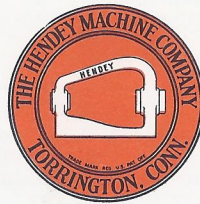


— • HENDEY **TWELVE** **SPEED** GEARED HEAD LATHES • —

# HENDEY



## 12" - 14" - 16" - Swing

**TWELVE**  
**HENDEY**  
**SPEED**

# Geared Head Lathes

Bulletin 1246L-12-38

## The Hendey Machine Co., Torrington, Conn., U.S.A.

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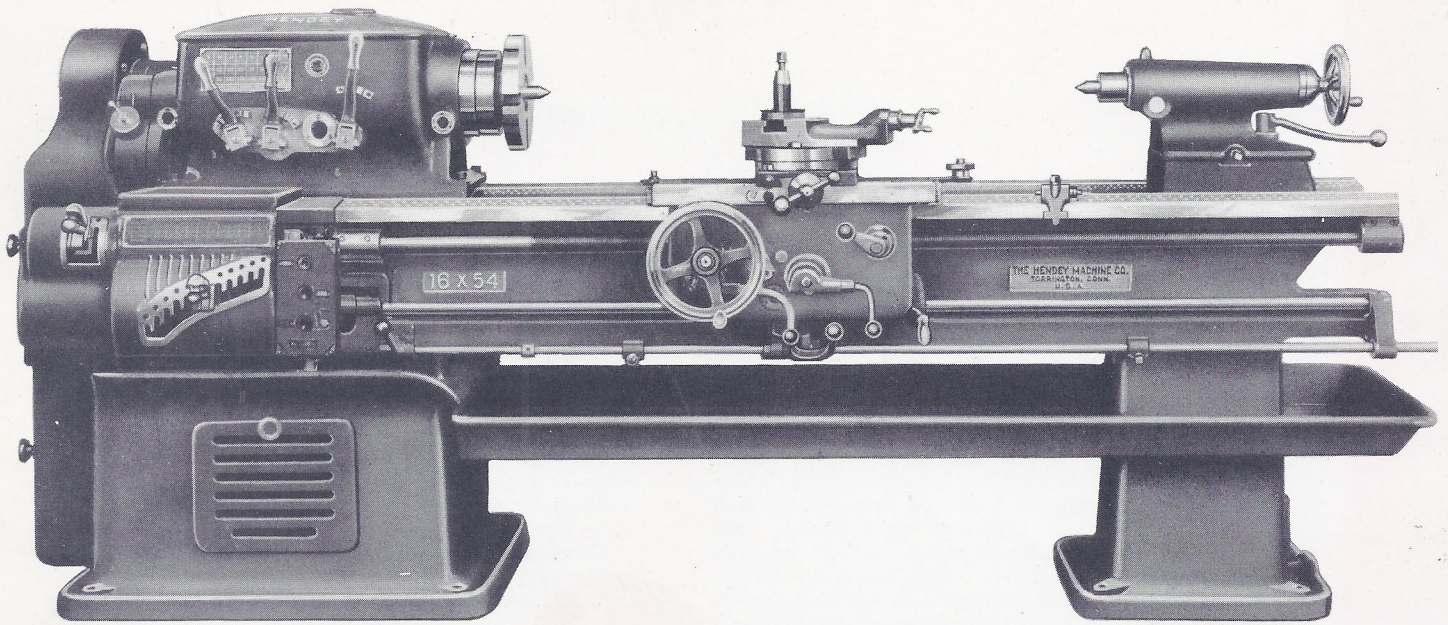
BARNEY MACHINERY CO., INC.  
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# HENDEY



