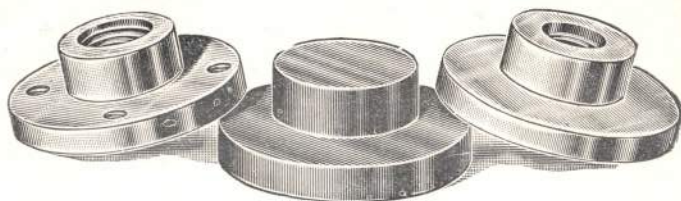


**BACKPLATES CAN BE SUPPLIED
TO FIT ANY SIZE OF LATHE OR
OTHER MACHINE SPINDLE**

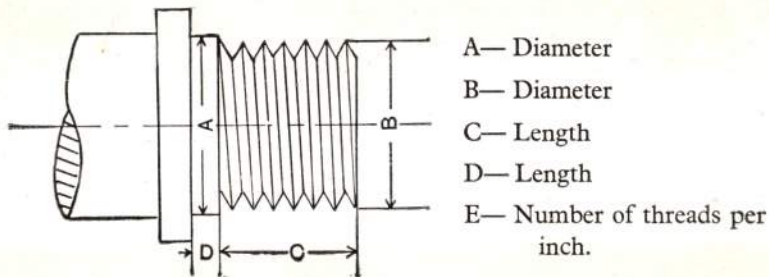


ALL CHUCKS require a **BACKPLATE** (or adaptor) to fit them to the lathe mandrel. This is a small faceplate with the boss threaded to screw on the lathe mandrel, while the flange fits into the recess at the back of the chuck.

BACKPLATES can be supplied in three different forms, namely :

- (i) **HIGH GRADE GREY IRON CASTINGS**, unmachined.
- (ii) **PARTLY MACHINED**, i.e., with boss turned and threaded to suit mandrel nose, and rough turned on edge and face of flange, leaving finishing cuts to be taken, when mounted on lathe mandrel.
- (iii) **COMPLETELY FINISHED**, and fitted to Chuck.

PLEASE GIVE DIMENSIONS OF MANDREL as below, when ordering.



SOFT AND SPECIAL JAWS

Special Jaws to grip awkward or irregular shaped parts can be supplied to order, for any size of Chuck. These can be supplied in either a soft or hardened condition.

Soft Blank Jaws for the user to shape to his own requirements can also be supplied.

T. GARNER & SON LIMITED : BARNSELY

MYFORD

SERIES 'ML' 2 & 4

3 1/8" & 3 1/2"

LATHES

T. GARNER & SON LIMITED : BARNSELY

The MYFORD Design

ML2 and ML4 LATHES

The Bed is of cantilever design requiring no end support, and permits bolting down to bench or tray with minimum stress, thereby eliminating distortion. The casting is a heavy box section, with well-planned stiffening webs to ensure maximum rigidity. Bed castings are "weathered" and stocked for a period between machining operations, as these precautions release internal stresses and preserve their initial accuracy. All Beds are ground to precision limits.

The Headstock is detachable, the machined base being clamped to the bed at three points; this permits exact alignment to be maintained throughout the life of the Lathe. The Bearings are phosphor-bronze of high grade specification, and are adjustable. Mandrels are precision ground to fine limits. The square shoulder and register ensure accurate fit of chuck plates and attachments. Mandrel bore is $19/32$ in. and permits stock up to $9/16$ in. diameter. The Centre is No. 2 Morse Taper. Thrust is taken care of by a high grade, flat track ball race. Pulleys are "crowned" for flat belt drive; alternatively, Vee-rope pulleys are available. The backgear is of special design, well proved in use, and gives a step down ration of 6 to 1, permitting slow speeds with high power where necessary.

The Compound Rest has ample bearing surfaces, which are hand scraped and individually fitted, adjustment being provided by gib strips. The Cross Slide contains four Tee slots carefully spaced, and will accommodate large boring jobs. Feed screws end thrust, and carry an indexed dial. The swivelling Top are square thread type with provision for the adjustment of Slide has two point clamping and is provided with a bevelled edge for recording degree of taper turning positions; it is quickly removable to leave the Cross Slide free for other fixtures.

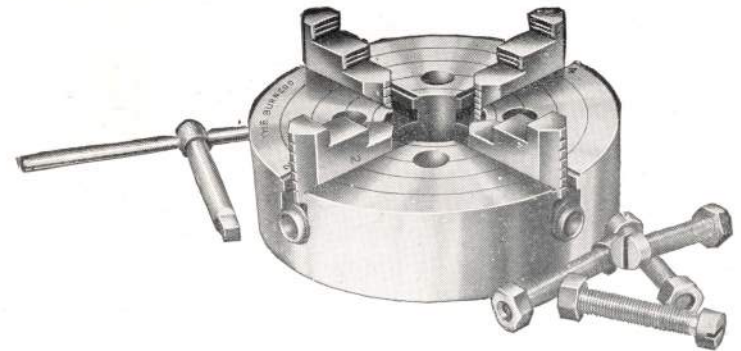
The Apron is fitted with a fully-machined cam action, operating phosphor-bronze "half nuts" in Vee slides, adjustment being

T. GARNER & SON LIMITED : BARNSELY

LIGHT PATTERN INDEPENDENT 4 REVERSIBLE JAWS

Size 6-ins.

This Chuck is a much lighter pattern and has less overhang than the ordinary 4-jaw chucks on the market, and so can be used on lathes as small as $3\frac{1}{2}$ -in. centres without overloading their small mandrels, thus work can be chucked up to the full capacity of the lathe, while owing to the narrow edged jaws, rods as small as $5/16$ -in. diameter or less can be held.



SPECIFICATION

BODY is of semi-steel recessed at the back between the jaw grooves for lightness.

JAWS are of special steel, case-hardened, accurately fitted to guides in the body, and ground where necessary.

OPERATING SCREWS are of case hardened nickel-steel with accurately cut square threads.

THRUST of the screws is taken in both directions by hardened thrust blocks, these are inserted from back of Chuck and can be easily removed when required.

KEY is of special steel, case-hardened.

BACKPLATE SCREWS are inserted from face of Chuck, and are either screwed into tapped holes in the backplate or passed right through and fitted with nuts at the back.

Model No. 34

Dia. of Body	.. 6 ins.	Width of Body	.. $1\frac{1}{8}$ ins.
Dia. of hole through Body	.. $1\frac{3}{8}$ ins.	Dia. of Backplate recess	.. $3\frac{1}{4}$ ins.
Projection of jaws from face of Body	.. $\frac{7}{8}$ ins.	Maximum dia. Chuck will hold	.. 7 ins.
Approximate weight	..	..	.. 9 lbs.

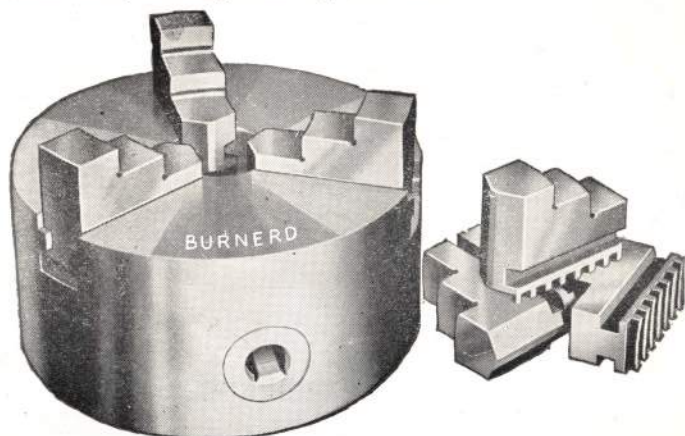
Price (6-in Chuck) .. 88/6

T. GARNER & SON LIMITED : BARNSELY

SELF - CENTRING 3 - JAW GEARED SCROLL

Sizes 4-ins.—6-ins.

Introduction of these Chucks supplies the need for **BRITISH MADE** precision geared scroll chucks of reasonable price, the excellent materials used, ensuring that they will last.



SPECIFICATION.

ACCURACY, GREAT GRIPPING POWER and **SMALL OVERHANG** are their main features.

THE ONE PIECE BODY is of SEMI-STEEL, incomparably stronger than ordinary grey iron.

THE 2 SETS OF JAWS are of special steel, case-hardened, accurately fitted and ground where necessary.

SCROLL is of **NICKEL-CHROME STEEL**, hardened and tempered, giving great strength and lasting accuracy.

BEVEL PINIONS are of nickel steel, case hardened.

BACKPLATE is fitted by means of 3 bolts provided with each chuck.

Model No.	29	30	30A	31
Diameter of Body	3½ ins.	4 ins.	5 ins.	6 ins.
Width of Body	1½ ins.	1¾ ins.	2½ ins.	2¾ ins.
Dia. of hole through Body	1 ins.	1 ins.	1½ ins.	1¾ ins.
Dia. of Back plate recess	2½ ins.	3 ins.	4 ins.	5 ins.
Projection of Jaws from face of Body	1½ ins.	1½ ins.	1½ ins.	1 ins.
Maximum diameter Chuck will hold	3½ ins.	4½ ins.	5½ ins.	7 ins.
Approximate weight (Shipping)	3½ lbs.	6½ lbs.	11½ lbs.	17½ lbs.
	1.6 kgs.	3.0 kgs.	5.3 kgs.	7.9 kgs.

PRICE complete 2 Sets of Jaws Key and 3 Bolts

102/-	111/7	159/-	189/-
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T. GARNER & SON LIMITED : BARNLSLEY

provided by means of a gib strip. Hand traverse to the Saddle is by rack and pinion. A fine hand feed may be obtained by fitting a ball handle to the Leadscrew.

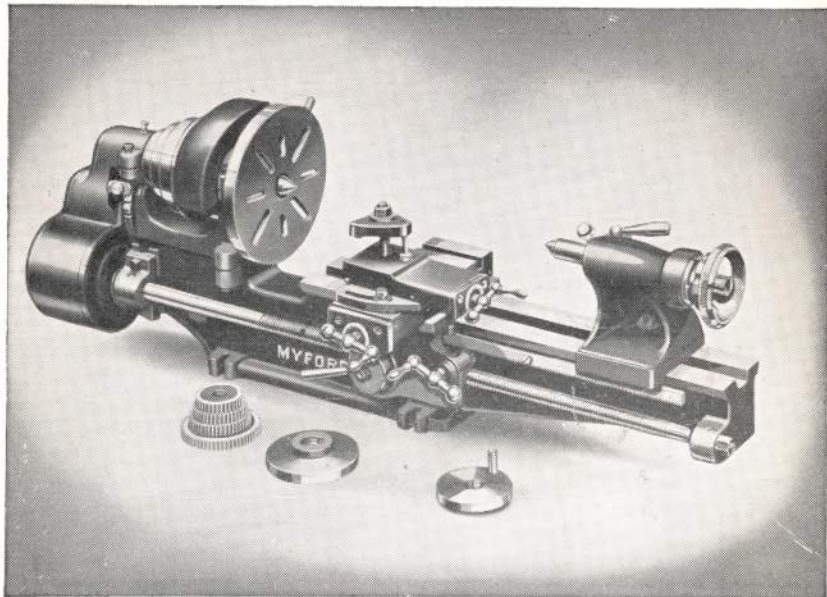
The Tailstock is of improved design and now incorporates a separate base. A quick acting clamp secures the base to the Bed and ensures rapid and positive adjustment. The body is clamped to the base, and provided with set-over adjustment (for taper turning) by means of a large knurled thumb screw. Handwheel adjustment is normally provided to the Tailstock Barrel, which also has a positive clamp. A lever operated Tailstock Barrel, replacing Handwheel feed which can be re-assembled at any time, can be supplied as an extra fitment. If ordered subsequently to the supply of the machine, it will be necessary to return the Tailstock.

As improvements are incorporated from time to time, it will be appreciated that illustrations in this handbook are not necessarily identical with the present design.

T. GARNER & SON LIMITED : BARNLSLEY

MYFORD 3 $\frac{1}{8}$ inch Lathe

SERIES ML2 WITH TUMBLER REVERSE



SPECIFICATION:

Centre Height, 3 $\frac{1}{8}$ in.	Top Slide traverse, 2 $\frac{1}{2}$ in.
Length between Centres, 14 in.	Lead Screw, $\frac{3}{8}$ in. + 8 t.p.i.
Swing over Cross Slide, 3 $\frac{3}{8}$ in.	Faceplate Diam., 6 $\frac{1}{2}$ in.
Swing in Gap, 8 $\frac{1}{2}$ in.	Ts Barrel travel, 3 in.
Diam. of Mandrel, 1 in.	Cone pulleys (alternatively):
Diam. of Mandrel Nose,	for $\frac{1}{2}$ in. Vee Rope, 3 steps:
1 $\frac{1}{8}$ in. x 12 t.p.i.	2 $\frac{3}{8}$ in., 3 $\frac{1}{8}$ in., 3 $\frac{7}{8}$ in.
Mandrel bored, 19/32 in.	for $\frac{3}{4}$ in. Flat Belt, 3 steps
Tailstock bored, $\frac{3}{8}$ in. clear.	2 $\frac{3}{8}$ in., 3 $\frac{1}{8}$ in., 3 $\frac{7}{8}$ in.
Centres: Headstock, No. 2 M.T.	for 1 in. Flat Belt, 2 steps:
Tailstock, No. 1 M.T.	2 $\frac{1}{2}$ in. and 3 $\frac{1}{2}$ in.
Cross Slide traverse, 4 $\frac{1}{2}$ in.	Back Gear ratio, 6 to 1.

STANDARD EQUIPMENT: Set of 10 change wheels; chuck backplate; faceplate; catchplate; headstock and tailstock centres

EXTRAS: Thread dial indicator; vee-rope headstock pulley; change wheel guard.

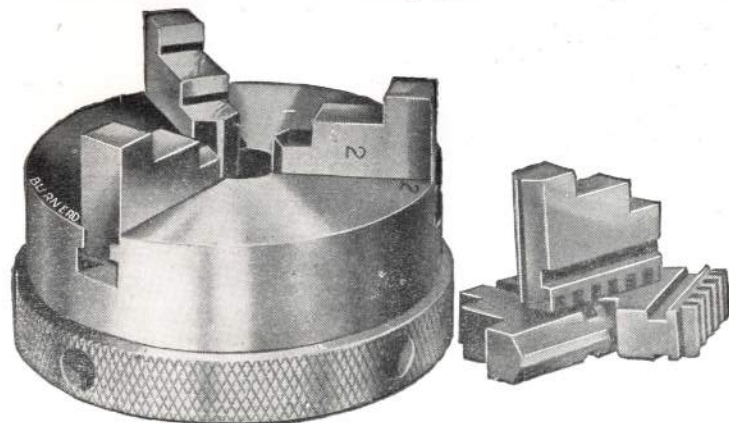
When Ordering, Please State Type of Headstock Pulley Required.

