J&L

JONES & LAMSON

FLAT TURRET LATHE

2½ X 24-inch Bar Lathe
12-inch Chuck Lathe

JONES & LAMSON MACHINE CO.

SPRINGFIELD · VERMONT

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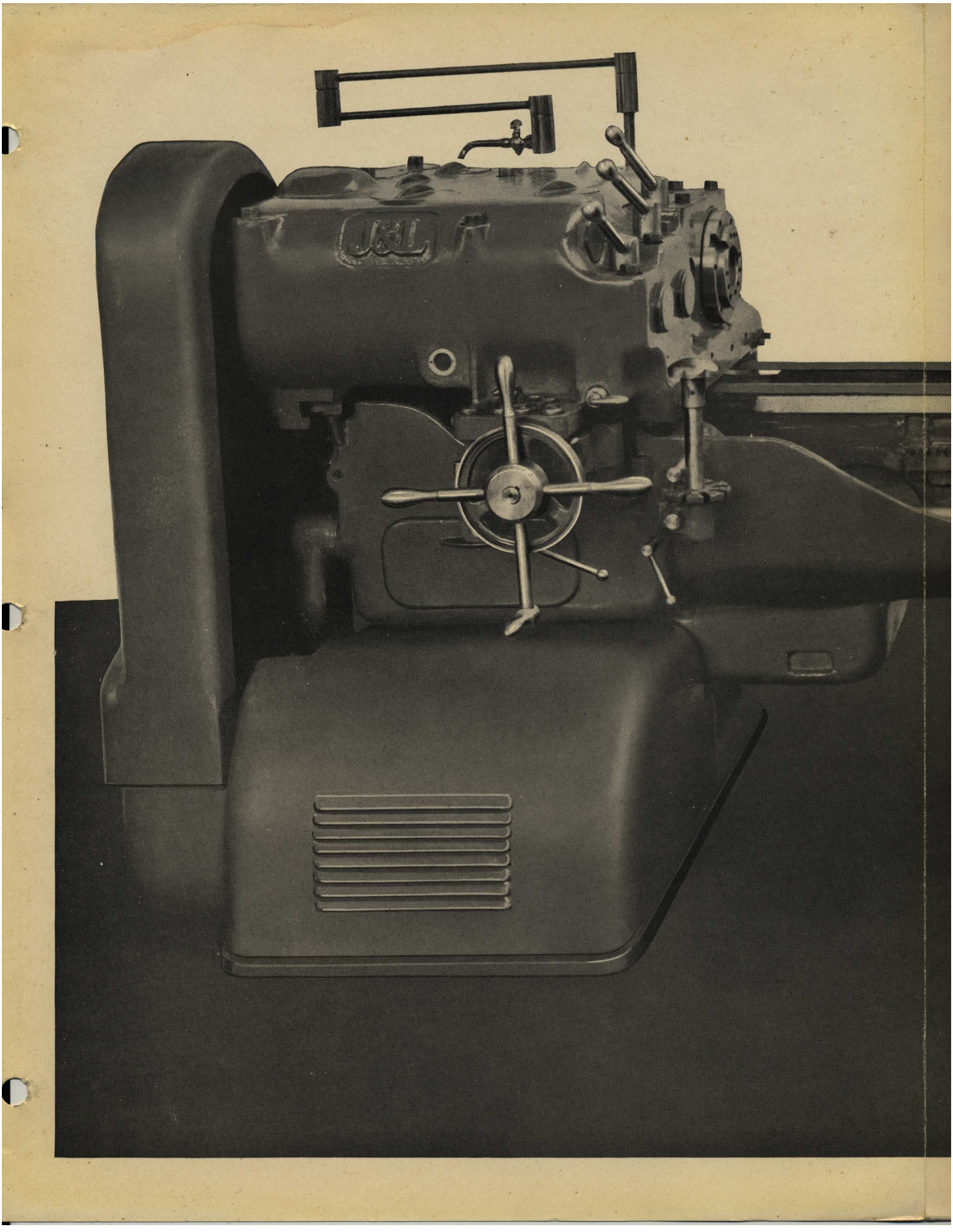
Foreword

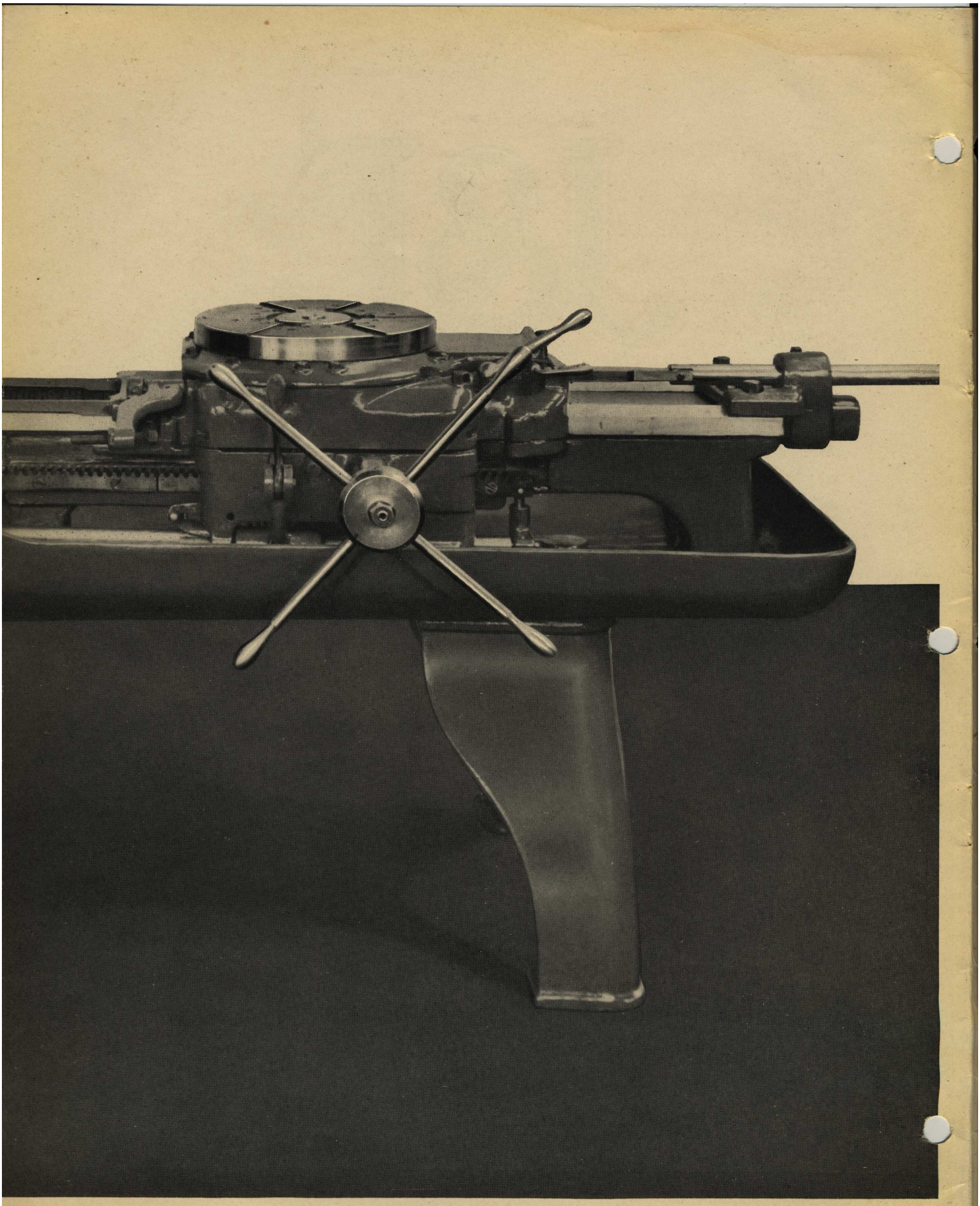
THE turret lathe is the standard machine for turning parts in duplicate from two up to several hundred. It must combine universality, to cover a wide range of jobs, with a system of tooling which enables quick set-up on small lot jobs and maximum multiple tooling with simultaneously cutting tools on large quantity jobs.

