AMERICAN

1023-11

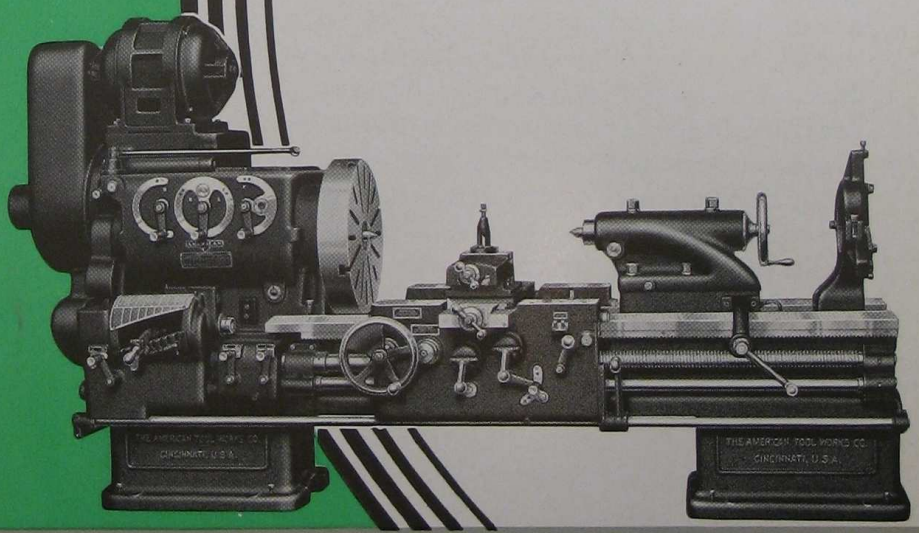
NEW MODEL

HIGH DUTY LATHE

BULLETIN No. 20

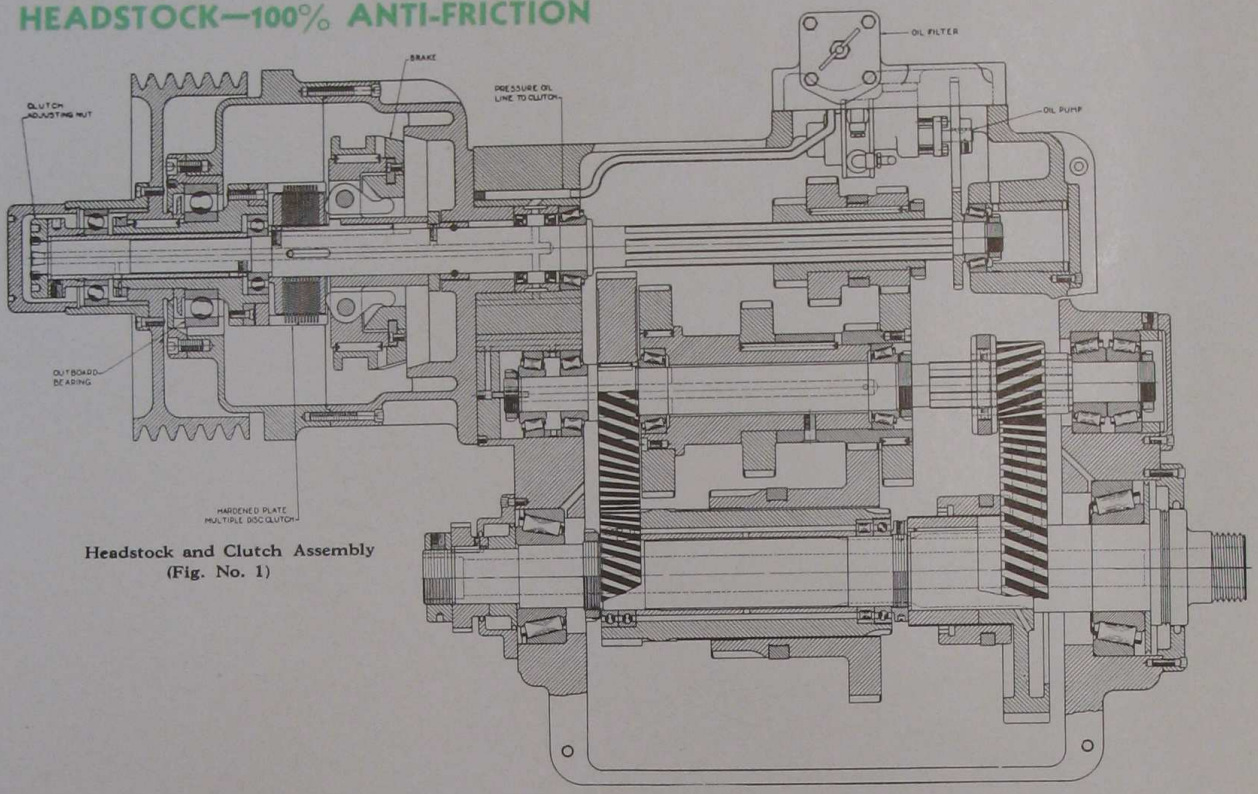
Sizes...

24-inch and
27-inch



THE AMERICAN TOOL WORKS COMPANY
LATHES - RADIALS - SHAPERS
MAIN OFFICE AND WORKS
CINCINNATI - U. S. A

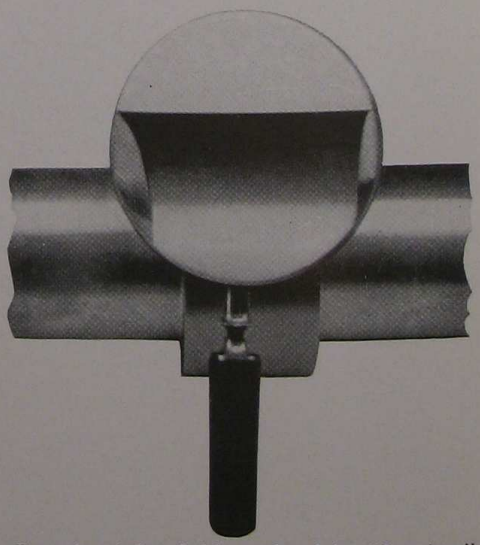
HEADSTOCK—100% ANTI-FRICTION



Headstock and Clutch Assembly
(Fig. No. 1)

The unit of paramount importance is the headstock. In excellence of design and construction the "American" is outstanding. The "American" geared headstock is simplified to the highest degree. Only three shafts including the spindle are employed, providing plenty of space inside the headstock bowl to permit the use of large diameter and wide face gears. All gears are hobbed. All gears are made from alloy steel forgings, heat treated and hardened. Each mating pair of gears is machine lapped under predetermined load in the most modern gear-lapping machines to insure smooth and quiet operation. The back geared speeds are thru helical gears. The selective speed gears are of the spur tooth type, with machine rounded teeth adopted for quick and easy engagement, thus avoiding the use of objectionable friction or jaw clutches in the speed changing mechanism. All speed changes are made through sliding gears except the high-speed run, which is through a slip gear automobile type of clutch. Slip gears slide on multiple splines.

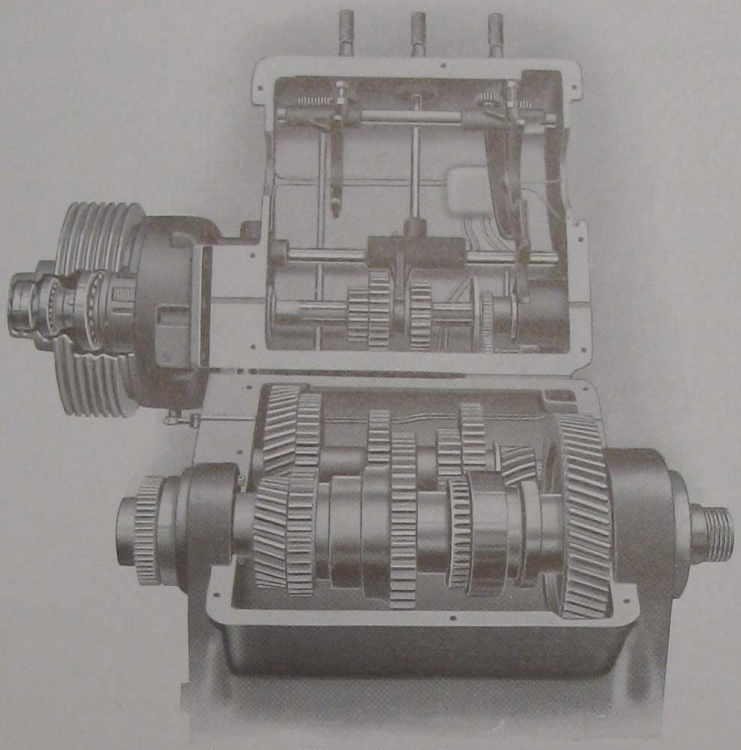
The "American" Geared Head is 100% anti-friction. The starting clutch and brake unit, all shafts including the spindle and every loose sleeve are anti-friction mounted. There is not one plain bearing throughout the entire headstock mechanism.