## PRINCIPAL DIMENSIONS

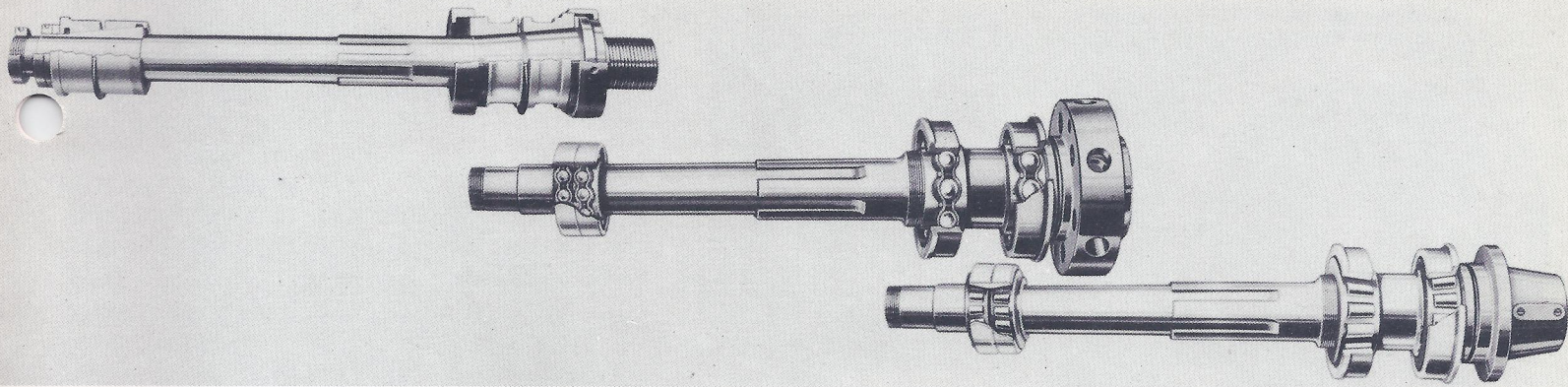
## RATED SIZE

	RATED SIZE		
	12"	14"	16"
Swing over ways . . . . .	14½"	16½"	18½"
Swing over cross slide . . . . .	9"	10½"	12"
Center distance, base length . . . . .	30"	30"	30"
Base bed length . . . . .	6'	6'-6"	6'-10"
No. of spindle speeds . . . . .	12	12	12
Range of spindle speeds at pulley speed . . . . .	19-598 at 600	18-539 at 600	14-478 at 500
Spindle nose, optional (See Page 3) . . . . .			
Hole through spindle . . . . .	1½"	1½"	1½"
No. and maximum capacity of spring collets . . . . .	No. 6-⅛"-1"	No. 6-⅛"-1"	No. 6-⅛"-1"
Headstock bearing on bed . . . . .	23"	24¾"	27¾"
Carriage bearing on ways . . . . .	17"	18¾"	22½"
Width of cross slide . . . . .	6"	7"	8"
Tailstock spindle dia. and travel . . . . .	2¼" x 4½"	2¼" x 5¾"	2⅝" x 6⅝"
Tailstock bearing on ways . . . . .	9¼"	11"	12½"
Compound rest travel . . . . .	3¼"	3¾"	3¾"
Size of tool . . . . .	1" x ½"	1¼" x ⅝"	1¼" x ⅝"
Centers, Morse taper . . . . .	No. 3	No. 3	No. 4
Center bushing, Morse outside taper . . . . .	No. 5	No. 5	No. 5
Lead screw dia. and pitch . . . . .	1"-6P	1⅛"-6P	1⅜"-6P
No. of thread and feed changes . . . . .	36	36	36
Range of thread cutting . . . . .	1½"-80P.I.	1½"-80P.I.	1½"-80P.I.
Center rest capacity . . . . .	4"	5"	6"
<b>RANGE OF TAPER ATTACHMENT</b>			
Taper attachment will turn max. taper . . . . .	3" per ft.	3" per ft.	3" per ft.
Length turned at one setting of taper attachment . . . . .	13"	15"	18"
Taper turned with cross and screw cutting feeds only . . . . .	6" per ft.	6" per ft.	6" per ft.
Taper turned with cross and screw cutting feeds and taper att. max. . . . .	9" per ft.	9" per ft.	9" per ft.
Angle turned with longitudinal and cross feeds only . . . . .	45°	45°	45°
Angle turned with longitudinal and cross feeds and taper att. max. . . . .	48½°	48½°	48½°
Angle turned with longitudinal and cross feeds and taper att. min. . . . .	41°	41°	41°

The feed reverse mechanism in the head for threads and feeds, connected to both the apron reverse and automatic stop rods, is operative at high speeds, being facilitated through an impulse starting mechanism acting in advance of the positive tooth clutch engagement.

### Motor Drive Data:

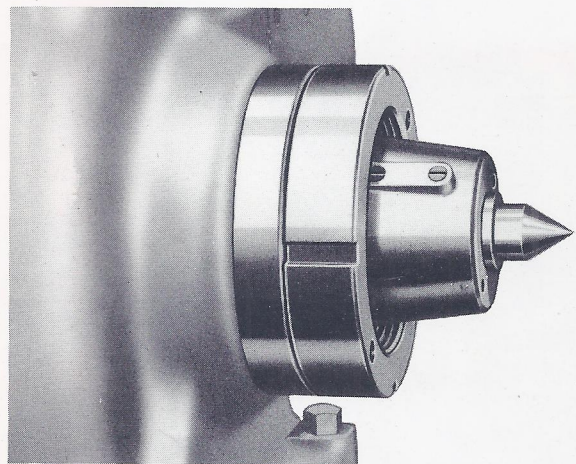
	12"	14"	16"
H. P. of motor required	2 to 3	3 to 5	5 to 7½
Speeds, using Vee Belts	1200	1200	1200



Spindle bearings are optional. Customer has the choice of Hendey standard taper journals running in annular ring oiling bearings, or; super-precision anti-friction bearings in either ball or roller type.

Hendey precision, the accepted standard for engine lathe requirements, is guaranteed with either type of bearing. Hendey taper bearings are automatically ring oiled from reser-

voir under either bearing. The super-precision anti-friction bearings are oiled by tracking through the oil in reservoirs. Anti-friction bearings are mounted double opposed, preloaded, and are recommended for high speeds and heavy duty. Three oil sight gages are placed on the headstock casting, one at each bearing, and one in the center for the spindle drive gearing, to check the amount of oil in use.



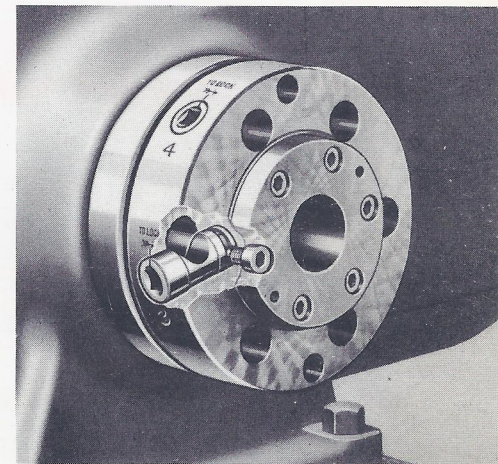
L Type Nose

Spindle noses may be furnished in three patterns: the threaded type; the long-taper key drive or the D-1 cam-lock flange type as preferred.

The long-taper type has a taper nose to center and seat the plates and chucks, a heavy key for driving member, and a threaded coupling collar for locking driven member in position. This collar is hooded over the flange back of spindle nose.

