



**OPERATING AND MAINTENANCE
INSTRUCTIONS**

STRAIGHTENING MOULDER

TYPE FW.180

and

TYPE FW.200

BOOKLET No. 1106

SPARE PARTS

Should spare parts be required due to breakage or wear full particulars including the machine and test number must be given. This information is on the name plate attached to the _____ of the machine and should be forwarded to the **SERVICE MANAGER**.

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STRAIGHTENING MOULDER TYPES FW.180 & FW.200

PRINCIPAL DIMENSIONS AND CAPACITIES

	First Bottom Head	Top Heads	Fence Side Head	Near Side Head	Second Bottom Head	Universal Head
Normal minimum cutting circle.	6" 152mm.	6" 152mm.	6" 152mm.	6" 152mm.	6" 152mm.	6" 152mm.
Maximum swing (dia.).	7 $\frac{1}{4}$ " 184mm.	9" 229mm.	8 $\frac{1}{2}$ " 216mm.	8 $\frac{1}{2}$ " 216mm.	10" 254mm.	10" 254mm.
R.P.M. of cutter spindles.	6000	6000	6000	6000	6000 & 4200	6000
Horse power	5	7 $\frac{1}{2}$ or 10	5	7 $\frac{1}{2}$	7 $\frac{1}{2}$ or 10	5
Size of Exhaust outlet.	6" x 4 $\frac{1}{2}$ " 152 x 114	11" x 6" 279 x 152	5" x 3 $\frac{3}{4}$ " 127 x 95	6" x 4 $\frac{3}{4}$ " 152 x 121	9 $\frac{1}{4}$ " x 5 $\frac{1}{2}$ " 235 x 140	

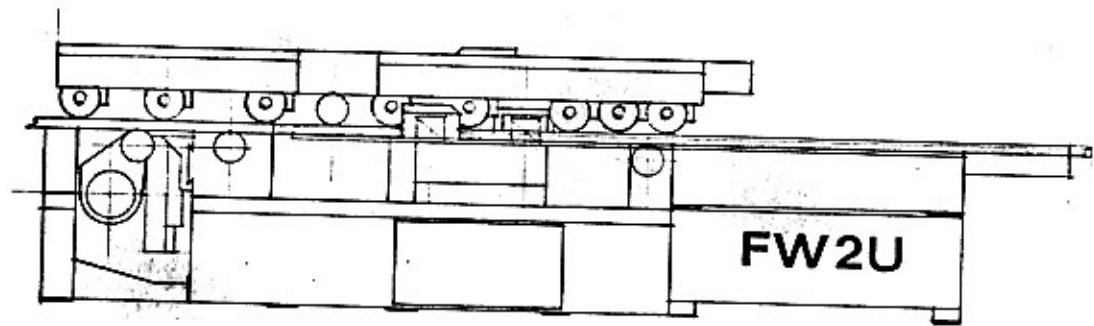
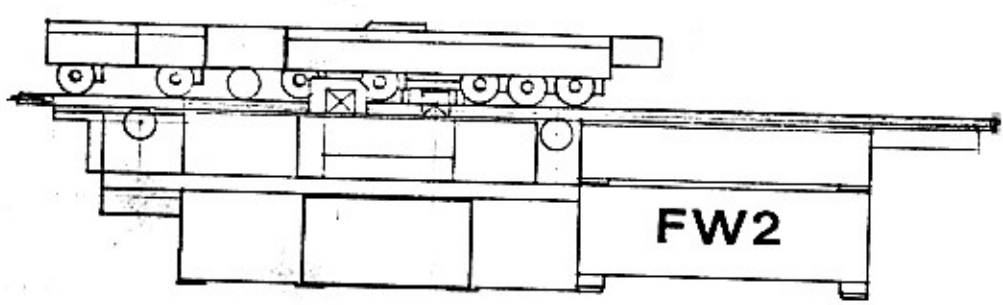
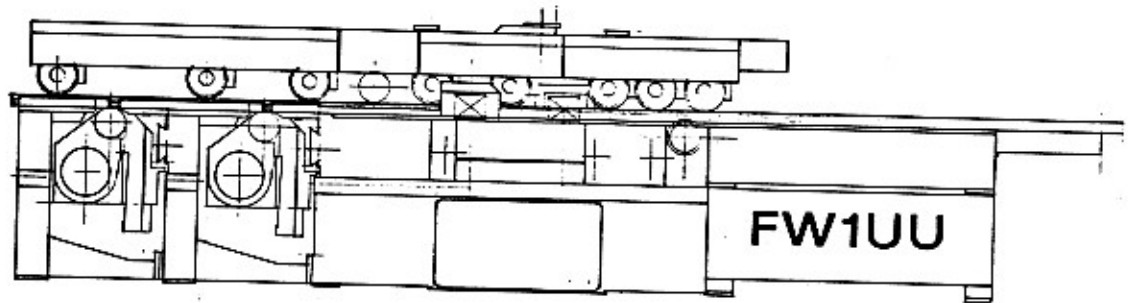
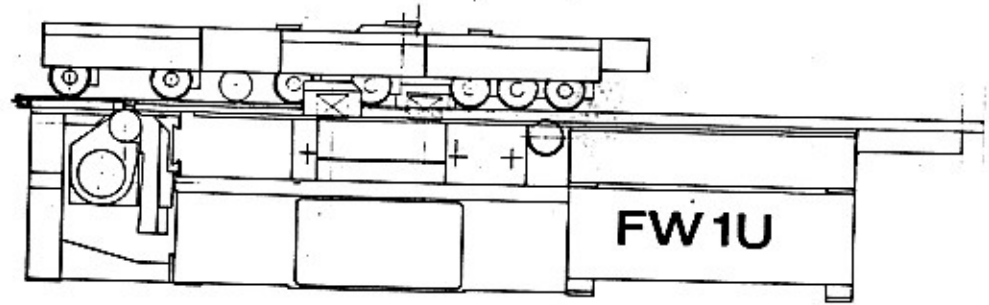
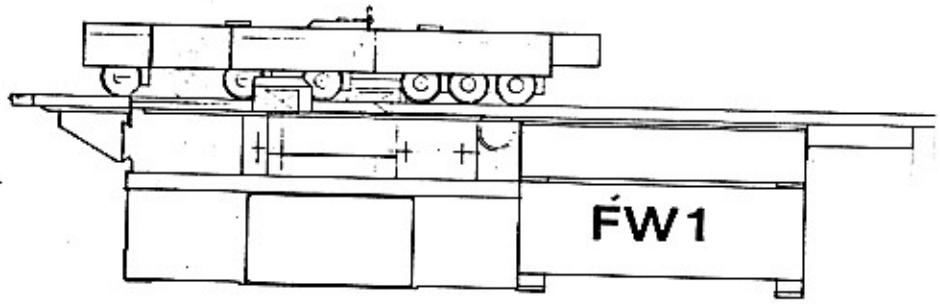
H.P. of feed motor.. .. 3 h.p.

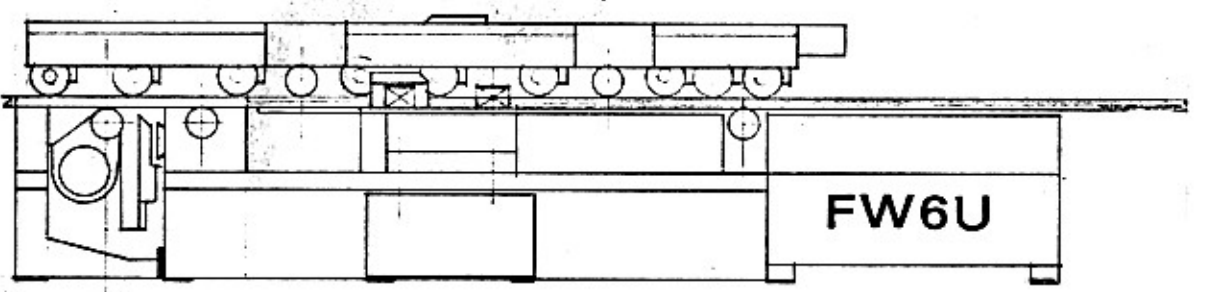
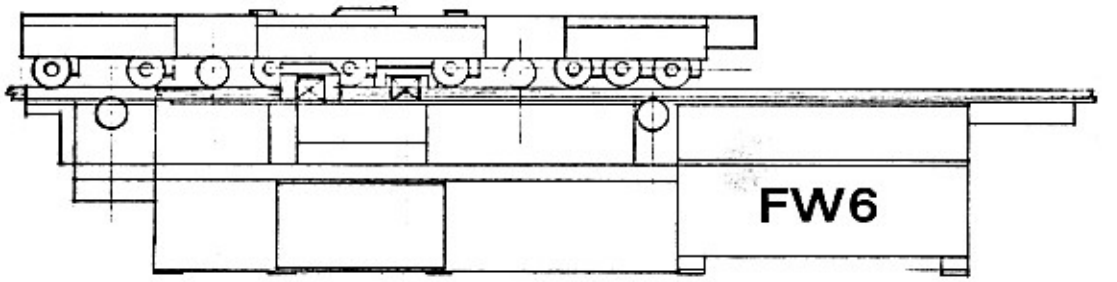
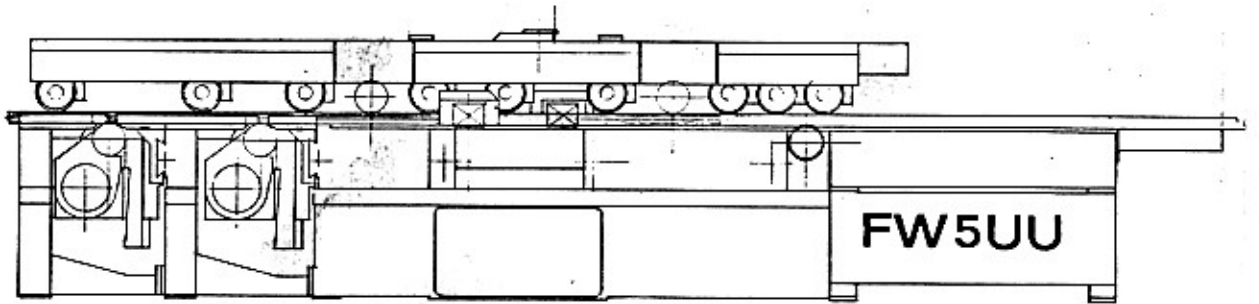
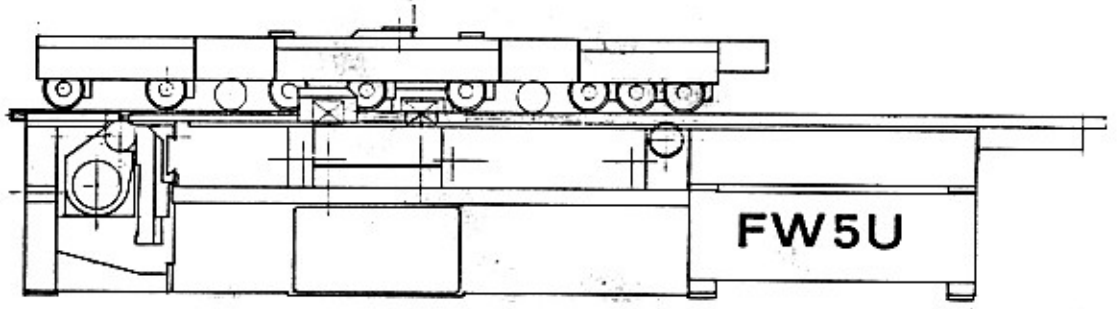
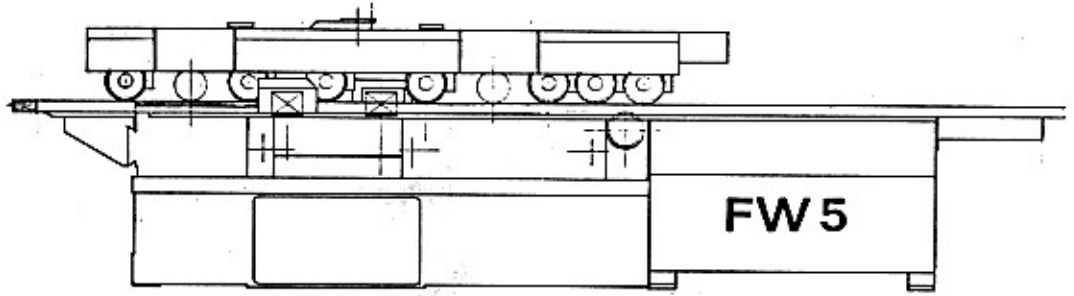
Feed speeds - infinitely variable.. .. 20 - 100 ft./min.
6 - 30 m./min.

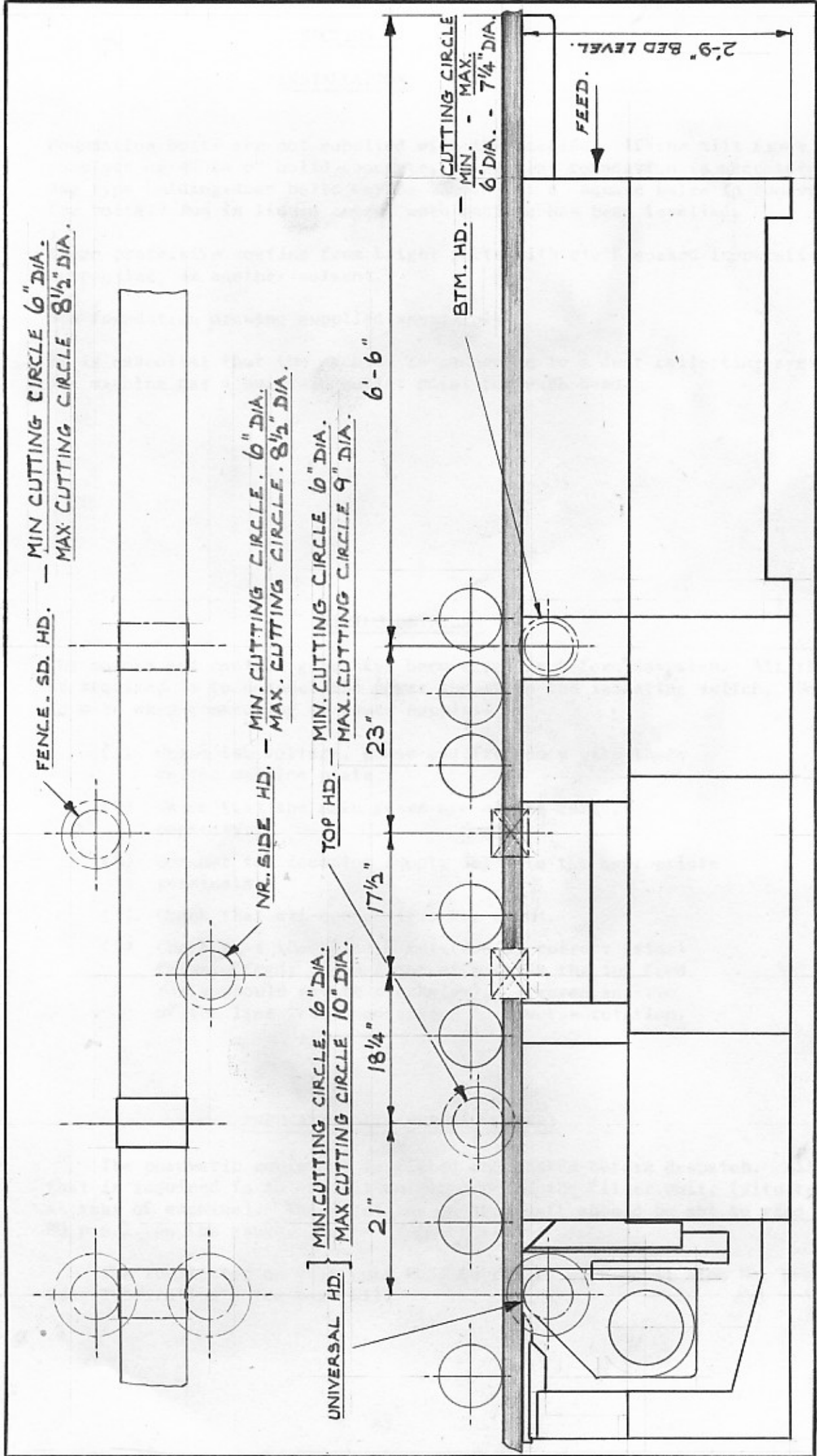
Cutter spindle diameters 40 mm.