Example of fine finish produced by "American" Geared Head Lathes. This finish was produced at 750 feet per minute, .003" feed in 1045 steel. Note the complete absence of gear or chatter marks even under magnification.
(Fig. No. 2)

1023-11.

PATENTED GEARED HEAD

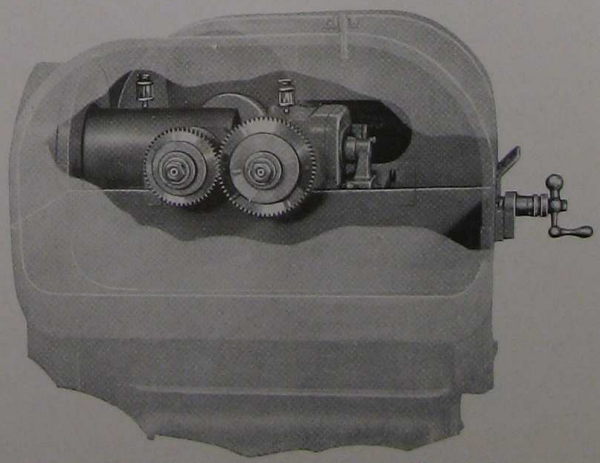


Interior of Geared Head (Fig. No. 1)

Twelve (12) spindle speeds in geometrical progression are provided covering a wide range (11 to 450 R.P.M.) which, however, may be varied materially to suit the nature of the work to be done. Speeds as high as 1000 R.P.M. are permissible with this head.

AUTOMATIC OILING

The headstock is 100% automatically oiled. The entire mechanism, including the starting clutch and brake unit, the shaft and spindle bearings, the loose sleeves and all the gears are oiled by the pump located in the head. The starting unit is oiled directly from the pump under pressure thru the hollow drive shaft, providing a constant supply of cool, filtered oil for this entire mechanism. All oil is forced through a metal oil filter before passing to operating mechanism, thus insuring the use of only clean, filtered oil and effectively guarding against the dangers of dirty oil. The pump delivers oil to the reservoir in the head cover which serves as a distributing tank for supplying oil to the bearings and gear teeth.

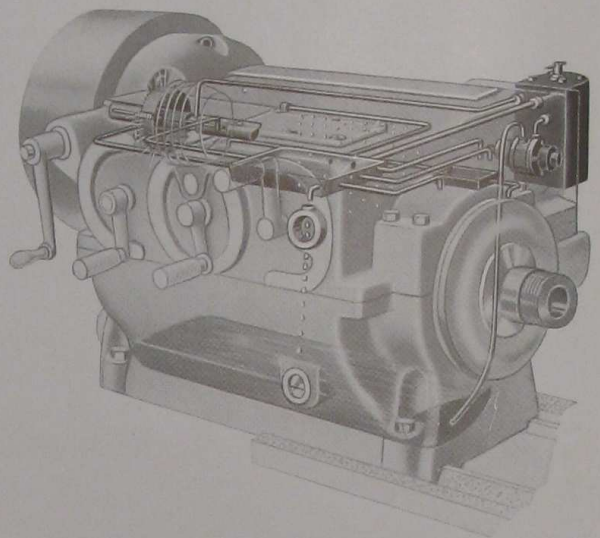


Patented Gear-Lapping Machine (Fig. No. 2)

STARTING CLUTCH AND BRAKE

The starting clutch and brake unit is used harder and oftener than any other unit of the lathe. It is operated every time the spindle is started and stopped and transmits all power to the headstock. This important unit has been developed to a point of perfection that positively insures efficient functioning and complete satisfaction during the effective life of the lathe.

In the construction of the starting clutch and brake unit we have not relied upon any of the commercial clutches afforded by the market, but at considerable expense have developed our own multiple disc clutch and brake and in it have achieved a masterpiece of design that accurately reflects the inherent value offered by "American" Lathes.



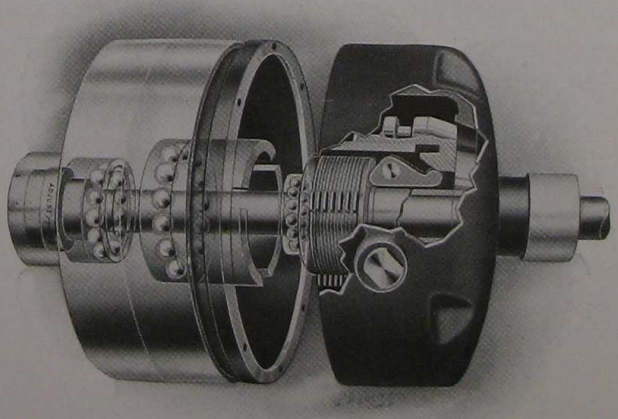
Automatic, Pump Circulating Oiling System
(Fig. No. 1)

This starting clutch and brake unit is entirely anti-friction mounted—no plain bearings being used. It is provided with a substantial outboard support to eliminate overhang and is 100% lubricated under pump pressure.

The multiple disc clutch is of the all-metal type practically impervious to wear. The discs are made of "Atkins" carefully tempered "saw blade" steel and each alternate disc is permanently deformed or warped in a die. Under the pressure of engagement the deformed plates contact with the adjacent flat plates, but when the pressure is released to disengage the clutch, the deformed plates, due to their spring action, spring away from the adjacent flat plates, providing a complete release of the clutch, thus insuring freedom from spindle creeping due to drag of the discs.

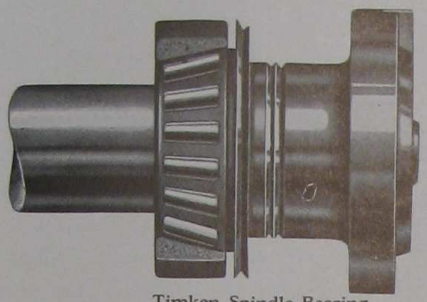
The cone type brake which operates in unison with the clutch is also oiled automatically by means of the head lubricating system and provides adequate braking effort to quickly stop the spindle even at the high speeds now being provided for cutting with cemented carbide tools.

The proportions of the braking elements are much greater than those usually provided in other makes, resulting in a maximum braking action with a minimum of effort and wear.



Patented Multiple Disc Clutch and Brake used in the initial Driving Unit of "American" Geared Heads
(Fig. No. 2)

SPINDLE BEARINGS

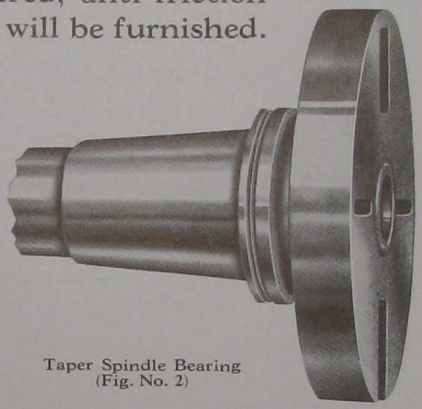


Timken Spindle Bearing
Flanged Spindle Nose
(Fig. No. 1)

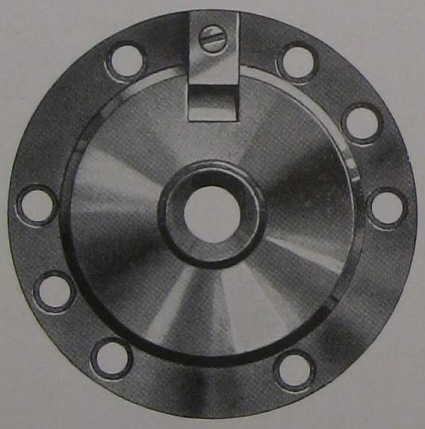
The Timken "zero" bearing spindle mounting has been adopted as standard for "American" geared heads and is recommended and guaranteed for all classes of lathe service. However, there are some lathe users who prefer the plain spindle bearing to the anti-friction type; consequently, we have made provision to substitute the taper type plain spindle bearing for the anti-friction when preferred. Unless specifically ordered, anti-friction type of spindle bearing will be furnished.

TYPE OF SPINDLE NOSE OPTIONAL

At the option of the customer either the threaded type or the flanged type of spindle nose is provided. For general purpose and tool room work requiring frequent changes of face plates, fixtures and chucks the threaded type is recommended. For chucking operations and the mounting of heavy fixtures the flanged type is preferred.



Taper Spindle Bearing
(Fig. No. 2)



Flanged Spindle Nose
(Fig. No. 3)

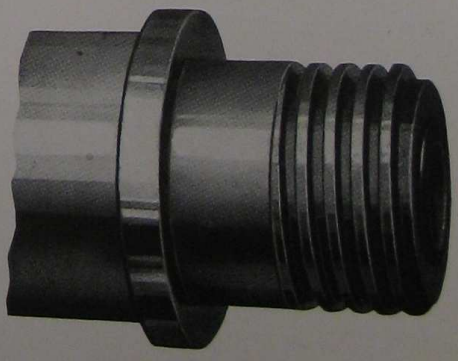
FLANGED SPINDLE NOSE

The flanged nose is 11″ in diameter and is an integral part of the spindle forging. It is accurately machined to master gauges as are likewise the face plates and chucks to insure perfect interchangeability. A centralizing taper is provided on the flange to quickly and accurately center the plates and fixtures, which are in turn firmly held to the flange by a substantial key and large bolts. The application and removal of plates, chucks and fixtures are quick and easy.