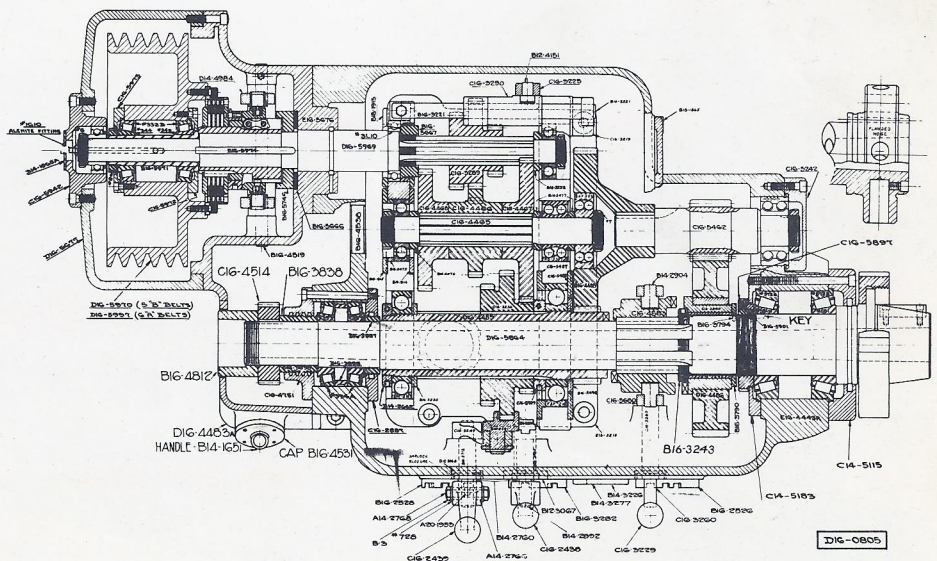
On the D-1 type the face plates and chucks are held by means of a series of cam locking studs which are attached to the back of the plate or chuck. The locking cams are mounted in the radial holes in the spindle flange.

The D-1 and Taper type noses have a minimum hardness of 38 Rockwell "C".

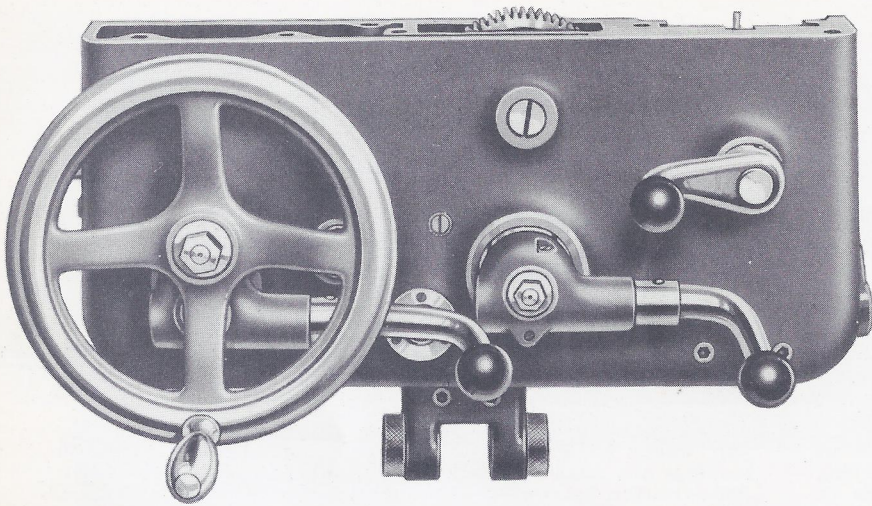


D-1 Type Nose

Sectional-assembly view of 12-speed headstock, showing V-belt driving pulley with disc clutch and brake, shafts, gearing, bearing mounts, spindle with positive tooth clutch and long taper nose, and inset showing cam-lock flange type nose. All gears in headstock are forged from high grade alloy steel. The spindle driving gears have helical cut teeth. All sliding gears are oil hardened and tempered to secure high efficiency through non-abrasive qualities and refinement of tooth grain structure. Gear teeth are finished for correctness of tooth profile after tempering. All shafts in headstock are made of alloy steel, hardened and ground. Spindle is forged from alloy steel and heat treated to secure grain refinement and toughness. Spindle bearings are super-precision, mounted in pairs, and run under preload; following best engineering practice. All shafts and sliding gears and driving clutch on spindle are multiple keyed, splined from the solid. Bearings are anti-friction throughout. Heads are automatically oiled.



