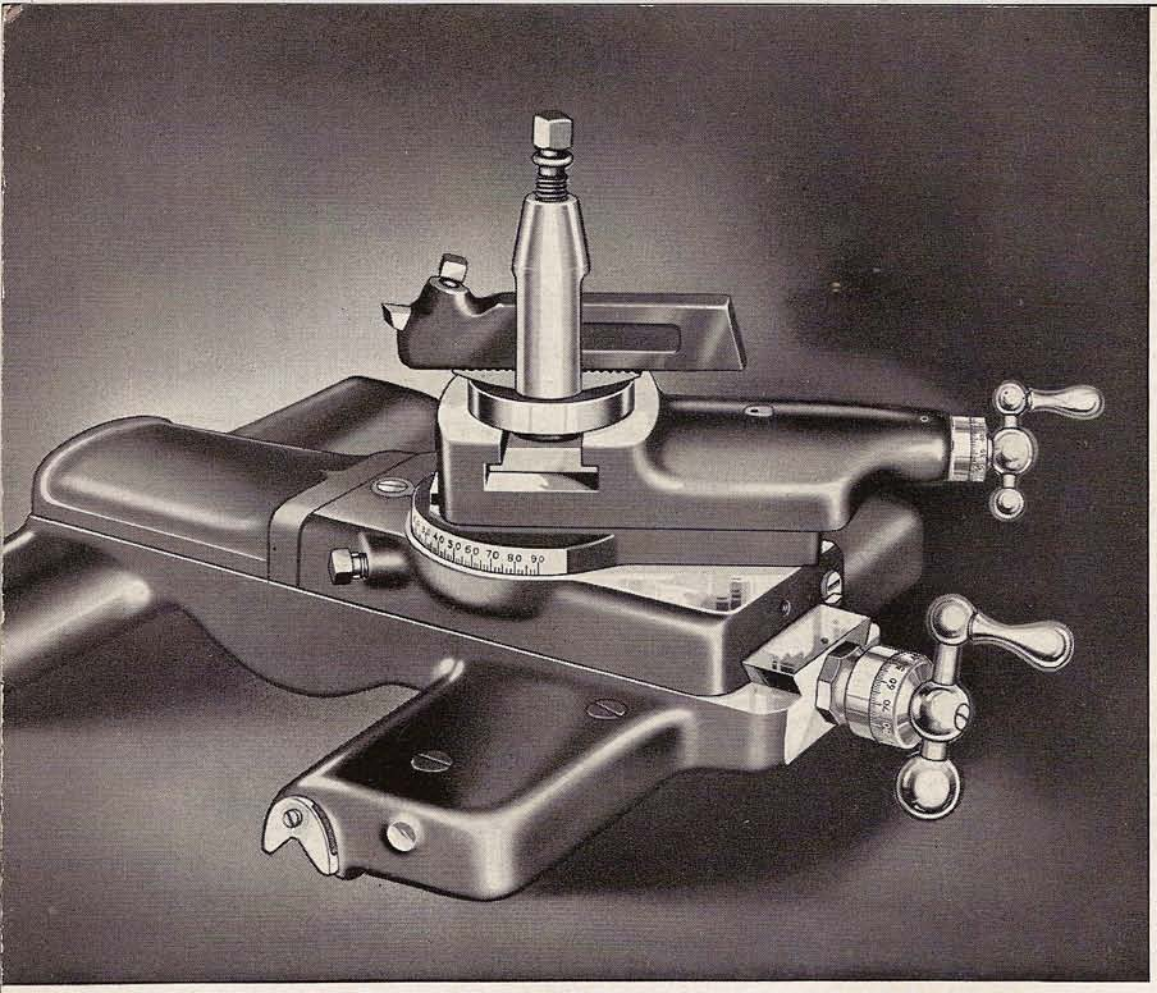


Fig. 20. Improved Saddle and Compound Rest used on 13-inch South Bend Lathes

FEATURES of SERIES "T" SOUTH BEND *Precision* LATHES

The features illustrated and described in this circular apply to all sizes and types of Series "T" Standard Change Gear and Quick Change Gear South Bend Lathes.

The pages in this circular are reprinted from our General Catalog No. 100 to which all figure numbers and page references apply.

Improved Series "T" Saddle and Compound Rest

Dovetails Have Adjustable Tapered Gibs

The saddle for Series "T" South Bend Lathes has unusually long bearings carefully hand-scraped to conform with the outer V-ways of the lathe bed. Felt pad wipers are attached to each end of the saddle to clean and oil the V-ways of the bed. The cross slide bridge is wide and deep, providing a rigid support for the tool rest and the dovetails is hand-scraped square with the V-ways of the saddle.