THREADED SPINDLE NOSE

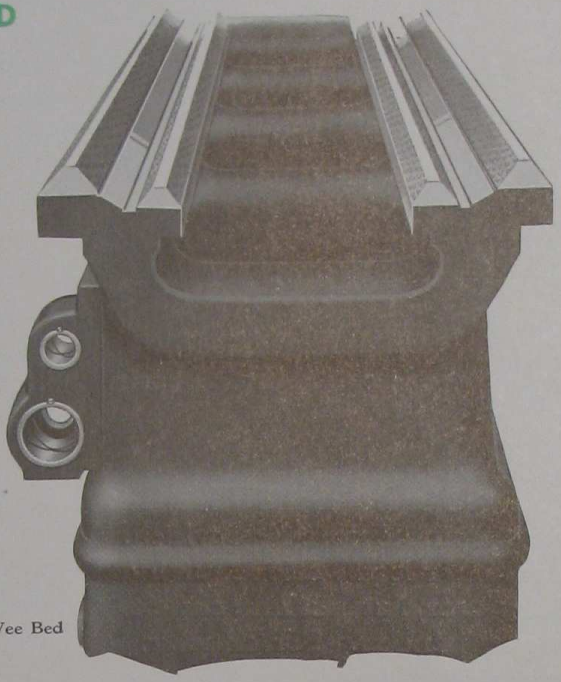
The "American" type of threaded spindle nose is designed to combine accuracy and rigidity of chuck and face plate mounting with ease of application and removal.

The outer half of the nose is threaded to quickly move the fixture to or from its seat directly adjacent to threaded portion, and to hold it in position when screwed home against the nose shoulder. Spindle nose and plates are machined to highly accurate masters to absolutely insure interchangeability.



Threaded Spindle Nose
(Fig. No. 4)

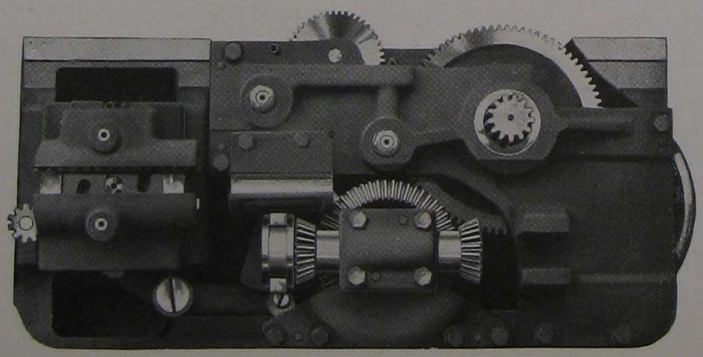
PATENTED 4-VEE BED



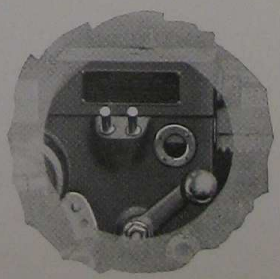
4-Vee Bed (Fig. No. 1)

The bed has been made unusually rigid by increased depth, thicker walls and heavier ribbing. A special mixture is used, containing 40% steel scrap and other ingredients, which produces a semi-steel of approximately 40,000 pounds tensile strength and a scleroscopic hardness of 35 to 38 degrees. The outstanding characteristic of this special metal is the close grained wear-resisting surface it provides for the carriage bearings.

"American" Lathe beds provide 4 large vees for the carriage and tailstock guides, the two inner Vees being dropped below the outer Vees to provide greater swing over the bed and additional carriage bridge thickness. In our opinion, the vee bearing is much easier to keep clean and consequently offers greater resistance to cutting and wear than a flat bearing. When wear does occur, the 4-vee bed wears more evenly than one using a vee and a flat bearing, for it is perfectly obvious that a vee bearing and a flat bearing will not wear equally. The 4-vee bed in providing 2 vee guides for both the carriage and the tailstock insures longer life for their alignments, resulting in the maintenance of accuracy over a longer period of service than is possible with any other type of bed.



Apron (Fig. No. 2)



One-Shot Oiling (Fig. No. 3)

CARRIAGE

The carriage construction is one of the outstanding "American" features. It is unusually rigid, offering the greatest resistance to the cutting thrusts, yet is surprisingly easy in its movement along the bed.

It has three vee bearings on the bed. This design provides a very large bearing area for the carriage and insures long maintenance of original alignments and equal wear on all bearings. Due to the patented Drop Vee Bed, the carriage bridge can be made very deep which, coupled with its large area of contact on the wide angle bed vees, accounts, in a large measure, for its strength and rigidity. The dovetail has been materially increased in width, giving the compound rest a most substantial mounting which, coupled with its very wide bearing on the widened bridge, provides a substantiability of mounting rarely encountered in other makes.

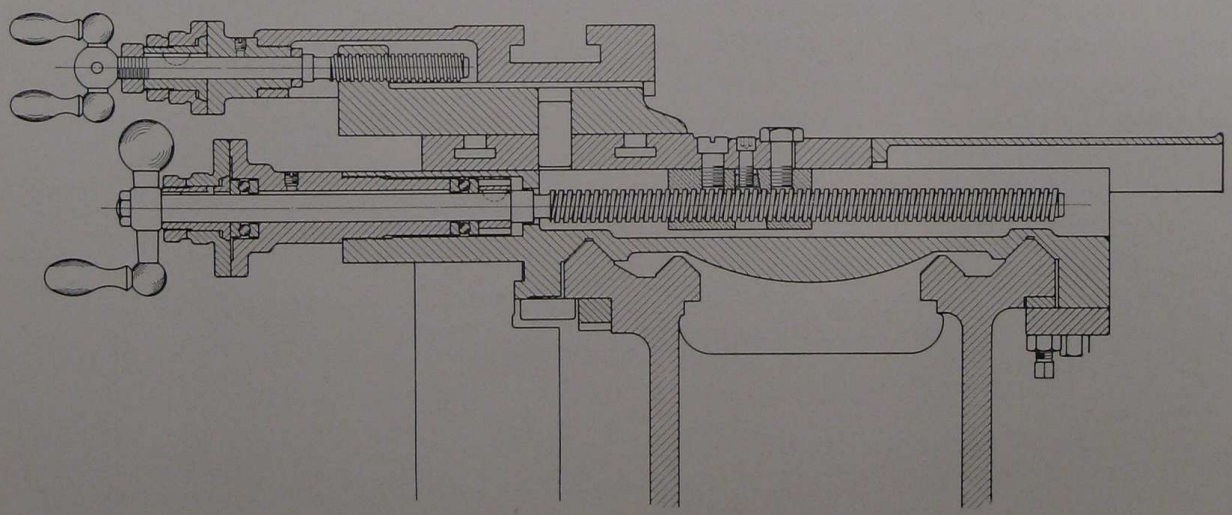
Both the carriage vees and the cross slide are adequately lubricated by means of approved "one-shot" oiling systems which function instantaneously and, at the same time, prevent the oil drip and waste encountered in many automatic systems.

For rigidly securing the carriage to the bed, clamps are provided at the front and rear with an adjustable gib at the rear for maintaining the proper contact with the bed vees.

The compound rest and cross-feed screws are very large in diameter, are made from heat-treated alloy steel and have large, easily read micrometer dials. The cross-feed screw is equipped with ball thrust bearings and a large bronze compensating cross-feed nut, which is conveniently and quickly adjustable for wear.

