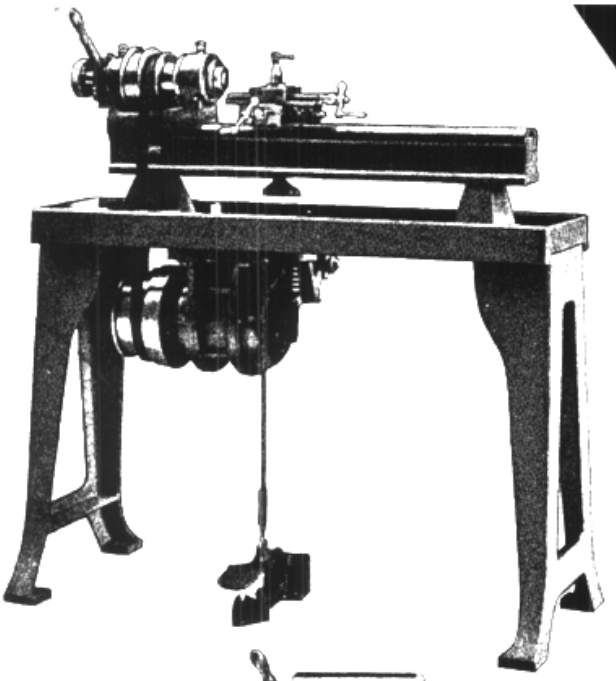
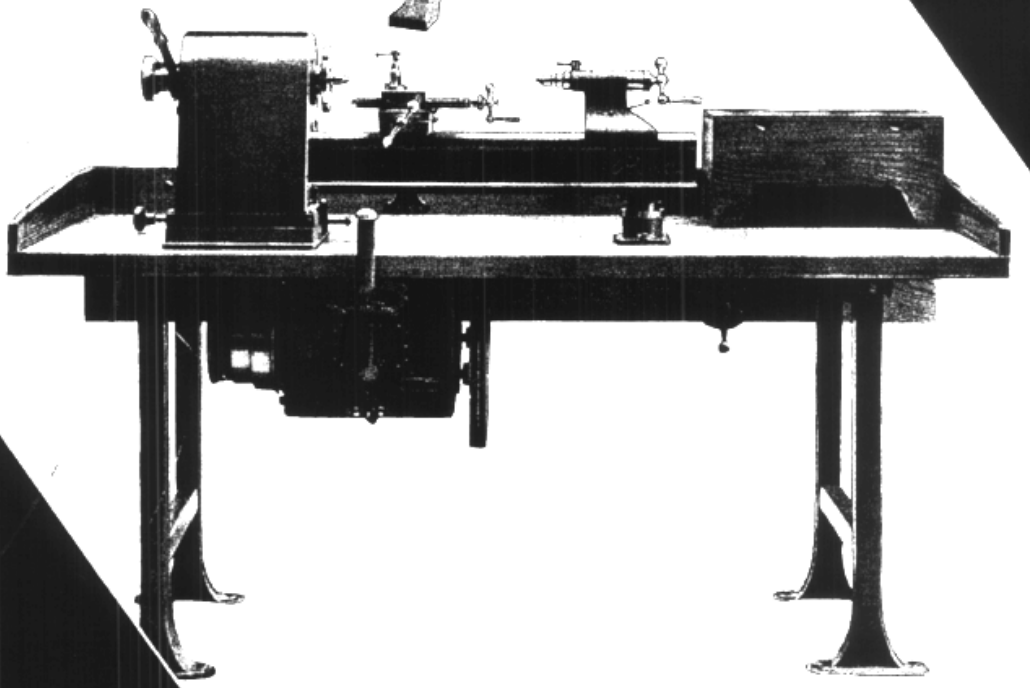
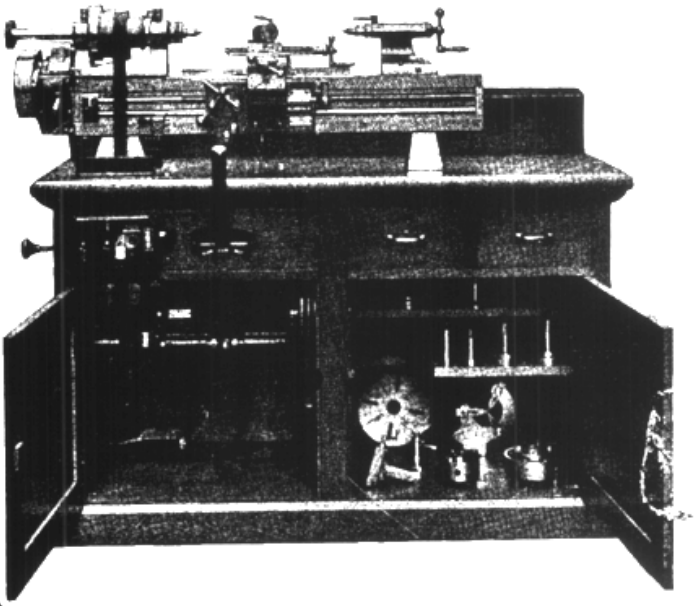
BULLETIN 120-A

RIVETT BENCH LATHE MOUNTING AND DRIVING EQUIPMENT







"If it's Rivett it's Right"

RIVETT LATHE AND GRINDER CORP.
BRIGHTON DISTRICT, BOSTON, MASS., U.S.A.

RIVETT BENCH LATHE MOUNTING AND DRIVING EQUIPMENT

THIS BULLETIN presents a complete line of mounting and driving equipment for bench lathes. In compliance with modern practice, the Rivett Speed Box Motor Drive, the Rivett Direct Motor Drive and the Rivett Horizontal Safety Drive Countershaft are designed to eliminate all overhead belting. Improved ball-bearing countershafts and jackshafts are also offered, as it is realized that some conditions of installation require their use.

In designing and building Rivett bench lathe mounting and driving equipment simplicity and endurance have been consistently attained.

The Rivett Speed Box is a fully encased, splash-lubricated unit employing any standard motor irrespective of voltage, speed or frame and readily mounted in cabinet or under bench or oil pan. Comparison with other makers' equipment of similar character emphasizes its compactness and adaptability. Its construction avoids clutch pulleys and other exposed transmission elements, the use of which involve lubrication problems, vibration and power loss. It is not "a countershaft under a bench." Rivett Jack Pedestals provide screw adjustment for maintenance of correct tension of the endless cone belt.

The Direct Motor Drive eliminates all mechanism intervening between the motor and the lathe spindle yet retains the invaluable feature of endless belt drive. It is convenient especially for single purpose work and particularly where high spindle speed is needed.

The Horizontal Safety Drive Countershaft, driven from individual motor jackshaft or underneath line shaft, while affording the same speed range and control of the lathe, forward or reverse, as the conventional countershaft, mounts directly on the cabinet or bench, provides adjustment for tension of endless belts, and with its grinding countershaft attachment (when required) furnishes necessary drives for all bench lathe attachments.

The Countershafts and Jackshafts offered are completely equipped with ball bearings to escape the troubles attendant upon all plain-bearing transmissions. They are rigidly constructed with rotating parts accurately balanced.

Fine Cabinets, Unit Benches and Oil Pan mountings, in design and construction appropriate and suitable for use with Rivett precision machine tools, are offered. The necessity of using endless belts, to obtain smooth running spindle drives is recognized. The ready application of such belts and the maintenance of proper tension is afforded.

It should be realized that the several drives and mountings shown are not only suitable for all models of Rivett bench lathes but may also advantageously be employed with certain machine tools of other makes.

Enclosed Headstocks for Rivett Series 505 lathes, which assure complete protection of moving parts, are available.

This Bulletin should be used with Rivett Bulletins 608-A (Precision Back Geared Screw Cutting Lathes); 505-C and 505-D (Plain Precision Bench Lathes), or 507-B (*medium priced* Plain Precision Bench Lathes) and 100-A (Draw-in Collets and Chucks) for selecting complete equipments.

RIVETT BENCH LATHE MOUNTING AND DRIVING EQUIPMENT

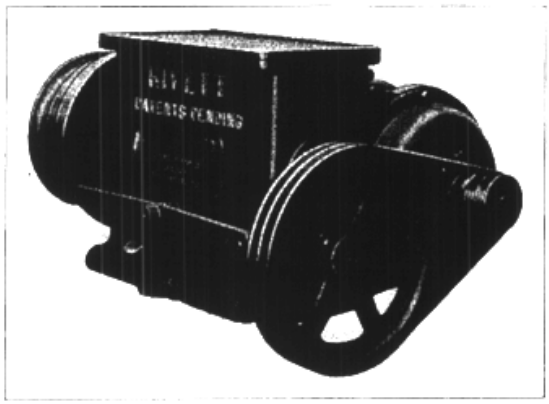


Fig. 1. **Speed Box Motor Drive** (Patents Pending)

THE SPEED BOX MOTOR DRIVE is a self-contained driving unit consisting of a constant speed motor, reduction gearing and cone pulley suitably designed to produce the ranges of speeds required for bench lathes and similar tools. Any desired $\frac{3}{4}$, or 1 H. P. motor is carried on a swinging plate pivoted to the rear face of the speed box with screw adjustment for maintaining proper tension of the double-V endless belts which drive to the speed box lower shaft. Belt sheaves are of sizes in proper ratio for the speeds required. Two pairs of helical-cut spur gears of different ratio, constantly in mesh, connect the lower and upper shafts. Either pair of gears may be selectively employed by action of a double-throw clutch operated by foot treadles or hand lever. Coil compression springs encased in the speed box housing throw the clutch to neutral and stop the lathe on release of the treadle or hand lever. The shafts are heat treated alloy steel running in Timken bearings. The gearing is of modern design and is noiseless and without vibration. The clutch is lined with a moulded composition providing smooth engagement of power and long life. The entire mechanism runs in a bath of oil and a filler gauge permits convenient renewal of lubricant and maintenance of level. The speed box is sealed at every point to prevent leakage of oil. A cover plate, easily removed, gives access to the clutch for adjustment.

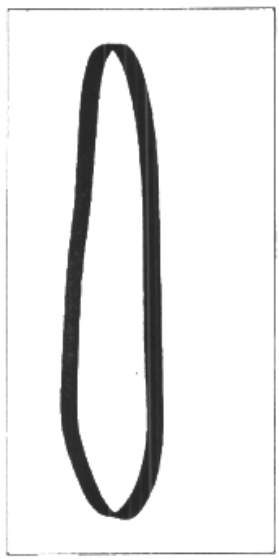


Fig. 2. **Endless Belt**

The upper shaft of the speed box carries a three-step driving cone pulley. Instant change from high speed to low or from low speed to high is available as above described and thus by belt shift on the three-step cone pulley six speeds forward and, by use of reversing switch, six speeds backward are available. An endless leather or fabric belt which passes through opening in cabinet or bench top or oil pan is maintained at proper tension by adjustable jack pedestals on which the bench lathe is mounted.