The J & L Flat Turret Lathe with cross-sliding headstock is unique and original in its principle of operation. The cross-sliding headstock has some small virtues for bar work in the ease of diameter adjustment for boring, etc. It has a very considerable advantage on chuck work.

The principle of a longitudinally moving saddle and a transverse moving headstock makes available two tool movements with the minimum of overhang for spindle and tools. The size of the turret plate made possible by this construction makes available multiple tooling to an extraordinary degree with simple forged tools and insert tool holders.

The following pages will describe the construction of the machine and the standard tool outfits supplied with the 2½ x 24 bar and the 12" chucking lathe.





High Points

1 A Flat Turret.

2 Cross-Sliding Headstock.

3 Minimum of overhang for spindle and tools.

4 Selective speeds instantly obtained by friction clutches.

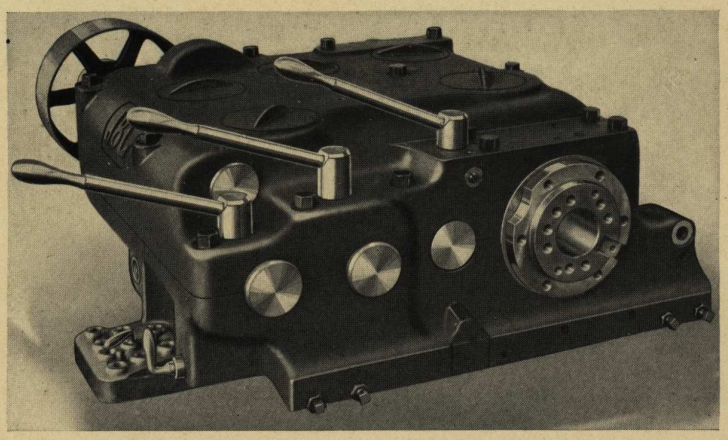
5 Selective feeds through easily shifted sliding gears.

6 Maximum multiple tooling with standard tools.

7 Simplicity of machine demonstrated by small number of operating levers.

Construction

Head

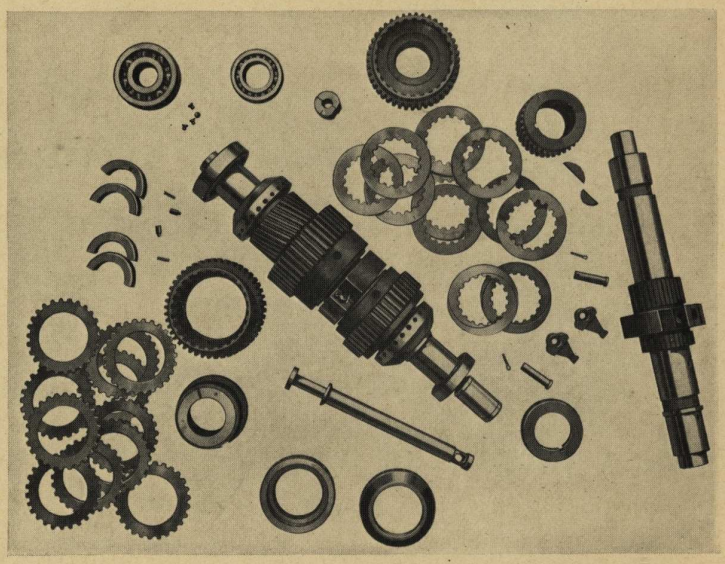


The unique feature of the J & L Headstock is the nine selective speeds which can be changed without stopping the spindle.

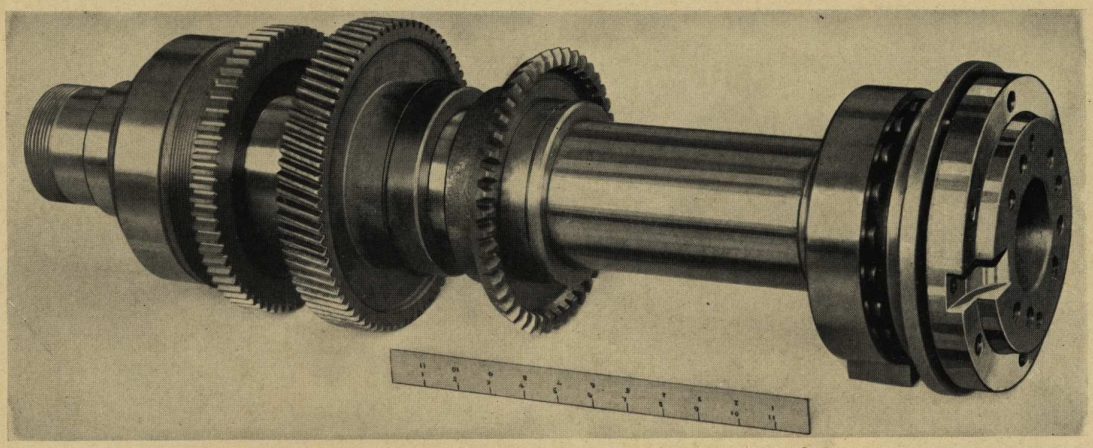
In addition to this unique feature, there is a very rigid spindle construction. The spindle and shafts are mounted on anti-friction bearings. The head is heavily ribbed to give strength to the spindle support, with a wide spread between the bearings in both directions, and ample support on the equivalent pads of the bed.