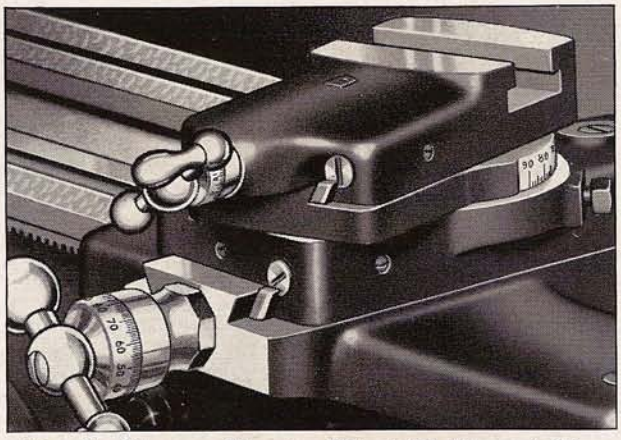


Fig. 21. Close-up Showing Adjustable Tapered Gibs Used on Compound Rest Base and Top Dovetails

Both the compound rest base and the compound rest top dovetails are hand-scraped and lapped and have adjustable tapered gibs. The compound rest base is drilled and tapped for the thread cutting stop screw. The compound rest swivel bearing is accurately hand-scraped and fitted. The swivel is graduated 180-degrees and may be set at any angle for turning and boring bevels and tapers.

The cross feed screw and compound rest screw have accurately graduated collars reading in thousandths of an inch. These collars are adjustable and may be set at zero whenever desired. Crank handles for both compound rest screw and cross feed screw are of polished steel.

The tool post, tool post ring, and tool post rocker are made of drop forged steel, heat-treated and hardened. Rocker adjustment is provided for adjusting the cutting edge of tool to desired height.

SOUTH BEND LATHE WORKS *Lathe Builders Since 1906* 425 E. MADISON ST., SOUTH BEND, IND., U.S.A.

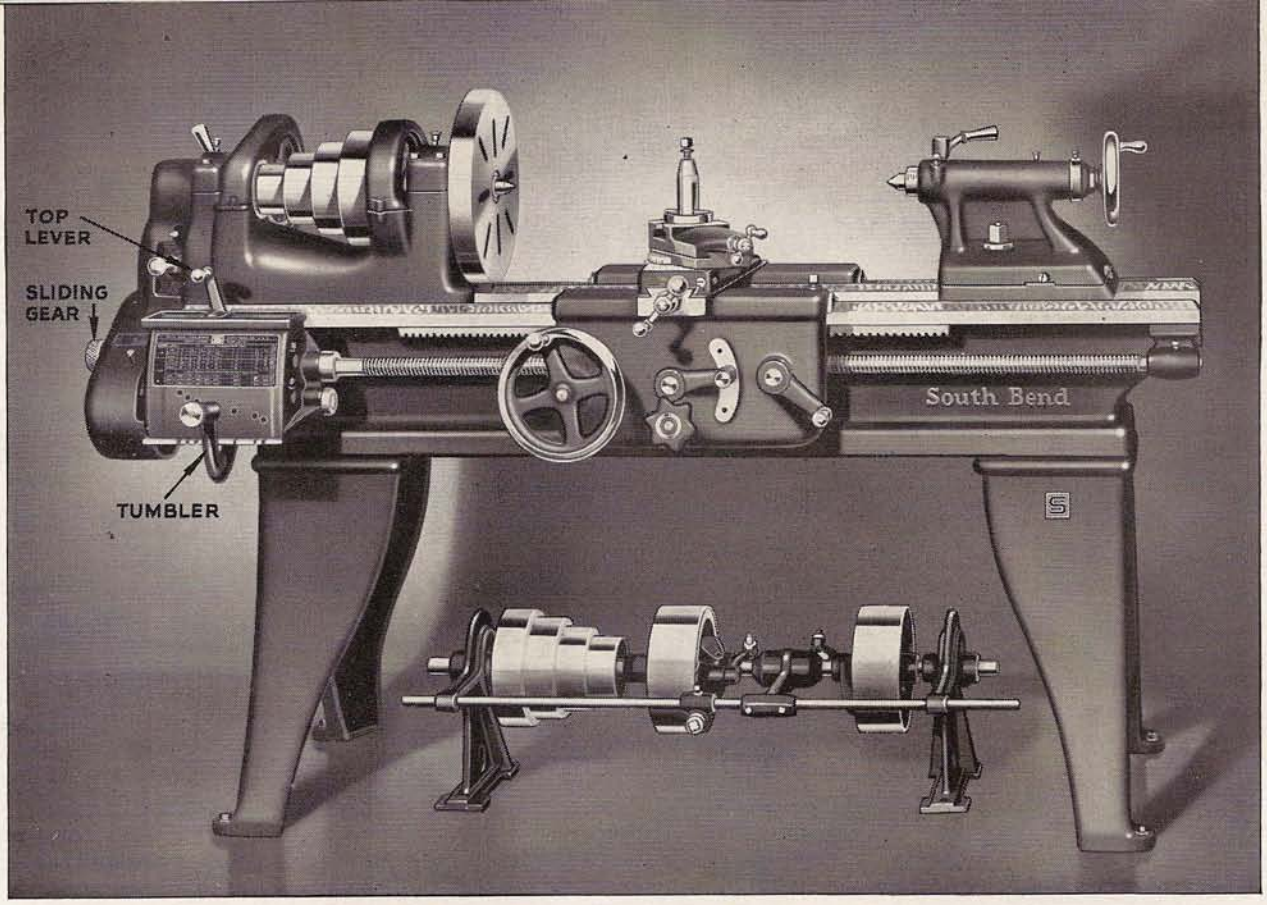


Fig. 13. Quick Change Gear Type South Bend Lathe

Series "T" Quick Change Gear Lathes

Full Quick Change Gear Box Provides Various Threads and Feeds

A Quick Change Gear Lathe is one having quick change gear equipment, as illustrated above, for cutting the various pitches of screw threads and for automatic power longitudinal carriage feeds and automatic power cross feeds through the friction clutch in the apron. Otherwise, the Quick Change Gear Lathe is exactly the same as the Standard Change Gear Lathe shown on page 6. All sizes of South Bend Lathes are made in the Quick Change Gear Type, as well as in the Standard Change Gear Type.

