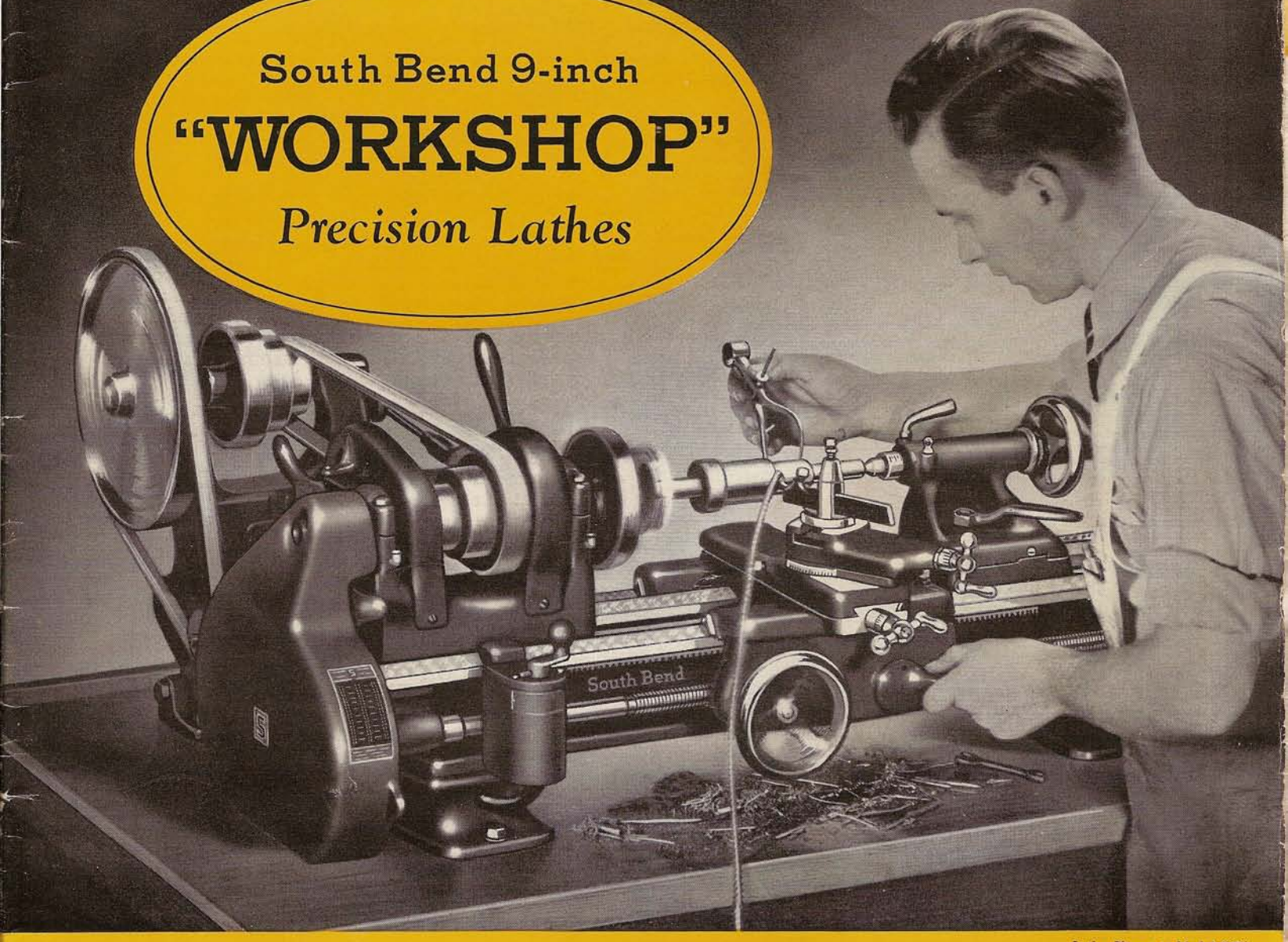
Catalog No. 50
September, 1939

South Bend 9-inch "WORKSHOP" *Precision Lathes*



Lathe Shown is Model "C"

MADE IN THREE MODELS

To meet the requirements of every type of shop South Bend 9-inch "Workshop" Precision Lathes are now made in three models, all of which are illustrated, described, and priced in this catalog.

Model A Lathes have full quick change gear mechanism for threads and feeds; also automatic apron with friction clutch for operating power cross feeds and power longitudinal feeds.

Model B Lathes have independent change gear equipment for threads and feeds, also automatic apron with friction clutch for operating power cross feeds and power longitudinal feeds.

Model C Lathes, which we have been manufacturing for a number of years, have independent change gear equipment, lead screw and half-nut power longitudinal feeds and hand cross feed.

SOUTH BEND LATHE WORKS

Lathe Builders Since 1906

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

TRADE MARK SOUTH BEND TWINS ENGINE LATHES

THREE MODELS—

To Meet the Requirements of Every Type of Shop

Fig. 1. Model C 9" x 3' "Workshop" Horizontal Motor Driven Precision Bench Lathe

Model C
9-inch "Workshop" Lathe

With Plain Change Gears
Hand Cross Feed
Power Longitudinal Feed

The Model C 9-inch "Workshop" Precision Lathes are the same lathes we have been manufacturing for a number of years. This model has independent change gear equipment, lead screw and half-nut power longitudinal feeds, and hand operated cross feed.

The Model C Lathes with different types of drives are illustrated, described and priced on pages 6 to 15 inclusive.

Improved features of the Model C Lathes are illustrated and described on pages 4 to 7. See specifications on page 3.

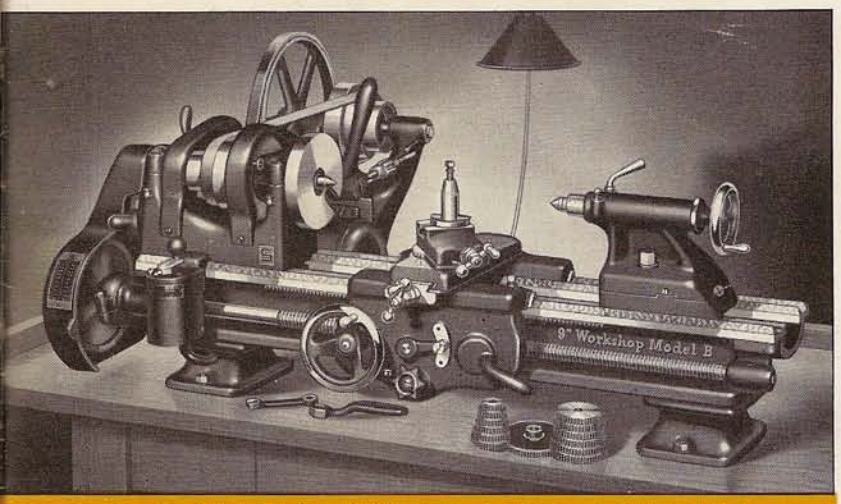


Fig. 2. Model B 9" x 3' "Workshop" Horizontal Motor Driven Precision Bench Lathe

Model B
9-inch "Workshop" Lathe

With Plain Change Gears
Friction Clutch { **Power Cross Feed**
Power Longitudinal Feed

The Model B 9-inch "Workshop" Precision Lathes are the same as the Model C Lathes, with the exception of the apron.

The automatic apron, supplied on all Model B Lathes, is provided with a worm drive and friction clutch for operating the power cross feeds and power longitudinal feeds. Illustration and description of the automatic apron appear on page 17.

The Model B Lathes with different types of drives are illustrated, described and priced on pages 16 to 23 inclusive.

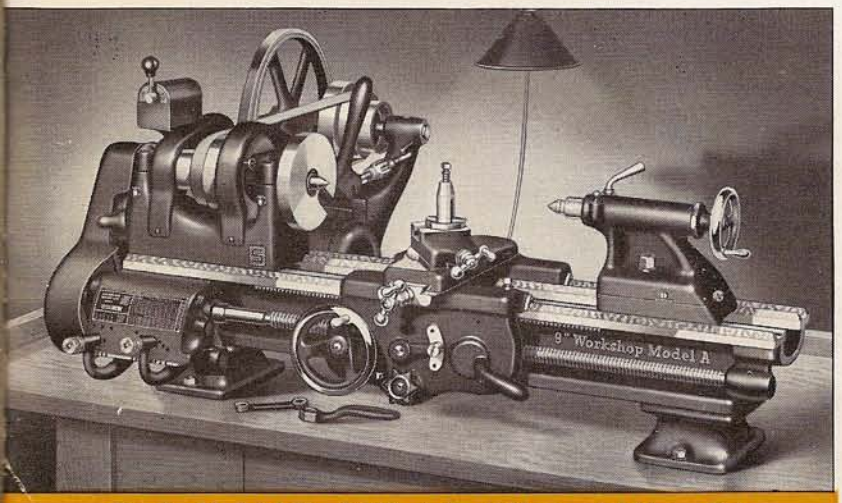


Fig. 3. Model A 9" x 3' "Workshop" Horizontal Motor Driven Precision Bench Lathe

Model A
9-inch "Workshop" Lathe

With Quick Change Gear Box
Friction Clutch { **Power Cross Feed**
Power Longitudinal Feed

The Model A 9-inch "Workshop" Precision Lathes are the same as the Model B Lathes, with the exception of the quick change gear box.

The full quick change gear mechanism supplied on all Model A Lathes permits cutting all threads from 4 to 224 per inch and provides a wide range of feeds. Illustration and description of the quick change gear box are on page 25.

The Model A Lathes with different types of drives are illustrated, described and priced on pages 24 to 30 inclusive.

SPECIFICATIONS—

Applying to All 9-inch "Workshop" Precision Lathes

All types of 9-inch swing "Workshop" Precision Lathes shown in this catalog are identical in workmanship, material and quality, having similar headstock, carriage and bed. Specifications given below apply to all Model A, Model B, and Model C 9-inch "Workshop" Lathes.

Capacity of Lathe

Swing over bed and saddle wings	9¼"
Swing over saddle cross slide	5½"

Threads and Feeds

Model C Lathe—Plain Apron and Independent Change Gears	
Threads—45 selections R.H. or L.H.	4 to 160 per inch
Longitudinal Feeds—through half-nuts and lead screw—14 feeds R.H. or L.H.	.0021" to .0156"
Cross Feeds	Hand operated
Model B Lathe—Automatic Apron—Independent Change Gears	
Threads—45 selections R.H. or L.H.	4 to 160 per inch
Longitudinal Feeds—friction clutch—26 selections R.H. or L.H.	.0021" to .0155"
Cross Feeds—friction clutch—23 selections	.001" to .0046"
Model A Lathe—Quick Change Gear and Automatic Apron	
Threads—48 selections R.H. or L.H.	4 to 224 per inch
Longitudinal Feeds—friction clutch—32 selections R.H. or L.H.	.0015" to .0213"
Cross Feeds—friction clutch—32 selections R.H. or L.H.	.0004" to .0063"
Lead Screw, diameter, and threads per inch	¾"–8

Headstock

Large Spindle Bearing	1 13/16" Diam. x 2¼" Long
Small Spindle Bearing	1⅜" Diam. x 1⅜" Long
Hole through spindle	¾"
Maximum collet capacity	½"
Size of Center, Morse taper	No. 2
Spindle nose diameter and threads per inch	1½"–8
Width of cone pulley step for belt	1"
Face plate diameter	5⅛"
Standard Spindle Speeds	
R.P.M. of spindle, back gears engaged	41, 72, 127
R.P.M. of spindle, direct belt driven	212, 370, 658
High Spindle Speeds in addition to standard spindle speeds (Regular equipment on 12-Speed Lathes, optional on other models at extra cost)	
R.P.M. of spindle, back gears engaged	79, 138, 246
R.P.M. of spindle, direct belt driven	408, 716, 1270
V-Belt Driven Lathe Spindle Speeds	
R.P.M. of spindle, back gears engaged	46, 63, 85, 117
R.P.M. of spindle, direct belt driven	239, 326, 442, 609

Compound Rest

Cross slide will travel	5⅞"
Angular hand feed of compound rest top slide	2¼"

Tool Post

Size of opening for tool holder shank	⅜" x ¾"
Size of cutter bits tool holder takes	¼" sq.

Tailstock

Size of Morse taper centers	No. 2
Spindle travel	2⅛"
Each graduation on tailstock spindle advances spindle	1/16"
Tailstock top will set over for taper turning	11/16"

Motor

Horsepower of standard motor used on 9-inch "Workshop" motor driven lathes	¼ H.P.
Horsepower of motor used on 9-inch "Workshop" 12-speed motor driven lathes	⅓ H.P.
R.P.M. of standard motor	1725 R.P.M.
Number of V-belts used	1

Countershaft

Speed in R.P.M. of shaft	300
Size of pulleys	6⅞" x 2 3/16"

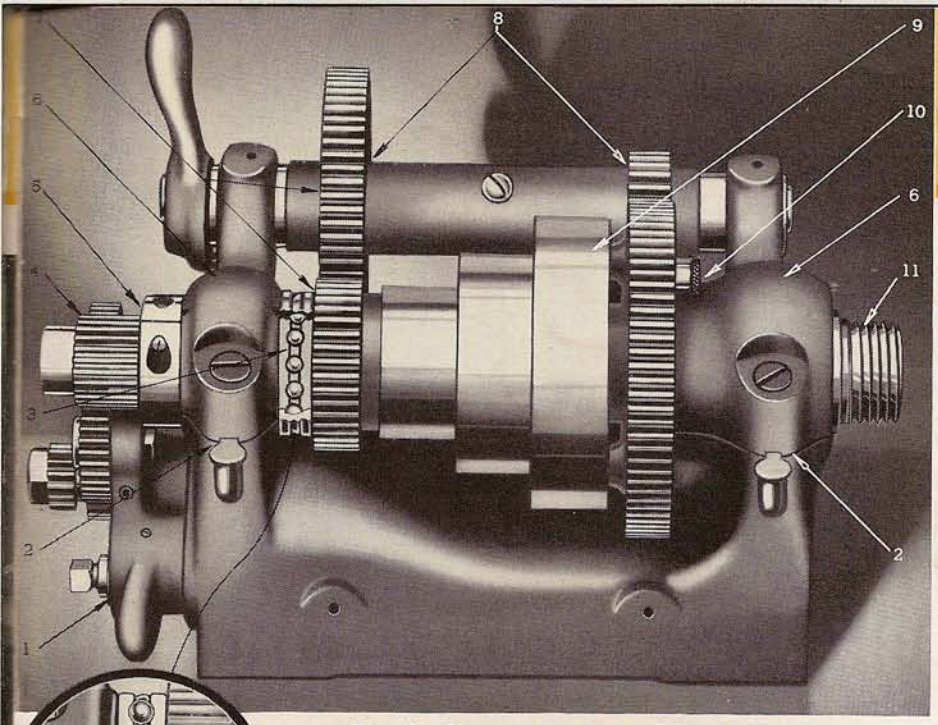
Taper Attachment (plain type)

Maximum length turned in one setting	7"
Maximum taper per foot	3½"

Metric Lathe Specifications

Applying only to lathes with metric lead screw and metric graduations. See pages 40 and 41.

Quick change gear Model A Lathe cuts 46 threads R.H. or L.H.	7.5 mm to 0.2 mm
Standard change gear Model B Lathe cuts 35 threads R.H. or L.H.	7.0 mm to 0.2 mm
Standard change gear Model C Lathe cuts 35 threads R.H. or L.H.	7.0 mm to 0.2 mm
Lead screw pitch	3.0 mm
Cross feed screw pitch	2.5 mm
Compound rest feed screw pitch	2.5 mm
Each graduation on cross feed micrometer collar advances tool	0.02 mm
Each graduation on compound rest micrometer collar advances tool	0.02 mm
Each graduation on tailstock spindle advances spindle	1.0 mm



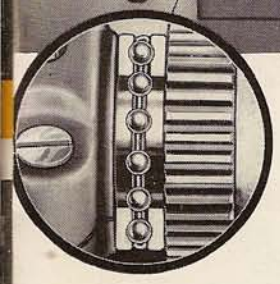


Fig. 4. Above—"Workshop" Lathe Headstock with Guards Removed

Fig. 5. At Left—Ball Thrust Bearing for Headstock Spindle

GENERAL DESCRIPT

Features of 9-inch "Workshop"

Improved Features of Headstock

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

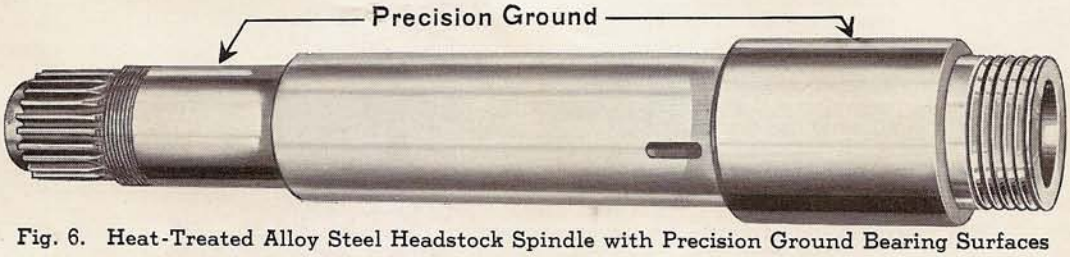


Fig. 6. Heat-Treated Alloy Steel Headstock Spindle with Precision Ground Bearing Surfaces

Back-Geared Headstock Has Heat-Treated Spindle

Improved Capillary Oiling System Assures Long Life

All 9-inch "Workshop" Lathe headstocks are back-geared and have heat-treated alloy steel spindles with precision ground bearing surfaces having a hardness of 40 to 45 on Rockwell C scale. The spindle runs in integral cast iron bearings that are equipped with an improved capillary oiling system and are adjustable for wear. The ball thrust bearing and the threaded take-up nut eliminate end play.

Quiet running machine-cut semi-steel back gears and balanced cone pulley assure smooth operation at all spindle speeds. A quick acting wrenchless bull gear lock permits engaging or disengaging the back gears without using a wrench.

The headstock is reinforced and webbed, giving it strength and rigidity. The headstock base is carefully hand-scraped and fitted to the lathe bed to assure precision alignment of the spindle with the V-ways. A reverse lever for threads and feeds is conveniently located on the left end of the headstock. Close fitting guards enclose all gears.

Improved Carriage

Carriage has unusually long bearings (over 9½") hand-scraped to the front and rear V-ways of the lathe bed. Carriage lock is provided for facing and cutting-off.

Compound Rest is constructed entirely of best quality steel and iron—no die castings. Tool post is of drop forged steel, heat-treated and hardened. Swivel is graduated 180 degrees and can be locked at any angle. Dovetails are carefully hand-scraped and lapped and have adjustable gibs. Cross feed and compound rest screws have large diameter adjustable micrometer collars graduated in thousandths of an inch. Metric graduated collars can be supplied, see page 41. Compound rest cross slide travel 5⅞", compound rest top angular travel 2¼".

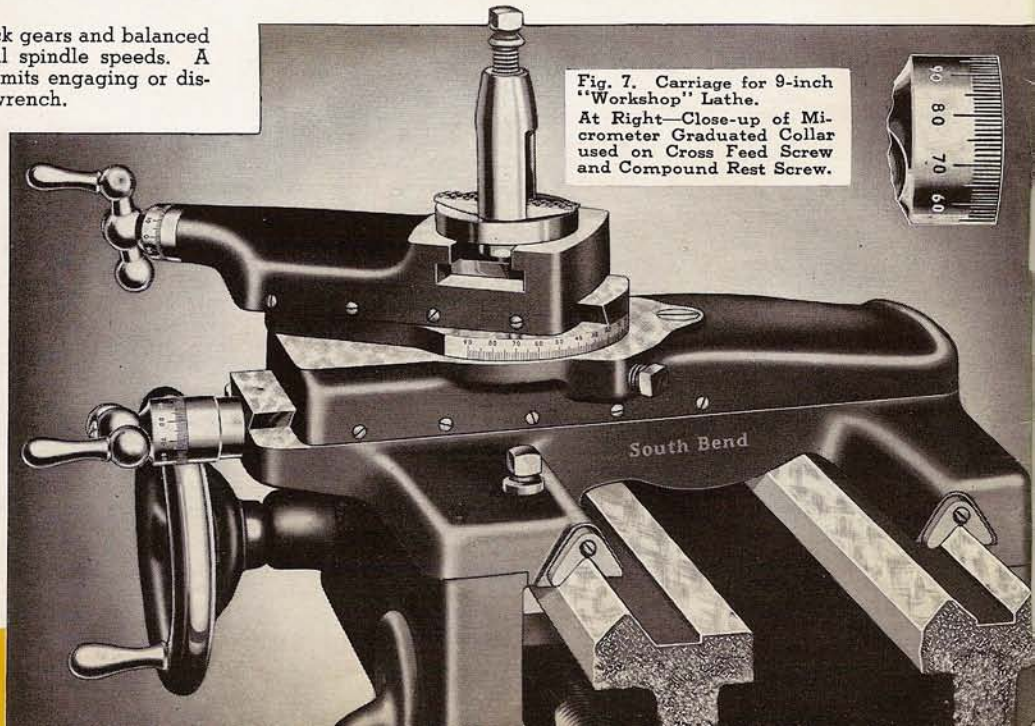


Fig. 7. Carriage for 9-inch "Workshop" Lathe.
At Right—Close-up of Micrometer Graduated Collar used on Cross Feed Screw and Compound Rest Screw.

See Accuracy Tests on Pages 42, 43, and 44.

Heavy Semi-Steel Lathe Bed

Hand-Scraped V-Ways Assure Permanent Accuracy

The Bed for the 9-inch "Workshop" Lathe is heavily constructed, with three large V-ways and one flat way, which align the headstock, tailstock and carriage of the lathe. The carriage slides on the two outside V-ways ,as shown in Fig. 7, Page 4. The headstock and tailstock are aligned by the inside V-way and flat way. See Fig. 10, below.

The V-ways and flat way of the lathe bed are accurately machined and are then perfected by hand-scraping, as shown in Fig. 8. Prismatic V-ways similar to those used on this lathe bed are used for all sizes of South Bend Lathes, including the most expensive precision Tool Room Lathes, because this design assures permanent alignment of the headstock, tailstock and carriage.

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

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

Fig. 8. Hand-Scraping the Bed of a 9-inch "Workshop" Lathe

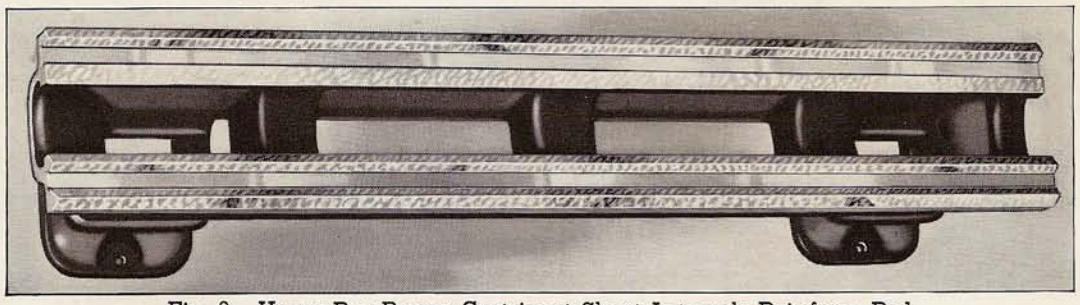


Fig. 9. Heavy Box Braces Cast in at Short Intervals Reinforce Bed

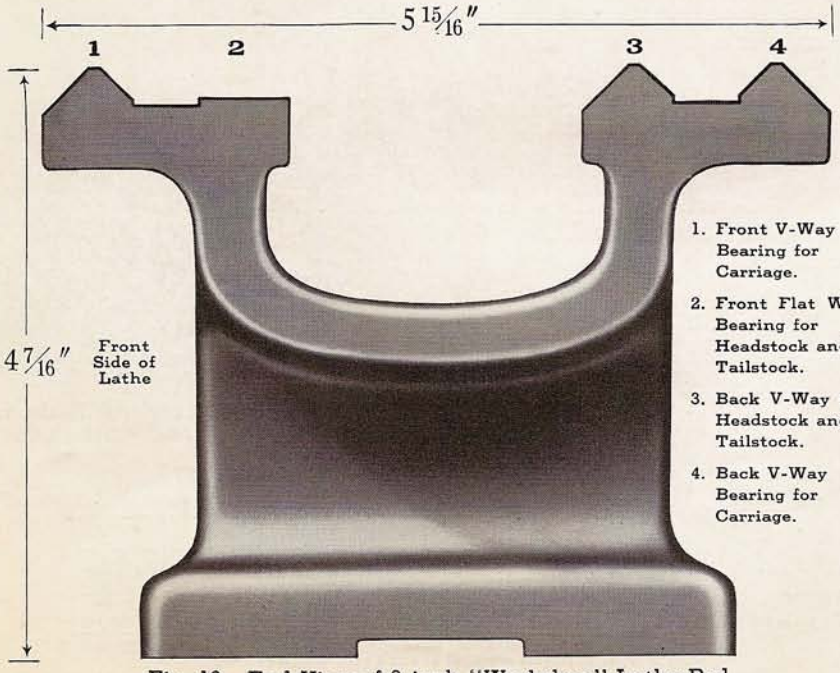


Fig. 10. End View of 9-inch "Workshop" Lathe Bed

Strength and Rigidity

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

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

Heavy Box Braces are cast in at short intervals, as shown in Fig. 9, to reinforce the bed, and give added strength and rigidity. From three to five braces are used, depending on the length of bed.

MODEL C

"WORKSHOP" LATHES
PAGES 6 TO 15

9-inch "Workshop" South Bend Precision Lathes

With Change Gears, Plain Apron and Back-Geared Headstock,
Power Longitudinal Feeds .0021" to .0156"

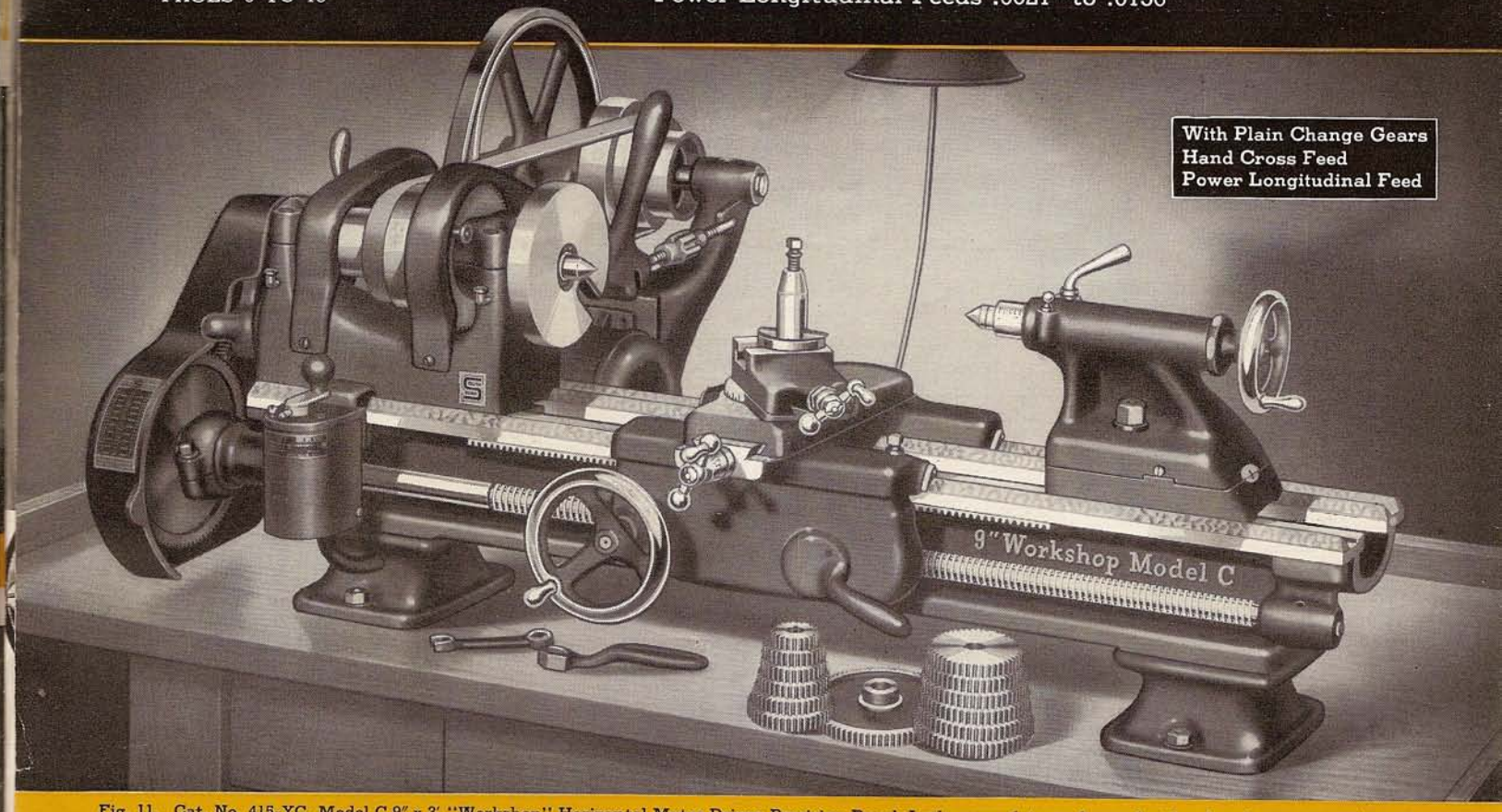


Fig. 11. Cat. No. 415-YC, Model C 9" x 3' "Workshop" Horizontal Motor Driven Precision Bench Lathe, complete as shown, but less bench.....$127.00

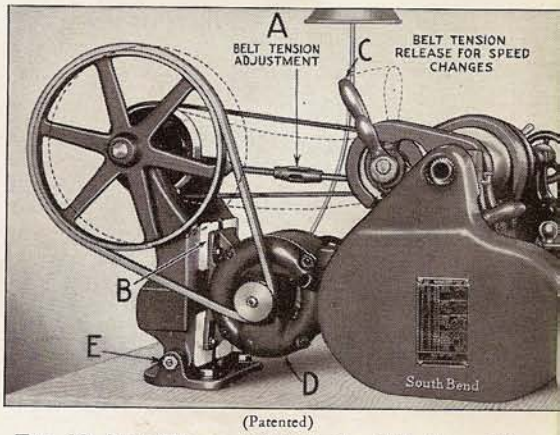
9-inch "Workshop" Model C
Horizontal Motor Driven Precision Bench Lathe
With Plain Change Gear Equipment and Geared Screw Feed Apron

The 9-inch "Workshop" Model C Bench Lathe with Horizontal Motor Drive is recommended for use in machine shops, repair shops, manufacturing plants, garages, laboratories, home workshops, and experimental shops where the finest type of back-geared, screw cutting precision lathe is required. The 3½-ft. and longer bed lengths are recommended for general machine work because of the greater distance between centers. See page 3 for lathe specifications.

"Workshop" Model C Lathes have automatic longitudinal feeds obtained by engaging half-nuts with the lead screw. The cross feed is hand operated. See page 7 for illustration and description of apron.

Motor Drive Equipment consists of: adjustable horizontal motor drive countershaft; ¼ H.P. start-stop reversing motor*, 1725 R.P.M. 1-ph. 60-cy., A.C. 110-V.; 6-wire cable for connecting motor and switch; 6-ft. extension cable and plug; V-groove pulley for motor; drum reversing switch and bracket; V-belt, motor to drive unit; flat belt and lacing.

Regular Equipment included in price of lathe consists of: graduated compound rest; face plate; forged steel tool post; two 60-degree tool steel lathe centers; headstock spindle sleeve; change gears for screw threads and power turning feeds; wrenches; installation plan; and book "How to Run a Lathe." Bench is not included in price of lathe.



(Patented)

Fig. 12. End View of "Workshop" Lathe with Horizontal Motor Drive Countershaft

9-inch "Workshop" Model C
Horizontal Motor Driven Bench Lathes

Bed Length	3-ft.	3½-ft.	4-ft.	4½-ft.
Distance Between Centers	17-in.	23-in.	29-in.	35-in.
Catalog Number	415-YC	415-ZC	415-AC	415-RC
Shipping Weight of Lathe	320 lbs.	345 lbs.	370 lbs.	395 lbs.
Code Word	Kefav	Kefez	Kefid	Kefoj
Price f.o.b. South Bend, Ind.	$127.00	$139.00	$151.00	$168.00

Boxing for export $7.00 extra. See page 41 for export information.
*Other types of motors supplied at extra cost; see page 38.

SPECIAL FEATURES—

Applying To Model C "Workshop" Precision Lathes Only

Model C Lathes

The Model C 9-inch "Workshop" Lathes are similar to Model A and Model B "Workshop" Lathes, except for the change gear equipment and the apron, which are described in detail on this page. See pages 3 to 5 for general description and specifications.