# HENDEY



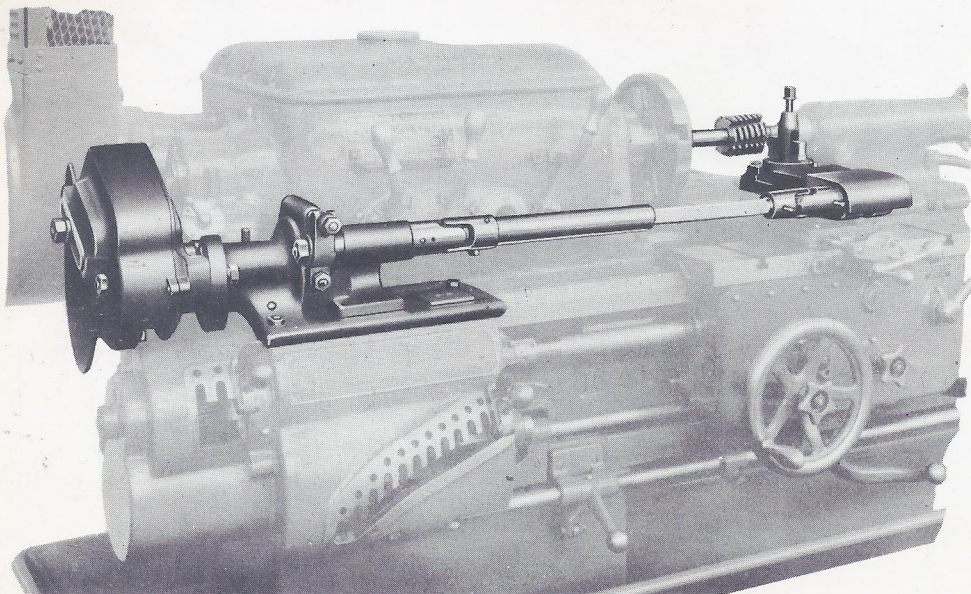
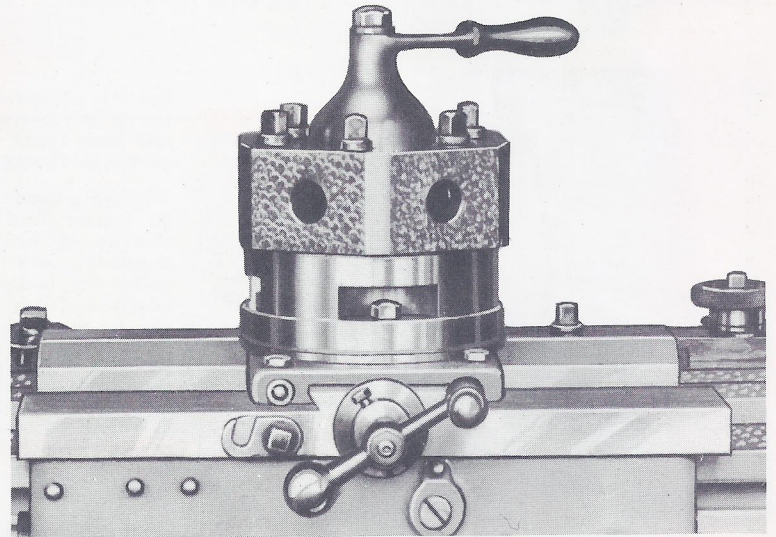
**APRON**

Apron Feeds have quick in-and-out action, friction driven lever controlled. Levers pull up to engage feed and drop to release. Longitudinal feed and thread cutting have safety lock preventing dual engagement. Feed worms are hardened. APRON HAS AUTOMATIC OILING WITH SIGHT LEVEL GAUGE FOR OIL RESERVOIR ON FRONT PLATE. Scrolls can be cut with apron cross feed. Any pitch on the index plate multiplied by 4 will give the corresponding cross feed pitch. Graduated dial on cross feed screw is large in diameter with wide spacings for easy reading, and has quick re-setting feature.

## CARRIAGE TURRETS

Size of Lathe.....	12"	14"	16"
Dia. of Turret across Flats...	6½"	7"	8"
Diameter of Holes in Turret	1"	1¼"	1½"

Cross-slide turrets are under control of all the carriage feeds, and may be used with taper attachment.

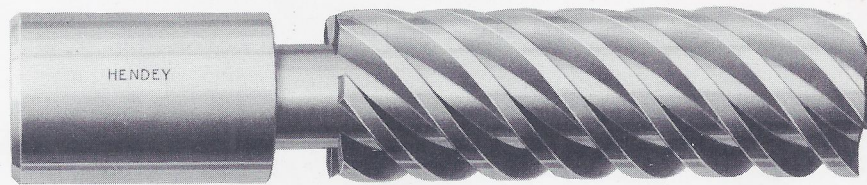


## RELIEVING ATTACHMENT

This attachment is full universal. It will relieve face, angular, end or internal cutters, also taps or hobs, right or left hand, with straight or spiral flutes. Normal travel of relief from 0" to 5/32" and up to 26 flutes. Range of use of Relieving Attachment is greatly increased when used with the Sub Headstock.

This attachment is a speed reducing unit; i. e., the driving plate revolves one turn to six turns of the spindle. The head center does not revolve, being a dead center. The sub-headstock is used for chasing screw threads with long leads beyond the range given on the index plate; cutting screws with multiple threads and long leads (see cut below). This attachment is of great value as a work driving unit when using the relieving attachment for relieving wide forming tools and hobs with long leads, and relieving cutters with large numbers of teeth.

## SUB-HEADSTOCK



Screw with six starts and four inch lead. Cut with the aid of Sub-Headstock.

## TAPER ATTACHMENT

The main bracket is securely attached to back of lathe carriage, after both are finished to a bearing surface to prevent any wind in attachment when bolted to position. It is also accurately leveled with top of lathe ways to insure free movement the full length of slide.

As the attachment travels with carriage, it is always in position ready for use. All operations necessary to use the attachment are made from front of carriage.

