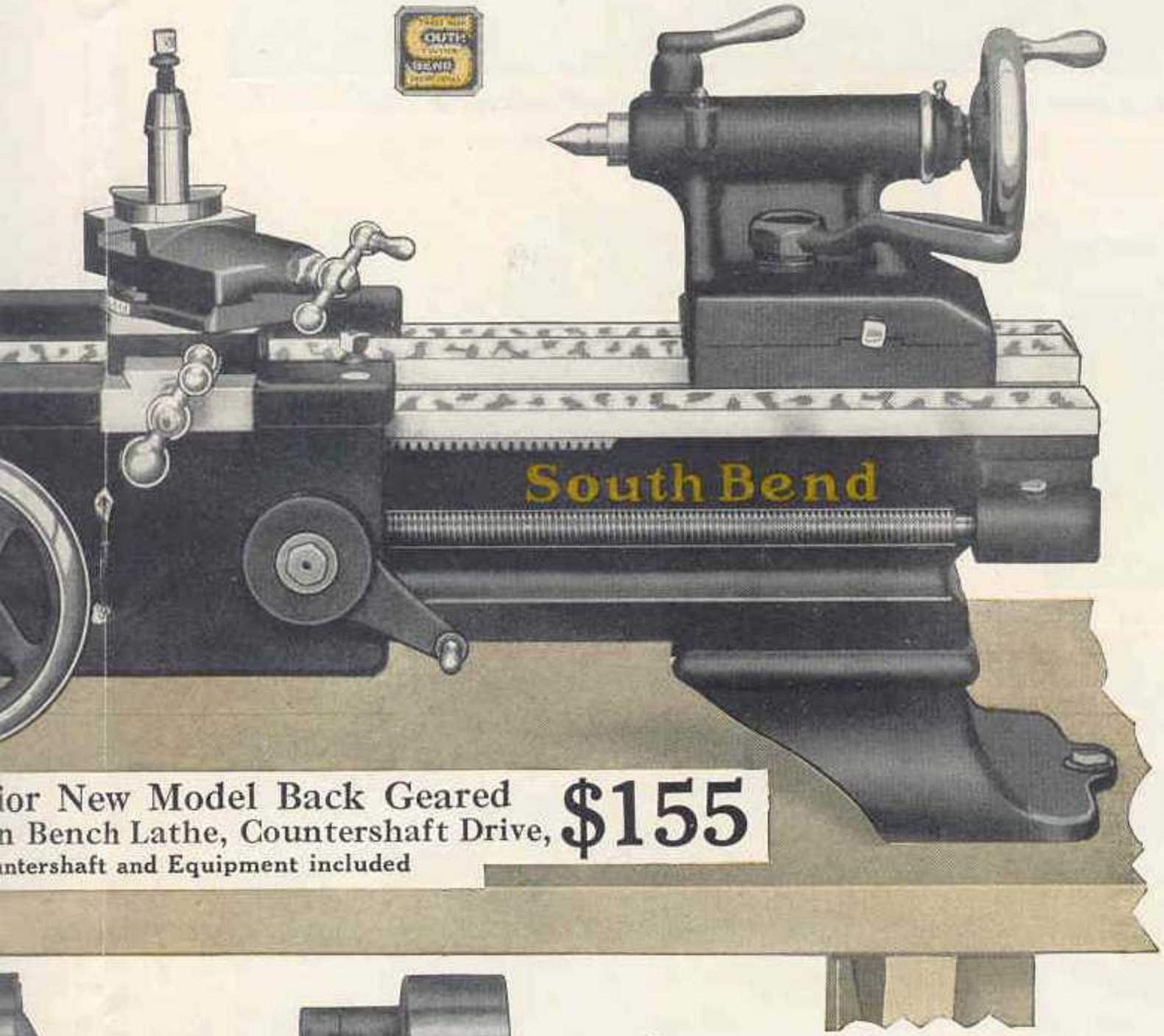
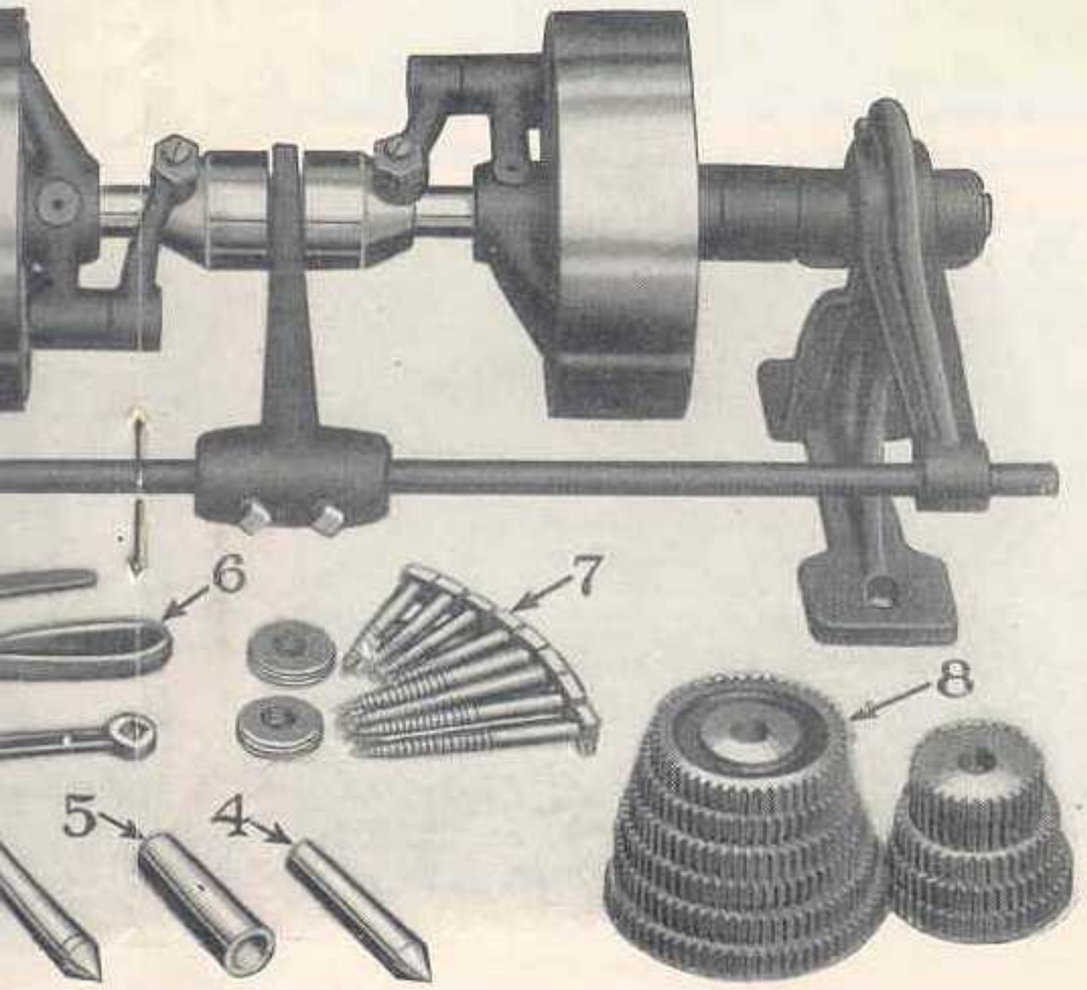


Fig. 12. Cutting the Thread of a Master Thread Gauge.



ior New Model Back Geared
n Bench Lathe, Countershaft Drive, **$155**
ntershaft and Equipment included



cluded in Price of Each 9-Inch Junior Countershaft Driven Lathe.

Classes of Industry Using The 9-Inch Junior Lathe

All
Metal
Working
Industries
Machine Shops
Ship Chandlers
Pattern Makers
Novelty Makers
Blacksmith Shops
Vocational Schools
Toy Manufacturers
Home Work Shops
Radio Manufacturers
Tool and Die Makers
Service Station Shops
Safe and Lock Makers
Jewelry Manufacturers
Aircraft Manufacturers
Electrical Repair Shops
Battery Service Stations
Motion Picture Industry
Armature Service Shops
Engineering Departments
Experimental Laboratories
Electrical Appliance Shops
Astronomical Observatories
Surgical Instrument Makers
Scientific Apparatus Makers
Gun and Lock Repair Shops
Marine Engine Manufacturers
Fishing Tackle Manufacturers
Sewing Machine Manufacturers
Outboard Motor Manufacturers
Electrical Goods Manufacturers
Watch and Clock Manufacturers
Weighing Machine Manufacturers
Musical Instrument Manufacturers
Motorcycle and Bicycle Manufacturers
Automobile, Truck and Bus Manufacturers

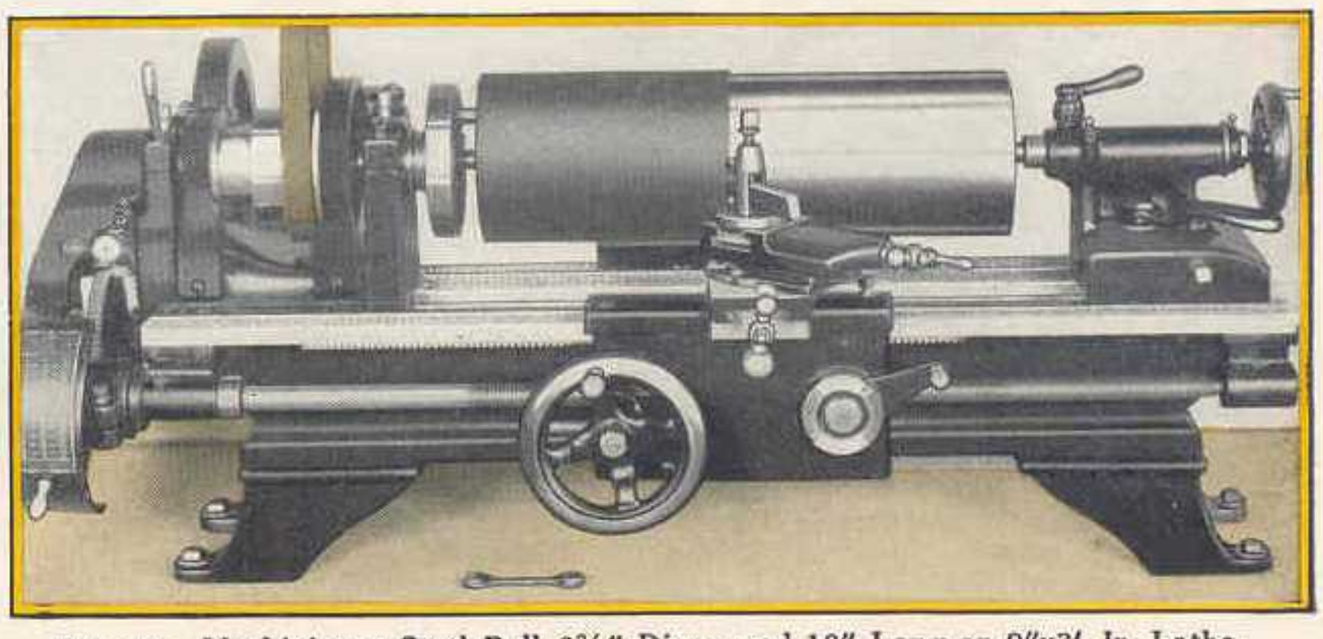


Fig. 14. Machining a Steel Roll 6⅜" Diam. and 18" Long on 9"x3' Jr. Lathe.