Bed height from floor 2'-9", 840 mm.

Maximum size of finished work, FW.180 .. 7" x 4" - 180 x 100 mm.
FW.200 .. 8" x 4" - 200 x 100 mm.







CAPACITY DIAGRAM FOR F.W. MODEL 1U.

SECTION A
INSTALLATION

Foundation bolts are not supplied with the machine. If the mill floor consists of 4" to 6" solid concrete, no special foundation is necessary. Rag type holding-down bolts may be used. Cut 6" square holes in concrete for bolts. Run in liquid cement when machine has been levelled.

Clean protective coating from bright parts with cloth soaked in paraffin, turpentine, or another solvent.

See foundation drawing supplied separately.

It is essential that the machine is connected to a dust collecting system. The machine has a built-in outlet point for each head.

WIRING DETAILS

The motors and control gear have been wired in before despatch. All that is required is to connect the power supply to the isolating switch. Points to note when connecting to power supply:-

- (1) Check the voltage, phase and frequency with those on the machine plate.
- (2) Check that the main fuses are of the correct capacity.
- (3) Connect the incoming supply leads to the appropriate terminals.
- (4) Check that all connections are sound.
- (5) Check that the spindle rotation is correct (start forward feed; from front of machine the top feed rolls should rotate clockwise). Reverse any two of the line lead connections to reverse rotation.

PNEUMATICS (TO SPECIAL ORDER)

The pneumatic equipment is fitted and tested before despatch. All that is required is to connect an air pipe to the filter unit, (situated at rear of machine). The regulator on this unit should be set to read 80 p.s.i. on the gauge.

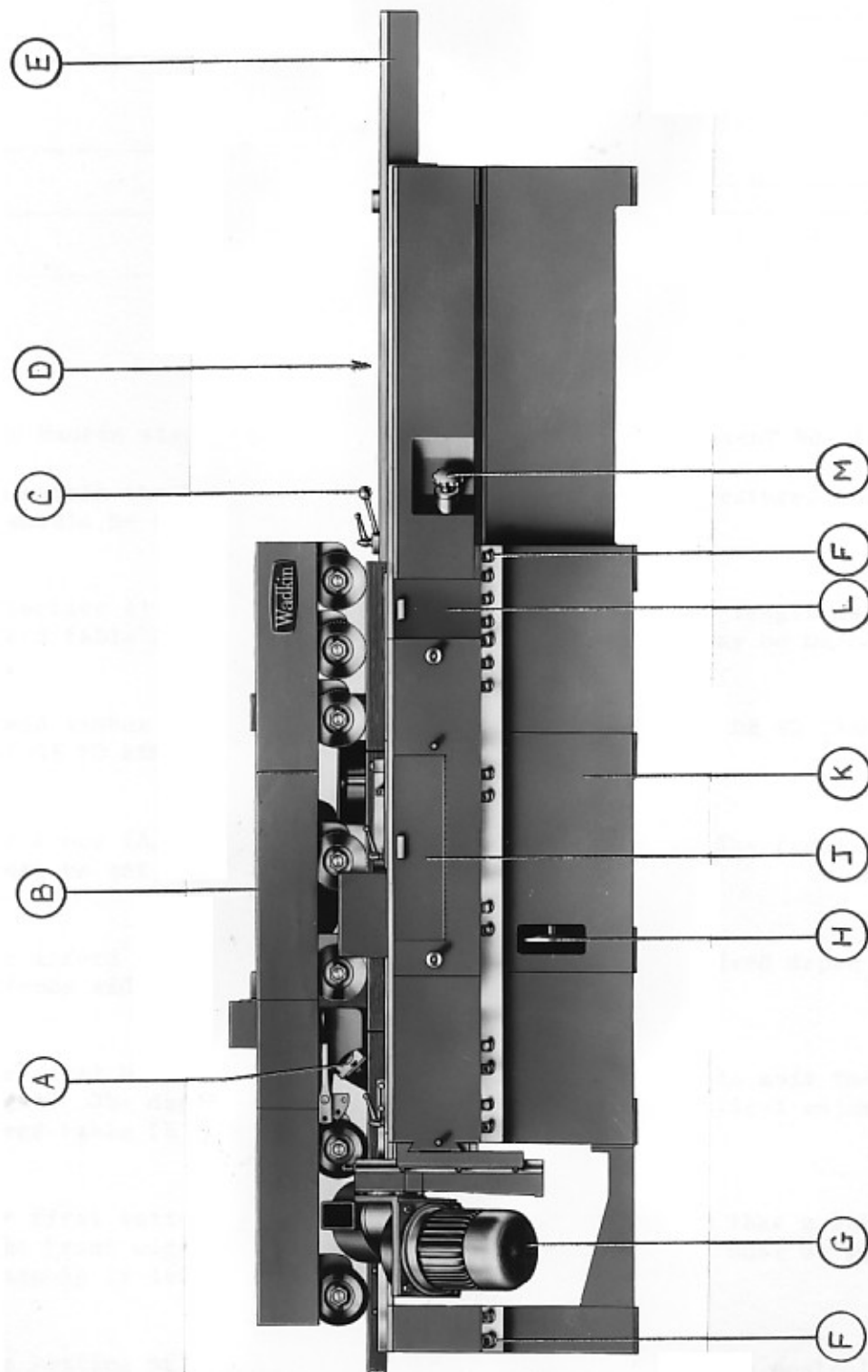
The lubricator on this unit MUST be filled with Mobil Almo No. 1 oil (see lubrication notes page C1).

SECTION B

DESCRIPTION & OPERATION

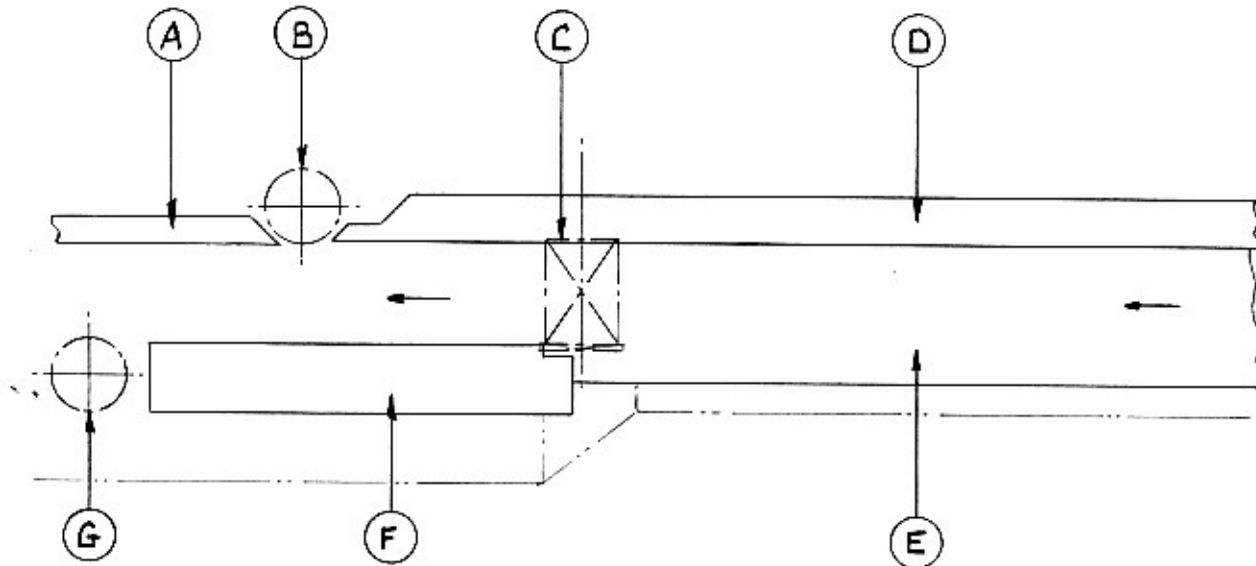
General view of machine (Fig. B1).

- (A) Top head.
- (B) Overhead beam carrying feedworks.
- (C) Infeed fence adjustment.
- (D) Electrical control box and isolating switch at rear of machine.
- (E) Infeed table.
- (F) Master stop buttons.
- (G) Universal head.
- (H) Handwheel for rise and fall of overhead beam.
- (J) Door for access to side heads.
- (K) Cover for access to side head drives.
- (L) Door for access to first bottom head.
- (M) Handwheel for rise and fall of infeed table.



FIB. B1 GENERAL VIEW OF MODEL 1U

STRAIGHTENING FIG. B2.



The Wadkin straightening technique is covered by Patent No. 1135576.

To obtain the best results from the straightening feature, the following points should be observed:-

Effective straightening is achieved when the timber length is not greater than the infeed table length, although timber of any length may be machined.

Bowed timber should always be fed with the HOLLOW SIDE TO TABLE and the HOLLOW EDGE TO FENCE.

The fence (A) after the fence side head is fixed. The fence side head (B) should be set to suit this fence (A).

The infeed fence (D) should be set to give the required depth of cut on the fence side head (B).

The first bottom head (C) should be set vertically to suit the fixed bed height. The depth of cut on this head is set by vertical adjustment of the infeed table (E).

The first bottom head (C) should be set to width so that a rebate is cut along the front edge of the timber. The front fence (F) must be set to guide the rebate as it leaves the block.

The setting of fences (D) and (F) is important as this controls the timber up to the side heads.

The near side head (G) should be set to remove the rebate.

The amount of pressure applied by the top feed rolls must be kept as small as practicable.

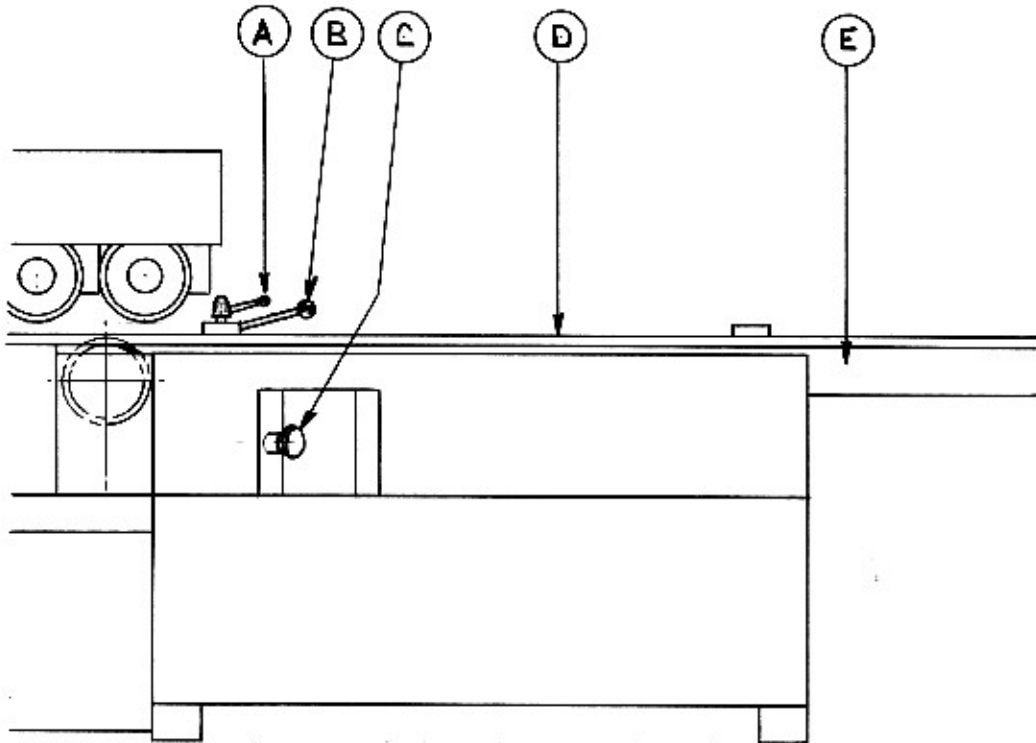


FIG. B3 THE INFEED TABLE

The infeed table (E) is adjusted vertically by means of handwheel (C). This movement controls the depth of cut on the first bottom head.

The infeed fence (D) extends from the infeed table, up to the fence side head, thereby controlling the depth of cut on this head.

The fence (D) is adjusted by means of lever (B). Handle (A) is the lock for this movement.

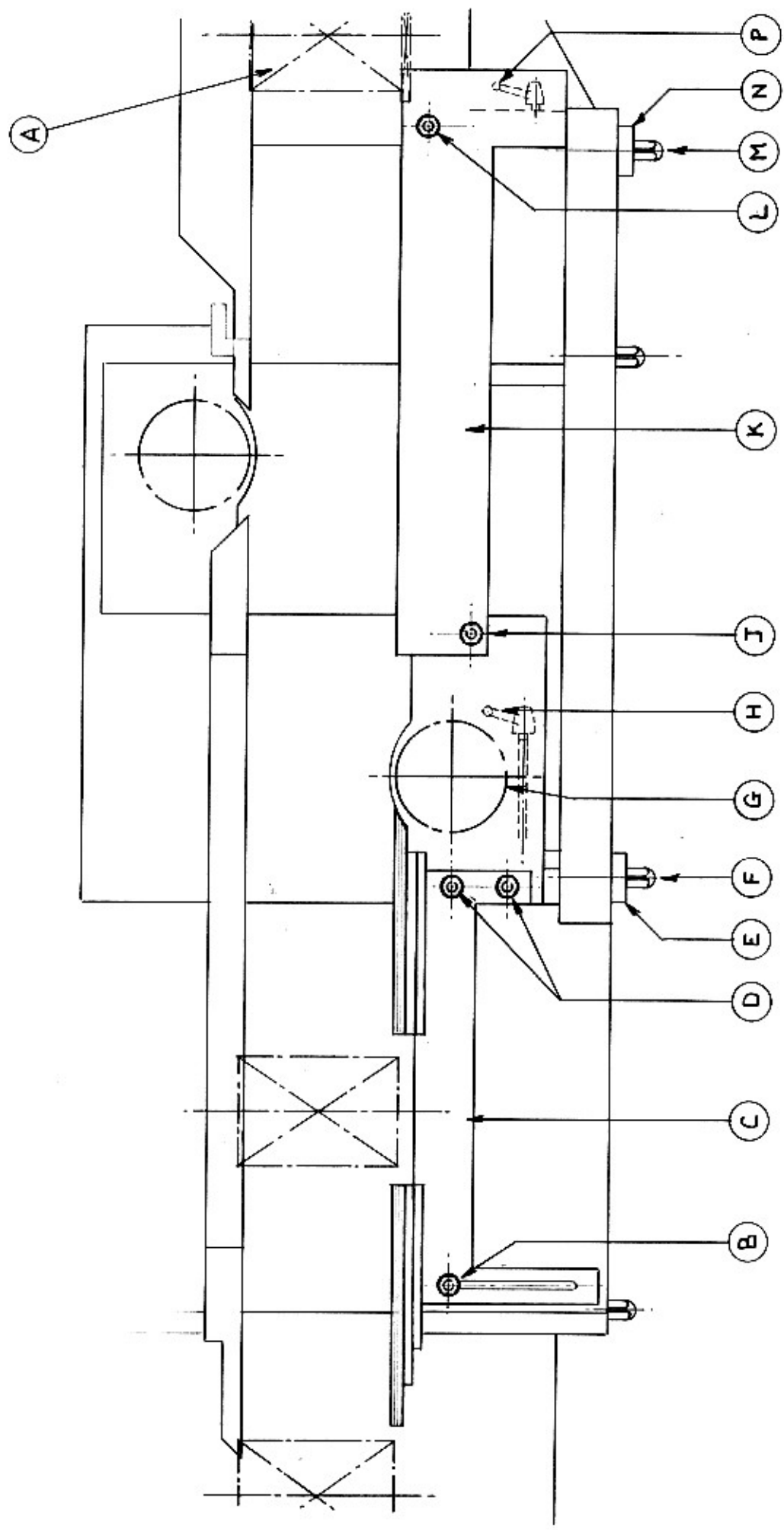


FIG. B4 ADJUSTMENT OF NEAR SIDE UNITS

ADJUSTMENT OF NEAR SIDE UNITS (FIG. B4)

Contrary to standard moulder practice, the straightening feature requires that the first bottom head should be adjustable across the bed to enable the rebate to be cut on the front edge of the timber.