Shaft (disassembled)

The shafts and gears are made of chrome nickel steel, insuring great length of life and adequate strength. The selective speeds are obtainable by the use of multiple disc clutches, proven by several years of use.



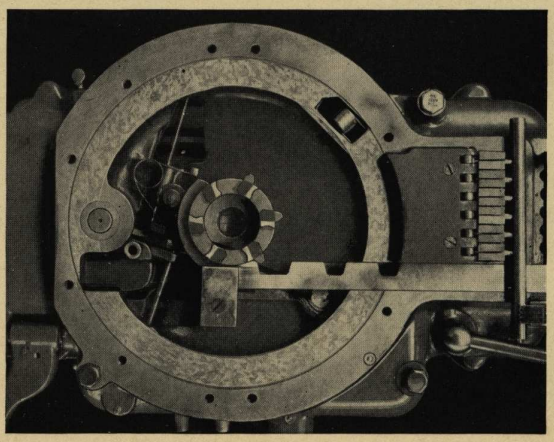
Spindle (with bearings)



The spindle has a wide flange nose and a large diameter taper pilot, which combines effective alignment and rigid support for the chuck. The fit of the chuck on the tapered pilot and flange permits continued renewing of the fit by grinding.

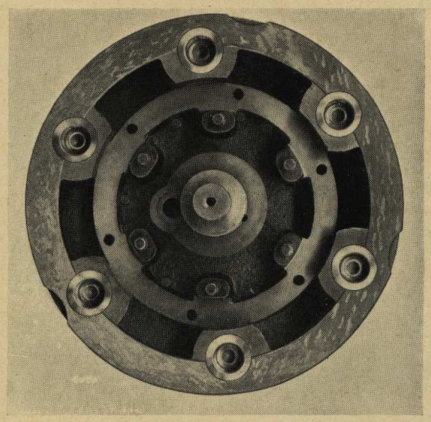
Saddle (without turret)

The saddle is so arranged that the single movement of withdrawing the saddle from the work also indexes the turret.

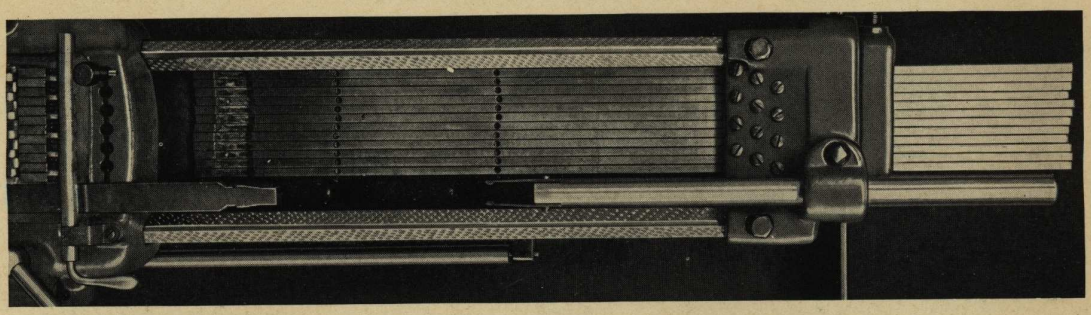


Turret (bottom side up)

The turret is locked at its extreme periphery directly in line with the spindle. The parts of the mechanism for indexing the turret are all made of chrome nickel steel and proportioned in a way to insure strength and long life. The turret is also gibbed to the saddle at its periphery, insuring a combination of easy movement and rigid control.

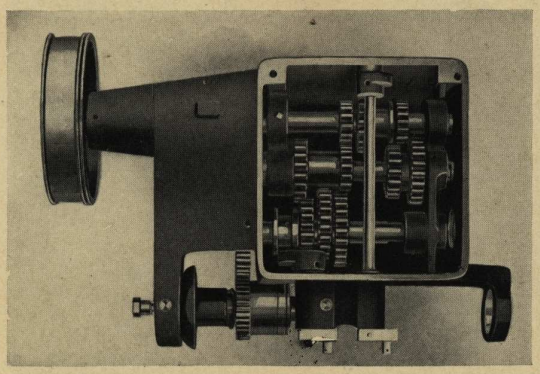


Stops



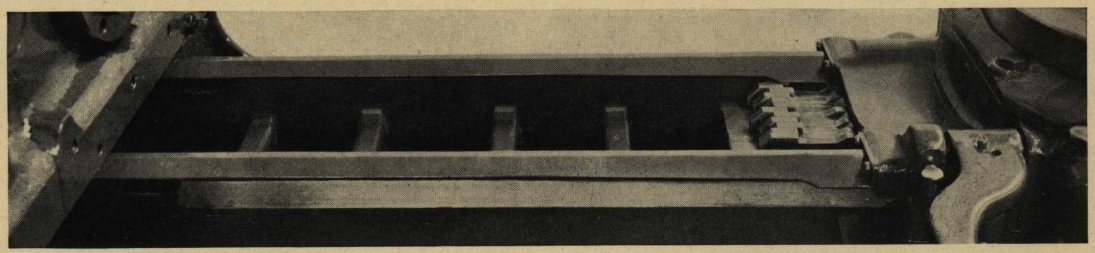
There are twelve stops for arresting the longitudinal movement of the saddle and nine for the cross travel of the head. By an arrangement of cams and drops there are two stops automatically available for each turret position. There is also an arrangement for an auxiliary pin so that additional stops may be available for any one position. The stops positively arrest the feeding movement of the saddle, which causes the friction feed to release.