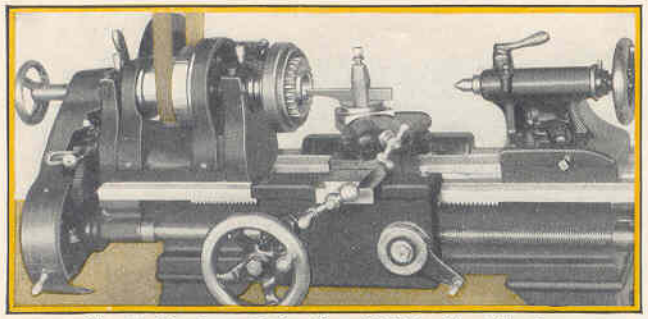


Fig. 8. Boring a Pinion Gear Held in Step Chuck.

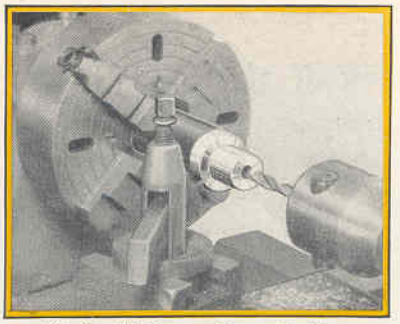


Fig. 9. Making a Brass Bushing.

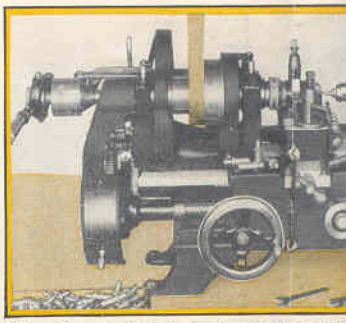
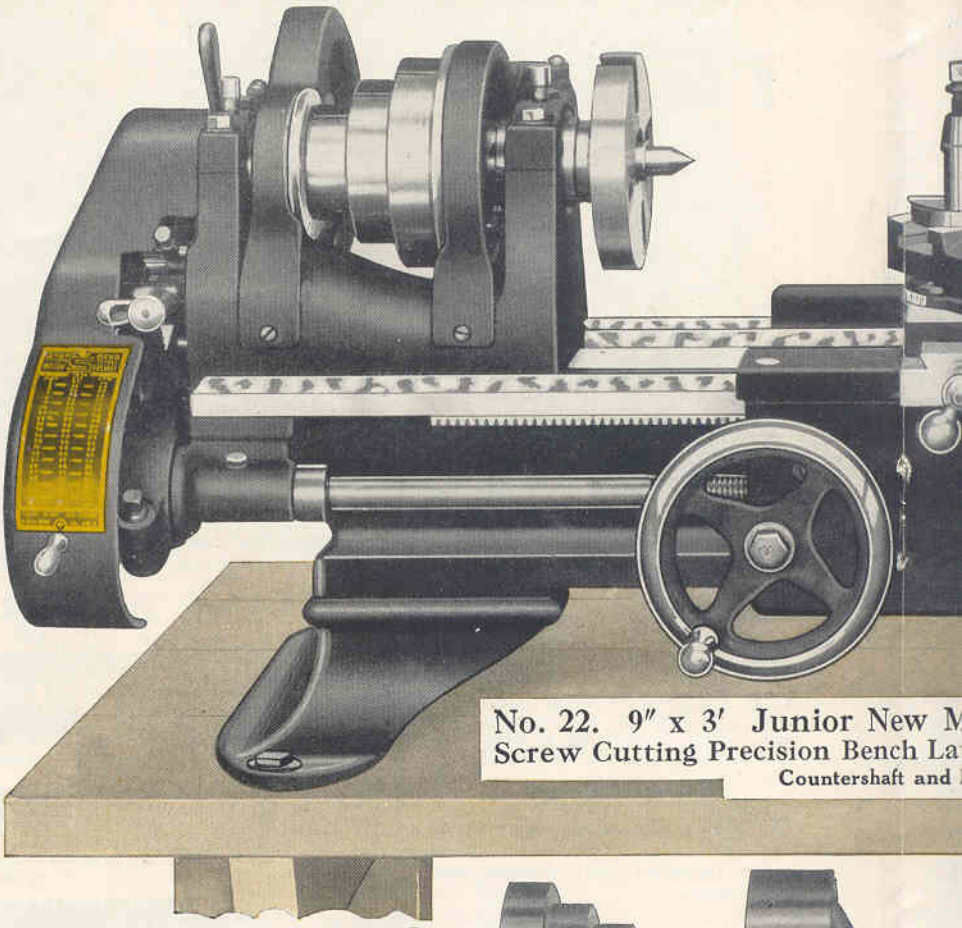


Fig. 10. A 9-Inch Junior Lathe with

Jobs You Can Do On The 9-Inch Junior Lathe

Filing
Boring
Facing
Drilling
Turning
Tapping
Forming
Reaming
Knurling
Polishing
Recessing
Bar Work
Cutting-Off
Chamfering
Backing-Off
Taper Boring
Facing Angles
Fitting Pistons
Taper Turning
Countersinking
Pipe Threading
Pattern Making
Chucking Work
Refacing Valves
Winding Springs
Making Bushings
Undercutting Mica
Tap and Die Work
Winding Armatures
Testing and Truing
Precision Tool Work
Machining Armatures
Restoring Center Holes
Boring Connecting Rods
Testing for Straightening
Accurate Finishing Work
Thread Cutting, Right and Left
Ring, Plug and Thread Gauges
Manufacturing or Production Work
Cutting Screw Threads of All Kinds



No. 22. 9″ x 3′ Junior New M
Screw Cutting Precision Bench La
Countershaft and

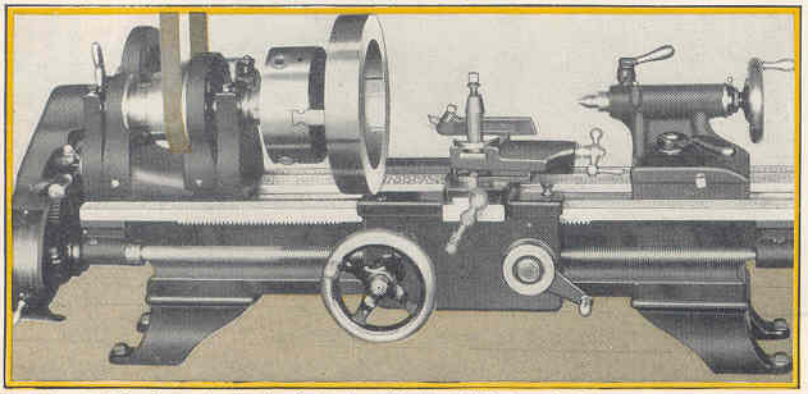
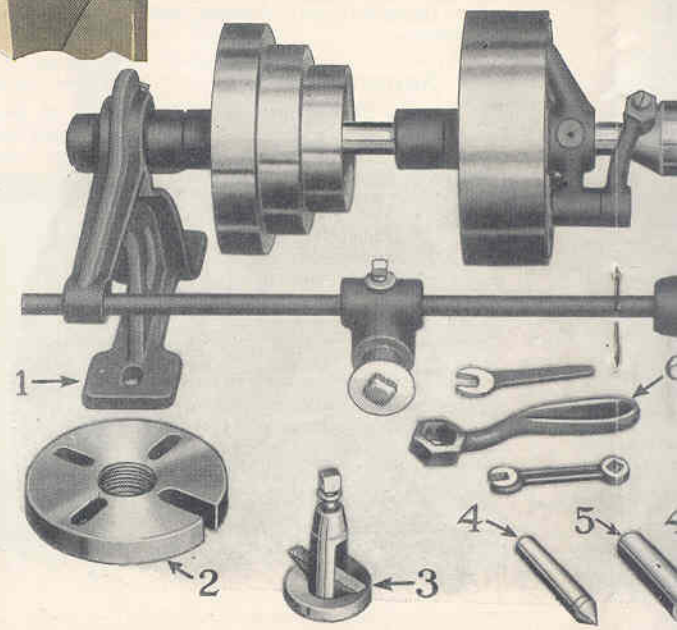


Fig. 13. A 9-Inch Junior Lathe Swinging Work 9¼ Inches in Diameter Over the Bed.



