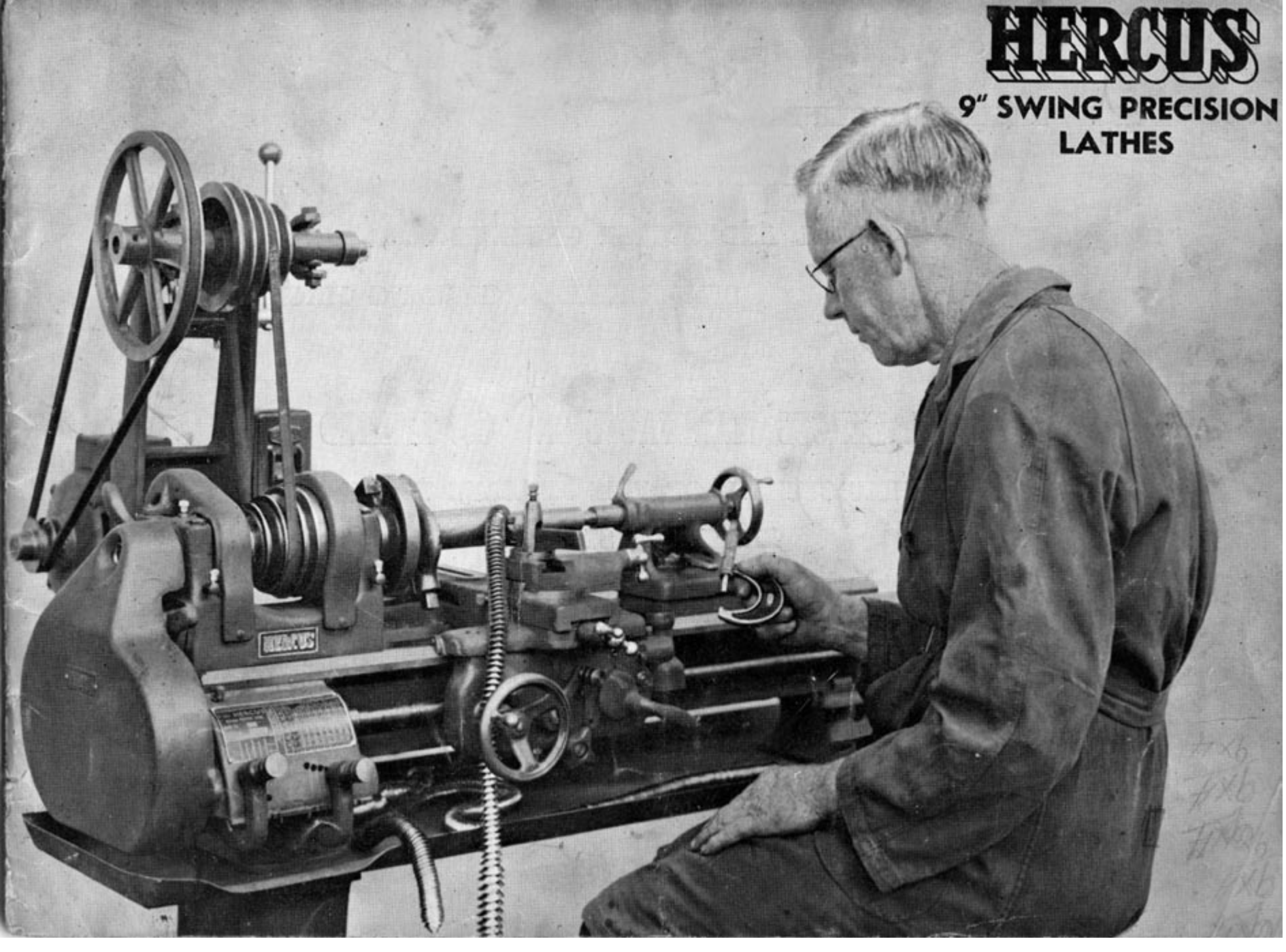
HERCUS

9" SWING PRECISION LATHES



HERCUS 9" SWING PRECISION LATHES

Hercus Lathes are characterised by fine workmanship and built by experienced craftsmen. They are built to close limits of accuracy in order that the work they produce will come within the exacting tolerances demanded by modern industry. Finely finished spindles and bearings, direct smooth running belt drive with back gears for low speeds and heavy cuts, a wide range of threads that can be cut with a precision lead screw, worm drive through friction clutch for feeds, and a close grained precision ground bed all help to make Hercus Lathes high-class precision machine tools.

The Bed is a close grained semi-steel casting, strongly constructed and well ribbed, having three vee ways and one flat. The two outer vee ways guide the saddle, and the third vee and flat hold the headstock and tailstock in perfect alignment. All bed castings are rough planed and seasoned before being precision ground to impart that degree of accuracy necessary to pass the rigid inspection tests to which all Hercus Lathe beds are subject.

The Back Geared Headstock is hand scraped to fit the bed; has a three-step pulley for flat belt or a four-step pulley for vee belt, giving 6, 8, 12 or 16 changes of speed according to the type of drive used. The bearings and spindle are unusually large and are precision ground and bored to a fine finish to ensure long life. The integral adjustable bearings are provided with oil wells and a capillary oiling system, in addition to the usual oilers on top, which feed through fine cloth to filter all oil before reaching the bearings. The spindle of good quality alloy steel is provided with a ball thrust bearing and take-up nut to eliminate end play. The hole is bored the full length to clear a $\frac{3}{4}$" bar, and the front end is bored to No. 3 Morse taper, fitted with a sleeve and a No. 2 Morse centre. A hardened steel spindle can be supplied instead of the standard spindle for a small extra cost.

The Tailstock is also hand scraped to fit the bed. It is of rigid design and can be set over for taper turning. The spindle is graduated and the centre is hardened and is self-ejecting.

The Saddle, which has an unusually long bearing on the bed ways, is hand scraped to a perfect fit and provides a solid support for the cutting tool.

The Compound Rest swivels to any angle, is graduated to 180 degrees, and has two locking screws. The cross-feed and compound rest screws are fitted with graduated collars to read in thousandths of an inch. The dovetails of the slide ways are all precision ground.

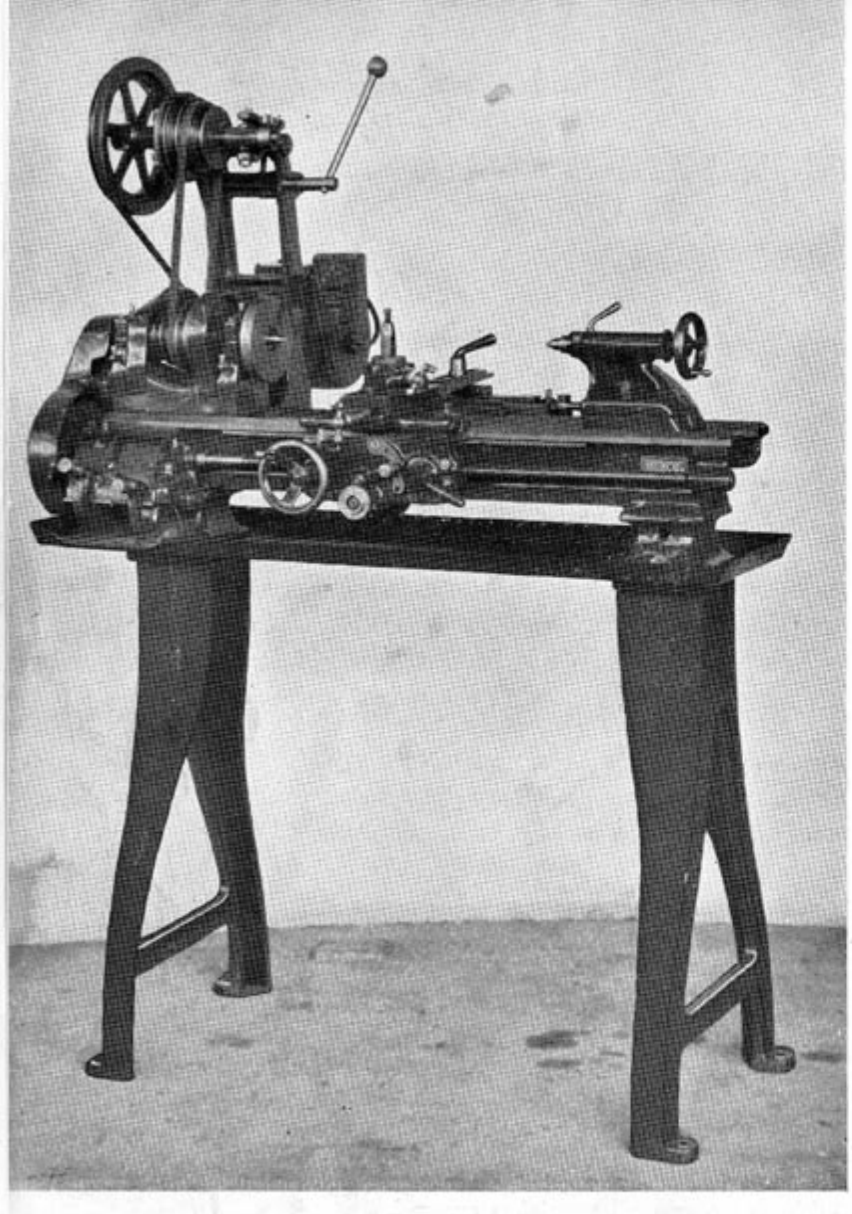


FIG. 1—MODEL A LATHE ON LEGS WITH TRAY.

3 MODELS OF HERCUS 9" SWING LATHES

Hercus 9" Swing Lathes are made in three models: Model A, Model B, and Model C. With the exception of the feed and thread cutting mechanism, all three models are identical.

The Model A Lathe is fitted with a quick-change gearbox and an apron, which provides automatic power feeds for both surfacing and longitudinal traversing without using the threads of the leadscrew or half-nuts.

The Model B Lathe has the conventional pick-off change wheels and the automatic feed type of apron, which provides for 26 longitudinal feeds and 23 cross feeds.

The Model C Lathe has pick-off change gears and a plain apron, and gears are provided to give a series of 45 screw threads and 14 longitudinal feeds using the lead screw.

MODEL A LATHE

The accompanying illustration (fig. 1) shows a Model A Lathe mounted on legs with tray. Legs and tray of this kind can be fitted to all models of Hercus Lathes. It is also fitted with taper turning attachment, four speed vee belt drive from countershaft to headstock, and two-speed drive from motor to countershaft.