T. GARNER & SON LIMITED : BARNLSLEY

LIGHT PATTERN 3-INCH 3-JAW

Self-Centring Lever Scroll

This Chuck is a well designed and accurate tool, ideal for light Engineering **Small Overhang and Light Weight (2-lbs.)** is a great advantage obtained by the Chuck over the geared scroll pattern. The fine materials and workmanship guarantee a high accuracy.



SPECIFICATION.

AMPLE GRIP is provided by the 2 sets of accurately ground jaws, both inside and outside.

KNURLED RING can be operated by hand and gives a sufficient grip for light work, but a lever is supplied for the purpose of obtaining a stronger grip.

BODY is of high grade malleable iron.

TWO SETS OF JAWS are of special steel, case-hardened, accurately fitted and ground where necessary.

BACKPLATE is fitted by means of the 3 screws provided with the Chuck.

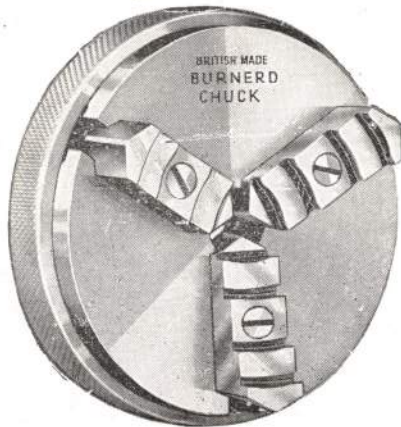
	Model No.	
	33	33A
Diameter of Body	3 ins.	4 ins.
Width of Body	1 $\frac{1}{16}$ "	1 $\frac{1}{16}$ "
Dia. of hole through Body	2 $\frac{5}{8}$ "	1 $\frac{1}{4}$ "
Dia. of Backplate recess	2 $\frac{5}{16}$ "	2 $\frac{7}{8}$ "
Projection of Jaws from face of Body	2 $\frac{5}{8}$ "	1 $\frac{1}{16}$ "
Maximum diameter Chuck will hold	3 "	4 $\frac{1}{4}$ "
Approximate Weight (Shipping)	2 $\frac{1}{2}$ lbs.	4 $\frac{1}{2}$ lbs.
	1.1 kgs.	2.0 kgs.
PRICE complete 2 sets of Jaws Lever and 3 Screws ..	72/-	108/-

T. GARNER & SON LIMITED : BARNLSLEY

SELF-CENTRING 2½ INCH 3-Jaw Scroll Chuck

WITH REVERSIBLE JAWS

This chuck, the latest addition to the range, has been designed expressly for Instrument and Watchmakers' Lathes, with the high accuracy demanded by this style of work.



SPECIFICATION.

BODY is of steel, with minimum overhang.

THE TOP JAWS are case-hardened and ground where necessary. They can be instantly reversed on the base jaws.

WEIGHT OF CHUCK is 10 ozs. only.

FITTED TO LATHES by means of an **ADAPTOR**, which is drawn into collet chuck, in place of split collet. They can, however, be fitted to a normal threaded mandrel nose with a special backplate.

Model No. 32.

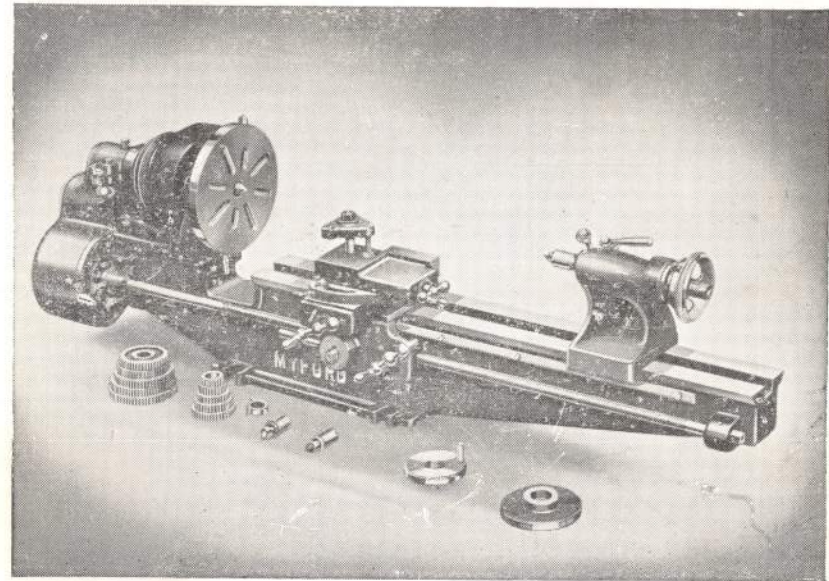
Dia. of Body	2½ ins.	Width of Body	1½ ins.
Dia. of hole through Body	1½ ins.	Projection of Jaws from Body	1/8 ins.
Dia. of Backplate recess .. .. .	.4725 ins.	Approximate weight	10-ozs.

Price (complete with One Set of Reversible Jaws, 90/-
Special Adaptor or Backplate 30/- extra.

T. GARNER & SON LIMITED : BARNESLEY

MYFORD 3½ inch Lathe

SERIES ML4 WITH TUMBLER REVERSE



SPECIFICATION:

Centre Height, 3½ in.	Top Slide traverse, 2¼ in.
Length between Centres, 22 in.	Lead Screw, ¼ in. × 8 t.p.i.
Swing over Cross Slide, 4½ in.	Faceplate Diam., 6½ in.
Swing in Gap, 10 in.	Ts Barrel travel, 3 in.
Diam. of Mandrel, 1 in.	Cone pulleys (alternatively):
Diam. of Mandrel Nose, 1½ in.	for ½ in. Vee Rope, 3 steps,
× 12 t.p.i.	2⅜ in., 3⅜ in., 3⅞ in.
Mandrel bored, 19/32 in.	for ¾ in. Flat Belt, 3 steps,
Tailstock bored, ⅝ in. clear.	2⅜ in., 3⅜ in., 3⅞ in.
Centres: Headstock, No. 2 M.T.	for 1 in. Flat Belt, 2 steps,
Tailstock, No. 1 M.T.	2½ in. and 3½ in.
Cross Slide traverse, 4½ in.	Back Gear ratio, 6 to 1.

STANDARD EQUIPMENT: Set of 10 change wheels; chuck backplate; faceplate; catchplate; headstock and tailstock centres.

EXTRAS: Thread dial indicator; vee-rope headstock pulley; change wheel guard.

When Ordering, Please State Type of Headstock Pulley Required.

T. GARNER & SON LIMITED : BARNESLEY

Myford Stands for Motor Drive

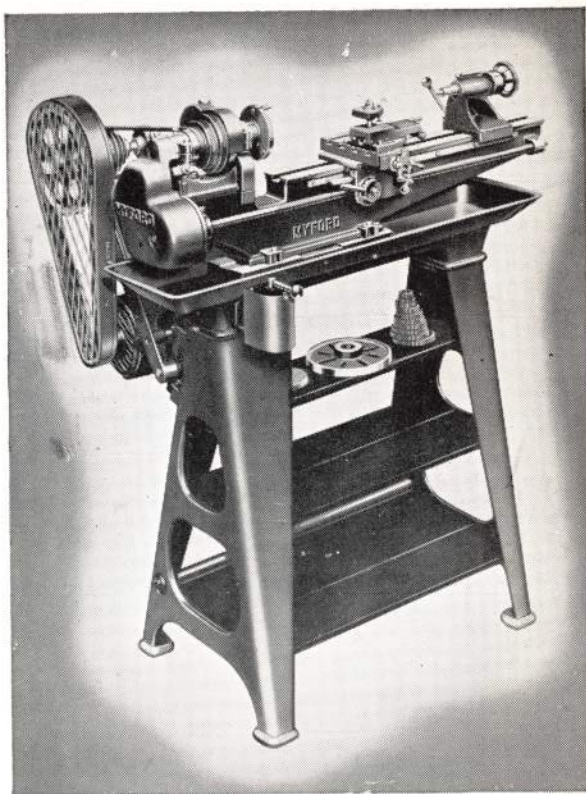
ML2 & ML4

The heavy Stand, type MA103, as illustrated, is equipped with Vee Drive throughout. This Stand can be supplied either as a complete Unit including Switch, Bracket, Flexible Conduit with Connectors, and 3 Metal Shelves, or without these items, which are also listed separately.

Electric Motors are regarded as an extra, as the price varies according to the particulars of current supply. When ordering Motors we should be pleased if you would give particulars of the current.

Myford Stand Units

The shelf type Stand, illustrated above, can also be supplied as Stand only (MA102). Drives are provided by Power Countershafts, Types MA59 and MA59a, and Motor Countershaft Type MA60, as illustrated on page 14.

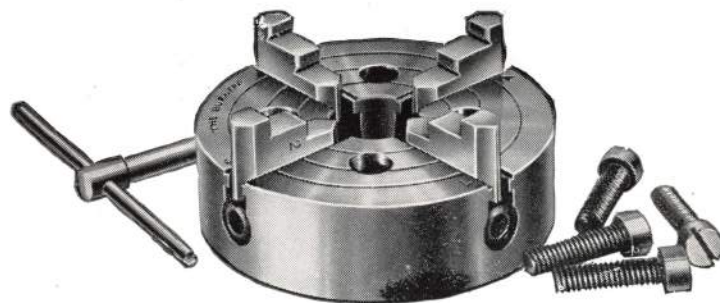


Small, Independent Steel Bodies

4 REVERSIBLE JAWS

Sizes $3\frac{1}{4}$ ins., 4 ins., $4\frac{1}{2}$ ins.

These Chucks have been designed to meet the requirements of users of small Lathes and Universal Grinders. They are ideal for Model, Instrument, and Precision work, light Tool-making, etc.



BODIES are of steel and virtually unbreakable.

JAWS are of special steel, case-hardened and ground where necessary.

OPERATING SCREWS AND KEY are also case-hardened.

WEIGHT AND OVERHANG are reduced to a minimum (see weights).

BACKPLATE is fitted by means of 4 screws (supplied with each chuck) inserted from face of the Chuck, screwed into holes tapped in backplate, so allowing chucks to be fitted to lathes with large mandrel noses.

	Model No.	35A	35B	35C
Diameter of Body	$3\frac{1}{4}$ ins.	4 ins.	$4\frac{1}{2}$ ins.
Width of Body	$1\frac{1}{8}$ ins.	$1\frac{1}{8}$ ins.	$1\frac{1}{8}$ ins.
Diameter of hole through Body	1 ins.	1 ins.	1 ins.
Diameter of Backplate recess	$2\frac{3}{8}$ ins.	$2\frac{3}{8}$ ins.	$2\frac{3}{8}$ ins.
Projection of Jaws from face of Body	$\frac{7}{8}$ ins.	$\frac{7}{8}$ ins.	$\frac{7}{8}$ ins.
Maximum diameter Chuck will hold	$3\frac{1}{8}$ ins.	$4\frac{1}{8}$ ins.	$4\frac{1}{8}$ ins.
Approximate weight	$2\frac{1}{2}$ lbs.	$3\frac{1}{2}$ lbs.	$4\frac{3}{4}$ lbs.
Price	45/-	46/9	55/9

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Special Attachments List ML7

Description	Price
	£ s. d.
Thread Dial Indicator
Fixed Steady
Travelling Steady
Four Tool Turret
Taper Turning Attachment
Leadscrew Handwheel
MA.67/1 Plain Milling Slide
MA.68/1 Swivelling Milling Slide
2A1495 Dividing Attachment complete with two division plates
Drill Pad, plain, No. 2 M.T.
Drill Pad, vee,
Wood Prong Centre
Fluted Centre
Hollow Centre
Square Centre
Half Centre
MA.71 Machine Vice
MA.70 Angle Plate, 3 in. x 2 in. x 1½ in.
DBE.227 Angle Plate, 4 in. x 2½ in. x 1½ in.
DBE.227B Angle Plate, 6 in. x 2½ in. x 2½ in.
MA.73 Vee Block, 3 in. x 1½ in. x 1½ in.
MA.74 Vee Block, 4 in. x 2 in. x 1½ in.
MA.85 Lathe Carrier ½ in.
MA.85 Lathe Carrier ¾ in.
MA.85 Lathe Carrier 1 in.
MA.85 Lathe Carrier 1½ in.
MA.86 Set of four Faceplate Dogs 2½ in. set 2/6 plus 15%
Bolts for Faceplate and Angle Plate (sets of four)
DBE.286 2½ in. long
DBE.287 5 in. long
DBE.288 6 in. long
DBE.289 8 in. long
DBE.290 12 in. long
Slide Rest Tools ⅝ in. square (set of 8)
Slide Rest Tools ¾ in. square (set of 12)
Tailstock Die Holder for ⅝ in. dia. Button Dies No. 2 M.T. Shank
Tailstock Die Holder for 1 in. dia. Button Dies No. 2 M.T. Shank
9 in. diameter Face Plate
Morse Taper Collet No. 2 M.T., ½ in. max. (Ref. 1031)
Nose Piece
Extractor

Please add 15% advance except where already indicated.

T. GARNER & SON LIMITED : BARNESLEY

Revised Prices 3¼ in. and 3½ in.

ML2 and ML4 Myford Lathes

August, 1946.