Fig. 32 gives all essential dimensions. The well-graded speed ranges obtained with this drive are shown in Specifications, Table A, page 16. Weight (without motor) 108 lbs.

THE ENDLESS BELT for cone pulley drive is easily kept at proper tension by adjustment of jack pedestals. A leather or fabric endless belt may be used. To apply a new belt, six screws are removed from the belt guard and the guard is slightly raised, exposing the opening in the bench or cabinet top through which the old belt is withdrawn and the new belt applied. When putting on new endless belt the lathe should be lowered by the jack pedestals to provide upward adjustment for belt tension.

The multiple endless V belt motor drive of the speed box unit, which is furnished with easy means for adjusting belt tension and for replacement, combined with the cone pulley endless belt drive completely saves the expense of time and production loss involved when lapping or hooking belts and avoids the impact of any belt joints, thus insuring a smooth-running transmission with full power.

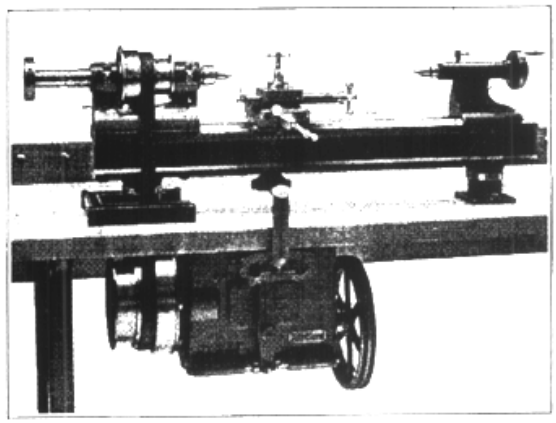


Fig. 3. Rivett Series 507 lathe on bench with **Speed Box Motor Drive**, hand lever control, **Jack Pedestals**, and **Belt Guard**

RIVETT BENCH LATHE MOUNTING AND DRIVING EQUIPMENT

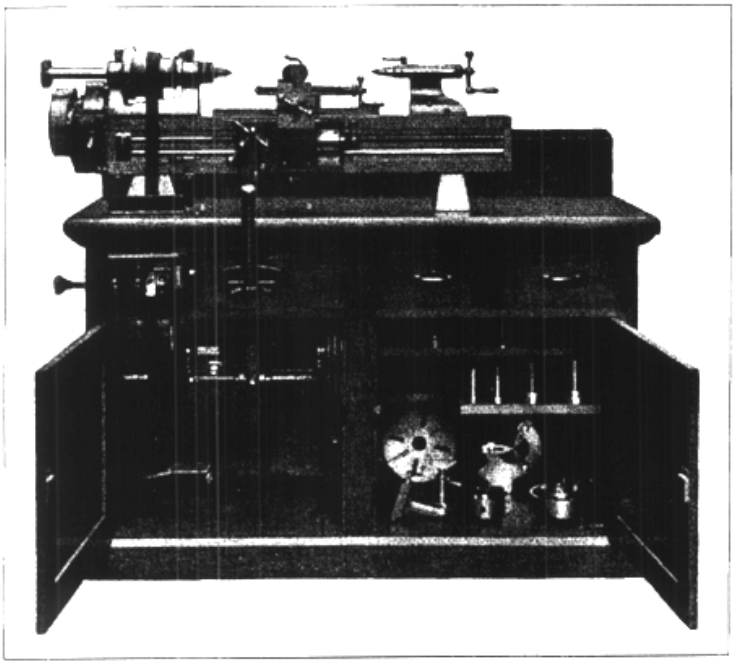


Fig. 4. Rivett 608 back geared screw cutting lathe on cabinet with **Speed Box Motor Drive,** hand lever control

THE SPEED BOX being extremely compact is conveniently mounted in cabinet or under bench or oil pan. The unit is complete in itself and there are no component parts to align when mounting. As used in cabinet, the control is by hand lever, see Fig. 4. When this lever is moved to the left, the lathe is started in low speed range, or when moved to the right, in high speed range. The lever latches in either engaged position and returns to stop position automatically when released by a touch of the hand, body or knee of the operator. The lathe may be instantly reversed through push button magnetic switch with start, stop and reverse stations (Fig. 4). The rod with the knob, seen at left of illustration, shifts the belt on the driving cone pulley, the belt on headstock pulley being shifted by hand. The speed box in cabinet constitutes an almost completely noiseless and vibrationless power application, and the cabinet unit may be set anywhere, requiring only electrical connection. "Isolation" pads are used in assembling Rivett mounted units to absorb sound vibration.

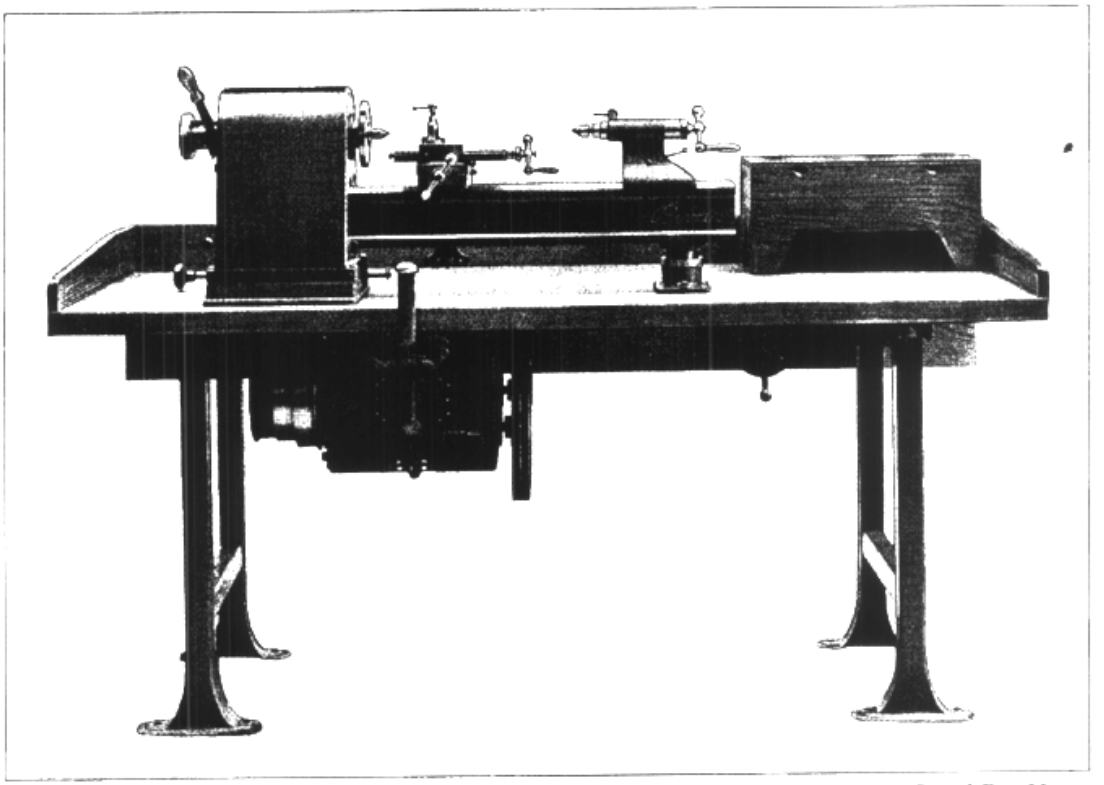


Fig. 5. Rivett Series 505 lathe, enclosed head type, with **Jack Pedestals** on unit bench with **Speed Box Motor Drive,** hand lever control

RIVETT BENCH LATHE MOUNTING AND DRIVING EQUIPMENT

THE SPEED BOX on unit bench is illustrated in Fig. 5. The design of the enclosed head lathe permits the action of the jack pedestals in raising or lowering the lathe to maintain proper tension of endless headstock driving belt, the shifting of the belt and adjustment of bearings being effected through an opening in the casing. In all open or enclosed head lathes a new endless belt may be put on without disassembling headstock spindle or lifting lathe off bench or cabinet.

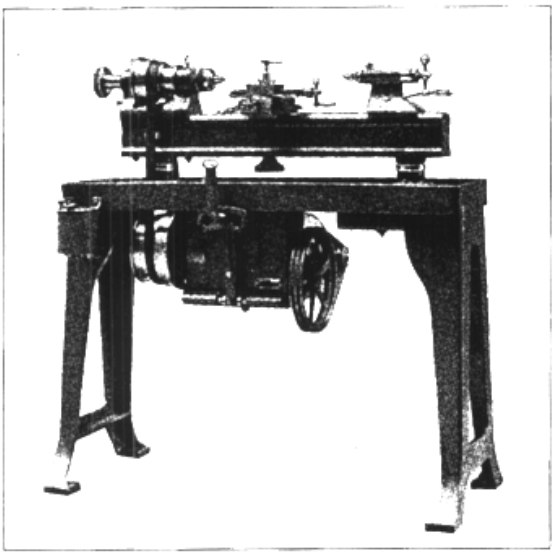


Fig. 6. Rivett Series 505, ball-bearing lathe on oil pan and floor legs with **Speed Box Motor Drive**, hand lever control and **Jack Pedestals**

THE SPEED BOX applied to oil pan mounting is seen in Fig. 6. A Rivett ball-bearing high speed lathe is shown. The speed box with standard 1750 R.P.M. motor drives the lathe up to 4600 R.P.M., giving necessary cutting speeds for efficient utilization of Tungsten Carbide tools for correct machining of average diameter work, and for correct machining of small diameter work with ordinary steel tools. The high speeds attainable with Rivett ball-bearing lathes are desirable for working brass and various synthetic materials. For range of lathe speeds and corresponding cutting speeds see table "B", page 16. The speed box drives the lathe at maximum speed without vibration or noise.

THE JACK PEDESTAL consists of a base, threaded to receive the head on which the lathe bed rests. To adjust pedestals for cone belt tension the pedestal bolts are loosened, the locking screws released and the heads of the pedestals are turned, left-handed to raise the bed, by the use of a bar in the capstan holes. By turning both heads the same number of holes the level of the lathe is maintained. The tailstock pedestal is made with a spherical depression in its top in which rests a spherical washer carrying the bed. This design gives a *three-point bearing* to the lathe which guards against distortion. After desired adjustment has been made, the bolts which fasten the lathe to the cabinet or bench are tightened. The same tailstock jack pedestal is used for both enclosed type and open lathes. The headstock jack pedestal for enclosed type lathes has a curb which surrounds the belt opening and receives the lower end of the headstock. The headstock jack pedestal for open lathes is mounted with a belt guard, as shown in Fig. 3, which surrounds the belt opening and re-enforces the cut-away portion of the cabinet or bench.