Double Friction Countershaft and Equipment Included in Price

Examples of the 9-Inch Junior Lathe on Manufacturing Work

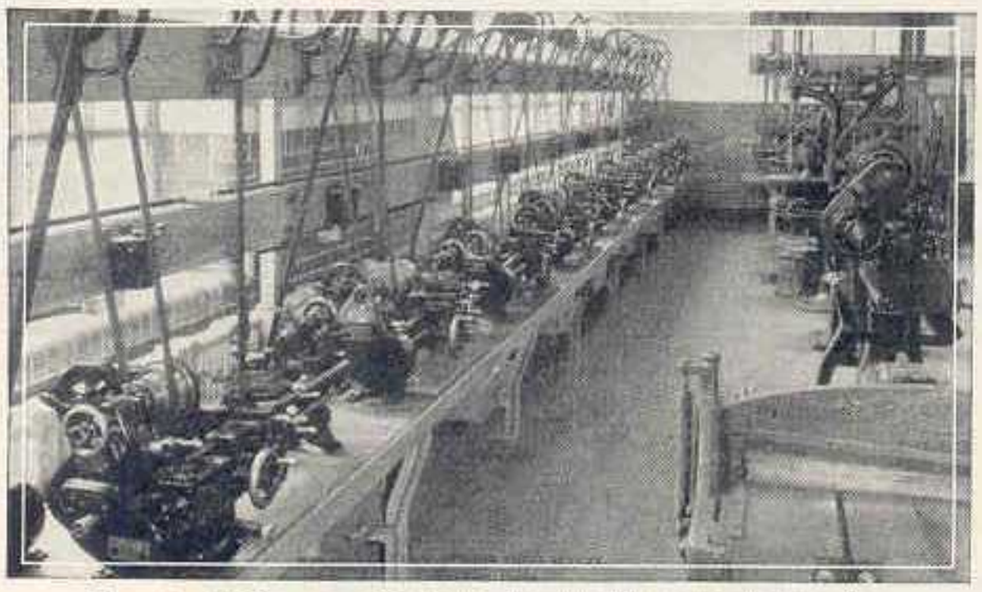


Fig. 4. A Group of 9-Inch Junior New Model Lathes Illustrating a Practical Bench Lathe Installation.

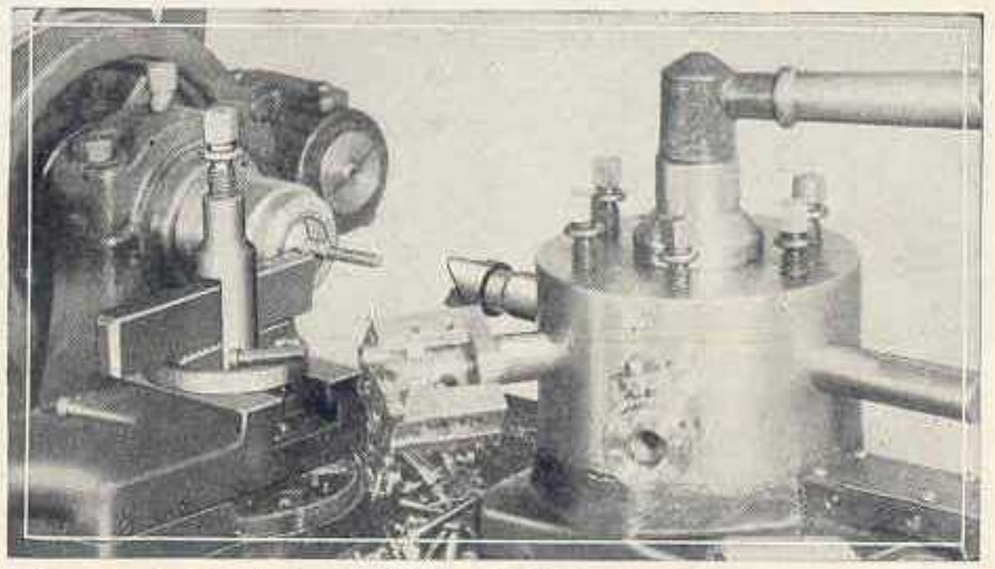


Fig. 5. A 9-Inch Junior New Model Lathe Fitted with Draw-In Collet Chuck and Round Tool Post Turret.

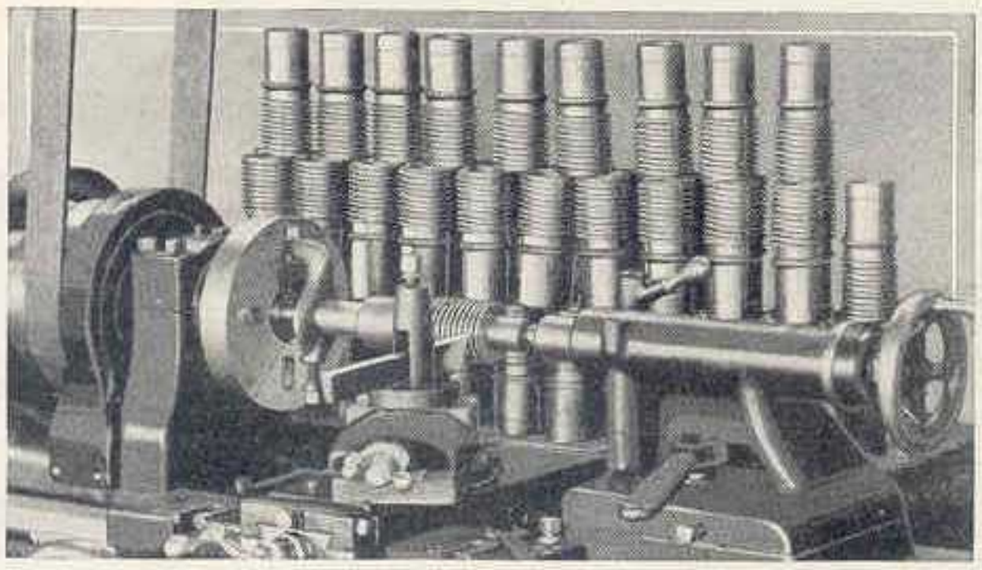


Fig. 6. A 9-Inch Junior New Model Lathe on a Manufacturing Job—the Operation is Cutting Threads on Steel Worms.

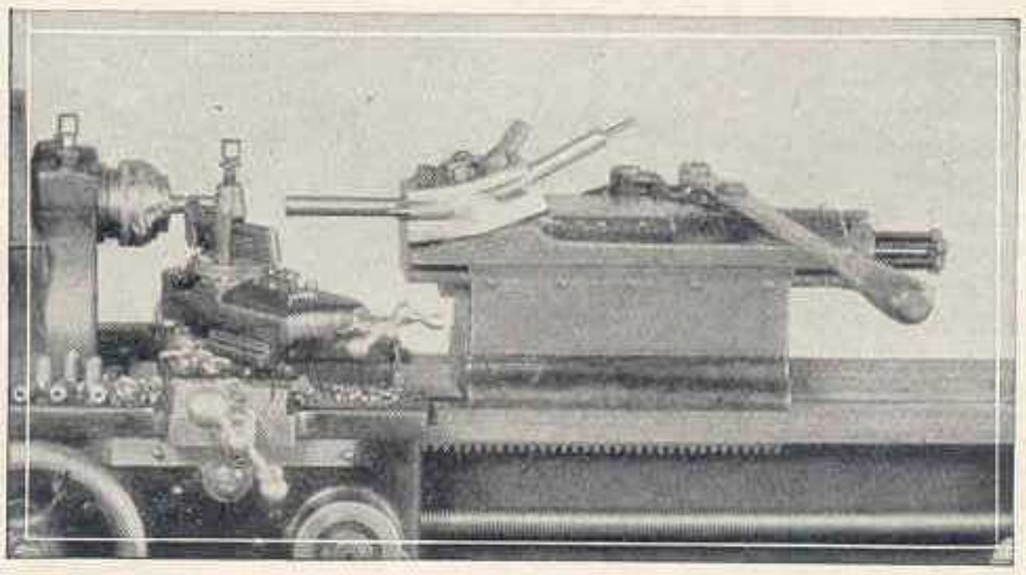


Fig. 7. A 9-Inch Junior Lathe with Draw-In Collet Chuck and Semi-Automatic Bed Turret.

Screw Threads Cut on the 9-Inch Junior New Model South Bend Lathe

U. S. Standard Threads

U. S. Standard Threads from 4 to 40 per inch can be cut on all 9-Inch Junior New Model Lathes.

Acme Threads

The Acme Thread is widely used for feed screws and lead screws where precision adjustments are necessary.

Square Threads

The Square Thread has about the same depth as an Acme Thread but is not considered as strong.

"V" Threads

The "V" Thread is deeper than the U. S. Standard Thread but is easily damaged because of the sharp edges of the "V"s.

Double Threads

Single Threads have a lead equal to the pitch. In the case of a Double Thread the lead is twice the pitch.

Triple Threads

In the case of a Triple Thread the lead is three times the pitch of the thread.