	£	s.	d.
ML-2/3½ in. × 15 in. Lathe with Tumbler Reverse and 19/32 in. bore, No. 2 M.T. Mandrel with Improved Tailstock	..	..	..
ML-4/3½ in. × 24 in. Lathe with Tumbler Reverse and 19/32 in. bore, No. 2 M.T. Mandrel with Improved Tailstock	..	..	..
Extras:	..	..	..
Improved Type Change Wheel Guard	..	1	7
Improved Tailstock, replacement	..	3	10
MA-101—Thread Dial Indicator	..	..	13
Accessories:	..	..	..
MA-59—Power Countershaft	..	..	..
MA-59a—Power Countershaft, extra heavy type	..	2	2
MA-60—Motor Countershaft	..	3	0
MA-61—Unit Motor Countershaft	..	2	2
MA-62—Fixed Steady for 3½ in. Lathe	..	2	2
MA-62a—Fixed Steady for 3½ in. Lathe	..	1	2
MA-63—Travelling Steady for 3½ in. Lathe	..	1	2
MA-64—Travelling Steady for 3½ in. Lathe	..	..	..
MA-66—Four Tool Turret with Lever and Plunger	..	15	0
MA-67/1—Vertical Slide	..	16	6
MA-68/1—Vertical Slide, swivelling type	..	17	6
MA-69—Hand Rest	..	2	5
MA-70—Angle Plate	..	3	15
MA-71—Machine Vice	..	12	6
MA-72—Extra 20-Tooth Change Wheel	..	4	0
MA-73—Vee Block, 3 in. × 1½ in. × 1½ in.	..	15	0
MA-74—Vee Block, 4 in. × 2 in. × 1½ in.	..	3	0
MA-77—Wood Prong Centre, No. 1 M.T.	..	4	0
MA-77a—Wood Prong Centre, No. 2 M.T.	..	5	0
	..	6	6
	..	9	0

T. GARNER & SON LIMITED : BARNESLEY

MA-83—Motor Pulleys, 1 $\frac{3}{8}$ in. diam. \times $\frac{1}{2}$ in. bore (crowned)	4 0
MA-83—Ditto, vee	5 6
MA-83a—Motor Pulleys, 1 $\frac{3}{8}$ in. dia. \times 2 $\frac{1}{2}$ in. flat (for MA-59a)	7 0
MA-85—Lathe Carriers, $\frac{1}{2}$ in., $\frac{3}{4}$ in., 1 in.	Prices: 1 9, 2 1 $\frac{1}{2}$, 2 3
MA-86—Face Plate Dogs, 2 $\frac{1}{2}$ in.	Sets of four 2 6
MA-87—Lathe Centres, No. 1 M.T.	each 3 0
MA-87a—Lathe Centres, No. 2 M.T.	each 4 6
MA-88—Hollow Centres, No. 1 M.T.	each 3 0
MA-88—Hollow Centres, No. 2 M.T.	each 3 0
MA-89—Extra 3-Step Cone Pulley, $\frac{3}{8}$ in. bore	7 6
MA-89—Extra 3-Step Cone Pulley, 1 in. bore with Backgear pinion	11 6
MA-89a—Extra 3-Step Cone Pulley for Vee Rope, $\frac{3}{8}$ in. bore	10 6
MA-89a—Extra 3-Step Cone Pulley for Vee Rope, 1 in. bore with Backgear pinion	15 0
MA-93—Ball Handle for Leadscrew (3 $\frac{1}{8}$ in.)	4 0
MA-93a—Ball Handle for Leadscrew (3 $\frac{1}{2}$ in.)	4 6
MA-95—Finished Backplates, 3 $\frac{1}{2}$ in. diam.	6 0
MA-95a—Finished Backplates, 4 $\frac{1}{2}$ in. diam.	10 6
MA-97—Bench Motor Unit, flat belt drive	3 17 6
MA-97a—Bench Motor Unit, vee rope drive	4 5 0
MA-100—Chrome Vanadium Thin D.E. Spanners. (Set of two suitable for Lathe)	6 9
MA-102—Improved Stand only, with three shelves	7 17 6
Improved Stand only, without shelves	7 2 6
MA-103—Stand for Motor Drive, with built in Counter-shaft and Vee Ropes	12 0 0
Extra for Reversing Switch and Bracket	1 15 0
Extra for Flexible Conduit with Connectors	10 0
Extra for Three Metal Shelves	15 0
MA-103—Stand Complete, as illustrated—less Motor and Wire Mesh Guard	14 15 0
Wire Mesh Guard for drive (essential for Works use)	17 6
MA-104—Patented Parting-off Attachment	1 1 0

P R I C E S E X C L U D E M O T O R S
ALL PRICES PLUS 15%

T. GARNER & SON LIMITED : BARNESLEY

Provisional prices are as follows:—

ML-7 Heavy Duty 3 $\frac{1}{2}$ in. Bench Lathe, complete with standard equipment, comprising:—6 $\frac{3}{4}$ in. dia. face-plate, catchplate, 4 in. dia. backplate, set of 14 change wheels and spacer; change-wheel guard, two double ended thin spanners ($\frac{1}{16}$ in. \times $\frac{3}{8}$ in. and $\frac{1}{16}$ in. \times $\frac{1}{4}$ in. B.S.F.), key for backgear lock, key for bearing cap screws, complete with self-contained drive unit with vee belts, belt guard and motor pulley (less motor)

£ s. d.
36 15 6
plus 15%
advance

Alternatively:—

ML-7 Heavy Duty 3 $\frac{1}{2}$ in. Lathe with equipment as described above, but mounted on cabinet stand, complete with screw cutting panel and reversing switch with wiring from motor to switch (less motor)

49 19 0
plus 15%
advance

Recommended Motors:—

1/3rd H.P. single phase 50 cycles A.C. resilient mounted motor, fitted to either of the above 6 7 0
Ditto, but three phase, 50 cycles A.C. 6 6 0
Ditto, but D.C. up to 250 volts only 9 19 3

Recommended Chucks:—

4 in. - 3-jaw geared scroll chuck fitted to standard equipment backplate 5 19 3
6 in. - 4-jaw independent chuck fitted to extra back plate 5 4 0

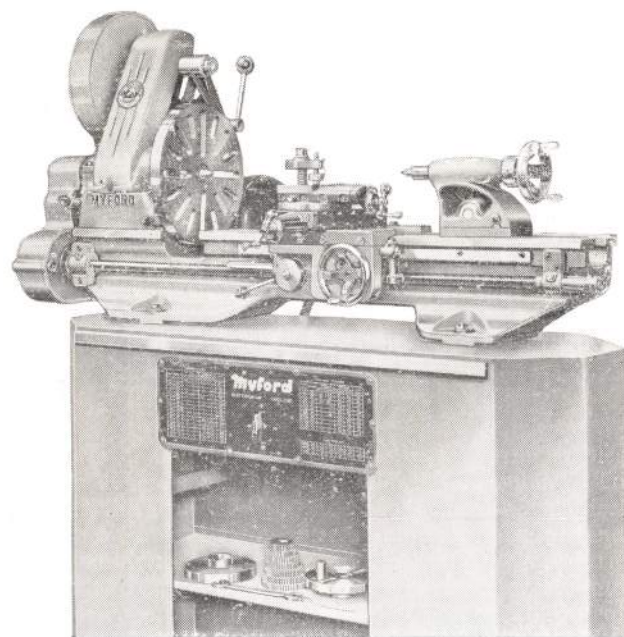
Owing to the present difficulty in obtaining supplies, we must reserve the right to fit such make of motor and chuck as may be available at the time of despatch.

This quotation is based on current prices. In view of the fluctuations in labour and material costs, we reserve the right to invoice to you at the prices ruling at the time of despatch.

T. GARNER & SON LIMITED : BARNESLEY

TYPE ML.7.

3 $\frac{1}{2}$ in. Heavy Duty Centre Lathe



We would draw your attention to this completely new lathe admitting 20 in. between centres. Prototype machines have been built which have given very satisfactory results during prolonged tests under severe working conditions. Production has now commenced, and orders are being booked.

The quality of the machine, both as regards design and workmanship, is of the highest order. The relatively low price is accounted for by the fact that it has been designed to take full advantage of modern production methods.

T. GARNER & SON LIMITED : BARNESLEY

The Improved ML2 and ML4 Myford Lathe Tailstock

This Tailstock embodies the following improved features :—

Full range of set-over adjustments.

Tailstock axis always parallel to Mandrel axis.

Fine adjustment by knurled screw.

Independent locking of cross adjustment by single, ready accessible nut.

Conveniently placed hand lever for clamping tailstock to Lathe bed.

THE DESIGN

removes the inherent limitation of the older type, which was capable of adjustment within a certain range but did not ensure the parallel alignment of the barrel axis with that of the Mandrel. This disadvantage has been eliminated in the new Tailstock, which also embodies several other new features and enables a substantial range of set-over to be obtained in the simplest possible manner.

CONSTRUCTION

The Tailstock comprises two main parts, i.e., a soleplate equipped with means of clamping to the bed, to which is mounted the Tailstock body in such a way as to permit cross movement.

As will be seen from the drawing the underside of the Tailstock body is slotted at right angles to the barrel axis. A close fitting parallel steel key is attached to the top of the soleplate, being positively located by means of dowels. This key slides in the channel in the base of the Tailstock body, and ensures that it always moves squarely across the soleplate. To lock it in any position, a stud is fitted to the soleplate and passes through a slotted hole in the base of the Tailstock body, this being the only part of the device which calls for the use of a

T. GARNER & SON LIMITED : BARNESLEY

spanner, the securing nut being readily accessible from the recess at the front of the casting.

The cross motion is controlled by a fine thread screw having a large knurled head for easy hand adjustment.

ORDERS

to replace old type Tailstocks should be accompanied by the exact centre height of the headstock, preferably to the nearest "thou," alternatively a simple template can be made to shew the headstock centre height.

Myford 3 $\frac{1}{8}$ in. and 3 $\frac{1}{2}$ in. Lathes

ML2 and ML4

The primary object in the design of these Lathes is to provide a simple and moderately priced universal machine tool, equally suited to the requirements of Amateur and Professional users. All essential features of design to promote accuracy, rigidity and handiness of manipulation have been very carefully studied. Evidence of the success of this policy is to be found in the popularity of these Lathes, the sale of which has increased steadily ever since their production, so that they have been shipped in large quantities to all parts of the British Empire and other countries overseas.

INSTALLATION

The ability of any Lathe to produce accurate work depends in no small measure on the care exercised in its installation. It is advisable, when fixing a Lathe to a wooden or metal bench, to ensure that the bolting surface is dead flat and levelled up both ways. Lathes fitted to stands should be carefully packed under the feet to level the bed and remove the least tendency to rocking.

Myford ML2 and ML4 Lathes have the bed designed on the cantilever principle, supported on one base surface under the centre of gravity, and are thus much less liable to distortion than lathes with widely separated end supports. The underside of the base is machined to further facilitate accurate setting. These advantages should not, however, encourage carelessness in installation. Any inequalities in the bench surface or floor should be corrected by packing of a permanent nature;

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Change Wheel Prices

3 $\frac{1}{8}$ " & 3 $\frac{1}{2}$ " Lathes.		MYFORD 4" Lathes.					
No. of Teeth	Price s. d.	No. of Teeth	Price s. d.	No. of Teeth	Price s. d.	No. of Teeth	Price s. d.
20 ..	3 0	38 ..	5 0	20 ..	3 9	38 ..	6 9
25 ..	3 4	64 ..	6 8	25 ..	4 6	64 ..	9 6
30 ..	3 8	70 ..	7 4	30 ..	5 0	70 ..	10 0
35 ..	4 0	75 ..	8 0	35 ..	5 6	75 ..	10 9
40 ..	4 4	80 ..	8 8	40 ..	6 0	80 ..	11 3
45 ..	4 8	85 ..	9 4	45 ..	6 6	85 ..	12 0
50 ..	5 0	90 ..	10 0	50 ..	7 0	90 ..	12 9
55 ..	5 4	95 ..	10 8	55 ..	7 6	95 ..	14 0
60 ..	5 8	100 ..	11 4	60 ..	8 0	100 ..	15 0
65 ..	6 0	127 ..	13 4	65 ..	8 6	127 ..	18 9

DRUMMOND 3 $\frac{1}{2}$ " & 4" Lathes.

No. of Teeth	Price s. d.	No. of Teeth	Price s. d.	No. of Teeth	Price s. d.	No. of Teeth	Price s. d.
20 ..	3 2	24 ..	3 10	25 ..	4 0	26 ..	4 1
28 ..	4 5	30 ..	4 10	32 ..	5 1	35 ..	5 7
36 ..	5 8	38 ..	6 1	40 ..	6 5	44 ..	7 1
46 ..	7 3	45 ..	7 2	50 ..	7 11	52 ..	8 4
55 ..	8 9	60 ..	9 6	63 ..	10 0	64 ..	10 2
65 ..	10 4	66 ..	10 6	70 ..	11 0	73 ..	11 8
75 ..	11 10	80 ..	12 8	85 ..	13 6	90 ..	14 4
95 ..	15 2	100 ..	16 0				

All Prices plus 15% Advance.

CONDITIONS OF SALE.

The prices shown in this book are correct at the time of issue but are subject to amendment without notice. We reserve the right to invoice all goods at prices ruling at the date of delivery.

IMPORTANT NOTICE.—It will readily be understood that this publication has only been made available at some expense and, to ensure a minimum of wastage in circulation, a charge of 2/6 per copy is made. This will readily be allowed against any order (minimum 40/-) if the printed coupon is submitted with the order

MYFORD HANDBOOK

2/6

COUPON 1946/7.

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Special Attachment List—Continued.

Description	Price
No. 1111	Lever operated Collet Attachment for attaching to spindle nose complete with one $\frac{1}{2}$ " collet £9 10 0
	Extra collets: $\frac{1}{4}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{5}{8}$ " 1 1 8 each
No. 1115	Set of 12 $\frac{3}{8}$ " sq. H.S.S. Slide Rest Tools 2 2 6 per set
	* Set of six Handle Tools for Metal +10%
	* Set of six Handle Tools for Wood Turning, comprising:
	one— $\frac{1}{2}$ " Chisel
	one— $\frac{3}{8}$ " Chisel
	one— $\frac{1}{2}$ " Gouge
	one— $\frac{3}{8}$ " Gouge
	one— $\frac{1}{2}$ " Gouge
	one—Parting Tool
	* (Only sold in sets, and prices subject to Market fluctuation)

Prices on application.

All Prices subject to 15% advance with the exception of Collets, Slide Rest Tools, and Handle Tools for Metal and Wood.

SPARE PARTS FOR 3½" × 16" 'M' TYPE LATHE

DM2A & 1	Headstock bearings complete with locking rings	£2 12 6 per pair
DM3A/1	Mandrel, nose screwed 1" × 12 T.P.I.	2 17 9 each
DM6C/5	Thrust Race	3 6 "
SKF. B6	Platowheel, 66T	2 8 0 "
DM.11	Pulley Pinion, 22T	1 9 0 "
DM.14/1	Backgear, 22/66T	2 1 6 "
DM.25	Faceplate, 9" dia. screwed 1" × 12 T.P.I.	1 9 0 "
DM.8/1	Chuck backplate 4¼" dia. screwed 1" × 12 T.P.I.	15 0 "
DME.274	Top slide feed screw	10 0 "
DM.34	Cross slide feed screw	12 6 "
DM.44	Banjo	1 9 0 "
DM.70/2	Tailstock barrel	1 2 6 "
DM.81	Tailstock handwheel with handle	17 6 "
DM.85	Swivel half nut	16 0 "
DM.716/1	Leadscrew support	9 6 "
DM.719	Rack pinion	10 6 "
DM.717/1	Rack	1 10 0 "
DM.724	Leadscrew	2 13 6 "

All Prices plus 15% advance

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Careful levelling is not only sound practice, but will also be found an advantage when setting up and marking out work from the Lathe bed.