To aid quick setting up, the machine is designed so that the first bottom head (A), the near side head (G), the shallow front guide fence (K) and the front fence after the side head (C) are all adjustable horizontally as one unit.

The unit (A.G.K.C.) is adjusted horizontally by first releasing THREE locks - first bottom head slide lock (P), near side head slide lock (H) and fence lock (B) - then adjusting unit by means of either square (F), or square (M). Relock after adjustment.

Each part of the unit may be independently adjusted as follows:-

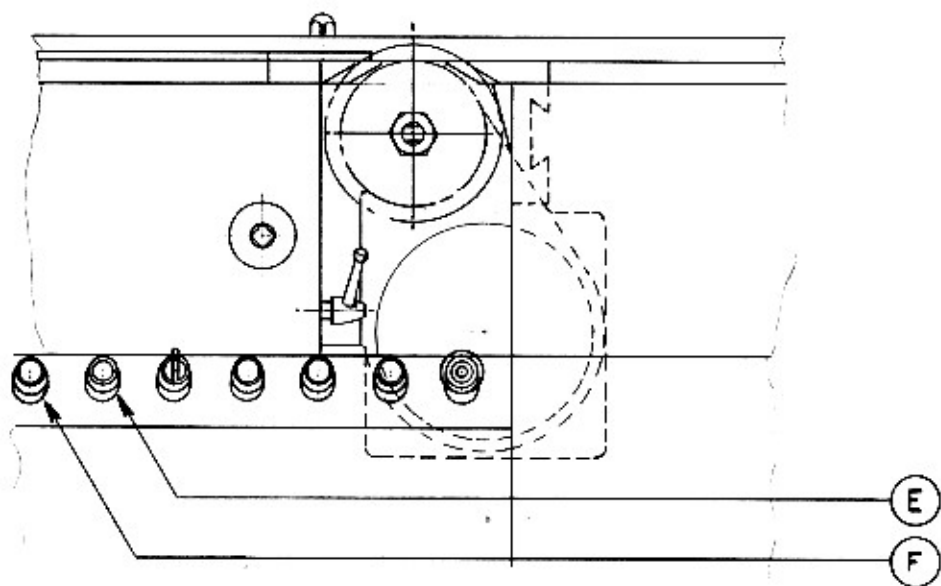
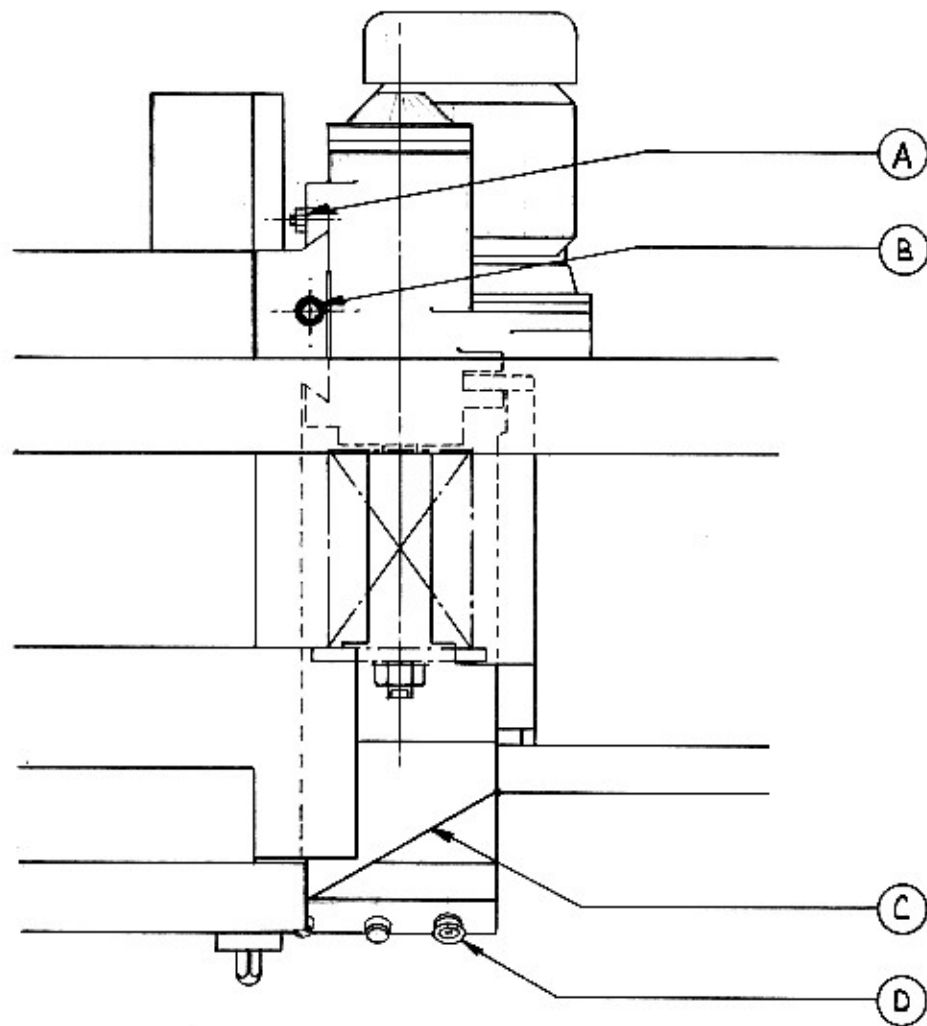
To adjust the first bottom head (A) horizontally, independently of the unit, release locks (P) and (L). Apply crank handle to square (M) and press in the spring loaded gear (N). While the gear (N) is depressed, the first bottom head is disengaged from the rest of the unit and can be adjusted independently. Relock after adjustment.

To adjust the near side head (G) horizontally, independently of the unit release locks (D, H and J). Adjust by means of square (F) and spring loaded gear (E), as described above for the first bottom head. Relock after adjustment.

To adjust the guide fence (K) independently, release locks (J and L) and slide by hand. Relock after adjustment.

To adjust the front fence (C) independently, release locks (B and D) and slide by hand. Relock after adjustment.

FIG. B5 FIRST BOTTOM HEAD



FIRST BOTTOM HEAD (FIG. B5).

Vertical adjustment of the first bottom head is made by means of square (B). Nut (A) is the lock for this movement.

The horizontal adjustment of this head is described on page B6. See also page B3. for notes on the straightening technique.

The bedplates on either side of the cutterblock are relieved to cater for the integral rebating cutters. The plates are, therefore, mechanically linked to the head to slide across the bed when the head is adjusted.

To start the head press start button (F).

To stop the head press the stop button (E), or (in an emergency) either of the master stops.

Button (D) is one of the master stop buttons.

The door (C) gives access to the cutter block and the lock for horizontal adjustment.

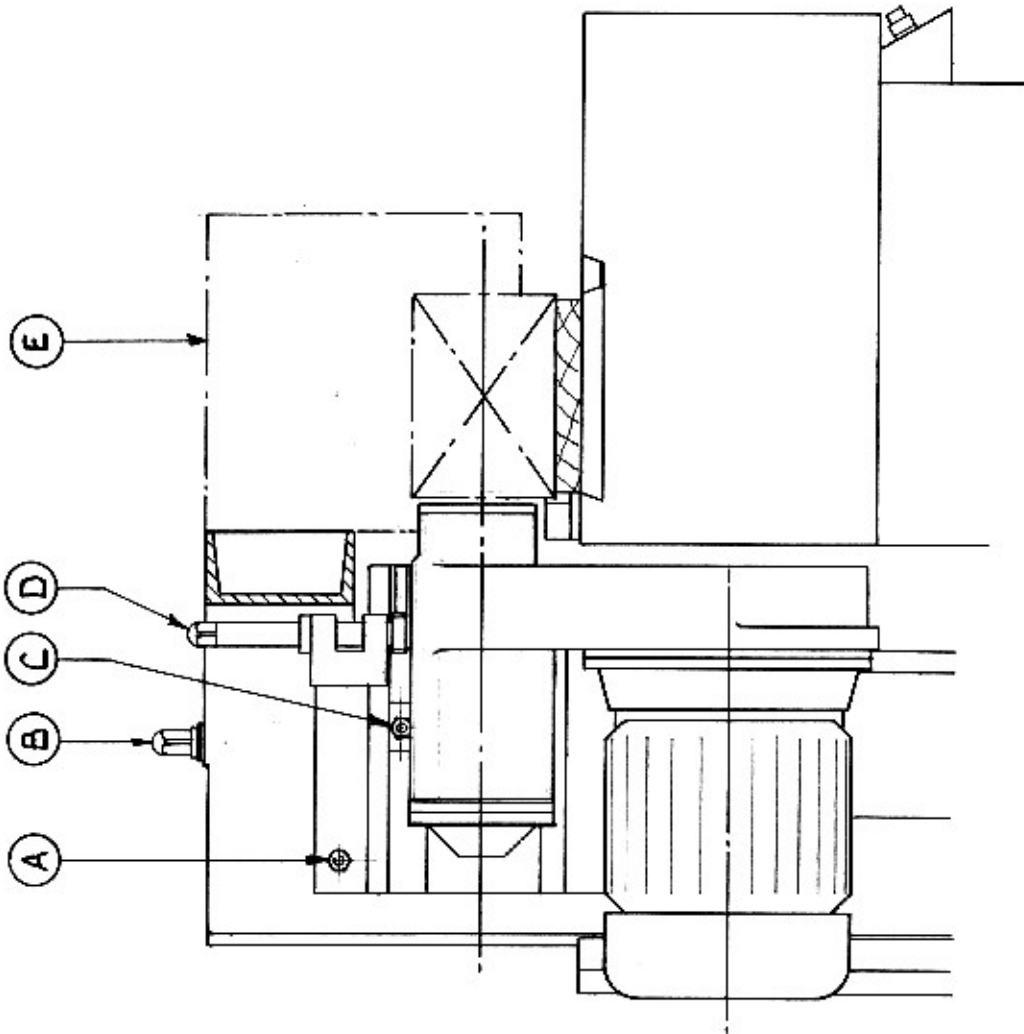
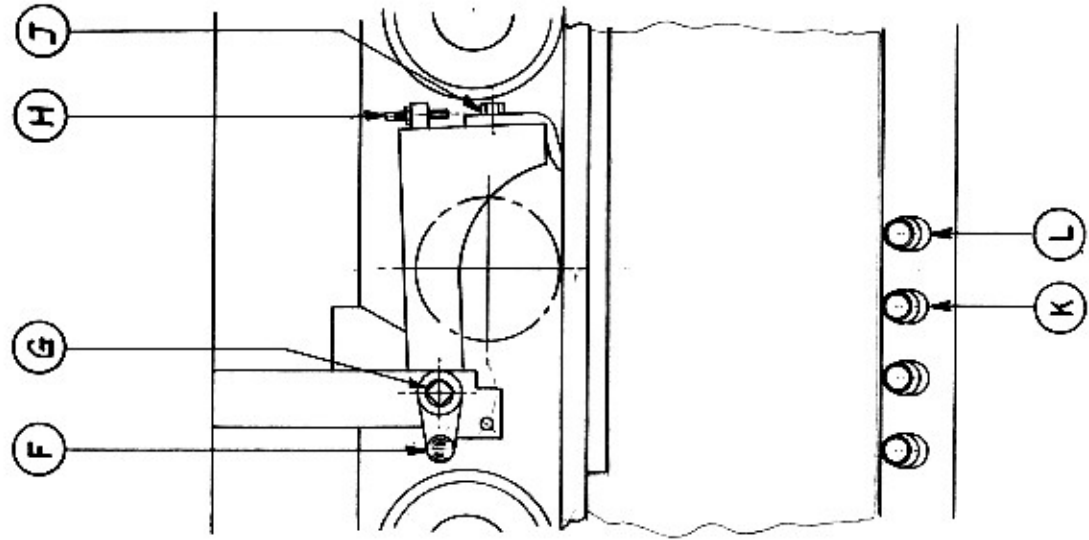


FIG. B6 TOP HEAD AND CHIPBREAKER

TOP HEAD (FIG. B6)

The top heads are adjusted vertically with the overhead beam as one unit to aid quick setting up.

Fine vertical adjustment relative to the overhead beam is made by means of square (B). Nut (A) is the lock for this movement.

Horizontal adjustment is made by means of square (D). Nut (C) is the lock for this movement.

To start the head press start button (K).

To stop the head press stop button (L), or (in an emergency) either of the master stops.

TOP HEAD CHIPBREAKER (FIG. B6).

The cutter block may be removed without disconnecting the extraction equipment. To achieve this the chipbreaker should be raised to the 45° position by means of square (G) and located with pin (F). The lower section of cover (E) should be moved clear to gain access to the cutter block.

When full access to the block is required, the extraction connections should be moved away, the complete cover (E) hinged back, and the chipbreaker hood raised to the vertical position by means of square (G) and located with pin (F).

The bottom position of the chipbreaker hood is adjustable (relative to the beam) by means of screw and lock nut(H).

When cutting narrow stock, the sectional chipbreaker shoes may be adjusted or removed by means of screws (J).