Feed Box



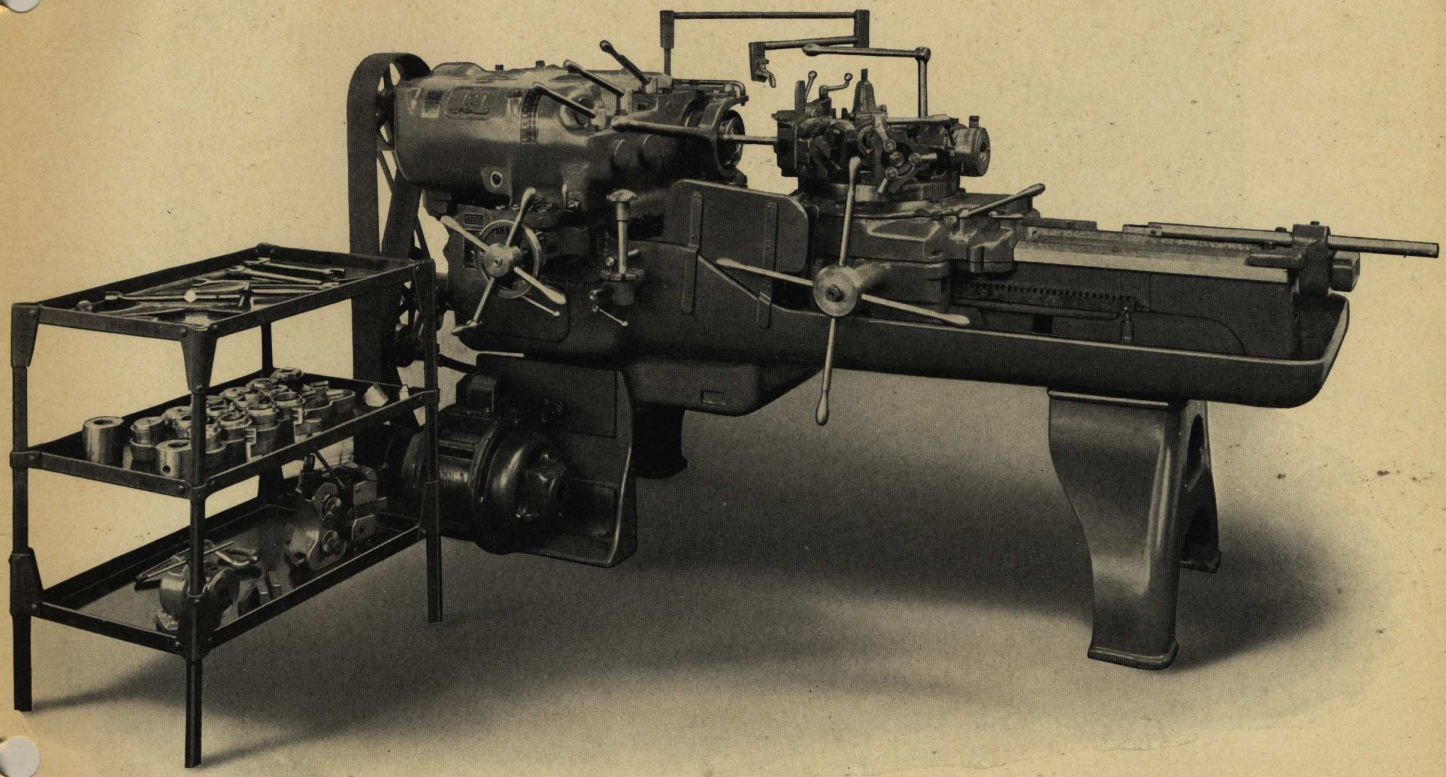
Nine feed changes are transmitted through a sliding gear feed box. These gears are carburized and hardened. The design of the gear box and shifting mechanism is such that the feeds may easily be changed while the machine is under cut.

Way Guards



The way guards, mounted on the saddle, are of sufficient length to protect the ways of the machine in all cutting positions.