Thread Cutting Range 4 to 160 Per Inch

All standard screw threads right or left hand from 4 to 160 per inch, as listed on the Index Chart at right, can be cut on Model C 9-inch "Workshop" Lathes. In addition, standard pipe threads, including 11½ and 27 per inch, can be cut.

Complete change gear equipment, as shown in Fig. 14, is supplied as regular equipment with each lathe for cutting various screw threads and also for a wide range of power longitudinal turning feeds. All change gears are made of steel or semi-steel and are accurately cut from the solid on automatic gear hobbing machines. This assures precision accuracy and smooth operation.

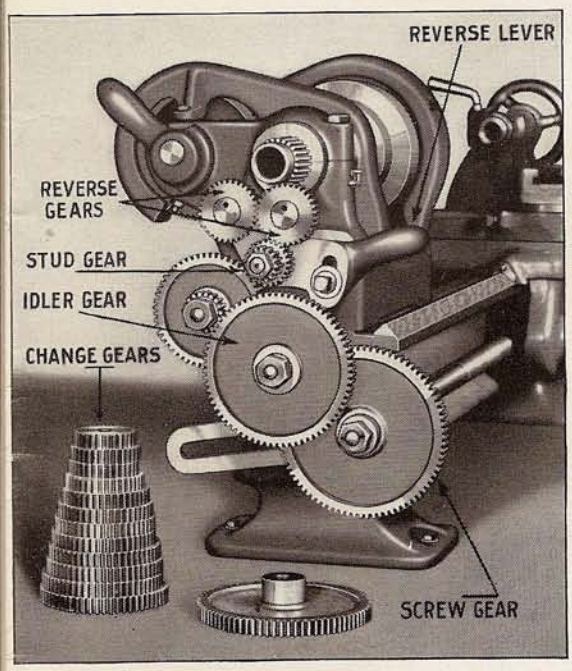


Fig. 14. End View of Model C Lathe Showing Change Gear Equipment for Threads and Feeds

CHART FOR THREADS AND FEEDS
9-INCH WORKSHOP MODEL C LATHE

THREADS PER INCH	STUD GEAR	IDLER GEARS	SCREW GEAR	FEEDS PER REV.
4	24	FIG. 1	48	
4½	24	FIG. 1	54	
5	16	FIG. 1	40	
5½	16	FIG. 1	44	
6	16	FIG. 1	48	
6½	16	FIG. 1	52	
7	16	FIG. 1	56	
7½	16	FIG. 1	60	
8	32	FIG. 2	32	
9	32	FIG. 2	36	
10	32	FIG. 2	40	
11	32	FIG. 2	44	
11½	32	FIG. 2	46	
12	32	FIG. 2	48	
13	32	FIG. 2	52	
14	32	FIG. 2	56	
16	24	FIG. 2	48	
18	24	FIG. 2	54	
20	16	FIG. 2	40	
22	16	FIG. 2	44	
24	16	FIG. 2	48	
26	16	FIG. 2	52	
27	16	FIG. 2	54	
28	16	FIG. 2	56	
30	16	FIG. 2	60	
32	32	FIG. 3	32	
36	32	FIG. 3	36	
40	32	FIG. 3	40	
44	32	FIG. 3	44	
46	32	FIG. 3	46	
48	32	FIG. 3	48	
52	32	FIG. 3	52	
54	32	FIG. 3	54	
56	32	FIG. 3	56	
60	32	FIG. 3	60	
64	16	FIG. 3	32	.0156
72	16	FIG. 3	36	.0138
80	16	FIG. 3	40	.0125
88	16	FIG. 3	44	.0113
92	16	FIG. 3	46	.0108
96	16	FIG. 3	48	.0104
104	16	FIG. 3	52	.0096
112	16	FIG. 3	56	.0089
120	16	FIG. 3	60	.0083
160	48	FIG. 4	80	.0062
	40	FIG. 4	80	.0052
	32	FIG. 4	80	.0041
	24	FIG. 4	80	.0031
	16	FIG. 4	80	.0021

LONGITUDINAL POWER SCREW FEED IN INCHES PER SPINDLE REVOLUTION

Fig. 13. Index Chart Showing Threads and Feeds on Model C 9-inch "Workshop" Lathe

Power Turning Feeds .0021" to .0156"

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

The Index Chart, Fig. 13, clearly shows the arrangement of the change gears for the various screw threads and power turning feeds.

Reverse for Left Hand Threads and Feeds

The reverse lever on the end of the headstock shown in Fig. 14 at left, permits gearing the lathe for left hand threads and feeds as easily as for right hand. To change from right hand to left hand threads or feeds it is only necessary to change the position of the reverse lever.

Plain Apron Used on Model C "Workshop" Lathes

Power Longitudinal Feeds Through Half-Nuts

All Model C 9-inch "Workshop" Lathes are equipped with a plain geared screw feed apron, as illustrated at the right. Power longitudinal turning feeds either right hand or left hand are obtained by engaging the half-nuts on the right side of the apron with the lead screw. The large hand wheel on the left side of the apron may be used for hand turning feeds and for moving the carriage along the lathe bed. Carriage lock is provided to lock carriage for facing or cutting-off.

Cross feeds on the Model C 9-inch "Workshop" Lathes are hand operated. A large steel ball crank makes it easy for the operator to turn the cross feed screw with a uniform motion so that smooth facing cuts are obtained.

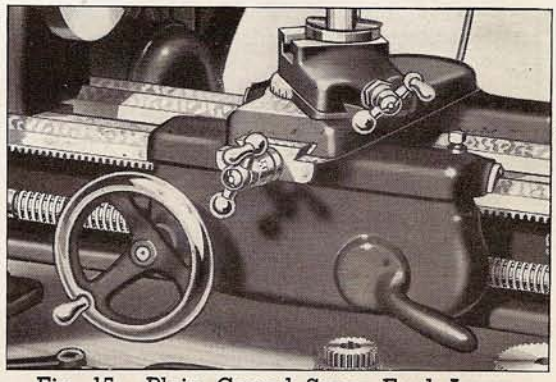


Fig. 15. Plain Geared Screw Feed Apron Supplied on All Model C 9-inch "Workshop" Lathes

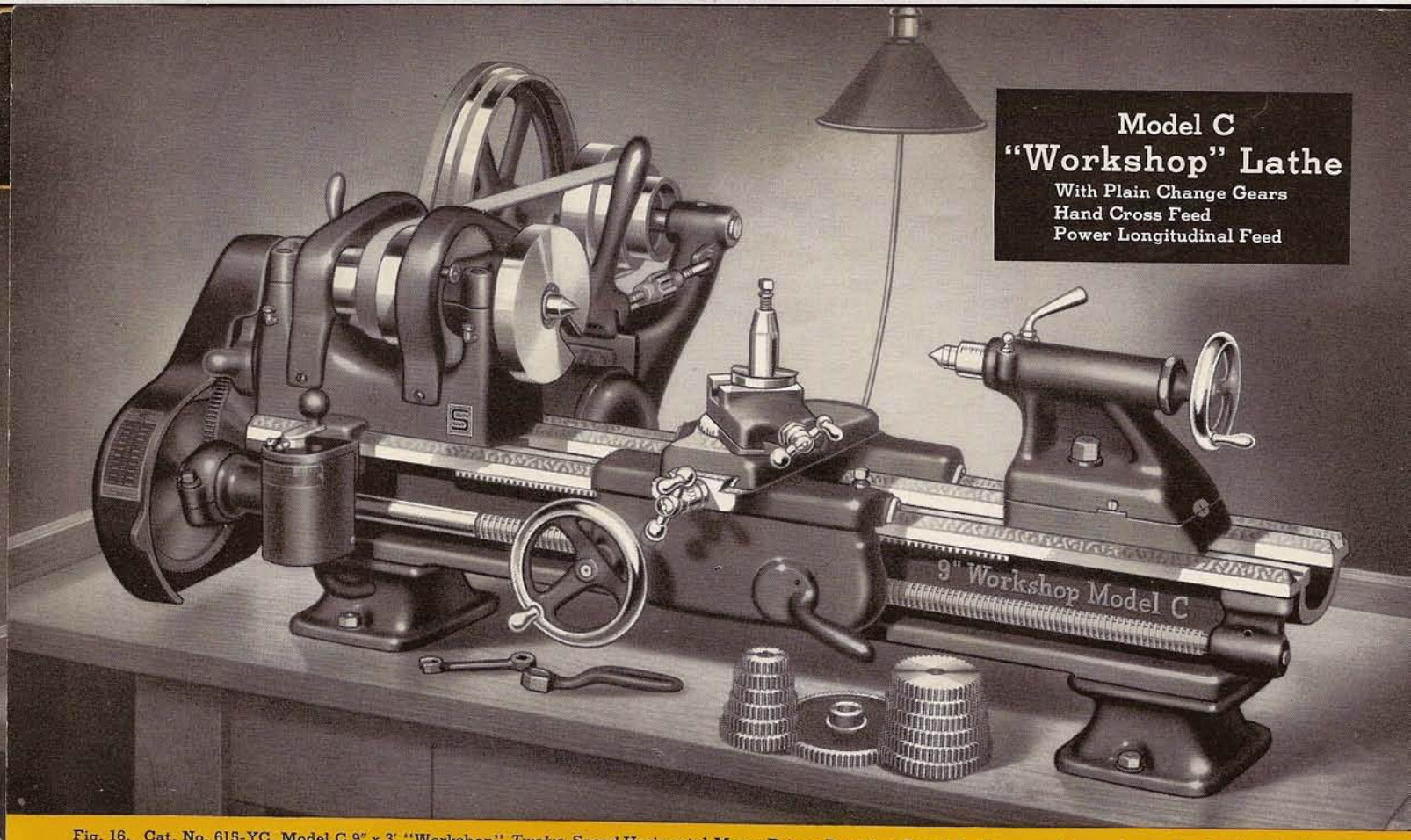


Fig. 16. Cat. No. 615-YC, Model C 9" x 3' "Workshop" *Twelve-Speed* Horizontal Motor Driven Precision Bench Lathe, complete as shown, but less bench..$144.00

9-inch "Workshop" Model C
Twelve-Speed Horizontal Motor Driven Precision Bench Lathe
With Plain Change Gear Equipment and Geared Screw Feed Apron

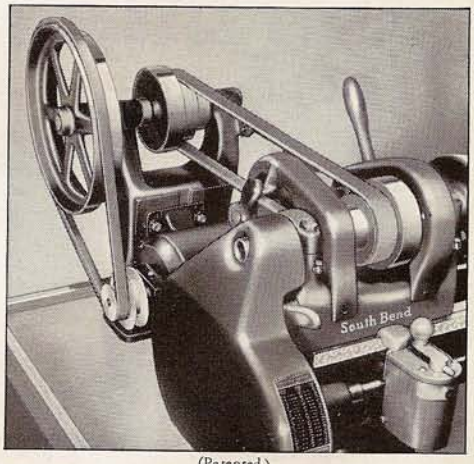
The 9-inch "Workshop" Model C *Twelve-Speed* Bench Lathe with Horizontal Motor Drive is exactly the same as the lathe shown on page 6, except that it has a ⅓ H.P. motor, and two-step pulleys for the motor and countershaft. Twelve spindle speeds are provided ranging from 41 to 1270 R.P.M. See page 3.

The Wide Range of Spindle Speeds makes this lathe especially practical for machining small parts of steel, cast iron, brass, aluminum and similar metals, also for use with tungsten-carbide tools, drilling, polishing, wood turning and similar operations.

Improved Features include: back-geared headstock; heat-treated alloy steel spindle; new improved capillary oiling system; precision lead screw; graduated compound rest; and improved thread cutting equipment. See pages 4, 5, and 7.

Motor Drive Equipment consists of: adjustable horizontal motor drive countershaft with two-step pulley; ⅓ H.P. capacitor start-stop reversing motor*, 1725 R.P.M. 1-ph. 60-cy., A.C. 110-V.; 6-wire cable for connecting motor and switch; 6-ft. extension cable and plug; two-step V-groove pulley for motor; drum reversing switch and bracket; V-belt, motor to drive unit; flat leather belt and lacing.

Regular Equipment included in price of lathe consists of: graduated compound rest; face plate; forged steel tool post; two 60-degree tool steel lathe centers; headstock spindle sleeve; change gears for screw threads and power turning feeds; wrenches; installation plan; and book "How to Run a Lathe." Bench is not included in price of lathe.



(Patented)

Fig. 17. End View of 9-inch "Workshop" *Twelve-Speed* Lathe Showing Two-Speed Countershaft

9-inch "Workshop" Model C
Twelve-Speed Horizontal Motor Driven Bench Lathes

Bed Length	3-ft.	3½-ft.	4-ft.	4½-ft.
Distance Between Centers	17-in.	23-in.	29-in.	35-in.
Catalog Number	615-YC	615-ZC	615-AC	615-RC
Shipping Weight of Lathe	335 lbs.	360 lbs.	385 lbs.	410 lbs.
Code Word	Getay	Getec	Getig	Getom
Price f.o.b. South Bend, Ind.	$144.00	$156.00	$168.00	$185.00

Boxing for export $7.00 extra. See page 41.
*Other types of motors supplied at extra cost; prices on request.

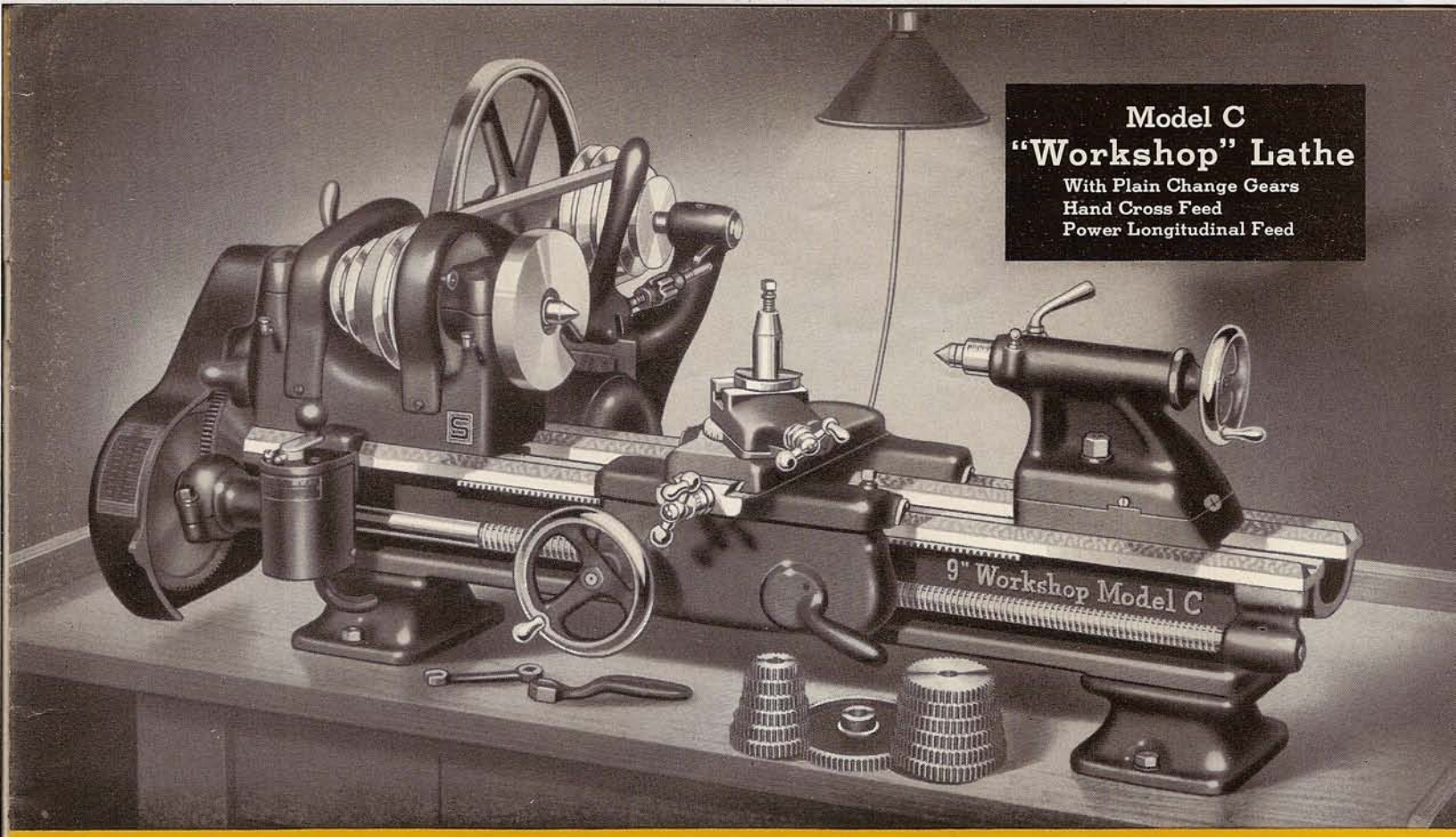


Fig. 18. Cat. No. 515-YC, Model C 9" x 3' "Workshop" V-Belt Horizontal Motor Driven Precision Bench Lathe, complete as shown, but less bench....$141.00

9-inch "Workshop" Model C
V-Belt Horizontal Motor Driven Precision Bench Lathe
With Plain Change Gear Equipment and Geared Screw Feed Apron

The 9-inch "Workshop" Model C Bench Lathe with V-belt Horizontal Motor Drive is exactly the same as the lathe shown on page 6, except that it is equipped with V-belt cone pulleys instead of flat belt cone pulleys. Eight spindle speeds are provided as follows: 46, 63, 85, 117, 239, 326, 442, and 609 R.P.M. For lathe specifications see page 3.

Improved Features include: back-geared headstock; heat-treated alloy steel spindle; new improved capillary oiling system; precision lead screw; graduated compound rest; and improved thread cutting equipment.

Convenience and Ease of Operation are assured by the simple, practical design of the lathe. Well placed controls, large easy reading micrometer dials, lever reverse for threads and feeds, and other improvements save time and effort.

Motor Drive Equipment consists of: adjustable horizontal motor drive countershaft with V-belt cone pulley; ¼ H.P. start-stop reversing motor*, 1725 R.P.M. 1-ph. 60-cy., A.C. 110-V.; 6-wire cable for connecting motor and switch; 6-ft. extension cable and plug; V-groove pulley for motor; drum reversing switch and bracket; V-belt, motor to drive unit; and V-belt, drive unit to the lathe.

Regular Equipment included in price of lathe consists of: graduated compound rest; face plate; forged steel tool post; two 60-degree tool steel lathe centers; headstock spindle sleeve; change gears for screw threads and power turning feeds; wrenches; installation plan; and book "How to Run a Lathe." Bench is not included in price of lathe.

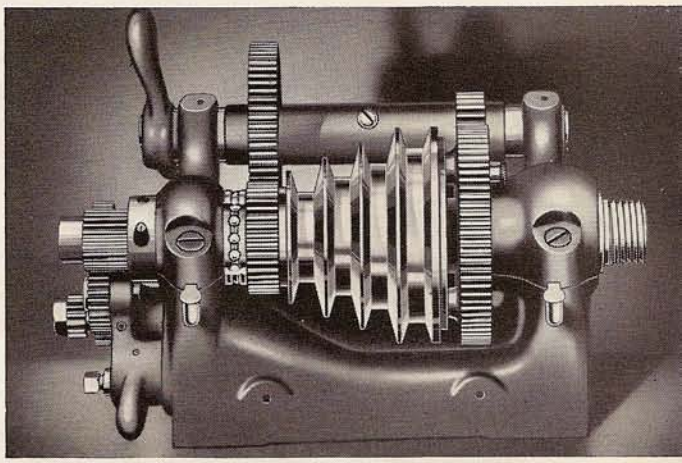


Fig. 19. Headstock of 9-inch "Workshop" Lathe (with Gear Guards Removed) Showing 4-Step Cone Pulley for V-Belt Drive

9-inch "Workshop" Model C
V-Belt Horizontal Motor Driven Bench Lathes

Bed Length	3-ft.	3½-ft.	4-ft.	4½-ft.
Distance Between Centers	17-in.	23-in.	29-in.	35-in.
Catalog Number	515-YC	515-ZC	515-AC	515-RC
Shipping Weight of Lathe	320 lbs.	345 lbs.	370 lbs.	395 lbs.
Code Word	Lihat	Lihex	Lihib	Lihoh
Price f.o.b. South Bend, Ind.	$141.00	$153.00	$165.00	$182.00

Boxing for export $7.00 extra. See page 41 for export information.
*Other types of motors supplied at extra cost; see page 38.

Fig. 20. Cat. No. 15-YBC, Model C 9" x 3' "Workshop" Precision Bench Lathe, complete with countershaft as shown, but less bench.....$115.00

9-inch "Workshop" Model C Countershaft Driven Precision Lathe

With Plain Change Gear Equipment and Geared Screw Feed Apron

The 9-inch "Workshop" Model C Bench Lathe with Countershaft Drive is recommended for use in machine shops, repair shops, manufacturing plants, garages, laboratories, home workshops, and experimental shops where the finest type of back-geared, screw cutting precision lathe is required. The 3½-ft. and longer bed lengths are recommended for general machine work because of the greater distance between centers. This lathe is also supplied with floor legs as listed below in price tabulation. See lathe specifications on page 3.

Improved Features include: back-geared headstock; heat-treated alloy steel spindle; new improved capillary oiling system; precision lead screw; and graduated compound rest. See pages 4, 5, and 7.

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

Regular Equipment included in price of lathe consists of: double friction countershaft; graduated compound rest; face plate; forged steel tool post; two 60-degree tool steel lathe centers; headstock spindle sleeve; change gears for screw threads and power turning feeds; wrenches; installation plan; and book "How to Run a Lathe." Bench is not included.

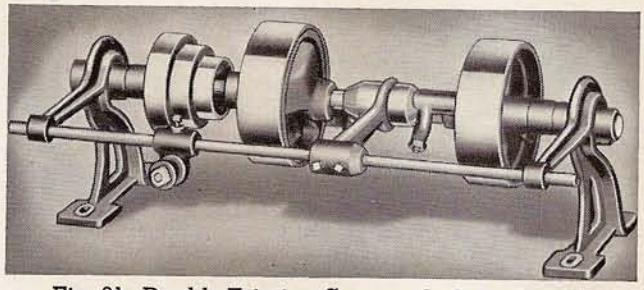


Fig. 21. Double Friction Countershaft for Lathe

9-inch "Workshop" Model C
Countershaft Driven Bench Lathes

Bed Length	3-ft.	3½-ft.	4-ft.	4½-ft.
Distance Between Centers	17-in.	23-in.	29-in.	35-in.
Catalog Number	15-YBC	15-ZBC	15-ABC	15-RBC
Shipping Weight of Lathe	300 lbs.	325 lbs.	350 lbs.	375 lbs.
Code Word	Leheb	Lehif	Lehol	Lehur
Price f.o.b. South Bend, Ind.	$115.00	$127.00	$139.00	$156.00

Boxing for export $7.00 extra. See page 41 for export information.

9-inch "Workshop" Model C
Countershaft Driven Floor Leg Lathes

Bed Length	3-ft.	3½-ft.	4-ft.	4½-ft.
Distance Between Centers	17-in.	23-in.	29-in.	35-in.
Catalog Number	15-YC	15-ZC	15-AC	15-RC
Shipping Weight of Lathe	400 lbs.	425 lbs.	450 lbs.	475 lbs.
Code Word	Hepax	Hepeb	Hepif	Hepol
Price f.o.b. South Bend, Ind.	$125.00	$137.00	$149.00	$166.00

Boxing for export $7.00 extra. See page 41 for export information.

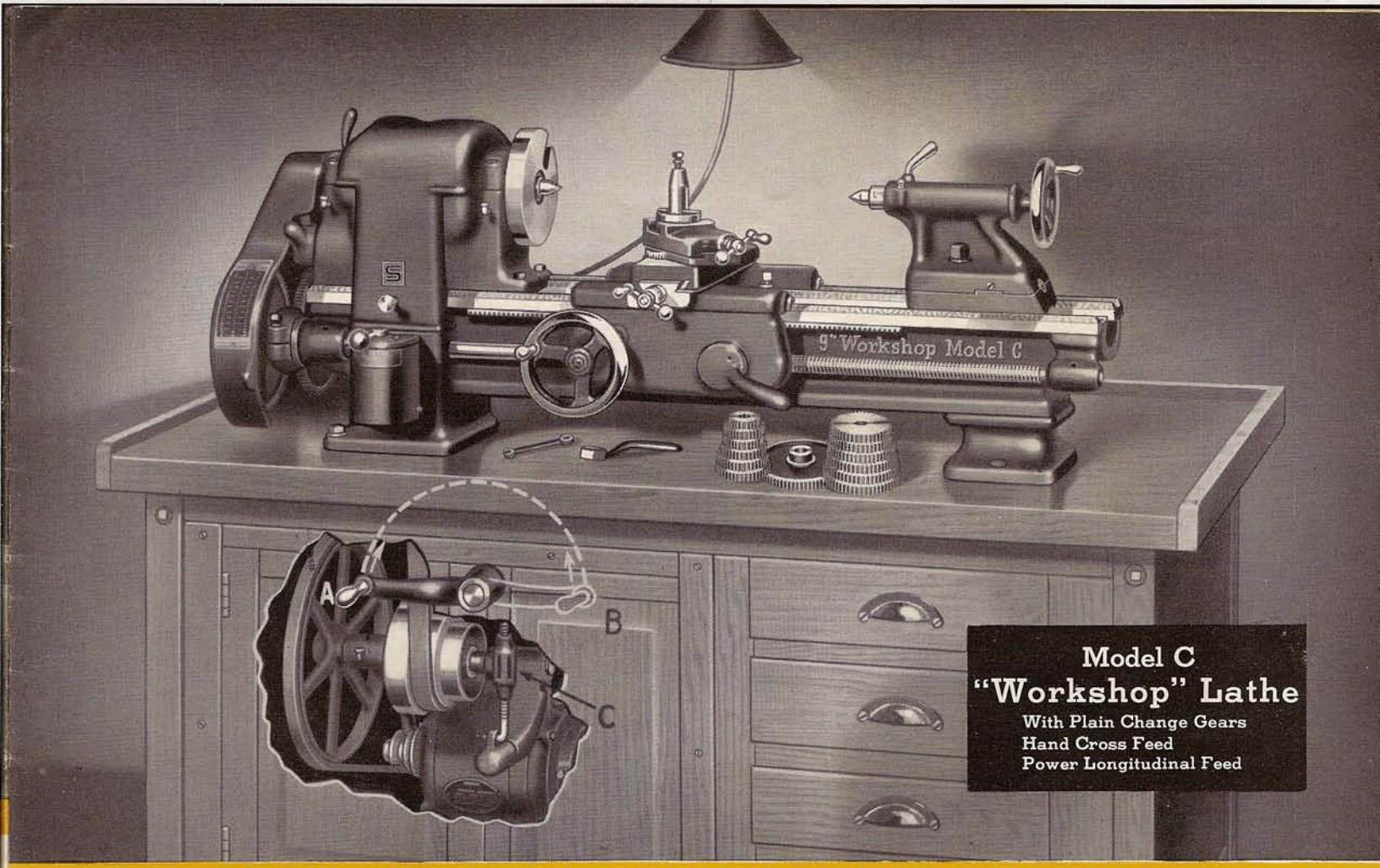


Fig. 22. Cat. No. 115-YBC, Model C 9" x 3' "Workshop" Underneath Motor Driven Precision Bench Lathe, complete as shown, but less bench.....$176.00

9-inch "Workshop" Model C
Underneath Belt Motor Driven Precision Bench Lathe
With Plain Change Gear Equipment and Geared Screw Feed Apron

The 9-inch "Workshop" Model C Bench Lathe with Underneath Motor Drive is popular for use in the tool room and laboratory. This lathe is the same as the lathes shown on the preceding pages, except for necessary alterations in the headstock and bed to accommodate the underneath motor drive. Bed and legs are cast integral. The 3½-ft. and 4-ft. bed lengths are recommended for general machine work. See page 3 for specifications of lathe.

The Underneath Motor Drive is entirely self-contained and may be fully enclosed in a cabinet type bench as shown. The motor drive unit is bolted under the bench top. The hinged cone pulley cover may be raised for belt shifting. The cone pulley belt tension is released for shifting belt by moving the crank handle "A" to position "B." Any desired belt tension can be obtained by adjusting turnbuckle "C."

Improved Features include: back-geared headstock; heat-treated alloy steel spindle; new improved capillary oiling system; precision lead screw; and graduated compound rest. See pages 4, 5, and 7.

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

Motor Drive Equipment consists of: adjustable underneath motor drive; ¼ H.P. start-stop reversing motor*, 1725 R.P.M. 1-ph. 60-cy., A.C. 110-V.; 6-wire cable for connecting motor and switch; 6-ft. extension cable and plug; V-groove pulley for motor; drum reversing switch; V-belt, motor to drive unit; flat leather belt and lacing.

Regular Equipment included in price of lathe consists of: graduated compound rest; face plate; forged steel tool post; two 60-degree tool steel lathe centers; headstock spindle sleeve; change gears for screw threads and power turning feeds; wrenches; installation plan; and book "How to Run a Lathe." Bench is not included in price of lathe.

9-inch "Workshop" Model C
Underneath Motor Driven Bench Lathes

Bed Length	3-ft.	3½-ft.	4-ft.
Distance Between Centers	17-in.	23-in.	29-in.
Catalog Number	115-YBC	115-ZBC	115-ABC
Shipping Weight of Lathe	370 lbs.	395 lbs.	420 lbs.
Code Word	Pecam	Peceq	Pecug
Price f.o.b. South Bend, Ind.	$176.00	$188.00	$200.00

Boxing for export $10.00 extra. See page 41 for export information.
*Other types of motors supplied at extra cost; see page 38.

Fig. 23. Cat. No. 915-YC, Model C 9" x 3' "Workshop" Pedestal Adjustable Motor Driven Precision Floor Leg Lathe, complete as shown.....$167.00

(Patented)

Fig. 24. End View of Pedestal Motor Drive Showing Arrangement of Motor, Belt Adjustment, etc.

9-inch "Workshop" Model C
Pedestal Motor Driven Precision Lathe
With Plain Change Gear Equipment and Geared Screw Feed Apron

The 9-inch "Workshop" Model C Lathes with Pedestal Adjustable Motor Drive are recommended for shops requiring an efficient motor driven floor leg lathe. The 3½-ft. and longer bed lengths are recommended for general machine work. Except for the type of drive, these lathes are the same as those described on the preceding pages.

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

Improved Features include: back-geared headstock; heat-treated alloy steel spindle; new improved capillary oiling system; precision lead screw; graduated compound rest; and complete thread cutting equipment. See page 3 for lathe specifications.

Motor Drive Equipment included in price of lathe consists of: pedestal adjustable motor drive; ¼ H.P. start-stop reversing motor*, 1725 R.P.M. 1-ph. 60-cy., A.C. 110-V.; 6-wire cable for connecting motor and switch; 6-ft. extension cable and plug; V-groove pulley for motor; drum reversing switch and bracket; V-belt, motor to pedestal drive unit; flat leather belt and lacing.

Regular Equipment included in price of lathe consists of: graduated compound rest; face plate; forged steel tool post; two 60-degree tool steel lathe centers; headstock spindle sleeve; change gears for screw threads and power turning feeds; wrenches; installation plan; and book "How to Run a Lathe."

9-inch "Workshop" Model C
Pedestal Motor Driven Lathes

Bed Length	3-ft.	3½-ft.	4-ft.	4½-ft.
Distance Between Centers	17-in.	23-in.	29-in.	35-in.
Catalog Number	915-YC	915-ZC	915-AC	915-RC
Shipping Weight of Lathe	560 lbs.	585 lbs.	610 lbs.	635 lbs.
Code Word	Peges	Pegiw	Pegob	Peguh
Price f.o.b. South Bend, Ind.	$167.00	$179.00	$191.00	$208.00

Boxing for export $9.00 extra. See page 41 for export information.
*Other types of motors supplied at extra cost; see page 38.

9-inch "Workshop" Model C Precision Lathe—with Raising Blocks

11¼-inch Swing Over Lathe Bed

Back-Geared—Cuts Screw Threads 4 to 160
Power Longitudinal Feeds .0021″ to .0156″

"Workshop" Lathes with Raising Blocks will take work up to 11¼″ in diameter over the bed and up to 7¼″ in diameter over the tool rest.

Prices of "Workshop" Model C Lathes equipped with raising blocks are listed below. Regular lathe equipment is included in price listed. Prices of all motor driven raising block lathes include: ¼ H.P. start-stop reversing motor*; 1725 R.P.M. 1-ph. 60-cy., A.C. 110-V; reversing switch; wiring, and all regular equipment.