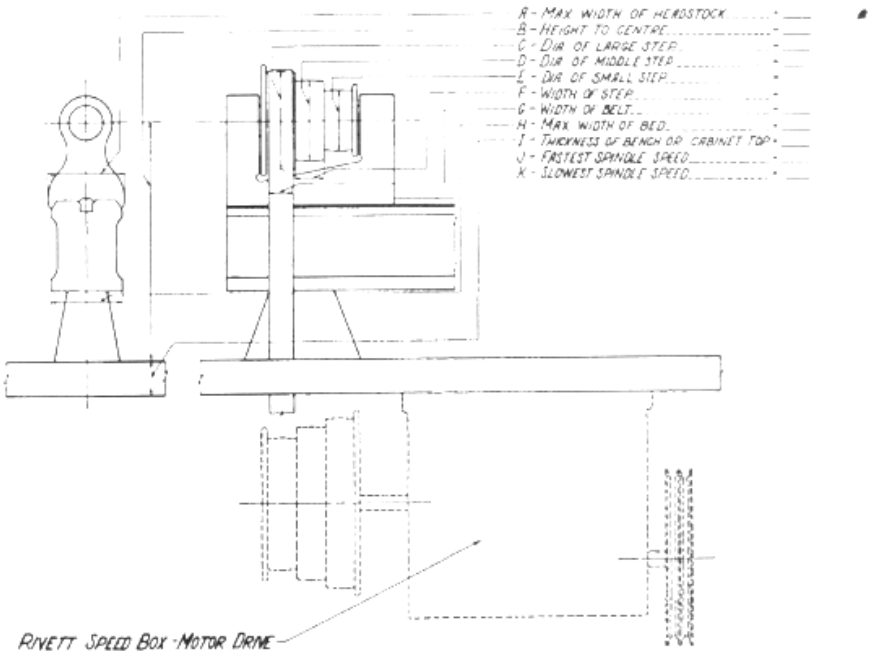


Fig. 7. Diagram — Dimensions required to apply **Rivett Speed Box Motor Drive** to lathes

RIVETT BENCH LATHE MOUNTING AND DRIVING EQUIPMENT

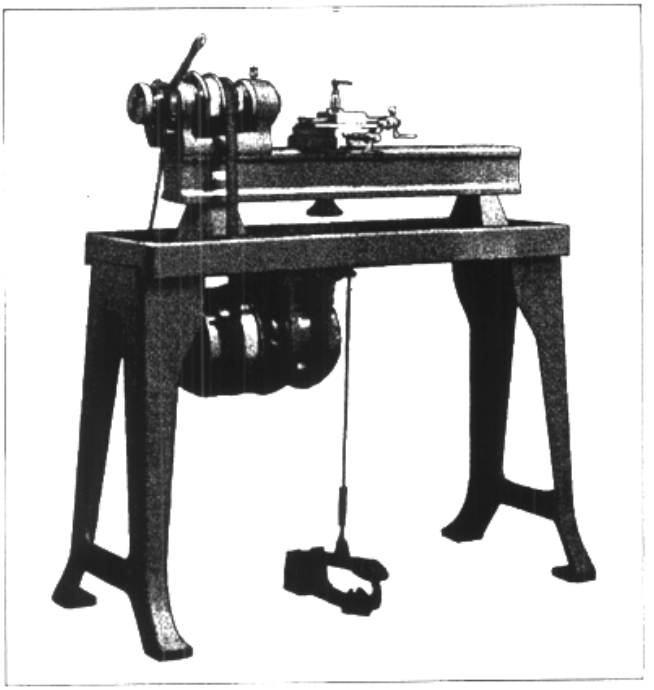


Fig 8. Rivett Series 505 ball-bearing, high-speed lathe on Oil Pan and Floor Legs with Direct Motor Drive (Patents Pending)

THE DIRECT MOTOR DRIVE comprises a 1750 R.P.M. A.C. or D.C. motor ½, ¾ or 1 H.P. or slower speed motor down to 600 R.P.M. ½ H.P. A.C. mounted on a swinging plate suspended under bench top or oil pan. The aim of its design is to produce a drive for bench lathes or other machine tools of similar character, without mechanism of any kind intervening between the motor and the spindle. The three-step cone pulley affords a range of speeds adequate for many bench lathe uses, and for strictly single purpose installations it is specially valuable on account of its economy, simplicity and quick action.

The motor plate is pivoted at its rear end to the supporting bracket which is bolted under the bench or oil pan. A heavy coil spring of sufficient power to overbalance the weight of the motor and plate holds the motor normally in its upper position where there is no contact of the belt on the driving cone pulley. An operating rod, adjustable in length, connects the motor plate and the foot treadle. When the treadle is depressed, the motor is drawn down against the spring tension and the cone pulley engages the belt and runs the lathe. The adjustment in the operating rod gives correct tension on the belt for full driving power without undue loading of bearings. The latch treadle, Fig. 24, keeps the lathe running without any effort on the part of the operator, and to stop the lathe the latch is released by an outward movement of the foot, the spring returns the motor to its upper position and the lathe stops, the momentum of the moving parts being immediately checked by the action of an automatic brake which receives its motion from the motor plate and applies the brake shoe to the inner rim of the headstock cone pulley. When the motor is drawn down to start the lathe, the brake is automatically released. It will be seen that as the spindle is thus stopped and started instantaneously, there is no lost time between operations. An endless leather or fabric belt may be used. The adjustment of the operating rod compensates for the stretch of belt during its life. The invaluable feature of endless belt drive is attained, and no vibration whatever imparted from the driving mechanism to the lathe spindle. The belt is shifted from one step of the cone pulley to another by hand. Replacement is accomplished by passing the new endless belt through the openings in belt guard and bench top, or oil pan. The brake is adjustable to compensate for wear, the shoe being faced with molded brake composition. When performing very short operations on the lathe, the latch of the treadle may easily be dismounted and plain treadle action employed.

Large numbers of bench lathes, driven by old-fashioned overhead countershafts or home-made plain-bearing jackshafts, are employed in manufacturing plants for production of duplicate parts. The trend of modern practice is away from overhead and plain-bearing power transmissions. The Rivett direct motor drive is used to modernize such installations with minimum expense and effort. Driving cone pulleys for all makes of lathes are available.

For speed ranges see Specifications, Table E, page 16. For dimension diagram, see Fig. 33, page 13.

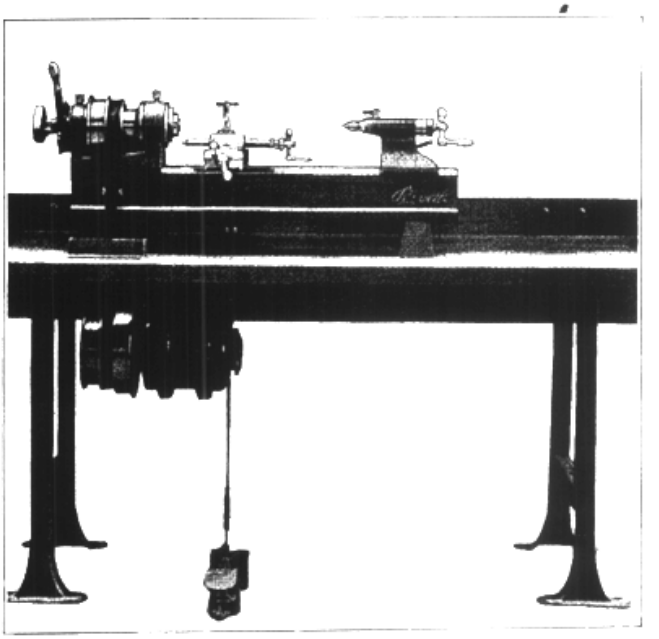


Fig. 9. Rivett Series 505 ball-bearing, high-speed lathe on bench with Direct Motor Drive (Patents Pending)

RIVETT BENCH LATHE MOUNTING AND DRIVING EQUIPMENT

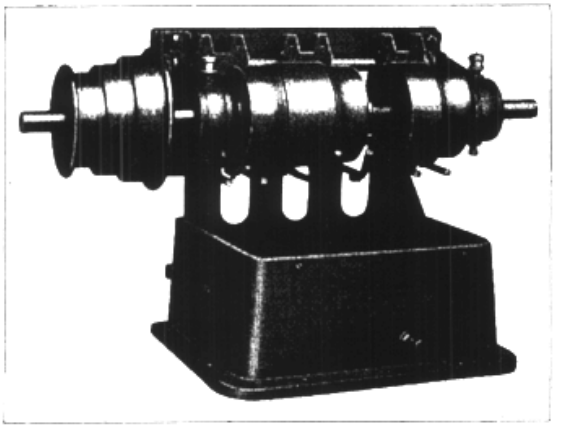


Fig. 10. **Horizontal Safety Drive Countershaft** ball-bearing, cover removed (Patented, June 19, 1929)

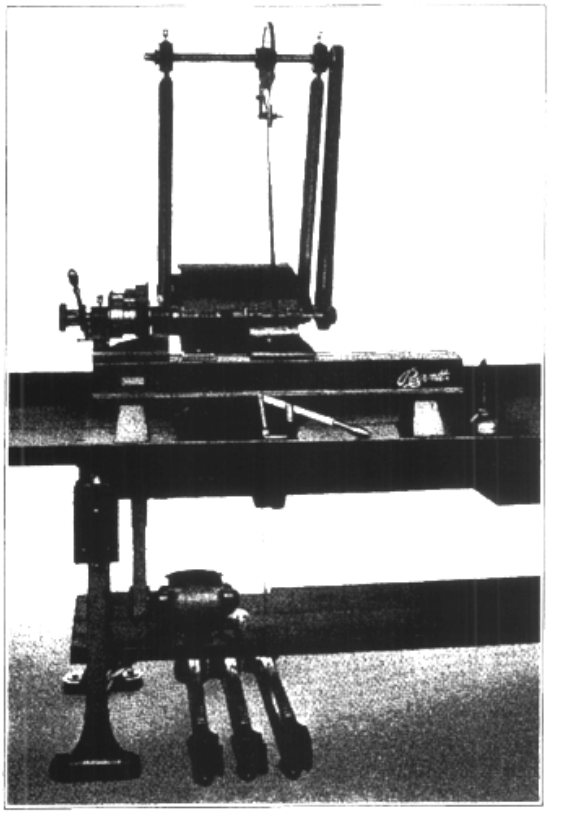


Fig. 12. Rivett Series 505 lathe on bench with **Horizontal Safety Drive Countershaft, Grinding Countershaft Attachment,** ball-bearing, and **Latch Treadles.** Weight of this grinding attachment countershaft 68 lbs.