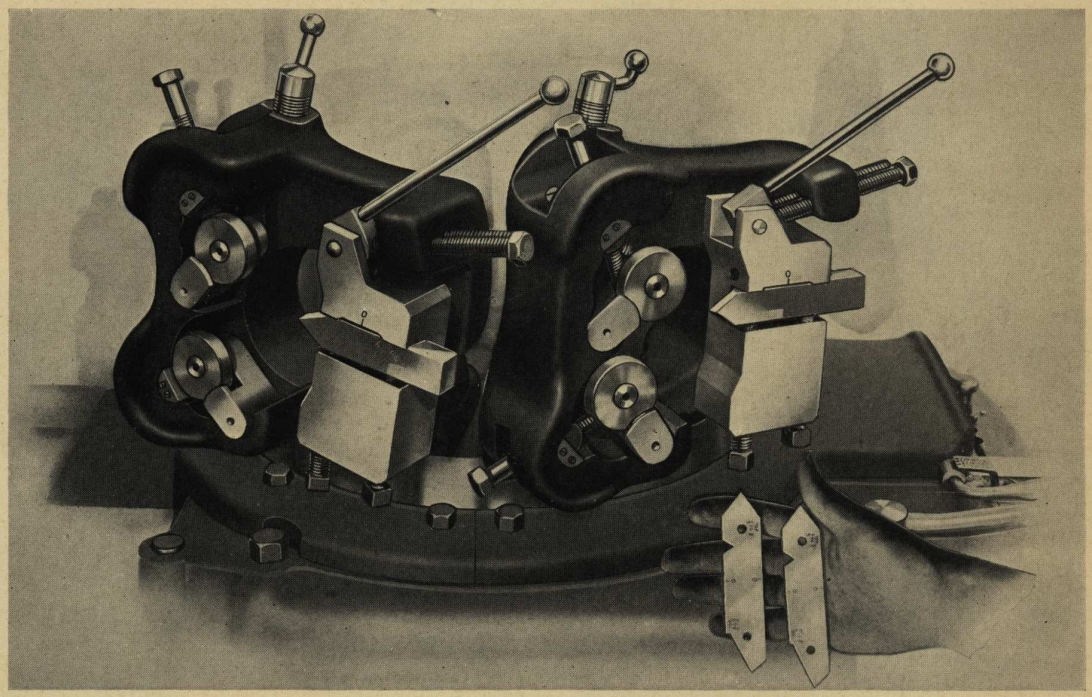
Bar Outfit



Machine with Bar Outfit

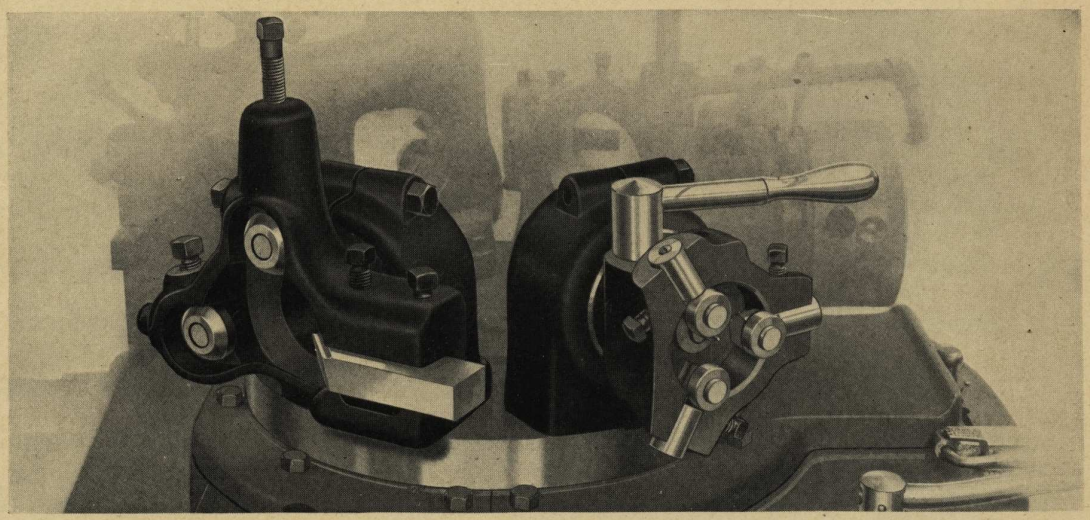
The 2½x24 J & L Bar Lathe has a standard tool equipment which is so complete that it will suffice for a great variety of jobs. This tool outfit has proven itself particularly effective in its metal-removing capacity, hence the high production of the machine on small lot bar work. At the same time the tools are as light and easy to handle on the turret as is consistent with the metal-removing requirements of this size machine. With the outfit is a complete set of collets for round, square and hexagon stock, wrenches, etc. The individual tools of the outfit are described in detail on the following pages.

Roller Back Rest Turner



There are two roller back rest box tools in the bar outfit. Each tool may be arranged to cut two diameters, and may also be arranged either with the tool cutting ahead of or behind the rolls.

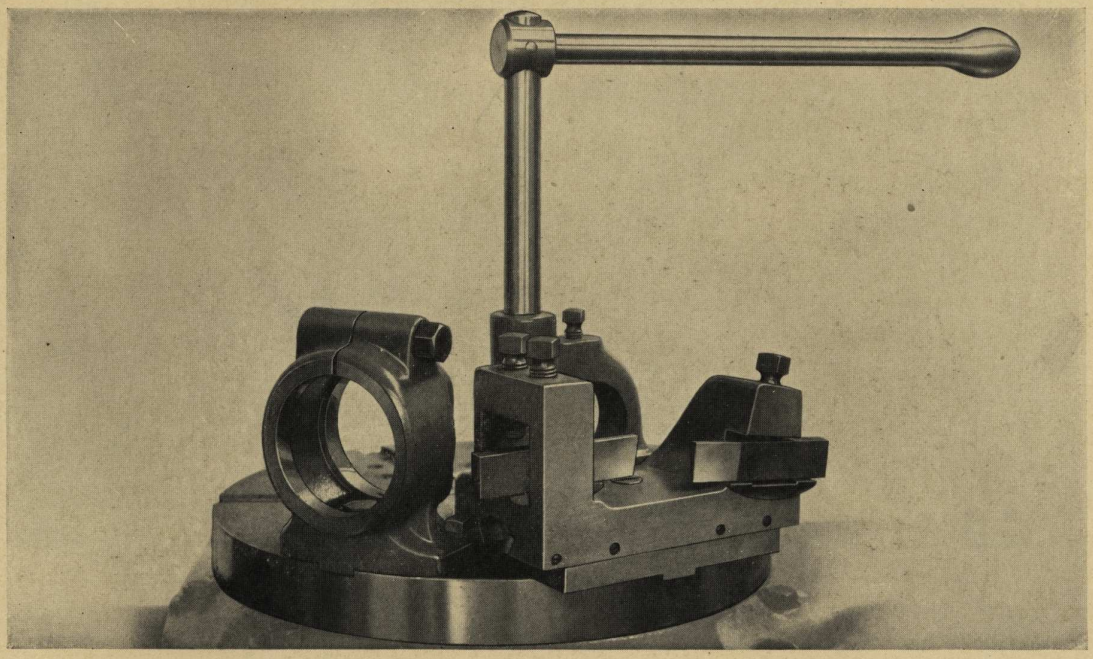
Pointing Tool and Centering Tool



The pointing tool is used for chamfering as well as for breaking down stock before the roller turner. It is equipped with bevel rolls and a substantial high speed steel tool.

The centering tool is equipped with three rolls easily centered with the work; a centering drill in a ram operated by a lever.