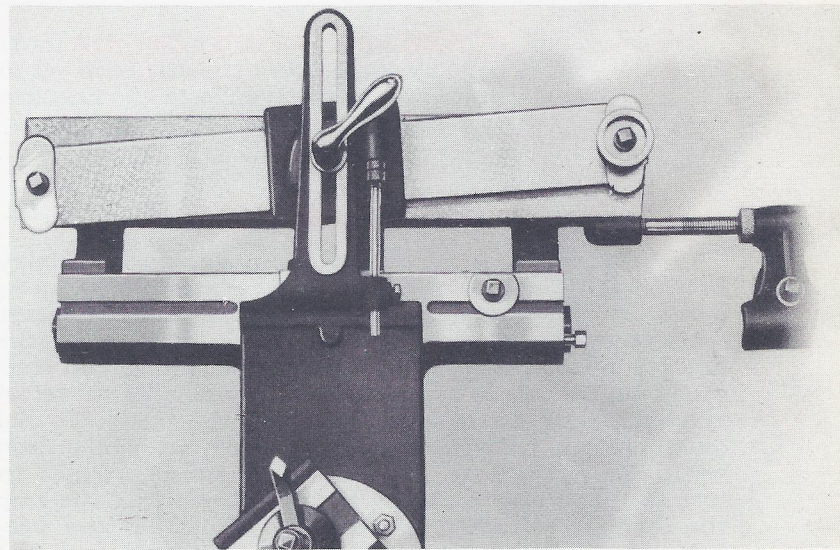
In turning steep tapers, the simultaneous operation of the screw cutting with the cross feed, **AND USING THE TAPER ATTACHMENT IN COMBINATION** will give tapers up to 9" to the foot. The range of the taper attachment alone is up to 3" to the foot.

If the longitudinal and cross feeds are engaged simultaneously, the tool will follow a path forming an angle 45° with the center line.

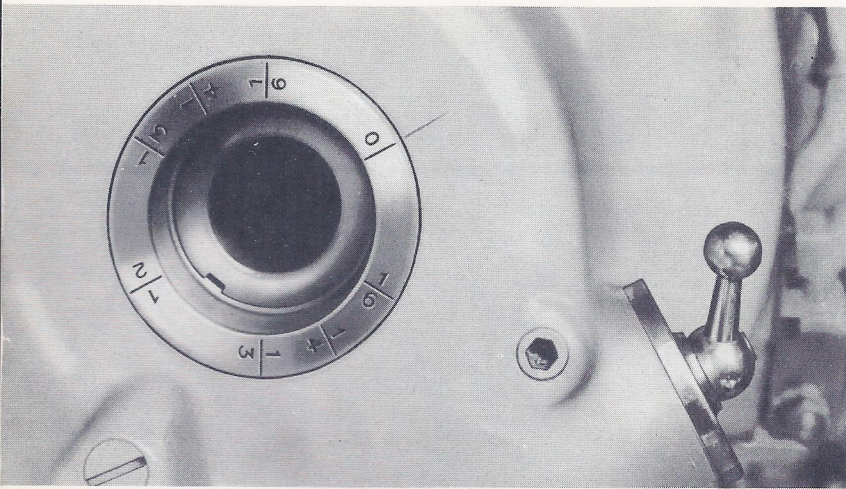
By using the taper attachment in combination with these two feeds, the angle can be increased or decreased sufficiently to form a minimum angle of 41°, and a maximum angle of 48½°.

The attachment is graduated at both ends, one in degrees, the other in inches per foot, giving an included angle of 15 degrees, or approximately 3 inches in diameter per foot.

Maximum travel:      12" Lathe 13"      14" Lathe 15"      16" Lathe 18"

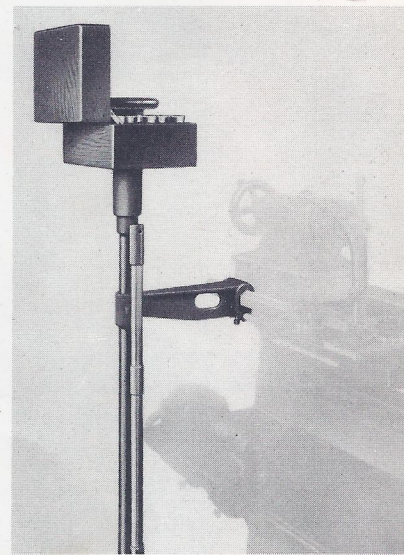
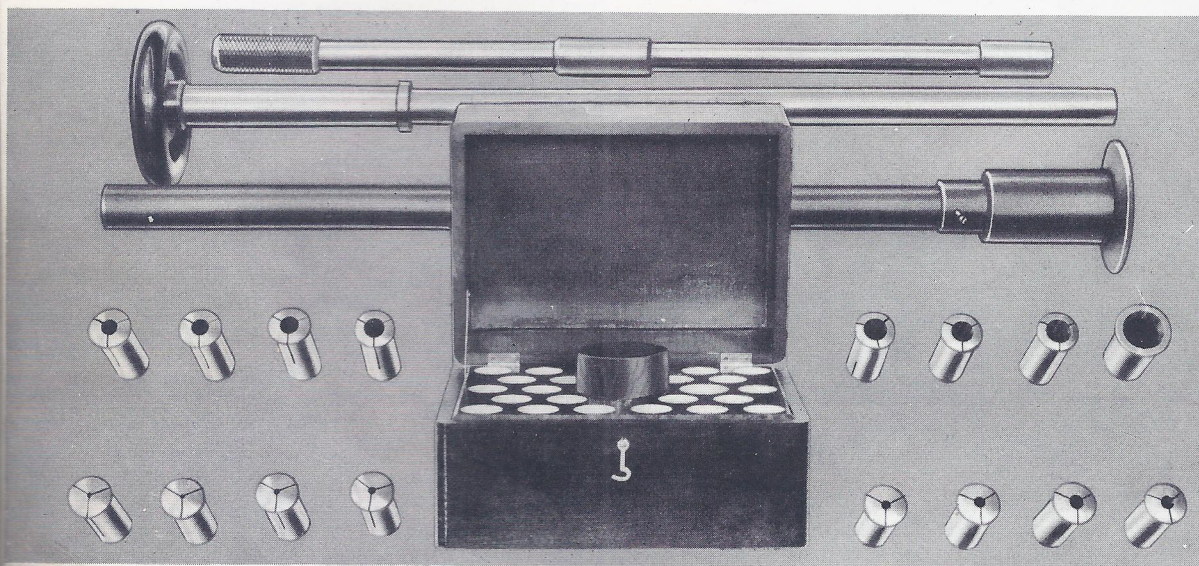


# HENDEY



Spindles of the 12-14-16-inch, 12-speed HENDEY lathes have a  $1\frac{1}{2}$ " bore, enabling them to take spring collets up to 1" capacity.