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

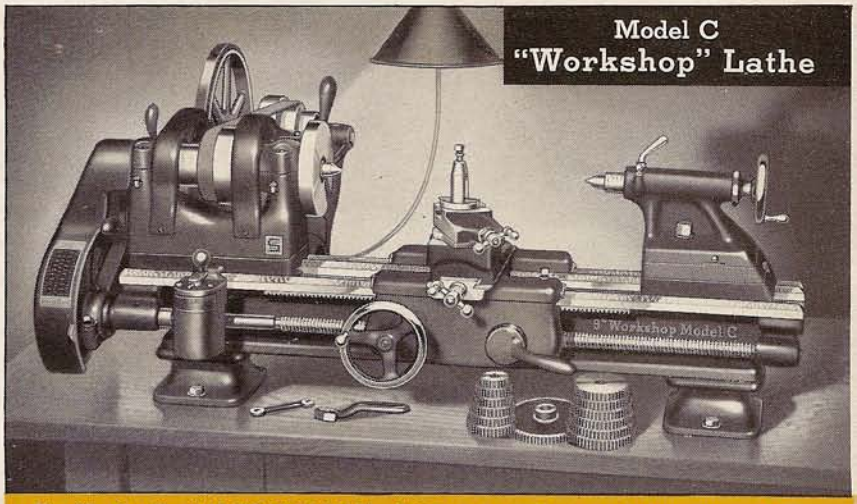


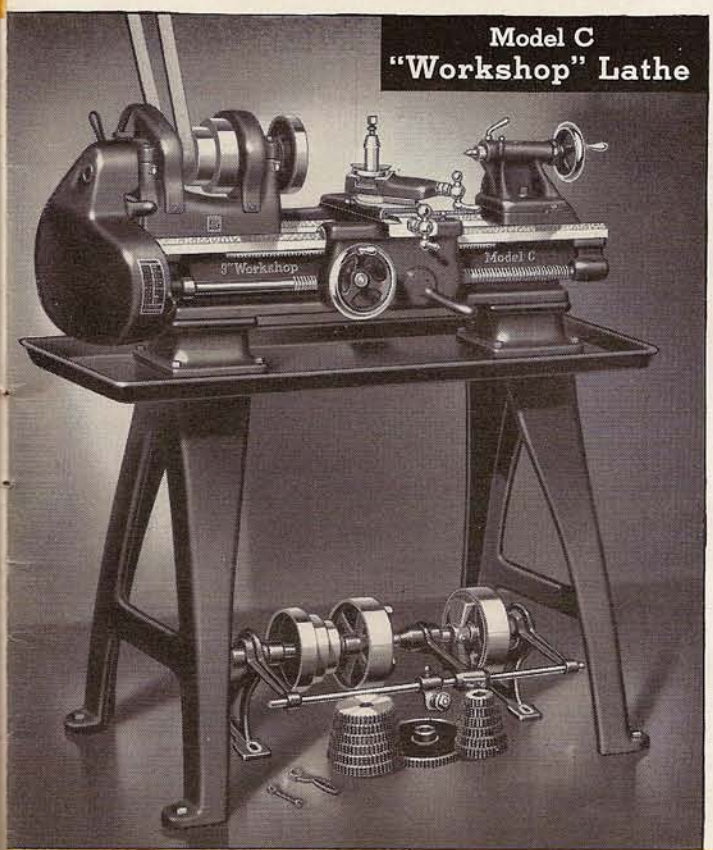
Fig. 25. Cat No. 6415-YC, Model C 9″ x 3′ "Workshop" Horizontal Motor Driven Precision Bench Lathe with Raising Blocks, complete as shown ,but less bench...$157.00

9-inch "Workshop" Model C Lathes with Raising Blocks—Bench Not Included

Swing Over Bed Inches (with Raising Blocks)	Length of Bed Feet	Swing Over Carriage Inches	Approximate Ship. Weight for Crated Adjustable Hor. Drive Lathe Pounds	Countershaft Driven Bench Lathe with Raising Blocks (See Page 10)			V-Belt Motor Driven Bench Lathe with Raising Blocks (See Page 9)			Horizontal Motor Driven Bench Lathe with Raising Blocks (See Page 6)		
				Cat. No.	Code	Price	Cat. No.	Code	Price	Cat. No.	Code	Price
11¼	3	7¼	340	6015-YBC	Kugat	$145.00	6515-YC	Kotas	$171.00	6415-YC	Keyos	$157.00
11¼	3½	7¼	365	6015-ZBC	Kugex	157.00	6515-ZC	Kotew	183.00	6415-ZC	Keyew	169.00
11¼	4	7¼	390	6015-ABC	Kugib	169.00	6515-AC	Kotig	195.00	6415-AC	Keyog	181.00
11¼	4½	7¼	415	6015-RBC	Kugoh	186.00	6515-RC	Kotum	212.00	6415-RC	Keyum	198.00

*Other types of motors supplied at extra cost; see page 38. Boxing for export $7.00 extra. See page 41 for export information.

9-inch "Workshop" Model C Precision Lathe—with Chip Pan



With Countershaft Drive and Floor Legs
Back-Geared—Cuts Screw Threads 4 to 160
Power Longitudinal Feeds .0021″ to .0156″

The "Workshop" Lathe with Chip Pan shown at the left is the same as the lathe illustrated and described on page 10, except that this lathe has floor legs and is equipped with a steel chip pan. Specifications and features are listed on pages 3 to 7. Prices listed below include double friction countershaft and regular lathe equipment.

9-inch "Workshop" Model C
Countershaft Driven Lathes—with Chip Pan

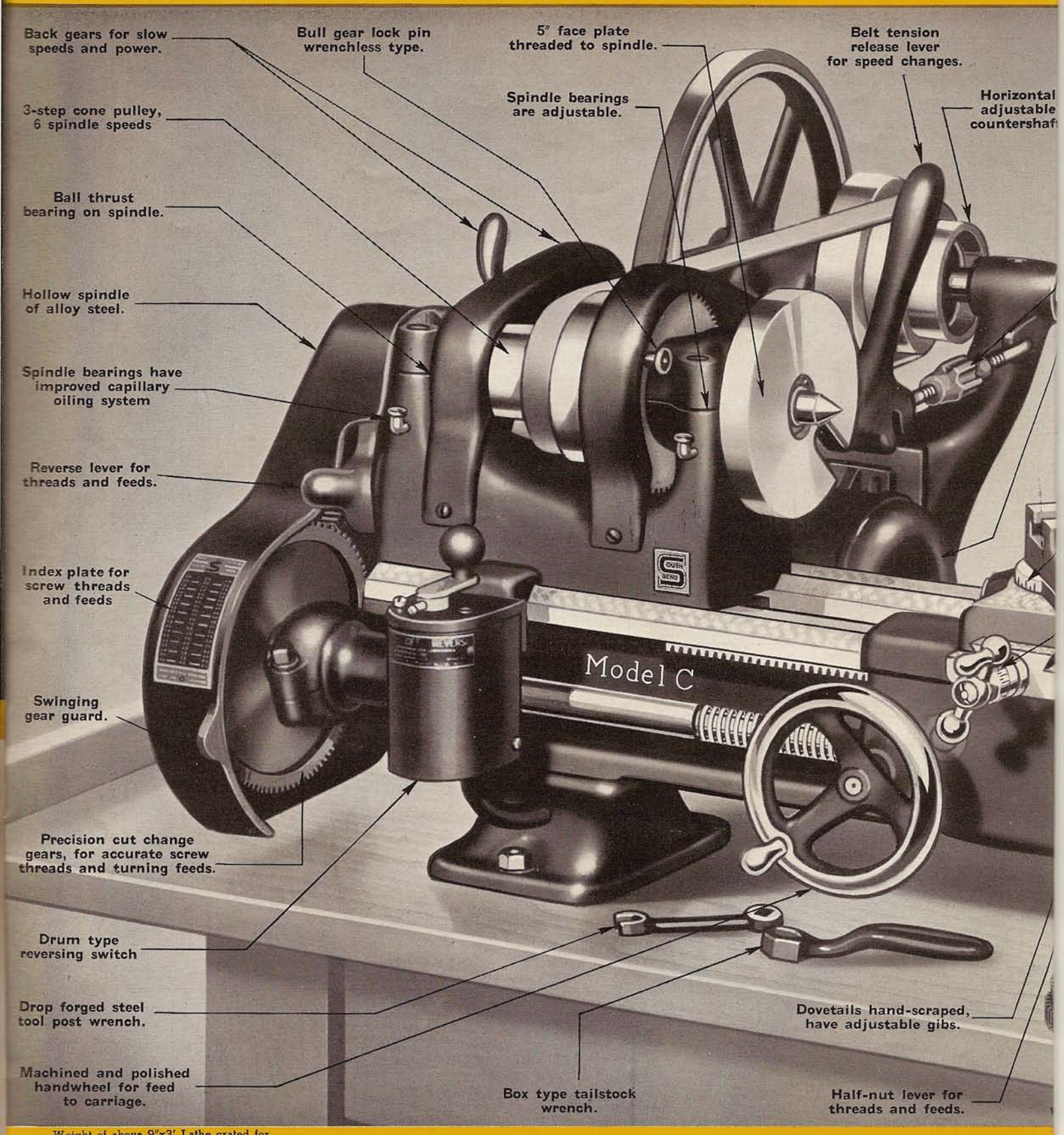
Bed Length	3-ft.	3½-ft.	4-ft.	4½-ft.
Distance Between Centers	17-in.	23-in.	29-in.	35-in.
Catalog Number	215-YC	215-ZC	215-AC	215-RC
Shipping Weight of Lathe	435 lbs.	460 lbs.	485 lbs.	510 lbs.
Code Word	Lecow	Lecuc	Ledav	Ledez
Price f.o.b. South Bend, Ind.	$151.00	$164.00	$177.00	$195.00

Boxing for export $7.00 extra. See page 41 for export information.

Chip Pan, Oil Pan and Oil Pump Equipment for 9-inch "Workshop" Lathes

Chip pans, oil pans and oil pump equipment for 9-inch "Workshop" Lathes with all types of drives are listed and priced on page 37.

At Left—Fig. 26. Cat. No. 215-YC, Model C 9″ x 3′ "Workshop" Countershaft Driven Floor Lathe with Chip Pan, complete as shown.....$151.00



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

Features of the Model C 9-inch "Workshop

Cuts Screw Threads 4 to 160 Per Inch

This is an enlarged illustration of the Model C 9-inch "Workshop" South Bend Lathe shown on page 6. This Lathe is identical with all Model C Lathes shown in this catalog with exception of the type of drive. The features of the Lathe shown above will be found on all Model C "Workshop" South Bend Lathes. No die-cast parts used.

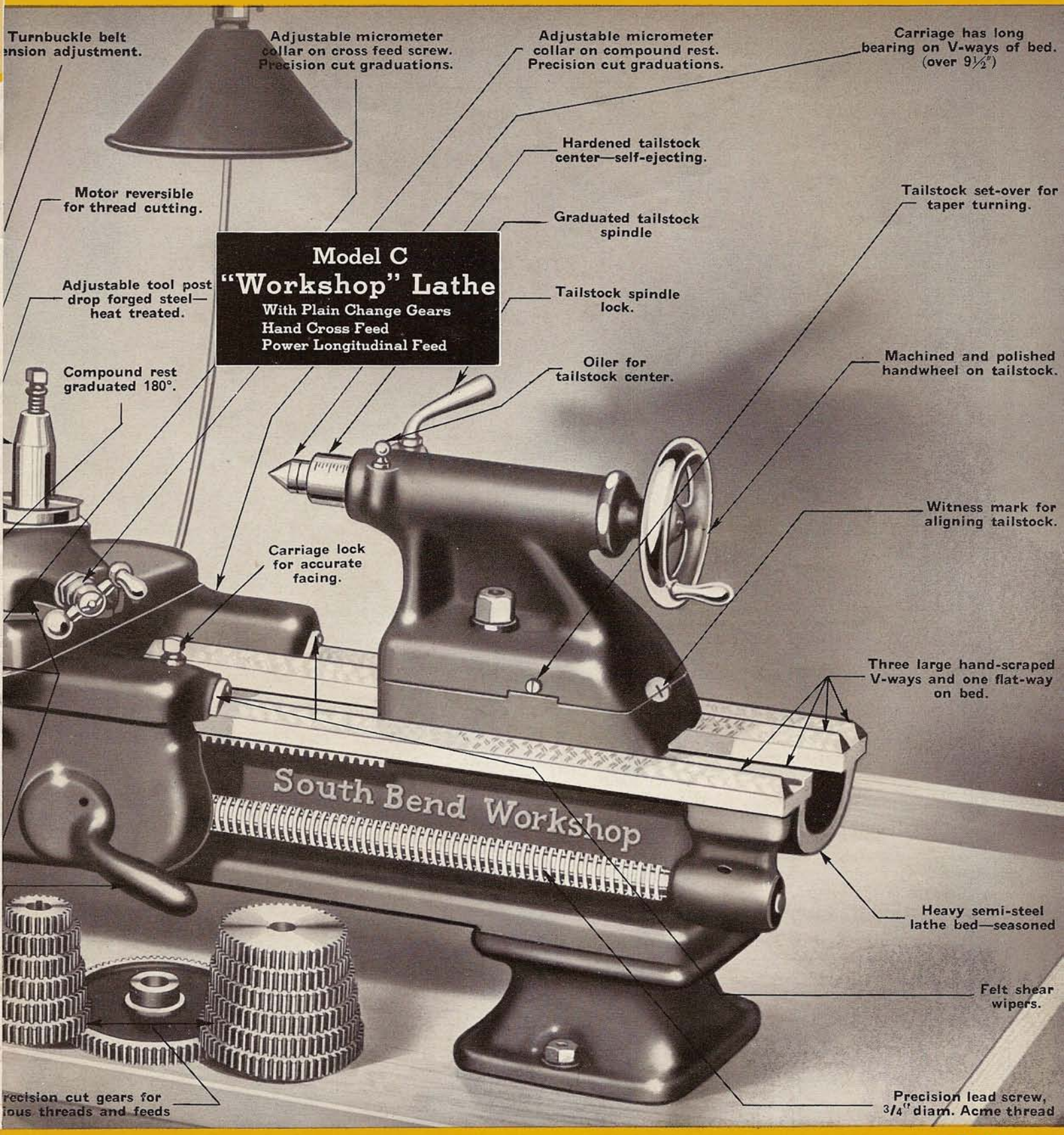


Fig. 27

South Bend Back-Geared Precision Lathes

Power Longitudinal Feeds .0021″ to .0156″

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

9-inch "Workshop" South Bend Precision Lathes

With Change Gears, Full Automatic Apron, Back-Geared Headstock
Power Longitudinal Feeds .0021" to .0155", Power Cross Feeds .001" to .0046"

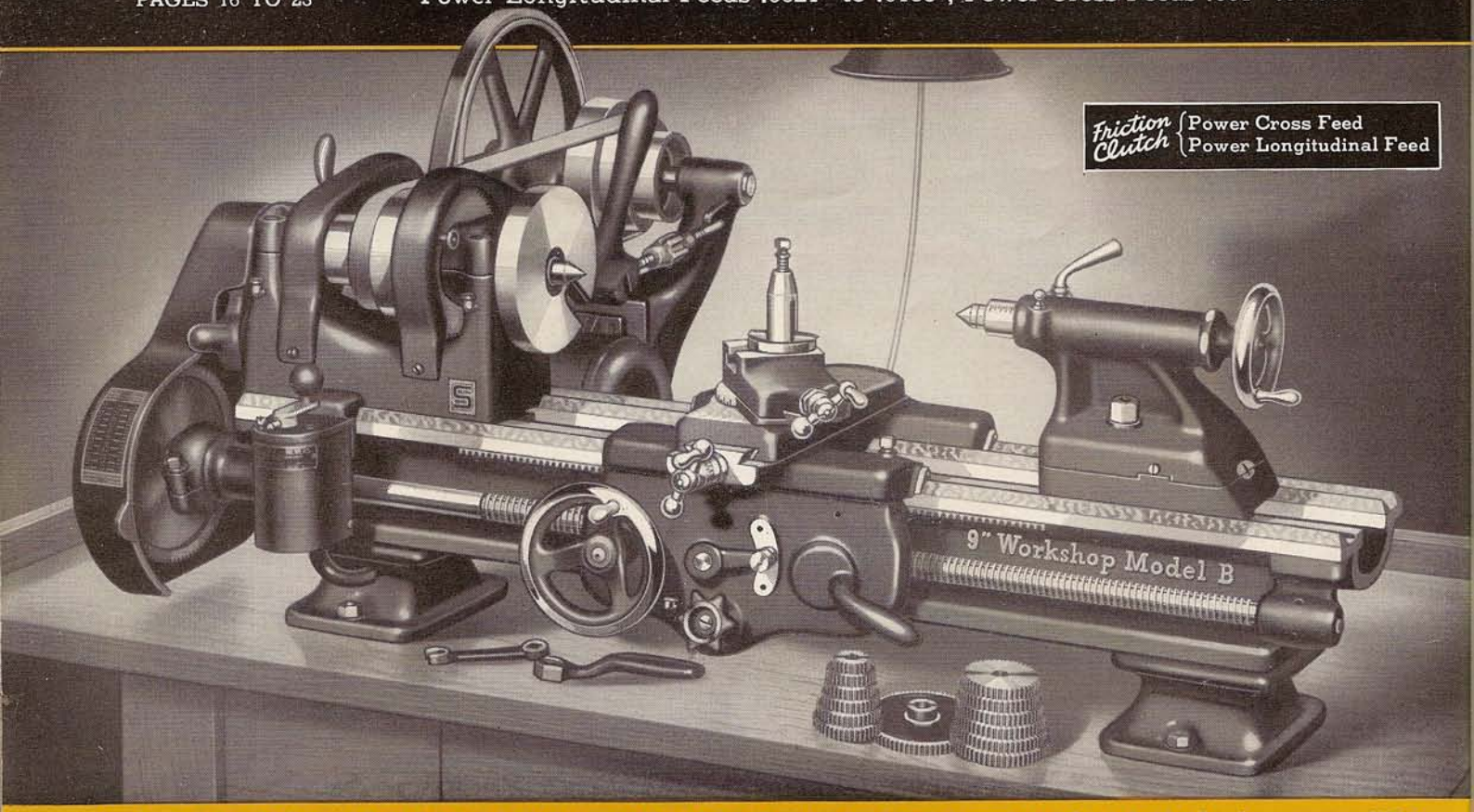


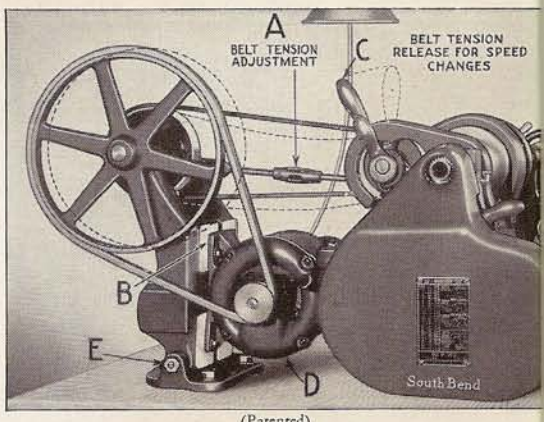
Fig. 28. Cat. No. 477-Y, Model B 9" x 3' "Workshop" Horizontal Motor Driven Precision Bench Lathe, complete as shown, but less bench.....$160.00

9-inch "Workshop" Model B
Horizontal Motor Driven Precision Bench Lathe
With Plain Change Gear Equipment and Automatic Apron

The 9-inch "Workshop" Model B Bench Lathe is equipped with plain change gear equipment and an automatic apron, as described on page 17. This is a high quality precision lathe, practical for instrument making, laboratory use and other accurate machine work. The 3½-ft. and longer bed lengths are recommended for general machine work because of the greater distance between centers. See page 3 for complete list of "Workshop" lathe specifications.

Automatic Apron has a smooth operating friction clutch which permits engaging or disengaging the power cross feed or power longitudinal feed instantly. See page 17 for description of automatic apron.

Motor Drive Equipment consists of: adjustable horizontal motor drive countershaft; ¼ H.P. start-stop reversing motor*, 1725 R.P.M. 1-ph. 60-cy. A.C., 110-V.; 6-wire cable for connecting motor and switch; 6-ft. extension cable and plug; V-groove pulley for motor; drum reversing switch and bracket; V-belt, motor to drive unit; flat belt and lacing.



(Patented)

Fig. 29. End View of "Workshop" Lathe with Horizontal Motor Drive Countershaft

Regular Equipment included in price of lathe consists of: graduated compound rest; face plate; forged steel tool post; two 60-degree tool steel lathe centers; headstock spindle sleeve; change gears for screw threads and power carriage feeds; wrenches; installation plan; and book "How to Run a Lathe." Bench is not included in price of lathe.

9-inch "Workshop" Model B
Horizontal Motor Driven Bench Lathes

Bed Length	3-ft.	3½-ft.	4-ft.	4½-ft.
Distance Between Centers	17-in.	23-in.	29-in.	35-in.
Catalog Number	477-Y	477-Z	477-A	477-R
Shipping Weight of Lathe	330 lbs.	355 lbs.	380 lbs.	405 lbs.
Code Word	Matem	Matuc	Mavaj	Mavud
Price f.o.b. South Bend, Ind.	$160.00	$172.00	$184.00	$201.00

Boxing for export $7.00 extra. See page 41 for export information.
*Other types of motors supplied at extra cost; see page 38.

Model B Lathes Have Automatic Aprons

The Model B 9-inch "Workshop" Precision Lathes are exactly the same as the Model C Lathes shown on pages 6 to 15, except that all Model B Lathes have an automatic apron with friction clutch drive for operating the automatic power cross feeds and longitudinal feeds, as described below. This apron is also used on all Model A Lathes.

Friction Clutch Drive for Power Cross Feed and Power Longitudinal Feed

The full automatic apron shown at the right is supplied with all Model B Plain Change Gear Type South Bend 9-inch "Workshop" Lathes listed on pages 16 to 23, also all Model A Lathes listed on pages 24 to 30.

This apron is equipped with a powerful friction clutch drive for operating both the automatic power cross feeds and the automatic power longitudinal feeds. The friction clutch drive permits engaging or disengaging instantly either the power cross feed or power longitudinal feed.

The power cross feeds range from .001″ to .0046″, and the power longitudinal feeds range from .0021″ to .0155″, as listed on the Index Chart Fig. 31. Screw threads ranging from 4 to 160 per inch are also shown on this chart. See page 7 for description of change gear equipment.

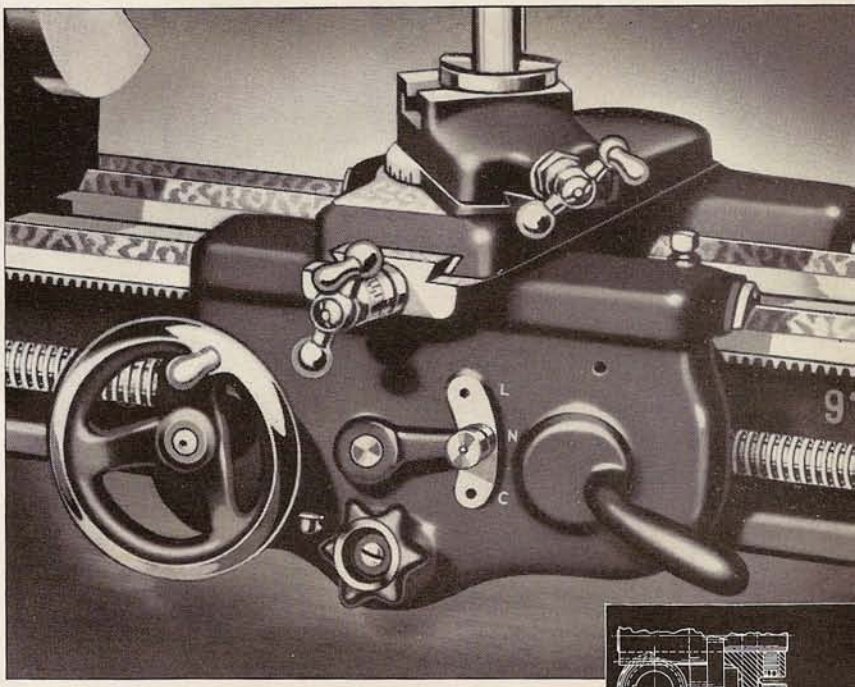


Fig. 30. Above—Automatic Apron for Model B and Model A 9-inch "Workshop" Lathes

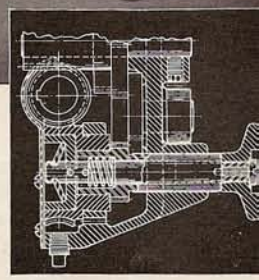


Fig. 30-A. Right—Cross Section Showing Construction of Clutch and Worm Drive for Power Cross Feeds and Power Longitudinal Feeds

CHART FOR THREADS AND FEEDS
9-INCH WORKSHOP MODEL B LATHE

THREADS PER INCH	STUD GEAR	IDLER GEARS	SCREW GEAR	CROSS FEEDS	LONG. FEEDS
4	24	FIG. 1	48		
4½	24	FIG. 1	54		
5	16	FIG. 1	40		
5½	16	FIG. 1	44		
6	16	FIG. 1	48		
6½	16	FIG. 1	52		
7	16	FIG. 1	56		
7½	16	FIG. 1	60		
8	32	FIG. 2	32		
9	32	FIG. 2	36		
10	32	FIG. 2	40		
11	32	FIG. 2	44		
11½	32	FIG. 2	46		
12	32	FIG. 2	48		
13	32	FIG. 2	52		
14	32	FIG. 2	56		
16	24	FIG. 2	48		
18	24	FIG. 2	54		
20	16	FIG. 2	40		
22	16	FIG. 2	44	.0046	.0155
24	16	FIG. 2	48	.0042	.0142
26	16	FIG. 2	52	.0039	.0131
27	16	FIG. 2	54	.0037	.0126
30	16	FIG. 3	60	.0034	.0114
32	32	FIG. 3	32	.0031	.0107
36	32	FIG. 3	36	.0028	.0095
40	32	FIG. 3	40	.0025	.0085
44	32	FIG. 3	44	.0023	.0078
46	32	FIG. 3	46	.0022	.0074
48	32	FIG. 3	48	.0021	.0071
52	32	FIG. 3	52	.0019	.0066
54	32	FIG. 3	54	.0019	.0063
56	32	FIG. 3	56	.0018	.0061
60	32	FIG. 3	60	.0017	.0057
64	16	FIG. 3	32	.0016	.0053
72	16	FIG. 3	36	.0014	.0047
80	16	FIG. 3	40	.0013	.0043
88	16	FIG. 3	44	.0011	.0039
92	16	FIG. 3	46	.0011	.0037
96	16	FIG. 3	48	.0010	.0036
104	16	FIG. 3	52	.0010	.0033
112	16	FIG. 3	56		.0030
120	16	FIG. 3	60		.0028
160	16	FIG. 4	80		.0021

AUTOMATIC POWER FEEDS THROUGH FRICTION CLUTCH IN INCHES PER REVOLUTION OF HEADSTOCK SPINDLE

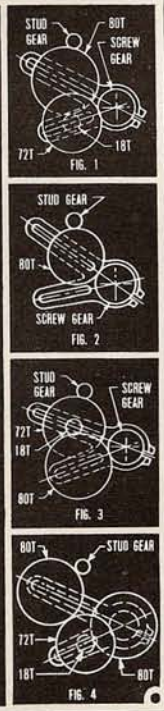


Fig. 31. Index Chart Showing Threads and Feeds on Model B 9-inch "Workshop" Lathe

Worm Drive Operates Power Feeds

The power cross feeds and power longitudinal feeds are both operated by a worm which is driven by a spline in the lead screw. The threads of the lead screw and the half-nuts are used only when cutting screw threads and not for automatic turning feeds.

The feed change knob on the front of the apron has three positions: top for the automatic power longitudinal feeds; center for a neutral position; and bottom for the automatic power cross feeds. It is impossible to engage both feeds at the same time.

All gears in the apron are made of steel and the gear teeth are cut from the solid on precision gear hobbing machines. The worm wheel and clutch for driving the power feeds operate in a bath of oil. See Fig. 30-A, above, for cross section of clutch.

An automatic safety interlock prevents engaging half-nuts when the automatic friction clutch feeds are in operation. The half-nuts are used only for thread cutting and are operated by the lever on the right side of the apron.

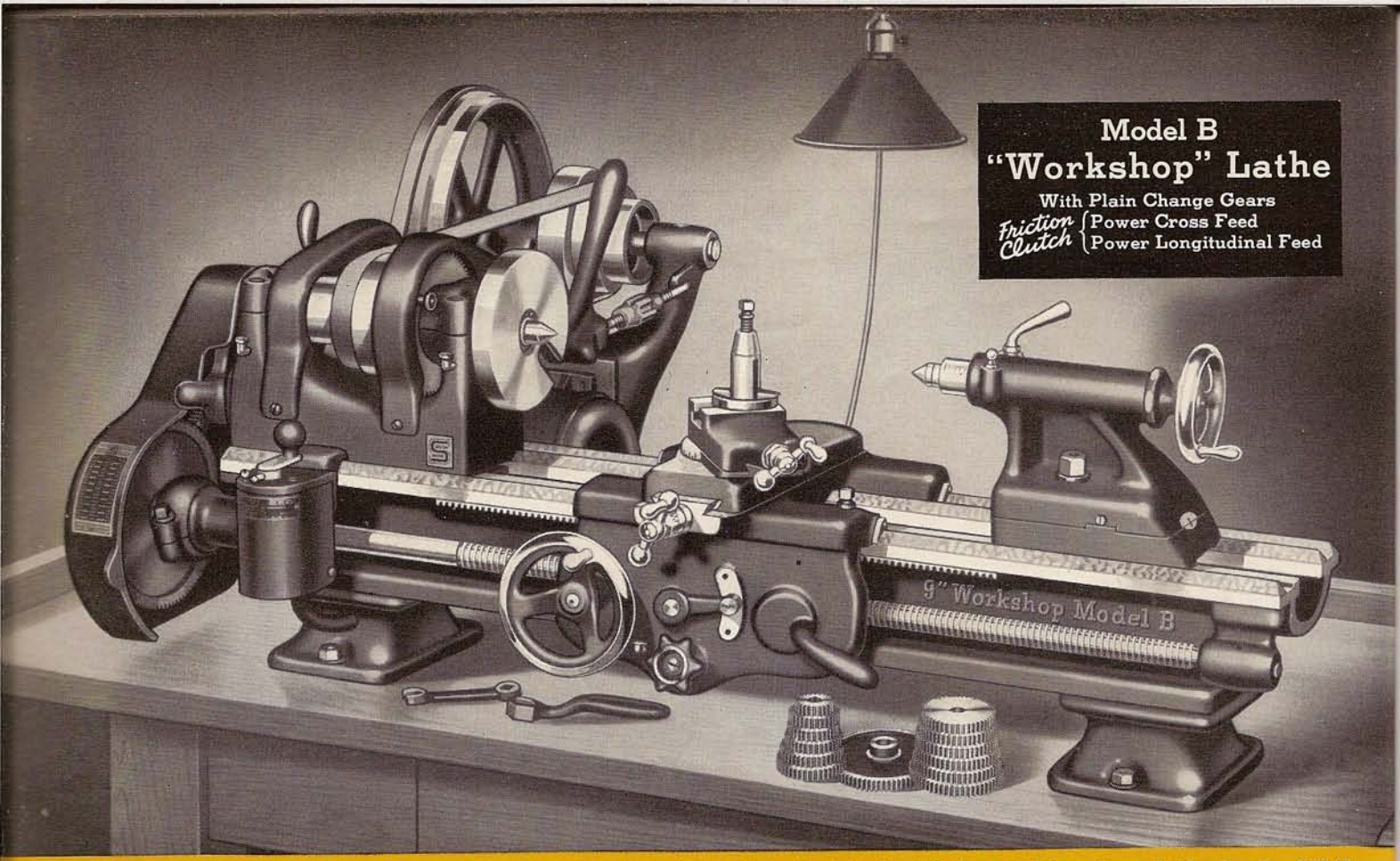


Fig. 32. Cat. No. 677-Y, Model B 9" x 3' "Workshop" *Twelve-Speed* Horizontal Motor Driven Precision Bench Lathe, complete as shown, but less bench . . . $177.00

9-inch "Workshop" Model B
Twelve-Speed Horizontal Motor Driven Precision Bench Lathe
With Plain Change Gear Equipment and Automatic Apron

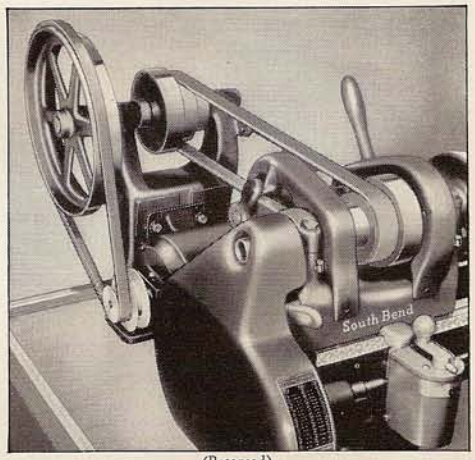
The 9-inch "Workshop" Model B *Twelve-Speed* **Bench Lathe** with Horizontal Motor Drive is exactly the same as the lathe shown on page 16, except that it has a ⅓ H.P. motor, and two-step pulleys for the motor and countershaft. Twelve spindle speeds are provided ranging from 41 to 1270 R.P.M. See page 3 for complete list of lathe specifications.

