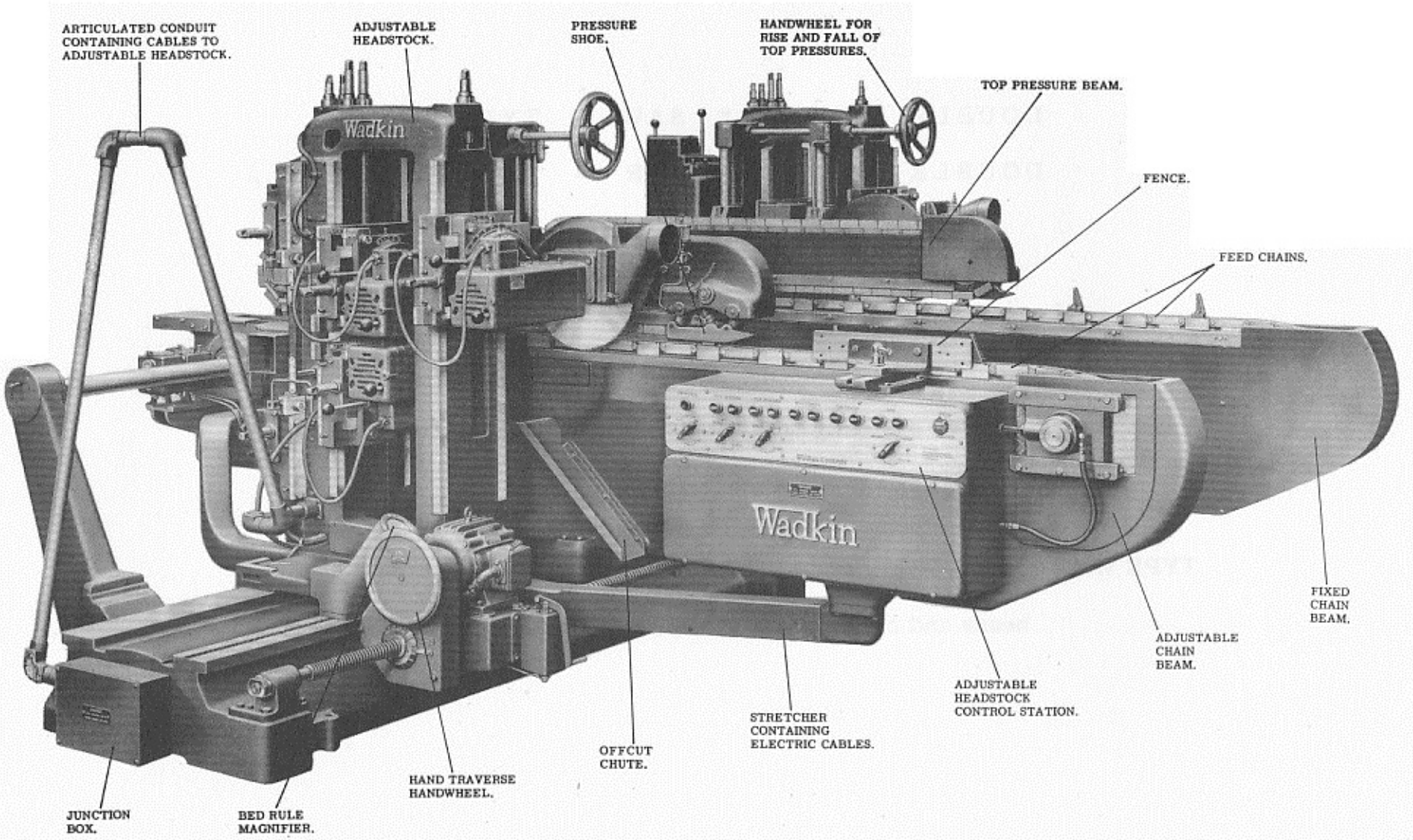
Wadkin

T: 0116 276 9111

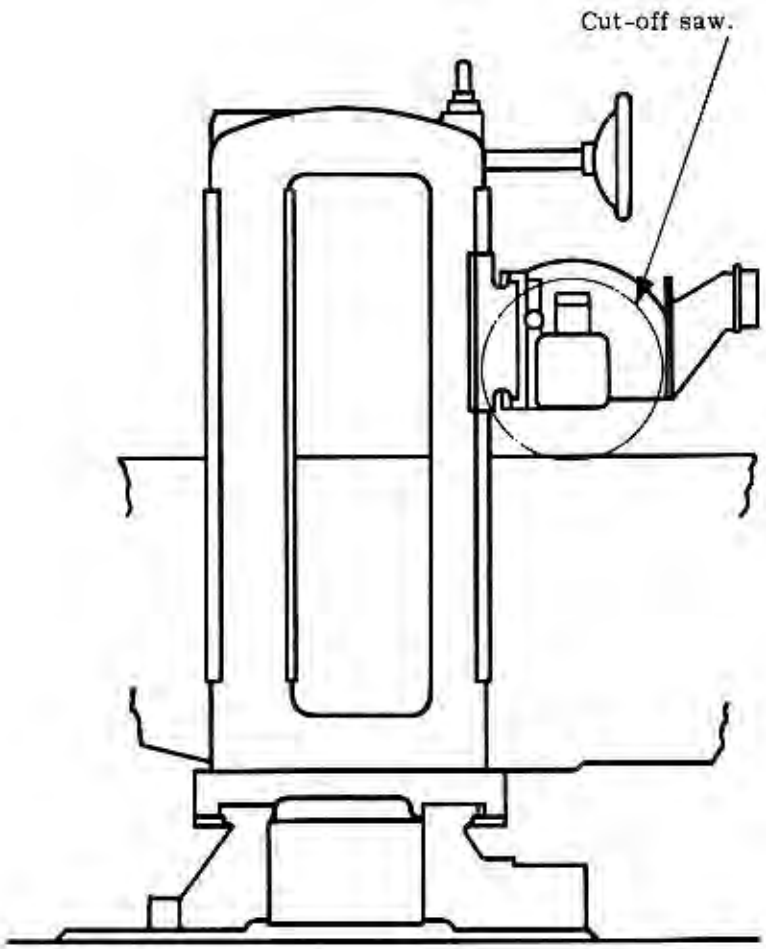
DOUBLE CUT OFF SAW - TYPE W.G.
DOUBLE END TENONER - TYPE W.O.

TYPE W.G. is fitted basically with two cut off saw units. Scribing heads are optional extras supplied to order.