DRIVING POWER

Myford Lathes are equipped for operation either by lineshaft or individual motor, the alternative forms of equipment for these purposes being as follows:

POWER COUNTERSHAFTS (MA59 and MA59A heavier type)

Two types of countershafts, both applicable to driving from an existing lineshaft and in the case of MA59A also from an electric motor, are available. These incorporate hangers with swivelling bearings, cone pulley, and fast and loose pulleys with striking fork control rod. The hangers are adaptable either to overhead or wall fitting and the control gear is adjustable to suit position.

MOTOR COUNTERSHAFT (MA60)

This is intended for use with an individual electric motor, controlled directly by switch, and is therefore not equipped with belt control gear, the driving pulley being single and secured to the shaft. The hangers have swivelling bearings and are primarily intended for overhead mounting.

UNIT COUNTERSHAFT (MA61)

The bearings in this case are incorporated in a cast frame to form a single unit which may be bolted down to the bench behind the Lathe. Please specify clearly whether for wall of overhead mounting, so that the oiling arrangements may be modified to suit. This countershaft is also intended for use in connection with individual electric motor having switch control.

BENCH MOTOR UNIT (MA97 for flat belt and MA97A for vee-rope)

The compactness of this arrangement is a great asset in cases where space is limited. Means are provided for adjusting the belt tension, or for completely releasing it when changing from one step of the cone pulley to another. Applicable either to endless flat belts or vee-ropes.

MOTORISED LATHE STAND UNIT (MA102 and MA103)

The motor in this case is attached to the Lathe stand and drives upwards to a countershaft mounted on a bracket behind the headstock. This arrangement takes up even less room than the bench motor unit and renders the lathe completely portable, without interference with the driving gear. Endless belts are used, and provision for adjustment is incorporated.

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ADJUSTING AND USING THE LATHE

One of the first essentials in obtaining efficient service and long life from a Lathe is to keep all working parts clean and adequately lubricated. Dust and swarf should be kept out of bearings and slides, and a good quality thin lubricating oil used sparingly, but at frequent intervals. A new Lathe should be carefully run in at moderate speed until the mandrel bearings are properly bedded down; neither heavy work nor high speeds should be attempted until running in is completed.

HEADSTOCK

The correct adjustment of the mandrel bearings is a most important factor in producing accurate work. End play can be taken up by adjusting the screwed collar at the rear of the mandrel, and journal slackness by tightening the set screws on the front and rear headstock bearings. In either case no perceptible play should be allowed, but on no account should bearings be tightened to such an extent as to introduce friction. When once properly adjusted, the mandrel bearings will not require further attention for some hundreds of working hours, so long as lubrication is properly attended to. Frequent tinkering with them is neither necessary nor desirable.

BACK GEAR

This is a simple form of double speed-reducing gear which enables the Lathe to be run at one-sixth the speed of the cone pulley. To engage the back gear, the grub screw in the small step of the mandrel cone pulley is unscrewed until it disengages from the mandrel and allows the pulley to turn freely thereon; the lever on the eccentric bearing on the backshaft is then pulled forward to bring the gears into mesh. It is good practice to take the grub screw completely out of the pulley and insert oil, to ensure thorough lubrication of the spindle. The back gear can also be used as a means of locking the mandrel in cases where it is necessary to hold it in a stationary position. On no account must the gears be brought into mesh whilst the mandrel is running. Adjustment of mesh may be effected by varying the position of the engaging lever, and the gears may be locked in or out of mesh by tightening the screw on the backshaft bearing. To disengage the back gear, put the gears out of mesh and turn the shaft or pulley until the hole for the grub screw lines up with the flat on the mandrel; the screw will then enter a depression in the mandrel and when fully tightened will provide a secure drive. The back gear wheels are protected by a cast iron guard, which not only serves as a complete protection to both operator and mechanism, but also provides a convenient hand rest.

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Special Attachments List

3½" 'M' TYPE LATHE

Description	Price
No. 1108 No. 1110	Turret Attachment £8 18 6 Solid Steel Turret, having eight stations, internal mechanism hardened and protected by swarf proof cover 4 5 0
No. 1112	Fixed Steady 2 0 0
No. 1113	Travelling Steady 1 10 0
No. E.132	Drill Pad (Plain) with No. 1 M.T. Arbor 0 6 6
No. DBE.212	Drill Pad (Vee) with No. 2 M.T. Arbor 0 9 0
No. DBE.203	Prong Centre for wood turning .. 0 9 0
No. DBE.206/1	Fluted Centre for Centring .. . 0 5 0
No. DBE.205/1	Hollow or Female Centre .. . 0 3 0
No. DBE.204/1	Square Centre 0 5 0
No. DB.7/1	(Soft) D4/1124 (Hard) Ordinary Centre 60° 0 3 0
No. DBE.202	Half Centre 0 5 0
No. MA.9402 & 3	Die Holder for ⅜" diameter button dies with sliding head and No. 1 M.T. shank 0 10 0 each
No. MA.9401 & 3	Ditto, but for 1" diameter button dies 0 11 0 "
MA.86	Set of four Faceplate Dogs, 2½" .. 0 2 6 per set
No. DBE.286	Set of four bolts and nuts for Angle-plate works 2½" long 0 4 0 "
No. DBE.287	Set of four Long Bolts for fastening work to boring table 5" 0 6 0 "
No. DBE.288	Set of four Long Bolts for fastening work to boring table 6" 0 6 6 "
No. DBE.289	Set of four Long Bolts for fastening work to boring table 8" 0 8 6 "
No. DBE.290	Set of four long bolts for fastening work to boring table 12" .. . 0 11 6 "
No. DBE.227	Angle Plate for Faceplate 4" long .. 0 7 6
No. DBE.227B	Angleplate for Faceplate 6" long .. 0 10 6
No. DBE.222	Change Gear Rack 1 0 0
MF.418 & MF.419	Set of four holding down bolts for 1102 Stand 0 10 6 per set
No. 1114	Hand Rest and Base 1 1 0
No. 1107	Circular Saw Table 4 7 6
No. 1109	Connecting Rod Boring Fixture .. . 4 15 0
No. DBE.228	Boring Bar with three cutters, length 13" 1 0 0
No. DME.225	Arbor for milling cutters 1 10 0
MA.85	Adaptor for converting back centre to mandrel nose 0 15 0
	Set of three Lathe Carriers : ⅜", 1/9 ; ⅜" 2/- ; 1", 2/3 0 6 0 per set

Please add 15% to above prices.

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Centres, Clamps, Etc.

MYFORD 'M' LATHE



CENTRES

- | | | | |
|------|--------------------------------|---|---|
| 1, 2 | Headstock & Tailstock Centres. | 6 | Hollow or Female Centre. |
| 3 | Half Centre. | 7 | Prong Centre for Wood Turning. |
| 4 | Fluted Centre for Centring. | 8 | Adaptor for converting back centre to Mandrel Nose. |
| 5 | Square Centre. | | |

THREAD DIAL INDICATOR

Easily attached to the right-hand side of the Lathe Saddle; operated by the Leadscrew and may readily be disengaged when not in use. This accessory is indispensable for easy "picking-up" of threads on successive cuts.



SMALL TOOLS, ETC.

- Set of 12 Slide Rest Tools in H.S. Steel, $\frac{3}{8}$ " square.
- Set of Handle Tools for wood turning; 3 gouges, 2 chisels and 1 Parting tool.
- Set of 6 Handle Tool for Metal; angle plate for faceplate, and bolts for same, $2\frac{1}{2}$ " long.
- Set of Lathe carriers holding from 0" to 1".
- Boring Bar with 3 cutters, length 13".
- Lever Operated Collet attachment, maximum diameter held by chuck, $\frac{5}{8}$ ".
- Standard range of Split Collets, $\frac{1}{8}$ ", $\frac{3}{16}$ ", $\frac{1}{4}$ ", $\frac{5}{16}$ ", $\frac{3}{8}$ ", $\frac{7}{16}$ ", $\frac{1}{2}$ ", $\frac{9}{16}$ ", $\frac{5}{8}$ ".
- Arbor for Milling Cutters to run between centres, 10" long, having collars fitting 3 sizes of cutters.
- Vertical Milling Slide, Type MA 68 I.
- Toolholders and any special Tools, extra Change Wheels, etc.

BOLTS, CLAMP PLATES.

- Set of four dogs for holding work to faceplate, complete with bolts, etc.
- Long Bolts for fastening work to boring table, etc., 5", 6", 8" or 12" long.



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MANDREL

This is of substantial dimensions, accurately made and ground to close limits, and runs in bearings of ample area. End thrust is taken by a flat track type ball thrust bearing. Two types of Mandrel, both hollow throughout, are available, viz.: $\frac{3}{8}$ in. bore with No. 1 Morse Taper Nose and $19/32$ in. bore with No. 2 Morse Taper Nose; the latter type can only be supplied for Lathes fitted with tumbler reverse.

SCREWCUTTING AND SELF-ACTING TRAVERSE

The standard screwcutting equipment for Myford Lathes comprises a set of ten change wheels with two mounting studs, two driving collars and a distance washer; these accessories enable the change wheels to be set up on the banjo at the outer end of the Lathe mandrel so as to provide a very wide range of gear ratios between the mandrel and the lead screw. After placing the required gear on the Tumbler Reverse Stud, replace the washer and two BA Cheese Head Screws.

The Gear wheel on the mandrel is never moved, and will be found to mesh through either the 18T or 20T pinion, with the 25T pinion on the tumbler stud. It is on to this stud that the back gear referred to in the instructions and on screw cutting chart, should be fitted. The gear on the lead screw is secured in like manner, but in this case allowance is made for accommodating two gears, or one gear and a distance washer, to enable compound trains to be set up. Intermediate gears are set up on the two studs, which are adjusted to the required position for meshing up by means of the slotted quadrant, the latter also being radially adjustable about the lead screw centre for the same purpose. When setting up compound trains, the two gears on each stud must be positively coupled together by dowel pins inserted in the holes in the gear wheel faces. These may be made as required from pieces of $3/32$ in. steel wire, cut to a length of $\frac{3}{8}$ in.

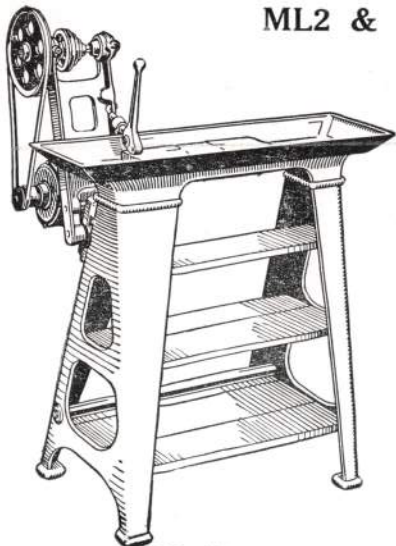
To cut right-hand threads or provide automatic traverse from right to left, the lead screw must revolve in the opposite direction to the Lathe mandrel; this is effected by using two intermediate studs. To cut left-hand threads as an extra reversing stud must be introduced to reverse the direction of the lead screw; any spare change wheel may be used on this stud, as it simply constitutes an "idler," and does not affect the ratio of the complete gear train.

In the case of Lathes fitted with a tumbler reverse gear to the screwcutting gear, the need for fitting an extra reversing stud is, of course, eliminated.

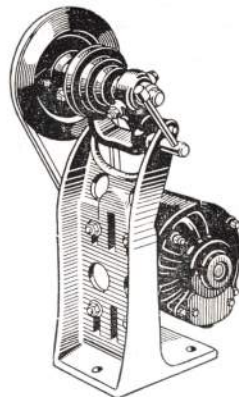
The adjustment of the gears on the banjo should enable them to mesh positively but not too tightly; a slight amount of backlash should be allowed, to avoid the risk of jamming the gear teeth. Gears should

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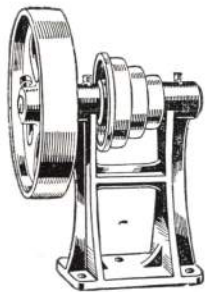
ML2 & ML4



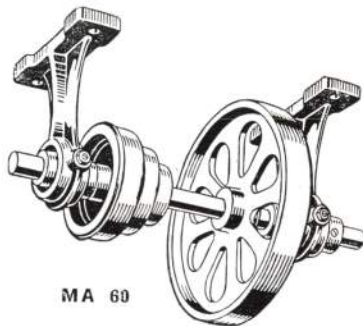
MA 103



MA 97 FLAT DRIVE
MA 97a VEE DRIVE

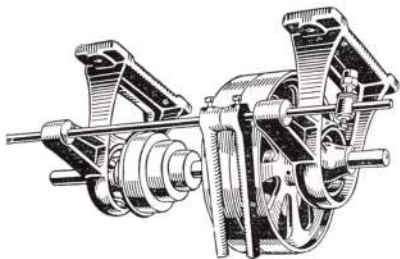


MA 61



MA 60

MA 59a

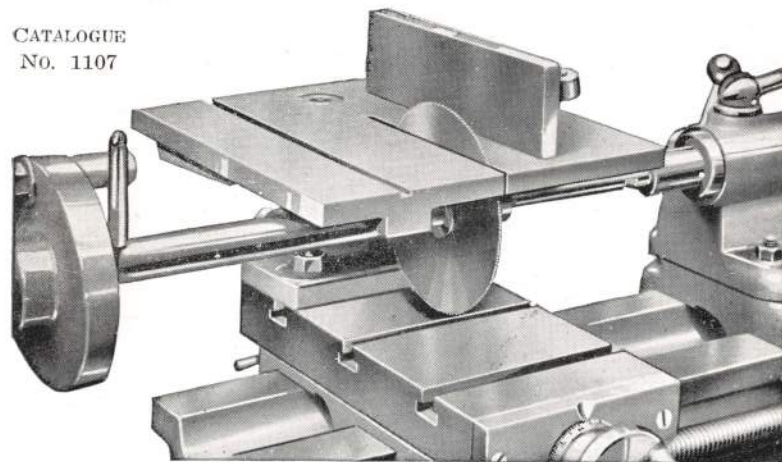


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Circular Saw Table

MYFORD 'M' LATHE

CATALOGUE
No. 1107



This Saw Table is easily and quickly mounted on the Lathe, and performs a great variety of work very economically. It is of sturdy construction, suitable for both metal and wood, and for frames, panels, etc., will be found to be a great saver of time and trouble.