Thread Gauge

Left Hand Acme Thread

U. S. Standard Thread

Right Hand Acme Double Thread

Thread Gauge

Tap

Internal U. S. Standard Thread

Internal Square Thread

Tap

Right Hand Double Square Thread

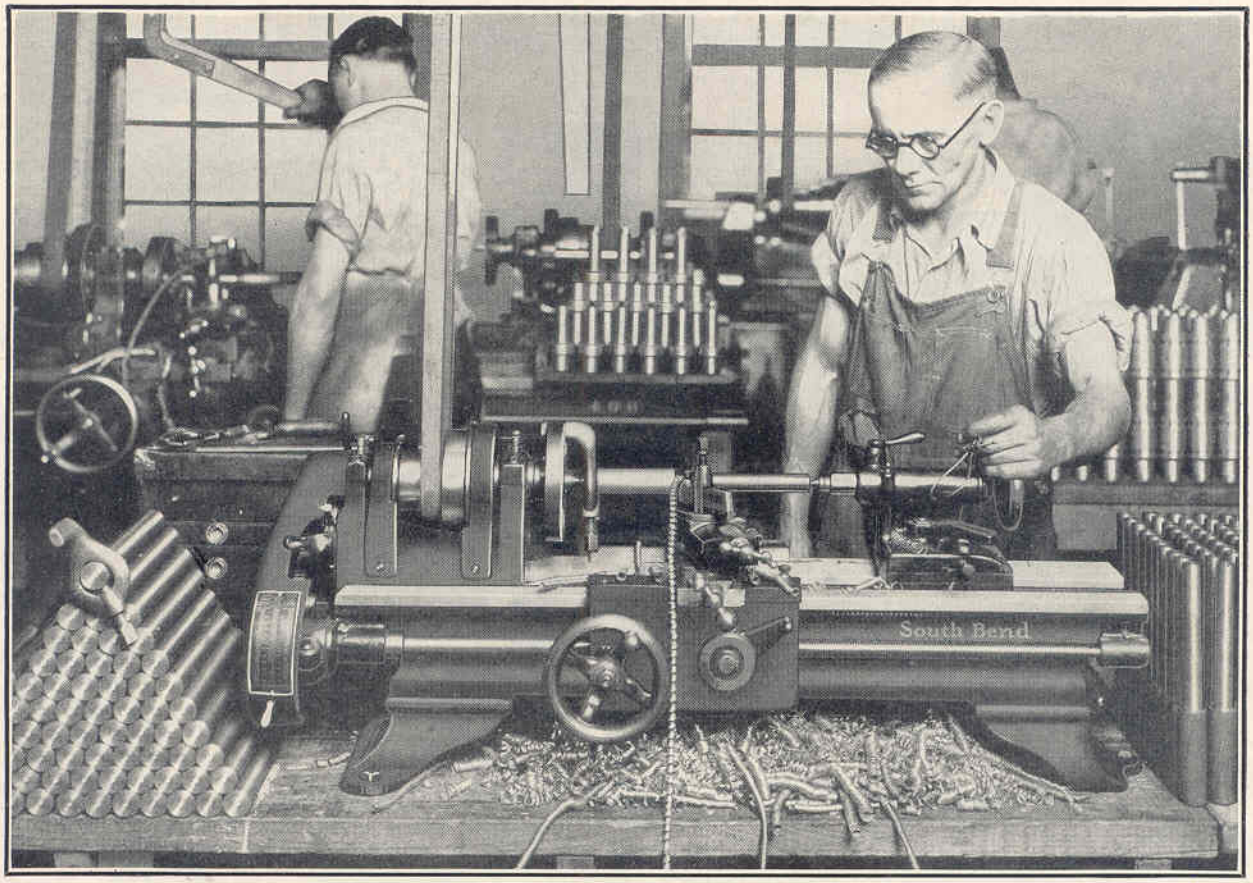


Fig. 1. The 9-Inch Junior New Model Lathe on a Production Job in a Manufacturing Plant.

The 9-Inch Junior New Model Lathe as a Manufacturing Tool

In the Manufacture of Small Duplicate Parts on a Production Basis

Efficiency. The high degree of accuracy of the 9-inch Junior New Model Lathe, its six speeds, its immense power in back gear and high speed for finishing work make this lathe very efficient.

The Latest Shop Practice is to do small work on a small lathe tooled up to take care of the job because production is far more rapid, accuracy is more easily maintained and the operator makes fewer mistakes.

Production Engineers everywhere are recommending the back geared screw cutting 9-inch Junior Lathe for production work on small parts such as sewing machines, typewriters, radios, electrical work, and a thousand other industries where small work demands accuracy and speed.

Power of the 9-Inch Junior New Model Lathe

Section of chip reducing a steel shaft being turned on a 9-inch Junior Lathe. The depth of the cut was 3/8-inch, reducing the shaft 3/4-inch in one cut.

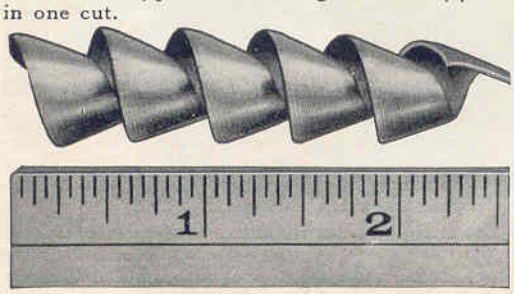


Fig. 2. Close-up of Steel Chip—Actual Size.

Engineers Know from experience that a small screw cutting lathe equipped with special tools is often more economical in production than special machines which can be used for one class of work only.

The Small Lathe Insures Accuracy, increases production, cuts down overhead, lowers the cost of manufacturing and reduces the selling price. The small lathe can also be equipped with many attachments for production work, including the Draw-in Collet Chuck, Turret Attachments, Taper Attachment, Thread Pitch Indicator and many others shown in this booklet.

Fit Your Work to the Lathe—do the small work on the small lathe and you will be surprised at the results in quantity production.

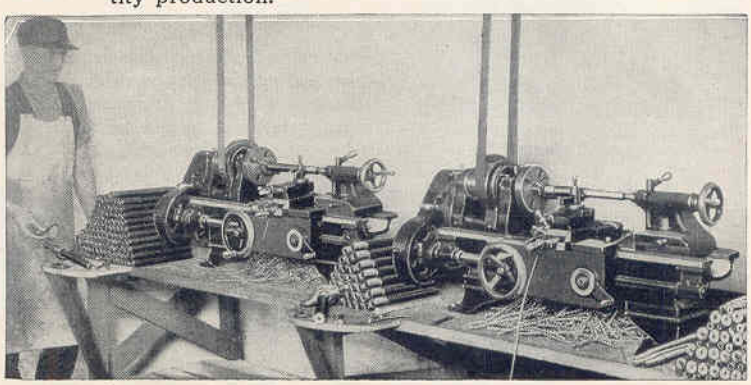
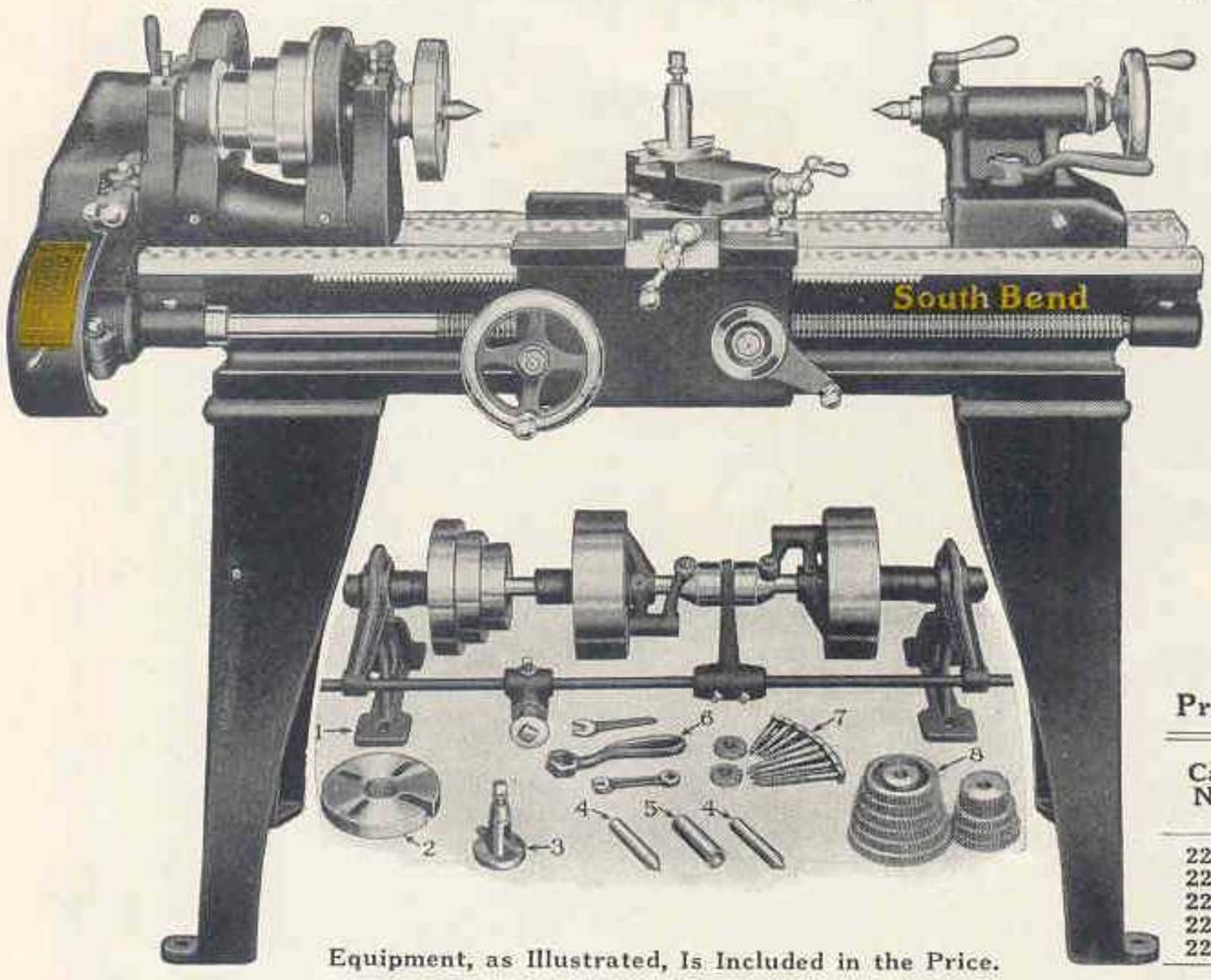


Fig. 3. One Man Operating Two 9-Inch Junior Lathes in a Manufacturing Plant.

No. 22—9-Inch Junior New Model South Bend Lathe

Back Geared Screw Cutting Precision Lathe, Floor Leg Type



Equipment, as Illustrated, Is Included in the Price.

The 9-Inch Junior New Model Precision Lathe, floor leg type, is exactly the same lathe as illustrated and described on pages 2, 3 and 4 but instead of the short legs for bench use it has long legs for floor use.

9-Inch Junior New Model Lathes, floor leg and bench types, can be fitted with the same attachments and accessories. All chucks and tools can be used interchangeably.

The Lathe Equipment included with this lathe consists of: 1—Double Friction Countershaft; 2—Face Plate; 3—Tool Post complete; 4—two Lathe Centers; 5—Spindle Sleeve; 6—Wrenches; 7—Lag Screws and Washers; 8—Independent Change Gears. Also a complete set of lathe installation plans and instruction book, "How to Run a Lathe."

Prices of 9-Inch Junior Lathe, Floor Leg Type.