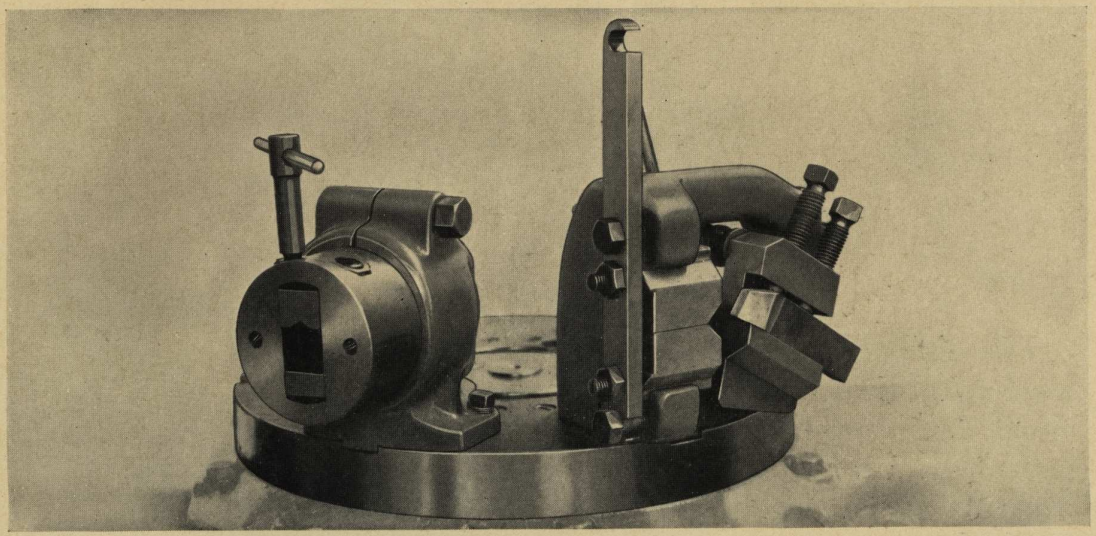
Tool Holder and Cut-off Slide



Four tool holders are supplied for carrying the die head, pointing tool, etc.

The cut-off slide is lever operated. It may be arranged with tools in back of slide for forming, chamfering, etc.

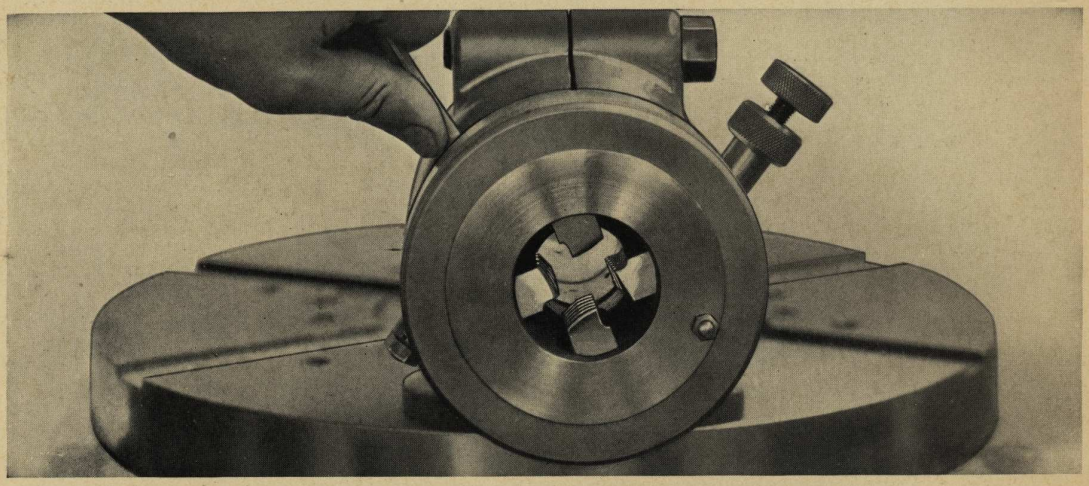
Drill Chuck and Turner B



The bar outfit also includes a drill chuck for holding taps, drills, small boring bars, etc.

The Turner B is a solid back rest turner, occupying a smaller space than the roller turner. It is commonly used for facing and necking cuts and for short turning work.

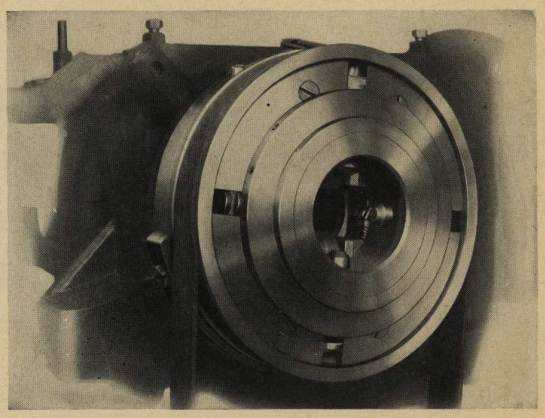
Hartness Automatic Die Head



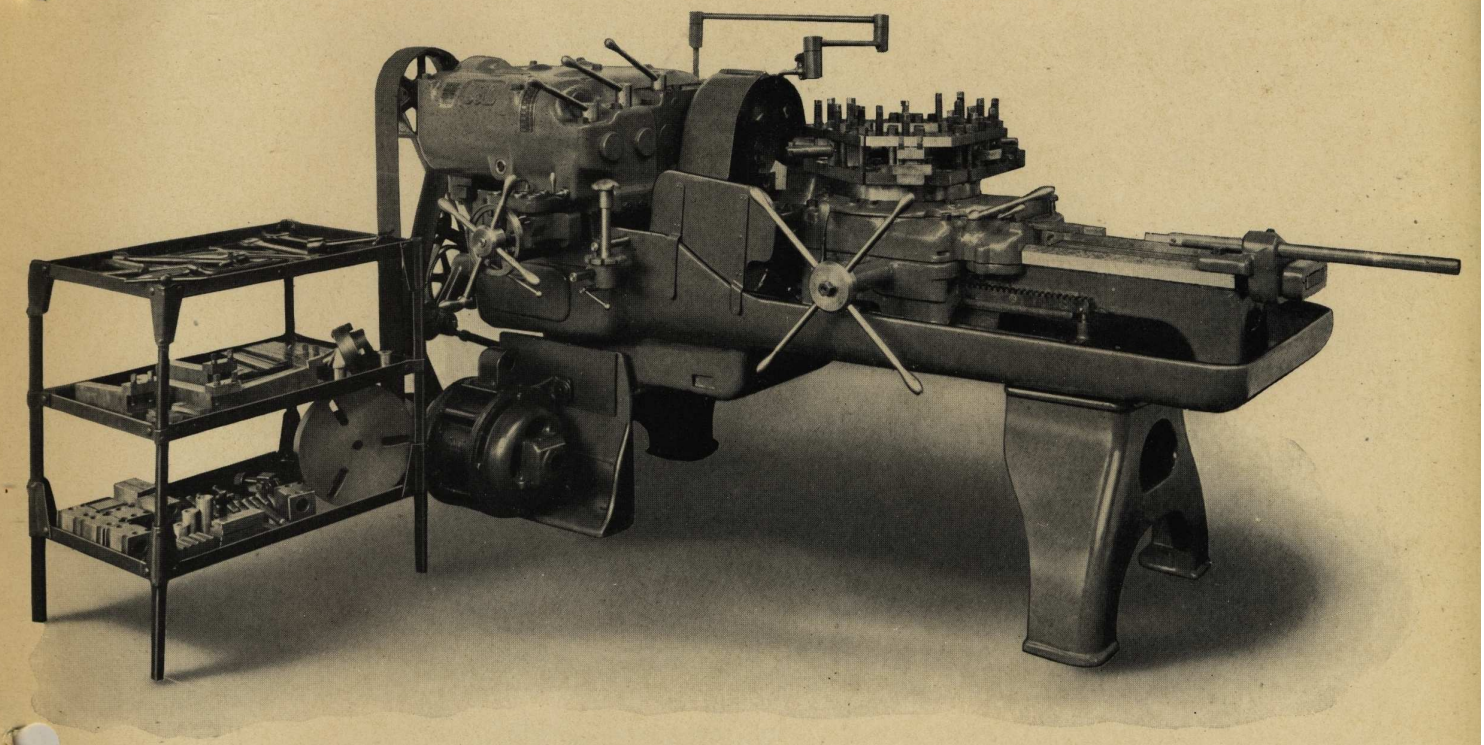
The No. 4 Hartness Automatic Die Head is standard equipment with this machine. The chasers are ground and lapped in the thread by the J & L patented process after heat treatment. The die head itself is hardened throughout and ground on every functioning dimension. With the standard equipment eight sets of chasers are supplied for cutting U. S. S. threads from ⅜" to 1⅛" diameter, inclusive, by eighths, and one set of 7/16", so that when the machine is received the die is ready for any standard threads which it may be required to cut.