GENERAL SPECIFICATION OF HERCUS 9" SWING LATHES

ALL MODELS

Swing over bed	9¼"
Swing over saddle	5½"
Length of bed	40"
Admits between centres	21"
Width of bed	6"
Cone pulley diameters	2¼", 3¼", 4¼"
Width of belt	1"
Hole through spindle	$\frac{3}{32}$"
Spindle nose	1½" x 8 thds., U.S.S.
Front spindle bearing	1$\frac{3}{16}$" diam.
Leadscrew acme thread	¾" x 8 thds.
Compound rest hand feed	2¼"
Cross slide travel	6"
Tailstock spindle travel	2⅛"
Tailstock top sets over	$\frac{5}{8}$"
Small face plate diameter	5⅛"
Collet capacity maximum	½" diam.
Centres Morse taper	No. 2

Spindle speeds are set out on page 9.

Electrical equipment is not manufactured by us, and when it becomes more readily purchaseable fuller details will be made available. For further information, refer to page 18.

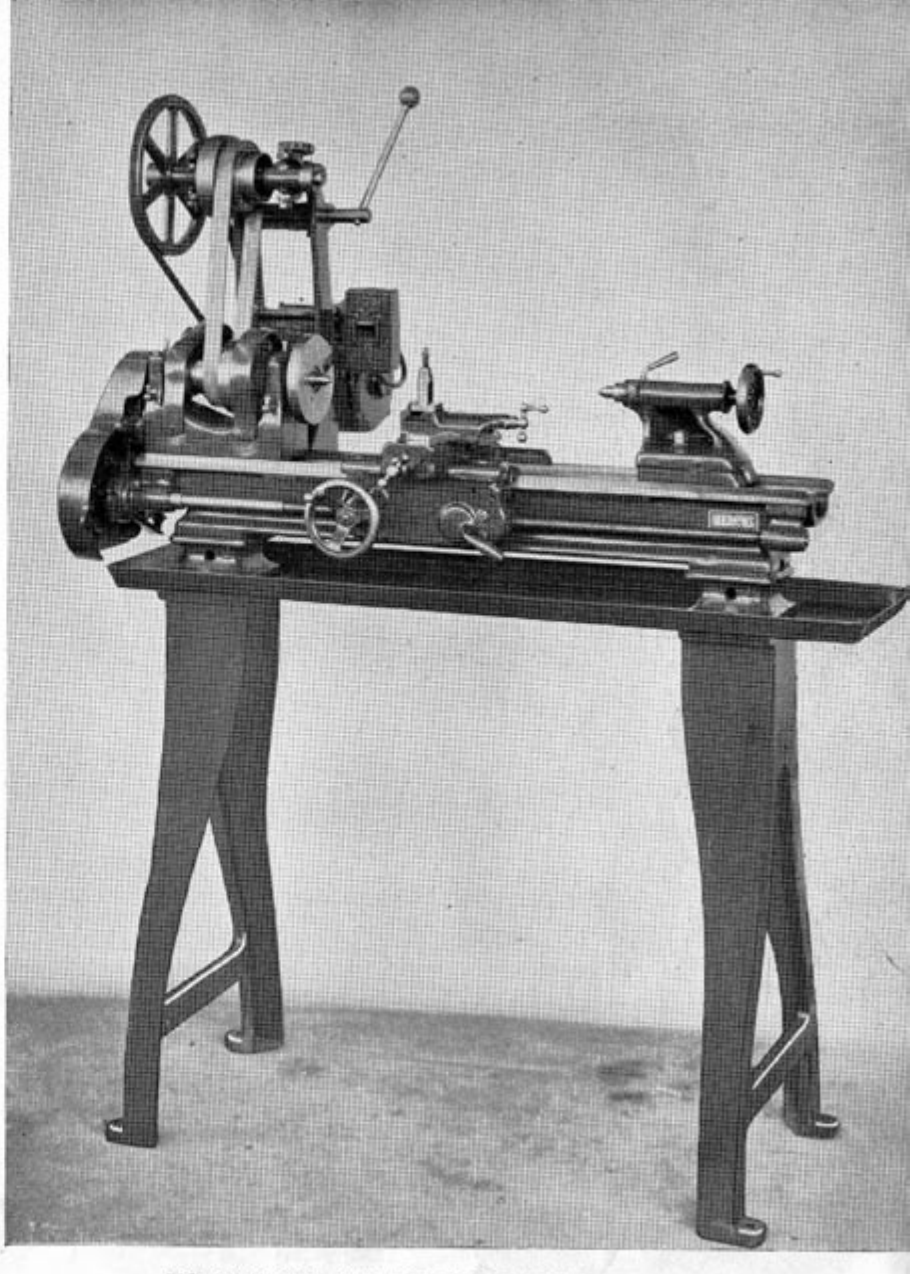
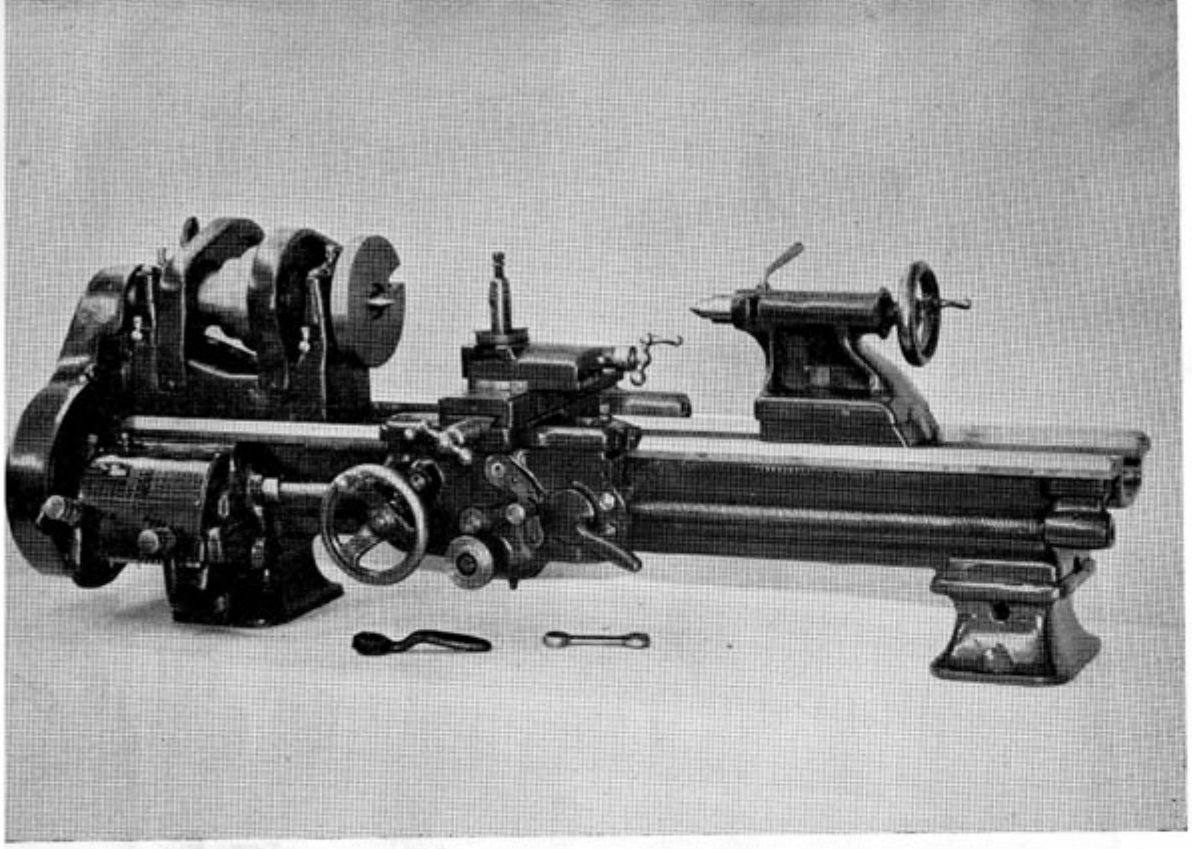


FIG. 2—MODEL C LATHE ON LEGS WITH TRAY.



ABOVE—FIG. 4.

Standard Model A Bench Lathe.

RIGHT—FIG. 3.

Index Chart for Feeds and Threads obtainable on Hercus Model A Lathes.

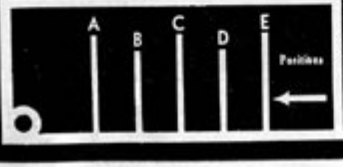
MADE BY F. W. HERCUS MANUFACTURING CO. LIMITED SOUTHWARK SOUTH AUST.

9 inch **HERCUS**

Workshop PRECISION LATHE

MODEL

MACHINE No.



AUTOMATIC CROSS FEEDS
3 TIMES LONGITUDINAL FEEDS

STUD GEAR	LEFT HAND TUMBLER	THREADS PER INCH / FEEDS IN THOUSANDS							
40	A	4 .0853	4½ .0758	4¾ .0721	5 .0683	5½ .0621	6 .0569	6½ .0525	7 .0488
20	A	8 .0427	9 .0379	9½ .0361	10 .0341	11 .0310	12 .0284	13 .0263	14 .0244
20	B	16 .0213	18 .0190	19 .0180	20 .0171	22 .0155	24 .0142	26 .0131	28 .0122
20	C	32 .0107	36 .0095	38 .0090	40 .0085	44 .0078	48 .0071	52 .0066	56 .0061
20	D	64 .0053	72 .0047	76 .0045	80 .0043	88 .0039	96 .0036	104 .0033	112 .0030
20	E	128 .0027	144 .0024	152 .0023	160 .0021	176 .0019	192 .0018	208 .0016	224 .0015
		↓	↓	↓	↓	↓	↓	↓	↓

HERCUS 9" SWING PRECISION LATHE—MODEL A

All Model A Lathes are fitted with a quick-change gearbox as illustrated in fig. 4. Changes for the various screw threads and feeds are made by shifting two levers on the front of the gearbox (fig. 5). All screw threads and power feeds instantly available are shown on the index chart (fig. 3). By shifting the gearbox levers, a range from 8 to 224 threads per inch, including 19, can be cut, and threads from 4 to 7 per inch can be obtained by removing the 20 tooth stud gear and replacing it with a 40 tooth gear.

Threads other than those shown on the index chart can be cut with the use of additional change wheels. These can always be supplied to order and to suit the particular thread required.

AUTOMATIC APRON FOR MODEL A AND MODEL B LATHES

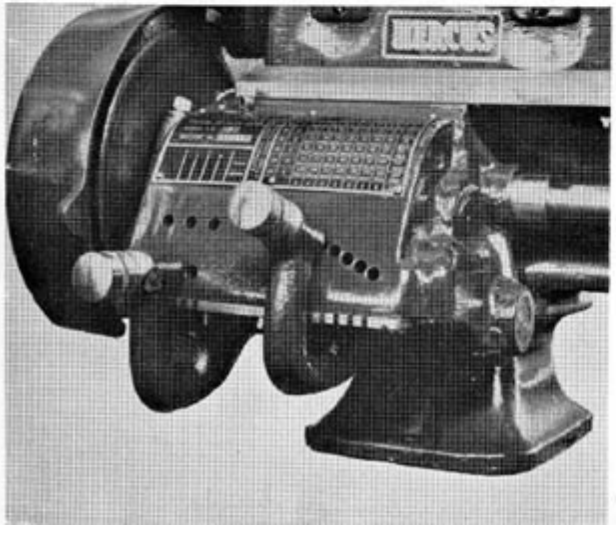
Model A and Model B Lathes are equipped with an automatic apron, as shown in fig 7. This apron has a worm drive and friction clutch for operating the automatic power longitudinal and cross feeds. The threads of the leadscrew being used only when screw cutting.