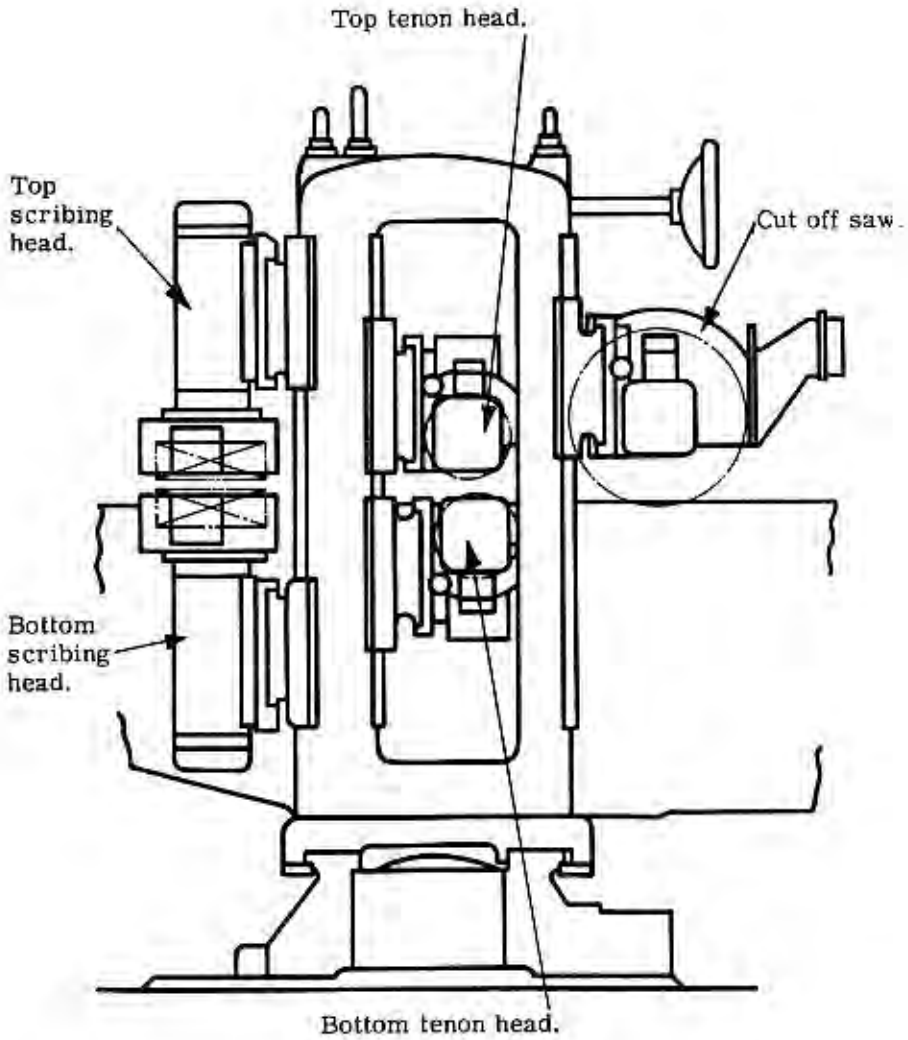
TYPE W.O. is fitted basically with top and bottom tenoning heads. Scribing heads and cut off saws are optional extras supplied to order.


ARTICULATED CONDUIT CONTAINING CABLES TO ADJUSTABLE HEADSTOCK.
ADJUSTABLE HEADSTOCK.
PRESSURE SHOE.
HANDWHEEL FOR RISE AND FALL OF TOP PRESSURES.
TOP PRESSURE BEAM.
FENCE.
FEED CHAINS.
FIXED CHAIN BEAM.
ADJUSTABLE CHAIN BEAM.
ADJUSTABLE HEADSTOCK CONTROL STATION.
STRETCHER CONTAINING ELECTRIC CABLES.
OFFCUT CHUTE.
HAND TRAVERSE HANDWHEEL.
JUNCTION BOX.
BED RULE MAGNIFIER.
Wadkin
Wadkin

ARRANGEMENT OF CUTTERHEAD
TYPE W. G.



ARRANGEMENT OF CUTTERHEADS
TYPE W. O.



DIMENSIONS AND CAPACITIES, TYPE W. G. /W. O.

Maximum section of material	30" x 3"
Maximum distance between saws	6'6"
Minimum distance between saws	7"
Maximum distance between shoulders of tenons	6'6"
Minimum distance between shoulders of tenons	$6\frac{1}{2}$"
Maximum length of tenon	$4\frac{1}{2}$"
Diameter of cut-off saws	14"
Cut-off saws cant	45° up and down
Minimum diameter of cutter track on tenoning heads	$6\frac{3}{4}$"
Maximum diameter of cutter track on tenoning heads	$9\frac{1}{2}$"
Tenoning heads cant	15° up and down
Minimum diameter of cutter track on top scribers (copes)	$8\frac{3}{4}$"
Maximum diameter of cutter track on top scribers (grooving saws)	11"
Minimum diameter of cutter track on bottom scribers (copes)	$8\frac{3}{4}$"
Maximum diameter of cutter track on bottom scribers (grooving saws)	11"
Scribing (cope) heads to cant	45° inwards 10° outwards
Rate of feed in feet per minute	11, 17, 27, 40.
Horse power and speed of motors :-	
All heads	4 H. P.
Speed of all heads	3000 r. p. m.
Feed motor	$1\frac{1}{2}$ H. P. 1000 r. p. m.
Power traverse to headstock	1 H. P. 1500 r. p. m.
Note:- If frequency changer is used scribers (copes) have additional speed of 6000 r. p. m.	
Approximate nett weight in cwts. type W. G.	$5\frac{1}{2}$ tons
Approximate nett weight in cwts. type W. O.	6 tons
Floor space W. G. /W. O.	12'11" x 11'10"
Overall height of machine W. G. /W. O.	5'11"