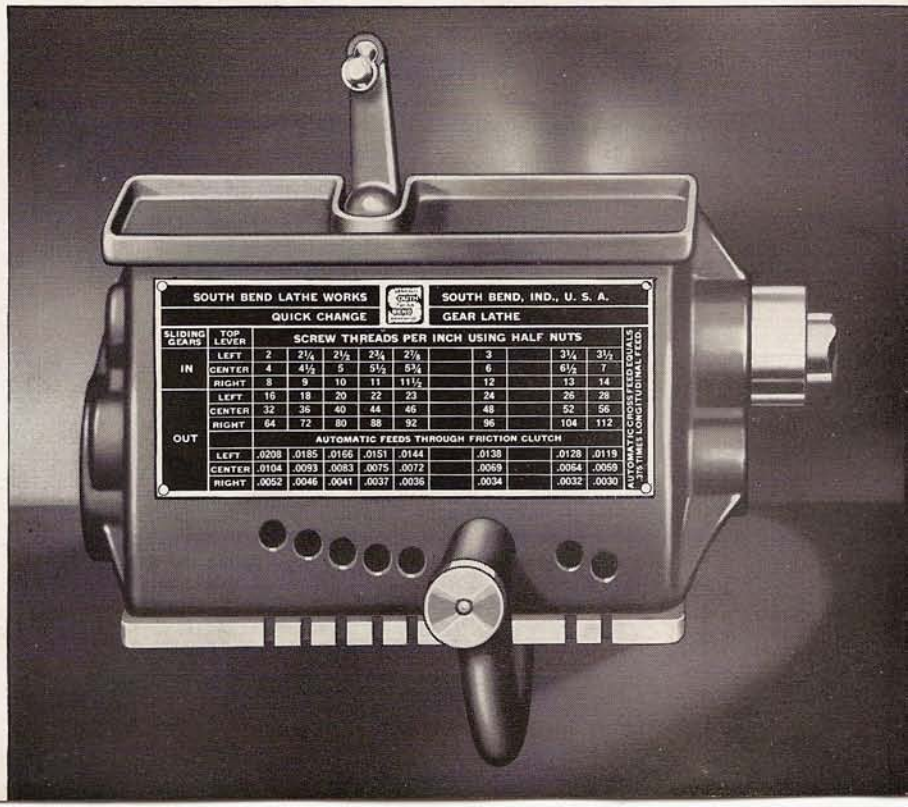
Changes for various pitches of screw threads and power feeds are made by shifting levers on the gear box and by sliding the primary gears on the end of the lathe, as indicated in Fig. 13 above.

The quick change gear box provides for cutting 48 right hand and left hand screw threads, ranging from 2 to 112 per inch except the 9-inch lathe which cuts 4 to 224 threads per inch. A wide range of power carriage feeds for turning and facing are also available. A direct reading index chart attached to the gear box, as shown in Fig. 14, shows the arrangement of the levers for the various threads and feeds.

Metric system Quick Change Gear Lathes have a corresponding range of metric threads and feeds. See page 108.

Quick Change Gear Lathes are popular in shops where frequent changes of threads and feeds must be made, such as for tool and die work, general repair and maintenance, and for some production operations.