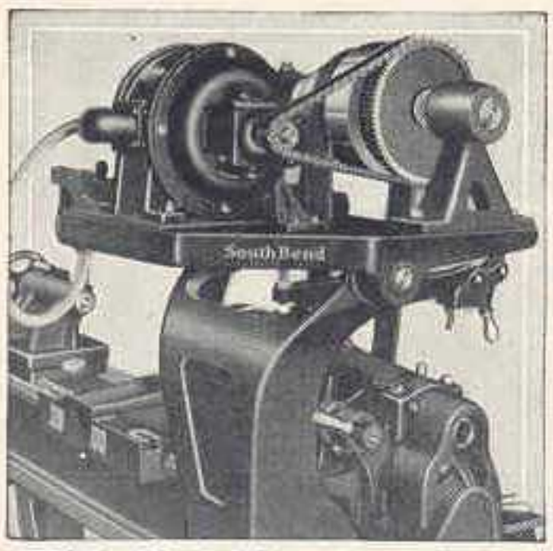
Cat. No.	Swing Over Bed Inches	Length of Bed Feet	Between Centers Inches	Weight Crated Pounds	Price F. O. B. South Bend
22-X	9¼	2½	11	415	**$160.00**
22-Y	9¼	3	18	440	**165.00**
22-Z	9¼	3½	23	465	**170.00**
22-A	9¼	4	29	490	**175.00**
22-R	9¼	4½	36	515	**180.00**

No. 322—9-Inch Junior New Model Silent Chain Motor Driven Lathe

Back Geared Screw Cutting Precision Lathe, Floor Leg Type

The 9-Inch Junior New Model Silent Chain Motor Driven Lathe, floor leg type, is exactly the same lathe as illustrated and described on pages 2, 3 and 4, but instead of the countershaft drive, it has a Silent Chain Motor Drive Unit.

The Motor Drive Unit rests on a table directly above the lathe headstock and is out of the way of dirt and chips. The Silent Chain eliminates vibration and noise and is as powerful as if direct geared. The driving cone receives its power from the motor through the Silent Chain and the spindle cone is driven by belt. A hand lever tilting device tips the motor table forward for quick, easy belt shifting. An independent adjustment is provided for taking up belt stretch.



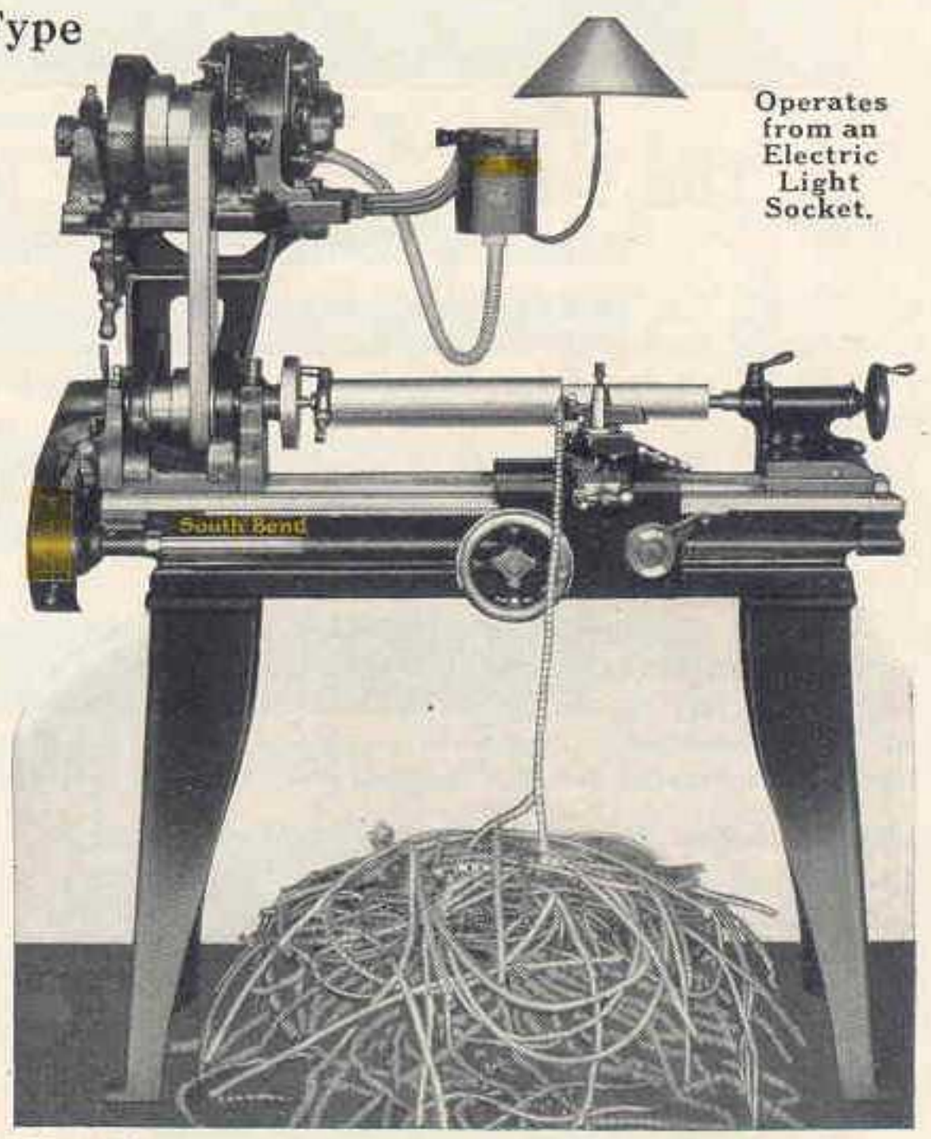
Silent Chain Motor Drive Unit, gear guard removed.

The Drive Unit has a ¼-horsepower Constant Speed Reversing Motor that can be driven at maximum capacity from any ordinary electric light socket at an average cost of about 2 cents per hour.

A Reversing Switch of the drum type is located within easy reach in front of the operator and provides instantaneous starting, stopping and reversing of the lathe spindle.

Prices of 9-Inch Junior Silent Chain Motor Driven Lathes.

Catalog Number of Lathe	Swing Over Bed Inches	Length of Bed Feet	Power Required H. P.	Weight Crated Pounds	3-Phase 60 Cycle A. C. Motor	1-Phase 60 Cycle A. C. Motor	Direct Current Motor
322-X	9¼	2½	¼	630	**$246.00**	**$262.00**	**$258.00**
322-Y	9¼	3	¼	650	**251.00**	**267.00**	**263.00**
322-Z	9¼	3½	¼	670	**256.00**	**272.00**	**268.00**
322-A	9¼	4	¼	690	**261.00**	**277.00**	**273.00**
322-R	9¼	4½	¼	710	**266.00**	**282.00**	**278.00**



Operates from an Electric Light Socket.

The Electrical Equipment included with the Motor Drive Unit for this lathe consists of: ¼ H. P. Constant Speed Reversing Motor, 1200 R.P.M.; Drum Type Reversing Switch; Wiring; Flexible Metal Conduit; Wiring Diagram and Leather Belt.

The Lathe Equipment included with this lathe consists of: Face Plate, Tool Post complete, two Lathe Centers, Spindle Sleeve, Change Gears, Lag Screws, Installation Plans and book "How to Run a Lathe."

No. 722—9-Inch Junior New Model Self-Contained Motor Driven Lathe

Back Geared Screw Cutting Precision Lathe, Bench Type

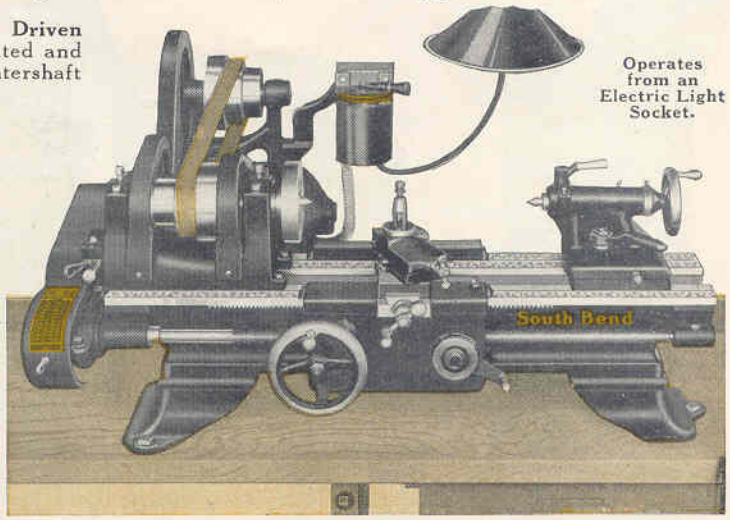
The 9-Inch Junior New Model Self-Contained Motor Driven Lathe, bench type, is exactly the same lathe as illustrated and described on pages 2, 3 and 4, but instead of the countershaft drive, it has a Self-Contained Motor Drive Unit.

The Motor Drive Unit has a ¼-horsepower Constant Speed Reversing Motor that can be driven at maximum capacity from any ordinary electric light socket at an average cost of about 2 cents per hour. A drum type Reversing Switch is located within easy reach in front of the operator and provides instantaneous starting, stopping and reversing of the lathe spindle.

The Electrical Equipment included with the motor drive unit for this lathe consists of: ¼-H. P. Constant Speed Reversing Motor, 1200 R. P. M.; Drum Type Reversing Switch; Wiring between Motor and Switch; Flexible Metal Conduit; Wiring Diagram and Leather Belt.

Self-Contained Motor Drive Unit, gear guard removed.

The Motor Drive Unit is placed on the bench directly behind the lathe so that both cone pulleys are in perfect line. The driving cone receives its power from the motor through a sprocket and chain that eliminates vibration and noise. The spindle cone is driven by belt. This illustration shows the gear guard of the motor drive unit removed to give a view of the sprocket and chain.



Operates from an Electric Light Socket.

The Lathe Equipment included with this lathe consists of Face Plate, Tool Post complete, two Lathe Centers, Spindle Sleeve, Wrenches, Change Gears, Installation Plans and book "How to Run a Lathe."