Roller Feed

The roller feed works completely automatically. When the chuck is opened the roller feed is thrown into engagement and feeds the bar forward the desired amount.



Chucking Outfit



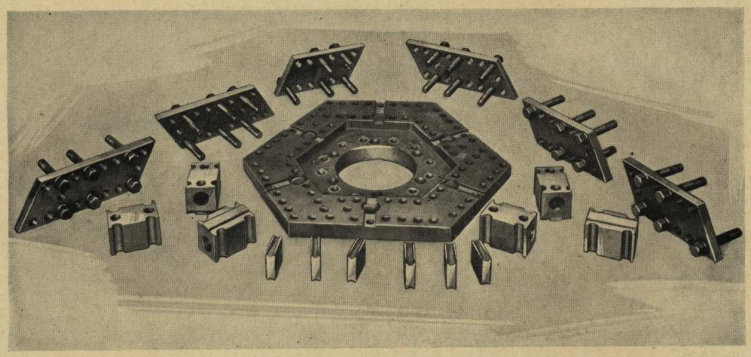
Machine with Chucking Outfit

The universality of the chucking outfit is one of the outstanding features of the J & L Flat Turret Lathe. With the standard set of tools supplied with the machine, multiple tooling may be carried to a great refinement. It is the general custom to take all possible longitudinal cuts in one position, and all possible transverse cuts in the succeeding position. This simple arrangement of multiple tooling is possible only because of the J & L cross-sliding headstock.

The standard chucking outfit supplied with the machine is described on the following pages.

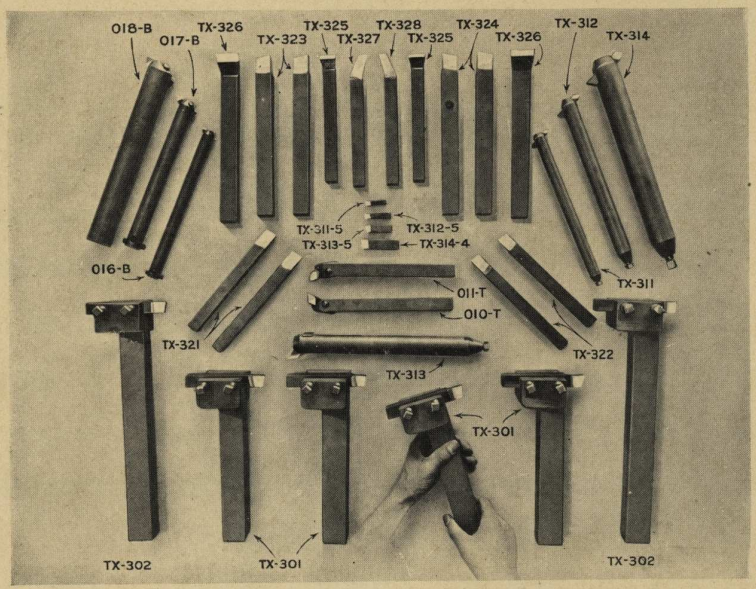
For additional simple standard tools for complicated work, see the "Catalog of the J & L Tools."

Solid Circular Tool Plates



A solid circular tool plate is used, which, when bolted on, practically becomes an integral part of the turret. It will be seen that this tool plate, with its many hold-down screws, lends itself very easily to great multiple tooling. In case the machine is to be used with special tools, segment tool plates may be substituted for this standard solid plate.

Standard Chucking Tools



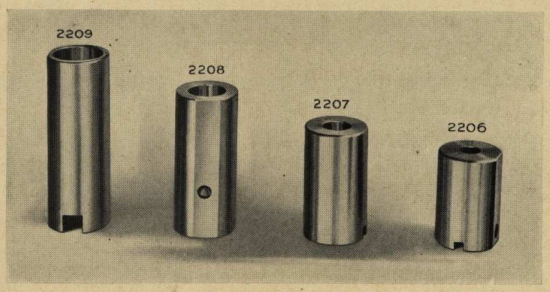
The set of chucking tools supplied with the machine is sufficient to do all ordinary work. The forged tools illustrated are made of the best obtainable high-speed steel scientifically heat treated. Two types of inserted tool cutter bars are supplied—one type using the Lovejoy inserted tools, and the other using the standard tool bits.