THE HORIZONTAL SAFETY DRIVE COUNTERSHAFT may be used for driving all open and enclosed-head lathes. It is a ball-bearing countershaft carried on a bracket hinged to the belt guard and with a tension rod and nut which tighten both the horizontal cone belt and the vertical belts from the ball-bearing jackshaft, all of which may, therefore, have lapped and cemented joints. Exactly the right belt tension for adequate driving power, without undue load on bearings, is easily secured. After adjusting the belt tension, the countershaft base is rigidly locked to the belt guard, making a solid, steady construction. Economy in belting is obtained as the belts used are shorter than for overhead countershaft drives and, with cemented joints, will last for years. The countershaft has a removable sheet metal cover eliminating all danger. The horizontal safety drive countershaft may be driven from individual motor drive jackshaft, Fig. 11, or for group drive, from line shaft under bench, see Fig. 34. The advantage of direct mounting on bench or cabinet is obtained. With the ball-bearing grinding countershaft attachment, Fig. 12, overhead drives for grinding attachments, revolving spindle tailstock, etc., are available. Weight of horizontal safety drive countershaft only, Fig. 10, 108 lbs.

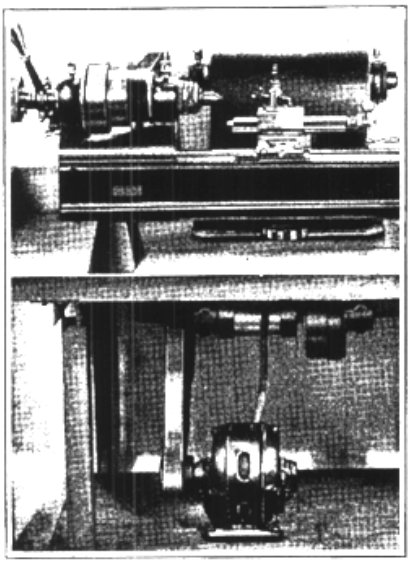


Fig. 11. Rivett Series 505 lathe on bench with **Horizontal Safety Drive Countershaft and Jackshaft**

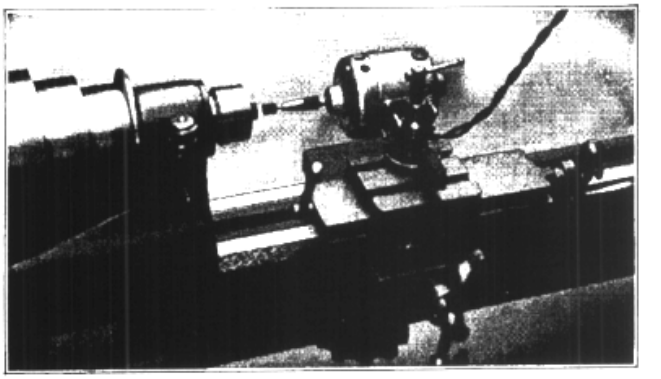


Fig. 13. **Electric Motor Slide Rest Grinding Attachment** convenient for internal and external work where lathe installation provides no overhead drive for regular grinding attachments. Cord attaches to lamp socket. Supplied for either 105-115 A.C. or D.C. or 220-230 A.C. or D.C. Specify voltage when ordering. Spindle speed is 20,000 R.P.M.

RIVETT BENCH LATHE MOUNTING AND DRIVING EQUIPMENT

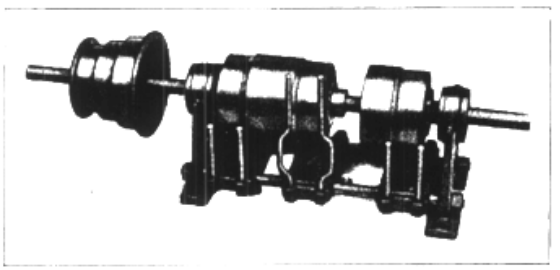


Fig. 14. **Wall or Ceiling Countershaft**, ball-bearing

THE WALL OR CEILING COUNTERSHAFT consists of three pairs of tight and loose pulleys providing two speeds forward and one reverse. It may be mounted on wall or ceiling or on plank carried by countershaft plank supports, see illustrations on page nine. The belt shifter forks are in universal arrangement providing for drives from above, horizontally or below. The shaft carries the driving cone pulley which may be on right or left of countershaft. Ball-bearings are used in journals and loose pulleys obviating the trouble attendant upon all plain-bearing countershafts. The pulleys are accurately balanced. Recommended speeds are shown in Specifications, Table "C", page 16. Weight 57 lbs.

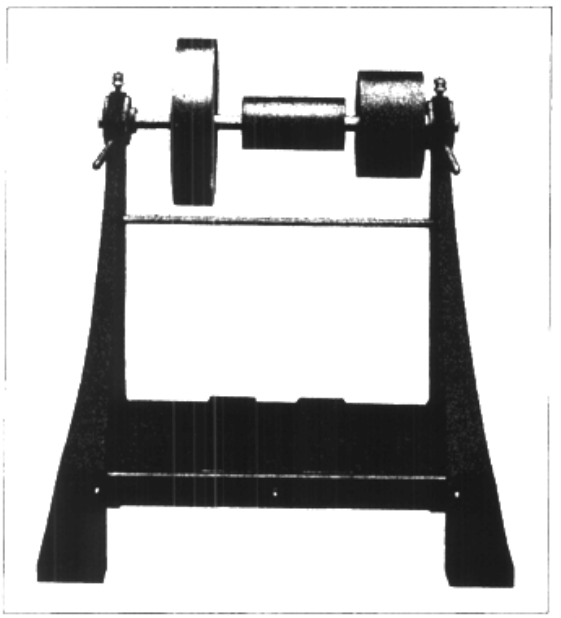


Fig. 16. **Individual Motor Drive Jackshaft**, ball-bearing

THE INDIVIDUAL MOTOR DRIVE JACKSHAFT consists of a motor platform with brackets carrying a shaft and pulleys identical with jackshaft, Fig. 17. It may be used under bench or oil pan, Fig. 18. Weight 187 lbs.

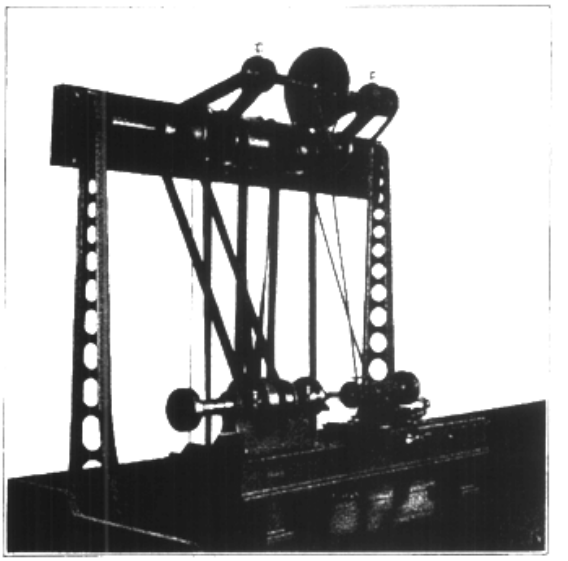


Fig. 15. Rivett Series 507 lathe, external grinding attachment, on bench with **Countershaft Plank Supports, Wall Countershaft** with **Grinding Countershaft Attachment**, ball-bearing

THE GRINDING COUNTERSHAFT ATTACHMENT bolts rigidly to the countershaft brackets and is driven by an endless belt from an outboard pulley carried on the countershaft. A swinging idler pulley, suitably weighted, maintains tension on the round belt used for driving grinding attachments, revolving-spindle tailstock, etc. The grooved driving pulley with its idler may be shifted endwise on its shaft to line up with the lathe attachments below. The shaft runs in ball bearings. Pulleys are accurately balanced. For pulley diameters and recommended speeds see Specifications, Table "G", page 16. Weight 40 lbs.

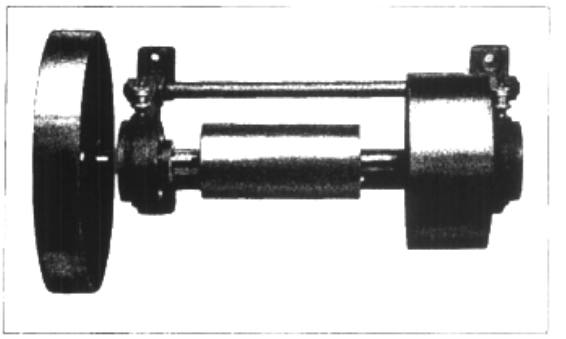


Fig. 17. **Jackshaft**, ball-bearing

THE JACKSHAFT carries a large pulley for motor belt, and two wide-faced pulleys for the three driving belts to countershaft. It is a ball-bearing unit which may be readily mounted in cabinet, Fig. 20, under bench, Fig. 22, or on plank supported on floor leg brackets back of oil pan, Fig. 19. For pulley sizes and recommended speeds see Specifications, Table "F", page 16. Weight 14 lbs.