The knob in front of the apron, lower centre, engages the friction clutch, and the lever above it engages the longitudinal feed when in the upper position and cross feed when in the lower position, the centre position being neutral.

An automatic safety device ensures that the half nuts can only be closed when the lever is in the neutral position.

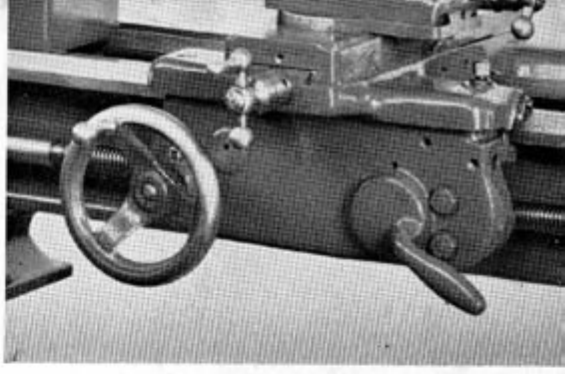
This automatic apron, in conjunction with gearbox (fig. 5), as fitted to Model A Lathes, gives an extremely wide range of feeds, as shown on chart (fig. 3).

Model C Lathes are fitted with a plain geared screw feed apron, as illustrated (fig. 6). The cross feed is hand-operated and the longitudinal feed is obtained by engaging the half nuts with the leadscrew.



LEFT—FIG. 5.

QUICK CHANGE GEAR BOX AS FITTED TO ALL HERCUS MODEL A LATHES.

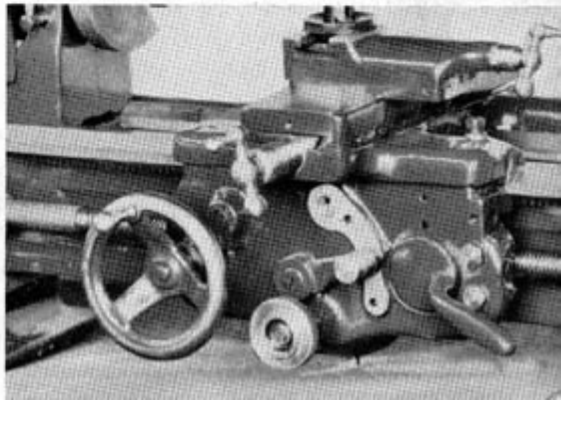


ABOVE—FIG. 6.

PLAIN APRON AS FITTED TO ALL HERCUS MODEL C LATHES.

BELOW—FIG. 7.

AUTOMATIC APRON AS FITTED TO ALL HERCUS MODEL A AND MODEL B LATHES.



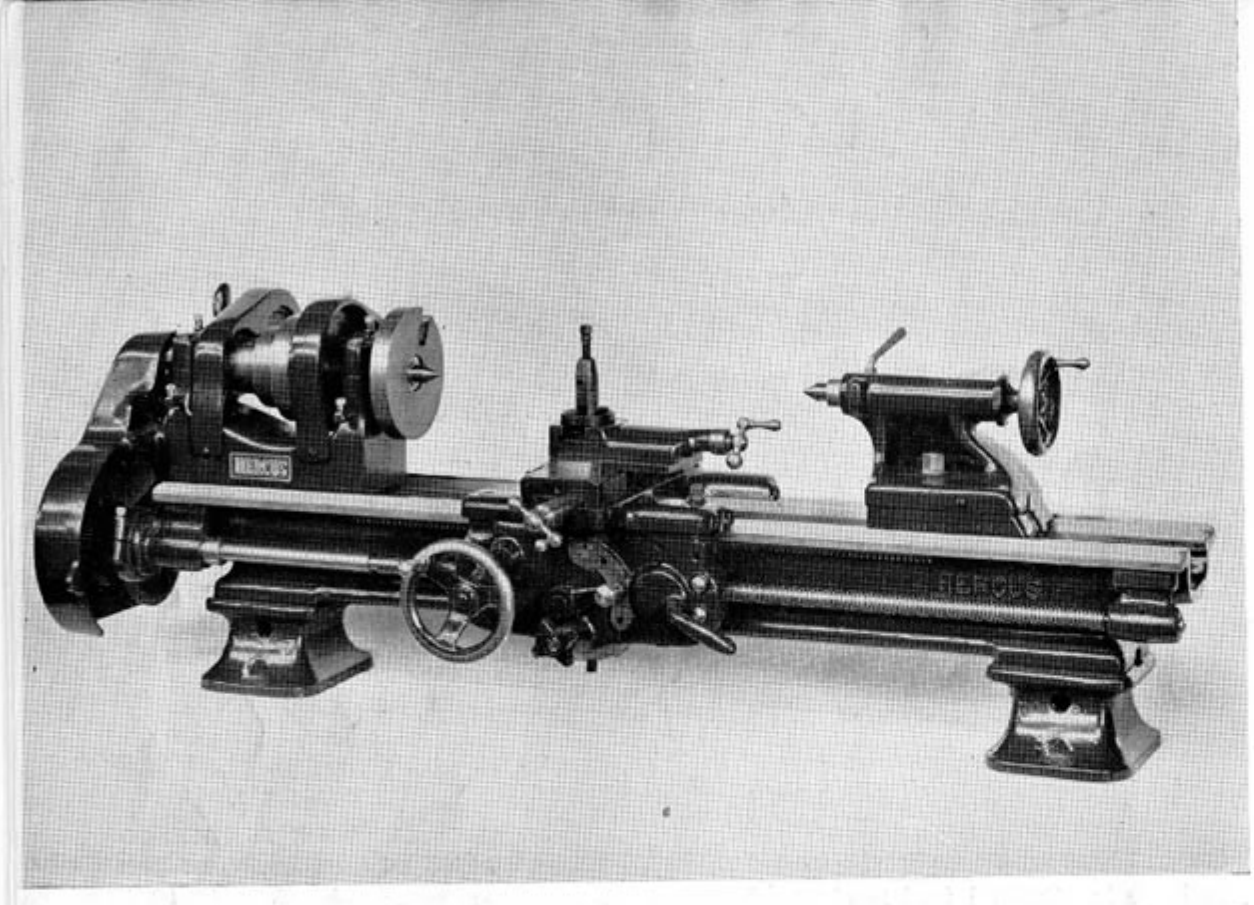


FIG. 8—HERCUS 9" SWING PRECISION LATHE—MODEL B.

The Model B Lathe, Fig. 8, is similar to the Model A except that it is not fitted with a quick change gear box.

A set of change gears are provided which include 13 change gears, one idler gear, and two compound idler gears, the larger gears being cast iron, and the smaller ones steel. These provide for cutting 4 to 160 threads per inch, right or left hand, as per index chart Fig. 9.

An automatic apron is fitted as described on Page 5, and illustrated Fig. 7. This permits instant engagement or disengagement of the power feeds either cross or longitudinal.

The rates of feed obtainable when using feed gears as per index chart, Fig. 9, are:—

Longitudinal — .0021 to .0155

Crossfeed — .001 to .0046

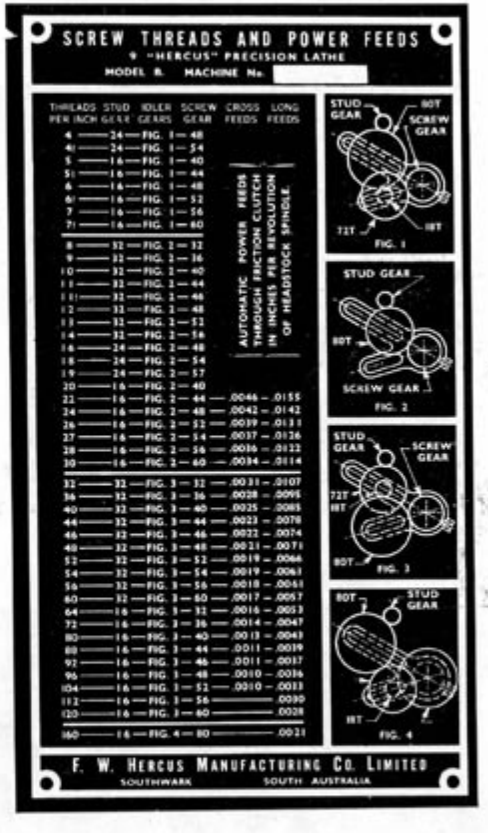


FIG. 9—INDEX CHART FOR THREADS AND FEEDS ON MODEL B LATHES.