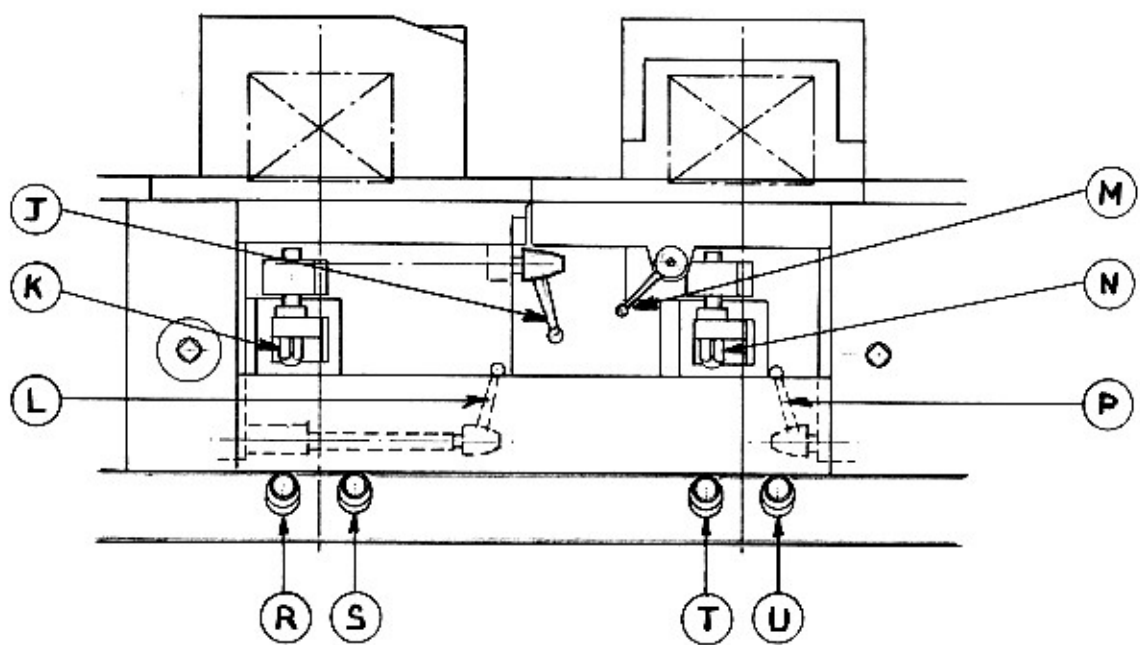
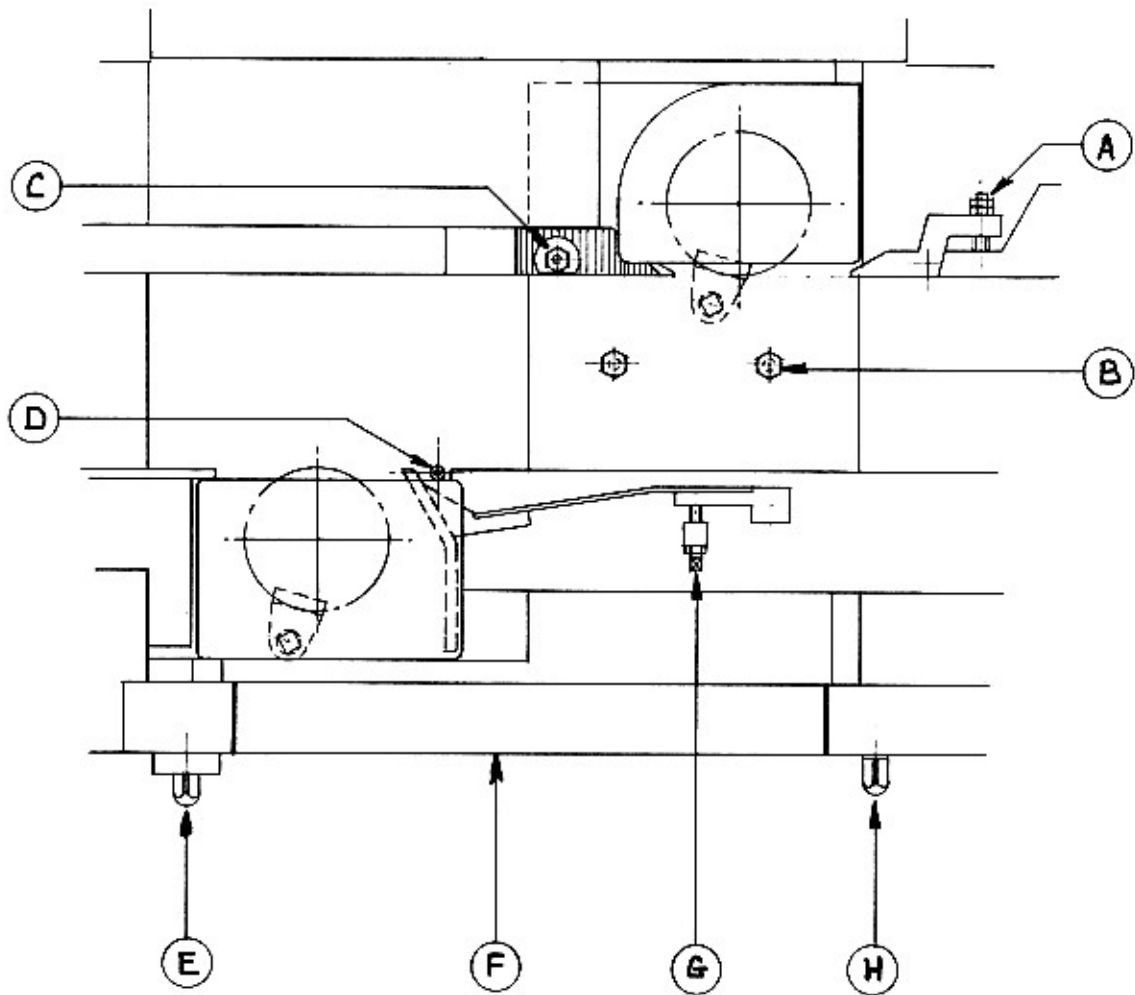


FIG. B7 SIDE HEADS

SIDE HEADS (FIG. B7)

Near Side Head

The horizontal adjustment of the near side head (square (E) and lock (L)) is described on page B6.

The vertical adjustment of this head is made by means of the square (K). Handle (J) is the lock for this movement.

The bed plate may be adjusted to allow for larger cutting circles by slacking off capscrew (D) and sliding by hand.

To start the head press start button (R).

To stop the head press stop button (S), or (in an emergency) either of the master stops.

The amount of pressure applied by the side head chipbreaker may be adjusted by means of screw and lock nut (G).

Fence Side Head

The horizontal adjustment of the fence side head is made by means of square (H). Handle (P) is the lock for this movement.

The vertical adjustment of this head is made by means of square (N). Handle (M) is the lock for this movement.

The bed plate may be adjusted to allow for larger cutting circles by slacking off two nuts (B) (underneath the carriage) and sliding plate by hand.

To start the head press start button (T).

To stop the head press stop button (U), or (in an emergency) either of the master stops.

The fence nose piece before the fence side head is spring loaded. The amount of projection in front of the fence can be varied by means of lock nuts (A).

The fence nose piece after the fence side head is adjusted by slacking off nut (C) and sliding by hand, (to allow for larger cutting circles).

Access to head adjustments and locks is through door (F).

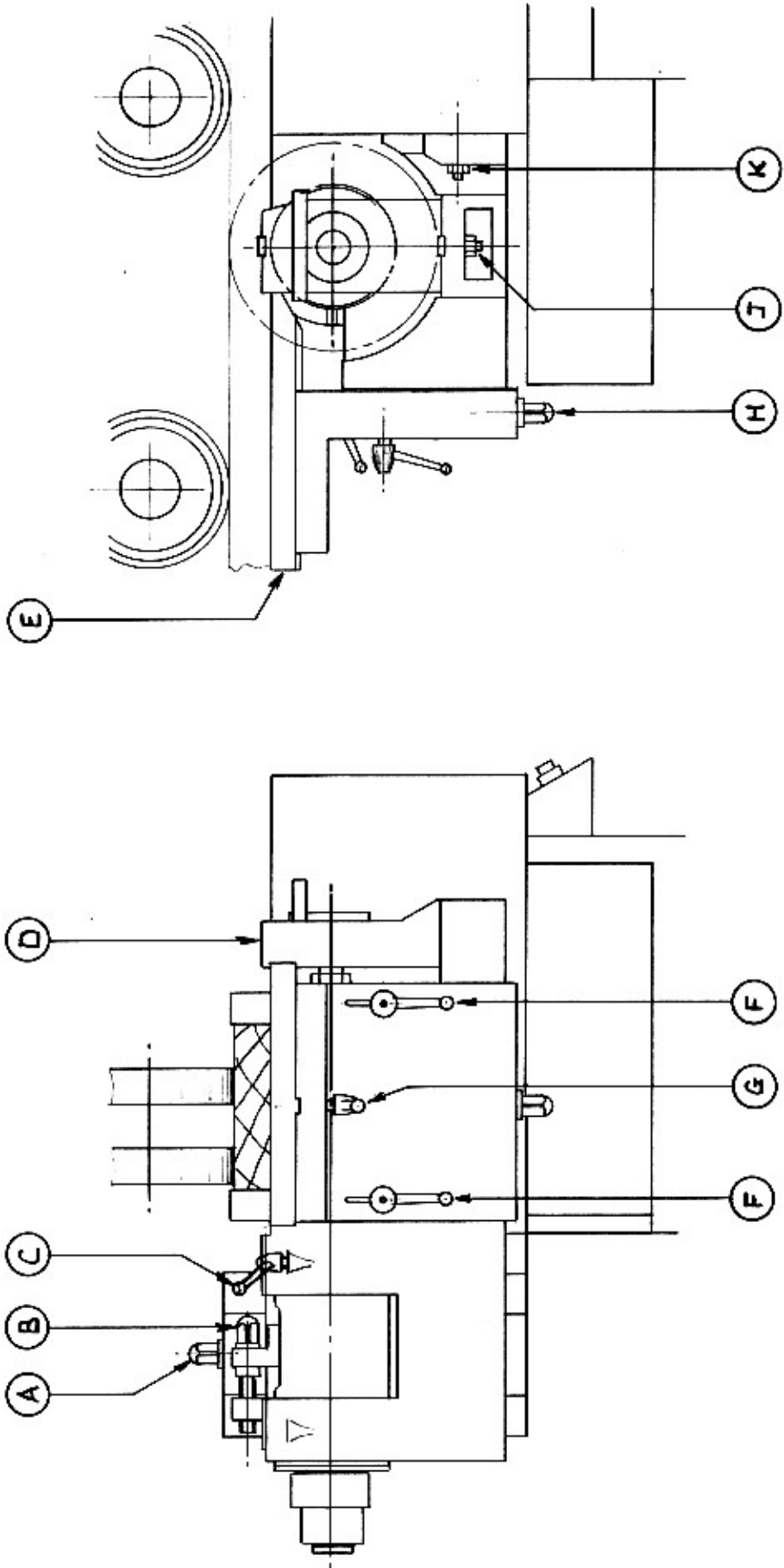


FIG. B8 SECOND BOTTOM HEAD AND OUTFEED TABLE

SECOND BOTTOM HEAD (FIG. B8) (TO SPECIAL ORDER)

Horizontal adjustment of the second bottom head is made by means of square (B). Handle (C) is the lock for this movement.

Vertical adjustment of this head is made by means of square (A). Nut (K) is the lock for this movement.

The outboard bearing (D) can be removed from spindle end (to change cutterblock) by slacking off nut (J) and sliding off.

OUTFEED TABLE (FIG. B8).

Vertical movement of the outfeed table is made by means of square (H). The two handles (F) lock the table slide in position.

The bedplate on the outfeed table may be moved out to accommodate large cutting circles by releasing locking handle (G) and sliding the bedplate by hand.

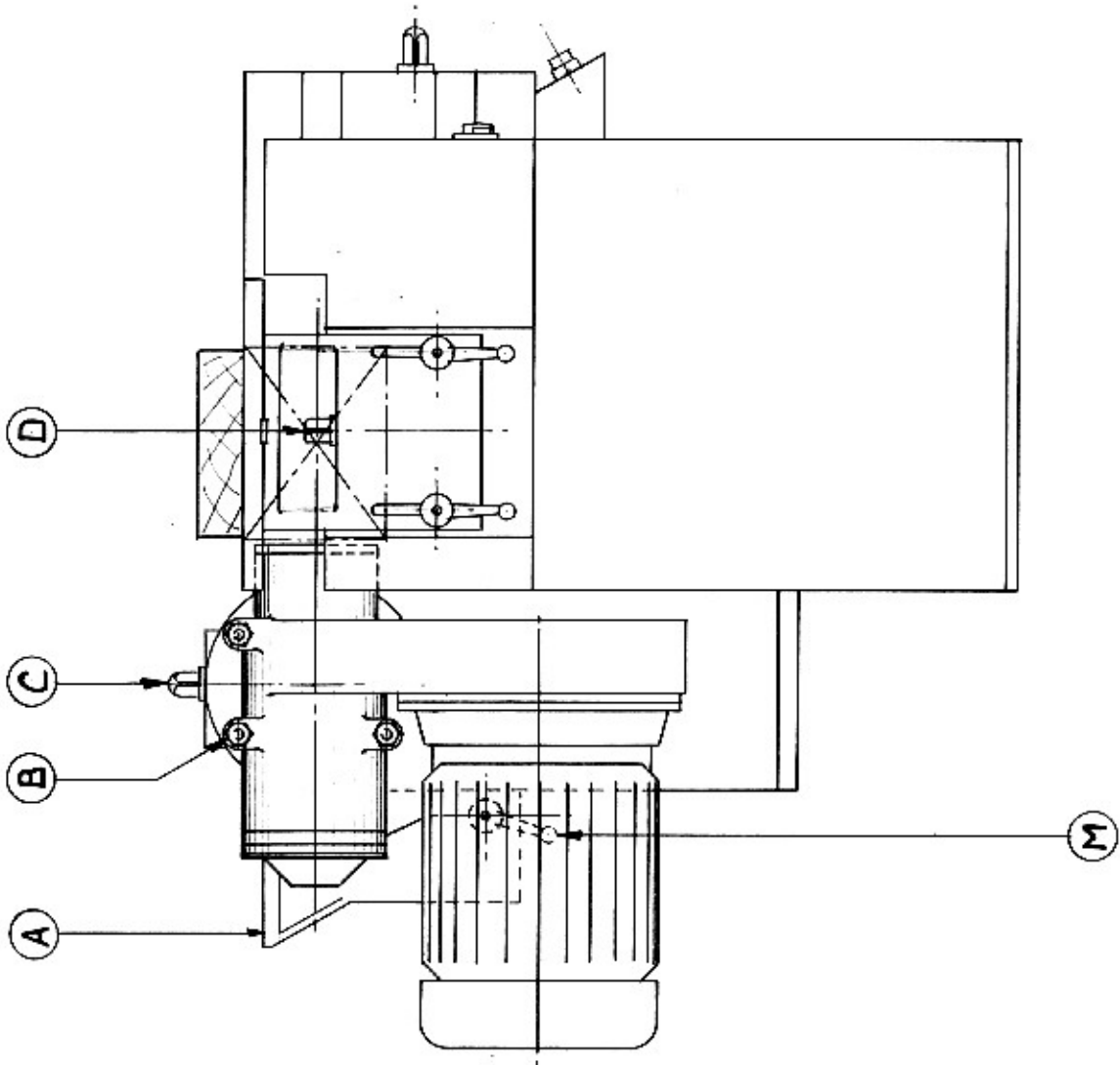
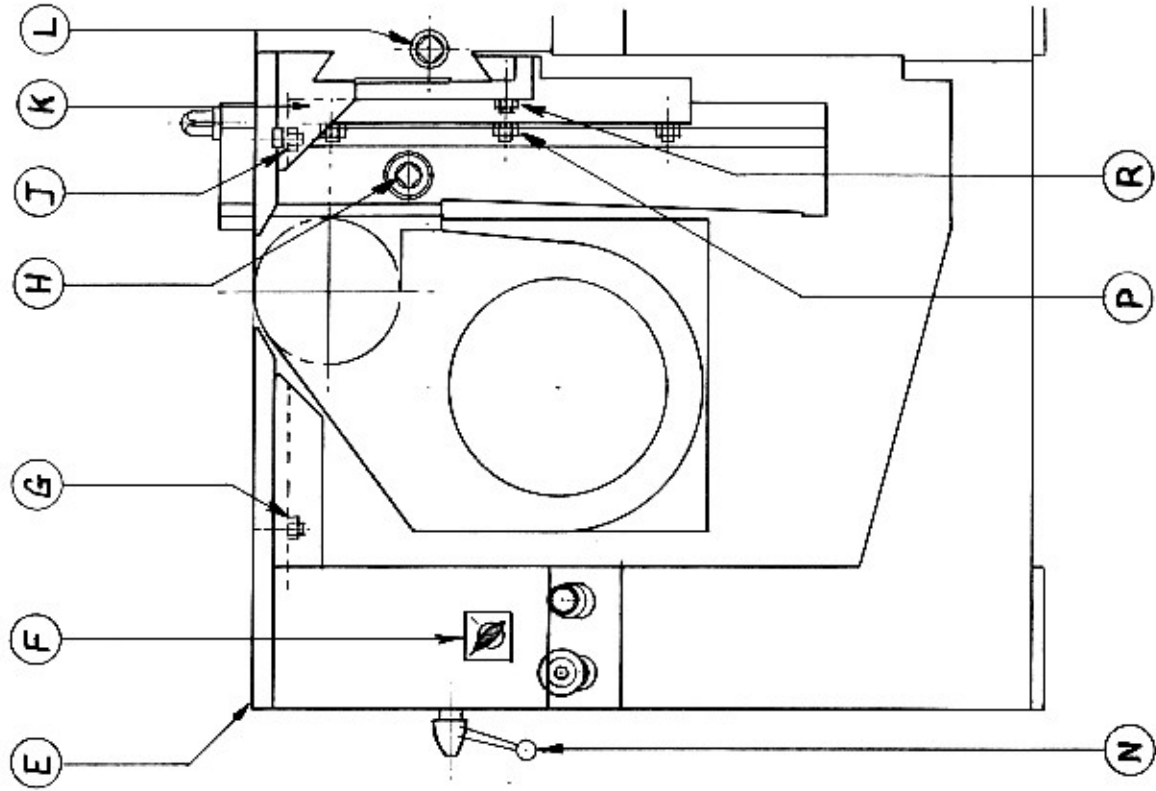


FIG. B9 UNIVERSAL HEAD

UNIVERSAL HEAD (FIG. B9) (TO SPECIAL ORDER).