Fig. 14. Quick Change Gear Box used on 13" South Bend Lathe



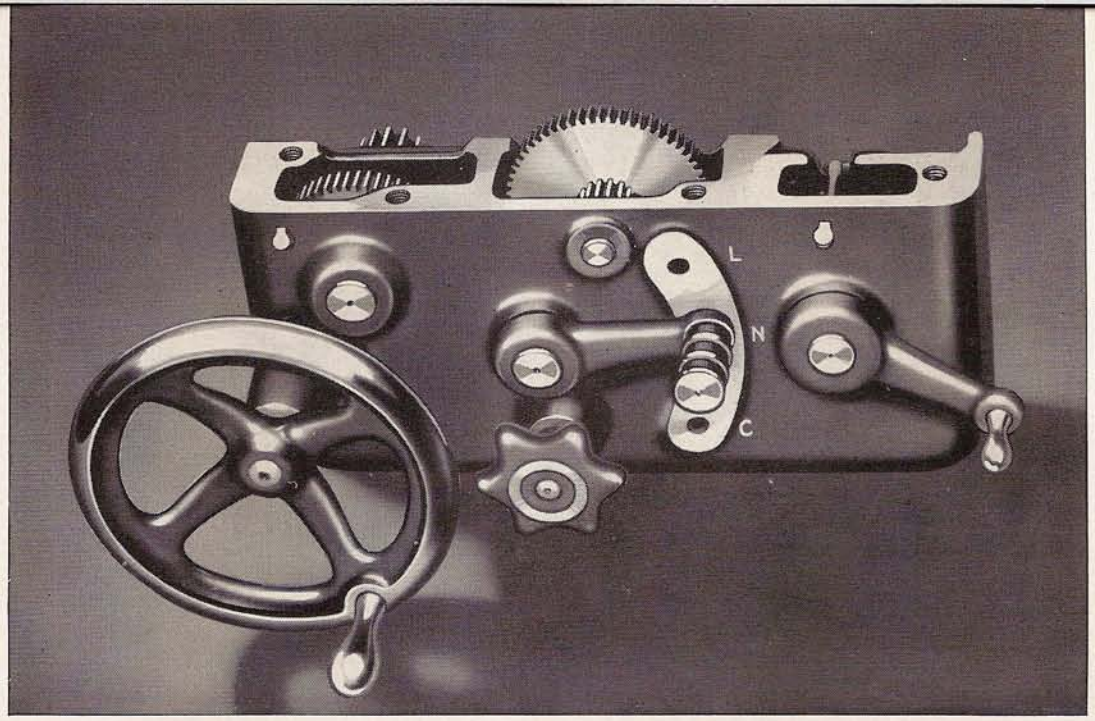


Fig. 17. Front View of Series "T" Double Wall Apron Showing Rigid Box Type Construction

New Series "T" Double Wall Apron

Multiple Disc Friction Clutch—All Gears Steel

The Series "T" double wall apron shown above is rigidly constructed and provides substantial support for both ends of the gear shafts. A tumbler gear shift is used to change from automatic cross feed to automatic longitudinal feed.

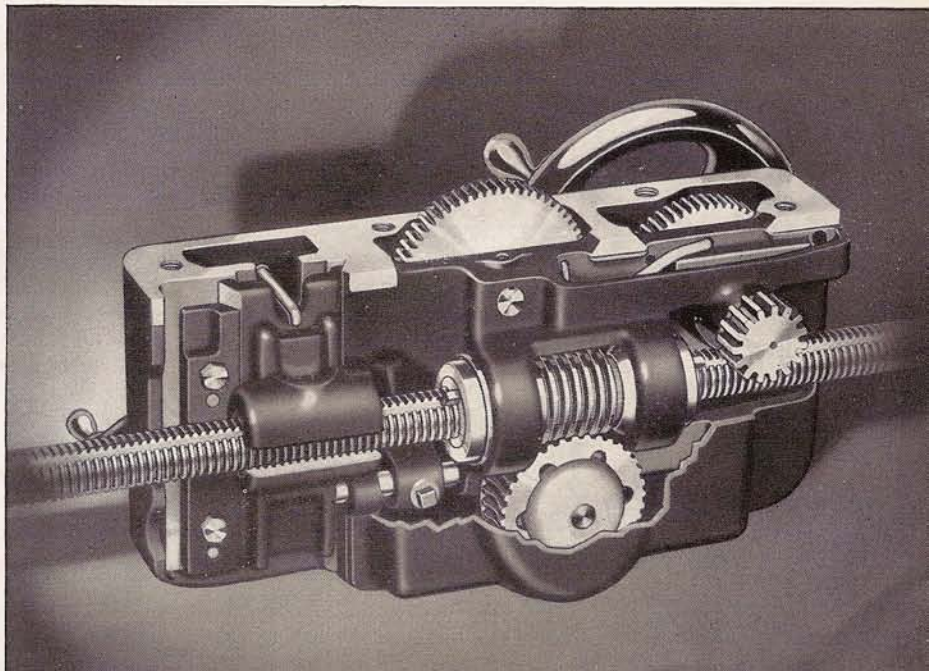
The multiple disc friction clutch used for operating both the automatic cross feeds and the automatic longitudinal feeds is shown in Fig. 18. Alternate steel discs are keyed to the clutch shaft and worm wheel respectively. A slight turn of the clutch knob will engage or disengage the clutch, placing the automatic feeds in operation. This clutch will engage or release instantly. It is smooth in operation and will not stick or slip under heavy cuts.

The half-nuts for thread cutting are close coupled and are dovetailed into the back wall of the apron, as shown in Fig. 19 below. The half-nuts and threads of the lead screw are used only when cutting screw threads as a spline in the lead screw drives the worm which operates the automatic power carriage feeds. An automatic safety interlock prevents engaging either the half-nuts or the automatic feeds when the other is already engaged.

Self Oiling Steel Gears in Apron

Gears in the apron are made of steel and have reservoir and felt wick oiling system. The rack pinion, shown at right end of apron (Fig. 19) is rigidly supported by substantial bearings in both the front wall and back wall of the apron.