RIVETT BENCH LATHE MOUNTING AND DRIVING EQUIPMENT

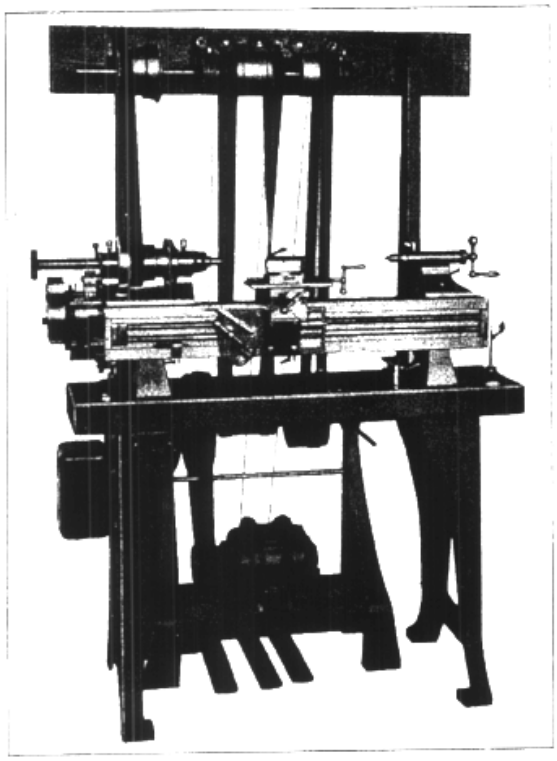


Fig. 18. Rivett 608 lathe on **Oil Pan** and **Floor Legs** with **Countershaft Plank Supports, Wall Countershaft, Individual Motor Drive Jackshaft** and **Plain Foot Treadles**

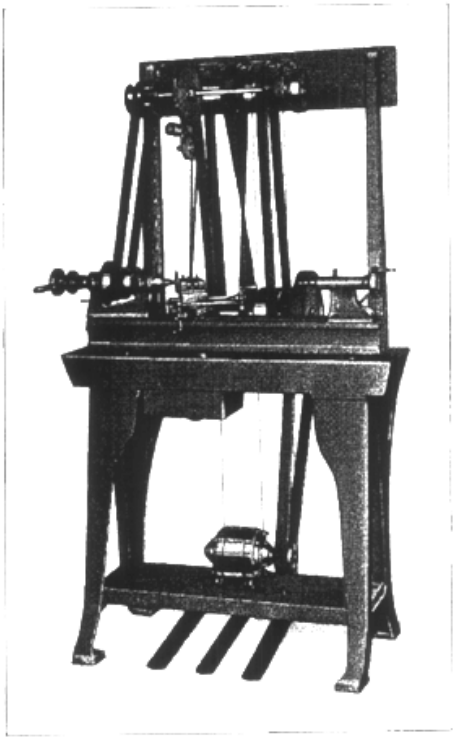


Fig. 19. Rivett Series 507 lathe, external grinding attachment, on **Oil Pan** and **Floor Legs** with **Countershaft Plank Supports, Jackshaft** on **Plank, Wall Countershaft** with **Grinding Countershaft Attachment,** ball-bearing, **Motor Plank** on **Floor Legs** and **Plain Foot Treadles**

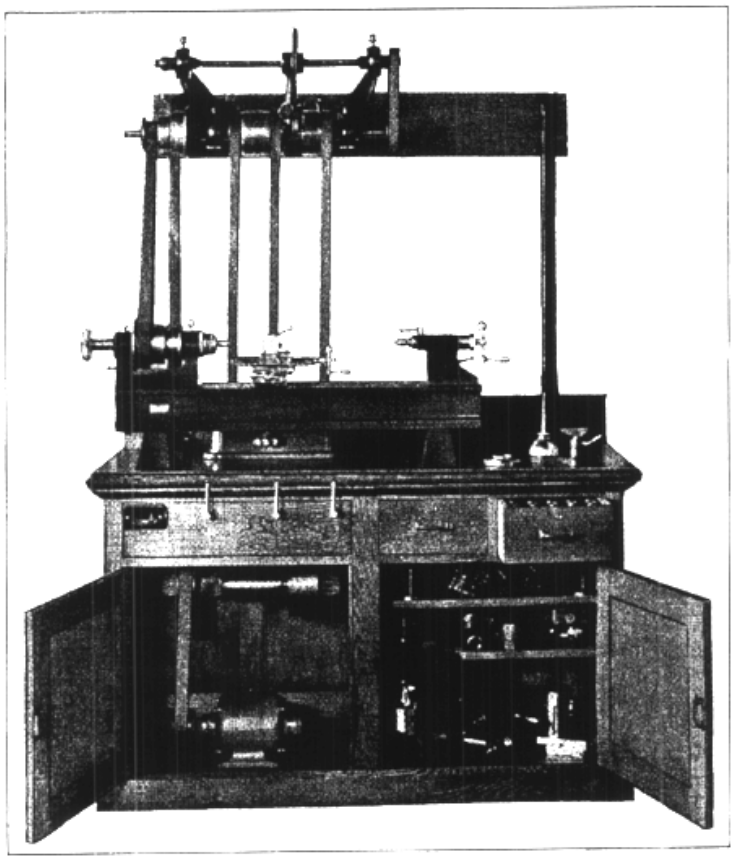


Fig. 20. Rivett Series 505 lathe on **Cabinet** with **Countershaft Plank Supports, Countershaft Plank, Wall Countershaft** with **Grinding Countershaft Attachment, Belt Guard** and **Jackshaft**

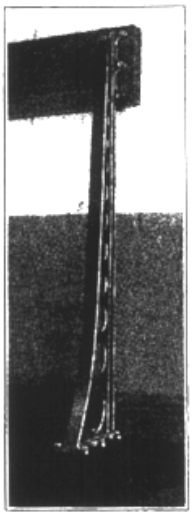


Fig. 21. **Countershaft Plank Support** — Weight 17 lbs. each

RIVETT BENCH LATHE MOUNTING AND DRIVING EQUIPMENT

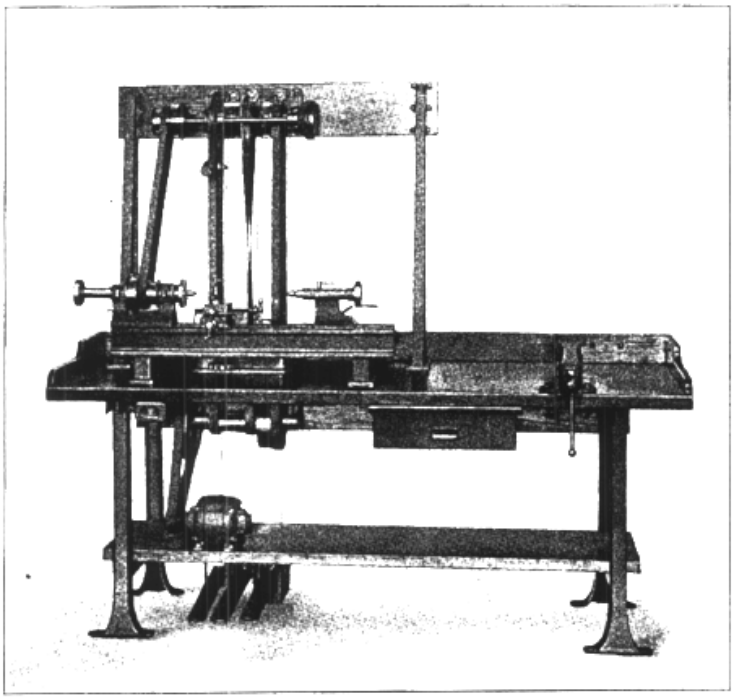


Fig. 22. Rivett Series 507 Lathe on bench with **Countershaft Plank Supports, Countershaft Plank, Wall Countershaft with Grinding Countershaft Attachment, Belt Guard, Jackshaft, Motor Plank on Bench Legs, Bench Drawer and Plain Foot Treadles**

As seen in Fig. 19 the jackshaft may be mounted on plank carried on brackets cast on floor legs back of oil pan. For this assembly the countershaft plank supports are also mounted on floor leg brackets, and the motor is carried on motor plank supported on the floor legs. Fig. 20 illustrates the jackshaft mounted in cabinet and Fig. 22 shows the jackshaft mounted on the back plank of bench.

Fig. 18 illustrates the individual motor drive jackshaft arranged to drive the countershaft of a lathe on oil pan and floor legs. Where it is desired to use a countershaft with individual motor drive and yet to avoid all possible vibration by not mounting the motor on the oil pan or bench, the individual motor drive jackshaft, a complete ball-bearing unit, is valuable.

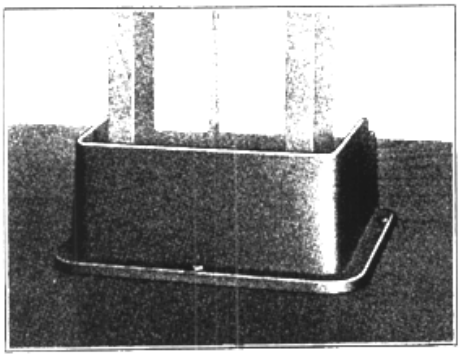


Fig. 23. **Belt Guard** — Weight 22 lbs.

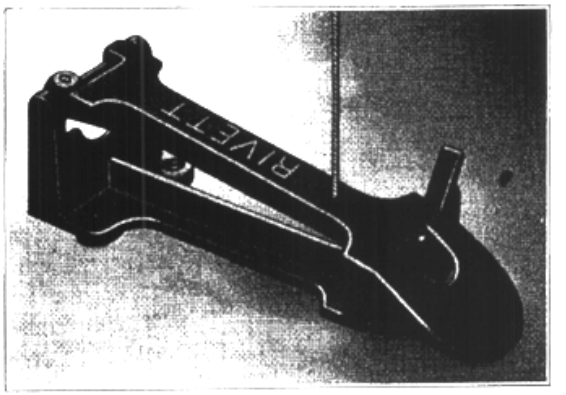


Fig. 24. **Latch Treadle**

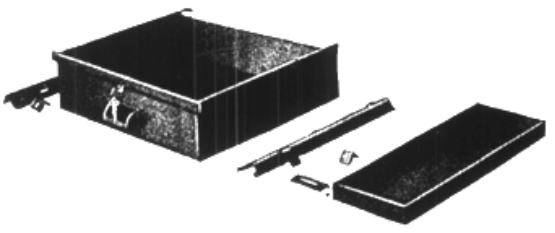


Fig. 25. **Bench Drawer** — Weight 17 lbs.

THE RIVETT LATCH TREADLE is designed to relieve the operator of the effort necessary to hold down the treadle during long operations. The latch automatically engages when the treadle is depressed, and is released by a slight lateral movement of the operator's foot. To use the treadle it is never necessary to stand on one foot, a distinct advantage. Latch treadles are made in two lengths to suit various installations. A flexible wire cable $\frac{1}{8}$" diameter transmits the treadle movement to the shifter mechanism. A binder bolt provides fastening and length adjustment for the cable. An operating rod with turnbuckle adjustment for length may be used in place of cable. See Figs. 8 and 9. Weight each, short treadle, 6 lbs.; long treadle, 10 lbs.