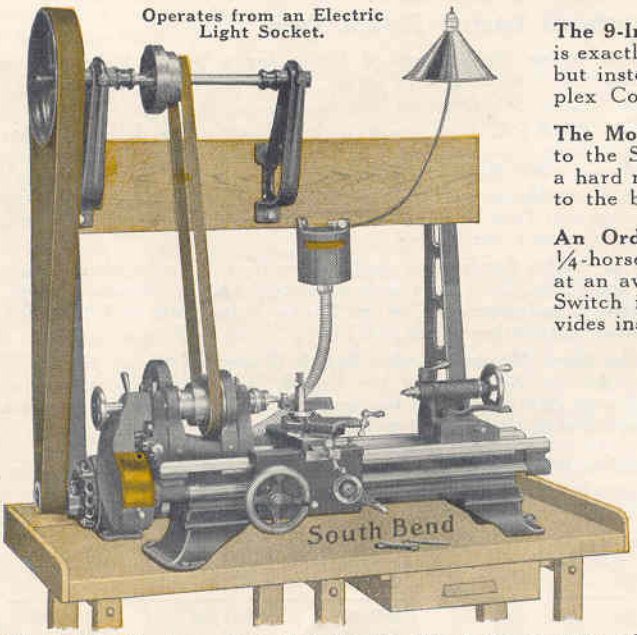
Prices of 9-In. Junior Self-Contained Motor Driven Bench Lathes.

Catalog Number of Lathe	Swing Over Bed Inches	Length of Bed Feet	Between Centers Inches	Weight Crated Pounds	3-Phase 60 Cycle A. C. Motor	1-Phase 60 Cycle A. C. Motor	Direct Current Motor
722-X	9¼	2½	11	440	$214.00	$228.00	$221.00
722-Y	9¼	3	18	470	219.00	233.00	226.00
722-Z	9¼	3½	23	500	224.00	238.00	231.00
722-A	9¼	4	29	530	229.00	243.00	236.00
722-R	9¼	4½	36	560	234.00	248.00	241.00

Bench is not included in prices. See page 16 for description and prices.

No. 522—9-Inch Junior New Model Simplex Motor Driven Lathe

Back Geared Screw Cutting Precision Lathe, Bench Type



Operates from an Electric Light Socket.

The Lathe Equipment included with this lathe consists of: Simplex Countershaft, Face Plate, Tool Post complete, two Lathe Centers, Spindle Sleeve, Wrenches, Change Gears, Installation Plans and book "How to Run a Lathe."

The 9-Inch Junior New Model Simplex Motor Driven Lathe, bench type, is exactly the same lathe as illustrated and described on pages 2, 3 and 4, but instead of the regular countershaft drive it has a Motor Drive Simplex Countershaft.

The Motor is placed on the bench directly behind the lathe and belted to the Simplex Countershaft which is held in place by being bolted to a hard maple cross board that is supported by two iron standards bolted to the bench as shown in the illustration.

An Ordinary Electric Light Socket furnishes the power to drive the ¼-horsepower Constant Speed Reversing Motor at maximum capacity at an average cost of about 2 cents per hour. A drum type Reversing Switch is located within easy reach in front of the operator and provides instantaneous starting, stopping and reversing of the lathe spindle.

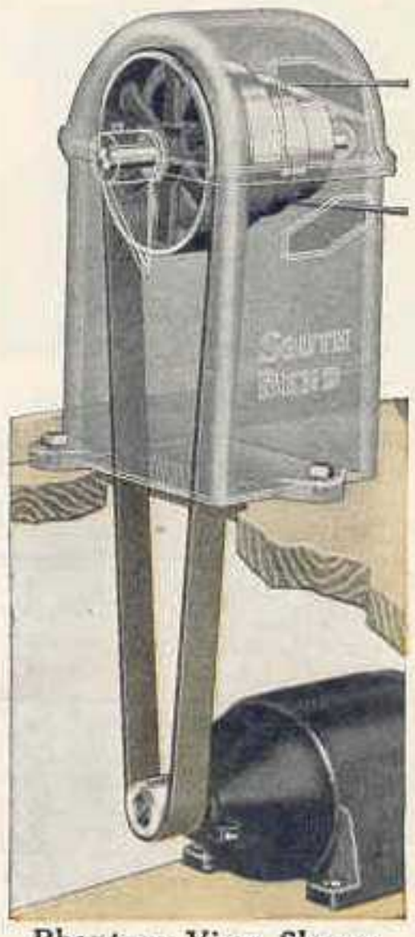
The Electrical Equipment included with this lathe consists of: ¼-H. P. Constant Speed Reversing Motor, 1200 R. P. M.; Drum Type Reversing Switch; Wiring between Motor and Switch; Flexible Metal Conduit; Wiring Diagram and two Leather Belts.

Prices of 9-Inch Junior Simplex Motor Driven Bench Lathes.

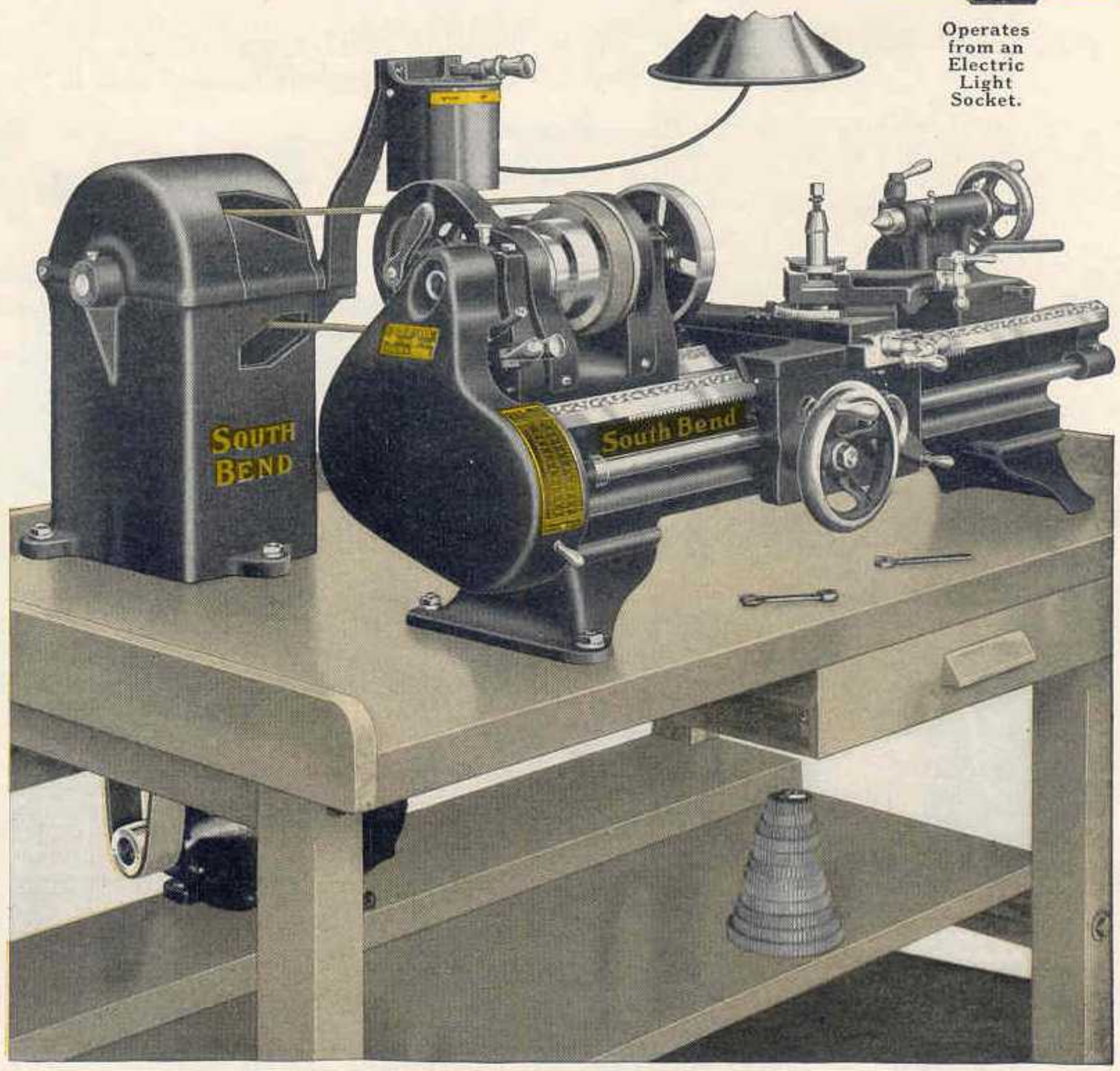
Catalog Number of Lathe	Swing Over Bed Inches	Length of Bed Feet	Weight Crated Pounds	Without Motor Switch and Belting	3-Phase 60 Cycle A. C. Motor	1-Phase 60 Cycle A. C. Motor	Direct Current Motor
522-XB	9¼	2½	460	$150.00	$200.00	$214.00	$207.00
522-YB	9¼	3	475	155.00	205.00	219.00	212.00
522-ZB	9¼	3½	495	160.00	210.00	224.00	217.00
522-AB	9¼	4	515	165.00	215.00	229.00	222.00
522-RB	9¼	4½	535	170.00	220.00	234.00	227.00

Bench, standards and cross board not included in prices. See page 16.

Cabinet Top Open to Show Drive Pulley.



Phantom View Shows Principle of Drive.



Operates from an Electric Light Socket.

No. 422—9-Inch Junior New Model Horizontal Motor Driven Lathe

Back Geared Screw Cutting Precision Lathe, Bench Type

The 9-Inch Junior New Model Horizontal Motor Driven Lathe, bench type, is exactly the same as the lathe illustrated and described on pages 2, 3 and 4, except instead of the countershaft drive it is equipped with a Horizontal Motor Drive that operates from an electric light socket at an average cost of about 2 cents per hour. This is an improved and efficient method of drive and one we recommend.

The ¼-Horsepower Reversing Motor is placed on a shelf beneath the bench. A 2" wide leather belt from the motor drives a jack shaft on which the drive pulley and countershaft cone are attached, all located in the cast iron cabinet. A 1" wide leather belt drives the lathe spindle cone. Cabinet top opens for lacing of belt. Distance between center of jack shaft and lathe spindle is 21 inches.

A Drum Type Reversing Switch controls the operation of the lathe spindle. This switch has three positions: Left for forward motion; Right for reverse; and Center for stop.

This in an Ideal Type of Drive for a bench lathe. It is noiseless, powerful and safe. Lathe and cabinet both have three point bearings on bench.