Fig. 19. (Right) Back View of New Double Wall Apron



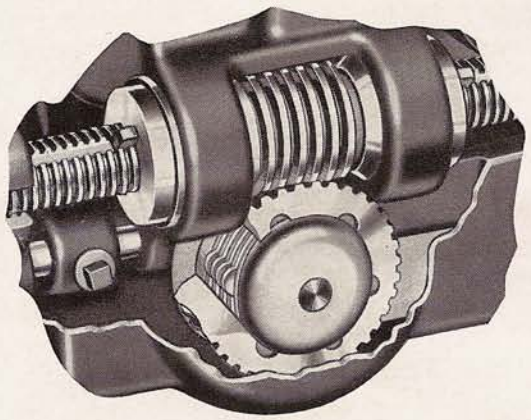


Fig. 18. (Above) Cut-away View Showing the Multiple Disc Friction Feed Clutch

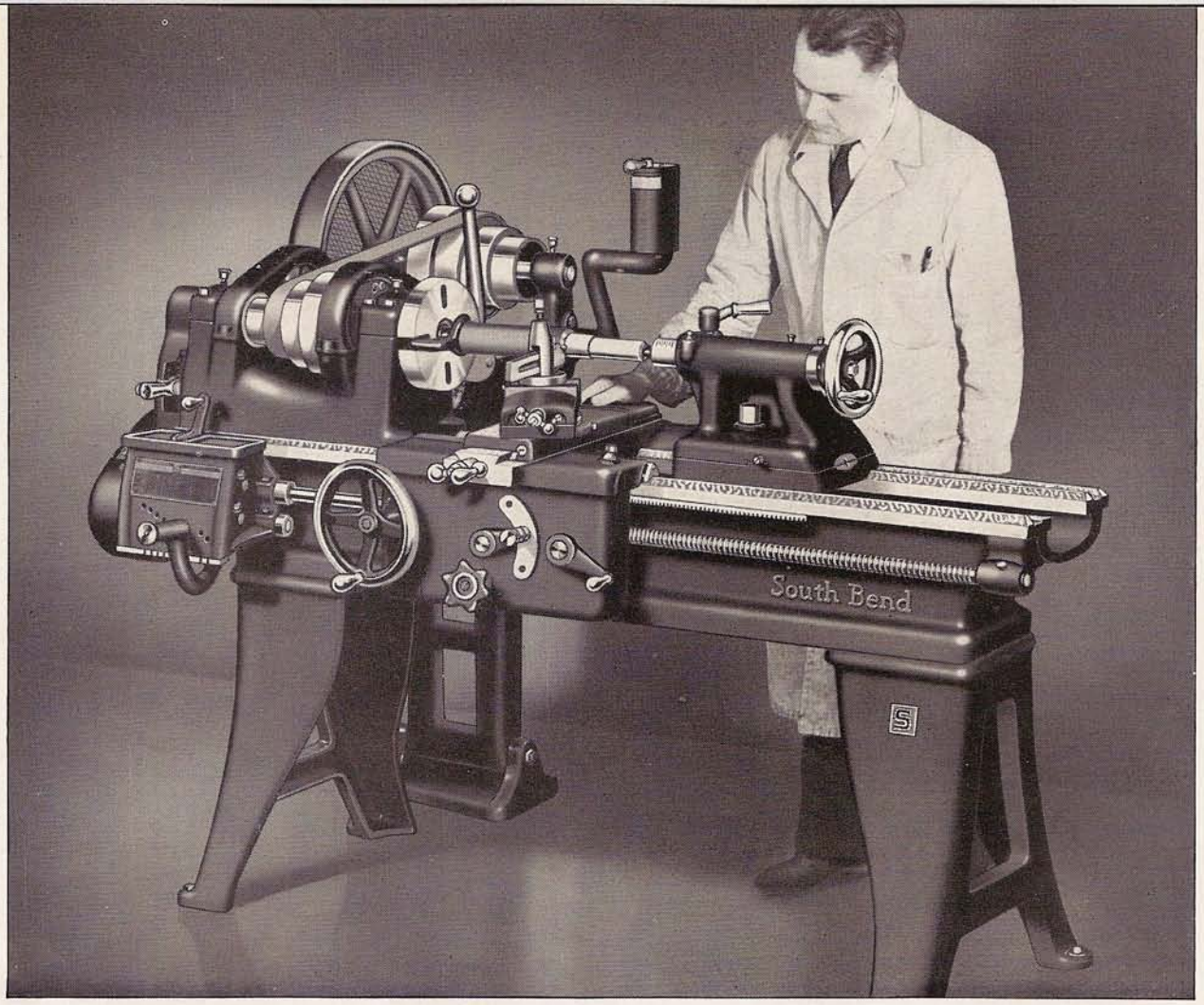


Fig. 9. Pedestal Motor Driven Lathe

Pedestal Adjustable Motor Drive

For Series "T" South Bend Lathes

The new South Bend pedestal adjustable motor drive is convenient and efficient in operation and is reasonable in price. The motor and countershaft are mounted on a tilting pedestal back of the lathe. Power is transmitted from motor to countershaft by V-belts and from countershaft to the lathe spindle by a flat leather belt. This belted drive provides a smooth, steady pull, free from vibration and chatter.

Precision turnbuckle adjustment "A," Fig. 10, permits adjusting cone pulley belt for any desired belt tension. Lever "B" permits releasing the cone pulley belt tension instantly for easy shifting of the belt to change spindle speeds. Adjustment "D" is also provided for adjusting the tension of the V-belts used between the motor and countershaft. The V-belts are enclosed in a substantial guard.

Reversing switch "C" is conveniently located near the lathe spindle and permits the operator to start, stop or reverse the rotation of the lathe from an easy working position. Wiring between the motor and switch is enclosed in the metal arm to which the switch is attached, and in flexible metal conduit. All connections between motor and switch are made at the factory so that the lathe is ready to operate as soon as the lead wires are connected to the electric line.