RIVETT BENCH LATHE MOUNTING AND DRIVING EQUIPMENT

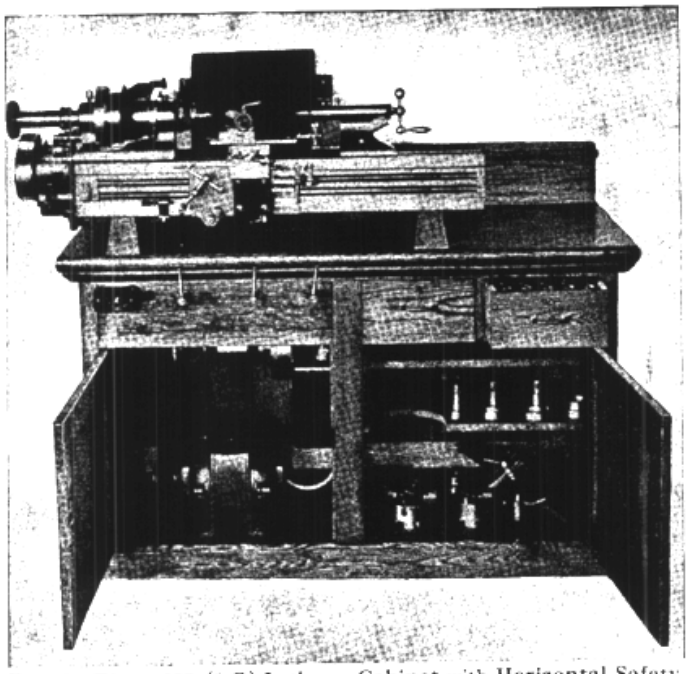


Fig. 26. Rivett 608 (5-C) Lathe on **Cabinet** with **Horizontal Safety Drive Countershaft** and **Jackshaft**

THE OAK CABINET is heavily built of quartered stock with five-ply laminated top. With speed box motor drive, hand lever control, as seen in Fig. 4, is used and belt shifter rod provides convenient handling of cone belt. Jack pedestals are usually selected, the cabinet top then being cut away to provide a belt opening as described on page five. With horizontal safety drive countershaft on cabinet, three hand belt shifters are provided, as shown in Fig. 26. With countershaft drive on cabinet, as seen in Fig. 20, three hand belt shifters are similarly used and the countershaft plank supports and belt guard are mounted on the cabinet top. Two drawers with locks afford convenient placement for small attachments, the right hand drawer being equipped with a collet board. The right hand compartment provides ample space for the storage of the larger attachments. Both compartment doors are furnished with locks. The cabinet is finished in natural oak and constitutes an ideal mounting for fine bench lathes. Weight of cabinet only, 245 lbs.

THE OIL PAN is made in two styles; one for use with speed box motor drive and direct motor drive, see Figs. 28 and 8, in which guarded opening for application of endless belts is provided, and the other for use where countershaft drive is employed, see Figs. 27 and 29. Floor legs with brackets are furnished with oil pan where individual motor drive is used, see Fig. 19. Oil pans are provided with wells or sumps for collection of cutting lubricant. A strainer separates the chips from the oil. The oil pump intake pipe draws its supply from the oil pan well.

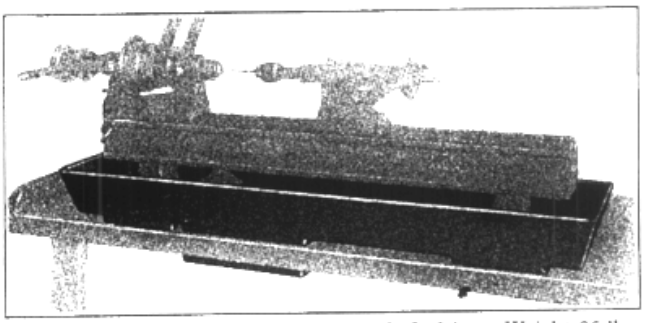


Fig. 27. **Oil Pan** on bench, for countershaft drive. Weight 86 lbs.

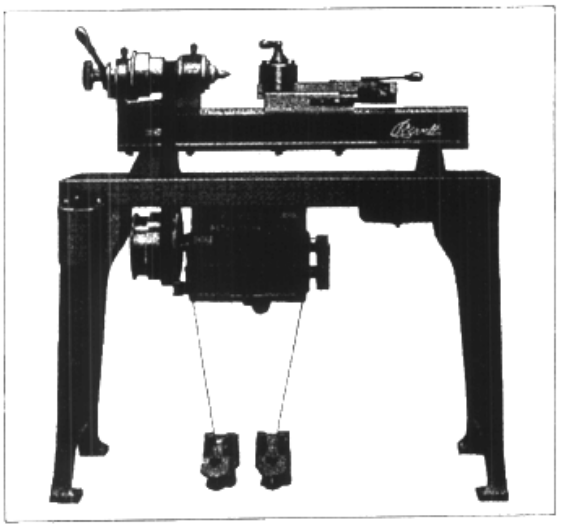


Fig. 28. Rivett Series 505 ball-bearing high-speed lathe on **Oil Pan** and **Floor Legs** with **Speed Box Motor Drive** and **Latch Treadles**. Weight (Oil Pan and Floor Legs only), 250 lbs.

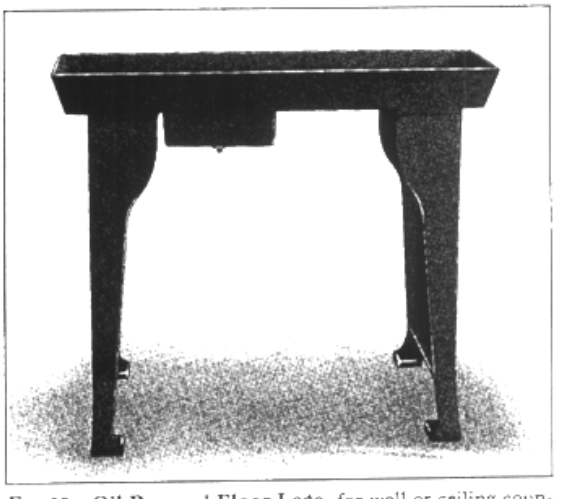


Fig. 29. **Oil Pan** and **Floor Legs**, for wall or ceiling countershaft drive. Weight 200 lbs.

RIVETT BENCH LATHE MOUNTING AND DRIVING EQUIPMENT

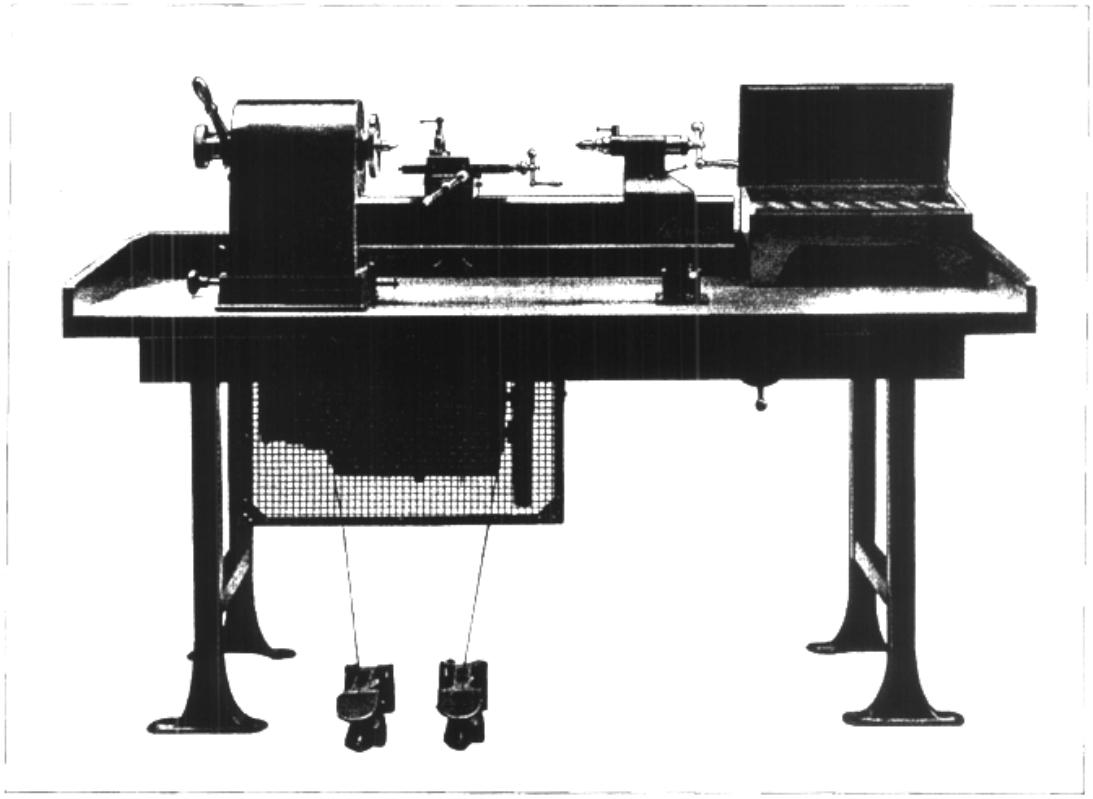


Fig. 30. Rivett Series 505 Lathe, enclosed head type, on Unit Bench with Collet Box, Speed Box Motor Drive, Screen Guard, Jack Pedestals and Latch Treadles

THE UNIT BENCH is built with five-ply laminated maple top and pressed steel bench legs, see dimension diagram, Fig. 35. For use with speed box motor drive or direct motor drive the bench top is cut away to provide for application of endless cone belts, see plan view "A", Fig. 35, or when used with jackshaft drive as in Fig. 11 a hole for belts, see plan view "B", Fig. 35, is cut. The belt guard protects this opening. The bench is of rigid construction and may be used with speed box having either hand lever control, Fig. 5, or latch treadles, Fig. 30, or with direct motor drive, Fig. 9, or with jackshaft and horizontal safety drive countershaft, Figs. 11 and 12, or with plain jackshaft and countershaft plank supports, Fig. 22, or, without belt opening, for wall countershaft and overhead lineshaft drive, see dimension diagram, Fig. 37. Lower plank, or motor shelf, as in Fig. 12, is required for mounting motor, and countershaft plank is required for mounting wall countershaft on countershaft plank supports as in Fig. 15. Bench drawer, Fig. 25, is optional. Weight, 6 ft. bench with legs, 132 lbs.

THE COLLET BOX, furnished when specified, is of laminated maple with hinged cover, and lock. It may be fastened to the back board of the bench. The lower part is of open construction for ventilation and cleaning of bench. Complete sets of collets and centers for lathe are carried in suitable perforations.