Horizontal adjustment of the universal head is made by means of square (L). Handle (M) is the lock for this movement.

Vertical adjustment is made by means of square (C). The three nuts (P) are the locks for this movement.

Angular adjustment of the head is made by means of square (H). The three nuts (B) are the locks for this movement. The position location plunger must be removed before adjustment is made.

When making the above adjustments, care should be taken not to foul adjustable fences and bed plates etc.

When the head is used in the bottom, top or near side positions, the spindle must rotate in a clockwise direction (looking from cutter block end of spindle). When it is used in the fence side position, the spindle must rotate anti-clockwise. The spindle rotation is reversed by means of switch (F). The head should be stopped before spindle rotation is reversed.

The main positions of the head are shown in Fig. B10.

THE OUTFEED TABLE AND BED PLATE SUPPORT (FIG. B9).

Vertical adjustment of the outfeed table (E) is made by means of square (D). The two handles (N) are the locks for this movement.

Lateral adjustment of the outfeed table (E) is made by slacking off two nuts (G) and sliding table by hand.

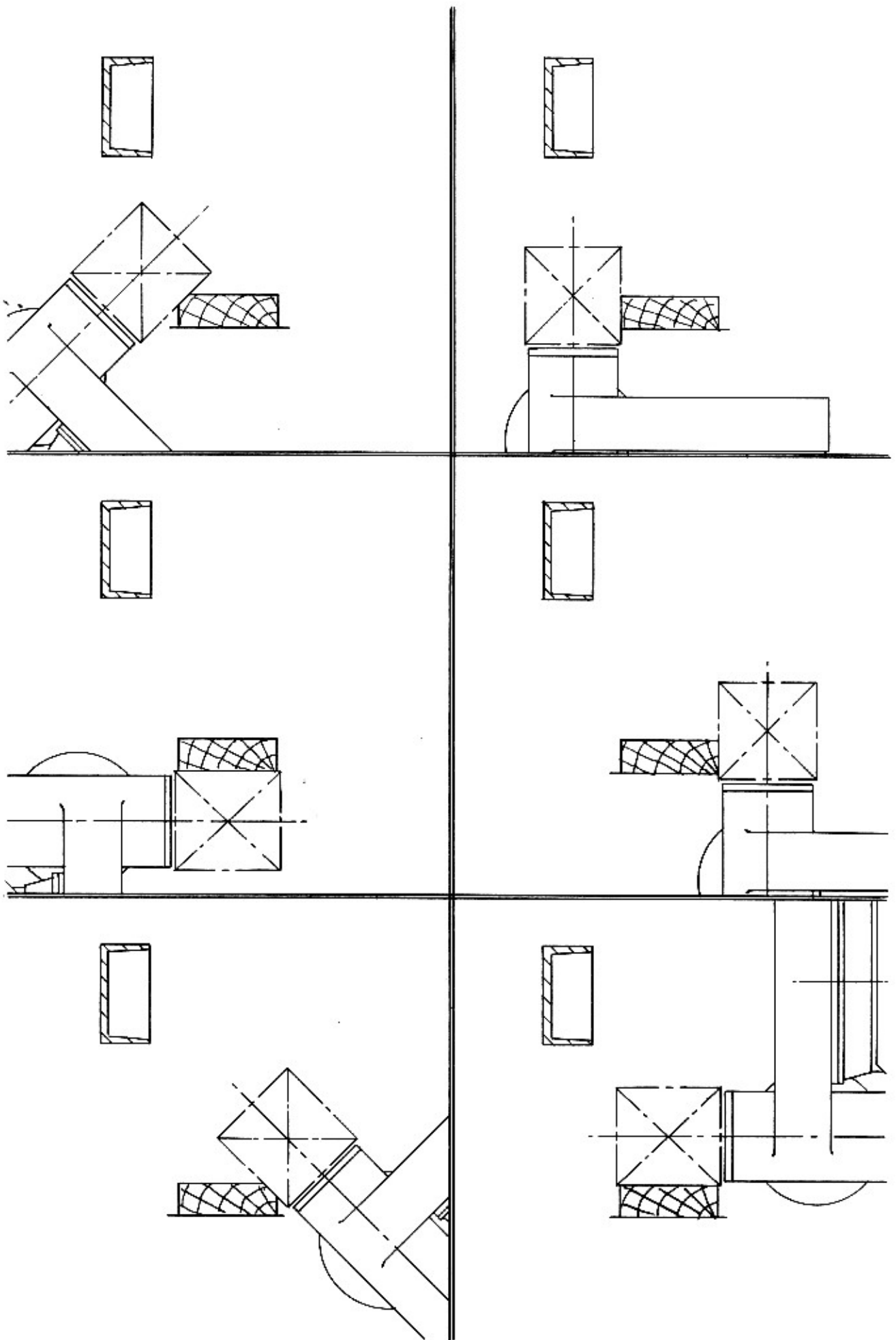
The bed plate support (K) is a loose bracket locked onto the slide by means of nut (R) and is required only when the head is in the bottom or fence side positions. When the head is in the top or near side positions, the support integral with the horizontal slide (A) is used. In both cases the bed plate is locked in position by means of nut (J).

THE BED PLATE AND FENCE POSITIONS (FIG. B11).

The fences and bed plates must be adjusted to accommodate the different head positions.

The outfeed table bed plate is common to all positions. Three other plates are provided, two of which are for the bottom head position (long and short to allow for different cutting circles). The third plate is used for the other head positions and is held down at the outfeed end by outfeed plate overlapping it.

FIG. B10 UNIVERSAL HEAD POSITIONS



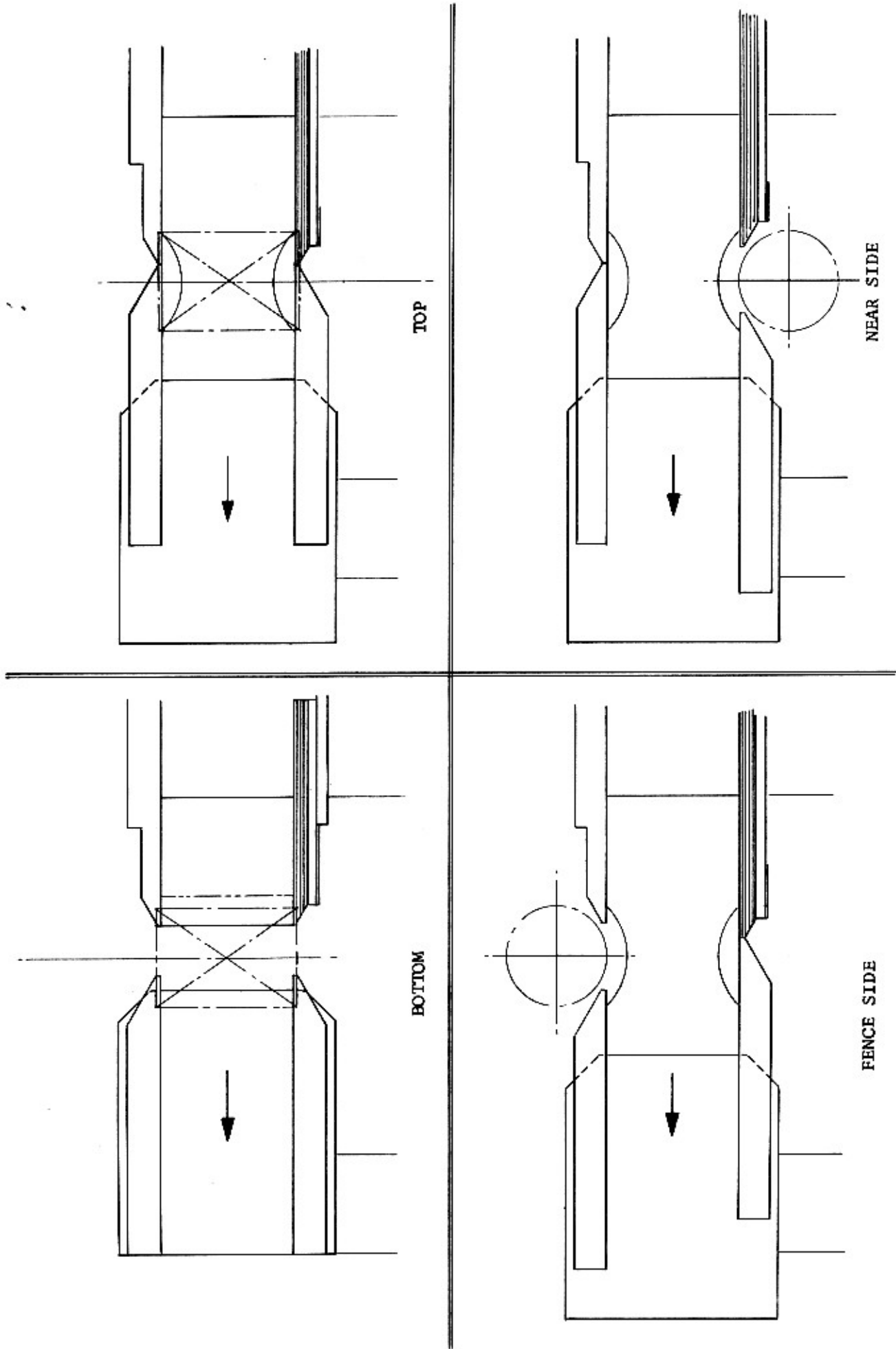
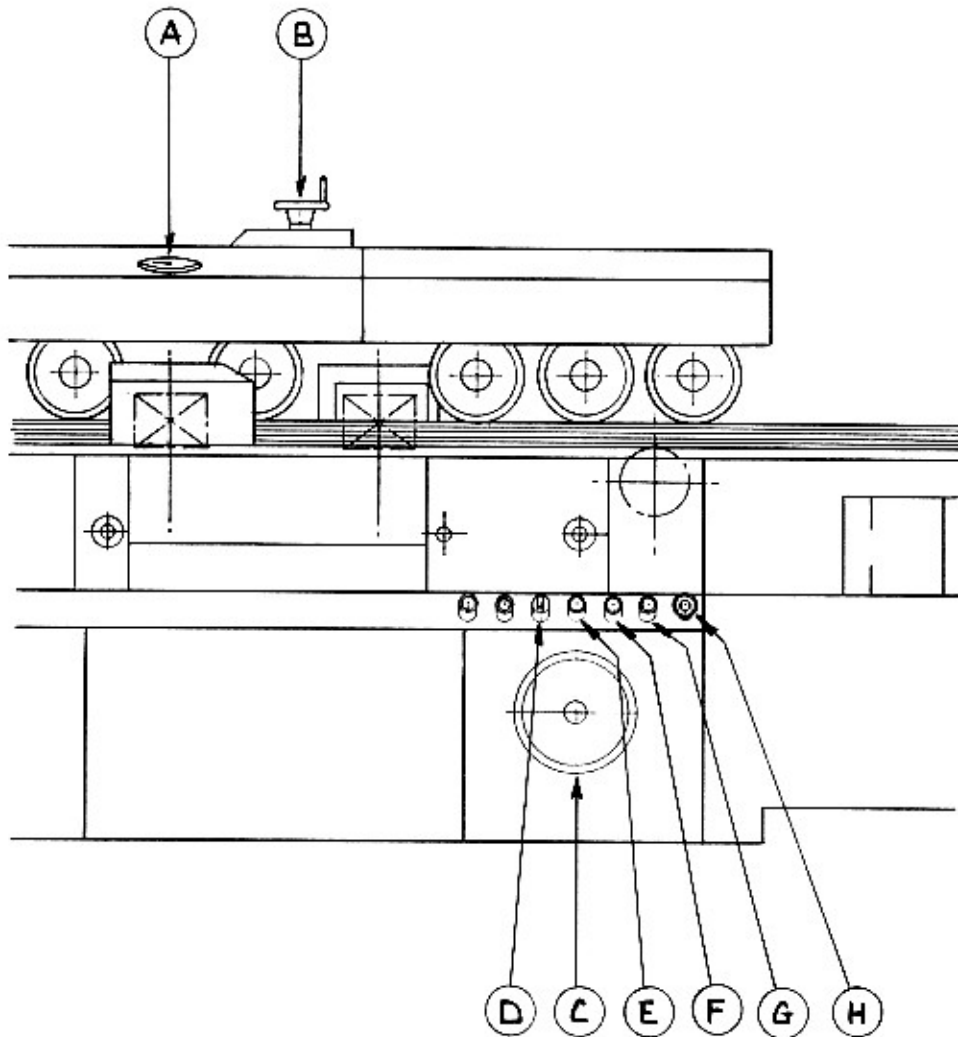


FIG. B11 BED PLATE AND FENCE POSITIONS FOR UNIVERSAL HEAD

FIG. B12 FEEDWORKS



The feedrolls are mounted on an overhead beam and are chain driven from an infinitely variable speed drive unit.

The feed speed is adjusted by means of handwheel (B). The speed is indicated on dial (A). Note: The feed speed should be adjusted whilst the feed is running.

The feed rolls and beam (including top head) are raised and lowered primarily by a motor, operated by switch (D). Fine adjustment is made by means of handwheel (C).

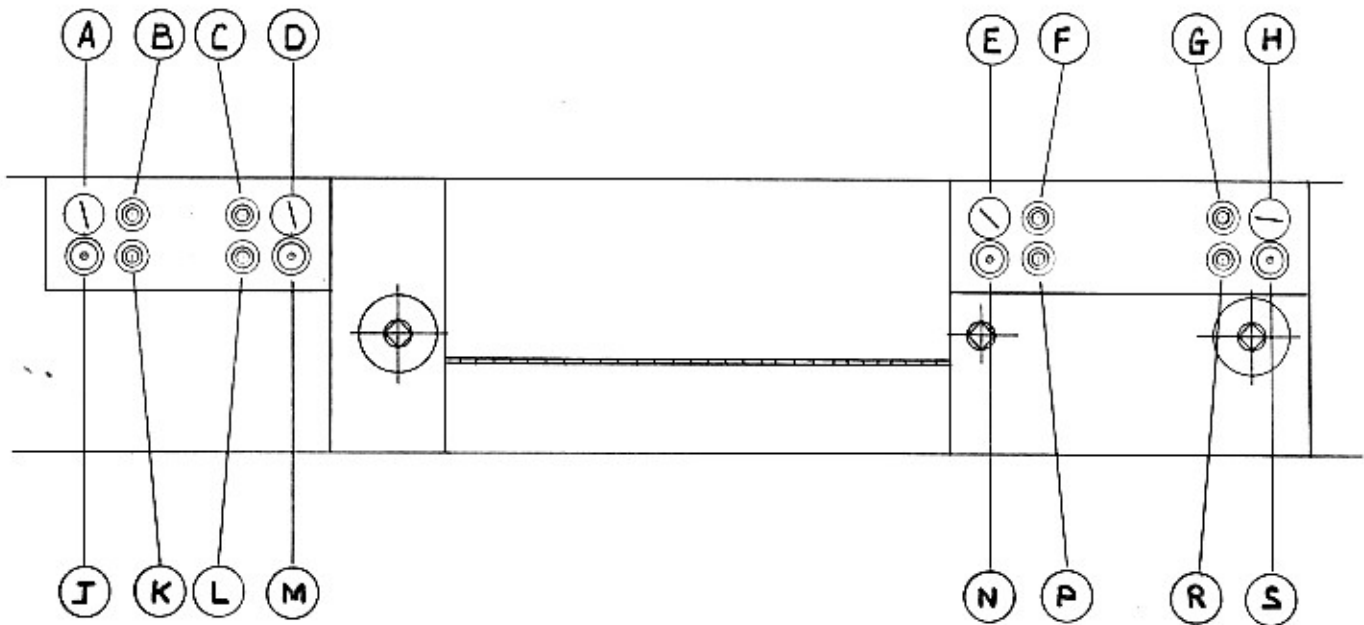
To start the feed, press start button (E).