The lathe is relieved of all strain as the weight of the motor and driving mechanism are supported by the pedestal, as shown in Fig. 10. There is no side pull on the lathe as the two adjustable tension braces "A" equalize the pull of the belt between the countershaft and lathe.

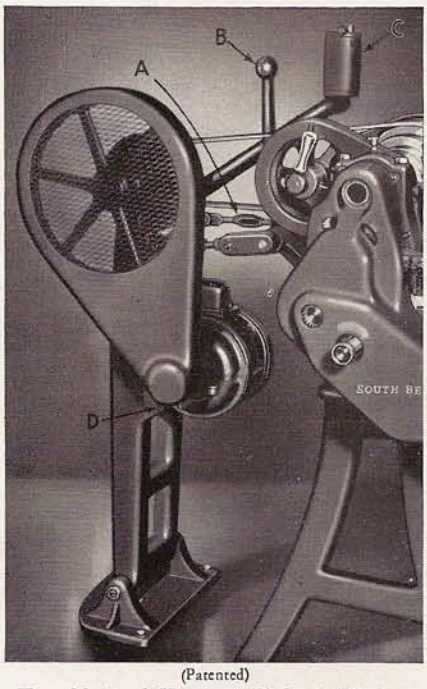


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Fig. 10. End View of Pedestal Drive

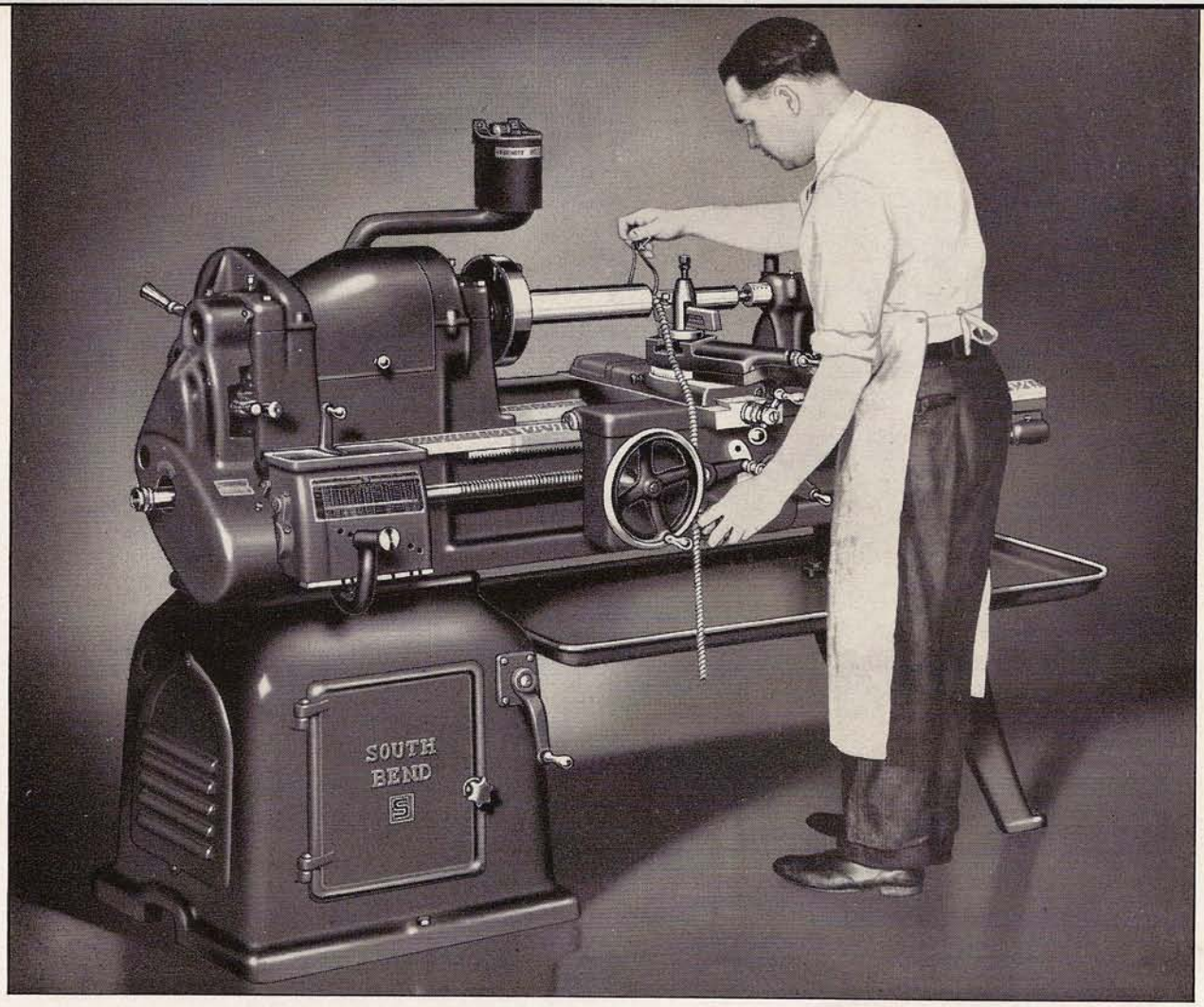

Fig. 7. Underneath Belt Motor Driven Lathe

Underneath Belt Motor Drive

For Series "T" South Bend Lathes

The South Bend Underneath Belt Motor Drive is the most efficient and practical direct drive equipment for a back-geared screw cutting lathe. This fully enclosed drive is unusually compact and is silent in operation, powerful and economical.