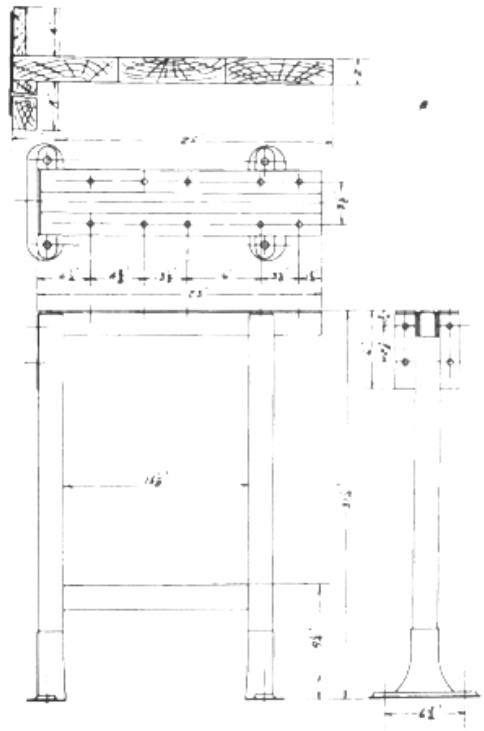


Fig. 31. Dimension diagram of Bench Leg

RIVETT BENCH LATHE MOUNTING AND DRIVING EQUIPMENT

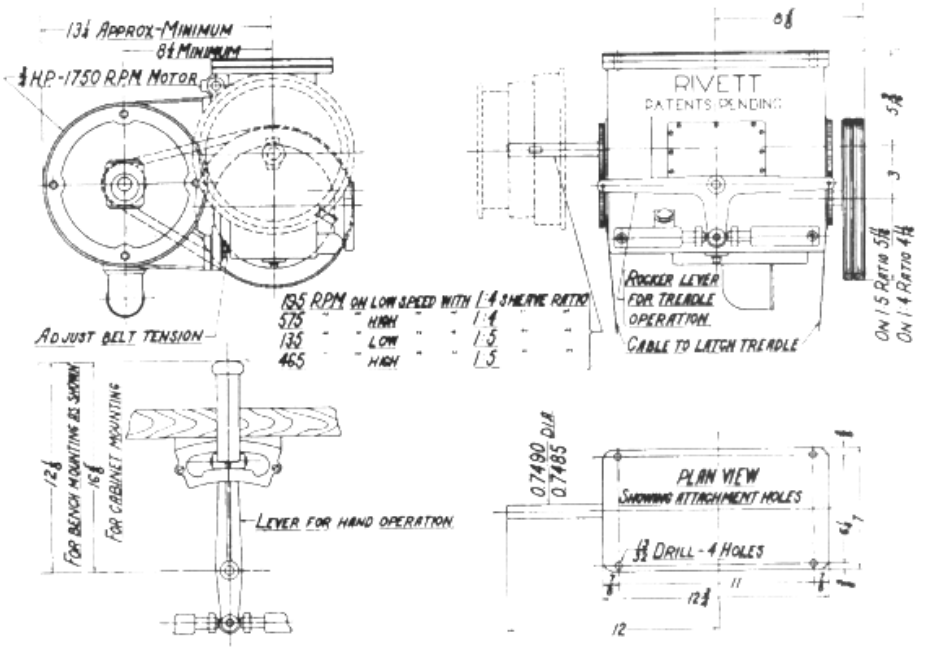


Fig. 32. Dimension diagram of Speed Box Motor Drive

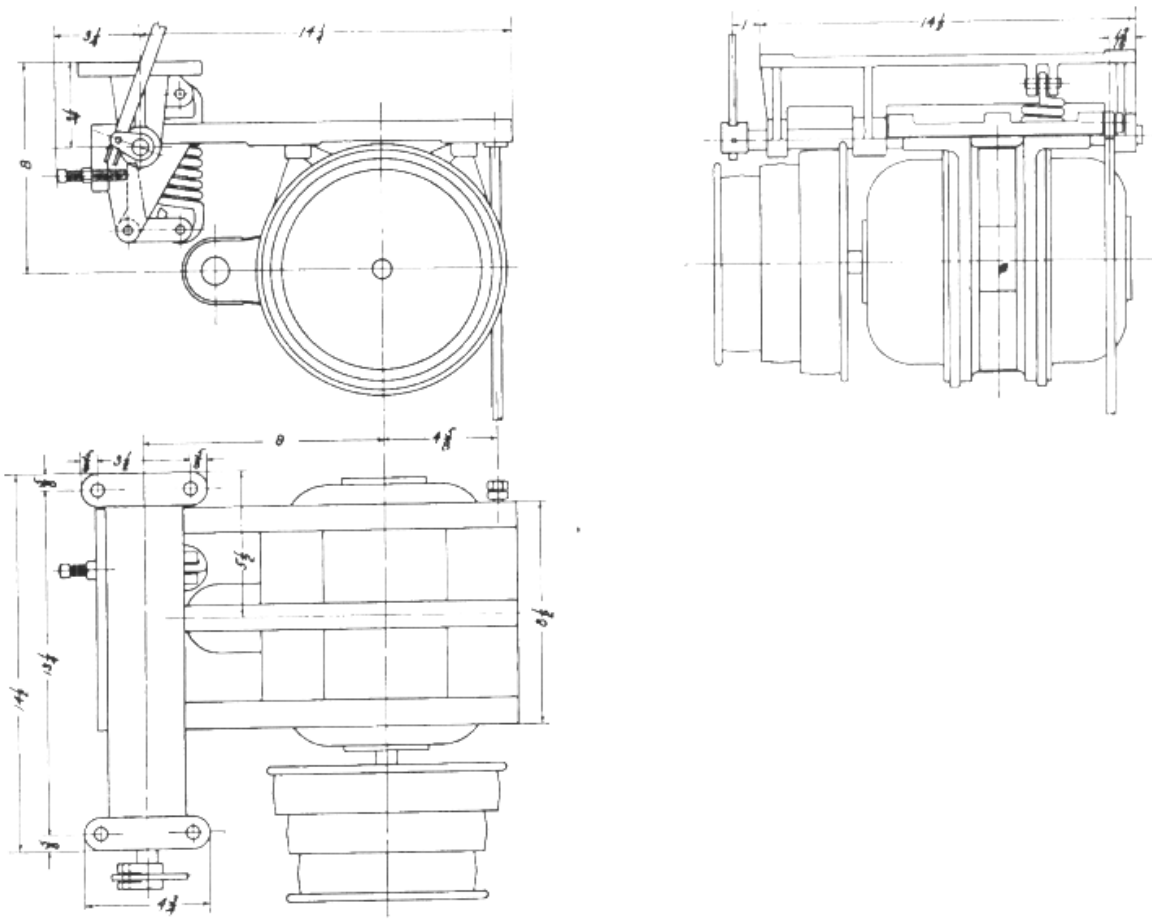


Fig. 33. Dimension diagram of Direct Motor Drive (Patents Pending)

RIVETT BENCH LATHE MOUNTING AND DRIVING EQUIPMENT

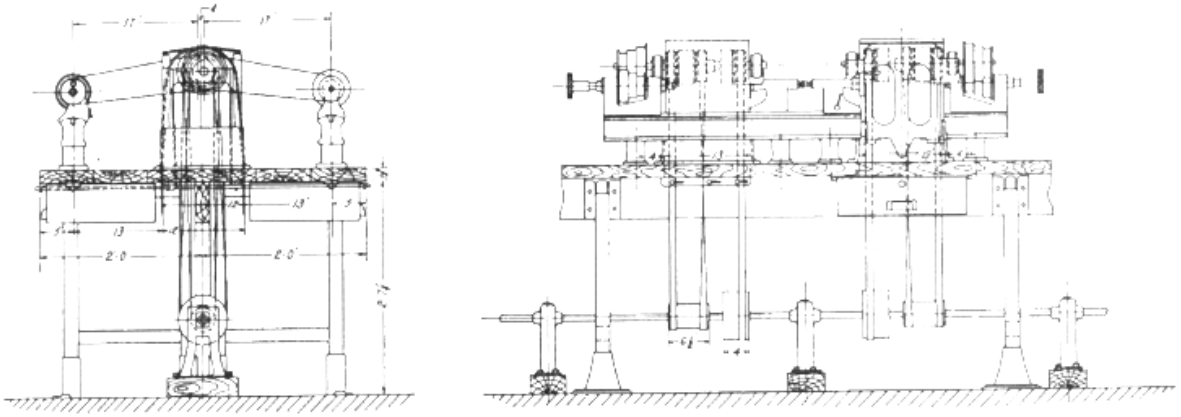


Fig. 34. Dimension diagram of **Horizontal Safety Drive Countershaft,** group drive, lineshaft under bench

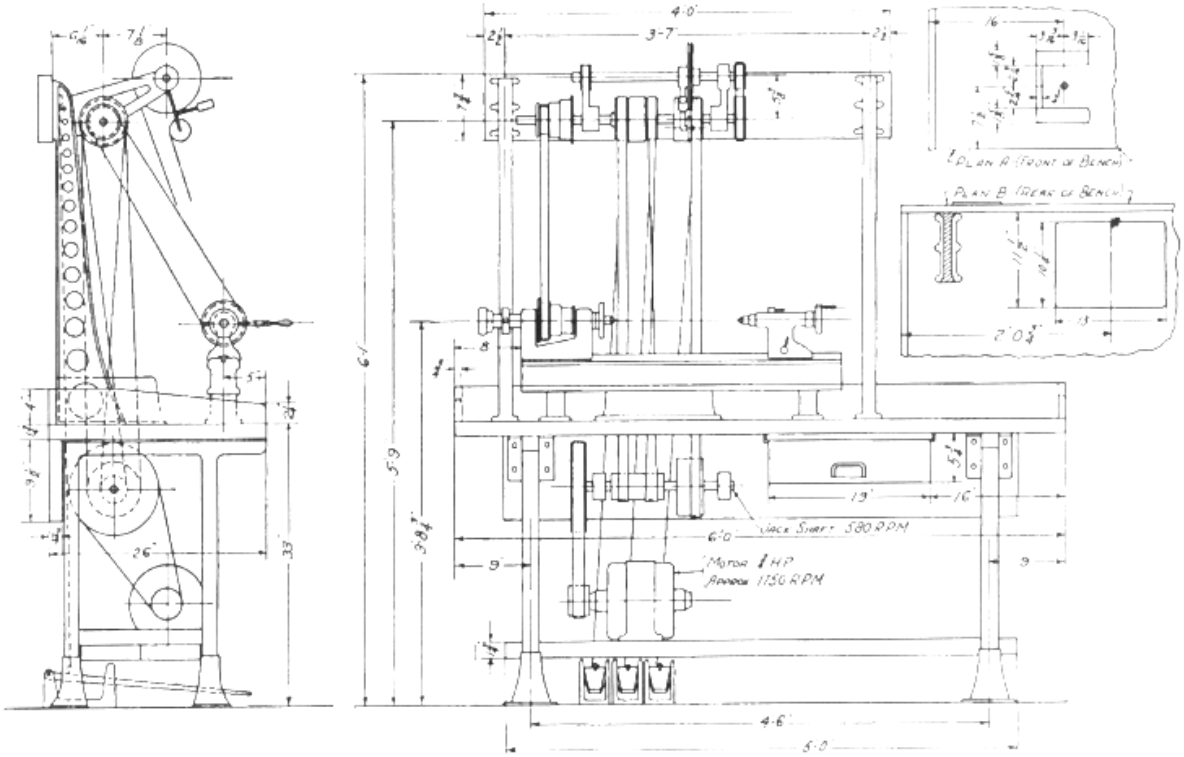


Fig. 35. Dimension diagram of **Unit Bench, Bench Drawer, Countershaft Plank Supports, Countershaft Plank and Plain Foot Treadles**