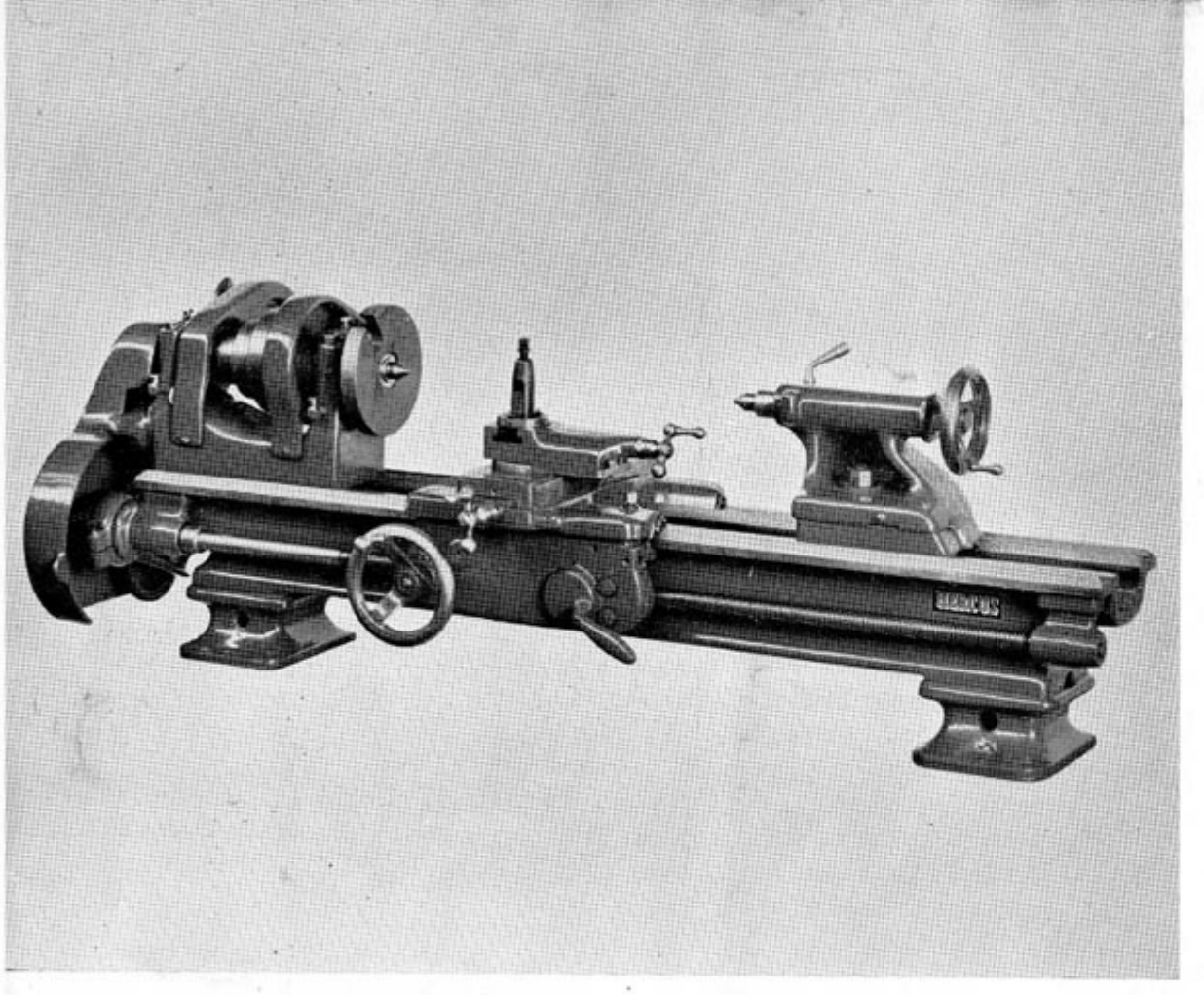


FIG. 10—HERCUS 9" SWING PRECISION LATHE—MODEL C.

The Model C Lathe, Fig. 10, differs from the Model A and Model B in that it has neither quick change gear box or automatic apron. This considerably simplifies the machine. In all other respects all 3 models are identical.

The standard set of pick-off change gears provided with the lathe cut 4 to 160 threads per inch, right or left hand, as per index chart, Fig. 11. The set of change gears include 13 change gears, one idler gear and 2 compound idler gears, the larger gears being cast iron, the smaller ones steel. The plain apron does not provide for any power cross feed; this is hand operated, and the longitudinal feed is obtained by engaging the half nuts with the leadscrew after fitting feed change gears as per index chart, Fig. 11. Feeds obtained in this way range from .0021 to .0156 per revolution of the headstock spindle.

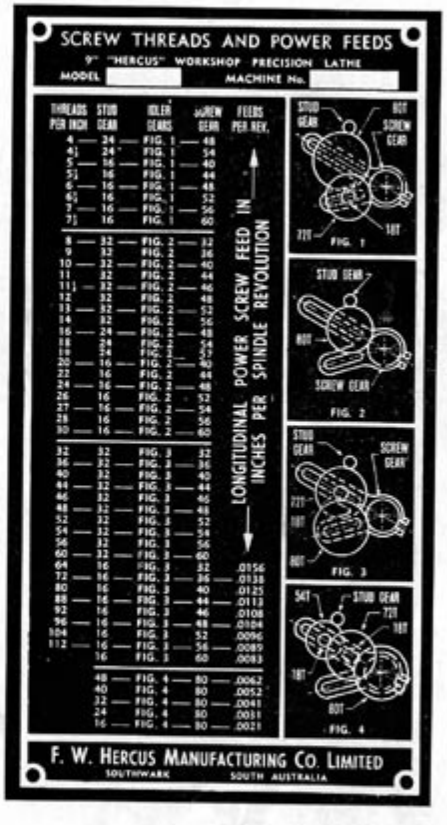
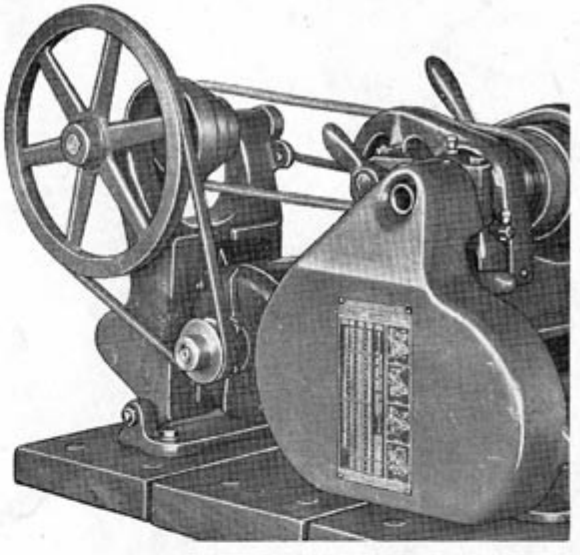


FIG. 11—INDEX CHART FOR THREADS AND FEEDS ON MODEL C LATHES.

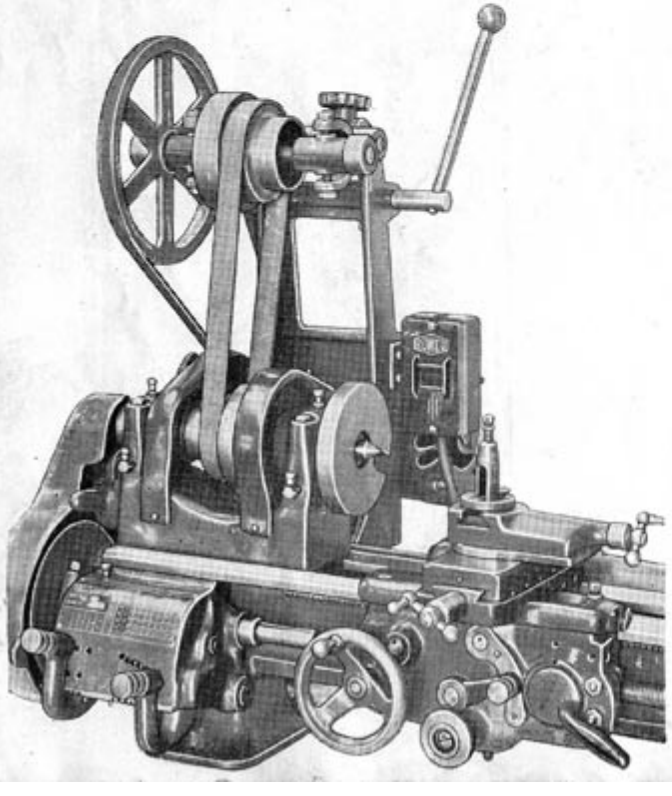
DRIVE UNITS for HERCUS LATHES...



Hercus Lathes can be fitted up with three types of drive units. The H type, as illustrated in fig. 12; the B.S. type, as per illustration (fig. 13); or the standard countershaft, as per illustration (fig. 15).

FIG. 13—B.S. TYPE DRIVE UNIT FITTED TO HERCUS 9" LATHE.

FIG. 12—H TYPE DRIVE UNIT FITTED TO MODEL A HERCUS LATHE.



The B.S. Type Drive Unit, as per illustration (fig. 13), is suitable for use with the lathe when mounted on a bench should it be desired to mount the lathe on a bench already set up, or, if thought advisable, to have a bench fitted with drawers and cupboards to house various accessories for use with the lathe. This drive is fitted with a toggle lever and turnbuckle to adjust the belt tension and to loosen it for shifting the belt from one step to another.

The H Type Unit Drive bolts direct on to the back of the lathe bed, and is especially convenient when it is required to mount the lathe on legs as per illustrations (fig. 1 or fig. 2). The shaft on this type of drive is carried in self-aligning swivelling bearings with screw adjustment for belt tensioning. The lever, top right, serves to slacken the belt for ease in changing from one speed to another.

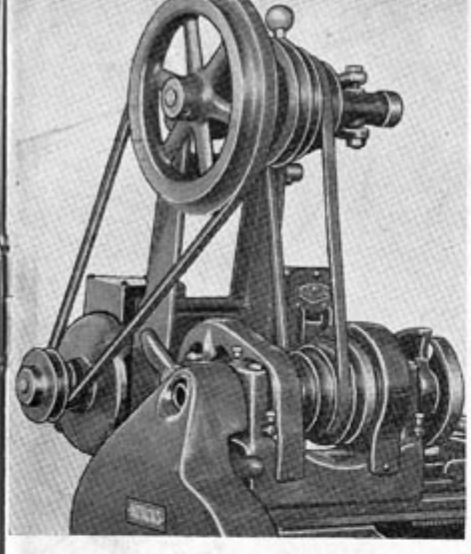


FIG. 14—H TYPE DRIVE UNIT FITTED TO HERCUS 9" SWING LATHE.

DRIVE UNITS FOR HERCUS LATHES

All motor drive units supplied for Hercus Lathes can be fitted with two-speed drive from motor to countershaft and four-speed vee belt drive from countershaft to lathe. A flat belt drive from the countershaft to the lathe with a single-speed drive to the motor gives six spindle speeds, and if a two-speed drive is fitted to the motor, then 12 speeds are available. Using a four-speed vee belt drive from the countershaft to the lathe and a single speed drive to the motor, eight speeds are available, but if a two-speed drive is used, then 16 spindle speeds can be obtained. An H pattern drive unit fitted with vee belts for a 16-speed drive is illustrated in fig. 14.

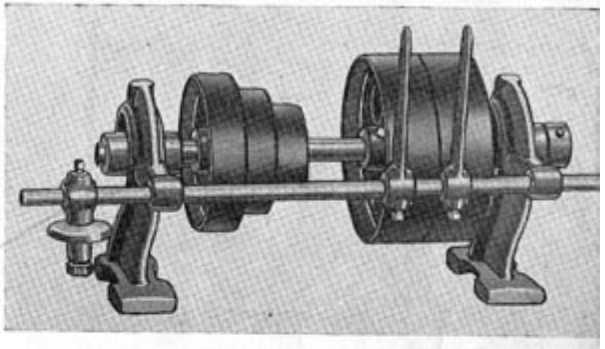


FIG. 15—STANDARD COUNTERSHAFT FOR LINE SHAFT DRIVE.

speeds. checked with stroboscope
Machine S° 4549. 1050 — 785 — 590 — 465
575 — 435 — 325 — 240

LINE SHAFT DRIVE

For the user of a Hercus Lathe who wishes to drive from a line shaft already installed, a neat countershaft is supplied. This is fitted with fast and loose pulleys 6" x 1½" and a three-step cone pulley for flat belt drive to the lathe, as per fig. 15. This type of drive can also be by vee belt if desired.