The Electrical Equipment included with the drive unit for this lathe consists of: ¼-H. P. Constant Speed Reversing Motor, 1200 R. P. M.; Drum Type Reversing Switch; Wiring between Motor and Switch; Flexible Metal Conduit; Wiring Diagram; Two Leather Belts, Cast Iron Cabinet with Driving Pulley and Cone Pulley.

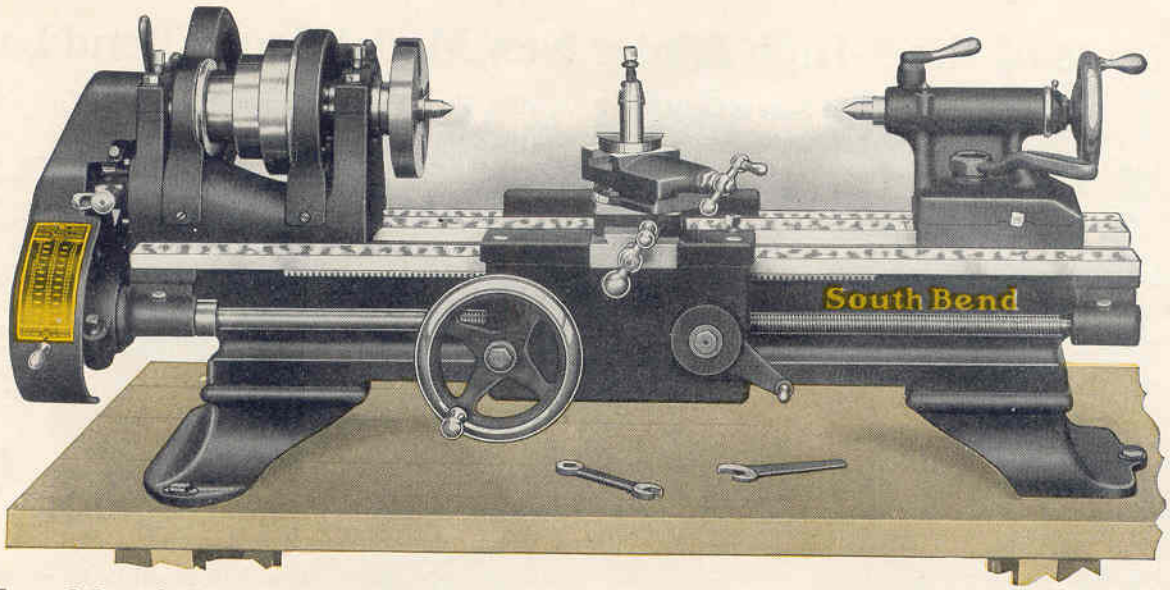
The Lathe Equipment included with this lathe consists of: Face Plate, Tool Post complete, two Lathe Centers, Spindle Sleeve, Independent Change Gears, Bolts, Nuts and Washers. Also Installation Plans and book, "How to Run a Lathe."

The Hard Maple Wooden Bench illustrated above is not included in the price of the 9-inch Junior Horizontal Motor Driven Lathe, but can be furnished at extra cost. For price and description see page 16.

Net Factory Prices of 9-Inch Junior Horizontal Motor Driven Lathes, including Reversing Motor, Reversing Switch, Wiring, Drive Cabinet, Belts and Lathe Equipment. The bench is not included in the price.

Catalog No. of Lathe	Swing Over Bed Inches	Length of Bed Feet	Between Centers Inches	Hole Thru Spindle Inches	Swing Over Carriage Inches	Power Required H. P.	Weight Crated Pounds	With 3-Phase 60 Cycle A. C. Motor	With Single-Ph. 60 Cycle A. C. Motor	With Direct Current Motor
422-X	9¼	2½	11	¾	6⅜	¼	435	$207.00	$221.00	$214.00
422-Y	9¼	3	18	¾	6⅜	¼	465	212.00	226.00	219.00
422-Z	9¼	3½	23	¾	6⅜	¼	495	217.00	231.00	224.00
422-A	9¼	4	29	¾	6⅜	¼	525	222.00	236.00	229.00
422-R	9¼	4½	36	¾	6⅜	¼	555	227.00	241.00	234.00

"HOW TO RUN A LATHE" INCLUDED WITH EACH 9-INCH JUNIOR LATHE



No. 22—9-Inch Junior New Model South Bend Bench Lathe

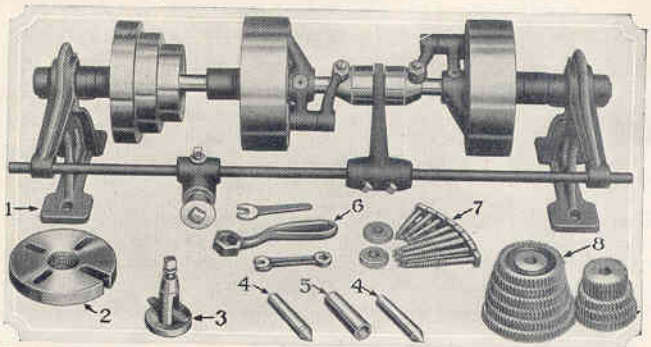
Back Geared Screw Cutting Precision Lathe, Countershaft Drive

The 9-Inch Junior New Model South Bend Back Geared Screw Cutting Precision Lathe is practical for fine precision work in the manufacturing plant, tool room, laboratory, experimental shop and engineering shop. It has power, accuracy, and precision and will take care of the machining of all kinds of metals, such as steel, cast iron, wrought iron, forgings, brass, bronze, copper, aluminum, babbit, etc., also for working of wood and compositions, such as hard rubber, fibre, etc.

The 9-Inch Junior New Model Lathe is assembled from the standard parts of our 9-inch standard and Quick Change Gear Lathes that we have been manufacturing for 22 years. By omitting from the lathe the automatic feeds, and from the equipment the large face plate, center rest, follower rest, and thread cutting stop, which are not always necessary for the work in the small shop, it is possible for us to set a price of $150.00 and up on the 9-Inch Junior New Model Lathe.

The Same Accuracy and Precision, hand scraping and inspection that our regular lathes receive is also given to all 9-Inch Junior New Model Lathes. See description of features on pages 14 and 15.

The Hard Maple Bench is not included in the price of Junior Bench Lathes but can be furnished at extra cost. For prices and descriptions of Bench see page 16.



Equipment Illustrated Above Is Included in the Price of the Lathe.

Lathe Equipment Included in Price of each 9-Inch Junior New Model Lathe with countershaft drive, consists of: 1—Double Friction Countershaft; 2—Face Plate; 3—Tool Post complete; 4—Two Lathe Centers; 5—Spindle Sleeve; 6—Wrenches; 7—Lag Screws and Washers; 8—Independent Change Gears. Also complete set of lathe installation plans and instruction book, "How to Run a Lathe."

Automatic Longitudinal Screw Feed to the carriage is provided on the 9-Inch Junior Lathe by clamping the half nuts on the lead screw.

Metal Index Plate for Thread Cutting

The Metal Index Plate illustrated at the left shows the correct arrangement of gears for cutting standard screw threads, 4 to 40 per inch, right or left hand. Cutting feeds, fine or course, may be obtained through the gears furnished with lathe.

Specifications

Thread cutting range.....4 to 40 per inch
Precision Lead Screw.....¾-inch diam., 8 pitch
Countershaft speed.....300 R. P. M.
Spindle speeds..40, 75, 128, 246, 410, 700 R. P. M.
Cone Pulley Belt.....1 inch wide
Draw-in Collet Chuck cap....1/64-inch to ½-inch
Compound Rest angular travel.....2 inches
Cross Slide travel.....7 inches
Tailstock Spindle travel.....2⅜ inches
Size of Centers.....No. 2 Morse Taper
Size of Tool Shank.....11/32-inch by 13/16-inch
Size of Cutter Bit.....¼-inch by ¼-inch

Features

Back geared Headstock, six spindle speeds.
Hollow Spindle, made of special carbon steel.
Spring Latch Reverse for feeds and threads.
Phosphor Bronze Spindle Bearings.
Patent Oil Cups lubricate spindle bearings.
Graduated Compound Rest swivels to any angle.
Tailstock set-over for taper turning.
Carriage Lock for accurate facing.
Micrometer Collars on cross feed and compound rest screws.
Precision Lead Screw for cutting threads.
Graduated Tailstock Spindle.

Net Factory Prices of 9-Inch Junior New Model Lathe, Bench Type, Including Countershaft and Equipment.

Catalog No. of Lathe	Swing Over Bed Inches	Length of Bed Feet	Between Centers Inches	Hole Thru Spindle Inches	Swing Over Carriage Inches	Power Required H.P.	Weight Crated Pounds	Code Word	Price F.O.B. South Bend
22-XB	9¼	2½	11	¾	6⅜	¼	350	Bylow	**$150.00**
22-YB	9¼	3	18	¾	6⅜	¼	375	Bhorn	**155.00**
22-ZB	9¼	3½	23	¾	6⅜	¼	400	Bmatx	**160.00**
22-AB	9¼	4	29	¾	6⅜	¼	425	Blear	**165.00**
22-RB	9¼	4½	36	¾	6⅜	¼	450	Broil	**170.00**

Note: If Countershaft is not wanted deduct $12.00 from above prices.

Features of the 9-Inch Junior New Model South Bend Lathe

A Back Geared Screw Cutting Precision Tool For Accurate Work

The 9-Inch Junior New Model South Bend Back Geared Screw Cutting Precision Lathe is made in five lengths of bed. It can be had in bench type or floor leg type, with countershaft drive or four styles of motor drive. However, the mechanical parts of all 9-Inch Junior Lathes are identical, regardless of whether the lathe is equipped with long legs or short legs, countershaft or motor drive.

The Illustration on the opposite page shows the 9-Inch Junior New Model Lathe in detail. Some of the features listed below the lathe and described on this page are illustrated and described more fully on pages 14 and 15.

The Weight of the 9-Inch Junior New Model Lathe is an indication of its strength, power, accuracy and value. It is a practical metal working lathe for the machining all kinds of metal, such as: steel, cast iron, wrought iron, brass, bronze, copper, aluminum, babbit and others. It may also be used for the working of wood, hard rubber, fibre, and other composition materials.