RIVETT BENCH LATHE MOUNTING AND DRIVING EQUIPMENT

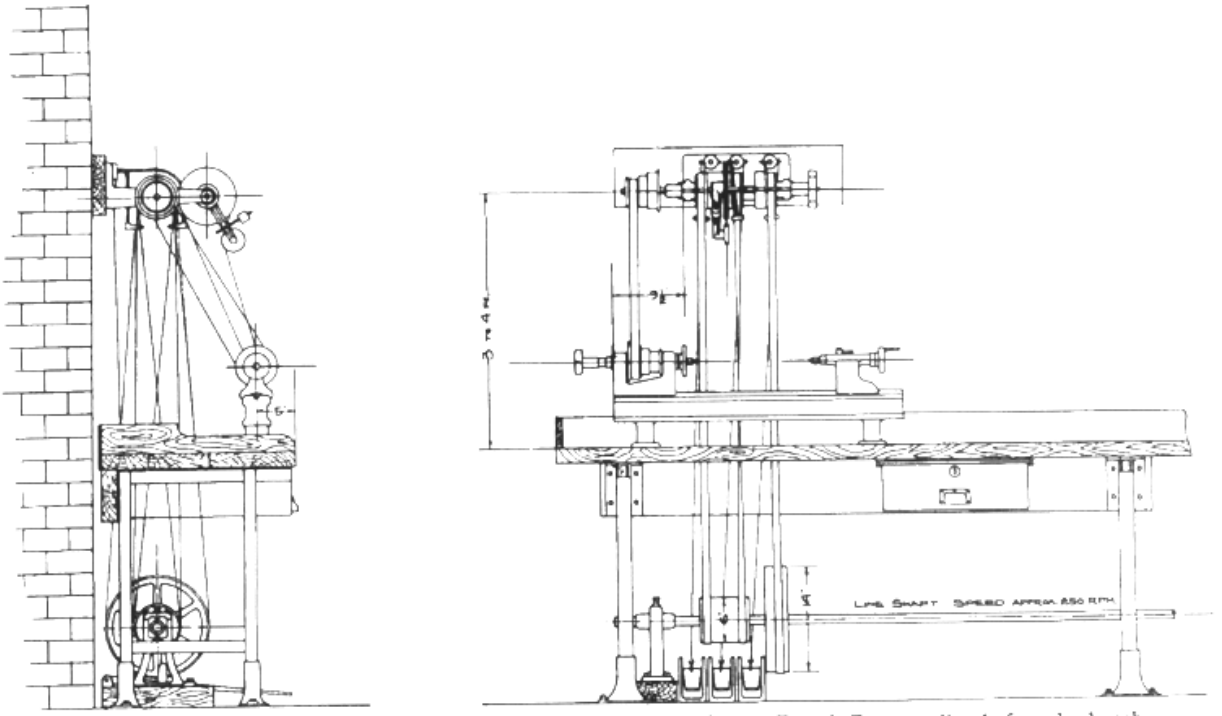


Fig. 36. Dimension diagram of **Countershaft** on wall above **Bench** with Bench Drawer, lineshaft under bench, and **Plain Foot Treadles**

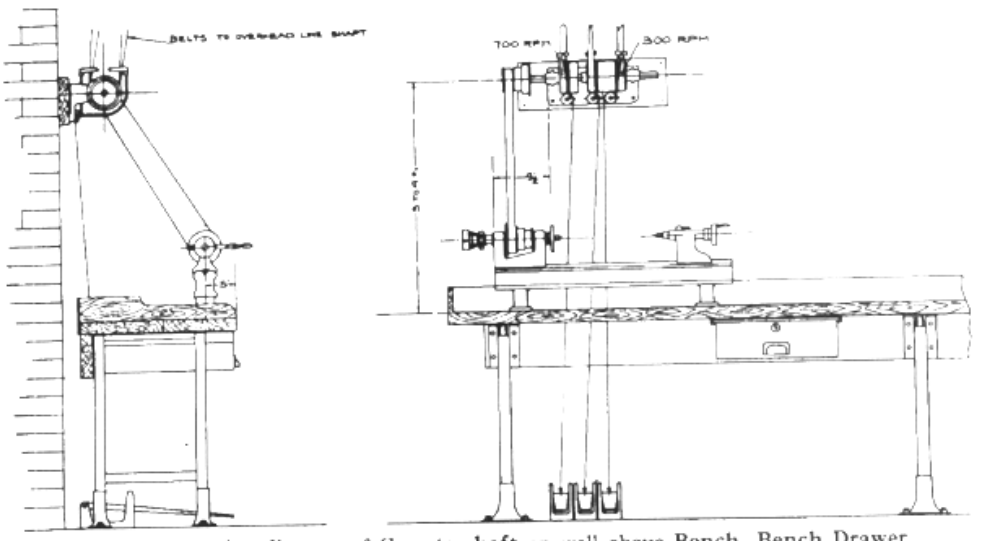


Fig 37. Dimension diagram of **Countershaft** on wall above **Bench**, Bench Drawer, drive from overhead lineshaft, and Plain Foot Treadles

RIVETT BENCH LATHE MOUNTING AND DRIVING EQUIPMENT

SPECIFICATIONS

Table A — Lathe Spindle Speeds, Speed Box Motor Drive

STYLE OF LATHE								
505 4NS	505 5NS	505 5C	505 5S	507	608			
					BACK GEARS	OPEN BELT	BACK GEARS	OPEN BELT
1750 R.P.M. MOTOR					1750 RPM MOTOR		1140 RPM MOTOR	
REVOLUTIONS OF SPINDLE PER MINUTE								
300	200	200	800	240	45	300	40	118
395	285	285	1125	315	60	395	53	156
540	420	420	1625	430	80	535	70	210
900	600	600	2300	710	135	900	263	790
1165	850	850	3300	935	180	1160	346	1035
1615	1250	1250	4600	1270	240	1600	470	1400

Table B — Lathe Speeds and Corresponding Cutting Speeds — Ball Bearing Lathe

CUTTING SPEEDS IN FEET PER MINUTE RIVETT 505-5NS BALL BEARING LATHE						
DIA. OF WORK	REVOLUTIONS PER MINUTE					
	4600	3300	2300	1625	1125	800
1/16	76	54	38	27	18	13
1/8	150	108	76	53	37	26
3/16	226	162	113	80	55	39
1/4	301	217	150	106	73	52
5/16	376	256	188	133	92	65
3/8	452	324	225	160	110	78
7/16	526	378	263	186	130	92
1/2	600	432	300	213	146	105
9/16	678	486	340	240	165	117
5/8	750	540	375	265	185	130
11/16	828	594	417	292	203	143
3/4	900	646	450	320	220	157
13/16	980	702	490	345	240	170
7/8	1050	755	525	372	257	183
15/16	1130	810	565	400	275	195
1	1200	865	600	425	295	210

Table C — Lathe Spindle Speeds, Countershaft Drives

STYLE OF LATHE							
505 3NS	505 4NS	505 5NS, 5C AND 6H	507	608			
				BACK GEARS	OPEN BELT	BACK GEARS	OPEN BELT
1750 RPM MOTOR				1750 RPM MOTOR		1140 RPM MOTOR	
REVOLUTIONS OF SPINDLE PER MINUTE							
310	340	205	250	51	340	33	220
485	475	340	370	71	475	46	310
780	685	560	550	103	685	67	440
710	775	465	575	116	775	76	500
1100	1090	775	850	163	1090	106	710
1775	1550	1275	1260	234	1560	152	1000

Table D — Wall and Ceiling Countershafts, Dimensions and Speeds

	STYLE OF LATHE				
	608	505-3NS	505-4NS	505-5NS, 5C and 6H	507
Diameters of steps of cone pulley	4-3⅜-5-3⅜-5-7⅜	4-4-15/16in-5-7⅜	4-3⅜-5-3⅜-5-7⅜	3-4-5	3¼-4-4¾
Diameter of driven pulleys	5"				
Diameter of driving pulley for grinding countershaft	5⅜"				
Diameter of shaft	1"				
Recommended speeds, R.P.M.	low, 350; high, 800				

Table E — Lathe Spindle Speeds, Direct Motor Drive

505-5NS LATHE				
MOTOR SPEED	SPINDLE BEARINGS	SPINDLE SPEEDS		
1750	BALL	2300	3300	4600
600	PLAIN	775	1100	1575

Table F — Jackshafts, Dimensions and Speeds

Diameter and face of driven pulley	10½" x 1¾"
Diameter and face of driving pulley, low speed and reverse	3" x 6⅜"
Diameter and face of driving pulley, high speed	7" x 3 3/16"
Diameter of shaft	1"
Standard speed, R.P.M.	580

Table G — Grinding Countershafts, Dimensions and Speeds

Diameter of driven pulley	3"
Diameter of grooved driving pulley	8"
Diameter of shaft	1"
Recommended speeds, R.P.M.	low, 600; high, 1370

Table H — Motors and Pulleys

Horse Power recommended	¾
Standard speed, R.P.M.	1750
Standard pulley, diameter and face	3½" x 2½"

Table I — Width of Belts

Motor to jackshaft		2"
Jackshaft to countershaft		1¾"
Cone pulley	505-3NS lathe	1⅜"
	505-4NS and 5NS lathes	1¾"
	505-5NS, 5-C and 6-H lathes	1⅜"
	608 and 507 lathes	1¼"
Countershaft to grinding countershaft		1"
Grinding countershaft to lathe attachments		¼" round

Table J — Cabinet, Bench and Floor Space

Overall length of 608 lathe, maximum (12" additional required to remove draw-in spindle)	54"
Overall length of Series 505 and 507 lathes, maximum (12" additional required to remove draw-in spindle)	51"
Width of bench recommended for Horizontal Safety Drive	30"
Cabinet: — Length 57", width 24", height 34", height to top of countershaft plank	74"
Lathe on oil pan and floor legs	46" x 24"

Precision Back Geared Screw Cutting Lathes — Bulletin 608-A
Plain Precision Bench Lathes, Series 505 — Bulletins 505-C and D
Plain Precision Bench Lathes (*Medium Priced*) Series 507 — Bulletin 507-B
Draw-in Collets and Chucks — Bulletin 100-A

RIVETT LATHE AND GRINDER CORPORATION ∴ BRIGHTON, MASS., U.S.A.