The belt drive to the spindle provides a smooth, steady pull free from vibration and chatter. Power is transmitted from the motor to the countershaft by V-belt and from the countershaft up through the lathe bed to the headstock cone pulley by a flat leather belt. The pull of the belt is downward against the solid portion of the headstock.

Precision adjustments, "C" and "D," Fig. 8, provide for obtaining any desired tension on both the cone pulley belt and the motor belt. The adjusting screw "C" permits adjusting the cone pulley belt tension from one ounce to 1000 pounds or more. A belt tension release lever "B" permits releasing the cone pulley belt tension for easy shifting of the belt to change spindle speeds.

A conveniently located drum type reversing switch permits the operator to start, stop or reverse the rotation of the lathe spindle from an easy working position. Wiring between the motor and switch is enclosed in the metal arm to which the switch is attached, and in flexible metal conduit. All connections between motor and switch are made at the factory so that the lathe is ready to operate as soon as the lead wires are connected to the electric line.

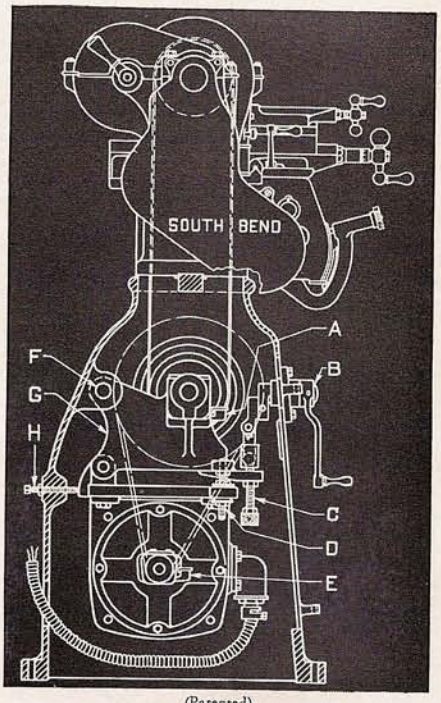

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Fig. 8. End View of Motor Drive