The New Semi-Steel Lathe Bed is a heavy gray iron casting containing about 18 per cent steel which insures excellent wearing quality and great strength. These beds are rough planed, then seasoned for a period of from four to six weeks, then finish planed and hand scraped to insure accuracy.

The New Headstock is back geared. The three step cone permits six spindle speeds, three direct cone drive and three back geared drive. All gears are covered with gear guards to comply with the safety laws. A quick-acting bull gear clamp permits changing from direct cone drive to back geared drive or vice versa without the use of a wrench.

The New Headstock Spindle is made of special quality carbon spindle steel. It has a ¾-inch hole which permits rods, bars and tubing to be passed through it and held in a lathe chuck or draw-in collet chuck for machining. This spindle is finish ground all over. The steel thrust collar is hardened and ground.

The New Phosphor Bronze Bearings for the headstock spindle are high quality bronze, designed for heavy duty work and are adjustable for wear. These bearings are hand scraped to fit the spindle. Patent oil cups insure an ample supply of oil and keep out grit and chips.

The New Carriage is strong and deep with a wide bridge capable of supporting a heavy cut. A locking device fastens carriage to the bed when doing facing work or cutting-off. The saddle of the carriage is hand scraped to the lathe bed. The cross feed screw is fitted with a micrometer collar graduated in thousandths of an inch.

The New Apron is provided with a pair of half-nuts which are fitted and hand scraped and held by gibs. The power longitudinal feed is obtained by clamping these half-nuts on the lead screw. This feed has plenty of power as it is operated by the feed gears at the head end of the lead screw.

The New Compound Rest is graduated to 180 degrees on the base and can be swivelled to any angle on the horizontal plane and operated at that angle. The compound rest top has an angular travel of two inches. The compound rest feed screw is fitted with a micrometer collar graduated in thousandths of an inch.

The New Lead Screw is a precision screw made of special steel with an Acme Standard Thread cut on a special machine having a master lead screw which insures the utmost accuracy. This lead screw is guaranteed to meet the most accurate requirements in cutting the finest precision threads for taps, dies, gauges and other threaded tools.

The New Tailstock is heavy and rigid with a long bearing surface on the bed. The tailstock spindle is graduated on top in sixteenths of an inch which permits the operator when using a drill chuck in the tail spindle to measure the depth of the drill into the work. The tailstock top is provided with a set-over for turning or boring tapers. The tail center is hardened and ground and is self-ejecting.

Longitudinal Power Feed has a range of fine to coarse feeds which are adjusted by the aid of the change gears which are attached to the head end of the lead screw. This feed can be operated to make the carriage travel either right or left because of the spring latch reverse at the head end of the lathe.

Thread Cutting Capacity permits cutting standard screw threads from 4 to 40 per inch, including 11½ pipe thread, right or left hand. The metal Index Plate showing the range of threads that can be cut is shown on page 4.

The Life of the 9-Inch Junior New Model Lathe, we estimate, is at least twenty-five years and if given the proper care and attention it will last much longer because it is a substantially built lathe. We have one South Bend Lathe in our shop that has been in use for twenty years and it is still giving satisfaction and from all indications it is still good for many years to come.

Hand Scraping is done on all important parts, such as: bed, headstock, tailstock, saddle, apron and compound rest. Hand scraping on all parts where a sliding fit is required insures an accurate bearing surface.

Practical Attachments for the 9-Inch Junior Lathe, such as: Draw-in Collet Chuck, Milling and Keyway Cutting Attachment, Taper Attachment, Grinding Attachment, Bed Turrets, Tool Post Turrets and many other attachments make this lathe practical for a great deal of special work.

Accuracy and Precision will be found in the construction of the 9-Inch Junior New Model Lathe. It is a real precision tool and the skilled mechanic will have no trouble in turning out the finest class of work and maintaining the utmost accuracy.

Accuracy Tests are made often during the process of manufacture of the different parts and before being assembled sixty-four different tests are made. After being assembled the final test of the lathe is made under its own power to test the spindle alignment before shipping the lathe to the customer.

Our Guarantee is that each 9-Inch Junior Lathe is accurate and mechanically perfect. We will ship a 9-Inch Junior Lathe anywhere in the United States for a thirty-day trial in your own shop. Read this guarantee in full on page 20.

43,000 South Bend Lathes are in use throughout the United States and seventy-eight foreign countries. We build 96 sizes, types and drives of lathes, ranging from 9-Inch swing to 24-Inch swing with bed lengths from 2½ feet to 16 feet. The South Bend Lathe has been manufactured continuously for 22 years and has a nationally known reputation for quality.

Purchasing on Time Payments. For the convenience of those who wish to purchase the 9-Inch Junior New Model Lathe on partial payments, they may do so through the dealer in their community who is selling our line, or if preferred, they may write us direct for a copy of our Easy Payment Plan. This Plan enables the mechanic to purchase a lathe by paying only 20 per cent of the total amount cash down with the order and the balance in ten equal monthly payments. Full details of the Plan will be mailed postpaid upon request.

A Partial List of United States Industries

Using the New Model South Bend Back Geared Screw Cutting Lathes

These Names Were Taken from a List of 43,000 Users in All Classes of Industry

General Electric Co.
at many G. E. Plants
Yale & Towne Mfg. Co.
Gray Bar Electric Co.
Westinghouse Lamp Co.
Conn Band Instrument Co..
McQuay-Norris Mfg. Co.
Black & Decker Mfg. Co.
Sparks-Withington Co.
U. S. Aviation Corps
Link Belt Co.
Kelvinator Corp.
U. S. Engineers
Adams Boat Works
F. J. Lamb Co.
Monarch Mfg. Co.
Goldman Pen Co.
Gaylord Mfg. Co.
Beckman Co.
City of Miami
Clement Mfg. Co.
Lee Mfg. Co.
Locomobile Co.
Lusby Fixture Co.
Electro Spray Co.
The Findex Co.
Hobart Mfg. Co.
Hazelton Mfg. Co.
Potter Mfg. Co.
Parmater Products Co.
City of Chelsea
City of Montreal
Nazareth Cement Co.
State of Washington
Chas. B. Rhoades Co.
Radio Corp. of America
U. S. Navy Air Service
Endicott-Johnson Corp.
Victor X-Ray Corp.
Dayton Scale Co.
Wagner Electric Co.
Frigidaire Corp.
Hart, Shaffner & Marx
Hoover Electric Sweeper Co.
United Shoe Machinery Corp.
Allis-Chalmers Mfg. Co.
National Alarm Mfg. Co.
Studebaker Corp. of Amer.
National Sales Book Co.
Pan American Petroleum Co.
Keystone Refrigerator Co.
Inspector Naval Materials
Jamestown Motor Bus Co.
Western Electric Co.
at many W. E. Plants
Michigan State Industries
Department of National Defense
International Cardiograph Co.
Detroit Motor Bus Co.
Manhattan Bearing Co.
Ford Motor Co.
Becton Dickinson Co.

Bell Telephone Laboratories
U. S. Marine Corps
Albert Godde Bedin, Inc.
American Heel & Rubber Co.
American Machinery Co.
Agfa Raw Film Co.
Alamo Engine Co.
Mohne Aero Engineering Co.

Bedford Johnson Co.
Byrne, Kingston & Co.
Milway Engineering Co.
Dickson Industrial Equipment Co.
Eureka Vacuum Cleaner Co.
Heather Handkerchief Works
Electric Controller Mfg. Co.
Edward T. Humphrey Co., Inc.
Monarch Theatre Supply Co.
Great Lakes Broadcasting Co.
Medical Field Service School
Gate City Machine Works
Pyramid Engineering Co.
Packard Motor Car Co.
Northern Woodware Co.
Humble Oil & Refining Co.
Madison Precision Tool Co.
C. E. Erickson Co., Inc.
City of Buffalo Museum

Edison Electric Illuminating Co.
National Garage & Equipment Co.
Pitney-Bowes Postage Meter Co.
South Bend Current Controller Co.
Westinghouse Electric and Mfg. Co.
at many W. E. Plants
International Harvester Co.
Federal Reserve Bank of Baltimore
U. S. Signal Corps
A. B. Nelson Mfg. Co.
F. P. Rosbach Co.
Alliance Machine Co.
Fleischmann Co.
J. Unga Trucking Co.
Beck Duplicator Co.
Eastman Kodak Co.
Kedron Mfg. Co.
Streamline Pump Co.
Evinrude Motor Co.
National Mfg. Co.
Northern Traders Co.
Hershey Mfg. Co.
Prima Products Co.
Buick Motor Co.
Chevrolet Motor Co.
Nicholson File Co.
Industrial Diamond Co.
Hooker Mfg. Co.
Eastman Machine Co.
Herald Printing Co.
Burdick Cabinet Co.
Chrysler Motor Corp.
Ideal Hosiery Mills
Parmater Products Co.
Hayes Corp.
B. John Mfg. Co.
City of Pittsfield
Federal Bearing Co.
Robbins Co.
Readi-Riter Co.
Square D Co.
Slater & Co.
Star Specialty Mfg. Co.
Horace Whittier Co.
Southwestern Bell Telephone Co.
Illinois State Penitentiary
Southern Crude Oil Purchasing Co.
General Motors Laboratories
DuPont Vitacolor Corp.
Parker Fountain Pen Co.
Arrowhead Steel Products Co.
Victor Talking Machine Co.
Atwater-Kent Mfg. Co.
Cluett-Peabody & Co., Inc.
Singer Sewing Machine Co.
Timken Roller Bearing Co.
Remington Arms U. M. Co.
Firestone Tire & Rubber Co.
Auto Strop Safety Razor Co.
Chicago Flexible Shaft Co.
Kohler Co. of Wisconsin

Guarantee

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, any part that proves defective, either in material or workmanship, within five years from the date of purchase.

We will ship a South Bend Lathe anywhere in the United States for a thirty day trial in your own shop. If you are dissatisfied in any way, within that time, ship it back to us; we will pay the return freight charges and refund your money.

SOUTH BEND LATHE WORKS
South Bend, Ind., U. S. A.

South Bend Lathe Works - - South Bend, Ind., U. S. A.

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