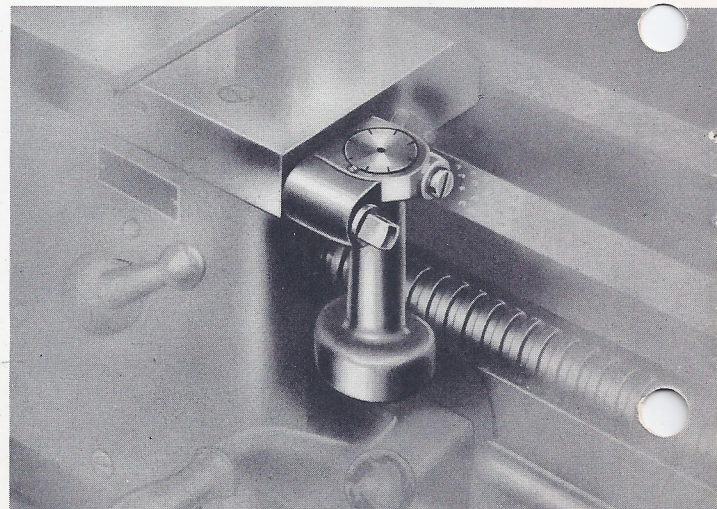
**GRADUATIONS** on end of spindle collar give an accurate means of indexing spindle for cutting multiple threads. The procedure is, first cut the initial thread; then turn spindle by hand until the zero on spindle and guard mark align; next, throw out slip gear by means of ball handle at right, then rotate spindle by hand to bring required division on spindle opposite line on guard; re-engage slip gear and then start thread cutting as before. Subsequent divisions are secured in the same manner.



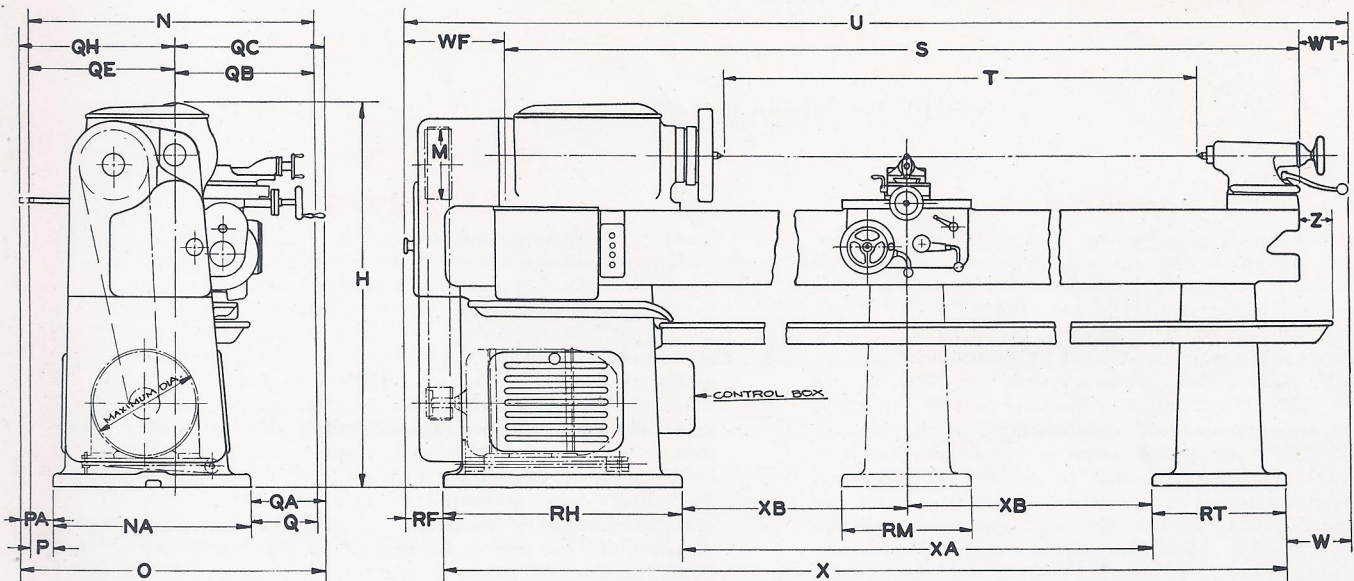
**STANDARD SPRING COLLETS** for these lathes are Hendey No. 6, running  $\frac{1}{8}$ " to 1" by 16ths, 15 in the set. Each set of Collets has standard equipment consisting of draw-in sleeve, closer and knock-out rod; with cabinet and mount for same.