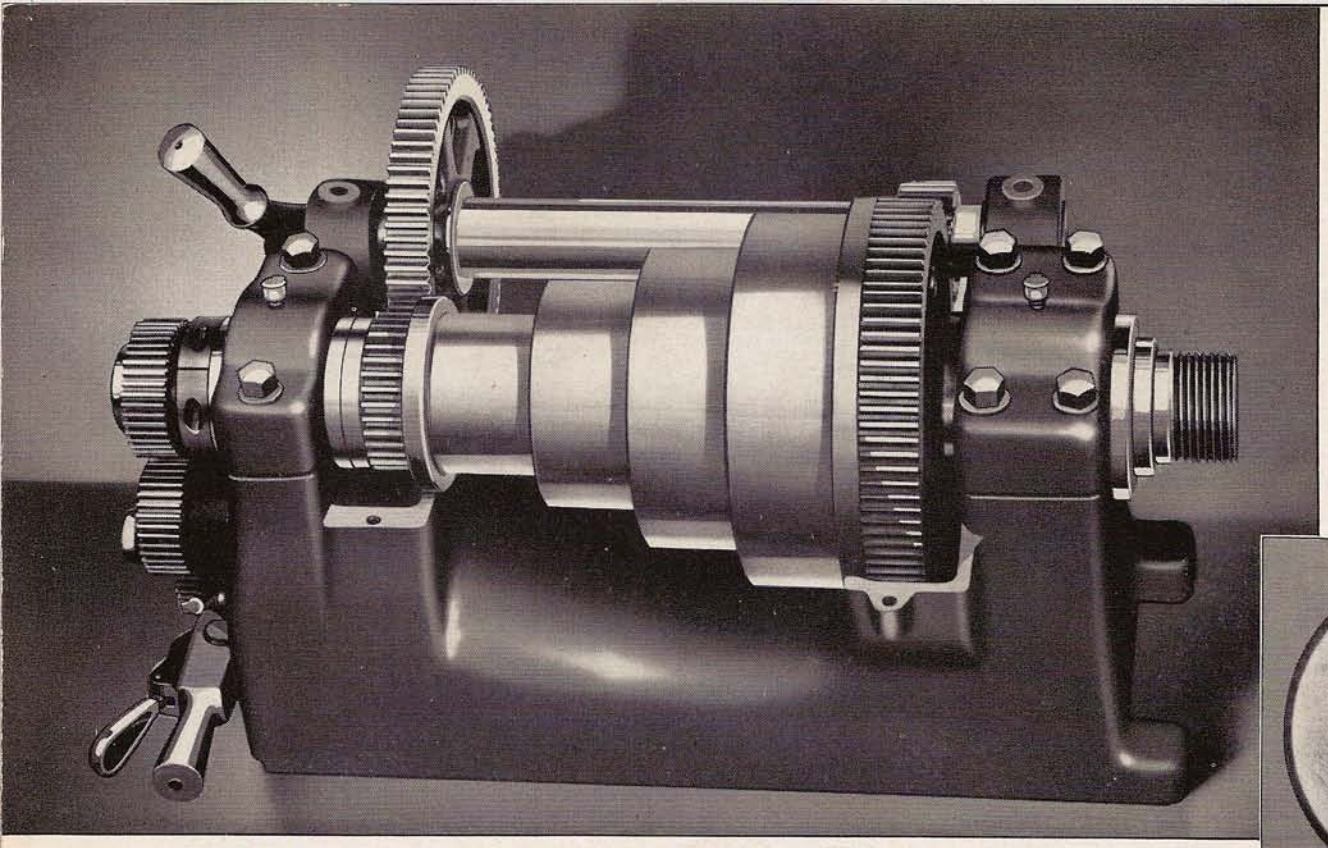

Fig. 15. The Lathe Headstock with Gear Guards Removed to Show Back Gears

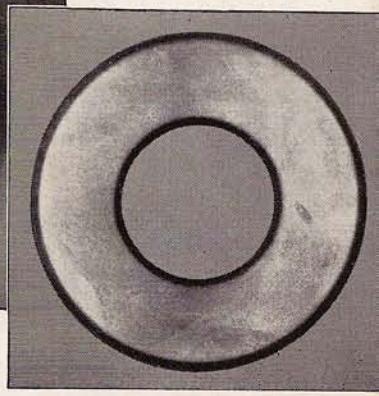

Fig. 15-A. Cross Section of Headstock Spindle for Series "T" Lathes. Dark portion shows depth (3/64") of carburized and hardened bearing surfaces

Series "T" Lathe Headstock

Heat Treated Alloy Steel Spindle—Phosphor Bronze Bearings

Headstocks used on all Series "T" South Bend Lathes are back-geared and are equipped with an improved wrenchless bull gear lock, which permits engaging or disengaging the back gears without using a wrench.

A 4-step cone pulley providing eight changes of spindle speeds (four direct belt drive and four back-geared) is used for the 13", 14½", 16" and 16-24" lathes. A 3-step cone pulley providing six changes of spindle speeds (three direct belt drive and three back-geared) is used for the 9" and 11" lathes.

Carburized and Hardened Spindle

The headstock spindle is made of a special quality alloy spindle steel. All bearing surfaces, including tapered hole, are carburized, hardened and ground, and have a hardness of 51 to 55 on Rockwell C scale. The spindle is hollow so that bars and tubes may be passed through the lathe headstock for machining. A hardened and ground thrust bearing and an adjustable take-up nut are provided to eliminate end play. See Fig. 15-A.

The spindle bearings are made of best quality phosphor bronze and are adjustable for wear. Patented hinge lid oil cups and a felt pad oiling system provide ample lubrication for the spindle bearings.

9-inch 1" Collet Lathe Headstock

The headstock for the 9-inch 1" Collet Lathe is similar to the Series "T" Lathe Headstock except for a special bearing construction and an extra large capacity through the spindle. Integral cast iron spindle bearings and a ball thrust bearing are used. The spindle bearings are adjustable for wear and have an improved capillary oiling system.

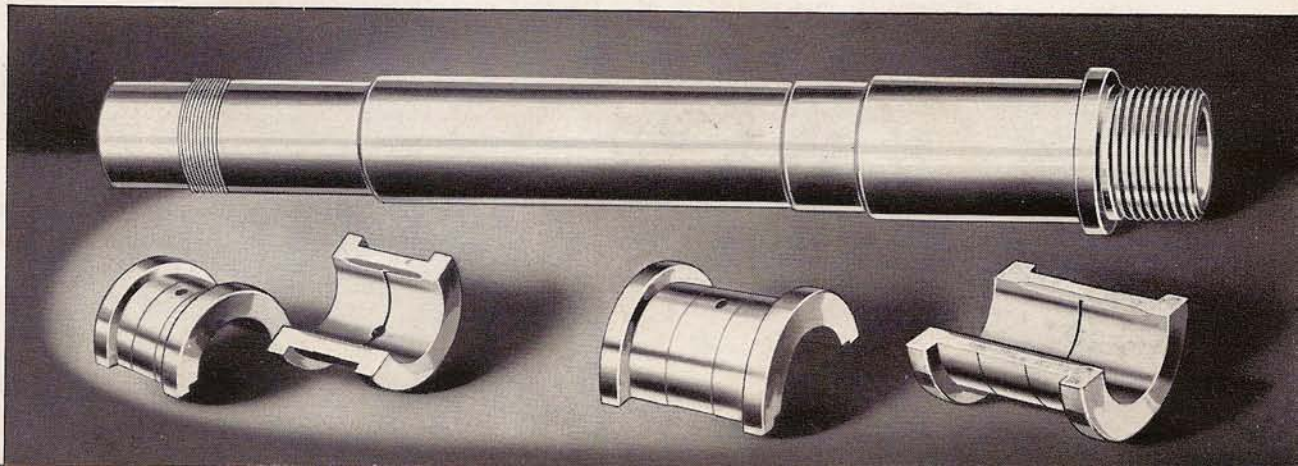

Fig. 16. Hardened and Ground Headstock Spindle and Phosphor Bronze Spindle Bearings.

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