SPEEDS AVAILABLE WITH H AND B.S. TYPE DRIVE UNITS

Single speed motor drive and 3-step flat belt:
750 — 410 — 240 — 160 — 90 — 50

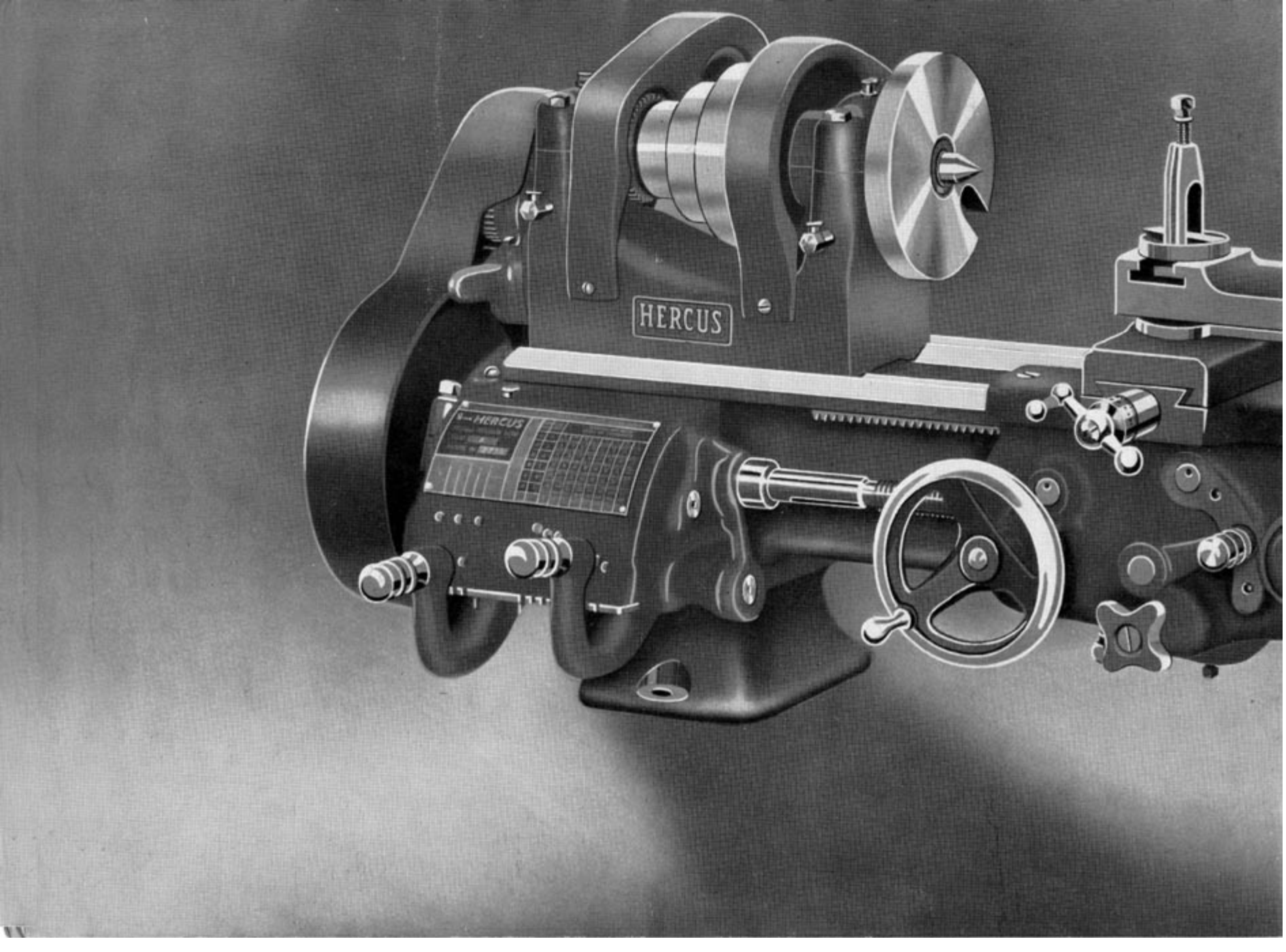
Two-speed motor drive and 3-step flat belt:

Fast Motor Speed	1120 — 620 — 360 — 245 — 135 — 80
Slow Motor Speed	580 — 320 — 185 — 120 — 70 — 40

Single speed motor drive and 4-step Vee belt drive:
700 — 515 — 370 — 280 — 176 — 112 — 81 — 60

Two-speed motor drive and 4-step Vee belt drive:

Fast Motor Speed	1050 — 770 — 550 — 420 — 230 — 170 — 120 — 92
Slow Motor Speed	540 — 395 — 280 — 215 — 118 — 86 — 61 — 47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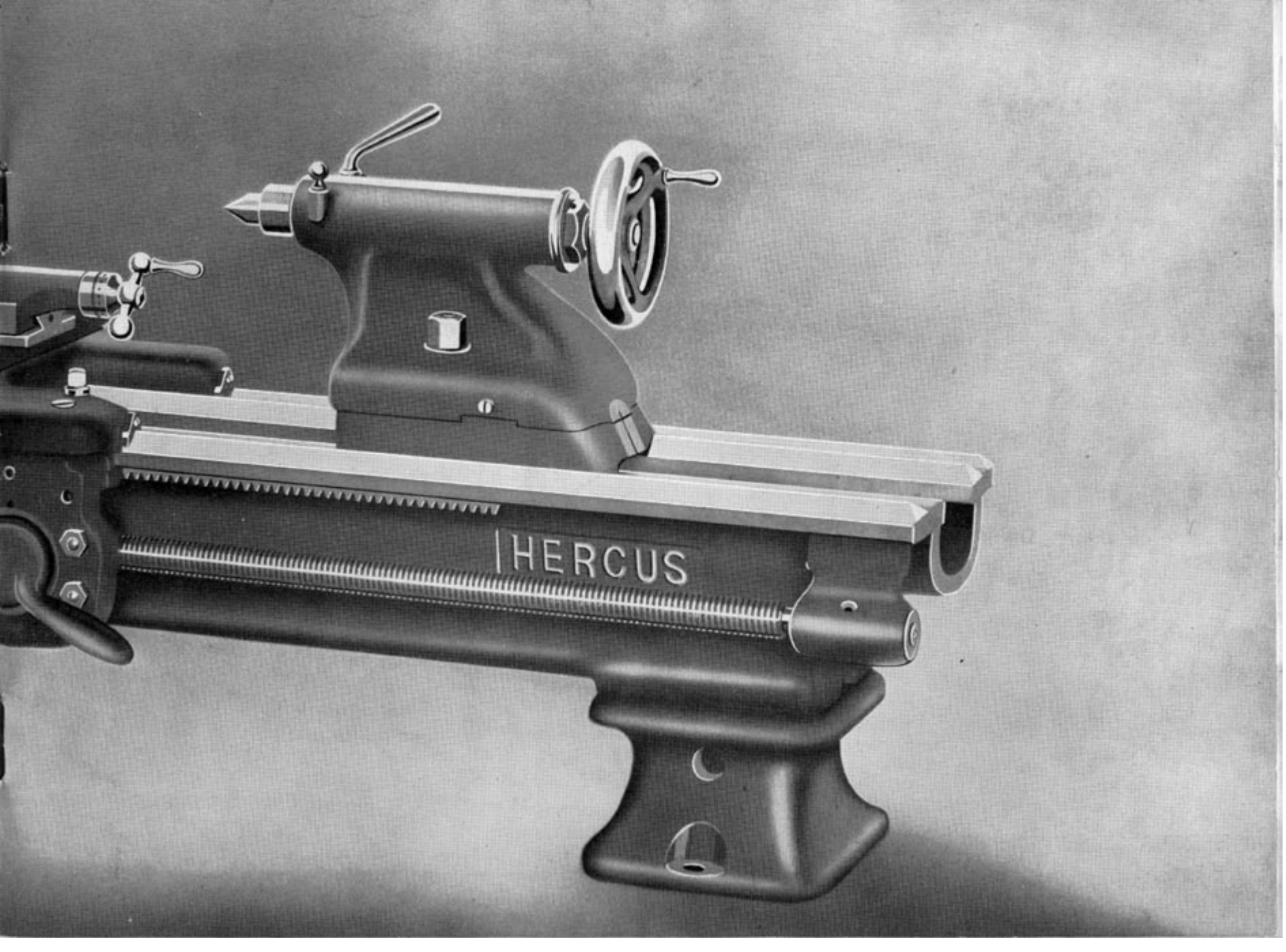

HERCUS

FIG. 16—HANDWHEEL DRAW IN COLLET ATTACHMENT.

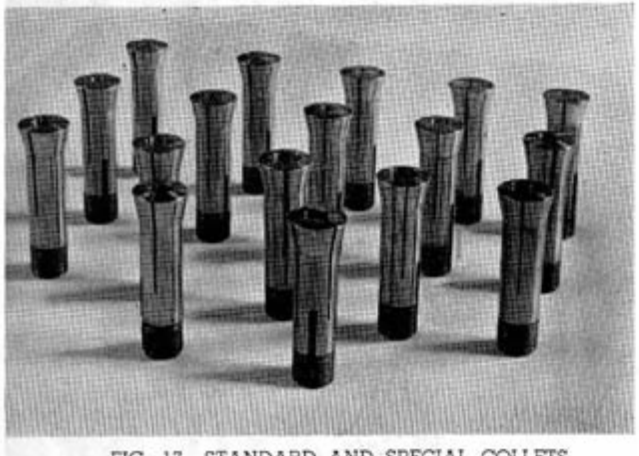


FIG. 17—STANDARD AND SPECIAL COLLETS.

FIG. 18.
COLLET ATTACHMENT FOR USE WITH MILLING ATTACHMENT.

HERCUS 9" SWING
***Precision* LATHES**

COLLET ATTACHMENTS AND COLLETS

The draw in collet chuck is the most accurate of all chucks, and is very much used for tool work and all other kinds of work where extreme accuracy is necessary. The draw-bar is hollow to enable all kinds of stock, solid bar or tubes, to pass right through. The adaptor or closing sleeve fits into the No. 3 Morse taper of the lathe nose and is hardened and ground all over. The nose cap serves as a protection for the thread on the lathe nose and also to withdraw the adaptor from the lathe spindle. Collets can be supplied individually from stock or in sets of 15 ranging from 1/16" to ½" in 32nds. Collets in 64th sizes can also be supplied from stock. Special collets such as sizes of rounds not mentioned above, squares and hexagons not regularly kept in stock can be supplied to order.

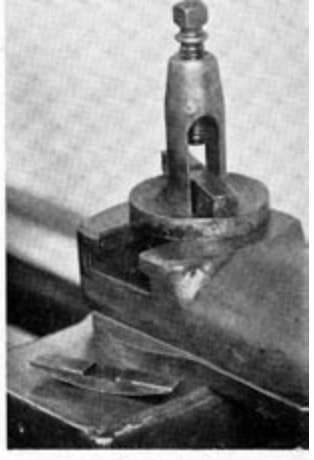


FIG 18A.
AMERICAN PATTERN TOOL HOLDER.