DUST EXHAUST SYSTEM

All cutter heads are fitted with an efficient exhaust hood for the speedy removal of chips and sawdust. The scriber and cut off saw hoods adjust with the heads, the top tenon hood is adjustable with the pressure, and the bottom tenon hood is fixed. A complete set of trunking has been designed for these machines and can be supplied to special order. The cut off saw exhaust hood has a $4\frac{1}{2}$" dia. spigot for the outlet. The scribers (copes) have an outlet $4\frac{1}{2}$" square and the top and bottom tenons 5" square.

TYPE W.O. In order to satisfactorily exhaust the connections a 15" dia. duct is required. The total water gauge resistance of the equipment amounts to 3" at the recommended velocity of 3600 ft./min. the capacity being 4470 cubic feet air/min.

TYPE W.G. If cut-off saws only are fitted, a 6" dia. main duct is required, recommended velocity 3100 ft./min. the capacity being 610 cubic feet air/min. If the machine is fitted with two cut-off saws and two scribers, a 9" dia. main duct is required, recommended velocity 3200 ft./min. the capacity being 1380 cubic feet air/min.

HEADSTOCK ADJUSTMENTS

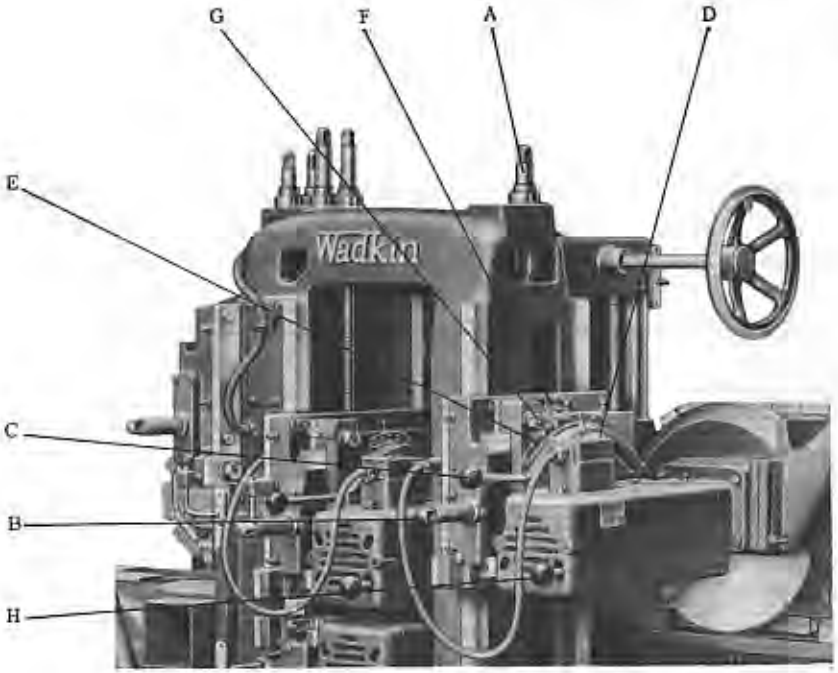


Fig. 1

NOTE:- The method of adjusting and operating the cutterheads on both fixed and adjustable headstocks is identical, and the following instructions refer to both.