The Table is truly surfaced and may be adjusted for height. The base bracket bolts on the Boring Table of the Lathe, the Saw Table being carried on a stout pillar.

An adjustable fence is fitted, and this may be removed completely if necessary. A slot is also provided for the guidance of jigs, or any special arrangements for guiding odd shapes, angles, etc., accurately across the Saw. The Saw Spindle is accurately turned and carries the Saw between dead square faces.

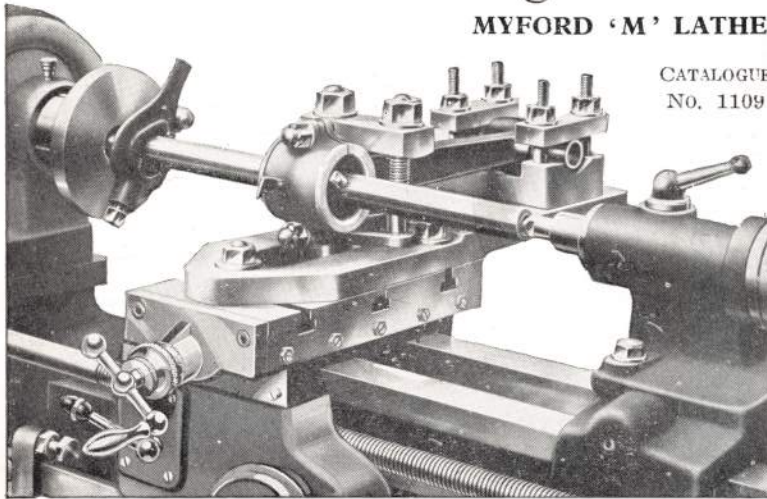
Diameter of saw	3½"
Diameter of bore	½"

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Connecting Rod Boring Fixture

MYFORD 'M' LATHE

CATALOGUE
No. 1109



This attachment will very quickly pay for itself in the garage where the re-bushing and boring of connecting rod big ends is carried out. The gudgeon pin is used to align the rod in the fixture. It rests in the vee block at the rear and is held down by the clamps shown. The big end rests on a screw jack provided with a locking screw, and this enables the rod to be brought to the correct centre height. A clamp plate straps the rod down in such a manner as to prevent springing. The vee block for the gudgeon pin is adjustable along the body of the fixture to accommodate rods of varying length, and is held by two bolts, a spigot in the centre slot preserving the alignment.

The ordinary method of bolting the rod down on the Boring Table of the Lathe, whilst effective, is very inconvenient, and means that every rod has to be lined up before machining. The fixture gives a correct setting every time, and a whole set of rods may be rebored in the time previously taken to do two.

CAPACITY

Rods up to 10" centres can be machined. It will be seen that this represents a much better method than swinging the rod in a Lathe, as this latter calls for a very large machine.

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never be engaged whilst the Lathe is running, as the shock may cause breakage of the teeth, and although, in the case of the tumbler reverse gear, steel pinions are used to improve the resistance to impact, discretion in engaging them is still advisable.

As the pitch of the lead screw on these Lathes is 8 t.p.i., the gear ratio required for any given thread depends on the ratio of that particular thread to 8. That is to say, that if the thread to be cut is, say, 16 t.p.i., the gears must be arranged so that the mandrel revolves twice to one revolution of the lead screw; thus, for 12 t.p.i., the ratio is $1\frac{1}{2}$ to 1, and so on. The intelligent use of simple arithmetic will therefore enable the user to set up a gear train for any required pitch within the range of the gears provided, but in order to simplify matters and save time, a screwcutting chart, reproduced on a later page, is provided with each lathe, showing the trains of gears required to obtain the usual Whitworth and Metric pitches.

Self-acting traverse is obtained simply by setting up a train of gears to produce a high ratio of reduction, or, in other words, to cut a very fine thread. The arrangement of gears for self-acting feeds is also specified in the chart.

The ability of the Lathe to cut a wide range of screw threads is one of its most valuable assets, which should be exploited to the utmost by every Lathe user, who should make it his business to become fully acquainted by *practice* with the technique of this operation. Inexperienced users often find difficulty in "picking up" the threads properly on successive cuts; this problem can, however, be entirely solved by the use of the Thread Dial Indicator, listed amongst the additional accessories for the Lathes.

In order to prevent clothing or other articles from getting caught in the screwcutting gears, and also to protect the gears themselves from damage, a Change Wheel Guard may be obtained as an extra, and Lathes for industrial purposes must all be so fitted.

INSTRUCTIONS FOR FITTING LEADSCREW NUT TO M.L. TYPE LATHE

- (1) Remove apron, fit nut to apron and adjust gib strip.
- (2) Wind saddle along bed, close to Tailstock end, re-assemble apron to saddle, leaving securing screws loose.
- (3) Thread leadscrew through clasp nut into bearings, and lock up apron securing screws, thus allowing leadscrew to centralise clasp nut.
- (4) Remove stud securing cam and mark through apron on to nut the centre of the stud hole.
- (5) With scriber, mark position of cam peg slots on clasp nut.
- (6) Remove nut from apron.

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- (7) With centre punch, mark centre of nut as shown by circle obtained from (4).
- (8) With centre obtained in (7) and dividers set to $25/64$ radius, describe arcs passing through lines obtained from (5).
- (9) With centre punch, mark dots on $25/64$ radius centrally between vertical lines obtained from (5).
- (10) Drill and tap 2BA holes in nut for cam pegs.
- (11) Split nut.
- (12) Re-assemble, fit cam pegs and re-assemble cam.

SADDLE AND SLIDE REST ASSEMBLY (ML2 and ML4)

All Myford Lathes are equipped with a sliding saddle operable over the full length of the bed, and a fully compound slide rest, comprising a cross slide for traversing at right angles to the bed and a swivelling top slide equipped with a simple but rigid form of tool post. The design provides for quick and easy adjustment of the tool or slide position to deal with various types of operation, and the entire top slide can be removed in a matter of seconds, leaving the flat tee-slotted surface of the cross slide on which fixtures may be mounted for milling or other special operations, or jobs may be bolted down for boring or facing by means of rotary tools. In this respect these Lathes lend themselves readily to a wide range of out-of-the-way operations which are often impossible with much more elaborate and expensive Lathes; thus they contribute the ideal "universal" machine tool for the small workshop, where the space or available equipment is limited.

All slides have adjustment for taking up side play by means of grub screws bearing on gib strips. The feed screws of both cross and top slides have twelve threads per inch and are operated by balanced ball handles. These screws are fitted with graduated dials having 80 divisions round the edge. Each division represents a slide movement of 0.00104 inches, which for practical purposes may be regarded as a close approximation to one-thousandth of an inch.

End play in the slide rest screws can be adjusted by means of a lock nut on the spindle behind the handle. In common with other adjustments on the Lathe, this only requires attention at rare intervals, providing that it is set properly in the first place.

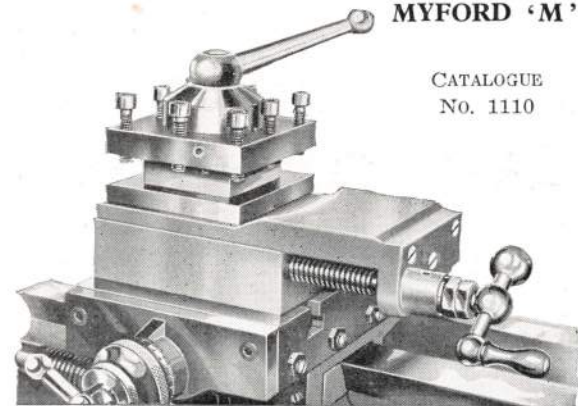
To traverse the saddle rapidly along the bed, a rack and pinion gear is provided, but a more gradual hand feed motion may be obtained by the use of the lead screw, when it is not geared up to the headstock for screwcutting or automatic traversing. For this purpose the end of the lead screw may be equipped with a handle for manual operation.

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4-Tool Turret Toolholder

MYFORD 'M' LATHE

CATALOGUE
No. 1110



This Toolholder is a new addition to the range of Accessories provided for use with the MYFORD Series "M" Lathe, and is designed for fitment to the standard Top Slide, giving eight tool positions. It is thus quite distinct from the Turret Attachment, which is bolted to the Cross Slide. Positive location is effected by means of an internal index collar, which is totally enclosed, the design enabling the Turret to revolve without lifting from its base. The unit is designed for standard $\frac{3}{8}$ " square Tool Bits, Knurling Tools, Boring Bars, etc.

SPECIFICATION

Toolholder. All parts are machined from solid steel, the Turret is bored to fine limits to suit the standard Top Slide pillar, and mating surfaces are precision ground. Tools are secured by means of eight high tensile socket-head screws.

Indexing Mechanism. The hardened index collar is designed for fitment to the Tool Post pillar, to which it is secured by three counter-sunk screws. A spring-loaded plunger is set in the recess of the Toolholder body, following the latter to rotate in one direction, but providing a positive stop at each of the eight stations. No pawls are employed, and the entire mechanism is enclosed for protection from swarf and mechanical damage.

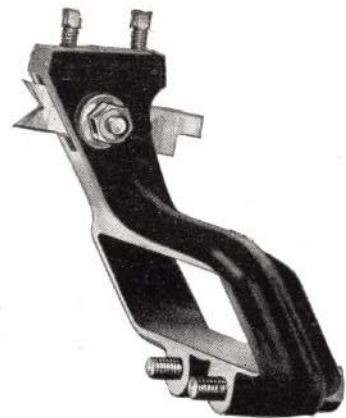
DIMENSIONS

Toolholder	$2\frac{7}{8}$ " square
Recommended Tool Bits	$\frac{3}{8}$ " square shank
Number of Stations	Eight

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Fixed & Travelling Steadies

CATALOGUE No. 1112



CATALOGUE No. 1113

MYFORD 'M' LATHE

Where work of a long and slender nature has to be turned, the need for Steadies becomes apparent, and the two illustrated herewith have been designed specially to meet the requirements of users of MYFORD Series "M" Centre Lathes.

The judicious use of a Steady will be found greatly to increase the speed at which slender work may be machined, and will ensure a better finish and freedom from chatter. The Fixed Steady also permits the drilling, boring and facing of long pieces, which may be held in the Chuck with their entire length overhanging therefrom, and carried in the Steady at their outer ends.

THE FIXED STEADY (Cat. No. 1112), is of the normal three point support type, and is clamped to the Bed by means of a plate at the rear and an angle strip at the front. Three hardened set screws support the work, the maximum size which can be admitted being 2".

THE TRAVELLING STEADY (Cat. No. 1113), is attached to the rear of the Saddle by means of the two bolts shown, and its open form allows the Cross Slide to operate in the usual way without interference, besides giving additional stiffness to the design. The hardened supporting piece is furnished with two vees as shown, and is readily adjusted by means of the set screws.

T. GARNER & SON LIMITED : BARNSELY

ML2 & ML4



MA 62 & 62a



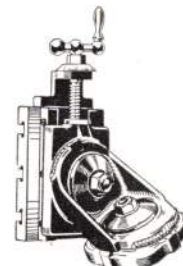
MA 101



MA 63 & 64



MA 67/1



MA 68/1

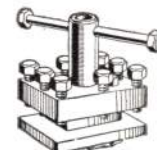


MA 69

MA 83b



MA 83



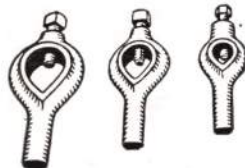
MA 66



MA 71



MA 73 & 74



MA 85



MA 86



MA 70

T. GARNER & SON LIMITED : BARNSELY

TAILSTOCK

This embodies a sliding barrel fully supported throughout the full length of travel, and made hollow to enable work to pass right through it and also to facilitate ejection of the centres. The rear end of the barrel is screwed 8 t.p.i. square thread and provided with a feed hand-wheel knurled on the outer edge; end thrust is taken by means of a large plate on the back of the tailstock casting.

By reason of the special design of this tailstock casting it is possible to obtain a close approach of the back centre to the chuck without excessive projection of the barrel and also to operate the cross slide when fed in close to the tailstock. Although not definitely equipped with a set-over slide, an adjustment is provided on the front gib of the tailstock, whereby a sufficient cross movement of the rear centre may be obtained for adjusting parallelism of work between centres, or turning fine tapers.

To adjust the tailstock either way, the rear clamping screw should first be slackened, so as to free the soleplate from the bed; the front gib screws are then loosened and the gib adjusted by means of the two thrust screws set horizontally. Re-tighten in the reverse order.

Both ML2 and ML4 Lathes are equipped with a substantial form of clamp, operated by a horizontal stud with a quick action lever, and an adequate grip is obtained to hold the tailstock rigidly against any normal stresses which may be expected in a Lathe of this size.

STANDARD EQUIPMENT

Each Lathe is supplied with the following items of equipment: one faceplate of large diameter, one driver plate, one chuck backplate adapter for fitting to mandrel nose, and one pair of point centres to fit the headstock and tailstock centres respectively.

CHUCKS

These are not supplied as standard equipment, but in normal times can be fitted to Lathes before leaving the works. The following chucks are recommended: one 4 in. light type independent 4-jaw chuck, and one 3 in. or 4 in. geared scroll self-centring chuck, or alternatively, one 3 in. lever scroll self-centring chuck.

Additional Accessories

ML2 and ML4

TRAVELLING STEADY (MA63 and 64)

This is attached to the left-hand side of the saddle at the rear of the tool post and moves with it when the saddle is traversed. It is readily

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Indexing Mechanism. Of entirely new design, comprising a hardened steel plunger operated by a spring-loaded rocking lever, controlled by a hand lever at the right hand side of the base. The operating gear is below the level of the Cross Slide and entirely out of the way of turret tools, but handy for manipulation. Complete enclosure of the indexing plate excludes swarf. The engaging end of the plunger and the slots in the index ring are tapered to ensure positive location.

DIMENSIONS

Turret Head diameter	..	..	3 ³ / ₈ "
Overall height above base	..	..	4 ³ / ₈ "
Diameter of Tool Holder sockets	..	..	8" (parallel)
Number of Tool Stations	..	..	Six
Maximum longitudinal traverse (between Turret Head and Face-plate)	..	..	14"

Note.—When the unit is supplied separately from the Lathe, the Turret Head is left unbored. Boring equipment can be loaned on request.