American pattern tool holders are supplied as standard with all HERCUS Lathes and an extra thick float piece can be supplied as per Fig. 18A for use with tools as per Fig. 50.

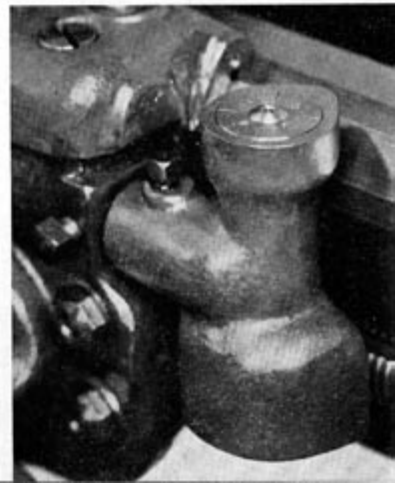
COLLETS FOR MILLING ATTACHMENT

The collet attachment illustrated in Fig. 18 can be supplied for use with the milling attachment index head. The standard adaptor or closing sleeve fits into the No. 3 Morse taper in the index spindle and the special short draw tube enables all collets which fit the standard collet attachment to be used with the milling attachment.

THREAD CHASING DIAL

The use of this attachment makes it unnecessary to reverse the lathe to return the saddle to the starting point to begin each successive cut when screw cutting. The dial is graduated and numbered to indicate when to close the half nuts on the leadscrew.

FIG. 19.
THREAD CHASING DIAL.



TAPER TURNING

The taper turning attachment greatly simplifies the turning of tapers or the boring of taper holes. It reduces this otherwise awkward job to a plain turning or boring operation. The cross feed screw must be removed when it is desired to do taper turning or boring work. Tapers up to 16½° included angle, or 3½" per foot can be turned or bored over a length of 7" in one setting. Swing over taper attachment cross slide 5".

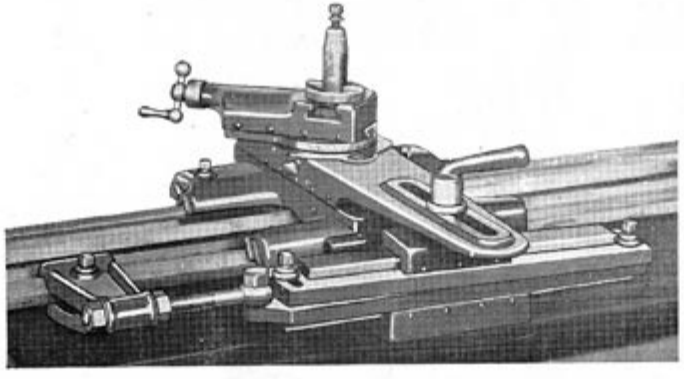


FIG. 20—TAPER TURNING ATTACHMENT.

This attachment cannot be supplied as a unit to be fitted to the lathe after having left the factory. It must be fitted at the factory. The hand lever forming and cut-off slide cannot be used in conjunction with taper attachment.

MILLING ATTACHMENT

The milling attachment is made in the form of a T slotted vertical slide, having a movement of 3" and a face area of 3" x 6". The vertical slide swivels either way off the vertical to 90°, and is mounted on the compound rest base of the lathe, where it will swing through 360°. The work piece may be bolted direct to the T slotted vertical slide or it can be held in the vice as shown in fig. 20. For indexing work such as squares, hexagons, or light gear cutting, the vice is replaced with the index head. This has a No. 3 Morse taper in the front and an index plate is fitted to the back. The collet attachment shown in fig. 18, page 12, is used with this head to hold small pieces, and larger work may be held with arbors made to fit into the No. 3 Morse taper. A 24 division index plate is supplied as standard equipment; other numbers can be supplied to order.

MILLING CUTTER ARBOR

Fits direct into the No. 3 Morse taper of lathe spindle and is held with the draw bolt. It has a capacity between the nut and the shoulder of 1½" for cutters, 1" bore, and is fitted with three spacing collars.

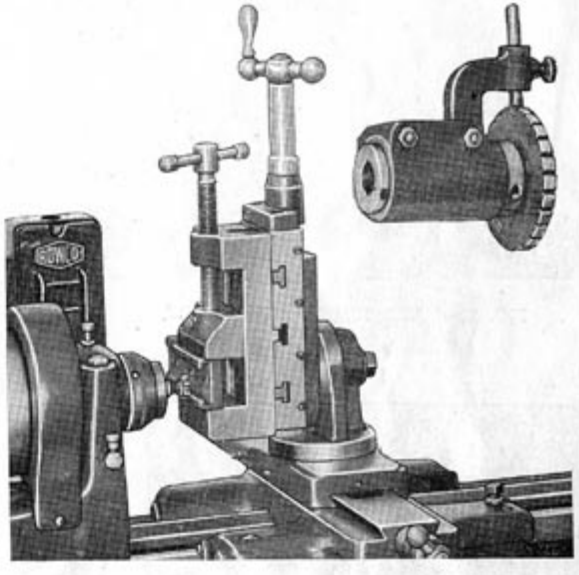


FIG. 21—MILLING ATTACHMENT.

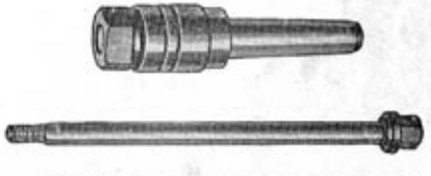


FIG. 22—MILLING CUTTER ARBOR.

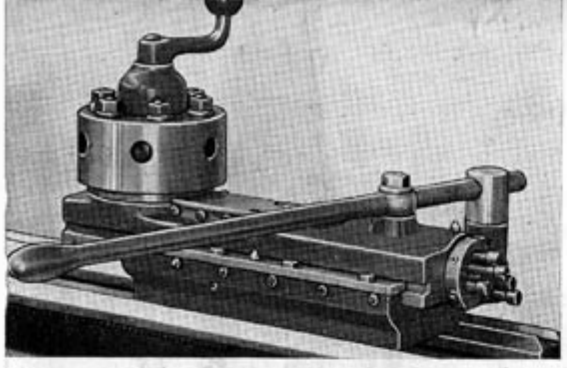


FIG. 23 –LEVER TURRET ATTACHMENT.

MANUFACTURING ATTACHMENTS

LEVER TURRET ATTACHMENT

This attachment fits on the bed ways in place of the tailstock, and is held by an eccentric clamping device. The turret slide is operated by the lever, and the head indexes automatically each time the lever is moved to the extreme right. The nut, with handle attached on top of the turret, locks it in position. Each position of the turret has independently adjusted feed stop screws to control the length of cut. The effective feed of the turret slide is 3¾". The distance centre of turret hole to top of slide is 1-7/16". Turret holes are bored ¾" when supplied with the lathe unless ordered otherwise.

If the turret is sold separately from the lathe, the purchaser must accept the responsibility of fitting to the lathe and boring in position. When turrets are supplied this way the holes are rough bored to 11/16".

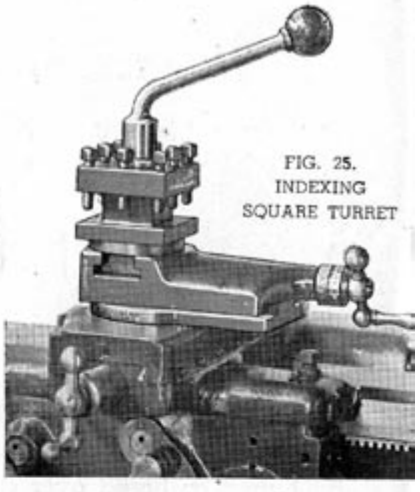


FIG. 25.
INDEXING
SQUARE TURRET

SADDLE STOP (Fig. 24)

This attachment clamps directly on to the bed, and is extremely useful for work where a number of shoulders need to be accurately spaced. It indexes to six positions, and, in addition to the six short stops as illustrated (Fig. 24), six long stop screws are also provided.

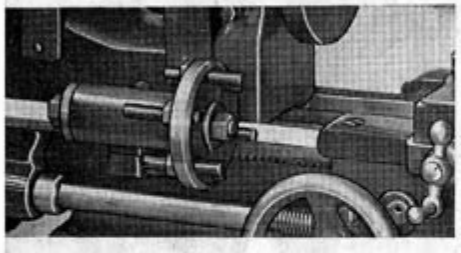


FIG. 24—SIX POSITION SADDLE STOP.

THE FORMING AND CUT-OFF SLIDE

The forming and cut-off slide is fitted on the saddle cross-slide dovetail in place of the compound slide rest assembly. It is operated by a rack pinion and lever, and the operating position of the lever can be varied to suit the convenience of the operator. Two tool blocks are provided and may be used, the front one for forming and the rear one for parting off or as desired. Adjustable stops are provided to regulate the movement of the slide in either direction.

SQUARE TURRET

This is made to fit into the T slot on top of the standard compound slide rest in place of the toolholder usually supplied. It is made to accommodate four ¾" square cutting tools. The turret indexes accurately, permitting the tools to be used in sequence for roughing, finishing, cutting off, or other operations as desired. It is locked in position by the combined nut and lever on top. It can also be supplied as non-indexing.

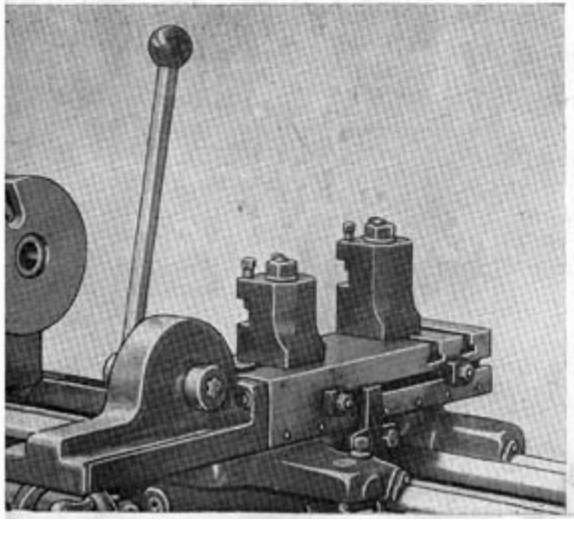


FIG. 26—HAND LEVER FORMING AND CUT-OFF SLIDE.

AS A TURRET LATHE

The fitting of the lever turret attachment and the forming and cut-off slide virtually converts the lathe to a light turret lathe, which, if used in conjunction with the collet attachment, is suitable for a wide range of bar work. Chuck work can also be done using the hand lever turret, together with the forming and cut-off slide or the square turret (Fig. 25).

If the six position saddle top (Fig. 24) is used, this adds to the usefulness of the forming and cut-off slide, and it adds considerably to the usefulness of the square turret because of the greater number of tools available.