APRON

The "American" Lathe apron is a substantial, compact unit using all heat-treated, carefully processed gears and providing outer supports for all studs. The

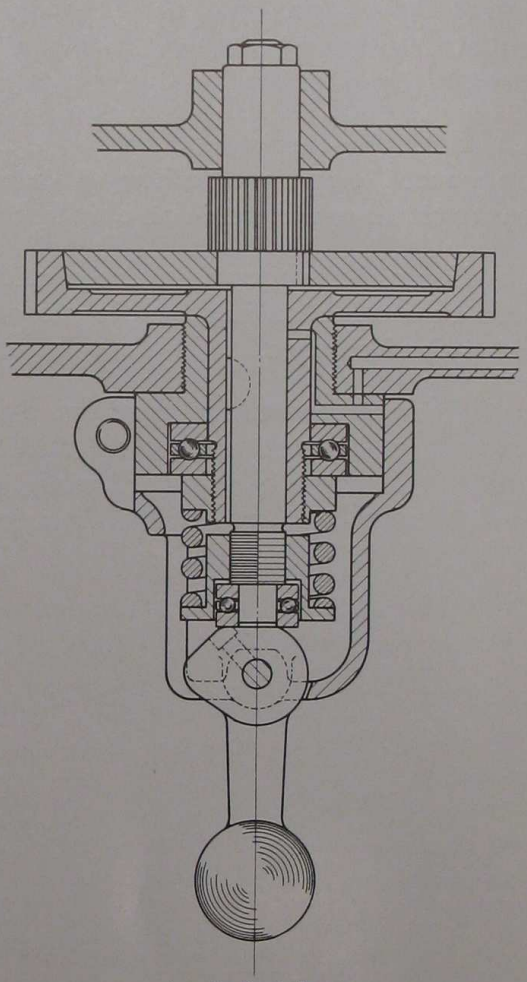


Anti-friction Cross-Feed Screw and Compensating Nut

APRON

control for both the cross and longitudinal feeds is through convenient and easily operated drop levers which actuate clutches of the well-known "automobile" control type. The longitudinal friction is the cone type, while the cross feed is through a safety angular tooth type. Both units are held in engagement by heavy coil springs the same as the automobile clutch and consequently rarely, if ever, require adjustment. Both are disengaged positively and instantly without effort even under the heaviest cuts by means of a cam actuated by the drop type control levers.

Both the longitudinal and cross-feed units are provided with overload safety features. The longitudinal friction will slip when overloaded, and the cross feed clutch will automatically disengage itself.



Longitudinal Clutch

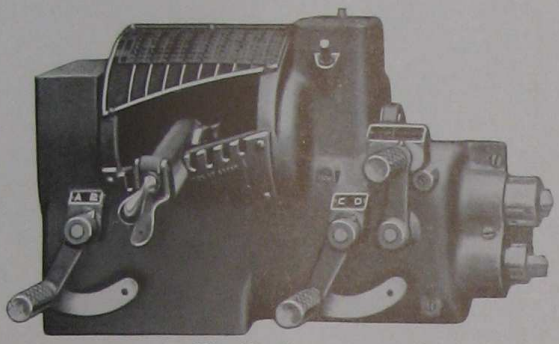
The oiling of the entire apron is accomplished by means of an instantaneous "one-shot" oiling system. One action of the plunger supplies sufficient oil to the distributing reservoir to thoroughly lubricate the apron mechanism for an entire day. The "one-shot" system delivers an adequate supply of oil, but does not supply it in the wasteful abundance of some other systems.

QUICK CHANGE GEAR MECHANISM

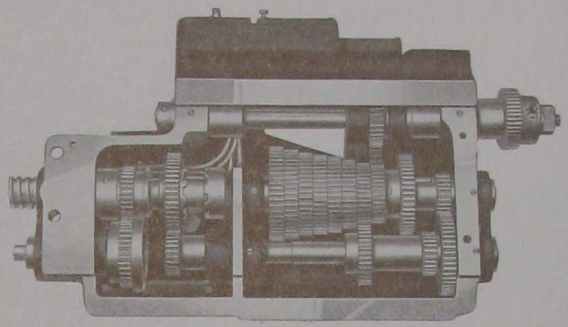
Every standard thread ordinarily used is provided by the "American" quick change mechanism. It has an unusually wide range, yet is simple in design and easy to operate. Only 17 gears are used, all of which are steel and 10 of which are cone and tumbler gears cut with 20° cutters to produce a pointed tooth, which is easily and instantaneously meshed without fear of clashing. The tumbler lever is cast steel and bronze bushed, is located in its various positions by a notched plate, which prevents improper meshing, after which it is locked in position by a spring latch and locking pin, which eliminate vibration and wear between the cone and tumbler gears.

Provision is made for cutting the following range of 48 threads: $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1, $1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{3}{8}$, $1\frac{7}{16}$, $1\frac{1}{2}$, $1\frac{5}{8}$, $1\frac{3}{4}$, 2, $2\frac{1}{4}$, $2\frac{1}{2}$, $2\frac{3}{4}$, $2\frac{7}{8}$, 3, $3\frac{1}{4}$, $3\frac{1}{2}$, 4, $4\frac{1}{2}$, 5, $5\frac{1}{2}$, $5\frac{3}{4}$, 6, $6\frac{1}{2}$, 7, 8, 9, 10, 11, $11\frac{1}{2}$, 12, 13, 14, 16, 18, 20, 22, 23, 24, 26, 28.

QUICK CHANGE GEAR MECHANISM



(Fig. No. 1)



(Fig. No. 2)

Quick change gear box, front and rear views

The 48 feeds provided cover a range of 5 to 280 cuts per inch, each feed rate being 1/10th as coarse as its corresponding thread.

ONE-SHOT OILING FOR QUICK CHANGE GEAR BOX

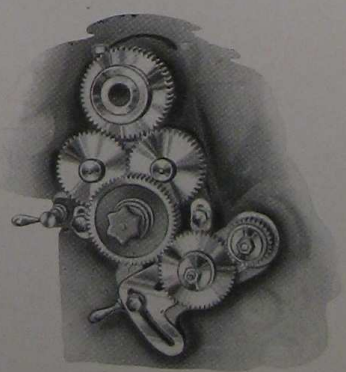
The oiling of the quick change gear box is accomplished by means of an instantaneous "one-shot" oiling system. One action of the plunger supplies sufficient oil to the distributing reservoir to thoroughly lubricate the entire mechanism for a day. The "one-shot" system delivers an adequate supply of oil, but does not supply it in wasteful abundance.

SPECIAL THREADS

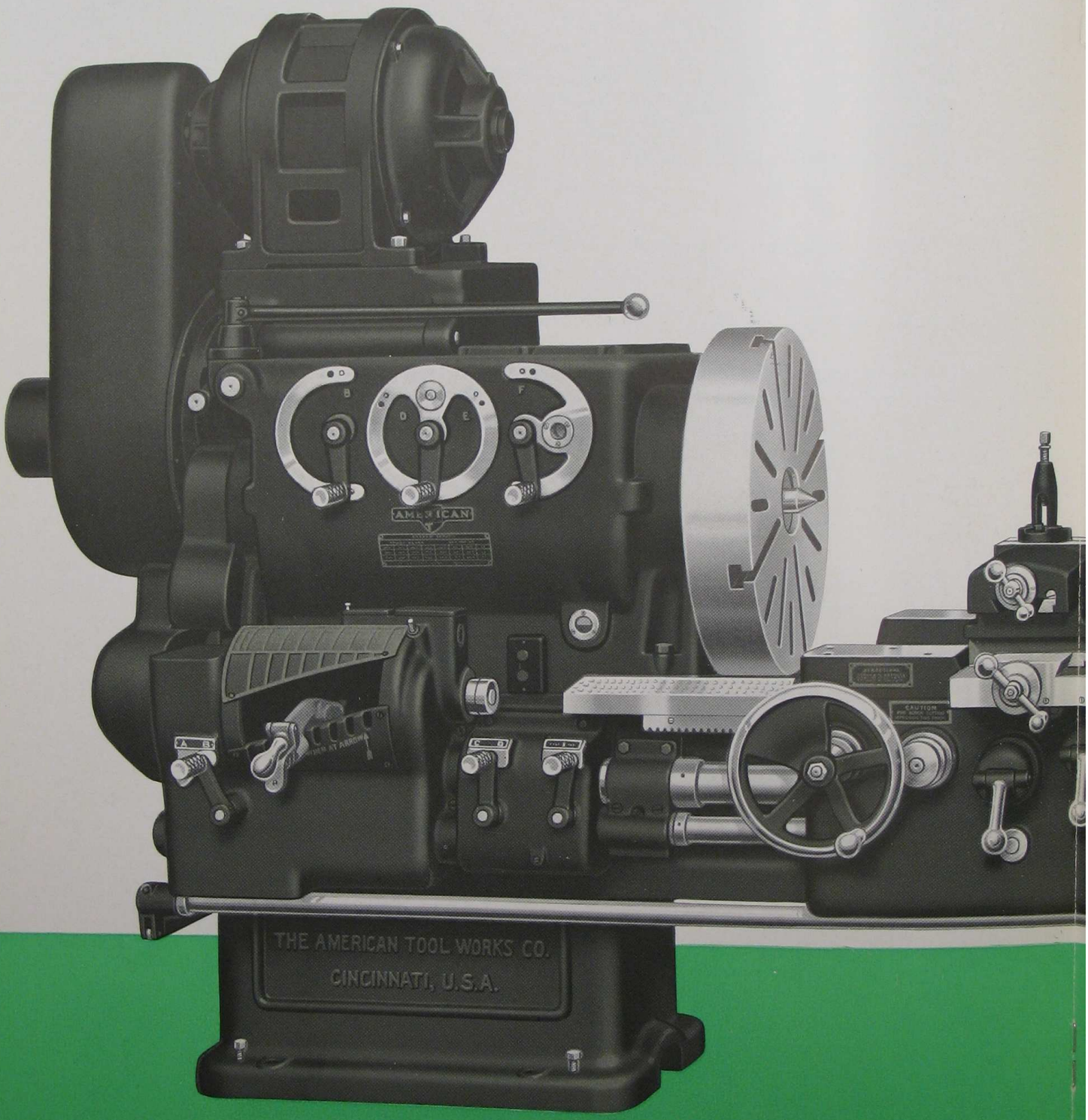
The quadrant at the head end of the bed provides means for substituting special gears for those regularly furnished, in order to cut special threads and pitches not regularly included in the standard thread range. This is a valuable characteristic, as it affords a practically unlimited range for threading operations.