CUT-OFF SAW.

The cut-off saw is shown in Fig. 1. The top shaft 'A' is rotated by using a ratchet spanner supplied and applying it to the square on the end of the shaft. This will raise or lower the complete saw carriage. This movement enables saws to be used above or below the timber level. Shaft 'B' is rotated to move the spindle unit in a horizontal direction, either towards the timber or away from it. The lever 'C' is for operating the canting motion to enable the saw to cant 45^{o} up or down. The whole saw carriage is locked from vertical movement by locking up the nut 'W' Fig. 4. The nut 'D' Fig. 1 locks the spindle canting movement. The nut 'G' Fig. 1 for locking the horizontal movement is situated at the end of the intermediate slide above the terminal block. The lever 'H' Fig. 1 is the brake lever and should only be applied after the motor has been cut.

A graduated scale is fitted to give a direct angular reading of the saw carriage as shown at 'E' Fig. 1. A rule for measuring the horizontal distance between the outer edge of the feed chain and the saw is fitted as shown at 'F' Fig. 1. Below nut 'D' Fig. 1 is a $\frac{1}{2}$" dia. dowel pin attached to the motor frame with a short length of chain. This is to positively locate

the saw in a vertical position and, when working with the saw vertical, should always be in position. Before canting the cut-off saw this dowel pin should be withdrawn from the dowel hole.

The saw is mounted direct on the spindle as shown in Fig. 2. It is driven by a driving pin and supported by 4" dia. saw collars; the saw and collars are locked up against the spindle shoulder with two hexagon locknuts. Tommy bar holes are provided on the spindle shank and through the front end cover and saw guard to facilitate holding the spindle when locking or unlocking the hexagon nuts. By removing the spacing collar hogging saws can be fitted for reducing the cut off portion of stock to sawdust or refuse.