The Wide Range of Spindle Speeds makes this lathe especially practical for machining small parts of steel, cast iron, brass, aluminum and similar metals, also for use with tungsten-carbide tools, drilling, polishing, wood turning and similar operations.

Automatic Apron has a smooth operating friction clutch which permits engaging or disengaging the power cross feed or power longitudinal feed instantly. See page 17 for description of apron.

Motor Drive Equipment consists of: adjustable horizontal motor drive countershaft with two-step pulley; ⅓ H.P. capacitor start-stop reversing motor*, 1725 R.P.M. 1-ph. 60-cy., A.C. 110-V.; 6-wire cable for connecting motor and switch; 6-ft. extension cable and plug; two-step V-groove pulley for motor; drum reversing switch and bracket; V-belt, motor to drive unit; flat leather belt and lacing.

Regular Equipment included in price of lathe consists of: graduated compound rest; face plate; forged steel tool post; two 60-degree tool steel lathe centers; headstock spindle sleeve; change gears for screw threads and power carriage feeds; wrenches; installation plan; and book "How to Run a Lathe." Bench is not included in price of lathe.



(Patented)

Fig. 33. End View of 9-inch "Workshop" *Twelve-Speed* Lathe Showing Two-Speed Countershaft

9-inch "Workshop" Model B
Twelve-Speed Horizontal Motor Driven Bench Lathes

Bed Length	3-ft.	3½-ft.	4-ft.	4½-ft.
Distance Between Centers	17-in.	23-in.	29-in.	35-in.
Catalog Number	677-Y	677-Z	677-A	677-B
Shipping Weight of Lathe	345 lbs.	370 lbs.	395 lbs.	420 lbs.
Code Word	Kewul	Kexim	Kexos	Kexuy
Price f.o.b. South Bend, Ind.	$177.00	$189.00	$201.00	$218.00

Boxing for export $7.00 extra. See page 41 for export information.
*Other types of motors supplied at extra cost; prices on request.

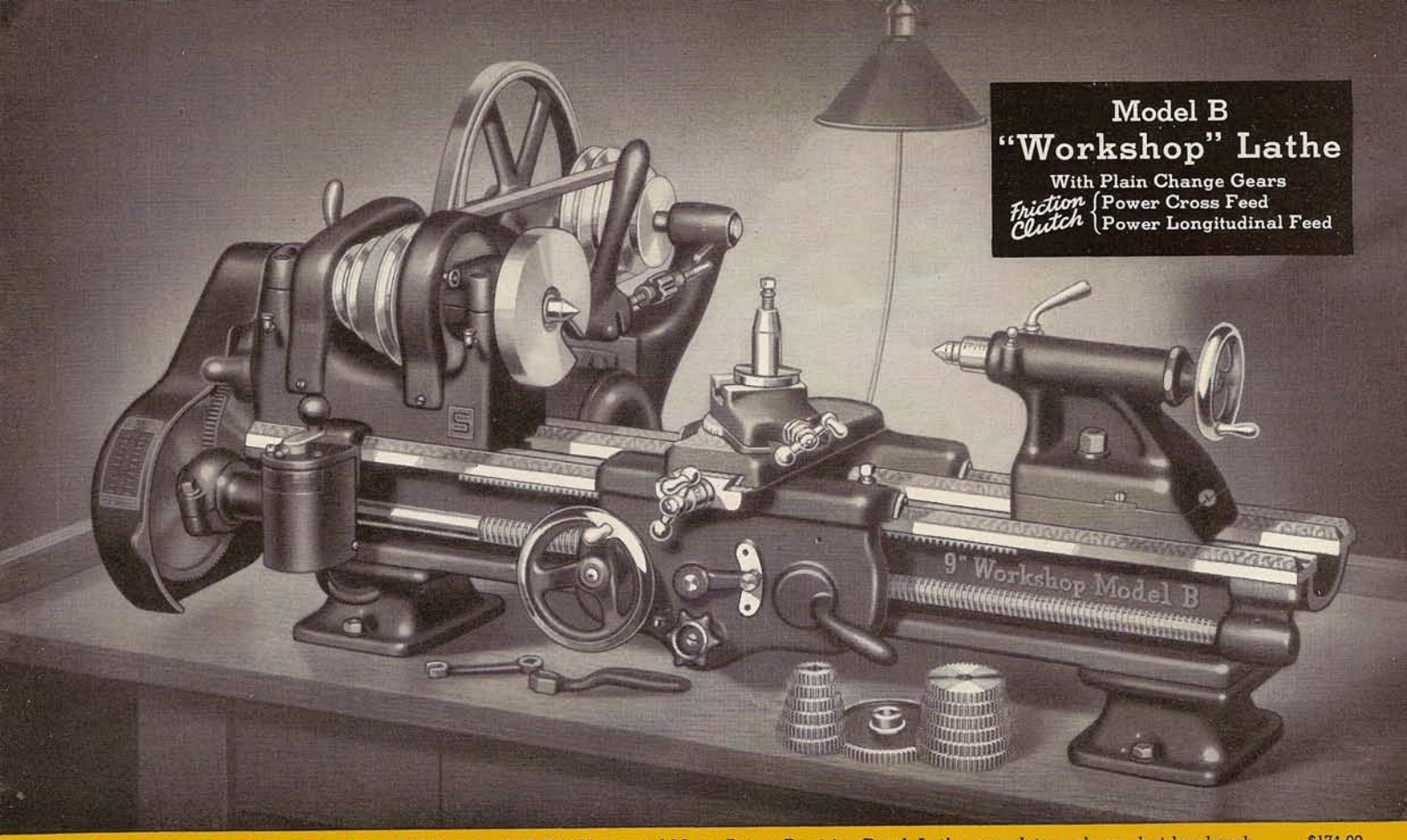


Fig. 34. Cat. No. 577-Y, Model B 9" x 3' "Workshop" V-Belt Horizontal Motor Driven Precision Bench Lathe, complete as shown, but less bench.....$174.00

9-inch "Workshop" Model B
V-Belt Horizontal Motor Driven Precision Bench Lathe
With Plain Change Gear Equipment and Automatic Apron

The 9-inch "Workshop" Model B Bench Lathe with V-belt Horizontal Motor Drive is exactly the same as the lathe shown on page 16, except that it is equipped with V-belt cone pulleys instead of flat belt cone pulleys. Eight spindle speeds are provided as follows: 46, 63, 85, 117, 239, 326, 442, and 609 R.P.M. For specifications see page 3.

Automatic Apron has a smooth operating friction clutch which permits engaging or disengaging the power cross feed or power longitudinal feed instantly. See page 17 for description of automatic apron.

Improved Features include: back-geared headstock; heat-treated alloy steel spindle; new improved capillary oiling system; precision lead screw; graduated compound rest; and improved thread cutting equipment. For features see pages 4, 5, and 17.

Motor Drive Equipment consists of: adjustable horizontal motor drive countershaft with V-belt cone pulley; ¼ H.P. start-stop reversing motor*, 1725 R.P.M. 1-ph. 60-cy., A.C. 110-V.; 6-wire cable for connecting motor and switch; 6-ft. extension cable and plug; V-groove pulley for motor; drum reversing switch and bracket; V-belt, motor to drive unit; V-belt, drive unit to the lathe.

Regular Equipment included in price of lathe consists of: graduated compound rest; face plate; forged steel tool post; two 60-degree tool steel lathe centers; headstock spindle sleeve; change gears for screw threads and power carriage feeds; wrenches; installation plan; and book "How to Run a Lathe." Bench is not included in price of lathe.

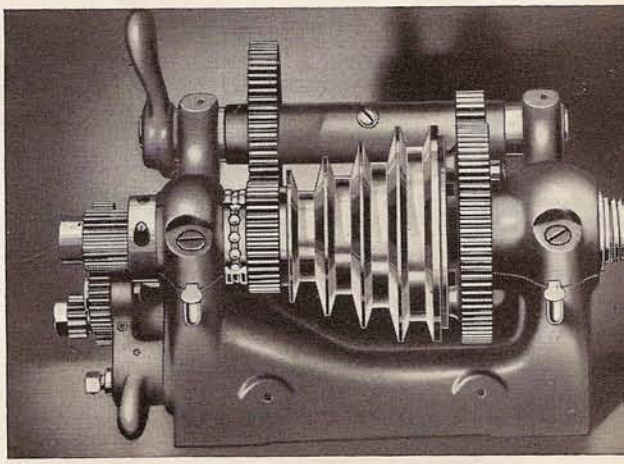


Fig. 35. Headstock of 9-inch "Workshop" Lathe (with Gear Guards Removed) Showing 4-Step Cone Pulley for V-Belt Drive

9-inch "Workshop" Model B
V-Belt Horizontal Motor Driven Bench Lathes

Bed Length	3-ft.	3½-ft.	4-ft.	4½-ft.
Distance Between Centers	17-in.	23-in.	29-in.	35-in.
Catalog Number	577-Y	577-Z	577-A	577-R
Shipping Weight of Lathe	330 lbs.	355 lbs.	380 lbs.	405 lbs.
Code Word	Patal	Patep	Patit	Patoz
Price f.o.b. South Bend, Ind.	$174.00	$186.00	$198.00	$215.00

Boxing for export $7.00 extra. See page 41 for export information.
*Other types of motors supplied at extra cost; see page 38.

Fig. 36. Cat. No. 77-YB, Model B 9" x 3' "Workshop" Precision Bench Lathe, complete with countershaft as shown, but less bench.....$148.00

9-inch "Workshop" Model B Countershaft Driven Precision Lathe

With Plain Change Gear Equipment and Automatic Apron

The 9-inch "Workshop" Model B Bench Lathe with Countershaft Drive is recommended for use in machine shops, repair shops, manufacturing plants, garages, laboratories, home workshops, and experimental shops where the finest type of back-geared, screw cutting precision lathe is required. The 3½-ft. and longer bed lengths are recommended for general machine work because of the greater distance between centers. This lathe is also supplied with floor legs as listed below in price tabulation. See lathe specifications on page 3.

Improved Features include: automatic apron; back-geared headstock; heat-treated alloy steel spindle; new improved capillary oiling system; precision lead screw; and graduated compound rest. See pages 4, 5, and 17.

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

Regular Equipment included in price of lathe consists of: double friction countershaft; graduated compound rest; face plate; heat-treated forged steel tool post; two 60-degree tool steel lathe centers; headstock spindle sleeve; change gears for screw threads and power turning feeds; wrenches; installation plan; and book "How to Run a Lathe." Bench is not included in price of lathe.

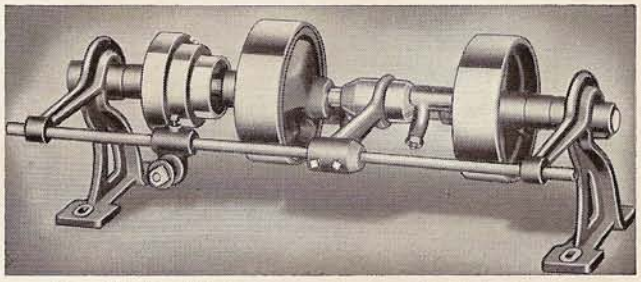


Fig. 37. Double Friction Countershaft for Lathe

9-inch "Workshop" Model B
Countershaft Driven Bench Lathes

Bed Length	3-ft.	3½-ft.	4-ft.	4½-ft.
Distance Between Centers	17-in.	23-in.	29-in.	35-in.
Catalog Number	77-YB	77-ZB	77-AB	77-RB
Shipping Weight of Lathe	310 lbs.	335 lbs.	360 lbs.	385 lbs.
Code Word	Layol	Layur	Lazak	Lazis
Price f.o.b. South Bend, Ind.	$148.00	$160.00	$172.00	$189.00

Boxing for export $7.00 extra. See page 41 for export information.

9-inch "Workshop" Model B
Countershaft Driven Floor Leg Lathes

Bed Length	3-ft.	3½-ft.	4-ft.	4½-ft.
Distance Between Centers	17-in.	23-in.	29-in.	35-in.
Catalog Number	77-Y	77-Z	77-A	77-R
Shipping Weight of Lathe	410 lbs.	435 lbs.	460 lbs.	485 lbs.
Code Word	Marov	Mayec	Moyuj	Mevor
Price f.o.b. South Bend, Ind.	$158.00	$170.00	$182.00	$199.00

Boxing for export $7.00 extra. See page 41 for export information.

Fig. 38. Cat. No. 177-YB, Model B 9" x 3' "Workshop" Underneath Motor Driven Precision Bench Lathe, complete as shown, but less bench.....$209.00

9-inch "Workshop" Model B
Underneath Belt Motor Driven Precision Bench Lathe
With Plain Change Gear Equipment and Automatic Apron

The 9-inch "Workshop" Model B Bench Lathe with Underneath Motor Drive is the same as the Model B Lathes shown on the preceding pages, except for necessary alterations in the headstock and bed to accommodate the underneath motor drive. The 3½-ft. and 4-ft. bed lengths are recommended for general machine work. See page 3.

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

Improved Features include: back-geared headstock; automatic apron; heat-treated alloy steel spindle; ball thrust bearing for spindle; new improved capillary oiling system; precision lead screw; and graduated compound rest. See pages 4, 5, and 17.

Bed and Legs are cast integral from special quality gray iron and steel mixture, which makes a hard, close-grained metal having long wearing qualities. Heavy box braces are cast in at short intervals to reinforce the bed, and give added strength and rigidity. From three to five braces are used, depending on the length of bed.

Motor Drive Equipment consists of: adjustable underneath motor drive; ¼ H.P. start-stop reversing motor*, 1725 R.P.M. 1-ph. 60-cy., A.C. 110-V.; 6-wire cable for connecting motor and switch; 6-ft. extension cable and plug; V-groove pulley for motor; drum reversing switch; V-belt, motor to drive unit; flat leather belt and lacing.

Regular Equipment included in price of lathe consists of graduated compound rest; face plate; forged steel tool post; two 60-degree tool steel lathe centers; headstock spindle sleeve; change gears for screw threads and power carriage feeds; wrenches; installation plan; and book "How to Run a Lathe." Bench is not included in price of lathe.

9-inch "Workshop" Model B
Underneath Motor Driven Bench Lathes

Bed Length	3-ft.	3½-ft.	4-ft.
Distance Between Centers	17-in.	23-in.	29-in.
Catalog Number	177-YB	177-ZB	177-AB
Shipping Weight of Lathe	380 lbs.	405 lbs.	430 lbs.
Code Word	Paqax	Paqeb	Paqif
Price f.o.b. South Bend, Ind.	$209.00	$221.00	$233.00

Boxing for export $10.00 extra. See page 41 for export information.
*Other types of motors supplied at extra cost; see page 38.

Fig. 39. Cat. No. 977-Y, Model B 9" x 3' "Workshop" Pedestal Adjustable Motor Driven Precision Floor Leg Lathe, complete as shown.....$200.00

(Patented)

Fig. 40. End View of Pedestal Motor Drive Showing Arrangement of Motor, Belt Adjustment, etc.

9-inch "Workshop" Model B
Pedestal Motor Driven Precision Lathe
With Plain Change Gear Equipment and Automatic Apron

The 9-inch "Workshop" Model B Lathe with Pedestal Adjustable Motor Drive is recommended for shops requiring an efficient motor driven floor leg lathe. Except for the type of drive, this lathe is exactly the same as the Model B Lathes described on the preceding pages. The 3½-ft. and longer bed lengths are recommended for general machine work. See lathe specifications on page 3.

Improved Features include: automatic apron; back-geared headstock; heat-treated alloy steel spindle; new improved capillary oiling system; precision lead screw; graduated compound rest; and complete thread cutting equipment. See pages 4, 5, and 17.

The Pedestal Motor Drive is very practical as it permits placing the lathe in any position in the shop. Adjustment is provided for belt stretch and a belt tension release permits easy shifting of belt for changing spindle speeds.

Motor Drive Equipment included in price of lathe consists of: pedestal adjustable motor drive; ¼ H.P. start-stop reversing motor*, 1725 R.P.M. 1-ph. 60-cy., A.C. 110-V.; 6-wire cable for connecting motor and switch; 6-ft. extension cable and plug; V-groove pulley for motor; drum reversing switch and bracket; V-belt, motor to pedestal drive unit; flat leather belt and lacing.

Regular Equipment included in price of lathe consists of: graduated compound rest; face plate; forged steel tool post; two 60-degree tool steel lathe centers; headstock spindle sleeve; change gears for screw threads and power carriage feeds; wrenches; installation plan; and book "How to Run a Lathe."

9-inch "Workshop" Model B
Pedestal Motor Driven Lathes

Bed Length	3-ft.	3½-ft.	4-ft.	4½-ft.
Distance Between Centers	17-in.	23-in.	29-in.	35-in.
Catalog Number	977-Y	977-Z	977-A	977-R
Shipping Weight of Lathe	570 lbs.	595 lbs.	620 lbs.	645 lbs.
Code Word	Hisem	Hisiq	Hisow	Hisuc
Price f.o.b. South Bend, Ind.	$200.00	$212.00	$224.00	$241.00

Boxing for export $9.00 extra. See page 41 for export information.
*Other types of motors supplied at extra cost; see page 38.

9-inch "Workshop" Model B Precision Lathe—with Raising Blocks

11¼-inch Swing Over Lathe Bed

Back-Geared—Cuts Screw Threads 4 to 160
Power Longitudinal Feeds .0021″ to .0155″

"Workshop" Lathes with Raising Blocks will take work up to 11¼″ in diameter over the bed and up to 7¼″ in diameter over the tool rest.

Prices of "Workshop" Model B Lathes equipped with raising blocks are listed below. Regular lathe equipment is included in price listed. Prices of all motor driven raising block lathes include: ¼ H.P. start-stop reversing motor*, 1725 R.P.M. 1-ph. 60-cy., A.C. 110-V; reversing switch; wiring, and all regular equipment.

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

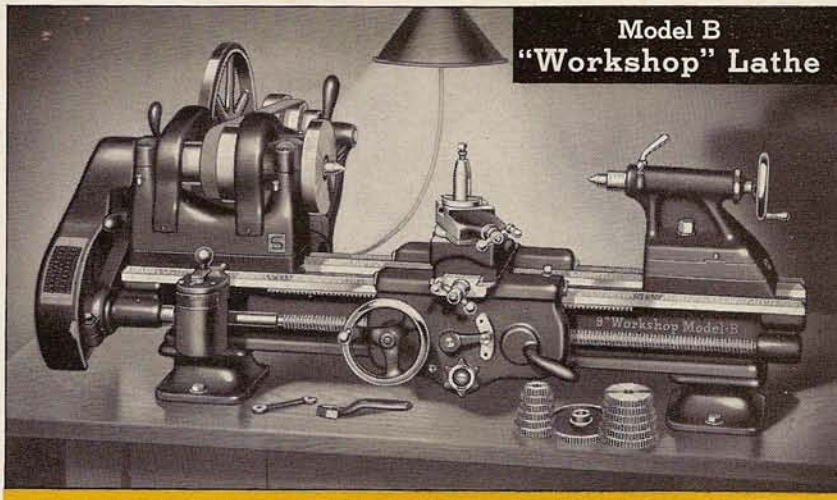


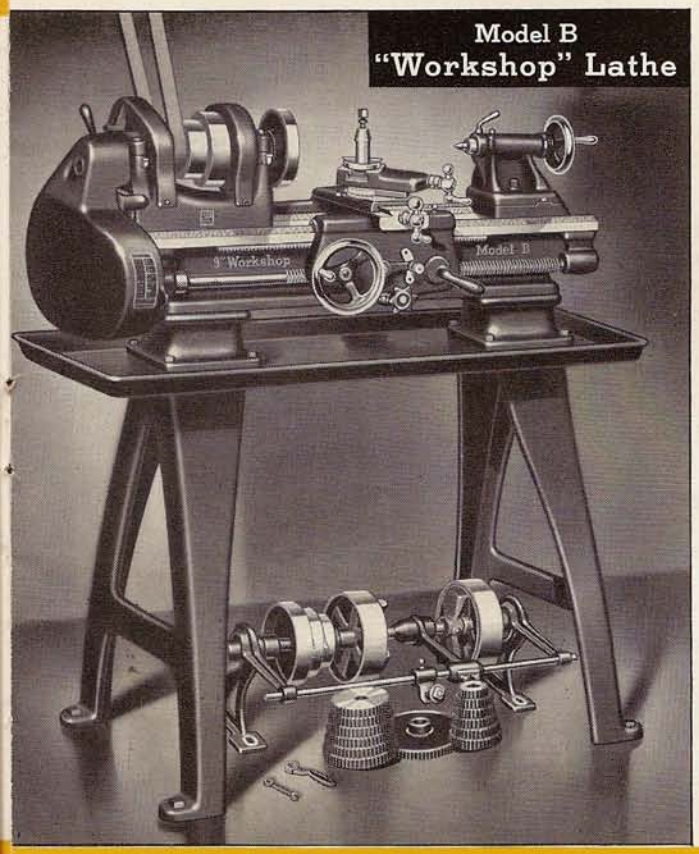
Fig. 41. Cat. No. 6477-Y, Model B 9″ x 3′ "Workshop" Horizontal Motor Driven Precision Bench Lathe with Raising Blocks, complete as shown, but less bench . . . $190.00

9-inch "Workshop" Model B Lathes with Raising Blocks—Bench Not Included

Swing Over Bed Inches (with Raising Blocks)	Length of Bed Feet	Swing Over Carriage Inches	Approximate Ship. Weight for Crated Adjustable Hor. Drive Lathe Pounds	Countershaft Driven Bench Lathe with Raising Blocks (See Page 20)			V-Belt Motor Driven Bench Lathe with Raising Blocks (See Page 19)			Horizontal Motor Driven Bench Lathe with Raising Blocks (See Page 16)		
				Cat. No.	Code	Price	Cat. No.	Code	Price	Cat. No.	Code	Price
11¼	3	7¼	350	6077-YB	Jojam	$178.00	6577-Y	Juyab	$204.00	6477-Y	Jemal	$190.00
11¼	3½	7¼	375	6077-ZB	Jojeq	190.00	6577-Z	Juyef	216.00	6477-Z	Jemep	202.00
11¼	4	7¼	400	6077-AB	Jojug	202.00	6577-A	Juyij	228.00	6477-A	Jemit	214.00
11¼	4½	7¼	425	6077-RB	Juxoc	219.00	6557-R	Juyop	245.00	6477-R	Jemoz	231.00

*Other types of motors supplied at extra cost; see page 38. Boxing for export $7.00 extra. See page 41 for export information.

9-inch "Workshop" Model B Precision Lathe—with Chip Pan



With Countershaft Drive and Floor Legs

Back-Geared—Cuts Screw Threads 4 to 160
Power Longitudinal Feeds .0021″ to .0155″

The "Workshop" Lathe with Chip Pan shown at the left is the same as the lathe illustrated and described on page 20, except that this lathe has floor legs and is equipped with a steel chip pan. Specifications and features are listed on pages 3, 4, 5, and 17. Prices listed below include double friction countershaft and regular lathe equipment.

9-inch "Workshop" Model B
Countershaft Driven Lathes—with Chip Pan

Bed Length	3-ft.	3½-ft.	4-ft.	4½-ft.
Distance Between Centers	17-in.	23-in.	29-in.	35-in.
Catalog Number	277-Y	277-Z	277-A	277-R
Shipping Weight of Lathe	445 lbs.	470 lbs.	495 lbs.	520 lbs.
Code Word	Mezip	Mezob	Mezub	Molap
Price f.o.b. South Bend, Ind.	$184.00	$197.00	$210.00	$228.00

Boxing for export $7.00 extra. See page 41 for export information.

Chip Pan, Oil Pan and Oil Pump Equipment for 9-inch "Workshop" Lathes

Chip pans, oil pans and oil pump equipment for 9-inch "Workshop" Lathes with all types of drives are listed and priced on page 37.

At Left—Fig. 42. Cat No. 277-Y, Model B 9″ x 3′ "Workshop" Countershaft Driven Precision Lathe with Chip Pan, complete as shown $184.00

MODEL A

"WORKSHOP" LATHES
PAGES 24 TO 30

9-inch "Workshop" South Bend Precision Lathes

With Quick Change Gear Box, Full Automatic Apron, Back-Geared Headstock, Power Longitudinal Feeds .0015" to .0213", Power Cross Feeds .0004" to .0063"

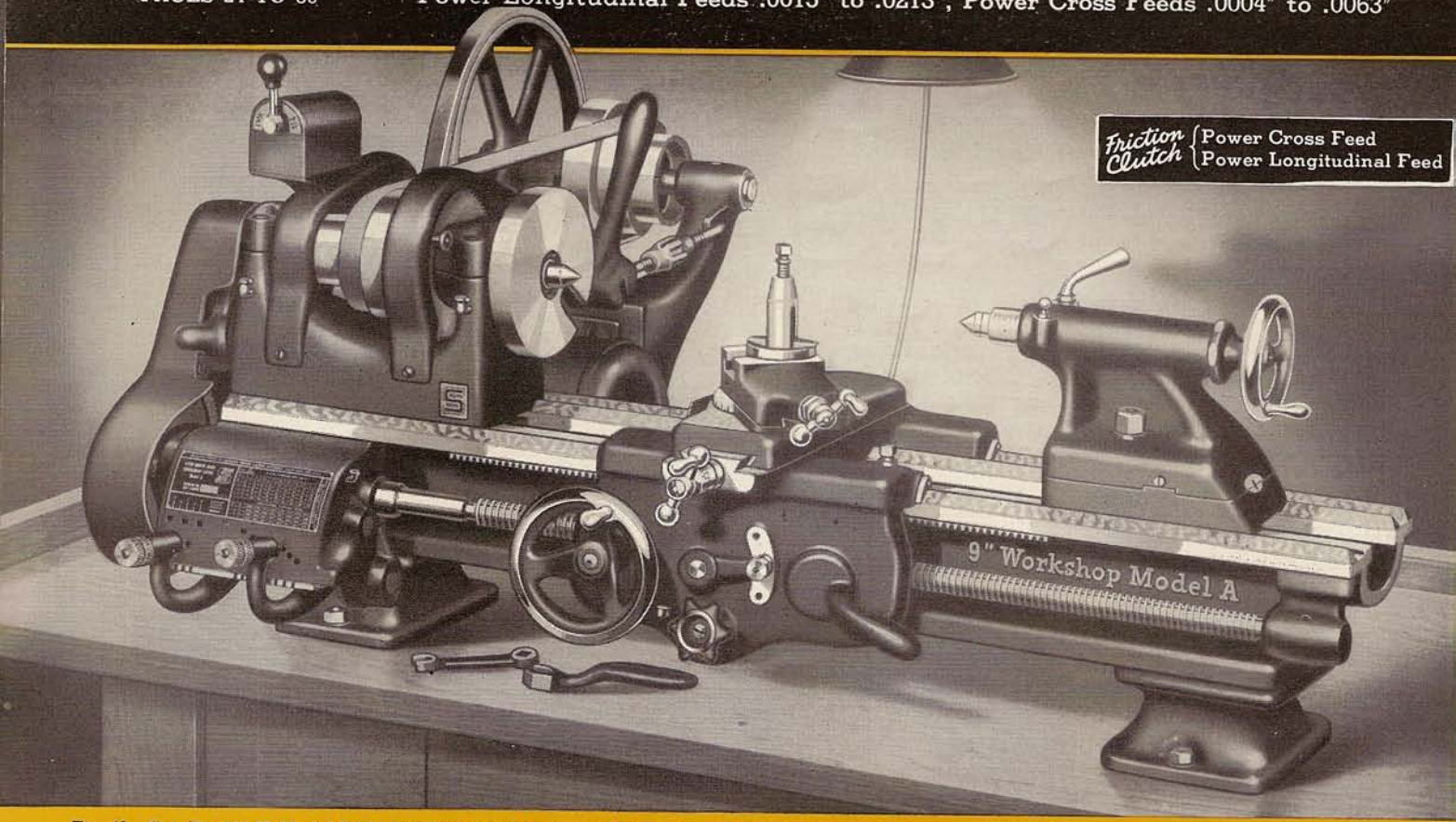


Fig. 43. Cat. No. 444-Y, Model A 9" x 3' "Workshop" Horizontal Motor Driven Precision Bench Lathe, complete as shown, but less bench.....$210.00

9-inch "Workshop" Model A Horizontal Motor Driven Precision Bench Lathe

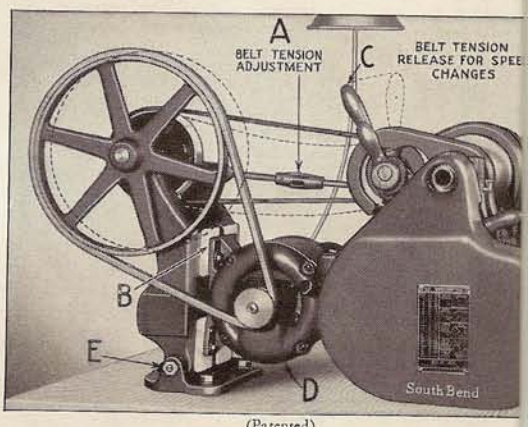
With Quick Change Gear Box and Automatic Apron

The 9-inch "Workshop" Model A Bench Lathe has a full quick change gear box and a full automatic friction feed apron which are illustrated and described on pages 17 and 25. See pages 3 to 5 for list of important lathe specifications and features.

This is a High Quality Precision Lathe built to most exacting machine tool specifications. It is a practical lathe for manufacturing parts for typewriters, adding machines, radios, electrical appliances, and similar articles requiring extreme accuracy. The lathe with 3½-ft. and longer bed lengths is recommended for general machine work because of the greater distance between lathe centers.

Motor Drive Equipment consists of: adjustable horizontal motor drive countershaft; ¼ H.P. start-stop reversing motor*, 1725 R.P.M. 1-ph. 60-cy., A.C. 110-V.; 6-wire cable for connecting motor and switch; 6-ft. extension cable and plug; V-groove pulley for motor; drum reversing switch and bracket; V-belt, motor to the drive unit; flat leather belt and lacing.

Regular Equipment included in price of lathe consists of: graduated compound rest; face plate; forged steel tool post; two 60-degree tool steel lathe centers; headstock spindle sleeve; quick change gear box for screw threads and power carriage feeds; wrenches; installation plan; and book "How to Run a Lathe." Bench is not included in price.



(Patented)

Fig. 44. End View of "Workshop" Lathe wit Horizontal Motor Drive Countershaft

9-inch "Workshop" Model A
Horizontal Motor Driven Bench Lathes

Bed Length	3-ft.	3½-ft.	4-ft.	4½-ft.
Distance Between Centers	17-in.	23-in.	29-in.	35-in.
Catalog Number	444-Y	444-Z	444-A	444-R
Shipping Weight of Lathe	340 lbs.	365 lbs.	390 lbs.	415 lbs.
Code Word	Nuyaf	Nuyej	Nuyin	Nuyot
Price f.o.b. South Bend, Ind.	$210.00	$222.00	$234.00	$251.00

Boxing for export $7.00 extra. See page 41 for export information.
*Other types of motors supplied at extra cost; see page 38.

SPECIAL FEATURES—

Applying To Model A "Workshop" Precision Lathes Only

Automatic Apron and Quick Change Gear Box

The Model A 9-inch "Workshop" Precision Lathes have the full automatic apron described on page 17 and are exactly the same as the Model B Lathes shown on pages 16 to 23, except that all Model A Lathes are equipped with the quick change gear box which is illustrated and described below, instead of the plain change gear equipment.

Fig. 45. Quick Change Gear Box for Threads and Feeds Supplied as Standard Equipment on All Model A 9-inch "Workshop" Lathes

Threads and Feeds Instantly Available Through Gear Box

The quick change gear box illustrated at the left is supplied on all Model A 9-inch "Workshop" South Bend Lathes. Changes for the various screw threads and power feeds are made by shifting the two levers on the front of the gear box.