SEPARATE LEADSCREW AND FEED ROD

A separate leadscrew and feed rod are furnished which are selective and independent of each other. The leadscrew is preserved exclusively for threading, while the feed rod is used for all feeding operations. Thus, by relieving the leadscrew of feeding operations and using it exclusively for threading, it is only reasonable to assume that it will wear less, and retain its accuracy longer than if it were called upon to function on feeding operations as well as when thread chasing. Furthermore, the leadscrew and feed rod are independent of each other. When one is in operation, the other is stationary, consequently on the "American" Lathe, the leadscrew bearings are in service only when the leadscrew is being used, and therefore are of longer life and accuracy than on the average lathe, which does not have the independent leadscrew and feed rod.

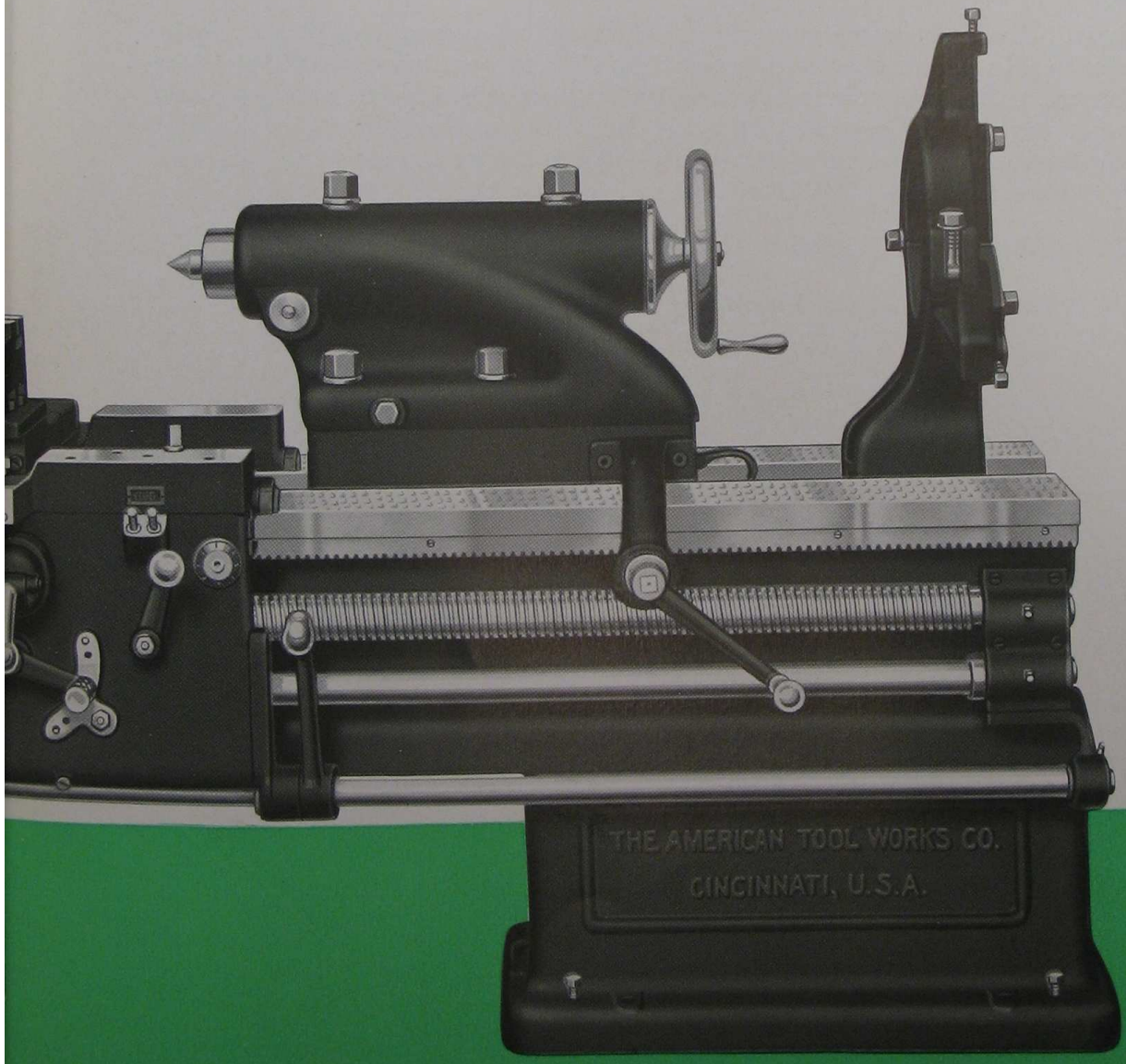


Quadrant construction (Fig. No. 3)


THE AMERICAN TOOL WORKS CO.
CINCINNATI, U.S.A.

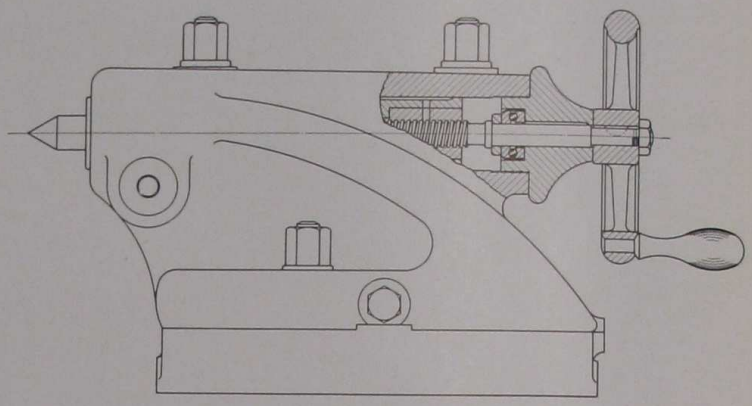
AMERICAN

HIGH DUTY LATHE



TAILSTOCK

The tailstock has an extension barrel, giving clearance to carriage bridge for short work. It is provided with four clamping bolts for binding it securely to bed, two rear bolts being carried to top of the barrel for convenience in clamping. The barrel is solid, spindle being clamped by a double plug binder which clamps without affecting spindle alignment. Tailstock screw is provided with a ball thrust bearing for absorbing thrusts.



Tailstock (Fig. No. 1)

COMPOUND REST

The compound rest is extremely rigid. The swivel is rectangular in form and has greater bearing contact with bottom slide than is possible with the circular swivel used on many designs. It is also graduated on both sides to facilitate setting. Full length taper gibs are used on both the compound rest top and bottom slides, and are located on the right-hand side, where they are free from the tool thrust under normal working conditions.

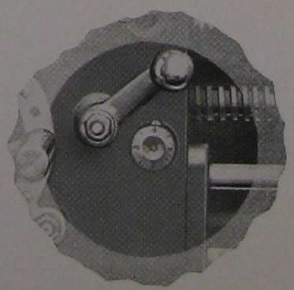
MECHANICAL APRON CONTROL

This unit, which is regularly furnished on all geared head lathes, provides means for instantly starting and stopping the lathe spindle from the apron. The apron control handle is located at the right-hand side of the apron and operates the multiple disc clutch in the initial driving unit, as well as a powerful brake. On motor driven lathes we can supply, at slight additional cost, an electrical apron control either in place of or in addition to the mechanical control, which, instead of start, stop and brake, provides start, stop and reverse, through the motor. When the electrical apron control only is furnished, the brake control from the apron is eliminated unless the electrical equipment includes an automatic control panel which provides a dynamic brake.