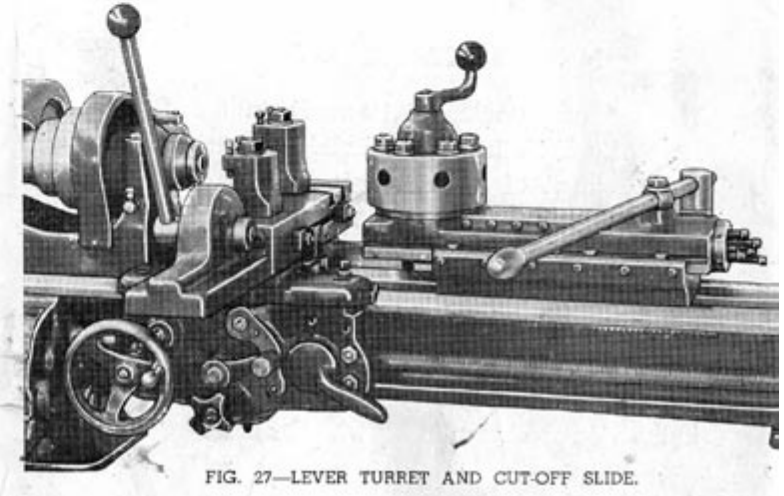


FIG. 27—LEVER TURRET AND CUT-OFF SLIDE.

Metric Thread Cutting

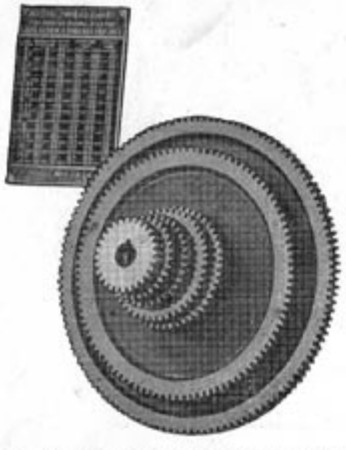


FIG. 28—METRIC THREAD CUTTING GEARS FOR MODEL A LATHE.

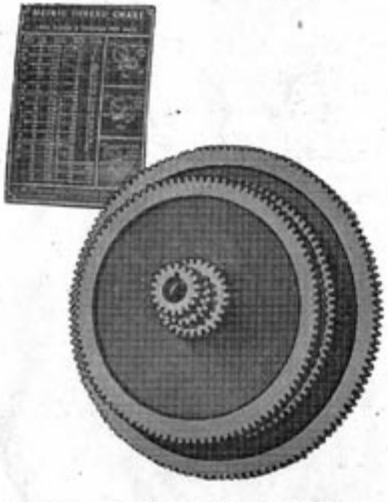


FIG. 29—METRIC THREAD CUTTING GEARS FOR MODELS B AND C LATHES.

METRIC THREAD CHART
FOR HERCUS MODEL A LATHE
LEAD SCREW 8 THREADS PER INCH

MM PITCH	GEAR LEVER POSITIONS	STUD GEAR	COMPOUND GEAR		SCREW GEAR
6.	8	48	127	100	56
5.5	8	44	127	100	56
5.	8	40	127	100	56
4.5	8	36	127	100	56
4.	10	40	127	100	56
3.5	8	28	127	100	56
3.	16	48	127	100	56
2.75	16	44	127	100	56
2.5	16	40	127	100	56
2.25	16	36	127	100	56
2.	20	40	127	100	56
1.75	16	28	127	100	56
1.5	32	48	127	100	56
1.25	32	40	127	100	56
1.	40	40	127	100	56
.9	40	36	127	100	56
.8	40	32	127	100	56
.75	64	48	127	100	56
.7	40	28	127	100	56
.6	80	48	127	100	56
.5	80	40	127	100	56
.45	80	36	127	100	56
.4	80	32	127	100	56

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FIG. 30—CHART FOR METRIC THREAD CUTTING MODEL A LATHE.

METRIC THREAD CHART
FOR HERCUS MODEL B & C LATHES
LEAD SCREW 8 THREADS PER INCH

M.M PITCH	STUD GEAR	IDLER GEARS	SCREW GEAR	FEEDS IN M.M
6.	48	FIG. 1	20	
5.5	44	FIG. 1	20	
5.	40	FIG. 1	20	
4.5	36	FIG. 1	20	
4.	32	FIG. 1	20	
3.5	28	FIG. 1	20	
3.	48	FIG. 1	40	
2.5	32	FIG. 1	32	
2.	32	FIG. 1	40	
1.75	28	FIG. 1	40	
1.5	24	FIG. 1	40	
1.25	40	FIG. 2	80	
1.	32	FIG. 2	80	
.9	36	FIG. 2	100	
.8	32	FIG. 2	100	
.75	24	FIG. 2	80	
.7	28	FIG. 2	100	
.6	24	FIG. 2	100	
.5	20	FIG. 2	100	
.45	18	FIG. 2	100	
.4	16	FIG. 2	100	
.35	56	FIG. 3	100	
.3	48	FIG. 3	100	
.25	40	FIG. 3	100	
	36	FIG. 3	100	.220
	32	FIG. 3	100	.200
	24	FIG. 3	100	.150
	20	FIG. 3	100	.125
	16	FIG. 3	100	.100

LONGITUDINAL POWER SCREW FEED IN M/M PER SPINDLE REVOLUTION

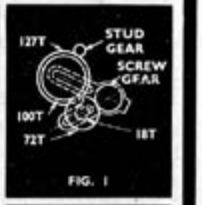

FIG. 1

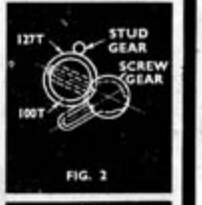

FIG. 2

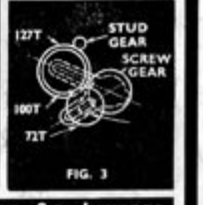

FIG. 3

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FIG. 31—CHART FOR METRIC THREAD CUTTING MODELS B AND C LATHES.

All three models of Hercus Lathes can be used to cut metric threads. On the Model A Lathe a set of seven (fig. 28) transposing gears are used in conjunction with the gearbox to obtain the pitches shown on the chart (fig. 30). This chart indicates the gears to use and the gearbox lever positions for the different threads. On the Model B and C Lathes a set of six (fig. 29) transposing gears are used in conjunction with the standard set of change gears provided with the lathe to obtain the various threads shown on the chart (fig. 31). When screwing metric threads, it is advisable not to open the half nuts, but run the lathe in reverse to bring the saddle to the starting point to begin each successive cut. Do not use the chasing dial.

THE TRAVELLING STEADY

The Travelling Steady (Fig. 32) is attached to the lathe saddle and travels with it. It is used to support long slender shafts while being machined between the lathe centres, and is particularly useful for long thread cutting work. The adjustable jaws are made of cast iron machined all over, will open out to 2" diameter, and are fitted with clamping and adjusting screws.

FIG. 32.
TRAVELLING STEADY.

THE STATIONARY STEADY

The Stationary Steady (Fig. 33) clamps on to the bed guide ways and is used to support long shafts between centres or to support the outer end of a shaft while the other end is held in the chuck.

The 3 adjustable jaws are made of cast iron machined all over and will open out to 2" diameter. The jaws are also fitted with clamping and adjusting screws. The top half of the stationary steady is hinged to facilitate insertion and removal of work piece.

FIG. 33.
STATIONARY STEADY.

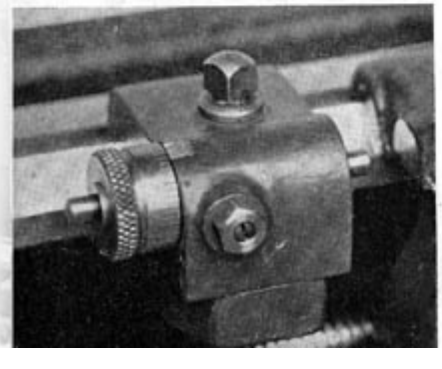
THE MICROMETER SADDLE TOP

The Micrometer Saddle Stop (Fig. 34) is a precision stop with micrometer adjustment and is very useful for facing shoulders when turning or boring. It is not an automatic saddle stop, and the saddle should always be brought up to it by hand.

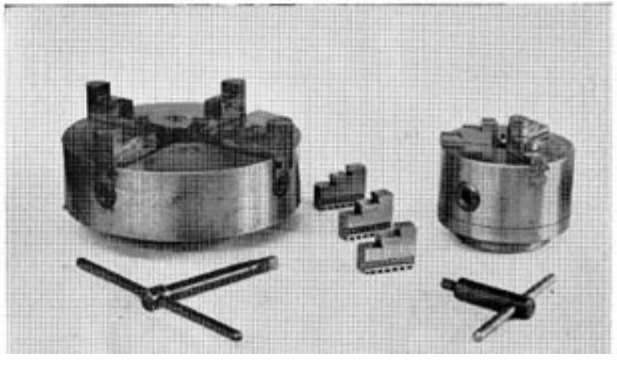
CHUCKS

Chucks as shown in Fig. 35 are recommended as the most suitable for Hercus 9" swing lathes for all general purposes. A 6" or 6½" light pattern 4-jaw independent and a 4" or 4½" standard 3-jaw self-centreing having two sets of jaws.

Chucks cannot be supplied at present, but when they become more readily available, they will be supplied mounted ready for use.



LEFT—FIG. 34.
MICROMETER SADDLE STOP.

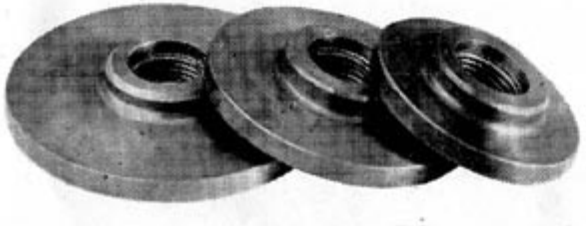


RIGHT—FIG. 35.
INDEPENDENT AND SELF-CENTREING CHUCKS.

FIG. 36—LARGE FACE PLATE.

LARGE FACE PLATE, Fig. 36. Screwed to fit spindle nose is slotted for clamping work or fixtures. It is strongly ribbed and is 7⅞" diameter.

CHUCK MOUNTS, Fig. 37. These are supplied rough turned and screwed to fit the lathe nose in 3 standard sizes: 4", 5" and 6" diameter.



LEFT—FIG. 37.
CHUCK MOUNTS.

DRILL PAD, Fig. 38. Is used in the lathe tailstock to support flat work when drilling.

HOLLOW CENTRE, Fig. 39. Has 60° conical hollow centre for supporting parts such as shafts which are not centred. Will accommodate up to ⅞" diameter. Made of tool steel hardened and ground all over.