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Turret Attachment

Bolts directly to the top surface of the Cross Slide, and enables a number of pre-set tools to be presented in succession to the work.

It thus affords the same facilities as a small Capstan or Turret Lathe for repetition work.

The Turret Head takes standard types of turret tools, e.g. Roller Boxes, Dieheads, Knee Tools, Recessing Boxes, Adjustable Stops, etc. By mounting the Turret on a broad baseplate secured to the Cross Slide, the utmost rigidity in operation is ensured, and heavy cuts can be taken without spring or chatter. The Attachment is made and tested to fine limits and can be relied upon to maintain its accuracy in use, thus facilitating the rapid production of parts calling for high precision. A dowel pin locates both the Attachment and the Cross Slide in the correct position to centralize the tools.

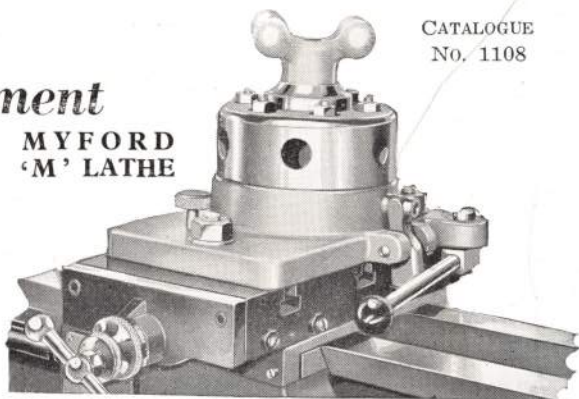
SPECIFICATION

Turret Head. Made from a solid casting, with hardened steel index ring secured by screws and dowels to the underside, providing concentric location. The Turret Head is locked by a hand nut acting on a large thrust ring. Each tool socket is provided with a pad bolt for clamping the tool shanks.

Base. Surfaces are precision ground and the base is attached to the Cross Slide by three tee-headed bolts. The Turret seating is recessed for the index plate and is provided with a strong shouldered pillar stud for the clamping nut. A hardened steel bush is fitted to take the indexing plunger.

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CATALOGUE
No. 1108



adjusted to the size of work being turned and is extremely useful when turning long, slender shafts, long screws, etc. The usual tendency for the work to spring away from the tool, and for the latter to dig in or chatter, is completely eliminated by its aid, and many operations which would otherwise be almost impossible are rendered quite easy.

FIXED STEADY (MA62 and 62A)

This is of the three-point type, arranged to be clamped to the bed, and supports the outer end of long work held in the chuck by means of three adjustable contact pads. The top half of the steady frame is hinge-jointed, so that it can be opened up to enable work to be inserted or withdrawn without dismantling the steady from the Lathe bed.

For purposes such as accurately centring or drilling shafts, boring cylinders, etc., the three-point steady is almost indispensable, and in many other classes of work it can be employed so as to simplify setting up, also to ensure perfect concentricity of inside and outside machined surfaces.

HAND REST (MA69)

By substituting this fitting for the topslide, the use of hand tools for turning irregular contours or working in wood, ivory, bone, plastics, etc., is facilitated. It consists of a soleplate with a socket in which is mounted a vertical stem carrying a level topped tee rest. The height of the stem is adjustable to suit the work.

MACHINE VICE (MA71)

This can be used as an auxiliary chuck to hold work on the faceplate and will be found capable of dealing with many components which are awkward to chuck in the ordinary way. It can also be used on the cross slide or vertical slide for holding work in milling or sawing operations, and is also an extremely useful accessory for use in connection with other machine tools such as drilling machines, shaping, etc. A removable swivelling jaw is fitted to the vice to enable it to grip tapered or irregularly shaped work.

TURRET TOOL POSTS (MA66)

A four-way tool post may be fitted to the top slide in place of the normal form of tool clamp, to facilitate the repetition of complex operations. Thus four tools may be kept set up for immediate operation, and it is only necessary to unlock the turret and turn it round to bring any required tool into operation. An indexing pin is fitted to locate the turret in each tool position.

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The turret is arranged to take $\frac{1}{4}$ in. square cutter bits. A quick operating clamping bolt is used, by means of which the turret may be firmly locked; the rigidity of the tools is thus in no way inferior to that provided by the normal single-way tool-holder.

THREAD DIAL INDICATOR (MA101)

The use of this appliance has already been referred to. It consists of a bracket which is readily attached to the Lathe saddle, and carries a spindle, on the lower end of which is mounted a small worm wheel which may be brought into mesh with the threads of the lead screw. When the latter is not driving the saddle (i.e., when the claspnut is disengaged), this worm wheel is rotated by the lead screw, and by means of a graduated dial may be used to indicate the relation between the saddle position and the screw rotation.

In use, the claspnut is engaged when one of the numbers on the dial is in line with the index mark on the bracket. On succeeding cuts the following rule applies: For all even numbers of threads per inch, the clasp nut may be engaged on any number.

For odd numbers of threads, engage either at the original number or any *alternate* number.

For half or quarter threads per inch, always engage at the same number.

VERTICAL SLIDES (MA67/1 and 68/1)

Milling operations are greatly facilitated by these components, which are mounted on the cross slide. Work clamped thereto may thus be adjusted in a vertical direction. In conjunction with the other slide movements, three-dimensional adjustment of the work becomes possible, so that it may be operated on by a milling cutter with the same facility as that provided by a milling machine. A vertical slide may also be used for mounting a milling, drilling or grinding spindle, for operations by means of overhead gear or by a separate motor.

Two types of vertical slide are available; the simpler type (MA67) has the slide fixed to travel in a vertical direction only, but the swivelling type (MA68) may be adjusted to any required angle and swivels in both horizontal and vertical planes.

ANGLE PLATE (MA73 and 74)

Sooner or later an angle plate will be required by every Lathe user, for setting up awkward jobs on the faceplate of vertical slide. An inexpensive type, specially suitable for use with Myford Lathes, is available. The bolting faces and edges are accurately machined to a true right angle, and slots are provided for bolts to mount the angle plate and clamp the work.

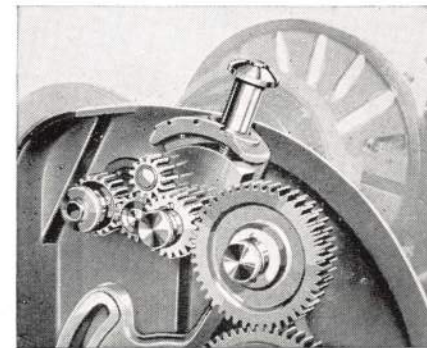
Tumbler Reverse

MYFORD 'M' LATHE

This mechanism, which is a self-contained unit, is attached to the reverse fork on the Headstock and secured by one hexagon nut and, once fitted, can be left permanently in position.

CATALOGUE NO. 1120

It comprises a bracket to which is attached a lever-operated quadrant, and 4 gears. It permits instant reversal of the leadscrew without affecting the ratio of the gear train, so that the desired rotation of the leadscrew, relative to the Headstock spindle, can be immediately obtained without the addition or removal of gears.



In addition, the neutral position allows the gear train to be disengaged from the Headstock spindle when the former is not required.

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Bench Unit

MYFORD 'M' LATHE

This drive unit is available only for vee-rope drive throughout, but existing flat belt drive Lathes may readily be converted by fitting a new vee cone pulley to the Headstock.

The base of the unit, which should be bolted to the bench behind the Lathe Headstock, supports a hinged arm which

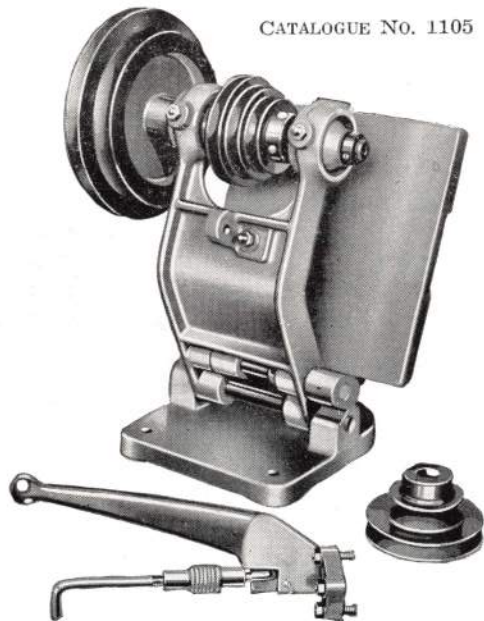
carried the countershaft and also carries a hinged motor base. A bracket is bolted to the Lathe bed on which is mounted a lever to which is attached a turnbuckle, the other end of which is secured to the countershaft arm. The turnbuckle gives rapid adjustment of the Headstock driving belt, and the lever enables the countershaft to be drawn forward quickly to facilitate changes of speed. The hinged motor base is positioned by a stud

screwed into the base and passing through a cored slot in the countershaft arm.

The motor pulley and its mating countershaft pulley are two-step and the countershaft and mating Headstock pulleys are three-step, giving, with the back gear, 12 spindle speeds ranging from 20 to 860 r.p.m.

The unit is designed for use with 1420 r.p.m. motors only. Motor pulley should be No. D3/1811/1.

CATALOGUE NO. 1105



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VEE BLOCKS (MA70)

These are also indispensable for many jobs on the Lathe and other machine tools. The type supplied for use with Myford Lathes is equally adaptable for mounting work either on the faceplate, cross slide or vertical slide, and the design facilitates clamping without impairing accessibility.

EXTRA CHANGE WHEELS

Duplicates of any change wheels in the standard sets may be supplied on request, also additional wheels Nos. 38, 64, 70, 75, 80, 85, 90, 95, 100 and 127 teeth. These may be used to extend the range of threads or fine feeds. An extra 20-tooth wheel is particularly useful for setting up a fine feed train.

EXTRA FINE FEEDS

Extra fine feeds, ML2 & ML4, *not* fitted with tumbler reverse :—

20	25	20	
—	×	—	×
60	65	95	296 cuts per inch.

Machines fitted with tumbler reverse :—

20	25	20	
—	×	—	×
60	65	75	234 cuts per inch.

Myford Change Wheels

A full price list of Changewheels will be found on Page 47. The wheels for the MYFORD "M" Lathe should be sought under the DRUMMOND heading and are, of course, applicable to the earlier machines supplied by Messrs. Drummond Bros.

T. GARNER & SON LIMITED : BARNLSLEY

REPLACEMENT PARTS FOR ML2 and ML4 LATHES

HEADSTOCK		May 1946	£	s.	d.
2A.1226	Headstock unit complete (state vee or flat drive)	..	4	17	6
T.406	Headstock casting, machined and fitted bushes	..	2	12	6
VT.203/At	Mandrel, No. MT nose, 1 1/8-in. x 12 T.P.I.	..	1	2	0
V.105	Mandrel Locking Collar	..	2	6	
B.8	Ball Thrust	..	3	6	
V.103	Flat Pulley, 3-step cone	..	7	6	
V.1072	Cone Pulley, flat, fitted 30T Gear	..	12	0	
V.103A	Three Step Vee Cone Pulley	..	10	6	
V.1073	Vee Pulley, fitted 30T Gear	..	15	0	
V.192	Cluster Gear Assembly, 20/55T Gears	..	9	6	
V.109	65T Back Gear, 1-in. bore	..	7	6	
V.108	30T Back Gear, 1-in. bore	..	4	6	
VT.219	25T Gear for changewheel drive, 3/8-in. bore	..	3	6	
V.110/1	Eccentric Shaft	..	3	0	
V.1074	Eccentric Cam complete with lever	..	2	6	
VT.224	Tumbler Reverse Bracket with swing pin and plunger knob and spring	..	12	0	
VT.225	Tumbler Reverse Bracket, Plunger Knob, fitted gears and studs complete	..	1	10	0
VT.210	18T Gear, 1/2-in. bore, for tumbler reverse	..	3	0	
VT.211	20T Gear, 3/8-in. bore, for tumbler reverse	..	3	0	
VT.213	25T Gear, 3/8-in. bore, for tumbler reverse	..	3	0	
V.1075	Back Gear Guard, complete with side plate, and fixing screws	..	4	6	
MF.43/1	Faceplate screwed 1 1/8-in. x 12 TPI	..	13	6	
V.1076	Catchplate screwed 1 1/8-in. x 12 TPI	..	7	6	
V.149a/1	Backplate, 4 1/2-in. 1 1/8-in. x 12 TPI	..	10	6	
V.202	Bush for front bearing	..	5	0	
V.202a	Bush for rear bearing	..	6	0	
TAILSTOCK					
3A.1343	Tailstock assembled complete	..	3	10	0
V.129	Barrel	..	15	0	
V.128	Handwheel	..	7	6	
V.133/1	Thrust Washer	..	2	0	
V.1038/1	Set over Screw	..	2	6	
V.1053	Gib Strip	..	3	0	
V.1078	Locknuts (pair)	..	6	6	
V.1060	Graduated Plate	..	6	6	
SLIDE REST					
3a/1220	Top Slide complete with base and tool clamp	..	1	15	0
V.403	Top Slide only, assembled complete	..	1	0	0
V.306	Top Slide Casting, machined	..	9	6	
V.1079	Feedscrew with Index Dial and Ball Handle	..	9	6	
V.167	Feedscrew	..	5	0	
V.1080	Ball Handle fitted with Knob	..	3	6	
V.166	End Plate	..	1	6	
V.170/1	Tool Post Stud	..	1	6	
V.169/1	Tool Clamp	..	1	6	
V.1057	Tool Clamp adjusting screws	..	2	0	
V.211	Index Dial	..	1	0	
V.165	Gib Strip	..	6	0	

All the above prices subject to 15% advance.

T. GARNER & SON LIMITED : BARNESLEY

3 1/2" x 16" 'M' Type Myford Lathe

May, 1946.