To stop the feed, press stop button (F), or (in an emergency) either of the master stops.

The button (G) is one of the inch feed buttons.

The button (H) is one of the master stop buttons.

FIG. B13 PNEUMATIC CONTROLS



PNEUMATIC CONTROLS (TO SPECIAL ORDER)

See installation and maintenance notes regarding filter - regulator - lubricator unit.

The input pressure should be set to 80 lb/in² gauge.

To lower the first feed roll, depress button (R).

To lower the second feed roll, depress button (P).

To lower the remaining rolls (in two groups), depress buttons (K) and (L).

To raise the first feed roll, depress button (G).

To raise the second feed roll, depress button (F).

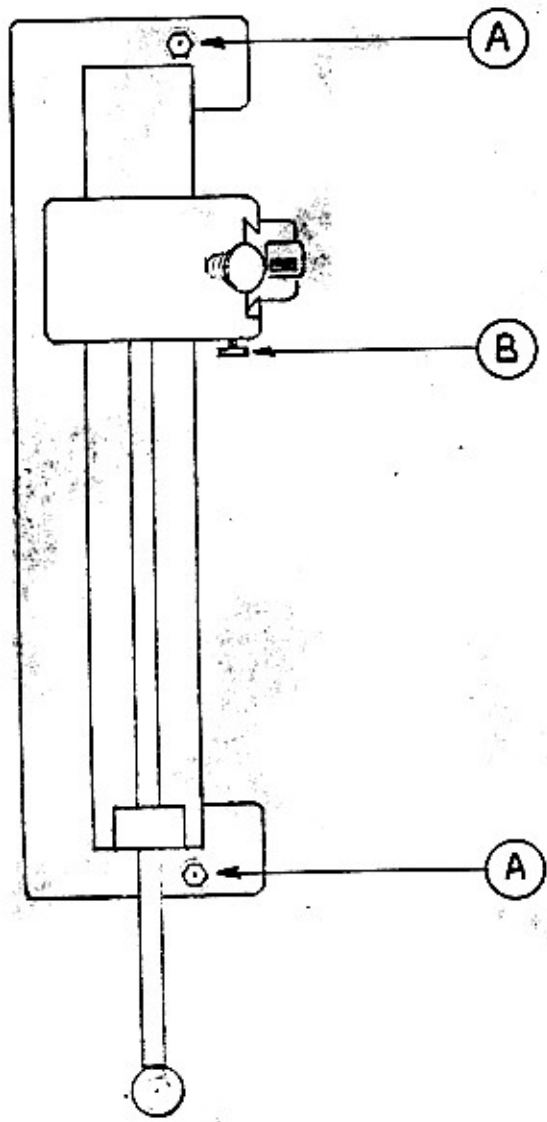
To raise the remaining rolls (in two groups), depress buttons (B) and (C).

The amount of pressure exerted on the timber by the first roll is controlled by knob (S). The pressure is registered on gauge (H). The pressure applied by the first roll must be kept to a minimum to achieve effective straightening. When hand feeding the machine, the first roll may be raised clear of the timber.

The amount of pressure exerted on the timber by the second roll is controlled by knob (N) and is registered on gauge (E).

The amount of pressure exerted by the remaining rolls (in two groups) is controlled by knobs (J) and (M) and is registered on gauges (A) and (D). The pneumatic circuit is covered by patent No. 986651.

FIG. B14 SECOND BOTTOM HEAD STRAIGHT JOINTER (TO SPECIAL ORDER).

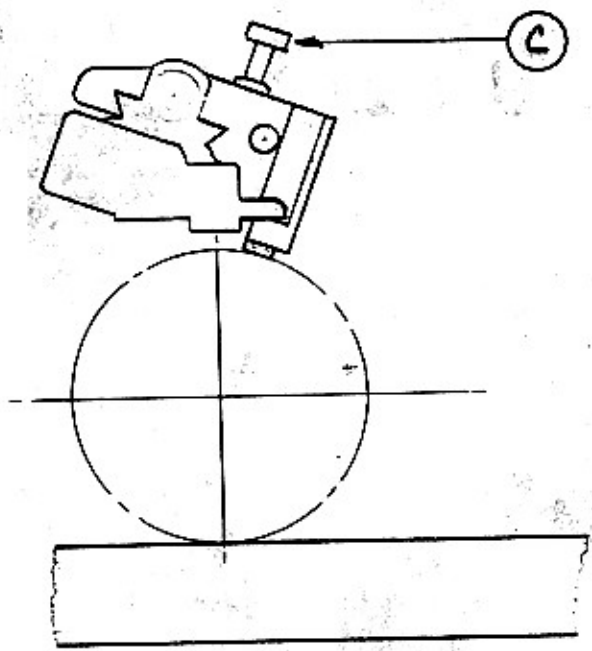


Jointing is only possible on the second bottom head on this machine.

The slide is mounted on tongue slots in the carriage and outboard bearing and held by screws (A).

The stone is clamped into its holder with stone protruding. The stone is fed into the block by turning knob (C). Locking screw (B) must be tightened prior to each jointing cut.

The stone is passed across the block with a push-pull action.



SECTION C

MAINTENANCE AND LUBRICATION

DAILY

(1) When the feed is running, operate the variable speed feed drive unit through its full speed range (B - Fig. B12).

WEEKLY

(1) Clean down machine.

(2) Oil machine slides and raising screws with Wadkin grade L4 oil.

(3) Apply one shot of Shell Alvania grease No. 2 to the two grease nipples on the feed drive unit. (Note: When the unit is running at one speed for long periods, lubricate twice weekly. Operate the unit through its full speed range immediately after greasing).

(4) Top up pneumatic lubricator unit with Mobil Almo No. 1 oil.

(5) Apply several shots of Wadkin grade L4 oil to the oiling points on top of beam to lubricate feed drive chains.

(6) Apply one shot of Wadkin grade L4 oil to the oiling points on the feed roll swing assemblies.

MONTHLY

(1) Check condition and tension of side head and second bottom head drive belts (Fig. C2, Fig. C3). Note: The enclosed timing belt drives (Fig. C1) to the other heads, do not require regular tensioning.

(2) Check the oil level in the feed drive unit gear box. Top up, if necessary with Shell Vitrea oil 72 (capacity $1\frac{1}{2}$ pints approx.).

TWO MONTHLY

(1) Apply one shot of Wadkin grade L6 grease to each point (A - Fig. C5) on all cutter spindles.

(2) Check condition and tension of feed drive chains. Adjust tension if necessary, using tensioners (A and B - Fig. C6). Note: The tension should be checked after the machine has been running for the first three days.

SIX MONTHLY

(1) Drain, flush and re-fill the feed drive gear box with Shell Vitrea oil 72 (capacity $1\frac{1}{2}$ pints approx.).

(2) Check the oil level in the reduction gear box for the rise and fall of the overhead beam. (Access through cover (K - Fig. B1). Lubricate according to the plate attached to the gear box.

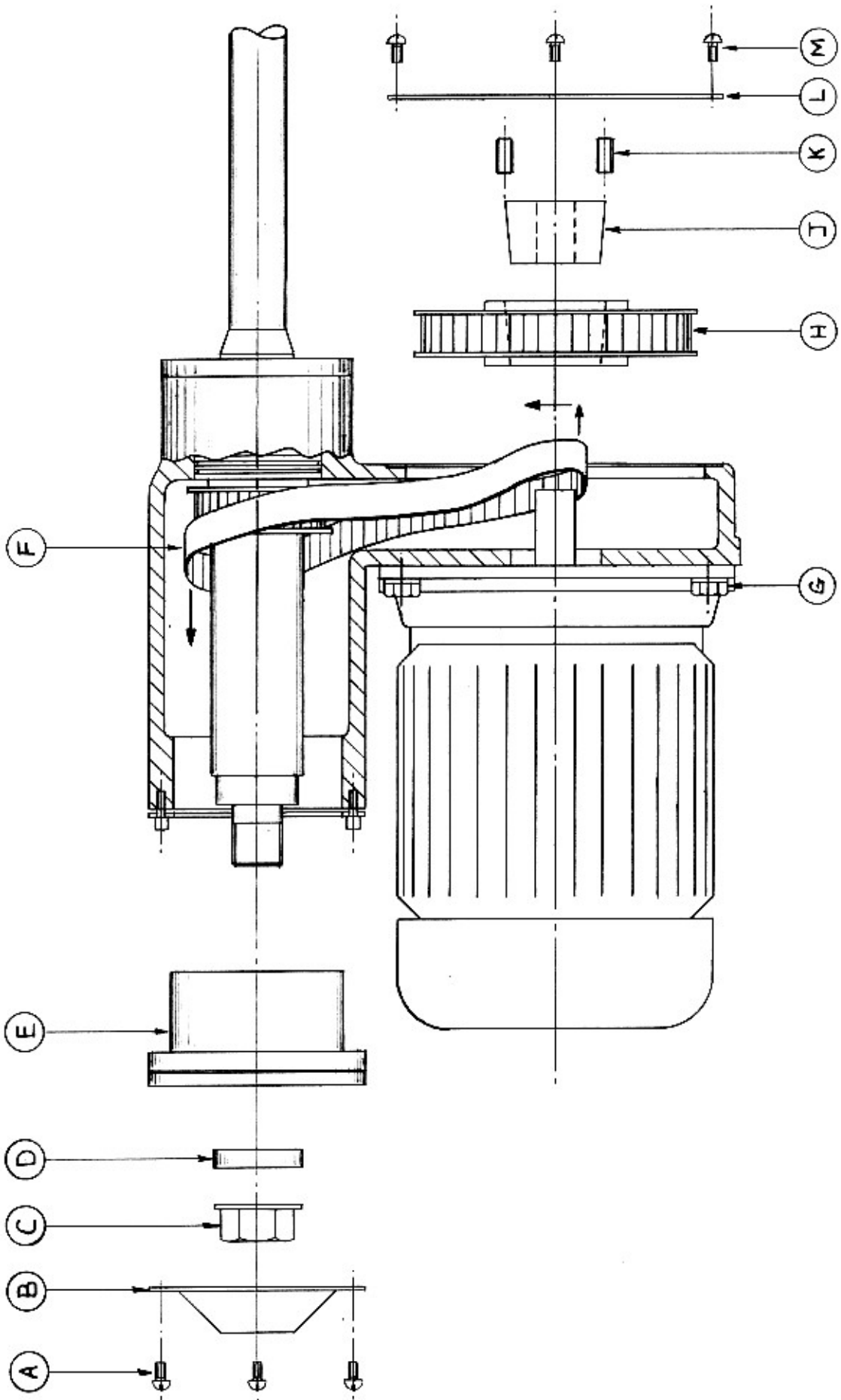


FIG. C1 HORIZONTAL HEAD DRIVES - BELT REPLACEMENT

HORIZONTAL HEAD DRIVES - BELT REPLACEMENT (FIG. C1)

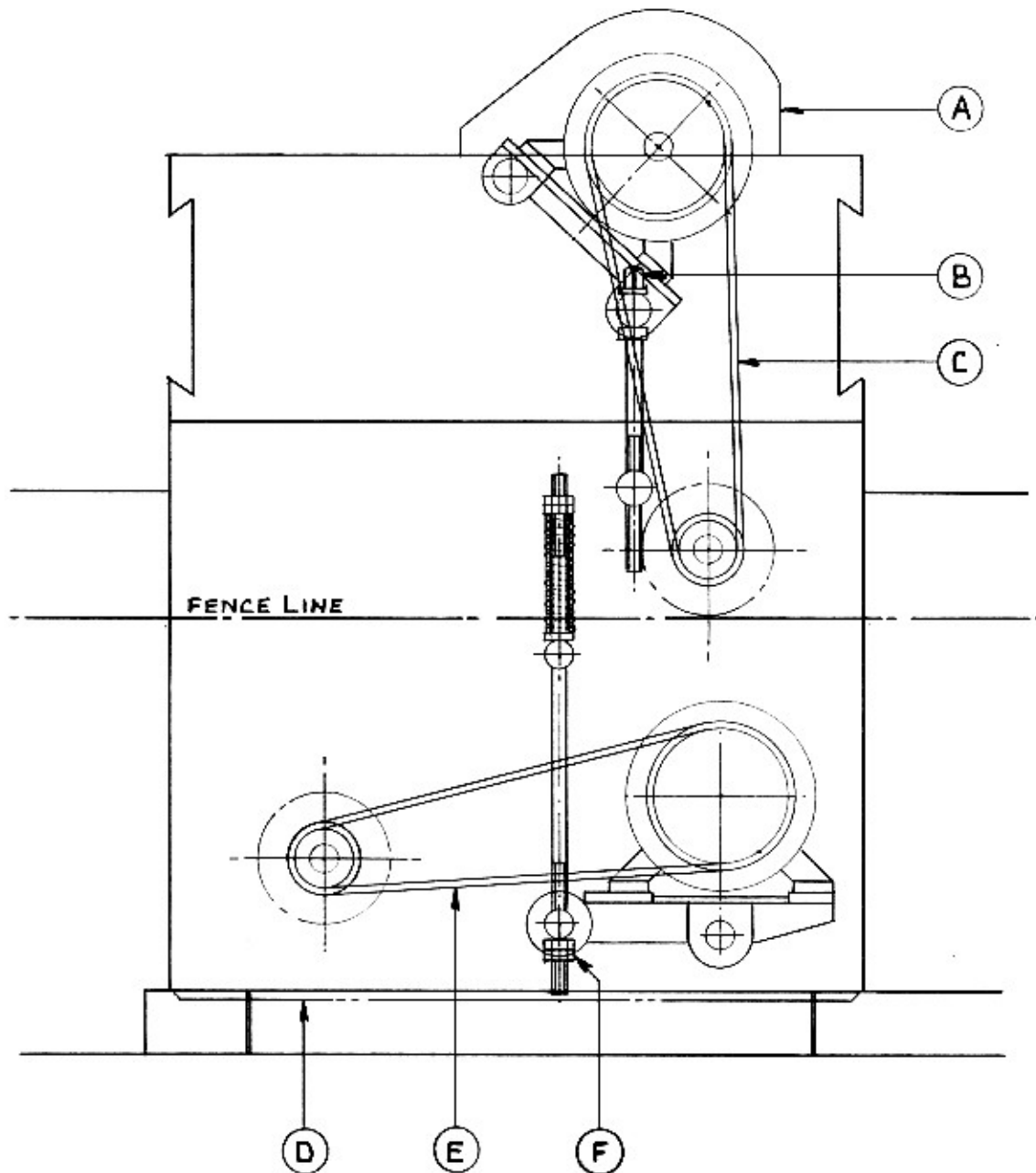
To Remove Belt

- (1) Remove four screws (A) and cover (B).
- (2) Remove lock nut (C) and spacing collar (D).
- (3) Slide out rear bearing assembly (E).
- (4) Remove four screws (M) and cover (L).
- (5) Remove two screws (K) from taper-lock bush (J).
- (6) Use one of these screws (K) in the third hole to jack off the taper-lock bush (J).
- (7) Disengage belt (F) from pulley and remove pulley (H).
- (8) Move belt (F) off the motor spindle and withdraw the belt from the rear of the spindle housing.