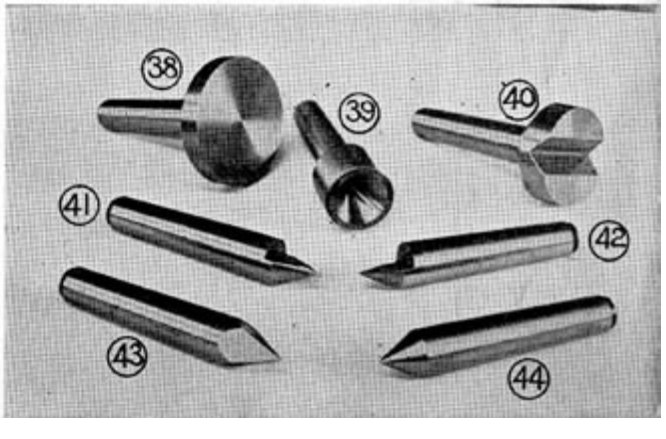
CROTCH CENTRE, Fig. 40. Is used in the tailstock to support round work for cross drilling.

TWO-THIRD CENTRE, Fig. 41. This is used in the tailstock when turning very small diameter work on centres where the full centre would foul the turning tool.

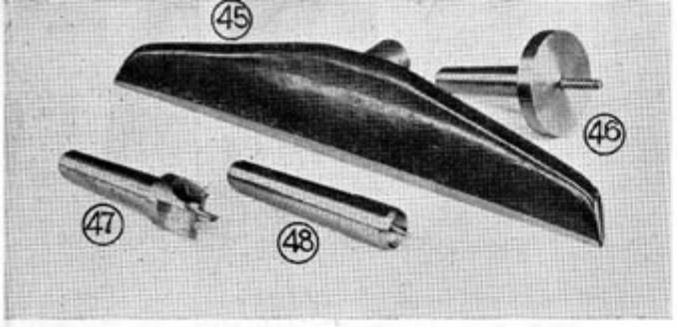
HALF CENTRE, Fig. 42. If used in the tailstock with extreme care it will centre work very accurately.

SQUARE CENTRE, Fig. 43. Used in the tailstock for centreing material or for turning up out of true centres in work.

STANDARD CENTRE, Fig. 44. Headstock and Tailstock centres are interchangeable, made of tool steel hardened and ground all over. Angle 60°, No. 2 Morse taper. Two are supplied with each lathe.



RIGHT—FIG. 38-44.
STANDARD CENTRES FOR
METAL WORK.



FIGS. 45-48—WOOD TURNING EQUIPMENT.

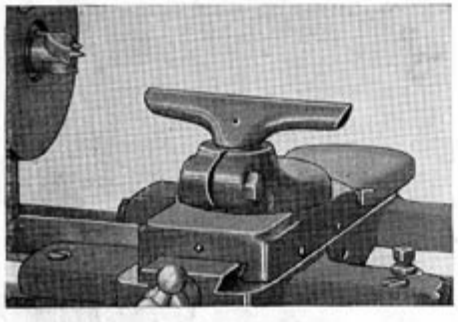


FIG. 49—HAND REST.

FIG. 50—TURNING TOOLS.

WOOD TURNING EQUIPMENT...

Fig. 45—HAND REST. Used for wood turning. Is 12" long, and replaces the short 4" rest shown in Fig. 49.

Fig. 46—SCREW CENTRE. Used in the headstock spindle of the lathe for turning wooden discs and similar work.

Fig. 47—SPUR CENTRE. Used in headstock of lathe to drive wood for turning between centres.

Fig. 48—CUP CENTRE. Used in tailstock of lathe for wood turning between centres.

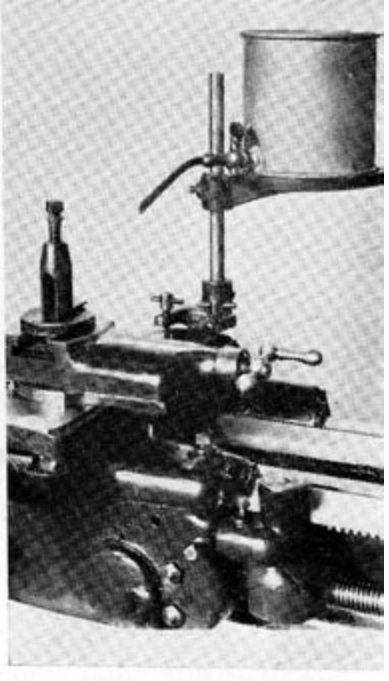


FIG. 51—DRIP CAN.

Fig. 49—HAND REST. Made up of base and two T rests 4" and 12" long. Made of cast iron and fits on compound rest base of lathe in place of compound rest.

Fig. 50—TURNING TOOLS. This set of eight tools will cover most general turning work. They are made from ⅜" sq. 18% tungsten steel, forged, hardened, and accurately ground to shape. For the user who prefers tool holders, the standard toolpost supplied as part of the equipment with Hercus lathes will accommodate standard tool holders, having ¾" x ⅜" shanks.
Small Tools for use in the Square Turret (Fig. 25) can be readily ground up from standard ⅜" square tool bits.

Fig. 51—DRIP CAN. This is made to clamp on to the back of the cross-slide base. It is adjustable for height and can be swivelled to drop the lubricant direct onto the cutting tool.

COLLET RACK —— MOTORS —— SWITCHES
for
HERCUS LATHES

FIG. 52—COLLET RACK.

COLLET RACK

Fig. 52. This rack holds 18 collets, and provision is also made for 2 centres, centre sleeve, nose adaptor, nose protection ring, and draw tube with handwheel. It is held by a bracket which clamps onto the back V-way of the lathe bed.

MOTORS FOR HERCUS LATHES

Motors to suit 220-volt single-phase, or 415-volt 3-phase current can be supplied, and are fitted to H or BS pattern drive units.

For continuous or heavy work a ½ h.p. motor is necessary, but for light or intermittent work a 1/3 h.p. would be sufficient.

Hercus lathes can be supplied without motor, switch or wiring for those who prefer to supply their own electrical equipment.

SWITCHES

Electric drive units supplied with Hercus lathes are all fitted with a plain start-stop switch as per Fig. 55 unless otherwise ordered. Reversing switches can be supplied for single phase and three-phase motors. These are illustrated Fig. 56, and can be fitted in lieu of the plain switch (Fig. 55) for a small extra charge.

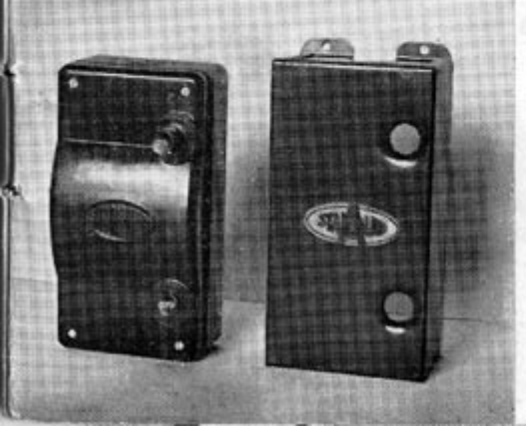


FIG. 55—PLAIN SWITCHES FOR SINGLE OR THREE PHASE.

RIGHT—FIG. 56.
REVERSING SWITCH:
THREE PHASE AND
SINGLE PHASE.

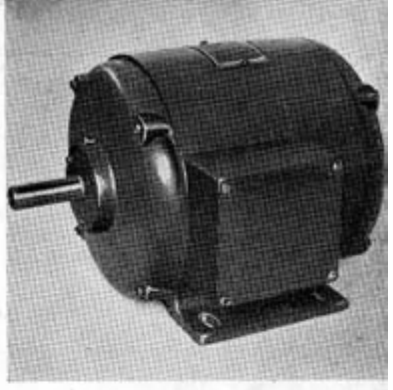


FIG. 53—THREE-PHASE MOTOR.

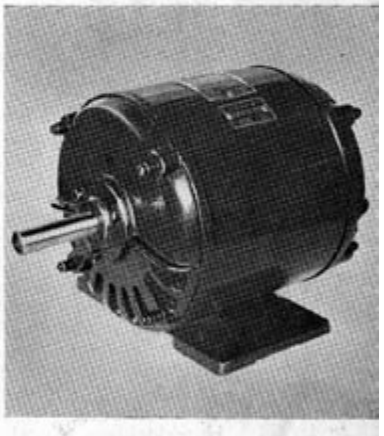


FIG. 54—SINGLE PHASE MOTOR.

F. W. HERCUS MANUFACTURING CO. LIMITED
ANDERSON STREET, SOUTHWARK, S.A.

HERCUS 9" PRECISION LATHE

Model A Machine No. 1851

INSPECTION RECORD

	Permissible Error	Test Record	Tested By
HEADSTOCK SPINDLE			
Spindle taper run-out—			
At end of 7" bar	.001	.0002	RJE
At Spindle Nose	.0003	.0001	"
Test Bar parallel with bed—			
Horizontal plane (free end inclined towards tool)	.0007	.0003	"
Vertical plane (free end rising)	.0007	.0006	"
Axial Slip (measured at two points displaced by 180°)	.0005	.0004	"
TAILSTOCK SPINDLE			
Test Bar parallel with bed—			
Horizontal plane (free end inclined towards tool)	.0004 in 2"	.0003	"
Vertical plane (free end rising)	.0004 in 2"	.0002	"
AXIS OF CENTRES			
Horizontal plane (tailstock end inclined towards the tool)	.0005	.0005	"
Vertical plane (tailstock end rising)	.0005	.0003	"
CROSS SLIDE ALIGNMENT			
Lathe must face concave only within	.001 on 9" diam.	.0002	"
Does saddle fit bed correctly, travel smoothly, and clamp firmly?		✓	JES
Do Cross Slide and Compound Rest work smoothly?		✓	"
Does Lead Screw turn freely and nut fit correctly?		✓	"
Tailstock moves freely on bed and clamps firmly		✓	"
Tailstock barrel works smoothly and clamps correctly		✓	"
Tailstock Centre knocks out		✓	RJE
Tailstock Set-over works correctly and graduations are correct		✓	"
Headstock gears work correctly		✓	JES
Gear Box gears and Tumblers all work correctly		✓	"
Apron Gears work correctly		✓	"
All Change Wheels and bushings have been tested and fit into place		✓	"

REMARKS:

Inspected by R J Excell Date 1/5/47

FIG. 57—INSPECTION RECORD.

INSPECTION of HERCUS LATHES

The inspection sheet here illustrated (fig. 57) is a copy of the inspection sheet which accompanies every lathe that leaves the Hercus Works. A duplicate is also kept for official reference.

In addition to checks shown on the inspection sheet, every lathe is subject to over 50 additional checks after assembly.

These checks apply only to the assembled lathe. Every individual part in the lathe is inspected after every machining operation, to guard against faulty material or workmanship reaching the finished product.

The inspection department only passes work that comes within the rigid tolerances which have been worked out after years of experience on this class of work. This ensures that only parts as near perfect as possible are assembled into Hercus Lathes.