Screw threads which may be cut range from 4 to 224 per inch right or left hand, as listed on the Index Chart Fig. 46. Power longitudinal feeds obtained through the gear box range from .0015″ to .0213″ per revolution of the spindle and are also listed on the Index Chart. The power cross feeds are .3 times the longitudinal feeds, or .0004″ to .0063″ per revolution of the spindle.

A direct reading index chart attached to the gear box shows the arrangement of the levers for the various threads and feeds. Changes may be made with the lathe in operation, as it is impossible to place the levers in any position which will lock the gears.

Screw threads from 8 to 224 per inch and power feeds are instantly available by shifting the levers on the gear box when the 20-tooth stud gear is in use. Coarse pitch screw threads ranging from 4 to 7 per inch are obtained by replacing the 20-tooth stud gear with a 40-tooth stud gear.

All gears in this gear box are made of steel and are precision cut and tested for accuracy. Large bearing surfaces and ample oiling facilities assure smooth operation and long life.

MANUFACTURED BY **SOUTH BEND LATHE WORKS** SOUTH BEND, IND., U.S.A.

9-INCH SOUTH BEND WORKSHOP LATHE Model A

TRADE MARK SOUTH BEND TWINS ENGINE LATHES

CATALOG NO. _____
BED LENGTH _____

PAT. APP. FOR

A B C D E — Left Hand Tumbler Positions

STUD GEAR	LEFT HAND TUMBLER	SCREW THREADS PER INCH							
40	A	4	4½	5	5½	5¾	6	6½	7
20	A	8	9	10	11	11½	12	13	14
"	B	16	18	20	22	23	24	26	28
"	C	32	36	40	44	46	48	52	56
"	D	64	72	80	88	92	96	104	112
"	E	128	144	160	176	184	192	208	224
		LONGITUDINAL TURNING FEEDS							
20	B	.0213	.0190	.0171	.0155	.0148	.0142	.0131	.0122
"	C	.0107	.0095	.0085	.0078	.0074	.0071	.0066	.0061
"	D	.0053	.0047	.0043	.0039	.0037	.0036	.0033	.0030
"	E	.0027	.0024	.0021	.0019	.0019	.0018	.0016	.0015

AUTOMATIC CROSS FEEDS .3 TIMES LONGITUDINAL FEEDS

Fig. 46. Direct Reading Index Chart for Quick Change Gear Box Shows Screw Threads and Power Longitudinal Turning Feeds Available on Model A 9-inch "Workshop" Lathes

Fig. 47. Cat. No. 644-Y, Model A 9" x 3' "Workshop" *Twelve-Speed* Horizontal Motor Driven Precision Bench Lathe, complete as shown, but less bench . . . $227.00

9-inch "Workshop" Model A
Twelve-Speed Horizontal Motor Driven Precision Bench Lathe
With Quick Change Gear Box and Automatic Apron

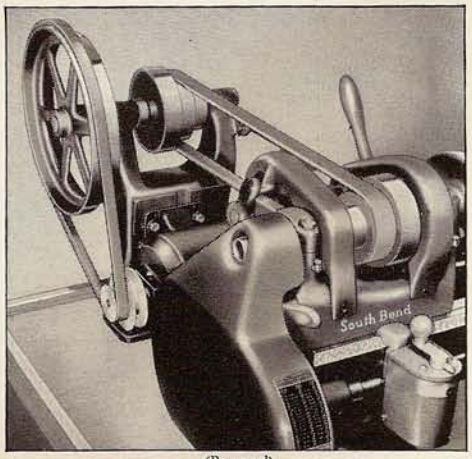
The 9-inch "Workshop" Model A *Twelve-Speed* Bench Lathe with Horizontal Motor Drive is exactly the same as the lathe shown on page 24, except that it has a ⅓ H.P. motor, and two-step pulleys for the motor and countershaft. Twelve spindle speeds are provided ranging from 41 to 1270 R.P.M. See page 3.

The Wide Range of Spindle Speeds makes this lathe especially practical for machining small parts of steel, cast iron, brass, aluminum and similar metals, also for use with tungsten-carbide tools, drilling, polishing, wood turning and similar operations.

Quick Change Gear Box provides 48 changes for cutting right and left hand screw threads from 4 to 224 per inch. Power longitudinal carriage feeds .0015" to .0213", and power cross feeds are also obtained through the gear box. See page 25.

Motor Drive Equipment consists of: adjustable horizontal motor drive countershaft with two-step pulley; ⅓ H.P. capacitor start-stop reversing motor*, 1725 R.P.M. 1-ph. 60-cy., A.C. 110-V.; 6-wire cable for connecting motor and switch; 6-ft. extension cable and plug; two-step V-groove pulley for motor; drum reversing switch and bracket; V-belt, motor to drive unit; flat leather belt and lacing.

Regular Equipment included in price of lathe consists of: graduated compound rest; face plate; forged steel tool post; two 60-degree tool steel lathe centers; headstock spindle sleeve; quick change gear box for screw threads and power carriage feeds; wrenches; installation plan; and book "How to Run a Lathe." Bench is not included in price of lathe.



(Patented)

Fig. 48. End View of 9-inch "Workshop" *Twelve-Speed* Lathe Showing Two-Speed Countershaft

9-inch "Workshop" Model A
Twelve-Speed Horizontal Motor Driven Bench Lathes

Bed Length	3-ft.	3½-ft.	4-ft.	4½-ft.
Distance Between Centers	17-in.	23-in.	29-in.	35-in.
Catalog Number	644-Y	644-Z	644-A	644-R
Shipping Weight of Lathe	355 lbs.	380 lbs.	405 lbs.	430 lbs.
Code Word	Kewar	Kewev	Kewiz	Kewof
Price f.o.b. South Bend, Ind.	$227.00	$239.00	$251.00	$268.00

Boxing for export $7.00 extra. See page 41 for export information.
*Other types of motors supplied at extra cost; prices on request.

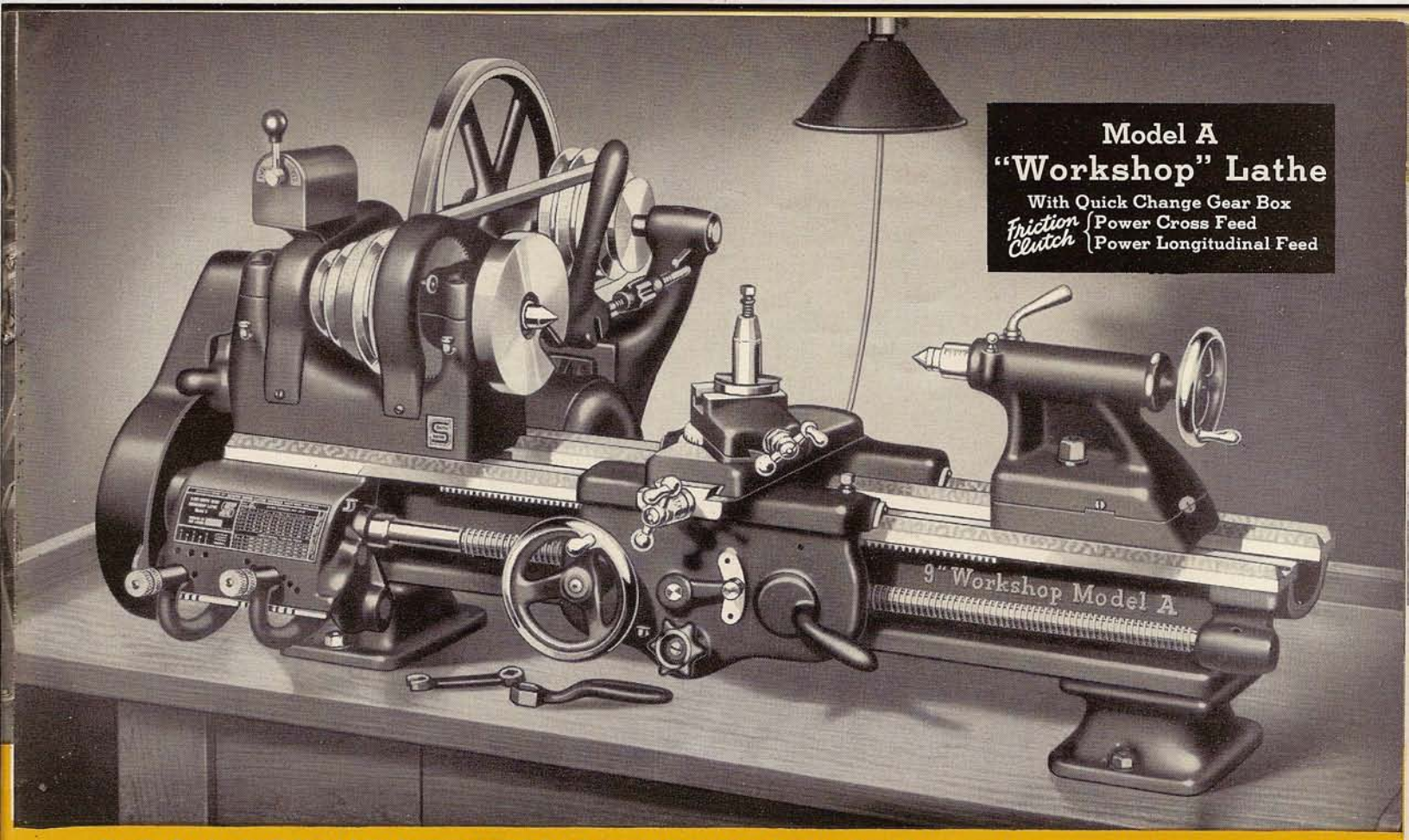


Fig. 49. Cat. No. 544-Y, Model A 9" x 3' "Workshop" V-Belt Horizontal Motor Driven Precision Bench Lathe, complete as shown, but less bench.....$224.00

9-inch "Workshop" Model A V-Belt Horizontal Motor Driven Precision Bench Lathe

With Quick Change Gear Box and Automatic Apron

The 9-inch "Workshop" Model A Bench Lathe with V-Belt Horizontal Motor Drive is exactly the same as the lathe shown on page 24, except that it is equipped with V-belt cone pulleys instead of flat belt cone pulleys. Eight spindle speeds are provided as follows: 46, 63, 85, 117, 239, 326, 442, and 609 R.P.M. See lathe specifications on page 3.

Quick Change Gear Box provides 48 changes for cutting right and left hand screw threads from 4 to 224 per inch. Power longitudinal feeds .0015" to .0213", and power cross feeds are also obtained through the gear box. See page 25.

Automatic Apron has a smooth operating friction clutch which permits engaging or disengaging the power cross feed or the power longitudinal feed instantly. See page 17.

Motor Drive Equipment consists of: adjustable horizontal motor drive countershaft with V-belt cone pulley; ¼ H.P. start-stop reversing motor*, 1725 R.P.M. 1-ph. 60-cy., A.C. 110-V.; 6-wire cable for connecting motor and switch; 6-ft. extension cable and plug; V-groove pulley for motor; drum reversing switch and bracket; V-belt, motor to drive unit; V-belt, drive unit to the lathe.

Regular Equipment included in price of lathe consists of: graduated compound rest; face plate; forged steel tool post; two 60-degree tool steel lathe centers; headstock spindle sleeve; quick change gear box for screw threads and power carriage feeds; wrenches; installation plan; and book "How to Run a Lathe." Bench is not included in price of lathe.

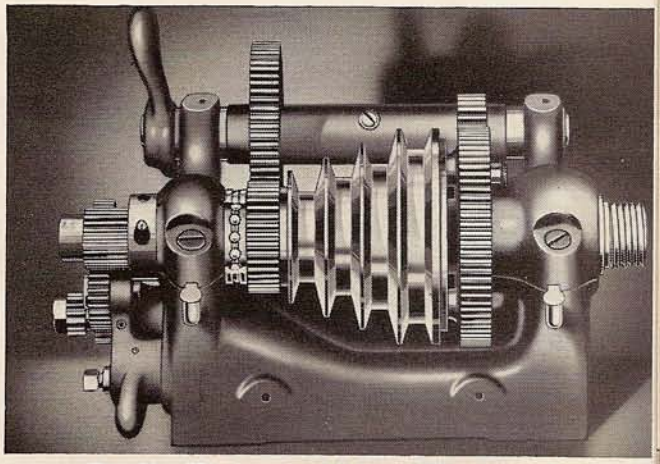


Fig. 50. Headstock of 9-inch "Workshop" Lathe (with Gear Guards Removed) Showing 4-Step Cone Pulley for V-Belt Drive

9-inch "Workshop" Model A
V-Belt Horizontal Motor Driven Bench Lathes

Bed Length	3-ft.	3½-ft.	4-ft.	4½-ft.
Distance Between Centers	17-in.	23-in.	29-in.	35-in.
Catalog Number	544-Y	544-Z	544-A	544-R
Shipping Weight of Lathe	340 lbs.	365 lbs.	390 lbs.	415 lbs.
Code Word	Paqol	Paqur	Parak	Pasus
Price f.o.b. South Bend, Ind.	$224.00	$236.00	$248.00	$265.00

Boxing for export $7.00 extra. See page 41 for export information.
*Other types of motors supplied at extra cost; see page 38.

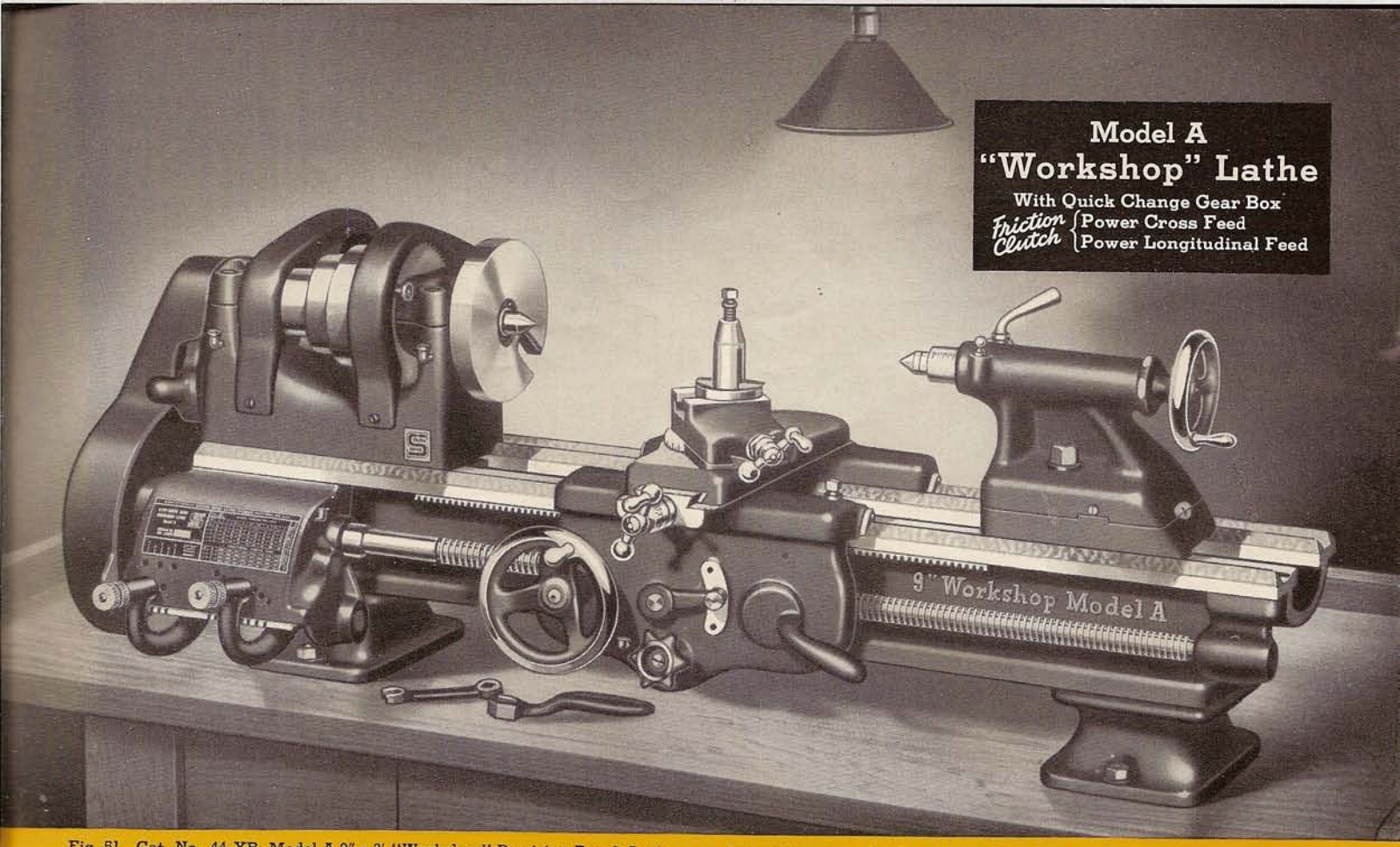


Fig. 51. Cat. No. 44-YB, Model A 9" x 3' "Workshop" Precision Bench Lathe, complete with countershaft as shown, but less bench.....$198.00

9-inch "Workshop" Model A Countershaft Driven Precision Lathe

With Quick Change Gear Box and Automatic Apron

The 9-inch "Workshop" Model A Bench Lathe with Countershaft Drive is recommended for use in machine shops, repair shops, manufacturing plants, garages, laboratories, home workshops, and experimental shops where the finest type of back-geared, screw cutting precision lathe is required. The 3½-ft. and longer bed lengths are recommended for general machine work because of the greater distance between centers. This lathe is also supplied with floor legs as listed below in price tabulation. See lathe specifications on page 3.

Improved Features include: quick change gear box; automatic apron; back-geared headstock; heat-treated alloy steel spindle; new improved capillary oiling system; precision lead screw; and graduated compound rest. See pages 4, 5, 17, and 25.

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

Regular Equipment included in price of lathe consists of: double friction countershaft; graduated compound rest; face plate; forged steel tool post; two 60-degree tool steel lathe centers; headstock spindle sleeve; quick change gear box for screw threads and power carriage feeds; wrenches; installation plan; and book "How to Run a Lathe." Bench is not included.

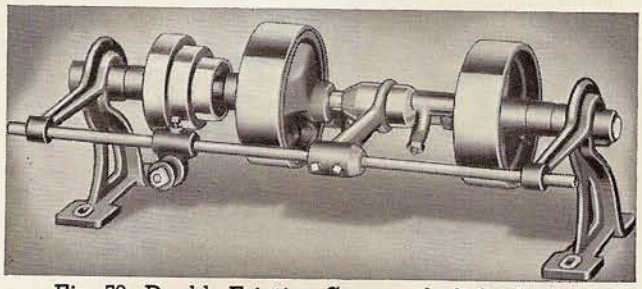


Fig. 52. Double Friction Countershaft for Lathe

9-inch "Workshop" Model A
Countershaft Driven Bench Lathes

Bed Length	3-ft.	3½-ft.	4-ft.	4½-ft.
Distance Between Centers	17-in.	23-in.	29-in.	35-in.
Catalog Number	44-YB	44-ZB	44-AB	44-RB
Shipping Weight of Lathe	320 lbs.	345 lbs.	370 lbs.	395 lbs.
Code Word	Laxud	Layax	Layeb	Layif
Price f.o.b. South Bend, Ind.	$198.00	$210.00	$222.00	$239.00

Boxing for export $7.00 extra. See page 41 for export information.

9-inch "Workshop" Model A
Countershaft Driven Floor Leg Lathes

Bed Length	3-ft.	3½-ft.	4-ft.	4½-ft.
Distance Between Centers	17-in.	23-in.	29-in.	35-in.
Catalog Number	44-Y	44-Z	44-A	44-R
Shipping Weight of Lathe	420 lbs.	445 lbs.	470 lbs.	495 lbs.
Code Word	Hetaz	Heted	Hetih	Heton
Price f.o.b. South Bend, Ind.	$208.00	$220.00	$232.00	$249.00

Boxing for export $7.00 extra. See page 41 for export information.

Fig. 53. Cat. No. 944-Y, Model A 9" x 3' "Workshop" Pedestal Adjustable Motor Driven Precision Floor Leg Lathe, complete as shown.....$250.00

(Patented)

Fig. 54. End View of Pedestal Motor Drive Showing Arrangement of Motor, Belt Adjustment, etc.

9-inch "Workshop" Model A Pedestal Motor Driven Precision Lathe

With Quick Change Gear Box and Automatic Apron

The 9-inch "Workshop" Model A Lathe with Pedestal Adjustable Motor Drive is recommended for shops requiring an efficient motor driven floor leg lathe. Except for the type of drive, this lathe is exactly the same as the Model A Lathes described on the preceding pages. The 3½-ft. and longer bed lengths are recommended for general machine work. See lathe specifications on page 3.

Improved Features include: quick change gear box; automatic apron; back-geared headstock; heat-treated alloy steel spindle; new improved capillary oiling system; precision lead screw; graduated compound rest; and complete thread cutting equipment. See pages 4, 5, 17, and 25.

The Pedestal Motor Drive is very practical as it permits placing the lathe in any position in the shop. Adjustment is provided for belt stretch and a belt tension release permits easy shifting of belt for changing spindle speeds.

Motor Drive Equipment included in price of lathe consists of: pedestal adjustable motor drive; ¼ H.P. start-stop reversing motor*, 1725 R.P.M. 1-ph. 60-cy., A.C. 110-V.; 6-wire cable for connecting motor and switch; 6-ft. extension cable and plug; V-groove pulley for motor; drum reversing switch and bracket; V-belt, motor to pedestal drive unit; flat leather belt and lacing.

Regular Equipment included in price consists of: graduated compound rest; face plate; forged steel tool post; two 60-degree tool steel lathe centers; headstock spindle sleeve; quick change gear box for screw threads and power carriage feeds; wrenches; installation plan; and book "How to Run a Lathe."

9-inch "Workshop" Model A
Pedestal Motor Driven Lathes

Bed Length	3-ft.	3½-ft.	4-ft.	4½-ft.
Distance Between Centers	17-in.	23-in.	29-in.	35-in.
Catalog Number	944-Y	944-Z	944-A	944-R
Shipping Weight of Lathe	580 lbs.	605 lbs.	630 lbs.	655 lbs.
Code Word	Hezac	Hezeg	Hezik	Hezoq
Price f.o.b. South Bend, Ind.	$250.00	$262.00	$274.00	$291.00

Boxing for export $9.00 extra. See page 41 for export information.
*Other types of motors supplied at extra cost; see page 38.

9-inch "Workshop" Model A Precision Lathe—with Raising Blocks

11¼-inch Swing Over Lathe Bed

With Quick Change Gear Box and Automatic Apron

"Workshop" Lathes with Raising Blocks will take work up to 11¼" in diameter over the bed and up to 7¼" in diameter over the tool rest.

Prices of Model A "Workshop" Lathes equipped with raising blocks are listed below. Regular lathe equipment is included in price listed. Prices of all motor driven raising block lathes include: ¼ H.P. start-stop reversing motor*; 1725 R.P.M. 1-ph. 60-cy., A.C. 110-V; reversing switch; wiring, and all regular equipment.

Raising Blocks may be ordered with any Model A 9-inch "Workshop" Lathe. Prices of Raising Block Lathes not listed below may be determined by adding $30.00 to price of regular lathe.

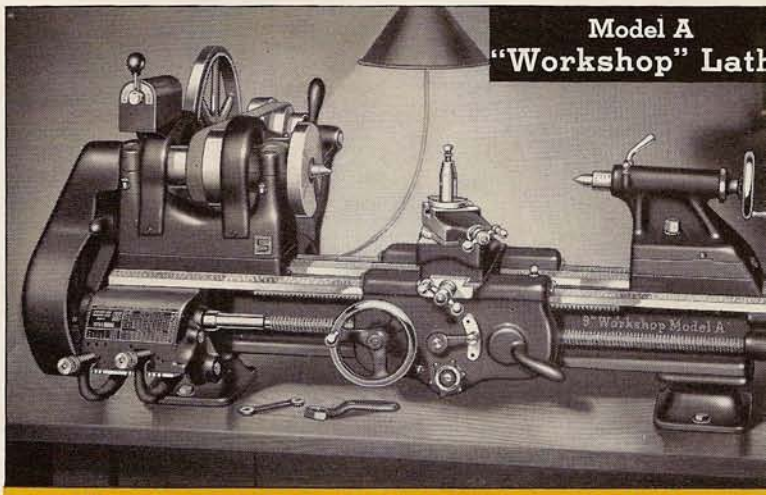


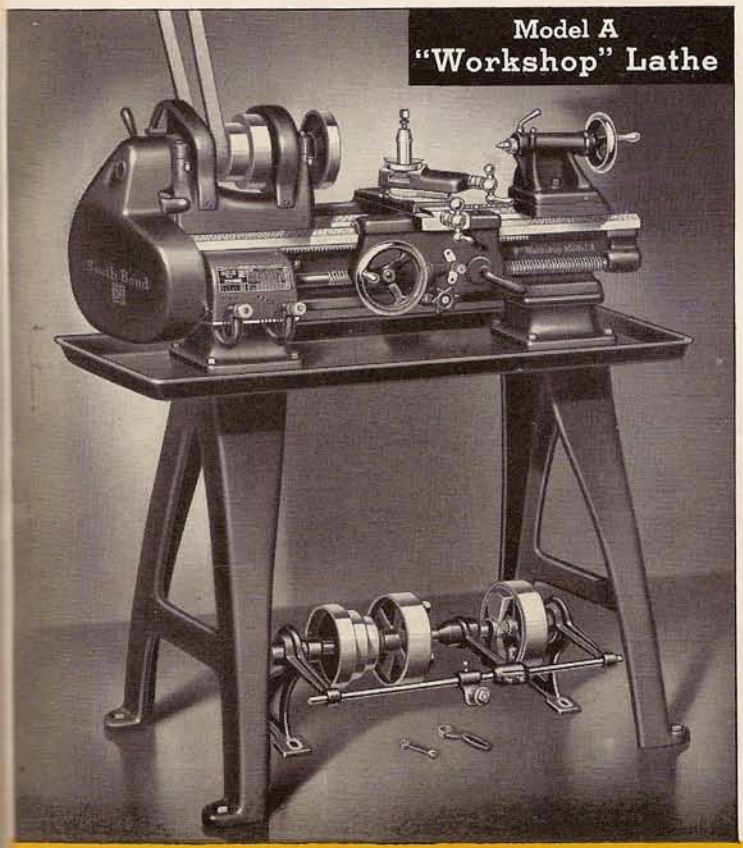
Fig. 55. Cat. No. 6444-Y, Model A 9" x 3' "Workshop" Horizontal Motor Driven Precision Bench Lathe with Raising Blocks, complete as shown, but less bench...$240.

9-inch "Workshop" Model A Lathes with Raising Blocks—Bench Not Included

Swing Over Bed Inches (with Raising Blocks)	Length of Bed Feet	Swing Over Carriage Inches	Approximate Ship. Weight for Crated Adjustable Hor. Drive Lathe Pounds	Countershaft Driven Bench Lathe with Raising Blocks (See Page 28)			V-Belt Motor Driven Bench Lathe with Raising Blocks (See Page 27)			Horizontal Motor Driven Bench Lathe with Raising Blocks (See Page 24)		
				Cat. No.	Code	Price	Cat. No.	Code	Price	Cat. No.	Code	Price
11¼	3	7¼	360	6044-YB	Juzes	$228.00	6544-Y	Jenay	$254.00	6444-Y	Jasas	$240.00
11¼	3½	7¼	385	6044-ZB	Juziw	240.00	6544-Z	Jenic	266.00	6444-Z	Jasew	252.00
11¼	4	7¼	410	6044-AB	Juzeb	252.00	6544-A	Jenig	278.00	6444-A	Jasog	264.00
11¼	4½	7¼	435	6044-RB	Juzuh	269.00	6544-R	Jenom	295.00	6444-R	Jasum	281.00

*Other types of motors supplied at extra cost; see page 38. Boxing for export $7.00 extra. See page 41 for export information.

9-inch "Workshop" Model A Precision Lathe—with Chip Pan



Countershaft Drive and Floor Legs

With Quick Change Gear Box and Automatic Apron

The "Workshop" Lathe with Chip Pan shown at the left is the same as the lathe illustrated and described on page 28, except that this lathe has floor legs and is equipped with a steel chip pan. Specifications and features are listed on pages 3, 4, 5, 17, and 25. Prices listed below include double friction countershaft and regular lathe equipment.

9-inch "Workshop" Model A
Countershaft Driven Lathes—with Chip Pan

Bed Length	3-ft.	3½-ft.	4-ft.	4½-ft.
Distance Between Centers	17-in.	23-in.	29-in.	35-in.
Catalog Number	244-Y	244-Z	244-A	244-R
Shipping Weight of Lathe	455 lbs.	480 lbs.	505 lbs.	530 lbs.
Code Word	Mebup	Mecaj	Mefeb	Mefur
Price f.o.b. South Bend, Ind.	$234.00	$247.00	$260.00	$278.00

Boxing for export $7.00 extra. See page 41 for export information.

Chip Pan, Oil Pan and Oil Pump Equipment for 9-inch "Workshop" Lathes

Chip pans, oil pans and oil pump equipment for 9-inch "Workshop" Lathes with all types of drives are listed and priced on page 37.

At Left—Fig. 56. Cat. No. 244-Y, Model A 9" x 3' "Workshop" Countershaft Driven Precision Lathe with Chip Pan, complete as shown.....$234.00

ATTACHMENTS—

For 9-inch "Workshop" Precision Lathes—Models A, B, and C

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

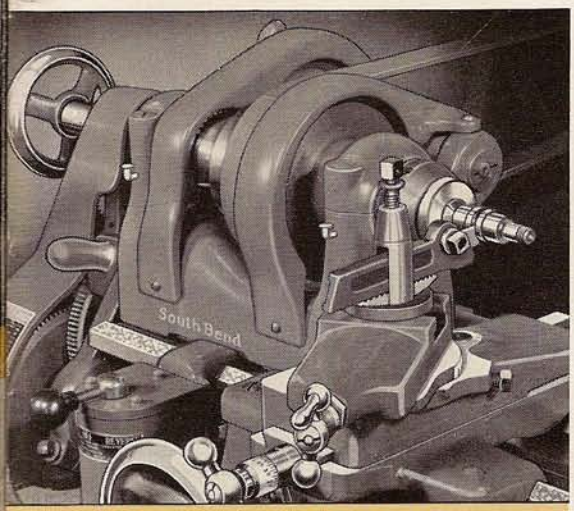


Fig. 57. Machining Small Part Held in Hand Wheel Collet Chuck Attachment.

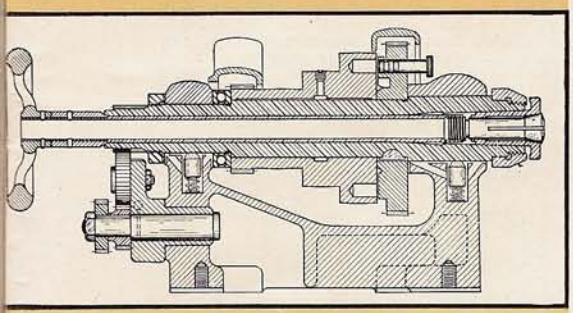


Fig. 58. Cross Section of Headstock Showing Collet Chuck Attachment.

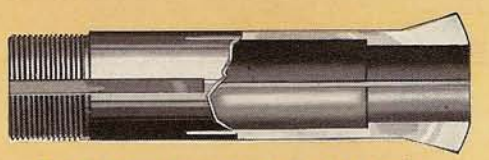


Fig. 59. Cross Section of Collet for 9-inch "Workshop" Precision Lathe.

Step Chuck and Closer

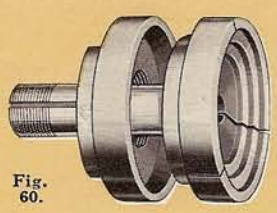


Fig. 60.

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

Hand Wheel Draw-in Collet Chuck Attachment

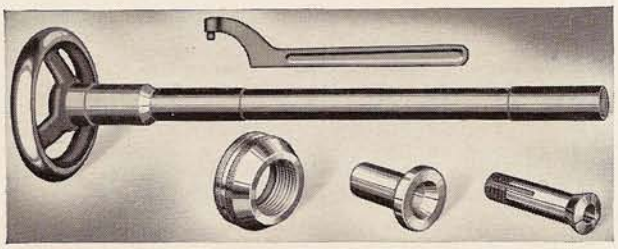


Fig. 61. Hand Wheel Draw-in Collet Chuck Attachment.

The Draw-in Collet Chuck is the most accurate type of chuck made. The draw-bar of the attachment is hollow which permits bars and rods from 1/16" in diameter up to and including 1/2" in diameter to be passed through the spindle of the lathe and held in the collet for machining. The work is gripped in the collet by turning the hand wheel to the right and released by turning it to the left. The lathe spindle must be stopped in order to open or close the collet.