Adjustable Reamer Holder

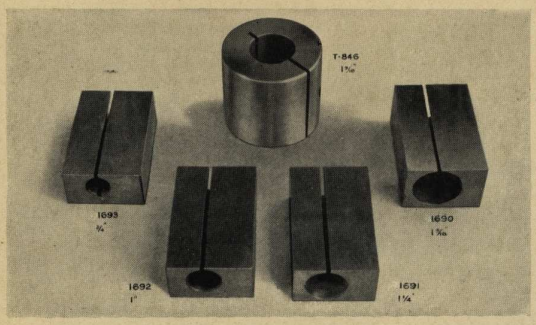
The reamer holder is of the adjustable type so that the reamer may be lined up for each job.

Drill Sockets

There are four sizes of drill sockets for Nos. 1, 2, 3 and 4 Morse taper shanks.



Bushings



There are nine split bushings with holes for boring bars: two 1 9/16″ (round bushing); two 1 9/16″ (square bushing); one 1¼″; two 1″ and two ¾″ diameters.

SPECIFICATIONS
2½ x 24-inch Bar Lathe
12-inch Chucking Lathe

Scroll Chuck Capacity	12″
Bar Chuck Capacity	
Round stock	2½″
Square stock	1¾″
Hex stock	2″
Bore of Spindle	2 13/16″
Cross Travel of Headstock	9½″
From center to rear	8″
From center to front	1½″
Swing	
Swing over Vs facing clear across	16″
Swing over Vs facing 2½″	16¼″
Swing over Vs on center	18″
Swing over saddle on center	15½″
Swing over saddle facing clear across	14¼″
Swing over saddle facing 2½″	14½″

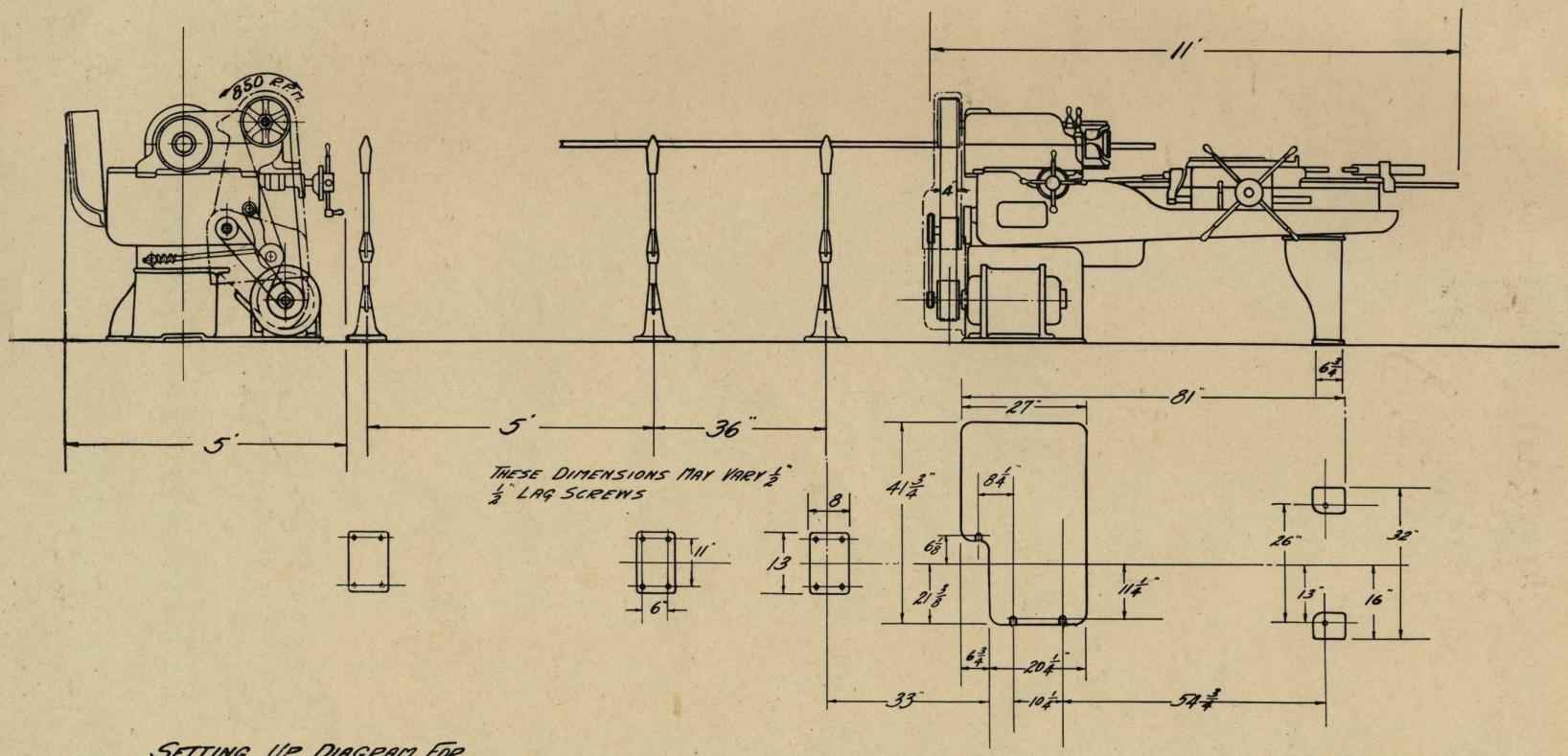
Nine Spindle Speeds
25, 36, 50, 70, 100, 150, 208, 300, 420 RPM

Nine Longitudinal Feeds for Turret and Cross Feeds for Headstock
.010, .012, .014, .017, .022, .028, .037, .050, .083 inches per revolution of spindle.

Diameter of Turret	16″
Turning Length	24″
Main Drive Pulley	
10½″ diam. x 4¼″ face	
Speed of pulley	850 RPM
Width of belt	3″
HP required for motor drive	
Average duty	5
Heavy duty	7½
Countershaft	
Pulley driving main drive pulley	19″ diam.
Clutch pulley	12″ diam.
Width of belt from main line	4″
Speed	456 RPM

Floor Space
5 ft. x 11 ft. plus additional space required for stock supports

Weight	
Net weight with equipment	5000 lbs.
Net weight crated for domestic shipment	5700 lbs.
Net weight boxed for ocean shipment	6000 lbs.
Contents boxed	200 cu. ft.



Setting Up Diagram For
2½ x 24 Hartness Flat Turret Lathe
Equipped For Motor Drive

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SPRINGFIELD, VERMONT

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Printed in U. S. A.
Form No. 91