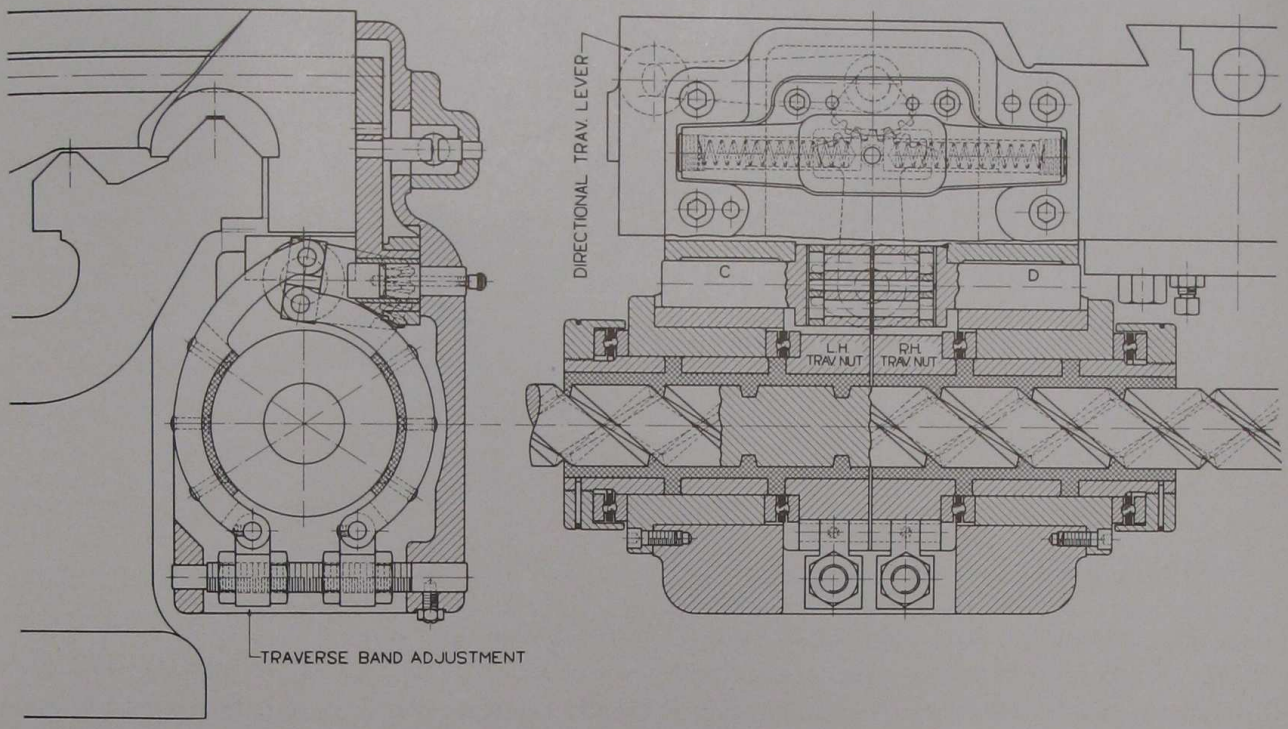
THREAD DIAL

A thread dial is regularly furnished, thus obviating the necessity of using a backing belt or a reversing motor for thread cutting. This dial is conveniently placed at the right of the apron where it can be easily seen and read by the operator.

Guaranteed Accuracy. If properly set up and leveled, "American" Lathes are guaranteed to bore and turn true within .001 inch. The material entering into their construction is also guaranteed in every essential to be the very best obtainable for the purpose used. We guarantee to repair any breakages or damage to machine due to defective material or faulty workmanship.



Thread Dial (Fig. No. 2)

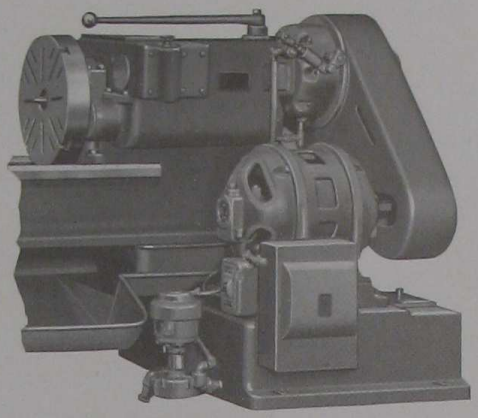


POWER RAPID TRAVERSE FOR CARRIAGE PATENTED . . . FOOL PROOF

The new Power Rapid Traverse now applicable to all sizes of "American" Lathes is an outstanding development which in design and operation is far in advance of other mechanisms of this character. It is so sensitive that it may be operated with one finger and is absolutely fool proof in its functioning.

This mechanism consists essentially of a full length traverse screw with right and left-hand threads and a pair of opposed babbitt lined nuts with large diameter hubs over which raybestos contacting bands are fitted. It is embodied in a compact self-contained unit attached to the rear of the carriage where it will not interfere with any of the other operating members of the lathe, the only member brought to the front being the directional control lever which is conveniently located at the right-hand front carriage wing.

This control lever, when either lifted or depressed from its neutral position, actuates either of the two contacting bands, which causes it to grip the hub of its traverse nut, which in turn imparts the traverse to the carriage. The operation of this mechanism is absolutely fool proof. It is so constructed that in event of the carriage being accidentally run into the headstock, the tailstock or any other interference, the engaged contacting band will simply slip and no damage will result. A further safety feature is provided by the control lever, which must be held in engagement by the operator. The moment he releases this lever, it automatically snaps back to the neutral position, which disengages the contact band and stops the carriage traverse.



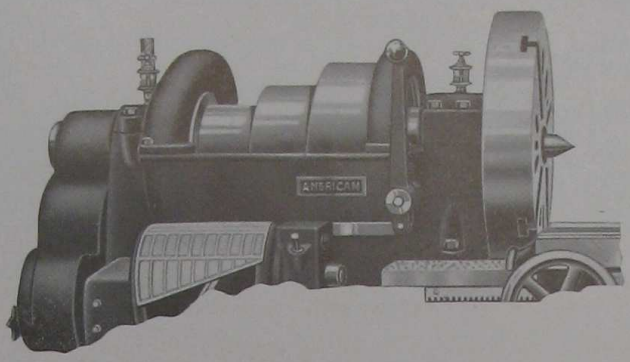
Back Mounted Motor Drive.

MOTOR DRIVE

The standard type of motor drive consists of either A. C. or D. C., constant speed motor, mounted on top of the headstock, and connected to initial driving unit of head, preferably by multiple vee belts, although a flat belt or silent chain may be used. Other types of motor mountings, such as belt, chain or gear connection to driving unit with motor mounted on headstock or on a bracket attached to the rear of the head-end cabinet leg, can be supplied when desired. When maximum size motors are used, it is often desirable, because of their size, to mount them on a substantial pedestal bolted to the headstock leg. This pedestal also serves as a sump for the cutting lubricant and a support for the coolant pump. This mounting is recommended only when very large motors are used. All types of motor mountings include a hinged or adjustable motor plate to permit motor adjustment to compensate for belt stretch. For the maximum horse-power motor recommended for each size lathe, see specifications, page 19.

DOUBLE BACK GEARED HEAD

"American" 3-step cone double back geared heads, because of their large diameter and wide face cone pulleys and high belt velocity, are unusually powerful. They are of the quick change, friction type, both the first and second back gear speeds being secured through a frictional connection between the back gear shaft and the gears. The advantage of this friction type of head lies in the fact that the change from one back gear range to the other can be made instantaneously, without stopping the lathe, and in the convenient control for starting and stopping through the friction control lever at the front. The frictions used in these heads are exceptionally large and powerful and are self-compensating for wear. The back gear shaft and spindle run in high quality phosphor bronze bearings of straight cylindrical type.



3-step cone, double back geared head

STANDARD EQUIPMENT

Standard equipment, upon which base price is determined, includes compound and steady rests, thread dial, double friction countershaft for cone drives, large and small face plates and wrenches.

EXTRA EQUIPMENT

At extra cost we can equip these Lathes with improved Taper, and Draw-in Attachments, Turret on Carriage, Turret on Shears, Turret Tool Post, Special Tool Rests, "Patented" Geared Head for belt or motor drive, Electrical Apron Control, Power Rapid Traverse for Carriage, Countershaft for Geared Heads, Oil Pan, Oil Pump, Follow Rest, Extra Gears and Index Plates, for special fine, coarse or metric threads.

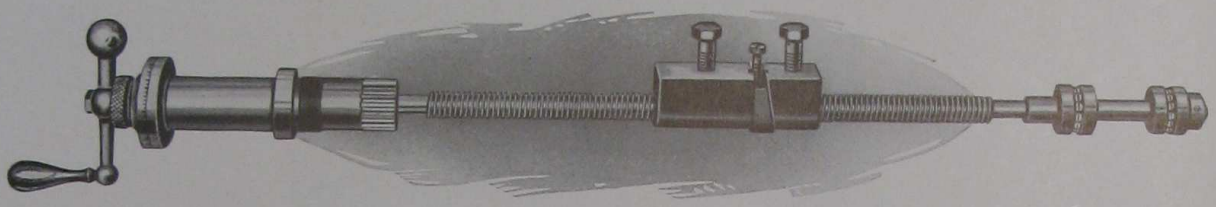
"AMERICAN" TU-WAY TAPER ATTACHMENT

There are two distinct types of taper attachments: the yoke type and the telescopic screw type. Each has its advantages and disadvantages, consequently it has been a question in the buyer's mind which type possessed the greater merit.

The new "American" Tu-Way Taper Attachment has completely eliminated the doubt by combining the advantages of both types, and eliminating the disadvantages.

The advantage of the yoke type of taper attachment rests in the rigid connection between the bottom slide of the tool rest and the sliding shoe on the swivel bar, thus eliminating the pull of the taper from the cross-feed screw, and insuring for it longer life and greater accuracy. The disadvantage, on the other hand, is in the inability of the operator, when cutting taper threads or boring taper holes, to retain control of the cross-feed screw for additional depths of cut.