## THREAD CHASING DIAL

This attachment is furnished as an extra on Hendey Lathes, as it in a way duplicates the uses of the automatic carriage stop, apron reverse and micrometer carriage stop. A worm gear in the lower end of the bracket when engaged with the lead screw at the time of thread cutting is caused to rotate with the travel of carriage. This gear is connected with the graduated dial on top of the fixture so that the dial rotates in unison with the worm gear. With the lead screw brought to rest at the end of a thread through the automatic stop the carriage can then be run back by hand to a predetermined starting point for the beginning of the cut, and a selection made on the dial graduations at which point the half nuts may readily be re-engaged with the lead screw and the screw started by means of the apron reversing lever. When not in use the worm gear is swung free of the screw.



# HENDEY

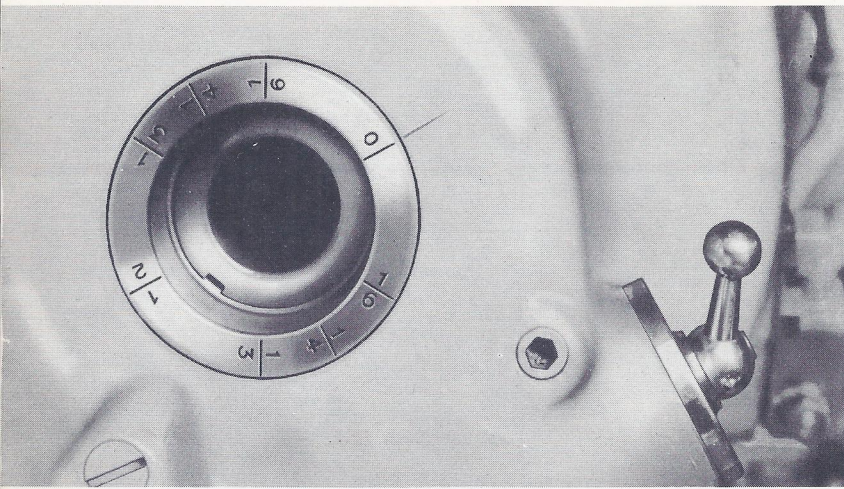


## FLOOR PLAN

TABLE OF DIMENSIONS		12"	14"	16"
M	Diameter and width of driving pulley	9" x 3 <sup>7</sup> / <sub>16</sub> "	10" x 3 <sup>7</sup> / <sub>16</sub> "	12" x 4 <sup>1</sup> / <sub>4</sub> "
N	Width of plain lathe over all	30 <sup>1</sup> / <sub>2</sub> "	35 <sup>1</sup> / <sub>4</sub> "	40 <sup>3</sup> / <sub>4</sub> "
O	Width of taper att. lathe over all	35 <sup>1</sup> / <sub>4</sub> "	39 <sup>1</sup> / <sub>2</sub> "	47"
P	Back over hang (plain lathe)	1 <sup>1</sup> / <sub>2</sub> "		
PA	Back over hang (taper att. lathe)	5 <sup>1</sup> / <sub>2</sub> "	3 <sup>1</sup> / <sub>2</sub> "	5 <sup>1</sup> / <sub>2</sub> "
Q	Front over hang (plain lathe)	5"	9 <sup>1</sup> / <sub>4</sub> "	10 <sup>3</sup> / <sub>4</sub> "
QA	Front over hang (taper att. lathe)	5 <sup>3</sup> / <sub>4</sub> "	10"	11 <sup>1</sup> / <sub>2</sub> "
QB	Center to front over hang (plain lathe)	17"	18 <sup>1</sup> / <sub>4</sub> "	21"
QC	Center to front over hang (taper att.)	17 <sup>3</sup> / <sub>4</sub> "	19"	21 <sup>3</sup> / <sub>4</sub> "
QE	Center to back over hang (plain lathe)	13 <sup>1</sup> / <sub>2</sub> "	17"	19 <sup>3</sup> / <sub>4</sub> "
QH	Center to back over hang (taper att.)	17 <sup>1</sup> / <sub>2</sub> "	20 <sup>1</sup> / <sub>2</sub> "	25 <sup>1</sup> / <sub>4</sub> "
NA	Width of motor leg	24"	26"	30"
NB	Width of tail end leg	19 <sup>1</sup> / <sub>4</sub> "	20"	20 <sup>1</sup> / <sub>2</sub> "
RF	Door over hang	6 <sup>3</sup> / <sub>4</sub> "	4 <sup>1</sup> / <sub>4</sub> "	4 <sup>1</sup> / <sub>2</sub> "
RH	Length of motor leg	29"	33 <sup>1</sup> / <sub>2</sub> "	37 <sup>1</sup> / <sub>2</sub> "
RM	Length of middle leg	17 <sup>1</sup> / <sub>2</sub> "	17 <sup>1</sup> / <sub>2</sub> "	22"
RT	Length of tail end leg	17 <sup>1</sup> / <sub>2</sub> "	17 <sup>1</sup> / <sub>2</sub> "	22"
S	Length of bed	72"	78"	82"
T	Distance between centers	30"	30"	30"
U	Length over all	90 <sup>1</sup> / <sub>4</sub> "	96 <sup>1</sup> / <sub>2</sub> "	103 <sup>1</sup> / <sub>4</sub> "
W	Rear end over hang	8"	9 <sup>1</sup> / <sub>2</sub> "	12 <sup>3</sup> / <sub>4</sub> "
X	Length over legs	75 <sup>1</sup> / <sub>2</sub> "	82 <sup>3</sup> / <sub>4</sub> "	86"
XA	Distance between end legs	28 <sup>1</sup> / <sub>2</sub> "	31 <sup>3</sup> / <sub>4</sub> "	26 <sup>1</sup> / <sub>2</sub> "
XB	Distance from center to end legs (1/2 of XA)			
WF	Head front end over hang	11 <sup>3</sup> / <sub>4</sub> "	12 <sup>1</sup> / <sub>2</sub> "	13 <sup>1</sup> / <sub>2</sub> "
WT	Over hang of tail stock handle	6 <sup>1</sup> / <sub>2</sub> "	6"	7 <sup>3</sup> / <sub>4</sub> "
Z	Over hang of pan	4 <sup>1</sup> / <sub>4</sub> "	3 <sup>3</sup> / <sub>4</sub> "	2 <sup>1</sup> / <sub>2</sub> "
H	Over all height	50"	51"	51 <sup>1</sup> / <sub>4</sub> "