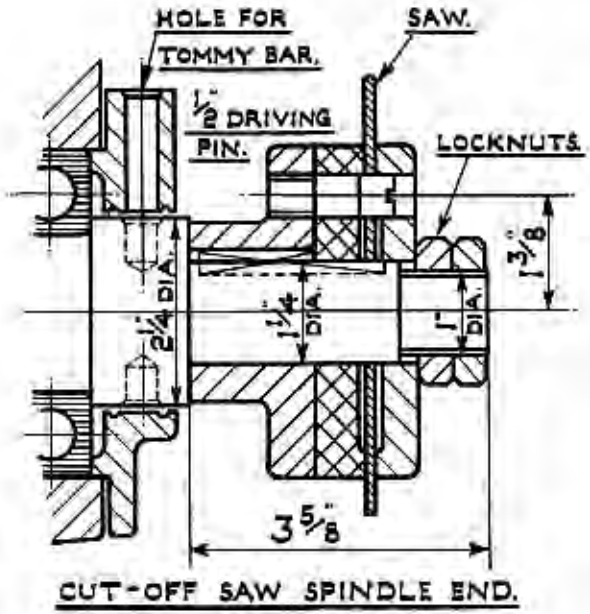


Fig. 2

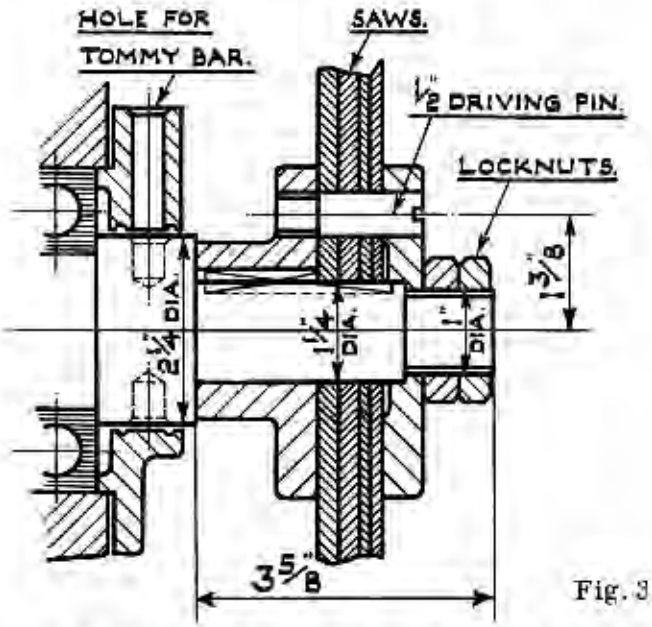


Fig. 3

TOP TENONING HEAD.

The top tenoning head carriage is moved vertically by rotating shaft 'A' Fig. 6 with the ratchet spanner. Horizontal adjustment towards or away from the timber is provided by rotating shaft 'A' Fig. 4. The lever 'B' Fig. 4 operates the canting motions to enable the tenon head to cant 15^{O} up or down. The top tenon head carriage is locked from vertical adjustment by nut 'C' Fig. 4, whilst the nut 'D' Fig. 4 locks the horizontal movement. The canting movement is locked by the two nuts 'E' Fig. 4. Rules are provided on all tenoning heads for setting the heads horizontally as shown at 'F' Fig. 4 and also setting the heads vertically as shown at 'G' Fig. 4. The vertical rules indicate the distance from the cutting edge of the tenon block to the top of the feed chain. A graduated scale is fitted to each tenon head to give direct angular reading for the canting motion. The lever 'N' Fig. 4 is the brake lever and should only be applied after the motor has been switched off. On each tenoning head,