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

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

Split Collets for Round Work

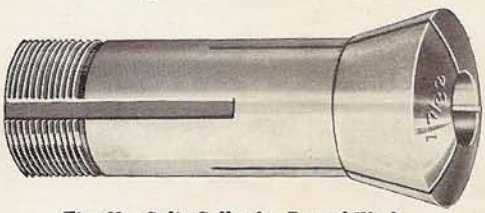


Fig. 62. Split Collet for Round Work.

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

Prices of Collets for square and hexagonal work and with special hole sizes on request.

No. 609½. Special collet with 9/16" hole in front end for Jewelers' Plunger Blanks. Code, "Hesol". **$4.25**

Range of Collet Sizes

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

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

Collets for Round Work

Cat. No. 609-W. Collets, 1/16" up to 1/2" cap. "Catra". Wt. 6 oz. Each **$3.75**

Cat. No. 131-W. Collets smaller than 1/16" cap. "Pyfag". Wt. 6 oz. Ea. **$4.25**

Metric Collets

Cat. No. 1150-W. Collets, 1.5 m m. up to 12.7 mm. capacity. "Galom". Wt. 6 oz. Each..... **$4.00**

Cat. No. 149-W. Collets smaller than 1.5 m m. capacity. "Nyhot". Wt. 6 oz. Each **$4.50**

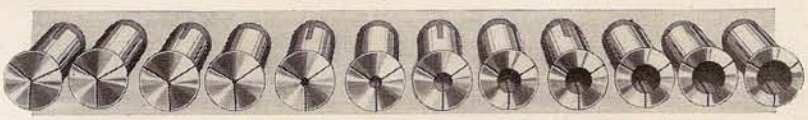


Fig. 63. Set of Round Split Collets for Draw-in Collet Chuck Attachment.

Hand Lever Draw-in Collet Chuck Attachment

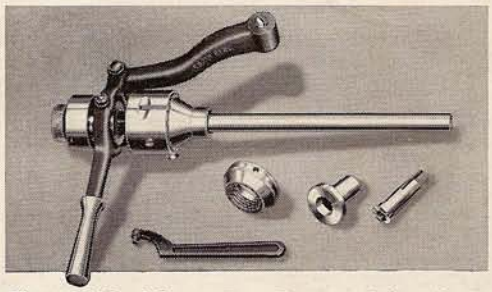


Fig. 64. Hand Lever Type Draw-in Collet Chuck Attachment. Must be fitted to Lathe at Factory.

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

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

ATTACHMENTS—

For 9-inch "Workshop" Precision Lathes—Models A, B, and C

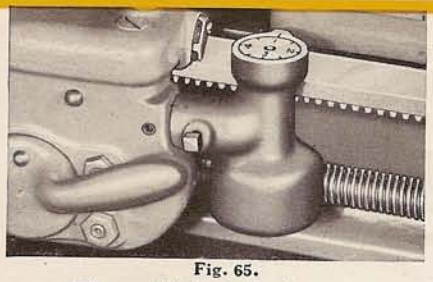


Fig. 65.

Thread Dial Indicator

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

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

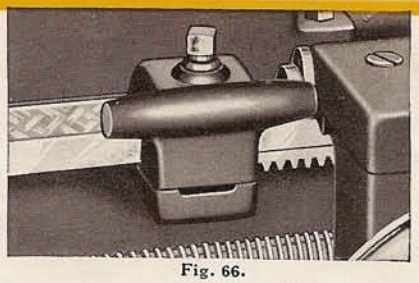


Fig. 66.

Plain Carriage Stop

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

Cat. No. 758-W. Code Word "Tahro". Shipping wt. 1 ¼ lbs. Price each . . **$3.00**

Fig. 67.

Micrometer Carriage Stop

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

Cat. No. 968-W. Code Word "Capys". Shipping weight, 2 lbs. Price each **$13.00**

Metric graduations in lieu of English graduations at no extra cost.

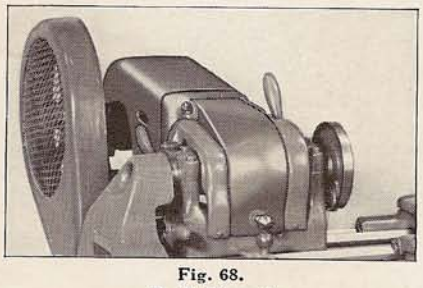


Fig. 68.

Belt Guards

Cat. No. 1400-W. Cone Pulley Belt Guard for Horizontal Motor Driven Bench Lathe or Pedestal Driven Floor Lathe. Code "Gicaz" . . . **$35.00**

Cat. No. 1401-W. Motor Belt Guard (single pulley drive). Code "Giced" **$8.00**

Cat. No. 1402-W. Motor Belt Guard (double pulley drive). Code "Gicih" **$12.00**

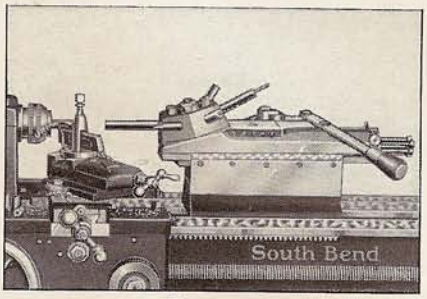


Fig. 69.

Hand Lever Bed Turret

Hexagon turret head has six holes ⅝" diam. Indexes automatically on each backward movement of the lever. Has adjustable stops for each turret face.

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

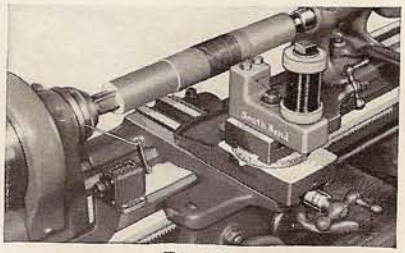


Fig. 70.

Coil Winding in the Lathe

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

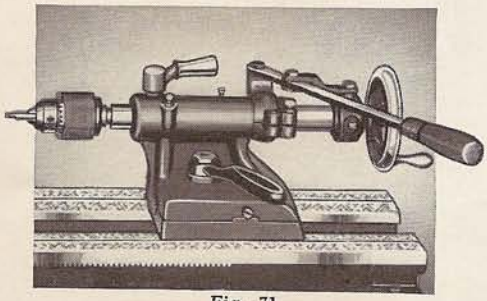


Fig. 71

Hand Lever Tailstock

A practical attachment for quantity drilling, reaming, tapping, and counterboring operations. Length of feed 2⅝".

Cat. No. 519-W. Hand Lever Tailstock, when ordered with lathe, in lieu of Regular Tailstock. "Jibet" **$60.00**

(Drill Chuck shown in illustration is not included in price.)

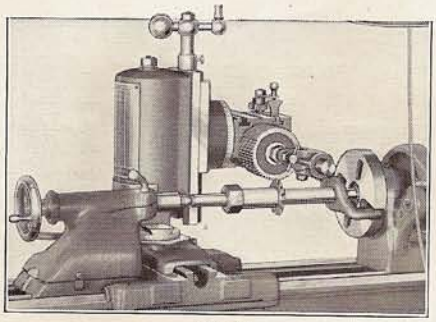


Fig. 72.

Gear Cutting Attachment

Has index head for 2 to 360 divisions. Cuts spur and bevel gears up to 6⅛" in diameter. Also for graduating, milling, cutting keyways and splines, etc.

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

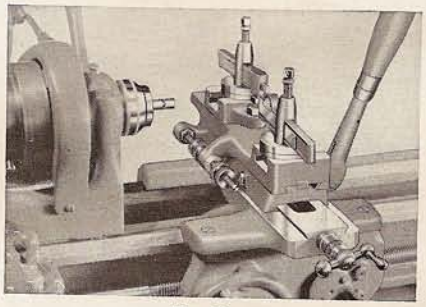


Fig. 73.

Lever Double Tool Slide

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

Cat. No. 738-W. Double Tool Slide "Buwew" **$75.00**

All Attachments Shown Above in Figures 69, 71, 72, and 73 Must Be Fitted to Lathe at Factory

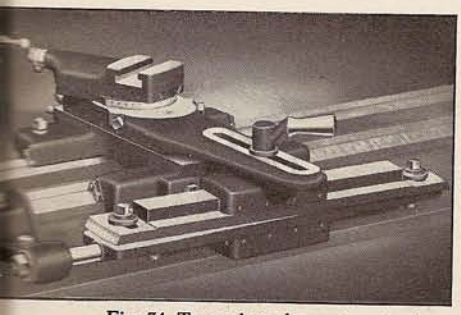


Fig. 74. Taper Attachment on Lathe.

Taper Attachment

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

The swivel bar which controls the taper is graduated and can be set for cutting any taper up to 3½" per foot and up to 7" in length at one setting; maximum taper in degrees, 14° in either direction.

Cat. No 428-W. Code, "Hapwo". Wt. 35 lbs. **$75.00**

For metric graduations see page 41.

Open Side Tool Post

Fig. 75.

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

Cat. No. 1386-W. Open Side Tool Post, in Addition to Regular Tool Post. "Renaf" **$6.00**

Cat. No. 1276-W. Open Side Tool Post, in Lieu of Regular Tool Post. "Poraw" **$3.00**

ATTACHMENTS AND ACCESSORIES—

For 9-inch "Workshop" Precision Lathes—Models A, B, and C

Milling Cutters and Arbors Are Not Included in Price

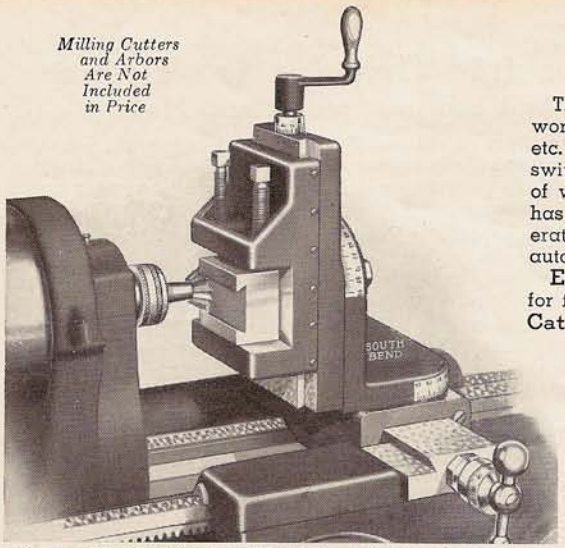


Fig. 76. Milling a Dovetail Using the Milling Attachment.

Milling Attachment

This attachment is practical for the small shop handling such work as cutting keyways, squaring ends of shafts, milling dovetails, etc. Attachment fits on the compound rest base of the lathe and swivels both horizontally and vertically over arcs of 180°. Capacity of vise is 1½". Vertical feed is 2½". The vertical adjusting screw has a micrometer graduated collar. Cross feed is 5⅞" and is operated by hand. Longitudinal feed can be operated by hand or by automatic feed to carriage. Jaw size $\frac{13}{16}$" deep, 3" wide.

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

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

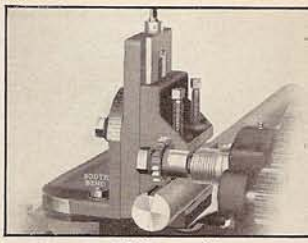


Fig. 77. Milling a Keyway in a Shaft.

Milling and Boring Table

The Milling and Boring Table shown in Fig. 78, at right, is practical for light milling, boring, keyway cutting, etc. The table swivels on a post attached to compound rest base and is adjustable for height. Has 3 T-slots for clamping work.

T-slots take $\frac{5}{16}$" bolts. Table size 3½"x7½". Maximum distance from table top to center line of lathe $1\frac{33}{64}$". Clamps and bolts not furnished.

Cat. No. 904-W. Code "Yason." Ship. Wt. 8 lbs.. $14.00

Fig. 78. Milling and Boring Table used to Square End of Shaft.

Milling Cutters and Arbors for Milling Attachment

All Cutters Are High Speed Steel

Plain Milling Cutter

Plain Milling Cutters

Cat. No.	Width	Code	Price
849-A	3/16"	Naber	$3.10
849-B	1/4"	Nbokt	4.10
849-C	5/16"	Ncerl	4.30
849-J	3/8"	Ndixo	4.60
849-X	7/16"	Nedop	4.90
849-F	1/2"	Nfenz	5.10
849-N	5/8"	Ngord	5.60

Cutter diam., 2½"; hole diam. 1".

Side Milling Cutter

Side Milling Cutters

Cat. No.	Width	Code	Price
850-A	1/4"	Oates	$6.50
850-B	5/16"	Oband	6.90
850-C	3/8"	Ocips	7.20
850-F	7/16"	Odate	7.60
850-J	1/2"	Oehlt	8.00

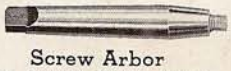
Cutter diam., 3"; hole diam. 1".

Spiral End Mills

Cat. No.	Diam. Mill	Morse Taper	Code Word	Price Each
868-B	1/2"	No. 2	Peals	$4.80
868-J	5/8"	No. 2	Phial	4.90
868-L	3/4"	No. 2	Pinke	4.90
868-F	7/8"	No. 2	Plaid	5.70
868-N	1"	No. 2	Ponds	6.60

Milling Arbor

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



Screw Arbor

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

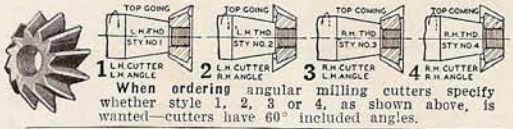
Collet Chuck

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

Prices Woodruff Milling Cutter

Cat. No.	Diam.	Width Face	Code Word	Price Each
897-A	1/2"	1/16"	Uabed	$2.80
897-B	1/2"	1/8"	Uboas	2.80
897-C	5/8"	1/8"	Ucedx	2.80
897-D	3/4"	1/8"	Udwin	3.10
897-E	3/4"	3/16"	Ueyos	3.10
897-F	7/8"	3/16"	Ufent	3.40
897-G	7/8"	1/4"	Ugers	3.40
897-H	1"	3/16"	Uhomi	3.80
897-I	1"	1/4"	Uitoa	3.80
897-J	1"	5/16"	Ujbis	4.00

Angular Milling Cutters



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

Cat. No.	Cutter Diam.	Thickness of Cutter	Hole in Cutter	Threads Per Inch	Code Word	Price Each
667-W	1¼ in.	7/16 in.	3/8 in.	24 NF	Buhax	$5.40

Double Pulley Drive

For Spindle Speeds 41 to 1270 R. P. M.

Fig. 79. Two-Step Pulleys for Countershaft and Motor

Twelve spindle speeds ranging from 41 to 1270 R.P.M. can be obtained by using the 2-step pulleys illustrated at left on the motor and countershaft of Motor Driven "Workshop" Lathes. See Twelve-Speed Lathes on pages 8, 18, and 26.

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

Since high spindle speeds require more power than normal speeds, a ¼ H.P. motor should not be used with the double pulleys. For high speed work a ⅓ H.P. motor (capacitor type or instant reversing type) should be used. A ½ H.P. motor (capacitor type or instant reversing type) is preferable if lathe is to be used exclusively for high speed work. See page 38 for motor prices.

Two-Step Pulleys for Countershaft and Motor

Description	When Ordered in Lieu of Regular Countershaft Pulley and Motor Pulley			When Ordered as Separate Shipment			
	Cat. No.	Code	Price	Cat. No.	Code	Weight	Price
Pulley for Countershaft..	426-W	Agbun	$3.00	427-W	Agdin	12 lbs.	$4.50
Pulley for Motor.....	158-W	Agcup	2.00	159-W	Agfip	2½ lbs.	2.50

Pattern Making Accessories

Wood Turning Rest

The hand rest for wood turning shown at the right consists of a base and two T-rests 4" and 12" long. Made of cast iron. Fits on compound rest of lathe.
No. 896-W. Code "Adows"..$7.50

(Shipping weight 6 lbs.)

Fig. 80.

SCREW CENTER

Fig. 81.
No. 731-W, "Kalaf" $3.00
(Ship. wt. 1¼ lbs.)

Fig. 82.
CUP CENTER
No.733-W, "Jalak" $2.00
(Shipping weight 12 oz.)

Fig. 83.
SPUR CENTER
No. 732-W, "Sisat" $3.00
(Shipping weight 13 ozs.)

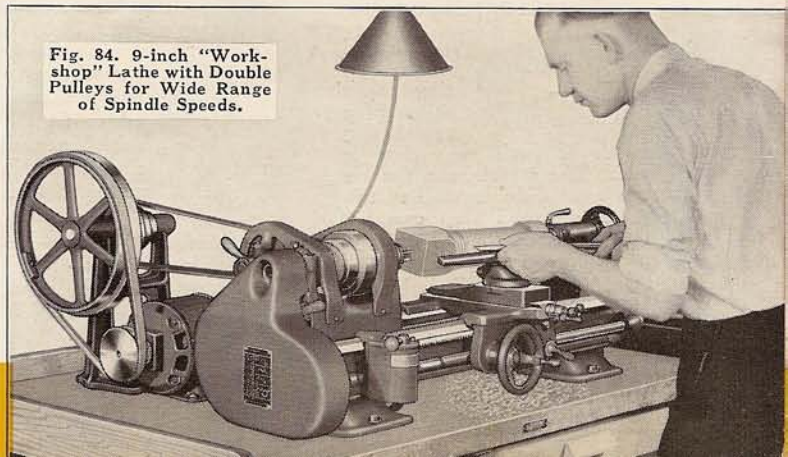


Fig. 84. 9-inch "Workshop" Lathe with Double Pulleys for Wide Range of Spindle Speeds.

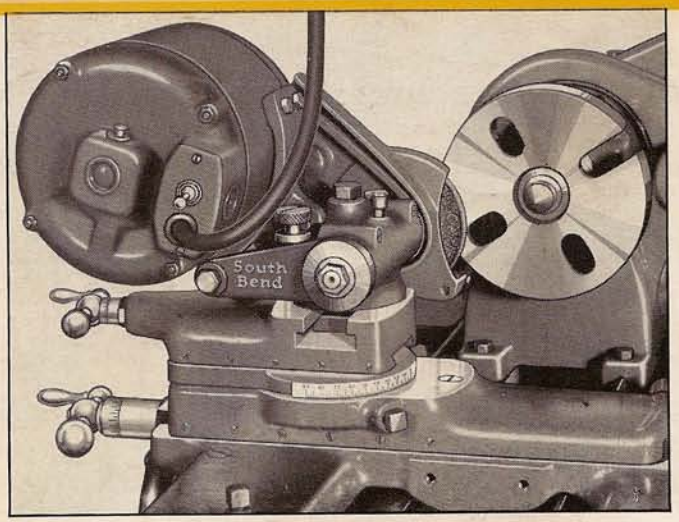


Fig. 85. Electric Grinder Mounted on Compound Rest of Lathe

Electric Grinder for Lathe

Ball Bearing Spindle and Motor

This powerful and efficient Grinding Attachment has a precision ball bearing spindle to reduce friction at the high speed at which it operates. Recommended for external grinding on work up to 5¼" in diameter.

The grinder clamps on compound rest in place of tool post, as shown in Fig. 85, at left. It can be swiveled to any angle for grinding reamers, lathe centers, milling cutters, valves, pistons, bushings, hardened tools and parts.

Price includes ¼ H.P. Ball Bearing Motor, 1725 R.P.M. (1-phase, 60-cycle, 110-volt, A.C.)*, switch, ball bearing grinding spindle, V-belt, belt guard, one 4"x½" Alundum grinding wheel (grain 46-N, grade 5-B)†, extension cord, and clamp for mounting. When ordering specify electric current available. Motor operates from lamp socket.

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

*For Direct current motor add $21.00 to above price.
For 3-Phase current motor add $12.00 to above price.
†Extra Grinding Wheels, Cat. No. 1239-W. Code "Puvum." Price Each $1.50. State class of work.

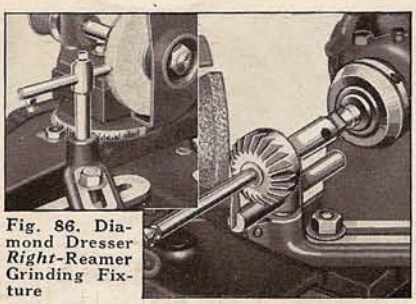


Fig. 86. Diamond Dresser *Right*-Reamer Grinding Fixture

Reamer & Cutter Grinding Fixture

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

Cat. No. 19-W. Reamer and Cutter Grinding Fixture. Code "Abnog." Ship. Wt. 5½ lbs. **$10.00**

Cat. No. 18-W. Diamond Dresser to fit above fixture for truing grinding wheels. Code "Raduz." Ship. Wt. ¾ lbs. **$6.00**

Cat. No. 3236-W. Cup Grinding Wheel for reamer grinding. Code "Lapaf." Ship. Wt. 14 oz. **$3.00**

Spiral Reamer Grinding Stop

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

Fig. 87. Spiral Reamer Stop

Cat. No. 1362-W. Code "Mavox." Shipping Weight 14 oz. **$5.00**

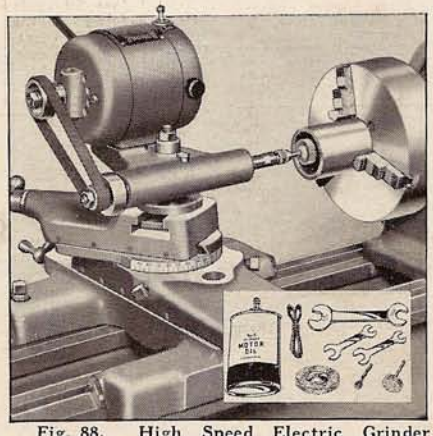


Fig. 88. High Speed Electric Grinder Mounted on Compound Rest of Lathe

High Speed Electric Grinder

For Internal and External Grinding

This is a small grinding attachment for either internal grinding or light external grinding. Grinder clamps on compound rest in place of tool post, as shown in Fig. 88, at left. A double pulley drive provides two spindle speeds, one for internal, and the other for external grinding. The spindle has high speed ball bearings and operates smoothly at the maximum speed which is 19,000 R.P.M.

Equipment consists of high speed universal motor, suitable for A.C. or D.C., switch, extension cord, wrenches, ball bearing grinding spindle, two belts, one wheel for external grinding (2" x ¼"), balanced chuck for mounting internal grinding wheels, and three mounted wheels for internal grinding (¼" x ¼", ½" x ¼", and ¾" x ¼").

Cat. No. 1204-W. For 115-volt A.C. or D.C. current. Shipping Weight, 10 lbs. Code, "Gibuf" **$28.00**

Cat. No. 1207-W. For 230-volt A.C. or D.C. current. Shipping Weight, 10 lbs. Code "Genuk" **$28.00**

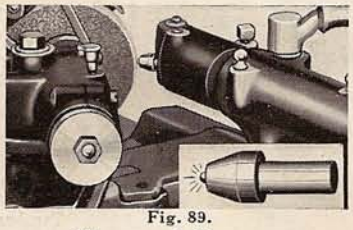


Fig. 89.

Diamond Dresser and Holding Fixture

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

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

No. 91-W. Holding Fixture "Kibaf" **$5.00**

Adjustable Thread Cutting Stop

Fig. 90. Thread Cutting Stop.

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

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

Large Face Plate

Fig. 91. Large Face Plate.

The Large Face Plate is 7⅜" in diameter and is accurately threaded to fit the spindle nose of the lathe. Is equipped with six slots for clamping work.

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

Center Rest

Fig. 92.

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

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

*Price when ordered for Raising Block Lathe Cat. No. 905-W. "Cejix" $8.00

Follower Rest

Fig. 93. Follower Rest.

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

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

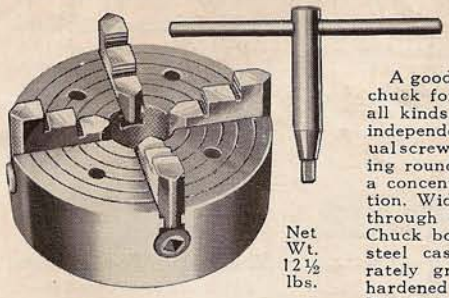
*Price when ordered for Raising Block Cat. No. 938-W. "Bezok" .. **$6.00**

LATHE CHUCKS AND DRILL CHUCKS—

For 9-inch "Workshop" Precision Lathes—Models A, B, and C

4-Jaw Independent Lathe Chuck

Fitted with Chuck Plate Threaded for Lathe Spindle



Net Wt. 12½ lbs.

Medium Duty

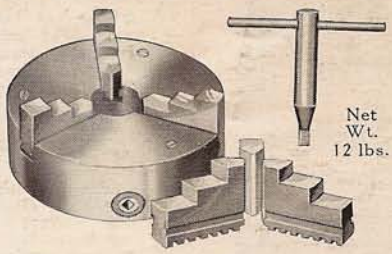
A good, substantial, accurate chuck for machining metals of all kinds. Has four reversible independent jaws with individual screw adjustment for chucking round or irregular work in a concentric or eccentric position. Width of jaws, ⅞". Hole through chuck, 1⅛" in diam. Chuck body is a ground semi-steel casting. Face is accurately graduated. Screws are hardened alloy steel. **Price and Weight include:** Wrench and chuck plate threaded to fit lathe spindle and fitted to chuck.

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

3-Jaw Universal Lathe Chuck

Fitted with Chuck Plate Threaded for Lathe Spindle

Medium Duty



Net Wt. 12 lbs.

A good, substantial, accurate chuck for machining metals of all kinds. Chuck is self-centering and holds round or hexagonal work. Has two sets of jaws, one set for outside chucking, the other for inside chucking. Width of jaws, 17/32". Hole through chuck, 1¼" in diam. Chuck body is a ground semi-steel casting. The scroll is of high grade steel; it is balanced and accurate. Bevel pinion is hardened alloy steel. **Price and Weight include:** Wrench and chuck plate threaded to fit lathe headstock spindle nose and fitted to chuck and two sets of jaws.

Cat. No. 3005-W. Chuck. 5-inch Capacity. **(Fitted to lathe.)** Shipping weight 12½ lbs. Code Word, "Faput".....**$28.00**

4-Jaw Independent Lathe Chuck - Light Duty

Net Wt. 9¾ lbs.

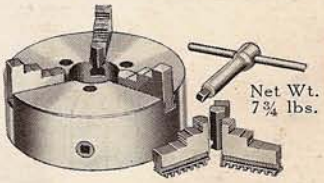
Fitted with Chuck Plate Threaded for Lathe Spindle

A low priced, light duty chuck. Width of jaws, ⅝". Hole through chuck, 1⅜" diam. Has four reversible jaws, wrench and chuck plate threaded to fit lathe spindle and fitted to chuck.

Cat. No. 4706-W. Chuck. 6-inch Capacity. **(Fitted to lathe.)** Code Word, "Fetol." Shipping weight 10¼ lbs.....**$15.00**

3-Jaw Universal Lathe Chuck — Light Duty

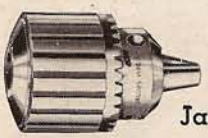
Fitted with Chuck Plate Threaded for Lathe Spindle



Net Wt. 7¾ lbs.

A low priced, light duty self-centering chuck. Width of jaws, ⅝". Hole through chuck, 1⅜" diam. Has wrench, two sets of jaws, and chuck plate threaded to fit lathe spindle and fitted to chuck.

Cat. No. 3705-W. Chuck. 5-inch Capacity. **(Fitted to lathe.)** Code, "Fonis." Ship. Wt. 8¼ lbs. **$18.00**

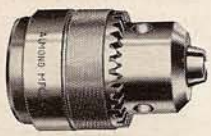


Jacobs

3-Jaw Drill Chuck

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

Cat. No.	Capacity Inches	Net Wt. lbs.	Ship. Wt. lbs.	Code Word	Price
1200-W	0 to ⅜	1⅛	1⅞	Husiy	$4.50
1201-W	0 to ½	1¾	2⅜	Hitez	6.50
1202-W	3/16 to ¾	3⅛	3½	Herus	9.50



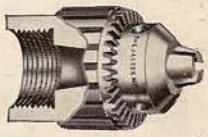
Almond

3-Jaw Drill Chuck

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

Cat. No.	Capacity Inches	Net Wt. lbs.	Ship. Wt. lbs.	Code Word	Price
219-W	0 to ⅜	1⅜	1⅞	Ramur	$3.85
220-W	0 to ½	1¾	2½	Rebon	5.25
327-W	1/16 to ¾	3⅛	3¾	Rubak	7.50

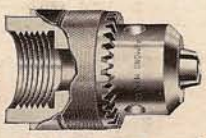
Jacobs Hollow Threaded Chuck



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

Cat. No.	Capacity Inches	Net Wt. Lbs.	Ship. Wt. Lbs.	Code Word	Price
907-W	1/16 to ⅝	3⅛	3¾	Robal	$12.50
925-W	⅜ to ¾	3¾	4¼	Rodna	14.50

Almond Hollow Threaded Chuck



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

Cat. No.	Capacity Inches	Net Wt. Lbs.	Ship. Wt. Lbs.	Code Word	Price
1153-W	1/16 to ⅝	3⅛	3¾	Hawas	$ 9.50
1157-W	⅜ to ¾	3¾	4¼	Hemud	12.00

Drill Chuck Arbor

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

Cat. No. 709-W. Arbor. No. 2 Morse Taper. Code, "Achuk." Shipping weight, ¾ lb.....**$1.00**

Threaded Chuck Plate

For Mounting Lathe Chucks

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

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

Armature Support Chuck

Used in Tailstock Spindle

For Centerless Armature Shafts

Used in the tailstock spindle of the lathe to support and center tailstock end of armature shaft. The chuck takes shafts from ⅜" to ¾" in diameter. Has three brass jaws in which the armature shaft revolves. Jaws close simultaneously and may be locked in position.

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

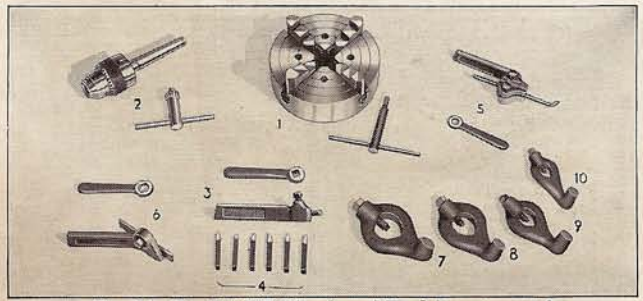


Fig. 94. No. 105-WT Chuck and Tool Assortment for 9-inch "Workshop" South Bend Lathes.

Practical Chuck and Tool Assortment

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

No. 4006-W 6-inch 4-Jaw Independent Lathe Chuck (Medium Duty). Fitted to Lathe Ready for Use	$23.00
No. 220-W..½-inch 3-Jaw Drill Chuck	5.25
No. 709-W .Solid Arbor Fitted to above Drill Chuck	1.00
No. 847-S ..Straight Shank Tool Holder with ¼" Cutter Bit, Unground	1.25
No. 291 ...Six ¼-inch High Speed Steel Cutter Bits, Ground	1.65
No. 505-F ..Boring Tool Holder, Style "D," with ¼-inch Boring Bar	3.00
No. 833-R ..Cutting-off Tool Holder, Right Hand, with ground cutter	1.50
No. 178-W..4 Standard Malleable Lathe Dogs, ½", ¾", 1", 1¼" Cap.	2.60
No. 105-WT Chuck & Tool Assort. Code "Dakem." Ship. Wt. 17 lbs.	**$39.25**

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

TOOL HOLDERS AND BITS—

For 9-inch "Workshop" Precision Lathes—Models A, B, and C

Lathe Tool Holders

Straight Tool Holder

Right Hand Tool Holder

Left Hand Tool Holder

Tool Holders—Forged Steel

Drop forged steel, heat-treated and hardened lathe tool holders. Supplied in three styles: straight, right-hand and left-hand as illustrated above. Shank is $\frac{3}{8}$" x $\frac{3}{16}$" and takes $\frac{1}{4}$" square cutter bit. Price includes wrench and one high speed steel cutter bit, hardened but not ground. Shipping weight 1 lb.

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

Ground High Speed Steel Cutter Bits

Made of good quality high speed steel, (Rex AA, Red Cut Superior, or equal) heat-treated, hardened and ground to the forms shown and are ready to use. Size $\frac{1}{4}$"x$\frac{1}{4}$"x2" for use with tool holders listed above. When ordering ground cutter bits, specify Catalog number and letter designating form wanted.

A L. H. Turning | B Round Nose | C R. H. Turning | D L. H. Side | E Threading | F R. H Side

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

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

Cutter Bits—Not Ground

HIGH SPEED STEEL CUTTER BITS.

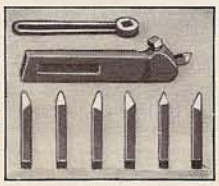
Made of good quality high speed steel, (Rex AA, Red Cut Superior, or equal) heat-treated and hardened but not ground. Size $\frac{1}{4}$" x $\frac{1}{4}$" x 2" for use with tool holders listed above.