Description.	Price
3 1/2 in. x 16 in. "M" type Bench Lathe	£43 10 0
Extra for Changewheel Guard complete with Bracket and Backplate	1 15 0
Extra for 1 ft. longer bed model, admitting 28 in. between centres	6 10 0
Extra for Tumbler Reverse Gear	5 5 0
Extra for Thread Dial Indicator	17 6
3 1/2 in. Bench Lathe, with Countershaft	48 15 0
3 1/2 in. Lathe complete on stand, with Treadle Drive ..	57 2 6
3 1/2 in. Lathe complete on stand, with Countershaft instead of Treadle Motion	54 0 0
3 1/2 in. Lathe complete on stand, with Countershaft and Treadle Motion	62 7 6
Countershaft only, roof type	5 5 0
Countershaft only, wall type	5 5 0
Countershaft only, electric type	5 5 0

Alternatively we can supply :

No. 1102 heavy improved cast iron stand, arranged for self-contained motor drive, with built-in countershaft mounted on leg at rear of machine. Vee drive throughout with lever control to countershaft to facilitate speed changing, having 12 spindle speeds ranging from 20 r.p.m. to 860 r.p.m. when used in conjunction with a 1420 r.p.m. motor, complete with D3/1811/1 two step vee motor pulley 17 10 6
(The above stand includes reversing switch, and wiring, but is less motor)

Extra for No. 1103 Wire Mesh Guard 1 1 0
No. 1105 Bench Motor Unit, vee drive, complete with D3/18/11/1 two step vee motor pulley less Motor .. 8 19 6
No. 1101 Stand only, complete with shelves (plain type) .. 8 15 0

Note.—Machines on the No. 1102 stand, or with the Bench Motor Unit, are arranged for vee drive throughout. When ordering Motor Pulleys without Motors, please give the diameter of the Motor Shaft.

Please Add 15% to all above prices.

T. GARNER & SON LIMITED : BARNESLEY

and feeds. The screw-cutting gear studs are fitted with a spring clip; to remove changewheels the clip is simply pulled out by its head, when the changewheels can be instantly removed. The change gear quadrant is provided with a second quadrant to the rear for the clamping nut.

EXTRA LONG BED LATHES

Long Beds admitting 28" between centres can be supplied if required. The long Bed retains all the essential features of the standard Bed, whilst giving an additional 12" capacity.

RANGE OF TYPES

- 3½" Bench Lathe.
- 3½" Lathe on Stand and Treadle.
- 3½" Lathe on Stand with Countershaft.
- 3½" Lathe on improved stand type 1101, with shelves and countershaft.
- 3½" Lathe on Stand type 1102 for motor drive, with built-in countershaft, switch and flexible metallic conduit (less motor and wire mesh guard).

COUNTERSHAFTS

The Lathe can be equipped to order with either wall or roof countershafts for lineshaft drive, or with countershaft for driving from electric motor. In conjunction with the latter we recommend a 1/3 h.p. Motor running at 1420 r.p.m. These countershafts are as carefully designed and built as the Lathe itself; lubricating facilities are ample and the fact that the countershafts are frequently neglected owing to their inaccessibility has been borne in mind. Convenience in erecting has also received consideration, and the countershafts are particularly easy to install.

ROOF AND WALL TYPES

Hangers of rigid girder section carrying long swivel shaft bearings; chain lubricator running in central oil sump connected by machined ducts to circular end channels for collecting and returning oil. The 6" diameter fast and loose pulleys are for 1½" wide belt, and the 3-step cone pulley for 1" wide belt. Striker bar supported by arms extended from hangers, and striker handle adjusted for position along the bar. All pulleys, forks, etc., can be locked in any position longitudinally.

MOTOR DRIVE TYPES

10" diameter pulley replaces fast and loose pulleys on shaft; bearings etc., as above (no striking mechanism required). Large diameter pulley enables pulley of standard type to be used on motor to give required speed.

T. GARNER & SON LIMITED : BARNESLEY

SADDLE, APRON AND CROSS SLIDE

	£	s.	d.
3A/1228 Apron complete with leadscrew nut, Cam, Rack Pinion, etc.	2	0	0
3A/1217 Saddle fitted cross slide complete	2	10	0
V.118/2 Apron Casting, machined	17	6	
V.305 Saddle Casting, machined	1	0	0
V.208 Cross Slide Casting, machined	1	5	0
V.1081 Feedscrew with Index Dial and Ball Handle	11	0	
V.210 Feedscrew	6	0	
V.1045/1 Extension Bracket	5	0	
V.211 Index Dial	1	0	
V.119 Leadscrew Nut (supplied unsplit)	10	0	
V.1083 Cam, fitted lever	6	6	
V.126/1 Rack Pinion with shaft	5	0	
V.1084 Rack Pinion with fitted ball handle	9	0	
V.1082 Ball Handle, fitted with knob	4	0	
V.120 Leadscrew Guard	1	6	

LEADSCREW AND LEADSCREW DRIVE

T.402 Leadscrew	0	17	0
V.138/1 Leadscrew Bracket	12	6	
V.304 Rack	8	0	
VT.217 Banjo	10	6	
V.1085 Set 10 Changewheels (10T—65T) complete with one driving collar			
V.186/1 20T Change Wheel	3	0	
V.193 25T " "	3	4	
V.194 30T " "	3	8	
V.195 35T " "	4	0	
V.196 40T " "	4	4	
V.197 45T " "	4	8	
V.198 50T " "	5	0	
V.199 55T " "	5	4	
V.1001 60T " "	5	8	
V.1002 65T " "	6	0	
V.1085 Standard set of 10 Change Wheels as above	2	0	0

Extra Wheels

V.1026 38T Change Wheel	5	0	
V.1027 63T " "	6	8	
V.1028 64T " "	6	8	
V.1029 70T " "	7	4	
V.1030 75T " "	8	0	
V.1031 80T " "	8	8	
V.1032 85T " "	9	4	
V.1033 90T " "	10	0	
V.1034 95T " "	10	8	
V.1035 100T " "	11	4	
V.1086 Change Wheel Stud complete	2	6	
V.181/1 Gear Collar	1	6	
T.407 Change Wheel Guard with Backplate	1	7	6

Mandrel or Mandrel Fittings—Always state dia. of nose and threads per inch.

NOTE.—Spares are also available for ML.2 (3¼-in. x 15-in.) Lathes, also for earlier types with No. 1 MT and without Tumbler Reverse.

WHEN ORDERING—kindly state the type of Lathe, and if possible give the Lathe number.

All the above prices subject to 15% advance.

T. GARNER & SON LIMITED : BARNESLEY

HOW TO GET THE BEST SERVICE FROM YOUR ML2 AND ML4 MYFORD LATHES

Always keep Lathe Tools keen and properly set at the appropriate rake of clearance for the material being turned. As a general rule, set cutting edge of tool dead level with Lathe centres. Chattering and digging-in are caused by incorrect tool settings, inadequate support of tool or work, or too wide a cutting edge.

Do not expect a light Lathe to take very heavy cuts. Myford Lathes have a remarkable capacity for work if used with discretion, but attempts to force the rate of cutting will only strain the Lathe Mandrel and Slides, without speeding up output to any extent. Use feed and speed best suited to diameter of work and nature of material. Rough castings, or work in which the cut is intermittent, demand a substantial reduction of speed as compared with plain circular turning of round stock. Do not hold rough or irregularly-shaped work in a self-centring Chuck. Do not attempt to set work true with a hammer after the Chuck has been tightened. Offset work mounted on the Faceplate should always be counter-weighted to run in correct balance, be supported by the Back Centre or Fixed Steady. Excessive overhang of work from the Chuck should be avoided, especially when parting-off.

Keep working parts clean, free from swarf and properly lubricated. With work of an abrasive nature (grinding or lapping) prevent abrasive dust from entering slides or bearings, and thoroughly clean the Lathe afterwards. A film of oil on all bright parts will keep them free from rust, but if rust spots appear, do not clean them off with emery; the initial rust film, if its progress is arrested, will form a protective coating, and apart from the matter of appearance, will do no further harm. If things go wrong in machining do not jump to the conclusion that the Lathe is at fault. The best Lathe will produce bad work if not skilfully handled. Errors in circular accuracy, parallelism, etc., of turned work are susceptible to correction by careful adjustment of Lathe bearings and slides. Slide gibs should allow work to move freely, but without play, for normal work; heavier work, such as parting-off, screwcutting, etc., may call for somewhat tighter adjustment of slides, and milling requires fairly tight slides. The truth of the Mandrel centre should be checked before turning work between centres, and if incorrect, the cause investigated and corrected. Keep the back centre well lubricated when in use, and so adjusted as just to eliminate end play.

**TREAT YOUR LATHE AS A FRIEND—NOT AS A MEANS
TO AN END**

T. GARNER & SON LIMITED : BARNESLEY

The Special Toolholder

MYFORD 'M' LATHE

THE TOOLHOLDER

On the series "M" Lathe the toolholder consists of a hardened steel block cut from the solid, with a central hole which is a sliding fit on the cylindrical post or pillar cast integral with the topslide. The block is split so that it may be clamped to the pillar by means of a hardened clamping bolt. The tool is carried in a square hole through the Toolholder and is held in position by two hardened set screws. The Toolholder is quickly adaptable to turning or boring operations, as it has a complete range of movement round the pillar.

An important feature of the Toolholder is that it provides for height adjustment of the tool relative to the Lathe centres. A range of movement of about $\frac{3}{4}$ " is provided, the tool being clamped firmly in its square hole all the while, and one quick action of the spanner on the clamping bolt is the only action required for locking the holder in any position. Cutting rake and clearance of the tool remain constant at all height settings, as the tool is shifted bodily up or down and does not change its angle in relation to the slides.

THE LEADSCREW

Cut to very close limits on a special machine which ensures accuracy. Its rear end runs in a bronze bush; a clutch is fitted at the Headstock end for both hand and automatic throw-out, which can be set to operate at any position of the saddle along the Bed to prevent over-running.

THE SADDLE

Rack and pinion traverse motion is provided, operated by handwheel; a split-nut device for disengaging the Leadscrew is operated by a knob on the left of the apron. The slide rest is fully compound, and the cross-slide forms a large T-slotted boring table. The cross-slide screw is fitted with micrometer index. The topslide is provided with a graduated base; its feed-screw is brought to the side of the vee, permitting the use of a longer nut. Both slides have very long bearing faces, giving great accuracy and firmness in operation.

CHANGE WHEELS

The standard set supplied consists of two each 20 and 30, one each 35, 38, 40, 45, 46, 50, 55, 60, 65 and 73. Gears are machine cut from solid blanks, and the set covers Whitworth threads from 40 to 8 t.p.i. metric from 0.5 mm. to 5 mm. pitch and a wide range of other threads

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THE HEADSTOCK

Positively and permanently clamped against the flat vertical face of the front way of the Bed, thus ensuring alignment of the spindle with the ways. A heavy cast beam on the base ensures complete rigidity and great strength, with ample support for the spindle bearings.

The hollow spindle is fitted with ball thrusts (*see figure below*), and runs in finest quality phosphor-bronze bearings, which are adjustable by contraction in their coned seatings in the Headstock casting. These bearings are exceptionally long and widely spaced.

A special spindle and cone pulley lock is provided. To disengage the cone pulley from the gear keyed to the spindle, so that the back gears may be used, the knurled knob on the front face of the gear is pushed away from the operator; this automatically withdraws the locking pin by means of a cam cut in the face of the plate gear; to re-engage for direct drive, the knob is pulled towards the operator, when a spring action automatically returns the locking pin. This lock has thus the simplest possible motion and greatest ease of operation. No nuts, screws or pull-out pins to handle—just a push of the knob, forwards or backwards, and the cone is free or locked. An additional refinement is a Tumbler Reverse Gear, which can be supplied as an extra to order.

METHOD OF ADJUSTMENT OF BEARINGS

First slack off thrust nut C.

Front (a) Slack bearing locking screw A; this releases bearing for adjustment.

(b) Adjust bearing by rotating bearing nut E; this contracts bearing by pulling into taper housing.

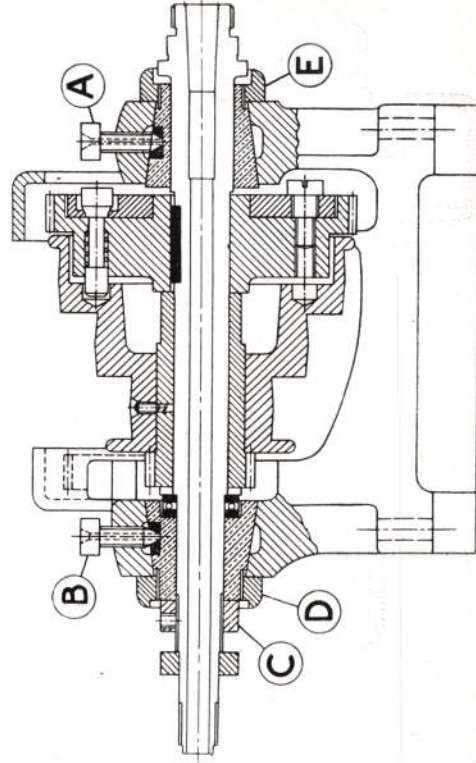
(c) Lock bearing by means of locking screw A.

Rear (d) Slack bearing locking screw B.

(e) Adjust bearing by rotating bearing nut D.

(f) Lock bearing by means of locking screw B.

Rear adjust thrust nut C.



Screw Cutting Table

ML₂ and ML₄

NOTE.—

Two collars provided are to be used on the Mandrel and Leadscrew respectively. A small piece of 3/32-in. steel wire should be used to connect two wheels together on one stud when compounding trains of wheels.

WHITWORTH

Threads.	Mandrel.	1st Stud.	2nd Stud.	Lead Screw.
9	40	Idle Wheel	Idle Wheel	45
10	40	"	"	50
11	40	"	"	55
12	40	"	"	60
14	20	"	"	35
16	20	"	"	40
18	20	"	"	45
20	20	"	"	50
22	20	"	"	55
24	20	"	"	60
25	20	"	Driver	60
26	20	"	25 20	50
28	30	"	35 20	65
32	30	"	40 20	60
36	30	"	45 20	60
40	30	"	50 20	60
Fine Feeds		Driven	Driver	
1/14.4	20	55	30	65
1/17.6	20	55	25	65

N.B.—Extra 20 Gear required for thread 1/17.6.

METRIC

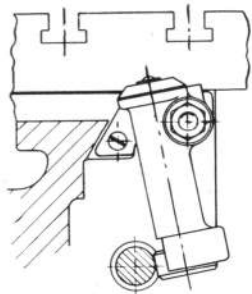
Pitch M/M	Equiv- lent in T.P.I.	Nearest Set Up	Man- drel Driver		1st Stud		2nd Stud		Lead- screw
			Driven	Driver	Driven	Driver	Driven	Driver	
75	33.860	33.846	30	60	65	50	20	55	
1.00	25.400	25.385	65	30	20	50	20	55	
1.25	20.320	20.310	20	idle wheel	60	65	65	55	
1.50	16.930	16.923	20	"	"	55	65	50	
1.75	14.514	14.545	30	"	"	60	55	50	
2.00	12.700	12.727	20	"	"	50	55	35	
2.25	11.280	11.256	30	"	"	55	65	50	
2.50	10.160	10.154	40	"	"	60	65	55	
2.75	9.237	9.231	40	"	"	60	65	50	
3.00	8.460	8.461	40	"	"	50	65	55	

N.B.—Extra 20 Gear required for 1.00 Metric Pitch.