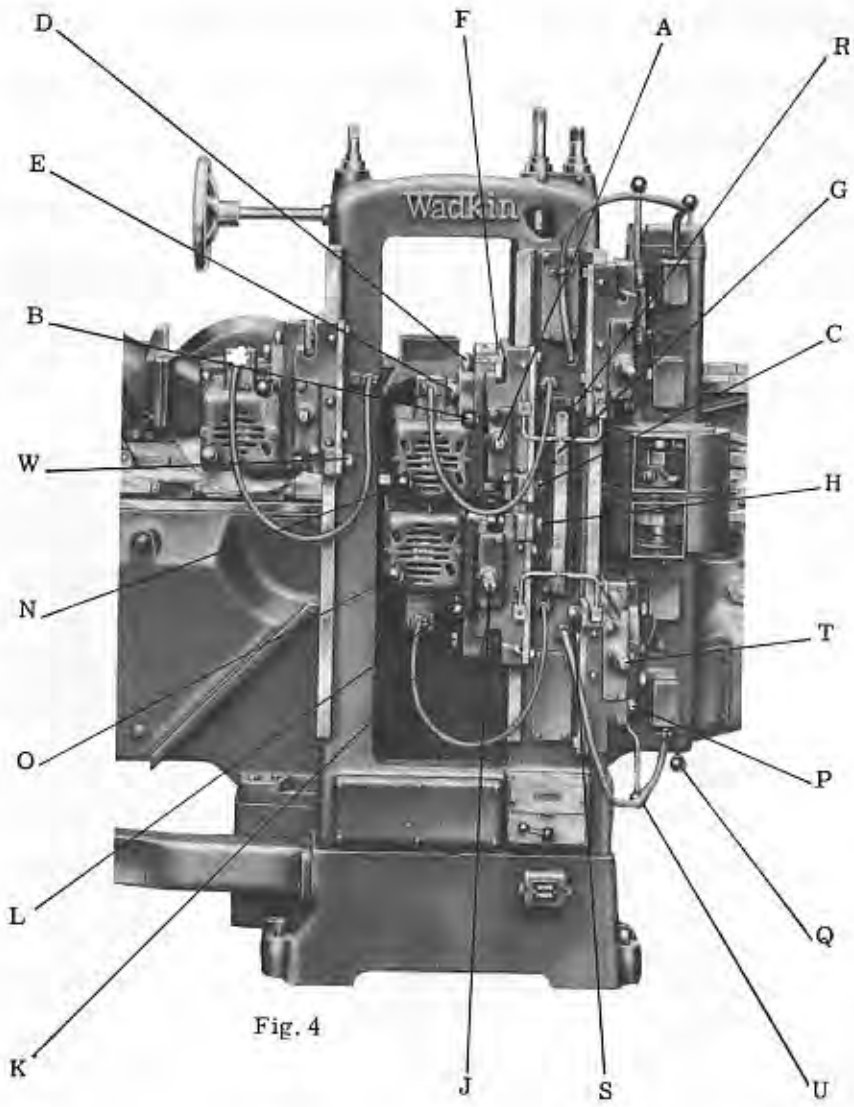


Fig. 4

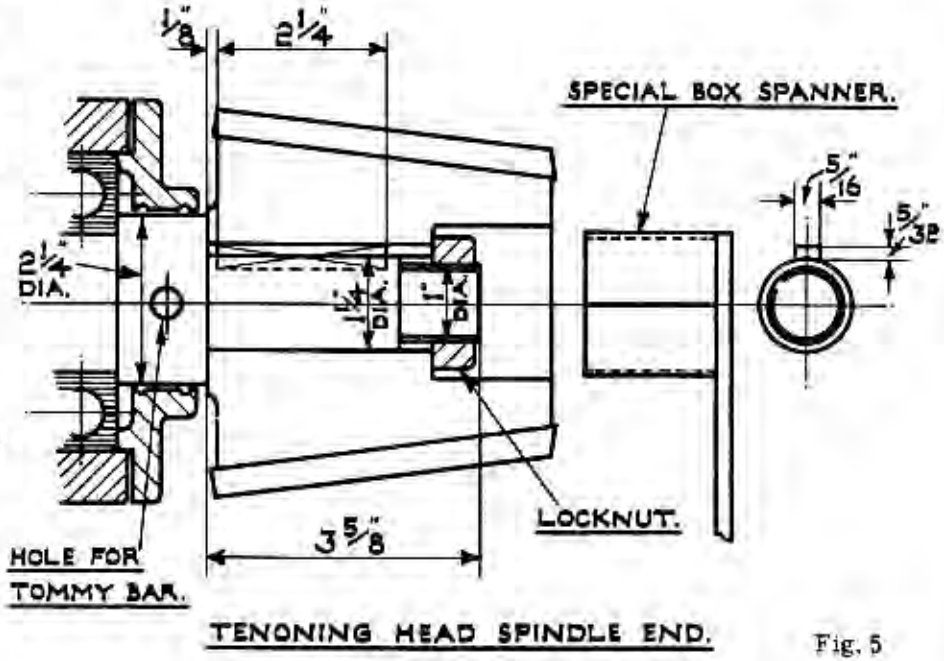
between the two nuts for locking the canting movement, is a $\frac{1}{2}$" dia. dowel pin attached to the motor frame with a short length of chain. This is to positively locate the tenon head in a horizontal position and, when working with the tenon heads horizontal, should always be in position. Before canting the tenon heads this dowel pin should be withdrawn from the dowel hole.

BOTTOM TENONING HEAD.

The bottom tenoning head carriage is mounted on the same vertical column as the top head, the shaft 'B' Fig. 6 controlling the rise and fall movement. The locking nut for this movement is at 'H' Fig. 4. The horizontal adjustment is obtained by rotating shaft 'J' Fig. 4 with the locking nut at 'K' Fig. 4. The lever 'L' Fig. 4 operates the canting motion whilst the two nuts form the lock as for the top tenoning head. The lever 'O' Fig. 4 is the brake lever and should only be applied after the motor has been switched off. References to rules and the locating dowel pin mentioned above for top tenoning head are also applicable to bottom tenoning head.