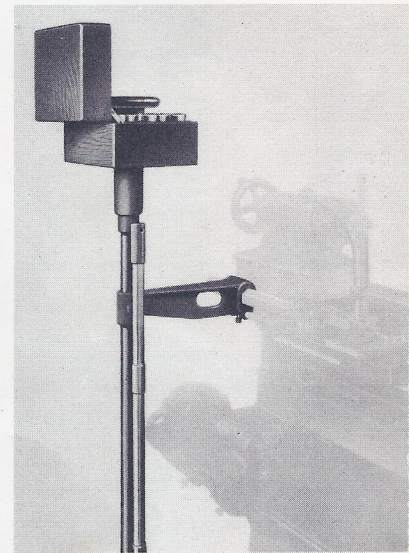
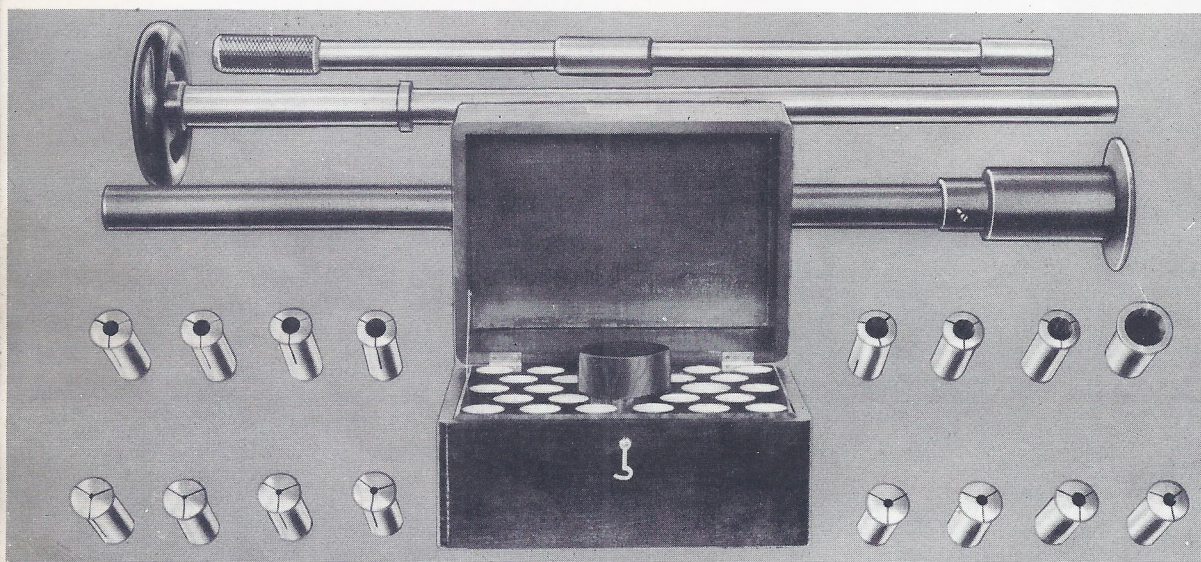
WEIGHTS AND BOXING DIMENSIONS	12"	14"	16"
Base bed center distance	12" x 30"	14" x 30"	16" x 30"
Over all length (for base bed length)	90 <sup>1</sup> / <sub>4</sub> "	96 <sup>1</sup> / <sub>2</sub> "	103 <sup>1</sup> / <sub>4</sub> "
Over all width—plain	36 <sup>3</sup> / <sub>4</sub> "	38"	47"
Over all width—with taper	38 <sup>1</sup> / <sub>4</sub> "	39 <sup>1</sup> / <sub>2</sub> "	49 <sup>1</sup> / <sub>8</sub> "
Height highest point (top of headstock) approx.	50 <sup>3</sup> / <sub>4</sub> "	51 <sup>1</sup> / <sub>2</sub> "	51"
Net weight with regular equipment base length no motor or taper	2650 lbs.	3560 lbs.	4800 lbs.
Crated and skidded weight base length no motor or taper	3000 lbs.	3920 lbs.	5250 lbs.
Export box base bed length with regular equipment	93" x 59" x 41"	100" x 62" x 42 <sup>1</sup> / <sub>2</sub> "	111" x 62" x 50"
Weight of box only for base length bed	1000 lbs.	1400 lbs.	1850 lbs.
Weight per 2' bed net	160 lbs.	230 lbs.	320 lbs.
Weight per 2' pan net	20 lbs.	23 lbs.	30 lbs.
Weight taper attachment net	70 lbs.	87 lbs.	115 lbs.
Weight relieving attachment net	155 lbs.	173 lbs.	240 lbs.
Weight forming attachment net	110 lbs.	130 lbs.	165 lbs.
Weight ball turning attachment net	53 lbs.	60 lbs.	83 lbs.
Weight sub headstock net	74 lbs.	106 lbs.	160 lbs.
Weight carriage turret net	90 lbs.	105 lbs.	130 lbs.
Weight bed turret net	160 lbs.	225 lbs.	330 lbs.

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