To Fit New Belt

- (9) Reverse the above procedure.
- (10) Before cover (L) is replaced, it may be found necessary to adjust the tension in the belt. (The belt should not be too tight, nor too loose. When one side of the belt span is depressed, it should deflect approx. $5/32$ ".). To tension the belt, slacken off four bolts (G) and move motor.
Note: Once the belt tension is set correctly, it will not require re-tensioning.

FIG. C2 SIDE HEAD DRIVES - BELT REPLACEMENT



FENCE SIDE HEAD

To replace belts, remove cover (A), release belt tension using screw (B), change belts (C) and retension.

NEAR SIDE HEAD

Access to near side head belts is gained by removing cover (D). To change belts, release tension by unscrewing lock nuts (F), change belts (E) and retension. (Note: Lock nuts (F) should not be removed from thread.).

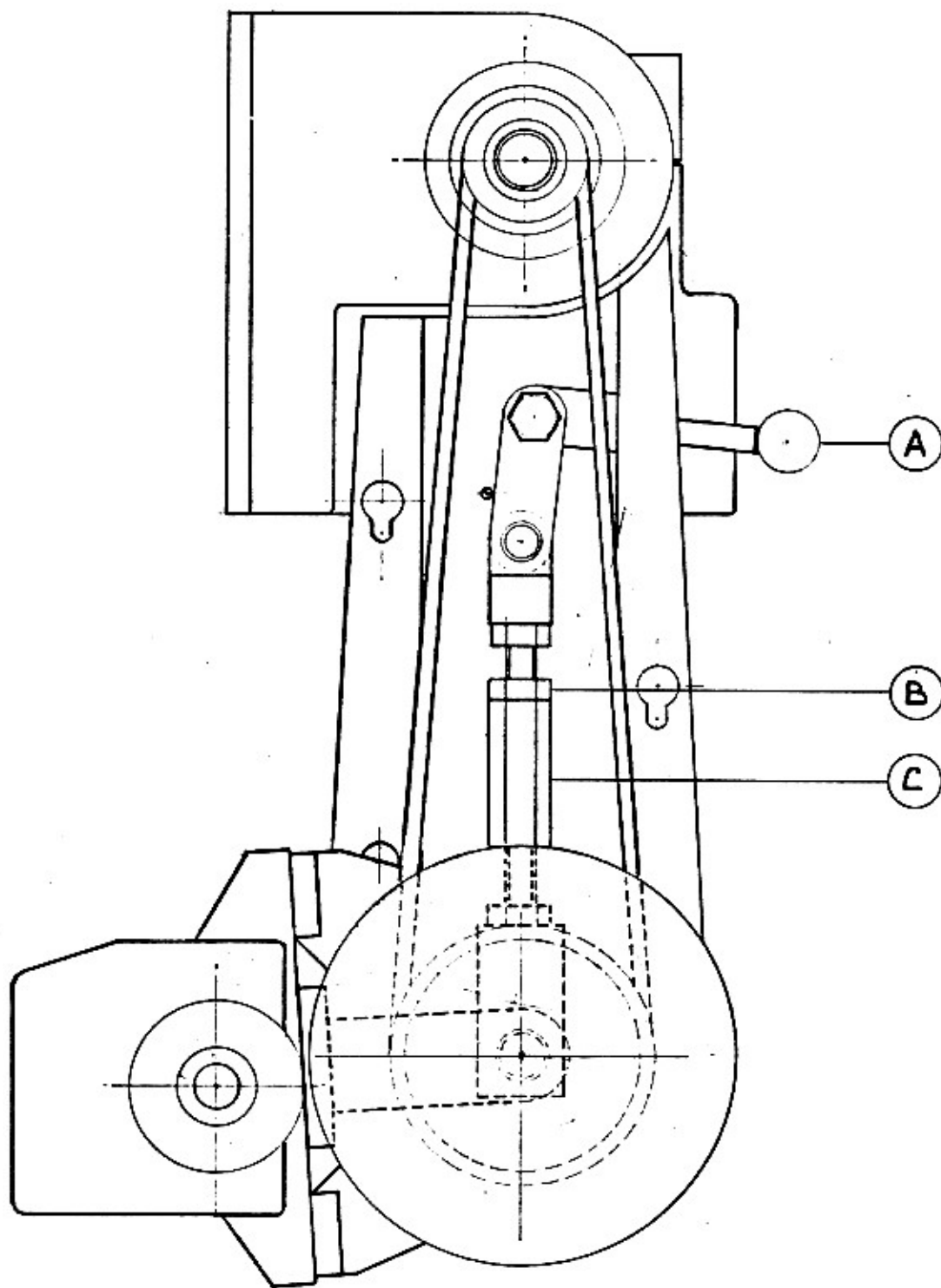
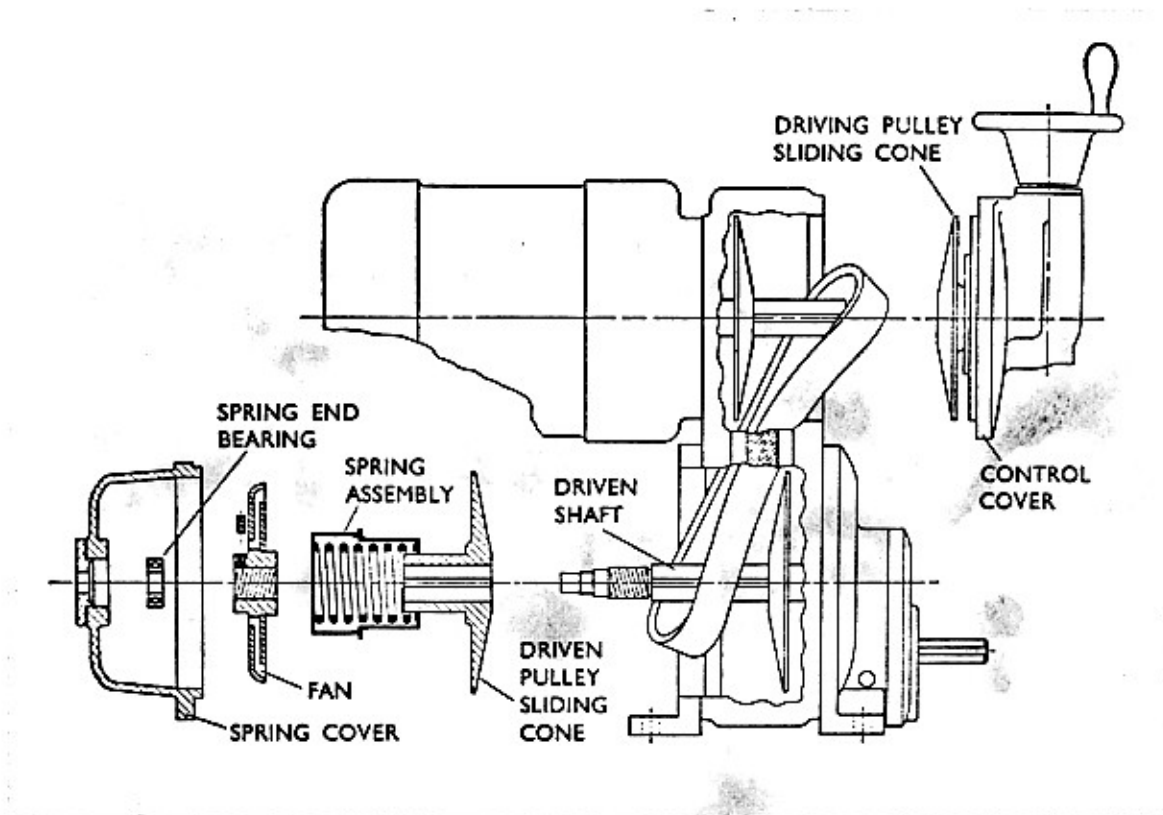


FIG. C3 SECOND BOTTOM HEAD - BELT REPLACEMENT

To change belts, lift handle (A). This raises the motor and allows belts to be changed. Lower handle (A) back to original position after changing belts.

To tension belts, rotate turnbuckle (C). This is locked with lock nut (B).

FIG. C4 FEED DRIVE UNIT - BELT REPLACEMENT



TO REMOVE BELT

- (1) Adjust the unit to its minimum speed setting and switch off the motor.
- (2) Remove the four screws in the control cover, and slide off the control cover, complete with driving pulley sliding cone and operating mechanism.
- (3) Remove the four screws in the spring cover and withdraw this cover. If required, two screws can be used in two tapped holes in the spring cover flange for jacking off.
- (4) With the spring cover removed, the driven shaft is supported at one end only. Care should be taken to avoid straining this shaft and its supporting bearing.
- (5) Slacken the grub screw in the fan boss and unscrew the fan from the driven shaft, which will release the spring end bearing.
- (6) Remove the spring end bearing from the driven shaft.
- (7) Slide off the spring assembly and driven pulley sliding cone.
- (8) Pass the belt over the end of the driving pulley sleeve and out through the spring cover case opening.

TO FIT NEW BELT

Reverse the above procedure, noting the following points:-

- (9) The spring end bearing should be hard up to its abutment on the driven shaft before re-fitting the spring cover.
- (10) When re-fitting the control cover, turn the unit by hand whilst tightening the control cover screws.

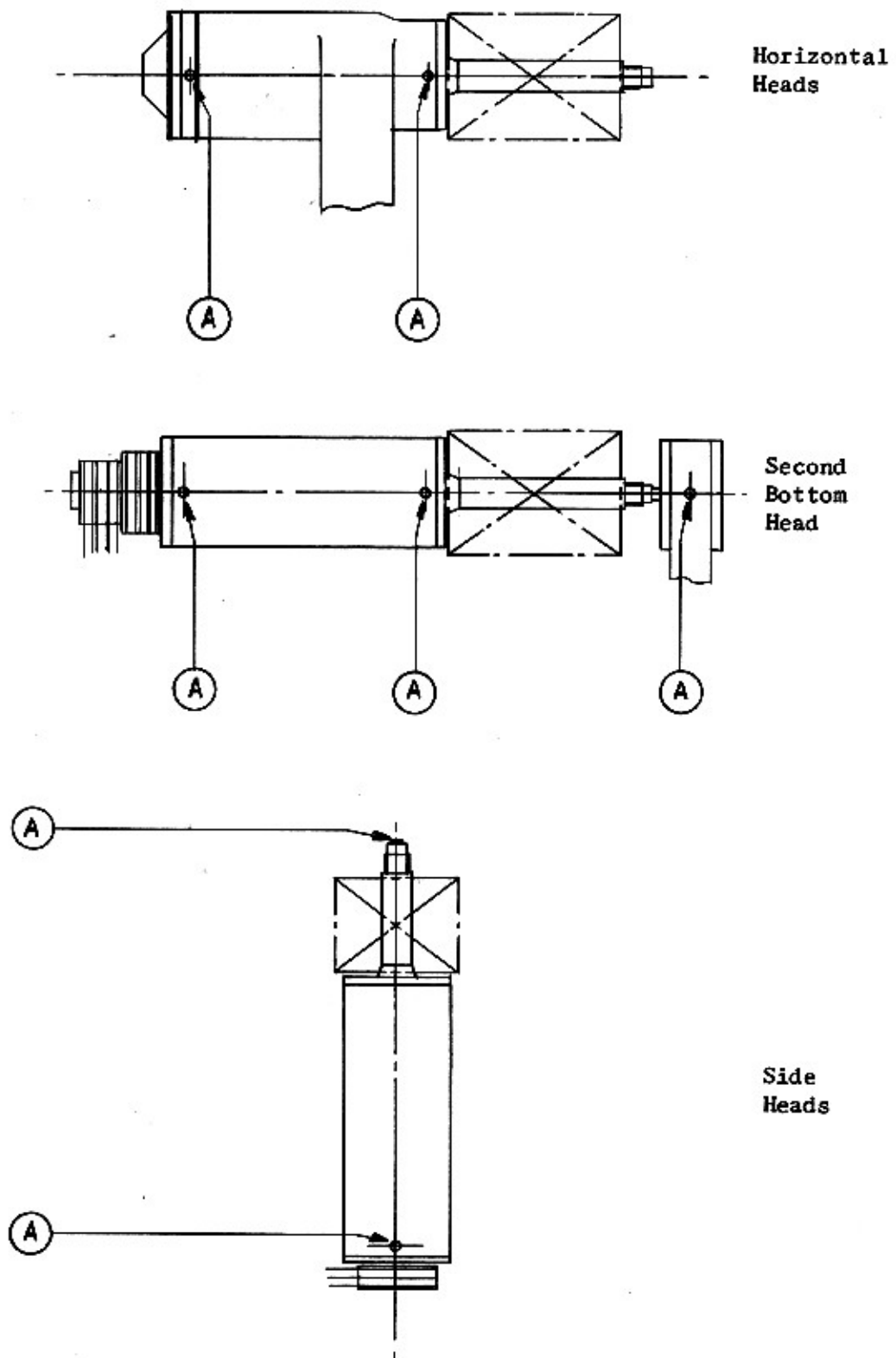
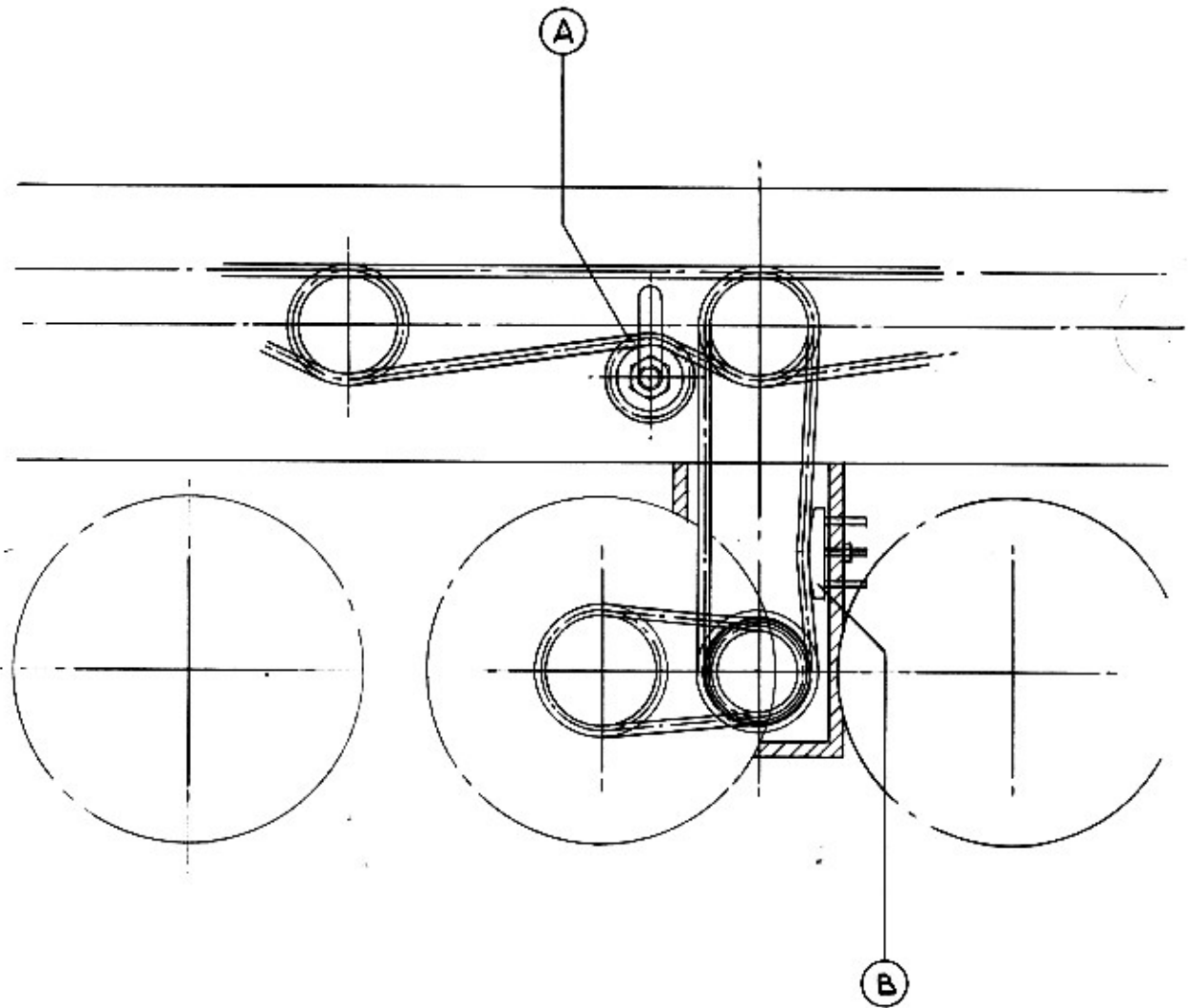