The second column shows the exact number of threads per inch for the corresponding metric pitch, whereas the third column shows the threads per inch obtained by this set up, which is near enough for most practical purposes.

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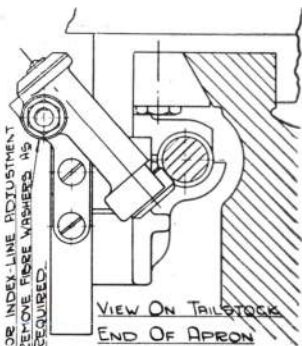
Fitting Thread Dial Indicators



VIEW ON HEADSTOCK
END OF CARRIAGE

THREAD DIAL INDICATOR
MOUNTING FOR MYFORD
ML 1, 2, 3 & 4 LATHES

FOR INDEX LINE ADJUSTMENT
REMOVE FIBRE WASHERS AS
REQUIRED.



VIEW ON TAILSTOCK
END OF APRON

THREAD DIAL INDICATOR
MOUNTING FOR M TYPE LATHES

FOR INDEX LINE ADJUSTMENT
REMOVE FIBRE WASHERS AS
REQUIRED.

Features of Design

MYFORD 'M' LATHE

THE BED

Of box section, is stiffened internally and needs no end support. This cantilever design is unique in that it enables the Lathe to be bolted down on any floor without distorting or impairing the accuracy in any way ; it is the only form by which a small Lathe can be guaranteed to remain accurate wherever placed.

The design used combines the accuracy obtained by the long, narrow guide to Saddle and Tailstock (the front shear only is used for this purpose) and broad, flat, long-wearing surfaces.

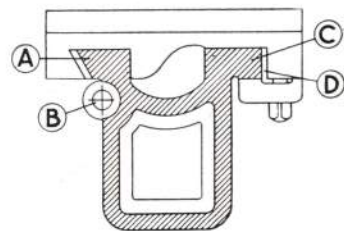
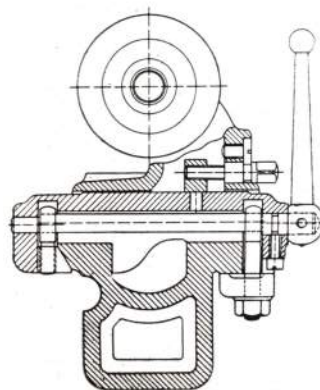
The section (*below left*) shows that there is a 90° vee saddle guide at the front of the Bed, the centre line of which coincides with the average line of cutting thrust. The vertical downward component of this thrust is taken by the top surface of the front way A ; the horizontal forward component of the cutting thrust is met squarely by the back face of this way. The rear way, C, is separated from the Saddle by clearance, D, and the Saddle is firmly held to the top face of this way by the stiff gib shown. Thus the cut itself holds the Saddle to a long narrow guide at the front of the Bed.

The leadscrew, B, is brought close in under the Saddle guide, reducing to a minimum the torque action between Bed and Saddle and ensuring a smooth, steady Saddle movement.

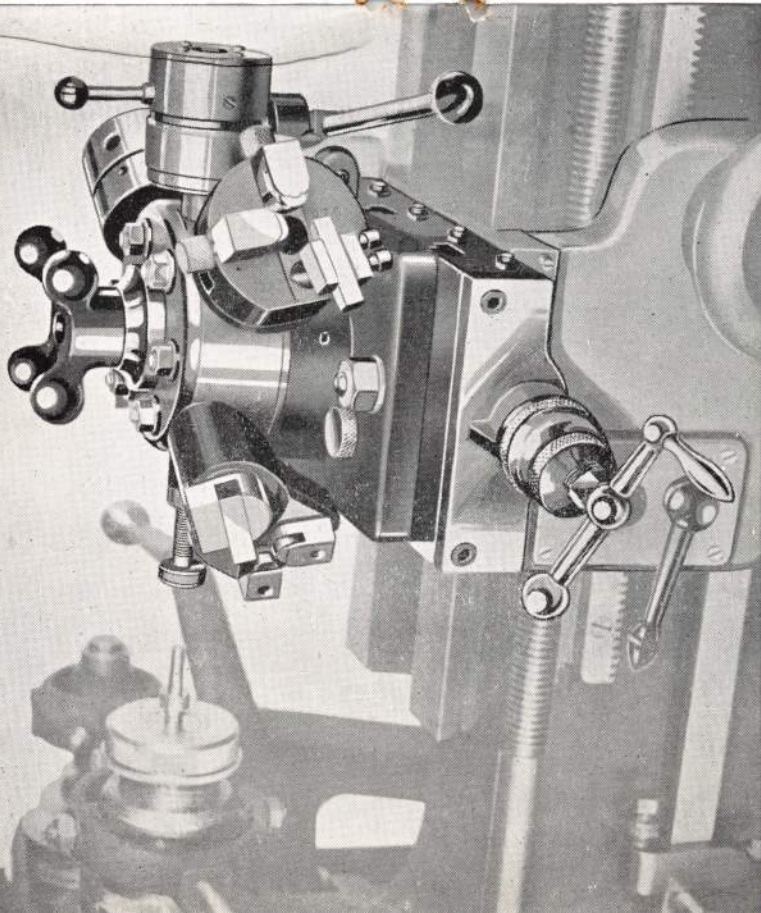
THE TAILSTOCK

A stiff box casting with steel barrel and square thread screw, and has a set-over adjustment for turning long tapers, with zero graduation for re-setting to normal position.

It is guided in similar manner to the Saddle (*see below*). A single action of the lever rigidly locks the Tailstock to both front and rear ways by means of adjustable eccentrics, without imposing any strain on the Bed, and the design gives a very large bearing surface. Alignment of the Tailstock is obtained by locking to the same vertical face of the ways as the Headstock, and this face also guides the Saddle.

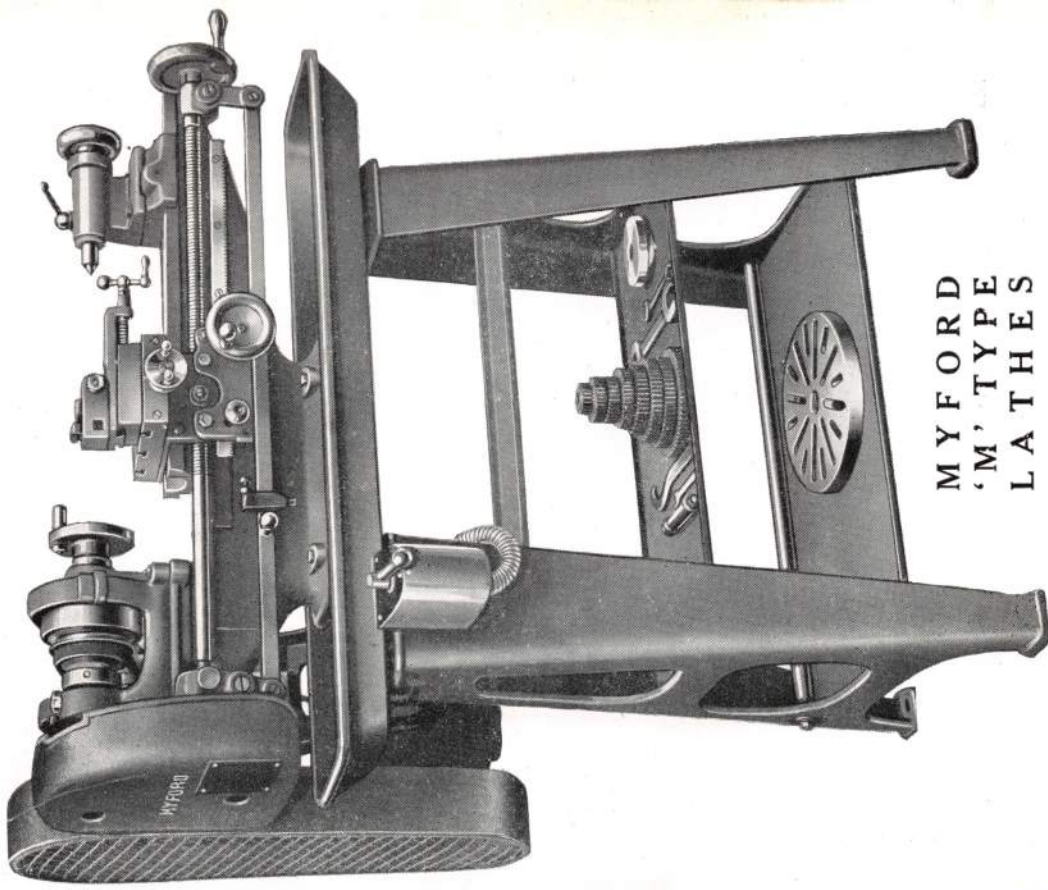


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MYFORD
 SERIES 'M' 3 1/2"
LATHES
 (FORMERLY DRUMMOND)

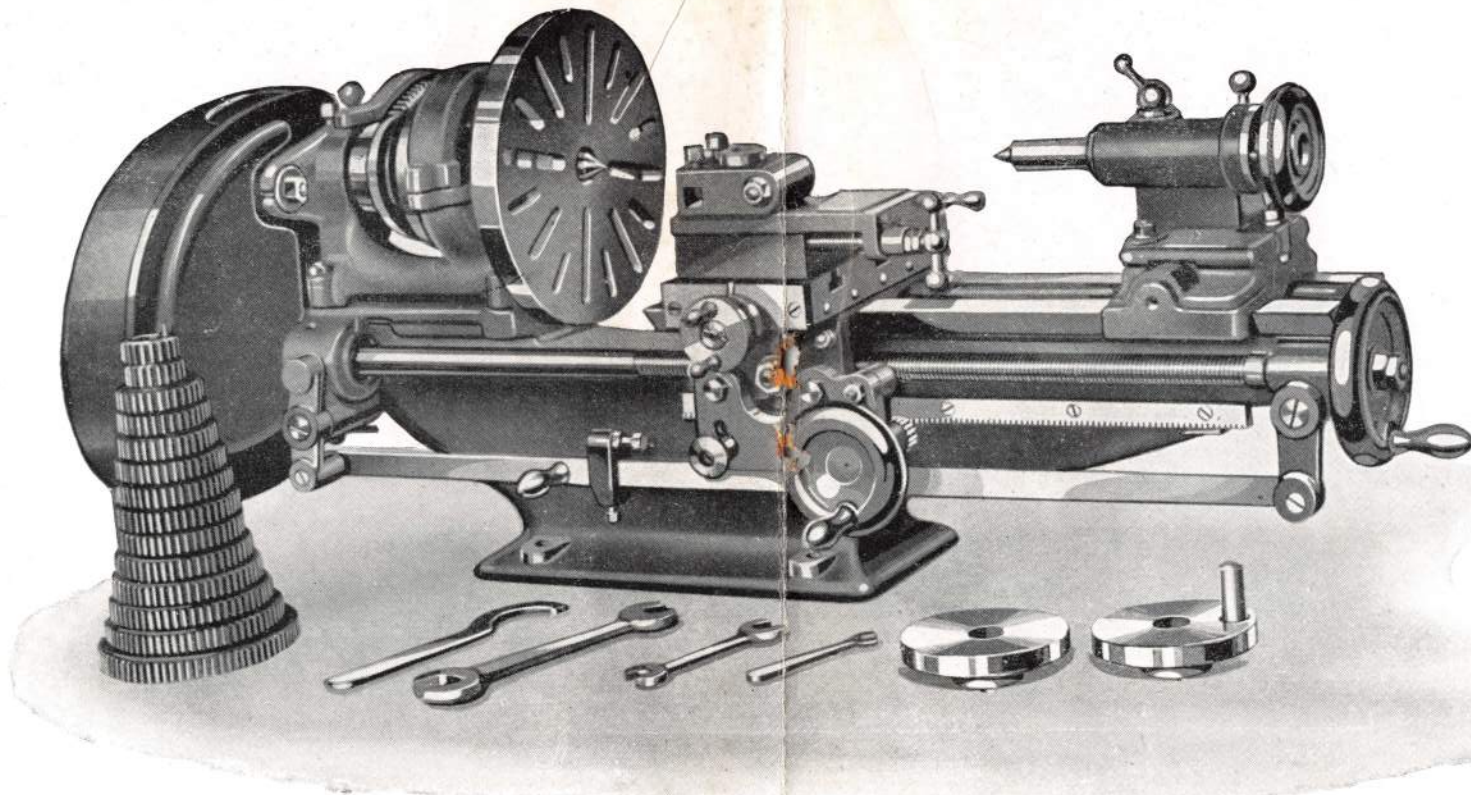
T. GARNER & SON LIMITED : BARNLEY



MYFORD
 'M' TYPE
LATHES

Myford Series 'M' Lathe mounted on improved Motorised Stand, with vee-rope drive throughout and quick-action control of vee-rope tension. Twelve spindle speeds ranging from 20-860 r.p.m. Motor Speed, 1420 r.p.m.

T. GARNER & SON LIMITED : BARNLEY



Specification

Height of Centres	3½"	Cross Slide Traverse	4"
Length between Centres (standard)	16"	Top	2¾"
" " " (long bed)	28"	Dimensions of Boring Drilling Table	8" × 4½"
Maximum Swing over Cross Slide	4¾"	Leadscrew	½" × 8 t.p.i.
" " " in Gap	9"	Tailstock Barrel travel	2½"
Maximum width in Gap (from face-plate)	2"	" Bored	1½"
Faceplate diameter	9"	" Centre	No. 1 M.T.
Diam. of Mandrel in front bearing	1"	Diam. of Steps on Cone Pulley : for ½" vee-rope drive	2½", 3½", 4"
" " " Nose	1½"	" for 1" flat belt drive	2 ⅞", 3 ⅜", 4½"
Mandrel nose threaded	1" × 12 t.p.i.	Back gear reduction	9 : 1
Mandrel bored	1 ⅜"	Speed of Countershaft	290 r.p.m.
Headstock Centre	No. 1 M.T.		

STANDARD EQUIPMENT

Set of Change Wheels (two each 20 and 30, one each 35, 38, 40, 45, 46, 50, 55, 60, 65, 73). Large faceplate, driverplate, backplate, one hard and one soft centre, set of spanners.

For accessories and special attachments see following pages.