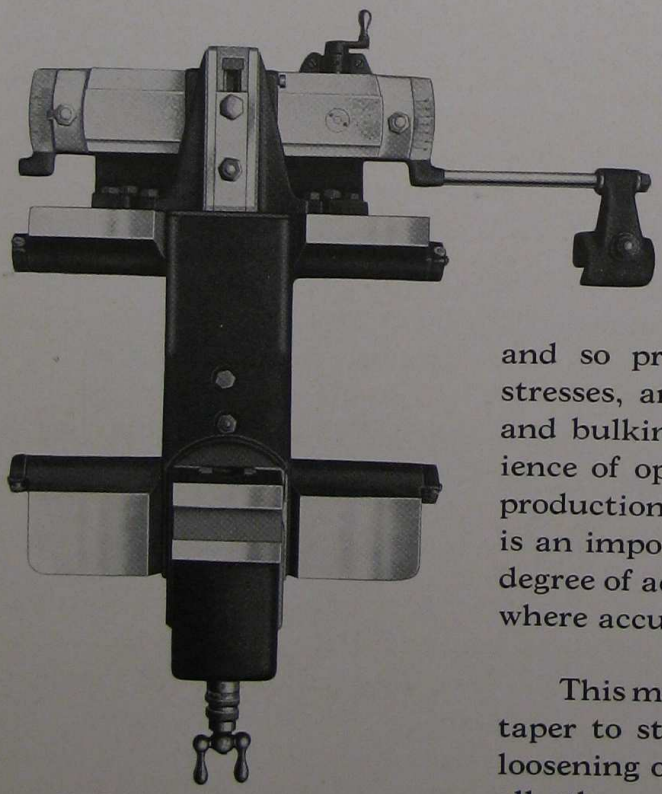
"AMERICAN" TU-WAY TAPER ATTACHMENT



Telescopic Cross Feed Screw and Compensating Nut (Fig. No. 1)

On the telescopic screw type the condition is just the reverse. When chasing taper threads or boring taper holes the operator has complete control of the cross feed screw, but on all taper turning the entire pull of the taper is thru the cross-feed screw, which naturally tends toward excessive wear, with its resultant backlash and inaccuracy.

The "American" Tu-Way Taper Attachment combines all the advantages of both types, and is so constructed that either type may be used; the yoke type for heavy cuts and roughing operations and the telescopic screw type for finishing cuts, chasing threads and boring tapered holes. The functions are selectively controlled by two clamp nuts, one to clamp the yoke to tool rest, and the other to hold the screw journal in a fixed position on the extended rear guide bracket; one being loose when the other is tight.



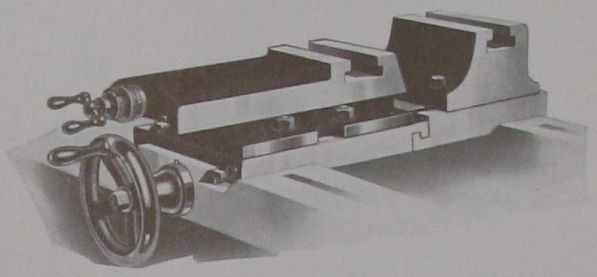
Tu-Way Taper Attachment (Fig. No. 2)

The "American" Tu-Way Taper Attachment is a self-contained mechanism, carried as a unit on the rear of the carriage, and so proportioned as to resist the severest stresses, and at the same time excessive weight and bulkiness are strictly avoided. Its convenience of operation recommends it highly to the production departments, where the time element is an important factor, while its unusually high degree of accuracy commends it to the tool room, where accuracy is a prime essential.

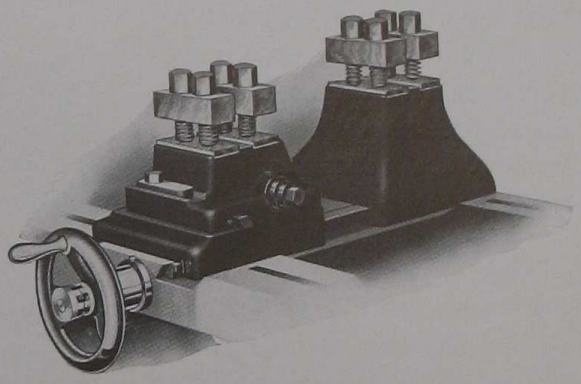
This mechanism can be quickly changed from taper to straight work, or vice versa, by simply loosening one nut and tightening another, while all other adjustments are proportionally simple.

TOOL RESTS AND HOLDERS

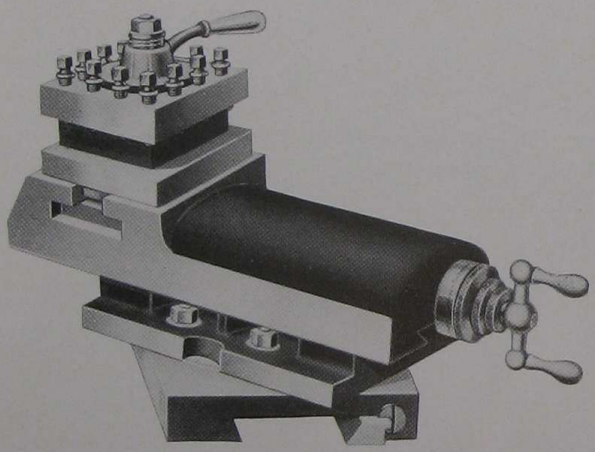
A great variety of tool rest and tool holder combinations is available to select from, facilitating the choice of just the proper tooling arrangement for the work. The selection of the most advantageous tool rest and tool holder combination for the character of the work to be performed is very important to the ultimate value of the lathe inasmuch as the actual volume of work produced is often largely dependent upon the correct tooling for it.



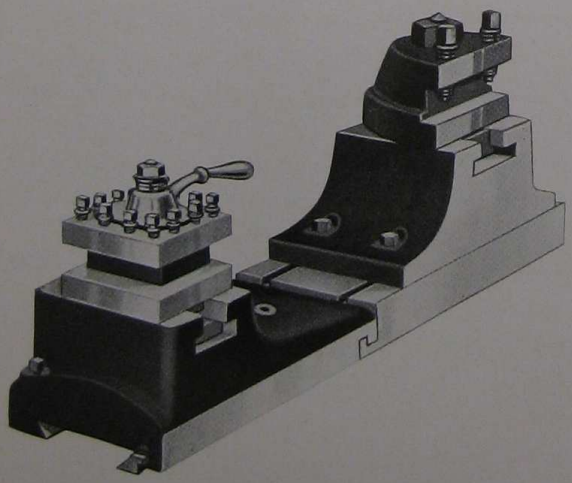
Combined Compound and Plain Block Rests (Fig. 511)



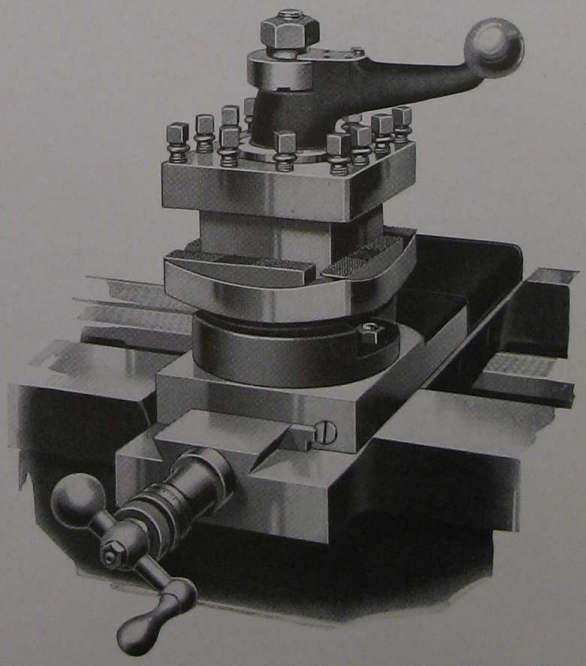
Independent Front and Rear Tool Rests (Fig. 510)



Compound Rest with 4-Way Tool Block mounted on Top Slide and interchangeable with other tool posts (Fig. No. 503)



Combined Plain Block Rest with 4-Way Tool Holder at front and Adjustable Block Rest with High Duty Tool Holder at the rear (Fig. 514)

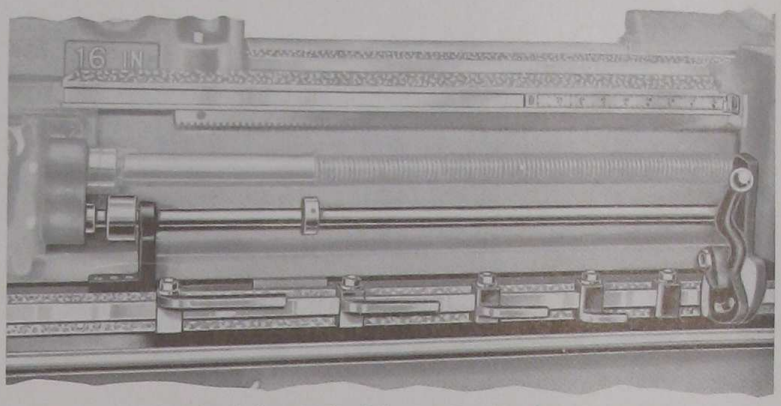


Turret Tool Block mounted on Compound Rest Bottom Slide and quickly interchangeable with standard swivel and top slide (Fig. No. 505)