FIG. C5 CUTTER SPINDLE LUBRICATION

FIG. C6 FEED DRIVE CHAIN TENSIONING



WADKIN OILS AND GREASES WITH RECOMMENDED ALTERNATIVES

WADKIN GRADE	CASTROL	B. P.	SHELL	MOBIL	ESSO	GULF	CALTEX
L 1	Hyspin 70	HL 65	Tellus Oil 27	DTE Oil Light	Esstic 42 or Nuto H 44	Harmony 44	Regal Oil A R and O
L 2	Alpha 417	Energol CS 150	Vitrea 69	DTE Oil BB	Esstic 65	Security 85	Meropa Lubricant 2
L 4	Perfecto NN	Energol CS 100	Vitrea 33	Vactra Oil Heavy Medium	Esstic 50	Security 53	Ursa P20
L 6	Spheerol AP3	Energrease LS	Alvania Grease No. 3.	Mobilux Grease No. 3.	Beacon 3	Gulfcrown Grease No. 3.	Regal Starfak Premium 3
L 9	Spheerol EP	Energrease PR EP2	Rhodina Grease No. 3.	Larital No. 2.	Ladex 1	Gulfcrown Grease EP No. 2.	Multifak EP 2
L 10	Dixol 50 (Dilute 50/1)	Energol SB 40 (Dilute 50/1)	Dromus Oil D	Solvac T	Kutwell 60	Gulfcut Soluble Oil NT	Cooltex

SECTION D
ELECTRICAL EQUIPMENT

INSTALLATION

See page A1.

FAILURE TO START

- (1) Electrical supply not available at the machine.
- (2) Fuses have blown or have not been fitted.
- (3) Isolating switch has not been closed.
- (4) Lock off stop buttons have not been released.

STOPPAGE DURING OPERATION AND FAILURE TO RESTART

- (1) Fuses have blown.
- (2) Overloads have tripped.
- (3) Accidental operation of a master stop button.

ELECTRICAL MAINTENANCE

The machine does not require regular electrical maintenance apart from blowing down motors and checking the earth connection. Control gear should not be opened up unless a fault occurs. Do not file switch-gear contacts and do not change them unless they are definitely faulty.

See circuit diagram supplied separately.

ADJUSTMENT TO OVERLOADS

Some overloads have an adjustable current setting, but these are set at Wadkin Limited to correspond with the full load current of the motor and should not require further attention.

SECTION F

Suggested List of Wearable Parts to be kept as Spares

When ordering spare parts, always quote machine symbol, serial number and test number.

No. per m/c	DESCRIPTION	Part Number
	<u>Feedworks</u>	
	Prescollan feed roller.	FW.710
	Spiral fluted feed roller.	FW.702
1	Sprocket for drive unit (15 teeth).	FW.676
1	Input sprocket (48 teeth).	FW.670
1	Per roll shaft - double sprocket (14 teeth).	FW.671
1	Per roll shaft - single sprocket (20 teeth).	FW.672
1	Per roll shaft - outer sprocket (pivot shaft) (20 teeth).	FW.673
1	Per roll shaft - inner sprocket (pivot shaft) (17 teeth).	FW.674
1	Per roll shaft - sprocket for feed roll shaft (22 teeth).	FW.675
1	Per roll shaft - bush for pivot shaft.	FW.679
1	Per roll shaft - spring.	FW.718
4	Per roll shaft - sealed ball bearing.	135.RSS
1	Per roll shaft - vertical chain (60 pitches).	110038
1	Per roll shaft - bottom chain (38 pitches).	110038
1	Chain from drive unit (74 pitches).	110046
	Top drive chains (in beam) (specify No. of pitches).	110046
2	Per roll shaft - inner pivot bushes.	20.DU.20
1	Belt for variable speed drive unit.	
	<u>Fences</u>	
1	Front fence after near side head.	FW.634
1	Front fence shoe after 2nd top head.	FW.635
1	Front fence shoe before 2nd top head.	FW.636
1	Fence nose piece after fence side head.	FB.218
1	Front fence before near side head (models 1 & 2).	FW.611
1	Rear infeed fence (models 1 & 2).	FW.51

1	Front fence before near side head (models 5 & 6).	FW.798
1	Rear infeed fence (models 5 & 6).	FW.68
1	Rear fence after 2nd top head (models with universal, or 2nd bottom heads).	FW.698
1	Rear fence under 2nd top head (models with universal, or 2nd bottom heads).	FW.699
2	Fence for outfeed table (models 2 & 6 - NOT U).	FC.68
1	Rear fence under 2nd top head (models 1 & 5 - NOT U).	FW.769
1	Spring loaded shoe before fence side head.	FZ.735
2	Fence for universal head outfeed table (all U models).	FW.693
	<u>Cutter Spindles</u>	
1	Near side head chipbreaker.	FW.606
3	Per top head - chipbreaker shoe.	FW.420
1	Exhaust hood near side head.	FW.657
1	Exhaust hood fence side head.	FW.658
1	(Second bottom head only) Outboard bearing sleeve.	FB.1718
	Locking cone.	FAC.13
	Spindle nut (second bottom head only).	FB.2129
	Spindle nut (right hand thread).	FB.2126
	Spindle nut (left hand thread).	FB.2127
2	Per head - main spindle bearings (second bottom and side heads)	N.1071
1	Outboard bearing (second bottom head only).	N.3349
1	Pair per head - A.C. spindle bearings (1st bottom, top and universal heads).	N.6226
1	Per head - rear spindle bearing (1st bottom, top and universal heads).	N.1071
1	Timing belt (first bottom head only).	360.H.100
1	Per head - Timing belt (top and universal heads).	390.H.100
	Vee belts for side heads.	ALPHA.530
	Vee belts for second bottom head.	ALPHA.560

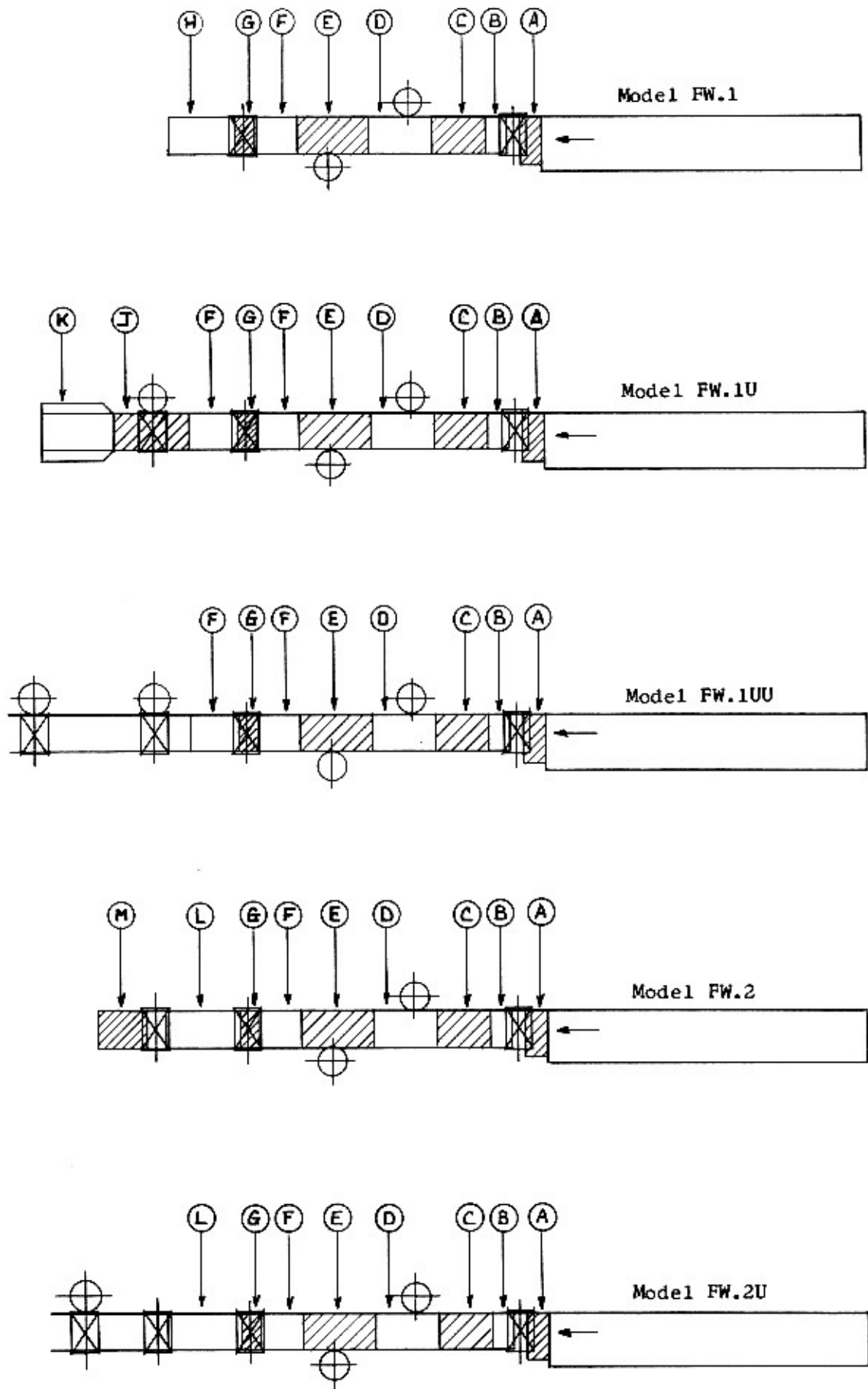


FIG. F1 BED PLATE CHART (MODELS 1 & 2).

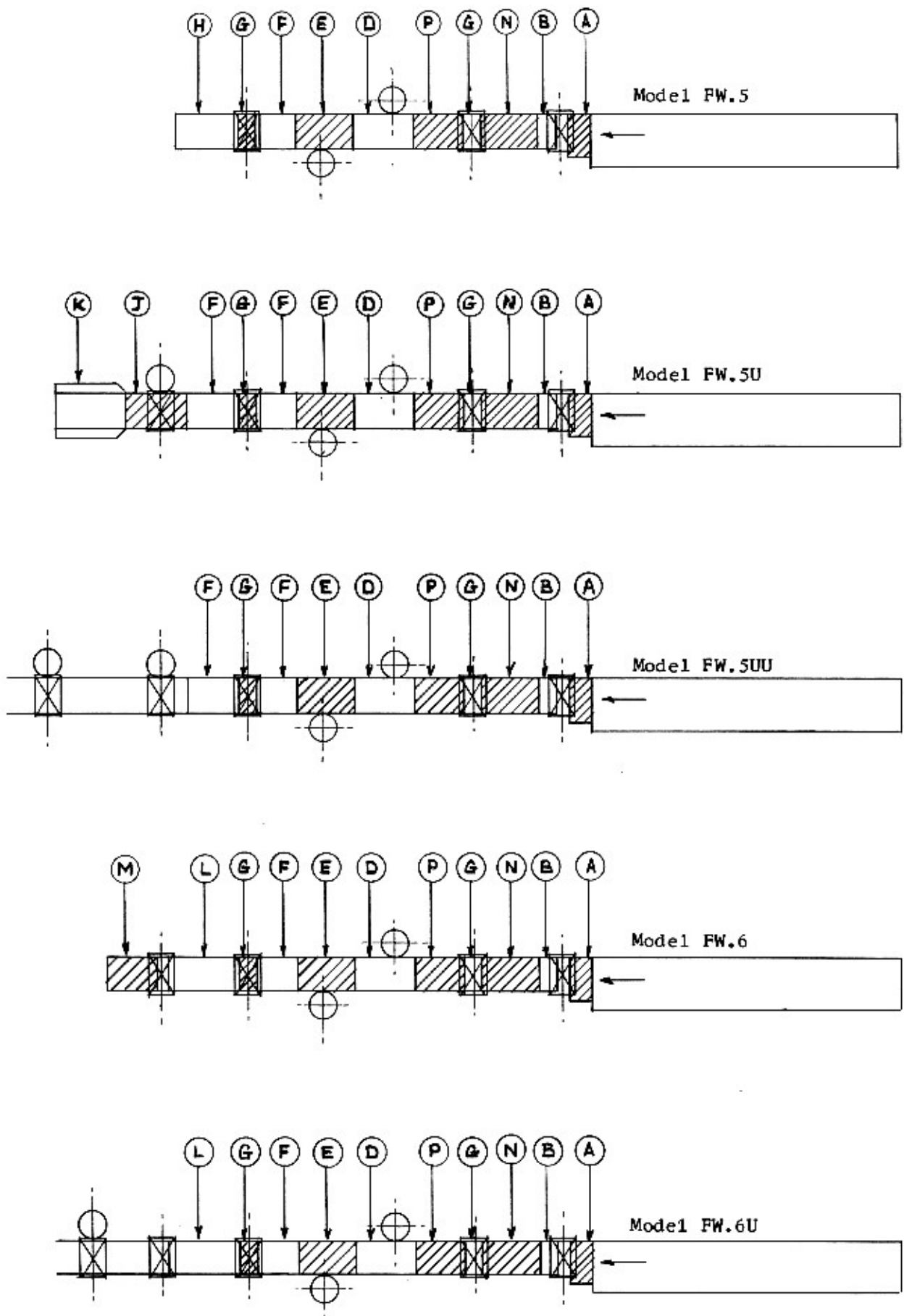


FIG. F2 BED PLATE CHART (MODELS 5 & 6).

KEY TO BED PLATE CHARTS (FIGS. F1 & F2)

Key	DESCRIPTION	Part Number
A	Bed plate before 1st bottom block.	FW.14
B	Bed plate for 1st bottom head.	FW.318
C	Bed plate after 1st bottom head.	FW.629
D	Bed plate for fence side head.	FW.627
E	Bed plate for near side head.	FW.628
F	Bed plate under top head.	FW.631
G	Bed plate under top head (Permal).	FW.630
H	Bed plate for outfeed table.	FW.204
J	Bed plate for universal head (side and top positions).	FW.934
J	Bed plate for universal head (bottom head position) long.	FW.930
J	Bed plate for universal head (bottom head position) short.	FW.931
K	Bed plate for universal head outfeed table.	FW.933
L	Bed plate before second bottom head.	FW.764
M	Table after second bottom head.	FB.2205
N	Bed plate after 1st bottom head.	FW.794
P	Bed plate after 1st top head.	FW.795