One unground high speed cutter bit, Ship. wt. 2 oz.
Cat. No. 1460. Code "Adwir". Price each **$0.17**

Set of 6 unground cutter bits, Ship. wt. 10 oz.
Cat. No. 1629. Code "Cixas". Price per Set **$0.90**

Tool Holder and Cutter Bit Set

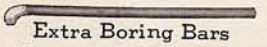
Set consists of tool holder (choice of straight, right-hand or left-hand) with one unground H.S. Steel Cutter Bit and a set of 6 H.S. Steel Cutter Bits ground to forms A to F shown above. Ship. wt. 1½ lbs.



Cat. No. 323-A. Code "Actit". Price per Set **$2.50**

Style "D" Boring Tool

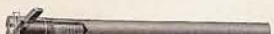
Made of drop-forged steel. Price includes holder, wrench, $\frac{1}{4}$" boring bar. Wt. 1¼ lbs.
No. 505-F. "Adyot" **$3.00**



Extra Boring Bars

For use with Style D boring tool. High speed steel tip welded on to carbon steel shank.

Cat. No.	Bar Inches	Code Word	Price Each
3856-E	⅛ x 4	Buroq	$ .30
3856-F	$\frac{3}{16}$ x 4½	Busaq	.40
3856-A	¼ x 5	Bebis	.50
3856-B	$\frac{5}{16}$ x 6	Beboy	.60
3856-C	⅜ x 7	Bedit	.80
3856-D	$\frac{7}{16}$ x 8	Bedok	1.10



Sleeve Boring Bar

For use in Style "D" and "B" Boring Tools. Bar is ½" dia. x 7½" long. Practical for boring and turning at 90° and 45° angles. Price includes two cutters, $\frac{3}{16}$" x 1" and $\frac{3}{16}$" x 1½".
No. 344-W "Cerib".....**$3.00**

Style "B" Boring Tool

Same as Style "D" Boring Tool but equipped with No. 344-W Sleeve Boring Bar instead of solid boring bar. Price includes two wrenches and two $\frac{3}{16}$" sq. high speed steel cutter bits.
No. 423. "Hayun".....**$4.30**

Extra Cutters for No. 344-W Sleeve Boring Bar

Cutters are high speed steel. 1" cutter is for 90° angle work, 1½" cutter for 45° angle work.

Size Cutter	Cat. No.	Code Word	Price Each
$\frac{5}{16}$" x 1 "	1067-W	Komac	$0.12
$\frac{5}{16}$" x 1½"	454-W	Hopoc	.15

Drill Pad

Used in tail spindle. Supports flat work for drilling. Shipping wt. 1¼ lbs.
No. 727-W. "Donav" **$2.50**

Cutting-Off Tool

Made of drop-forged steel. Price includes holder, wrench, H.S. cutter, ground. Wt. 1 lb.
No. 833-S. "Adcat" **$1.50**
Extra Cutter, **No. 876-WS,** "Nufuc". Ship wt. 3 oz. **.50**

Knurling Tool Holder

Made of drop-forged steel. Price includes holder and set of knurls. Wt. 1¼ lbs.
No. 820. Code, "Domta" $3.00
No. 817. Knurls (Pair) "Digmo". Ship. wt. 1 oz.... **$1.00**

Crotch Center

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

Head Spindle Center

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

Tail Spindle Center

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

Morse Taper Sleeve

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

Center Drill and Countersink

Made of carbon tool steel, hardened and ground.
No. 898-A. 1/16" dia. Code "Xmqib". Ship. wt. 3 oz. **.30**
No. 898-B. 3/32" dia. Code "Xnrjc". Ship. wt. 3 oz. **.35**
No. 898-C. ⅛" dia. Code "Xoskd". Ship. wt. 3 oz. **.40**

R. H. Cutting-Off Tool

Made of drop-forged steel. Price includes holder, wrench, H.S. cutter, ground. Wt. 1 lb.
No. 833-R, "Cemso" ..**$1.50**
Extra Cutter, **No. 876-WR,** "Nudov". Ship wt. 3 oz. **.50**

Threading Tool Holder

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

Standard Lathe Dog

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

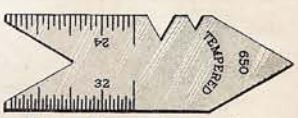
⅜" cap.	No. 1-MJ, "Kamuk"	$0.45
½" cap.	No. 2-MJ, "Kanad"	.50
¾" cap.	No. 4-MJ, "Kaneh"	.60
1" cap.	No. 6-MJ, "Kanil"	.70
1¼" cap.	No. 8-MJ, "Kanar"	.80
1½ cap.	No. 10-MJ, "Kanux"	.95

For Safety Type Lathe Dogs add 10c to above prices.

Clamp Lathe Dog

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

Cat. No.	Cap. In.	Ship. Wt.	Code Word	Price
160	1¾	1 lb.	Laqat	$2.25
161	2¼	1¼ lbs.	Laqib	3.00

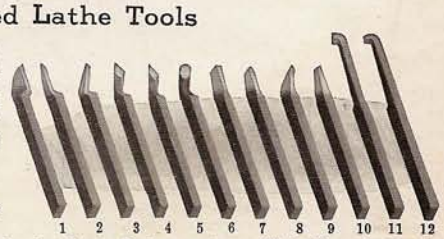


Center Gauge for testing lathe centers and setting threading tool.
No. 650. "Xutje". wt. 3 oz. .50

Hand Forged Lathe Tools

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

1. L. H. Side Tool
2. R. H. Side Tool
3. R. H. Bent Tool
4. R. H. Diamond Point
5. L. H. Diamond Point
6. Round Nose Tool
7. Cutting-Off Tool
8. Threading Tool
9. Bent Threading Tool
10. Roughing Tool
11. Boring Tool
12. Inside Threading Tool



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

CHIP PANS AND OIL PANS—

For 9-inch "Workshop" Precision Lathes—Models A, B, and C

Chip Pans and Oil Pans for 9-inch "Workshop" Lathes Models A, B, and C are made of heavy gauge sheet steel with welded corners and roll rim. Pans should be specified at the time the lathe is ordered and fitted at the factory because special legs are required.

Oil Pans are intended for collecting both oil and chips and are oil tight. Prices of oil pans do not include oil reservoir, oil pump or piping, which are listed below the illustration at the right.

Chip Pans are intended for collecting chips only and are not necessarily oil tight. Cannot be used with oil pump.

Chip Pans and Oil Pans for bench lathes are placed between the lathe and the bench top. When floor leg lathes are ordered with chip pan or oil pan, special legs are supplied, as shown in the illustration.

Fig. 95. Right—9-inch "Workshop" Model A Countershaft Driven Floor Leg Lathe Equipped with Chip Pan

Chip Pans for 9-inch "Workshop" Lathes

Type of Lathe		Bed Lengths			
		3-ft.	3½-ft.	4-ft.	4½-ft.
Horizontal Motor Driven, and Countershaft Driven Bench Lathes	Cat. No.	1297-W	1297-W	1297-W	1297-W
	Code Word	Boxal	Cupac	Domav	Fokaw
	Price	$19.00	$20.00	$21.00	$22.00
Underneath Motor Driven Bench Lathes	Cat. No.	1377-W	1377-W	1377-W	.....
	Code Word	Buyat	Cusar	Dotal	.....
	Price	$19.00	$20.00	$21.00	.....
Countershaft Driven, and Pedestal Motor Driven Floor Leg Lathes	Cat. No.	1180-W	1180-W	1180-W	1180-W
	Code Word	Boten	Curad	Delar	Fikac
	Price	$26.00	$27.00	$28.00	$29.00

Oil Pans for 9-inch "Workshop" Lathes

Type of Lathe		Bed Lengths			
		3-ft.	3½-ft.	4-ft.	4½-ft.
Horizontal Motor Driven, and Countershaft Driven Bench Lathes	Cat. No.	1497-W	1497-W	1497-W	1497-W
	Code Word	Buzag	Cunab	Dopen	Fopal
	Price	$24.00	$25.00	$26.00	$27.00
Underneath Motor Driven Bench Lathes	Cat. No.	1597-W	1597-W	1597-W	.....
	Code Word	Birok	Cicez	Dosay	.....
	Price	$41.00	$42.00	$43.00	.....
Countershaft Driven, and Pedestal Motor Driven Floor Leg Lathes	Cat. No.	1994-W	1994-W	1994-W	1994-W
	Code Word	Bifuc	Cudaw	Darec	Fimor
	Price	$31.00	$32.00	$33.00	$34.00

Oil Pump, Reservoir and Piping

The Oil Pump Equipment described below is intended for use with lathes that are equipped with oil pans. The oil pump is self-priming, as it is mounted beneath the oil level.

Oil Pump Equipment for Motor Driven Lathes includes a motor driven oil pump, piping, reservoir, V-belt drive between motor and pump, ¼ H.P. motor, 1-ph. 60-cy. 110-V or 220-V A.C., and switch wired to motor.

Oil Pump Equipment for Countershaft Driven Lathes includes oil pump, piping, reservoir and flat pulley for the countershaft to drive the oil pump. Leather belting for use between the countershaft and pump is not included but can be supplied to order at extra cost.

Oil Pump, Reservoir and Piping
(Fitted to Lathe at Factory)

Type of Lathe	Cat.No.	Code	Price
Horizontal Motor Driven Bench Lathe	1854-W	Rucay	$100.00
Underneath Motor Driven Bench Lathe	1901-W	Soxac	100.00
Countershaft Driven Bench Lathe	1681-W	Pihax	80.00
Countershaft Driven Floor Leg Lathe	1264-W	Hiwak	75.00
Pedestal Motor Driven Floor Leg Lathe	1664-W	Jupen	95.00

Fig. 96. A Battery of Eight "Workshop" Bench Lathes in a Radio Factory

Popular in Industry

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

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

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

MOTORS AND SWITCHES—

For 9-inch "Workshop" Precision Lathes—Models A, B, and C

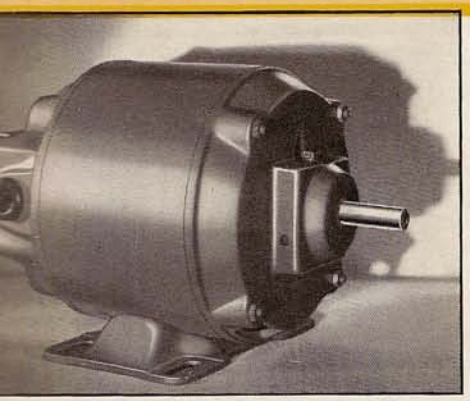


Fig. 97. Start-Stop Type Reversing Motor.

Prices of 9-inch "Workshop" motor drive lathes shown in this catalog include ¼ h.p. start-stop reversing, split-phase motor 1725 R.P.M. for 1-phase 60-cycle alternating current, 110-volt, except 12-speed lathes.

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

⅛ H.P. or ½ H.P. Motors (condenser type or instant reversing type) should be used for operating the "Workshop" lathe, (1) when greater power is required, (2) when countershaft and motor are fitted with 2-step drive pulleys (see page 33), for operating the lathe at high speeds, (3) when motor pulley larger than standard diameter is to be used for obtaining spindle speeds higher than standard.

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

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

Extra Charges for Special Motors with 9-inch "Workshop" Lathe in Lieu of Standard Motors

Add Amount Shown in Tabulation Below to Regular Price of Lathe to Obtain Price of Lathe with Special Motor Equipment in Lieu of the Standard ¼ H.P. Start-Stop Type Reversing 1-ph., 60 cy., 110-V. Motor

Specifications of A. C. Motors				SINGLE PHASE A. C. MOTORS								THREE PHASE A. C. MOTORS†				D. C. INSTANT REVERSING MOTORS WITH No. 791 DRUM REV. SWITCH†			
Size of Motor H.P.	Speed of Motor R.P.M.	Voltage	Cycle	Start-Stop Reversing Split Phase Type Motor with No. 789 Drum Reversing Switch				Start-Stop Reversing Capacitor Type Motor with No. 789 Drum Reversing Switch				Instant Reversing Motor with No. 791 Drum Reversing Switch				Instant Reversing Induction Motor with No. 791 Drum Reversing Switch				Motor Speed R.P.M.	Voltage	Cat. No.	Price
¼	1725	110	60	.....	.....			1151-X	Add	$ 7.00		714-X	Add	$12.00		717-X	Add	$11.50		1725	115	718-X	Add $20.50
¼	1425	110	50	711-X	Add	$1.50		1152-X	Add	7.00		1156-X	Add	12.00		1164-X	Add	11.50		1725	230	718-AX	Add 20.50
¼	1725	220	60	127-AX	Add	3.00		1151-AX	Add	7.00		714-AX	Add	12.00		717-AX	Add	11.50		.....	.....	.....	.....
¼	1425	220	50	711-AX	Add	4.50		1152-AX	Add	7.00		1156-AX	Add	12.00		1164-AX	Add	11.50		.....	.....	.....	.....
⅓	1725	110	60	.....	.....			1171-X	Add	$12.00		1176-X	Add	$17.00		1186-X	Add	$13.50		1725	115	1191-X	Add $24.50
⅓	1425	110	50	.....	.....			1173-X	Add	12.00		1178-X	Add	17.00		1188-X	Add	13.50		1725	230	1191-AX	Add 24.50
⅓	1725	220	60	.....	.....			1171-AX	Add	12.00		1176-AX	Add	17.00		1186-AX	Add	13.50		.....	.....	.....	.....
⅓	1425	220	50	.....	.....			1173-AX	Add	12.00		1178-AX	Add	17.00		1188-AX	Add	13.50		.....	.....	.....	.....
½	1725	110	60	.....	.....			1348-X	Add	$18.50		1193-X	Add	$21.50		1360-X	Add	$20.50		1725	115	1208-X	Add $28.50
½	1425	110	50	.....	.....			1349-X	Add	18.50		1195-X	Add	21.50		1361-X	Add	20.50		1725	230	1208-AX	Add 28.50
½	1725	220	60	.....	.....			1348-AX	Add	18.50		1193-AX	Add	21.50		1360-AX	Add	20.50		.....	.....	.....	.....
½	1425	220	50	.....	.....			1349-AX	Add	18.50		1195-AX	Add	21.50		1361-AX	Add	20.50		.....	.....	.....	.....

No. 1618 Stand for mounting No. 791 Switch on bench top when used with 9-inch "Workshop" Underneath Belt Motor Driven Bench Lathe, $1.50.
†Prices of 3-phase and D.C. motors include rubber covered cable to connect motor to switch, but do not include 6-ft. extension cable and plug. Prices in this tabulation do not apply to 9-inch "Workshop" 12-Speed Lathes listed on pages 8, 18, and 26. Prices on request.

Floor Space Required for "Workshop" Bench Lathes

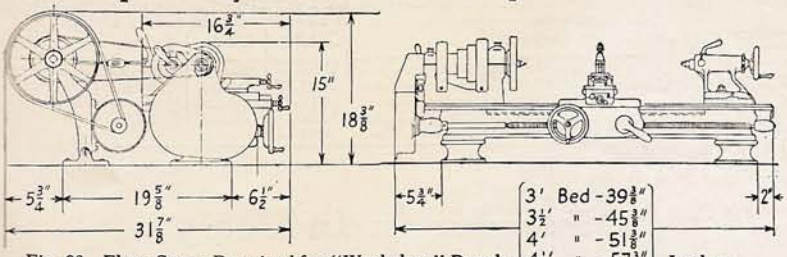


Fig. 98. Floor Space Required for "Workshop" Bench Lathes.

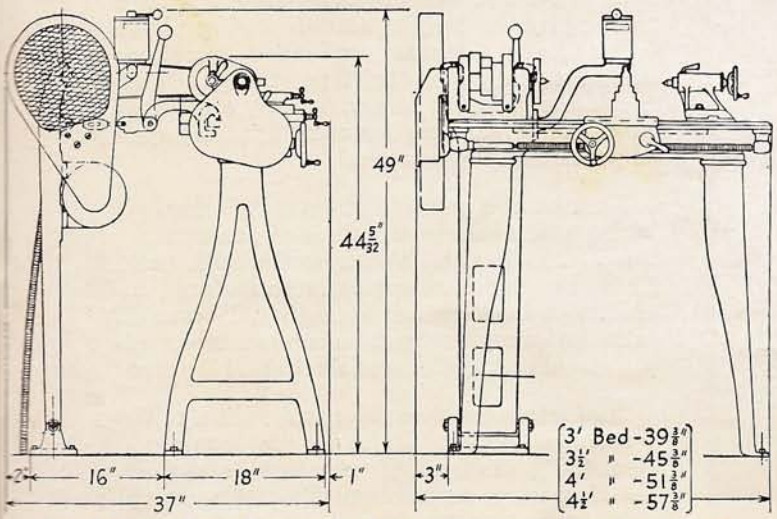


Fig. 99. Floor Space Required for 9-inch "Workshop" Floor Leg Lathes.

Blue Print Plans for Making Your Own Bench

Blue print plans showing how to build either a cabinet type or an open type frame bench will be supplied on request postpaid, no charge, to purchasers of South Bend Bench Lathes.

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

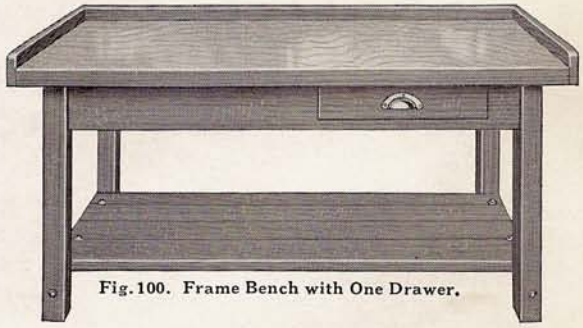


Fig. 100. Frame Bench with One Drawer.

TOOL GRINDER (Electric)

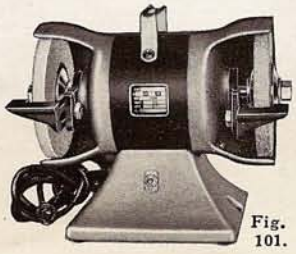


Fig. 101.

A high grade ball-bearing grinder for grinding tool bits, drills, etc. Has ¼ H.P. 1-ph., 60-cy., 110-v., A.C. capacitor motor, 3400 R.P.M.; 2 abrasive wheels, 6"x⅝"x½", one fine, one coarse; complete with guards, adjustable tool rests, 10-ft. cord and plug, and built-in switch.

No. 1112-W. Code "Lidev," shipping weight 48 lbs. . . . **$21.00**

Also available for other current specifications at extra cost.

No. 1113-W. Eye Shields for Grinder. Per pair, Code "Lidof" **$3.50**

AUTOMOTIVE ATTACHMENTS—

For 9-inch "Workshop" Precision Lathes—Models A, B, and C

When equipped with the attachments described below, any South Bend 9-inch "Workshop" Lathe is truly an all-purpose automotive tool. With these attachments the lathe can be used for truing and undercutting armature commutators, refacing valves, making bushings, cutting screw threads, and many other profitable jobs.

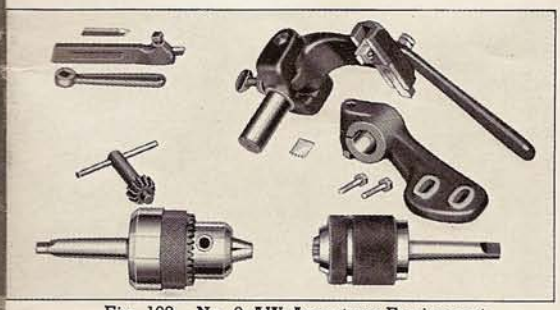


Fig. 102. No. 9-AW Armature Equipment

No. 9-AW Armature Equipment

For truing and undercutting armature commutators in the 9-inch "Workshop" Lathe.

1	No. 327-W Headstock Driving Chuck (¾" Cap.)	$ 7.50
1	No. 709-W Arbor fitted to above Chuck	1.00
1	No. 340-W Armature Support Chuck (⅜" to ¾" capacity) fitted to Lathe	9.00
1	No. 847-S Straight Turning Tool	1.25
1	No. 673-W Mica Undercutter complete with one Cutter	15.00
1	No. 1363-W Cutter Bit Ground for Armature Work	.45
	Total Cost of No. 9-AW Armature Equipment	$34.20

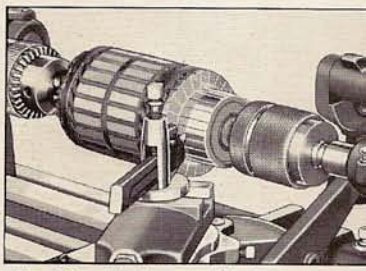


Fig. 103. Truing and Undercutting an Armature Commutator

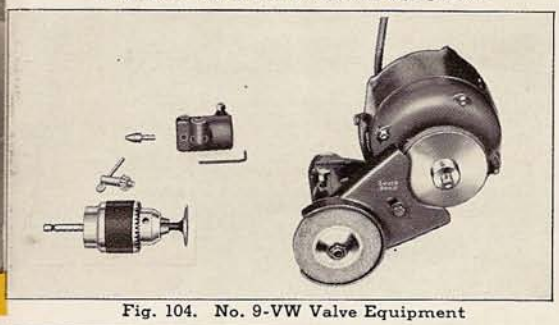


Fig. 104. No. 9-VW Valve Equipment

No. 9-VW Valve Equipment

For refacing all sizes and types of automobile valves, any angle of valve face.

1	No. 30-W, ¼ H.P. Electric Grinder (1-phase, 60-cycle, 110-volt, A.C. with cord and switch)	$45.00
1	No. 907-W Precision Valve Chuck (⅛" to ⅝" capacity)	12.50
1	No. 91-W Diamond Holding Fixture	5.00
1	No. 406-W Diamond Dresser for truing Grinding Wheel	6.00
	Total Cost of No. 9-VW Valve Grinding Equipment	$68.50

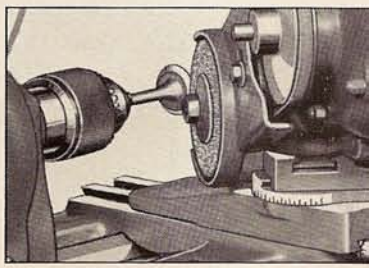


Fig. 105. Refacing a Valve

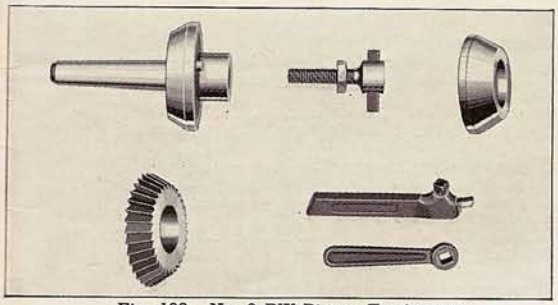


Fig. 106. No. 9-PW Piston Equipment

No. 9-PW Piston Equipment

For finishing semi-machined pistons by turning in the lathe, also for widening piston ring grooves, re-machining pistons, cutting oil relief grooves, and similar operations.

1	No. 44-W Piston Adapter, Driving Dog and Cone Ring for Pistons 2½" to 3⅛" Outside Diameter	$10.00
1	No. 1-R Piston Skirt Reamer for Pistons 2½" to 3⅛" Outside Diameter	7.50
*1	No. 847-S Straight Turning Tool	1.25
	Total Cost of 9-PW Piston Equipment	$18.75

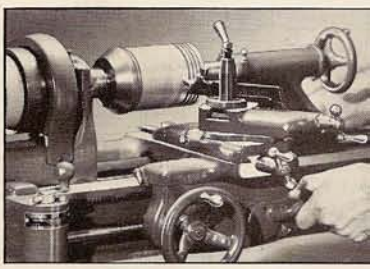


Fig. 107. Finishing a Piston

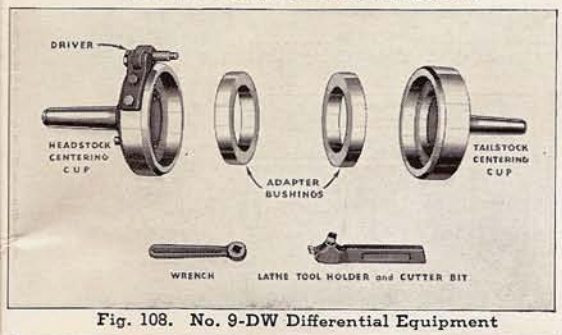


Fig. 108. No. 9-DW Differential Equipment

No. 9-DW Differential Equipment

For truing differential gear case flanges in the lathe. Differential is located from its own bearings to assure accuracy.

*1	No. 847-S Straight Turning Tool	$ 1.25
1	No. 3652-W Headstock Centering Cup and Driver	9.50
1	No. 3125-W Tailstock Centering Cup	6.00
2	No. 283-W Adapter Bushings	4.00
	Total Cost of No. 9-DW Differential Equipment	$20.75

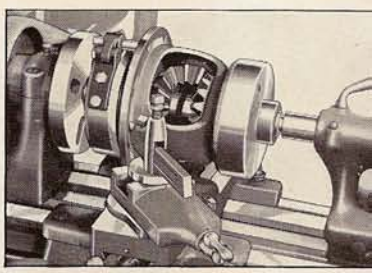


Fig. 109. Truing a Differential Gear Case Flange

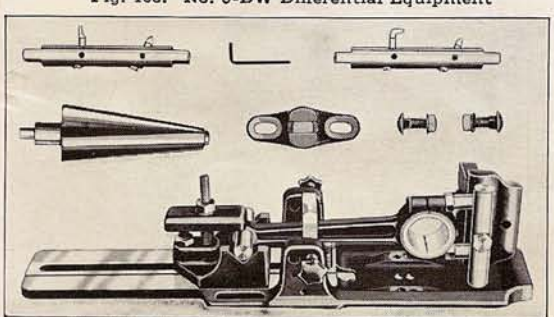


Fig. 110. No. 9-CW Connecting Rod Equipment

No. 9-CW Connecting Rod Equipment

For boring rebabbitted connecting rods, facing and rounding ends of bearing in the lathe.

1	No. 1229-W Connecting Rod Boring Attachment for Rods 13" between Bearings and 4⅝" across Bolt Lugs	$65.00
2	No. 461-W Boring Bars for Bearings 1¼" to 2½" diameter	22.00
1	No. 228-W Driver for Boring Bars	1.00
1	No. 581-W Centering Cone for Bearings 1¼" to 2½" diameter	6.00
	Total Cost of No. 9-CW Connecting Rod Equipment	$94.00

*This tool also listed in No. 9-AW Equipment.

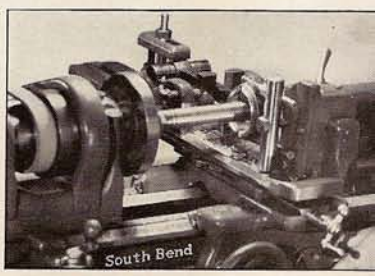


Fig. 111. Boring a Rebabbitted Connecting Rod

METRIC EQUIPMENT—

Metric Lathes—Metric and English Transposing Gears

Metric "Workshop" Lathes

All Sizes and Types of 9-inch "Workshop" Lathes can be supplied with metric lead screw, cross feed screw, and graduations as shown at bottom of page 41. The price for a Metric Lathe is the same as for corresponding size and model with English equipment.

Model A Metric Lathes cut metric screw threads shown on index chart below. Model B and Model C Metric Lathes cut the following metric screw threads: 7.0, 6.5, 6.0, 5.5, 5.0, 4.5, 4.0, 3.5, 3.0, 2.75, 2.5, 2.25, 2.0, 1.75, 1.5, 1.4, 1.3, 1.25, 1.2, 1.1, 1.0, 0.9, 0.8, 0.75, 0.7, 0.65, 0.6, 0.55, 0.5, 0.45, 0.4, 0.35, 0.3, 0.25, and 0.2 mm pitch.

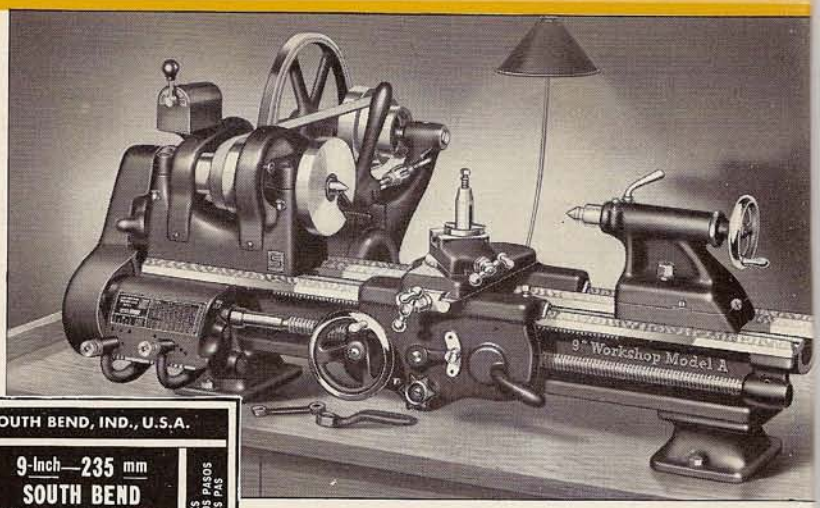


Fig. 112. Above—Model A 9-inch "Workshop" Metric Lathe

MANUFACTURED BY **SOUTH BEND LATHE WORKS** SOUTH BEND, IND., U.S.A.

PITCHES IN mm—PASOS EN mm—PAS EN mm								POSITION POSICION	STUD PINON PIGNON
7.500	7.000	6.500	6.000	5.500	5.000	4.500	4.000	D	50
3.750	3.500	3.250	3.000	2.750	2.500	2.250	2.000	C	"
1.875	1.750	1.625	1.500	1.375	1.250	1.125	1.000	B	"
1.500	1.400	1.300	1.200	1.100	1.000	0.900	0.800	C	20
0.750	0.700	0.650	0.600	0.550	0.500	0.450	0.400	B	"
0.375	0.350	0.325	0.300	0.275	0.250	0.225	0.200	A	"
FEEDS IN mm—AVANCES EN mm									
0.512	0.478	0.444	0.410	0.375	0.341	0.307	0.273	C	20
0.256	0.239	0.222	0.205	0.188	0.171	0.154	0.137	B	"
0.128	0.119	0.111	0.102	0.094	0.085	0.077	0.068	A	"

TRADE MARK SOUTH BEND ENGINE LATHES

9-Inch—235 mm
SOUTH BEND
WORKSHOP LATHE
MODEL A

CATALOG NO.
BED LENGTH
PAT. APP. FOR

Positions A B C D
Posiciones

CROSS FEEDS 1/10 OF PITCHES
AVANCES POR VUELTA 1/10 DE LOS PASOS
AVANCES TRANSVERSALES 1/10 DES PAS

Fig. 113. Left—Quick Change Gear Chart Showing Threads and Feeds on Model A 9-inch "Workshop" Quick Change Gear Metric Lathe

Metric and English Transposing Gears

Any size or type of 9-inch "Workshop" Lathe, whether equipped with English lead screw or metric lead screw, can be used for cutting both English and metric screw threads when equipped with transposing gears. Graduated Collars on the cross feed screw and compound rest screw and graduations on tailstock spindle can be supplied in either the English system or in the metric system, as described at bottom of page 41.

Metric Transposing Gears (M)

For cutting metric screw threads on lathes having English lead screws. Graduations in English system. (Special gear guard required if ordered after lathe leaves factory. Price on request.)

For Model A Lathe—Cat. No. 1955-W. Code "Lupal".....$10.00

For Model B or C Lathe—Cat. No. 1759-W. Code "Kazaj".....$ 5.00

Metric Transposing Gears (N)

For cutting metric screw threads on lathes having English lead screws. Metric graduations in lieu of English graduations. This equipment can be supplied only when ordered with lathe.

For Model A Lathe—Cat. No. 1941-W. Code "Lupep".....$10.00

For Model B or C Lathe—Cat. No. 1781-W. Code "Kobaj".....$ 5.00

English Transposing Gears (O)

For cutting English screw threads on lathes having metric lead screws. Graduations in metric system. (Special gear guard required if ordered after lathe leaves factory. Price on request.)

For Model A Lathe—Cat. No. 1971-W. Code "Helur".....$10.00

For Model B or C Lathe—Cat. No. 1281-W. Code "Gejex".....$ 7.00

English Transposing Gears (P)

For cutting English screw threads on lathes having metric lead screws. English graduations in lieu of metric graduations. This equipment can be supplied only when ordered with lathe.