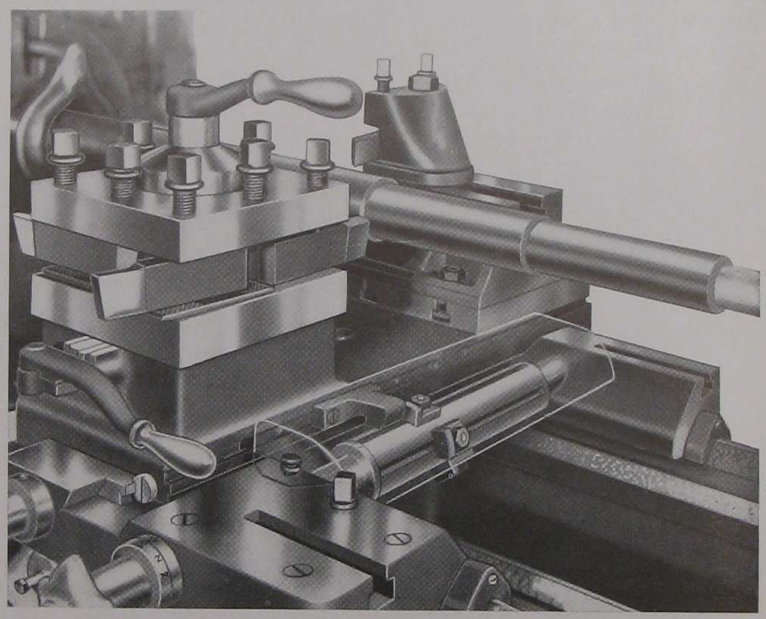
PRODUCTION EQUIPMENT

For intensive production service a complete assortment of duplicating and measuring equipment is available consisting of automatic longitudinal stops, positive cross-feed stops, accurate scale fitted to bed for quick and accurate setting of stop dogs, built-in anti-friction tailstock center, patented direct-reading cross-feed dials and a wide variety of rests and tool holders.

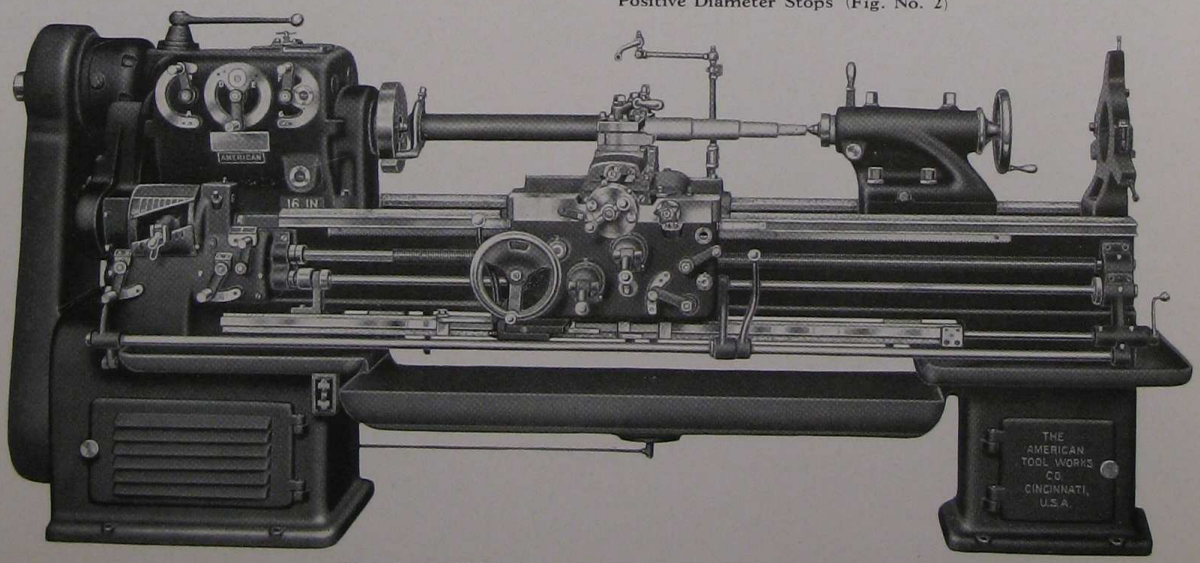
The design, application and use of these various units are thoroughly illustrated and described in the "American" Multi-Production Lathe Catalog which also contains interesting examples of the effectiveness of this equipment.



Automatic Longitudinal Stops (Fig. No. 1)



Positive Diameter Stops (Fig. No. 2)



"American" Multi-Production Lathe (Fig. No. 3)

SPECIFICATIONS

SPECIFICATIONS COMMON TO ALL LATHES REGARDLESS OF TYPE OF HEADSTOCK

SIZE OF LATHE		24-inch	27-inch
Swing	Over bed	27½"	30½"
	Over carriage bridge	18⅞"	22⅞"
	Over taper attachment	17¼"	20¾"
Distance Between Centers	Tailstock, flush (base machine)	48"	48"
	Tailstock, overhung (base machine)	53"	53"
Quick Change Gear Box	Range of threads per inch	½ to 28	½ to 28
	Range of feeds per inch (number of cuts)	5 to 280	5 to 280
	Range of feeds per spindle revolution	.003" to .200"	.003" to .200"
	Number of thread and feed changes	48	48
Tailstock	Length of base	21½"	21½"
	Spindle, diameter	4"	4"
	Spindle, travel	13¾"	13¾"
Carriage	Length	33½"	33½"
	Bridge width	10¼"	10¼"
Spindle hole, diameter		2⅛"	2⅛"
Centers, Morse taper		No. 5	No. 5
Leadscrew, diameter and threads per inch		2"—2 Thd.	2"—2 Thd.
Steady rest, capacity, maximum standard		9"	9"
Follow rest, capacity		4¾"	4¾"
Compound rest, top slide travel		7⅝"	7⅝"
Large face plate, diameter		25⅛"	27¼"
Tool post, takes tool with shank (maximum size)		⅞" x 1¾"	⅞" x 1¾"

SPECIFICATIONS FOR 12-SPEED GEARED HEAD LATHES ONLY

Motor	Largest motor recommended	20 H.P.	20 H.P.
Spindle	Front bearing, taper type (diameter x length)	6.73" x 7¼"	6.73" x 7¼"
	Rear bearing (diameter x length)	3½" x 5⅜"	3½" x 5⅜"
	Nose diameter and threads per inch (threaded type)	5"—2 Thd.	5"—2 Thd.
	Flange diameter (flanged type)	11"	11"
Driven Pulley	Diameter and face	19" x 6"	19" x 6"
	Speed R. P. M.	280	280
Spindle Speeds	Normal range—sleeve bearing spindle	6.7 to 280	6.7 to 280
	Normal range—Timken bearing spindle	11 to 450	11 to 450
Weight—Belt Drive	Net (base machine) pounds	9000	9200
	Crated (base machine) pounds	9400	9600
	Boxed (base machine) pounds	11500	12400
Weight—Motor Drive	Net (base machine) pounds	9500	9700
	Crated (base machine) pounds	10000	10400
	Boxed (base machine) pounds	12000	12400
Weight, each additional 24" between centers pounds		600	600
Cubic Feet Shipped Knocked Down	Base machine, boxed	265	270
	Each additional 24" between centers	48	49

SPECIFICATIONS FOR DOUBLE BACK GEARED CONE PULLEY LATHES ONLY

Spindle	Front bearing, cylindrical type (diameter x length)	4⅜" x 7⅜"	4⅜" x 7⅜"
	Rear bearing (diameter x length)	3 5/16" x 5¼"	3 5/16" x 5¼"
	Nose diameter and threads per inch (threaded type)	3⅝"—3 Thd.	3⅝"—3 Thd.
	Flange diameter (flanged type)	11"	11"
Cone Pulley	Number of steps	3	3
	Width of each step	5⅜"	5⅜"
	Diameters, maximum and minimum	19⅞"—12⅞"	19⅞"—12⅞"
Back gear ratios		3.69:1 & 13.65:1	3.69:1 & 13.65:1
Range of spindle speeds (normal)		9.5 to 309	9.5 to 309
Weight	Net (base machine) pounds	8200	8400
	Crated (base machine) pounds	8600	8800
	Boxed (base machine) pounds	10800	11000
	Each additional 24" between centers pounds	600	600
Cubic Feet Shipped Knocked Down	Base machine, boxed	210	210
	Each additional 24" between centers	31	31