For Model A Lathe—Cat. No. 1981-W. Code "Hedar".....$10.00

For Model B or C Lathe—Cat No. 1291-W. Code "Gateg".....$ 7.00

TRANSPOSING GEAR CHART
METRIC SCREW THREADS
ENGLISH PITCH LEAD SCREW

M/M PITCH	STUD GEAR	IDLER GEARS	SCREW GEAR
6.00	48	FIG. 1	20
5.50	44	FIG. 1	20
5.00	40	FIG. 1	20
4.50	36	FIG. 1	20
4.00	32	FIG. 1	20
3.50	28	FIG. 1	20
3.00	48	FIG. 1	40
2.75	44	FIG. 1	40
2.50	32	FIG. 1	32
2.25	36	FIG. 1	40
2.00	32	FIG. 1	40
1.75	56	FIG. 2	80
1.50	48	FIG. 2	80
1.40	56	FIG. 2	100
1.30	52	FIG. 2	100
1.25	40	FIG. 2	80
1.20	48	FIG. 2	100
1.10	44	FIG. 2	100
1.00	40	FIG. 2	100
0.90	36	FIG. 2	100
0.80	32	FIG. 2	100
0.75	24	FIG. 2	80
0.70	28	FIG. 2	100
0.65	26	FIG. 2	100
0.60	24	FIG. 2	100
0.55	22	FIG. 2	100
0.50	20	FIG. 2	100
0.45	18	FIG. 2	100
0.40	16	FIG. 2	100
0.35	56	FIG. 3	100
0.30	48	FIG. 3	100
0.25	40	FIG. 3	100
0.20	32	FIG. 3	100

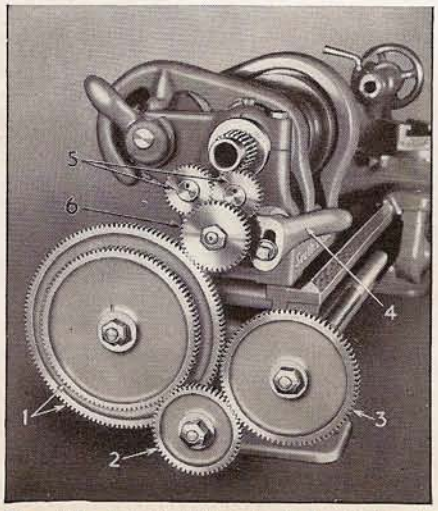


Fig. 115. 9-inch "Workshop" South Bend Metric Lathe Set up for Cutting Metric Screw Threads. (Gear guard of lathe removed to show gearing.)

TRANSPOSING GEAR CHART
ENGLISH SCREW THREADS
METRIC PITCH LEAD SCREW

THREADS PER INCH	STUD GEAR	IDLER GEARS	SCREW GEAR
4	64	FIG. 1	24
4½	56	FIG. 1	28
5	64	FIG. 1	30
5½	36	FIG. 1	22
6	36	FIG. 1	24
6½	36	FIG. 1	26
7	36	FIG. 1	28
7½	36	FIG. 2	30
8	36	FIG. 2	32
9	32	FIG. 2	32
10	36	FIG. 2	40
11	36	FIG. 2	44
12	36	FIG. 2	48
13	36	FIG. 2	52
14	36	FIG. 2	56
16	36	FIG. 2	64
18	32	FIG. 2	64
20	18	FIG. 2	40
22	18	FIG. 2	44
24	18	FIG. 2	48
26	18	FIG. 2	52
27	18	FIG. 2	54
28	18	FIG. 2	56
30	18	FIG. 2	60
32	18	FIG. 2	64
36	16	FIG. 2	64
40	18	FIG. 2	80
44	18	FIG. 3	44
48	18	FIG. 3	48
52	18	FIG. 3	52
54	18	FIG. 3	54
56	18	FIG. 3	56
60	18	FIG. 3	60
64	18	FIG. 3	64
72	18	FIG. 3	64
80	18	FIG. 3	80

Fig. 114. Index Chart Showing Metric Threads Cut on English Lathe with Metric Transposing Gears

Fig. 116. Index Chart Showing English Threads Cut on Metric Lathe with English Transposing Gears

EXPORT SHIPPING WEIGHTS—

Of 9-inch "Workshop" Precision Lathes—Models A, B, and C

Weights of Lathes Boxed for Export, and Cubic Space Required

The approximate shipping weights of Model A, Model B, and Model C 9-inch "Workshop" Lathes boxed for export shipment are given in the tabulation below. The cubic space required for export shipping case is also listed in the tabulation.

All lathes shipped to points in the United States, Canada, and Mexico are crated free of charge. Lathes shipped overseas must be boxed for export. Additional cost of export packing is shown under the price tabulation for each type of lathe.

TYPE OF LATHE	Length of Bed Feet	Distance Between Centers Inches	Export Box Cubic Feet	Weight Boxed for Export Pounds	MODEL A LATHES		MODEL B LATHES		MODEL C LATHES	
					Catalog Number	Code Word	Catalog Number	Code Word	Catalog Number	Code Word
Horizontal Motor Drive Bench Lathes, as illustrated and described on pages 6, 16, and 24.	3	17	13	466	444-Y	Nuyaf	477-Y	Matem	415-YC	Kefav
	3½	23	15	501	444-Z	Nuyej	477-Z	Matuc	415-ZC	Kefez
	4	29	16½	536	444-A	Nuyin	477-A	Mavaj	415-AC	Kefid
	4½	35	18	551	444-R	Nuyot	477-R	Mavud	415-RC	Kefoj
Twelve-Speed Horizontal Motor Drive Bench Lathes, as shown on pages 8, 18, and 26.	3	17	13	481	644-Y	Kewar	677-Y	Kewul	615-YC	Getay
	3½	23	15	516	644-Z	Kewev	677-Z	Kexim	615-ZC	Getec
	4	29	16½	551	644-A	Kewiz	677-A	Kexos	615-AC	Getig
	4½	35	18	566	644-R	Kewof	677-R	Kexuy	615-RC	Getom
V-Belt Horizontal Motor Drive Bench Lathes, as shown on pages 9, 19, and 27.	3	17	13	466	544-Y	Paqol	577-Y	Patal	515-YC	Lihat
	3½	23	15	501	544-Z	Paqur	577-Z	Patep	515-ZC	Lihex
	4	29	16½	536	544-A	Parak	577-A	Patit	515-AC	Lihib
	4½	35	18	551	544-R	Pasus	577-R	Patoz	515-RC	Lihoh
Countershaft Drive Bench Lathes, as shown on pages 10, 20, and 28.	3	17	13	427	44-YB	Laxud	77-YB	Layol	15-YBC	Leheb
	3½	23	15	460	44-ZB	Layax	77-ZB	Layur	15-ZBC	Lehif
	4	29	16½	493	44-AB	Layeb	77-AB	Lazak	15-ABC	Lehol
	4½	35	18	501	44-RB	Layif	77-RB	Lazis	15-RBC	Lehur
Countershaft Drive Floor Leg Lathes, same as shown on pages 10, 20, and 28, but with floor legs instead of bench legs.	3	17	18	527	44-Y	Hetaz	77-Y	Marov	15-YC	Hepax
	3½	23	19	560	44-Z	Heted	77-Z	Mayec	15-ZC	Hepeb
	4	29	21	593	44-A	Hetih	77-A	Moyuj	15-AC	Hepif
	4½	35	23	601	44-R	Heton	77-R	Mevor	15-RC	Hepol
Underneath Motor Drive Bench Lathes, as shown on pages 11, and 21.	3	17	13	506	Model A—Not Supplied with This Drive.		177-YB	Paqax	115-YBC	Pecam
	3½	23	15	541			177-ZB	Paqeb	115-ZBC	Peceq
	4	29	16½	576			177-AB	Paqif	115-ABC	Pecug
Pedestal Motor Drive Floor Leg Lathes, as shown on pages 12, 22, and 29.	3	17	18	726	944-Y	Hezac	977-Y	Hisem	915-YC	Peges
	3½	23	19	761	944-Z	Hezeg	977-Z	Hisiq	915-ZC	Pegiw
	4	29	21	786	944-A	Hezik	977-A	Hisow	915-AC	Pegob
	4½	35	23	806	944-R	Hezoq	977-R	Hisuc	915-RC	Peguh
Chip Pan Floor Leg Lathes, as shown on pages 13, 23, and 30.	3	17	19	587	244-Y	Mebup	277-Y	Mezip	215-YC	Lecow
	3½	23	20	620	244-Z	Mecaj	277-Z	Mezob	215-ZC	Lecuc
	4	29	22	653	244-A	Mefeb	277-A	Mezub	215-AC	Ledav
	4½	35	24	661	244-R	Mefur	277-R	Molap	215-RC	Ledez
Raising Block Lathes, as shown on pages 13, 23, and 30.	3	17	13	476	6444-Y	Jasas	6477-Y	Jemal	6415-YC	Keyos
	3½	23	15	510	6444-Z	Jasew	6477-Z	Jemep	6415-ZC	Keyew
	4	29	16½	546	6444-A	Jasog	6477-A	Jemit	6415-AC	Keyog
	4½	35	18	561	6444-R	Jasum	6477-R	Jemoz	6415-RC	Keyum

Metric Graduations for South Bend Lathes

Metric Cross Feed and Compound Rest Screws With Metric Collars

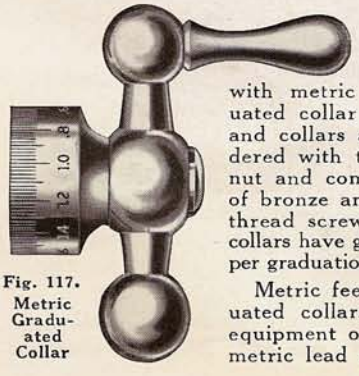


Fig. 117. Metric Graduated Collar

Cross feed screws and compound rest feed screws can be supplied with metric thread and metric graduated collar in lieu of regular screws and collars at no extra cost when ordered with the lathe. The cross feed nut and compound rest nut are made of bronze and tapped to fit the metric thread screws. All metric feed screw collars have graduations reading 0.02 mm per graduation.

Metric feed screws and metric graduated collars are supplied as regular equipment on all lathes equipped with metric lead screws.

Metric Graduations on Tailstock Spindle

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

Metric graduations on tailstock spindle are supplied as regular equipment on all South Bend Lathes equipped with metric lead screws.

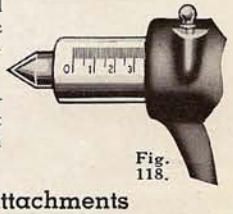


Fig. 118.

Metric Graduations on Attachments

The taper attachment and micrometer carriage stop can be supplied with metric graduations at no extra cost when ordered with the lathe.

Metric graduations supplied as regular equipment on all taper attachments and micrometer carriage stops ordered with lathes equipped with metric lead screws.

Fig. 119.

Fig. 120. Precision Accuracy is built into every South Bend "Workshop" Lathe

How Precision Is Built Into "Workshop" Lathes

Best Equipment is Available for Manufacturing and Testing

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

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

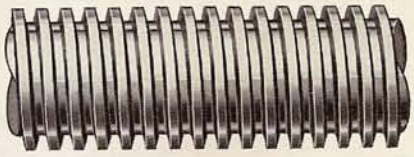


Fig. 121. Section of Acme Thread Lead Screw Actual Size

This equipment, made especially for us by one of the largest manufacturers of optical measuring equipment in the world, is guaranteed to be accurate within 0.00005" in 30". See Fig. 122.

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

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

Fig. 122. Left—Testing a Lead Screw with Optical Measuring Equipment

ISION ACCURACY TESTS—

Gears are Precision Cut and Tested for Accuracy

Smooth Operation Assured

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

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

Our Gear Cutting Department is equipped with 21 automatic gear hobbing machines, similar to the one shown in Fig. 125 below. These machines enable us to produce precision cut gears of uniform quality at a remarkably low cost. The saving is naturally reflected in the selling price of the lathe.

A Precision Testing Machine, shown in Fig. 123 at right, is used for testing all gears used on the 9-inch "Workshop" Lathe. This machine is equipped with a vernier scale and a sensitive dial indicator which will disclose the slightest error in pitch diameter, eccentricity of the pitch diameter, or irregularity in tooth form.

Fig. 123. Above—Precision Gear Testing Machine

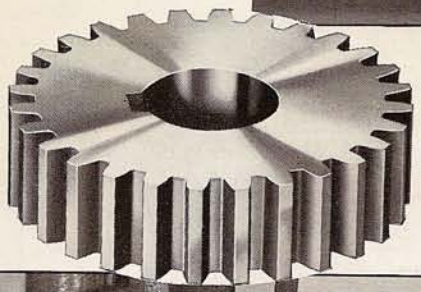


Fig. 124. Left—Steel Gear Precision Cut from the Solid on Automatic Gear Hobbing Machine

Fig. 125. One of 21 Automatic Gear Hobbing Machines in the Gear Cutting Department

ACCURACY TESTS—

Made on All South Bend 9-inch "Workshop" Precision Lathes

Each Lathe is Carefully Tested

Sixty-four Major Accuracy Tests made on each 9-inch "Workshop" Lathe during the process of manufacturing assure interchangeability of parts and precision accuracy in the finished product. A few of the final inspection tests are illustrated below, Figs. 128 to 133 inclusive.

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

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

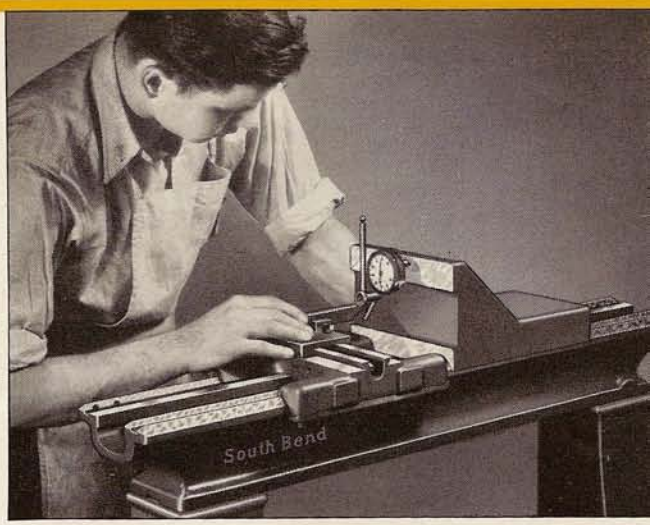


Fig. 126. Testing Squareness of Saddle Cross Slide Dovetail of a 9-inch "Workshop" Lathe

Record of Factory Inspection Tests

Final Inspection of each lathe is made before it leaves the factory, and a permanent record of the final tests is kept on the Factory Test Card shown in Fig. 134. These tests can be duplicated in the customer's shop, provided the lathe is properly installed and the lathe bed is leveled with a highly sensitive precision level.

Fig. 127. A Precision Level

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

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

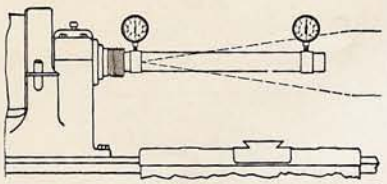


Fig. 128. Testing Alignment of Headstock Spindle in the Vertical Plane with Dial Indicator

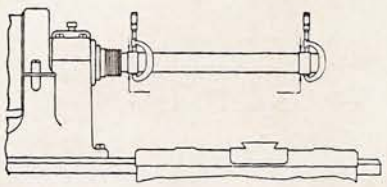


Fig. 129. Testing Alignment of Spindle by Machining a Piece in the Spindle

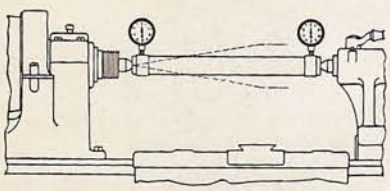


Fig. 130. Testing the Height of the Headstock Spindle and Tailstock Spindle with Dial Indicator

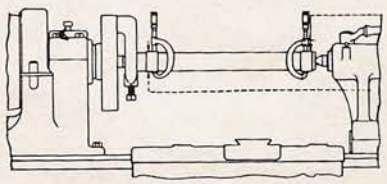


Fig. 131. Testing Alignment of Headstock and Tailstock by Machining a Piece Between Centers

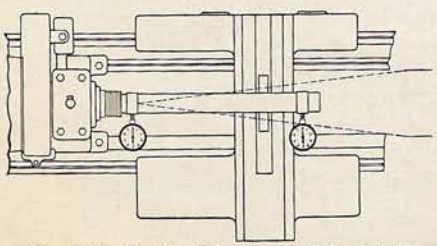


Fig. 132. Testing Alignment of Headstock Spindle in the Horizontal Plane with Dial Indicator.

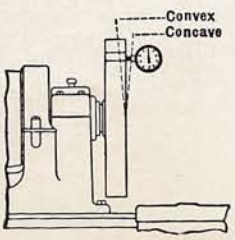
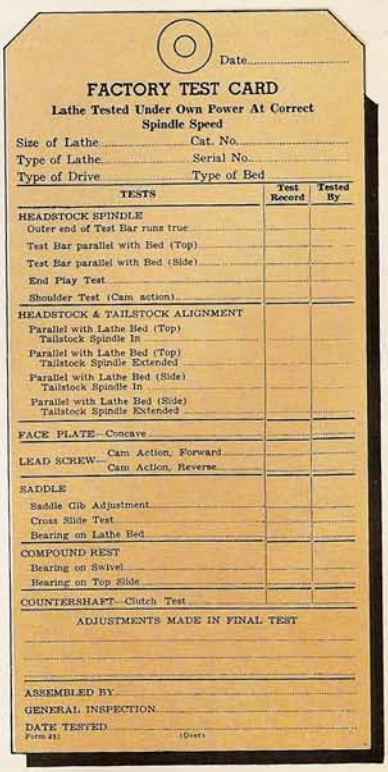


Fig. 133. Testing Squareness of Saddle Cross Slide by Machining the Face Plate and Testing with Indicator.



Date.....

FACTORY TEST CARD

Lathe Tested Under Own Power At Correct Spindle Speed

Size of Lathe..... Cat. No.....

Type of Lathe..... Serial No.....

Type of Drive..... Type of Bed.....

TESTS	Test Record	Tested By
HEADSTOCK SPINDLE		
Outer end of Test Bar runs true		
Test Bar parallel with Bed (Top)		
Test Bar parallel with Bed (Side)		
End Play Test		
Shoulder Test (Cam action)		
HEADSTOCK & TAILSTOCK ALIGNMENT		
Parallel with Lathe Bed (Top) Tailstock Spindle In		
Parallel with Lathe Bed (Top) Tailstock Spindle Extended		
Parallel with Lathe Bed (Side) Tailstock Spindle In		
Parallel with Lathe Bed (Side) Tailstock Spindle Extended		
FACE PLATE—Concave		
LEAD SCREW—Cam Action, Forward		
Cam Action, Reverse		
SADDLE		
Saddle Gib Adjustment		
Cross Slide Test		
Bearing on Lathe Bed		
COMPOUND REST		
Bearing on Swivel		
Bearing on Top Slide		
COUNTERSHAFT—Clutch Test		

ADJUSTMENTS MADE IN FINAL TEST

ASSEMBLED BY.....

GENERAL INSPECTION.....

DATE TESTED.....

Form 281 (Over)

Fig. 134. Factory Test Record

TIME PAYMENT PLAN—

For Purchase of South Bend Precision Lathes

Small Down Payment—Balance Monthly

The South Bend Time Payment Plan is a confidential credit service which we offer for the convenience of our customers. Thousands of purchasers of South Bend Lathes have used this plan, and the increased income from the lathe has enabled many to complete their payments in advance of the stated time.

It is often good business to purchase income producing equipment on a deferred payment basis. Increased revenue from the use of the equipment will frequently enable the purchaser to realize an immediate profit that would otherwise be lost.

A small down payment will enable you to install a South Bend Lathe in your shop. You can use the lathe while the balance is paid in easy monthly installments. All payments are made direct to the factory as we have no connection with any finance company. A low financing charge covers the entire cost of the service rendered.

Complete information relative to the South Bend Time Payment Plan for use in the United States is given in Time Payment Circular No. 10-C, illustrated at right. In other countries special terms can be arranged through our representatives.

If you are interested in purchasing a lathe on deferred payments, write today for a copy of Time Payment Plan Circular No. 10-C.

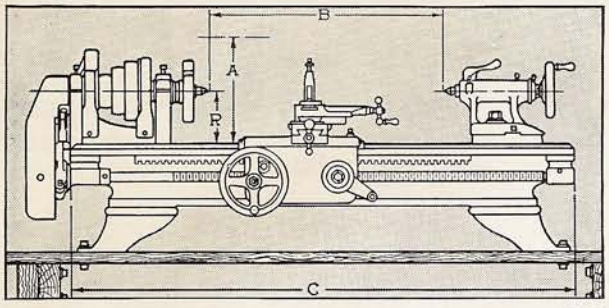
Fig. 135.

Approximate Freight Rates From South Bend to Principal Cities

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

Example—Freight charges on the 9"x3' "Workshop" Adjustable Horizontal Countershaft Motor Driven Bench Lathe as shown on page 6, weighing 320 lbs., to Omaha, Nebraska, at $1.61 per 100 lbs.....$5.15

	Rate per 100 lbs.		Rate per 100 lbs.		Rate per 100 lbs.
Baltimore, Md.	$1.21	Los Angeles, Calif.	$5.78	Philadelphia, Pa.	$1.27
Boise, Idaho	5.04	Louisville, Ky.	0.78	Pittsburgh, Pa.	0.90
Boston, Mass.	1.38	Miami, Fla.	2.82	Portland, Ore.	5.78
Chicago, Ill.	0.53	Milwaukee, Wisc.	0.66	Richmond, Va.	1.25
Charleston, S. C.	2.08	Minneapolis, Minn.	1.51	St. Louis, Mo.	0.86
Cleveland, Ohio	0.78	Montgomery, Ala.	1.78	Salt Lake City, Utah	3.48
Denver, Colo.	2.72	New York, N. Y.	1.33	San Antonio, Tex.	3.18
Detroit, Mich.	0.67	New Orleans, La.	2.07	San Francisco, Calif.	5.78
Hartford, Conn.	1.33	Oklahoma City, Okla.	2.57	Seattle, Wash.	5.80
Helena, Mont.	5.04	Omaha, Nebr.	1.61	Wichita, Kan.	2.05



136.

How to Determine the Size of a Lathe

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

Safe Delivery of Lathe

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

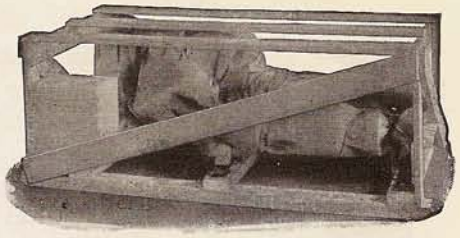


Fig. 137

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

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

Money Back Guarantee

Purchaser Is Protected

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

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

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

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

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

SOUTH BEND LATHE WORKS

SOUTH BEND LATHES ARE BUILT IN SIX (6) SIZES

9-inch, 11-inch, 13-inch, 14½-inch, 16-inch, and 16-24-inch Swing

Sizes of South Bend Lathes

In addition to the 9-inch "Workshop" Lathes shown in this catalog, South Bend Lathes are made in a variety of sizes and types and can be supplied with practical attachments and accessories for all classes of machine work.

For efficient operation and economical production, the lathe should be selected to suit the job. The larger sizes of South Bend Lathes are popular for machining large work and for roughing operations requiring heavy cuts. Smaller sizes of lathes are widely used for high speed operations on small parts where precision accuracy and sensitivity are essential.

Attachments and accessories for either tool room or production work can be supplied. Tool room attachments include: taper attachment, micrometer carriage stop, draw-in collet chuck attachment, collet rack, and thread dial indicator. Manufacturing attachments include: oil pan and pump, bed turret attachment, four-way tool post turret, etc.

General Catalog No. 100

Describing Entire Line of South Bend Lathes

All sizes and types of South Bend Back-Geared Screw Cutting Precision Lathes are fully illustrated and described in our new General Catalog No. 100, size 8½" x 11". Chucks, tools, and attachments for all classes of work are also illustrated and described in this 112-page catalog. A copy will be mailed on request to any address postpaid, no charge.

Automotive Catalog No. 75

Catalog No. 75 illustrated at the right describes and prices 9-inch, 13-inch, 16-inch, and 16-24-inch South Bend Motor Driven Lathes and attachments used in the automotive service shop for: refacing valves, truing and undercutting armature commutators, finishing semi-machined pistons, making bushings, truing differential gear case flanges, boring rebabbitted connecting rods, truing brake drums, etc.

A copy of this 36-page Catalog No. 75, which is 8½ inch by 11 inch, will be mailed to any address on request postpaid, no charge.

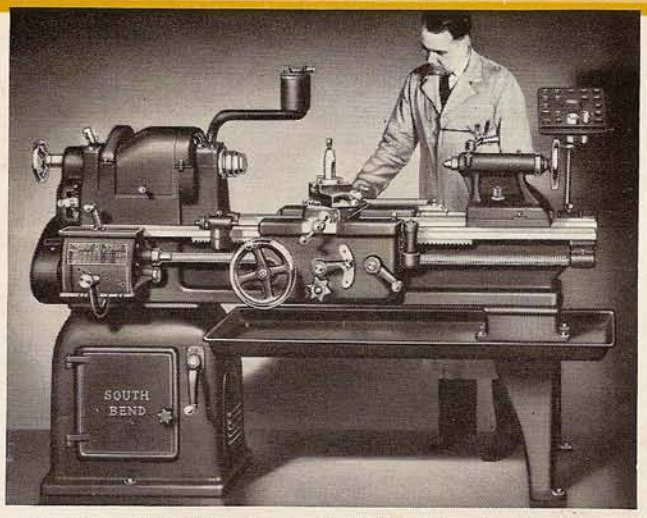


Fig. 138. 16" x 6' Underneath Belt Motor Driven Quick Change Gear Precision Lathe Equipped with Tool Room Attachments

Prices of South Bend Lathes

Swing Size	Bed Lengths	Price Range
9"	3' to 4½'	$298 to $ 892
11"	3½' to 5½'	388 to 941
13"	4' to 7'	478 to 1144
14½"	5' to 10'	609 to 1431
16"	6' to 12'	723 to 1578
16-24"	6' to 12'	838 to 1506

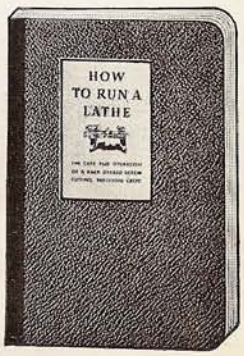
Types of South Bend Lathes

Floor Leg Lathes; Bench Lathes; Tool Room Lathes; Production Lathes; Quick Change Gear Lathes; Standard Change Gear Lathes; General Purpose Lathes; Collet Lathes; Automotive Servicing Lathes.

Drives for South Bend Lathes

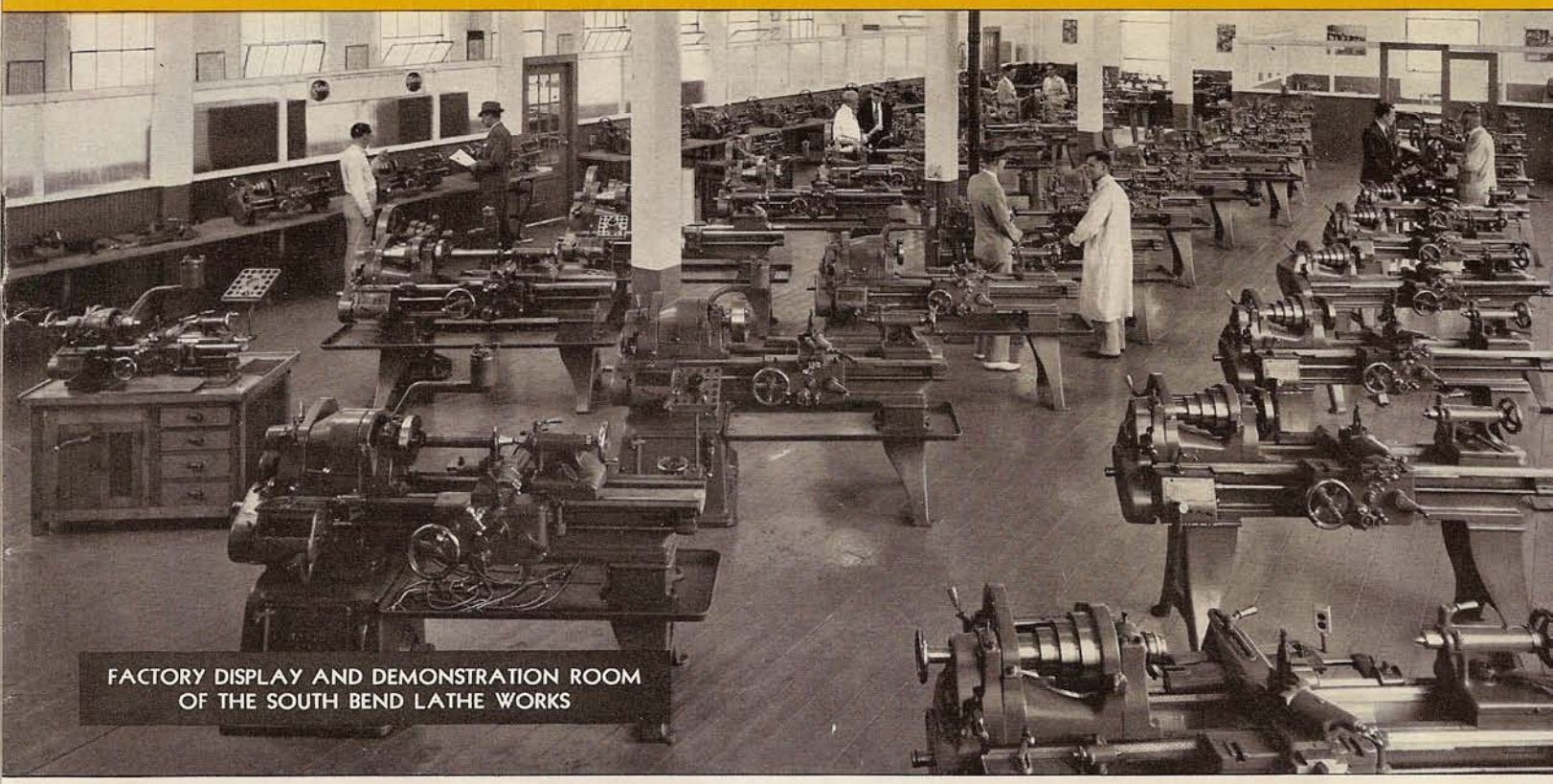
Underneath Belt Motor Drive for Floor Leg and Bench Lathes; Pedestal Adjustable Motor Drive for Floor Leg Lathes; Horizontal Adjustable Motor Drive for Bench Lathes; Countershaft Drive for Floor Leg Lathes and Bench Lathes.

"How to Run a Lathe"



This is an authoritative and instructive manual on the care and operation of a back-geared screw cutting lathe. It outlines the fundamental lathe operations in detail, with illustrations of various classes of work. Contains 128 pages, size 5⅛ inch by 8 inch, and more than 360 illustrations.

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



FACTORY DISPLAY AND DEMONSTRATION ROOM OF THE SOUTH BEND LATHE WORKS

Fig. 139.

Factory Display of South Bend Lathes

You Are Invited to See These Lathes in Operation

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

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

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

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

Fig. 140.

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

PROMINENT USERS—

Of 9-inch "Workshop" South Bend Precision Lathes

MACHINERY MANUFACTURERS

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

AUTOMOTIVE INDUSTRIES

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

OFFICE EQUIPMENT MFRS.

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

RUBBER INDUSTRY

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

STEEL AND IRON MFRS.

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

INSTRUMENT MFRS.

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

RADIO AND ELECTRICAL EQUIPMENT

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

OIL INDUSTRY

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

AIRCRAFT INDUSTRY

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

TEXTILE INDUSTRY

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

MISCELLANEOUS MFRS.

Aero Spark Plug Co.
Aladdin Industries, Inc.
Aluminum Co. of America
Ball Bros.
Budd Wheel Co.
Carbide & Carbon Chemical Co.
Congoleum-Nairn Co.
Continental Can Co.
Corning Glass Co.
Crane Co.
E. I. Dupont de Nemours & Co.
General Mills, Inc.
Libby-Owens-Ford Glass Co.
Los Angeles Railway Co.
Metropolitan Life Insurance Co.
National Biscuit Co.
Richmond Bros. Co.
Singer Mfg. Co.
Sunbeam Electric Mfg. Co.
Synthane Corp.
Thompson Products Co.
Tycoon Tackle Co.

U. S. GOVERNMENT SHOPS

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

EDUCATIONAL INSTITUTIONS

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

TRADE MARK SOUTH BEND TWINS ENGINE LATHES

Reg. U. S. Pat. Off. & Foreign Countries

SOUTH BEND LATHE WORKS — Lathe Builders Since 1906

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

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

LIRM—5928—9-15-'39 Printed in U.S.A.