SPINDLE ENDS. (Tenoning Heads).

The method of mounting the cutterblocks is shown in Fig. 5. The blocks are driven with the key and locked in position with the hexagon nut. A special box spanner for locking this nut is supplied with the machine. A tommy bar hole through the front bearing end cap and into the shoulder of the spindle enables the spindle to be held when locking the nut.



TENONING HEAD SPINDLE END. Fig. 5

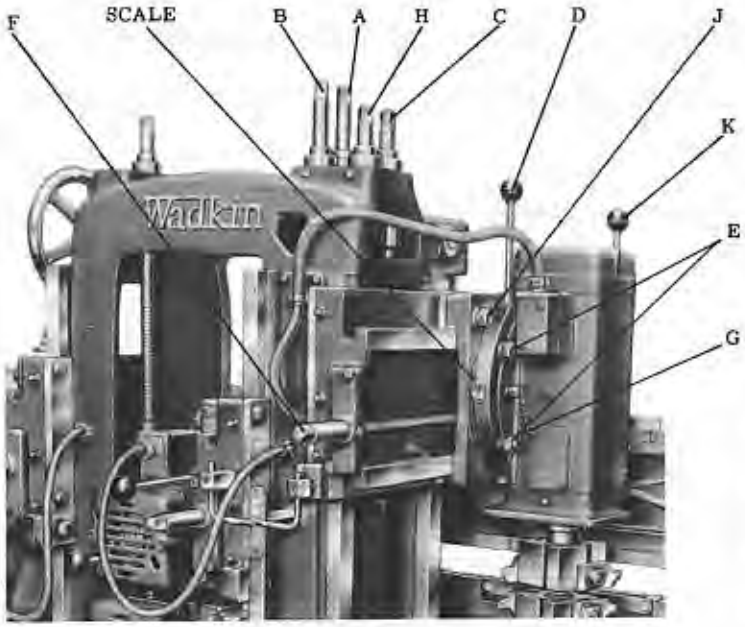


Fig. 6

TOP SCRIBING HEAD. (Cope).

The top scribing head is illustrated in Fig. 6. Vertical movement to the head is obtained by rotating shaft 'C' Fig. 6, the lock for this vertical movement being the nut 'R' Fig. 4. Lever 'D' Fig. 6 operates the canting motion to enable the heads to cant 45^{o} in or 10^{o} out. The canting movement is locked by the two nuts 'E' Fig. 6. Horizontal movement towards and away from the timber is provided by rotating shaft 'F' Fig. 6. To lock the horizontal movement is a nut at 'J' Fig. 6. Rules are provided for setting all scriber heads vertically as shown at 'G' Fig. 4. The vertical rules indicate the distance from the end of the scriber cutterblock to the top of the feed chain. A graduated scale is fitted to each scriber head to give a direct reading for the canting motion. The lever 'K' Fig. 6 is the brake lever and should only be applied after the motor has been switched off. On each scriber head is a $\frac{1}{2}$" diameter dowel pin attached to the motor frame with a short length of chain as shown at 'G' Fig. 6. This is to positively locate the scriber head in a vertical position, and when working with the scriber head vertical should always be in position. Before canting the scribing head, this dowel pin should be withdrawn from the dowel hole.

BOTTOM SCRIBING HEAD. (Cope).

The bottom scribing head carriage is mounted on the same vertical column as the top head, the shaft 'H' Fig. 6 controlling the rise and fall movement. The locking nut for this movement is shown at 'S' Fig. 4. The horizontal adjustment is by

shaft 'T' Fig. 4 with the locking nut at 'P' Fig. 4. The lever 'U' Fig. 4 operates the canting motion whilst the two hexagon nuts form the lock as on the top scribing head. The lever 'Q' Fig. 4 is the brake lever and should only be applied after the motor has been switched off. References to rules and the locating dowel pin mentioned previously for top scribing head are also applicable to bottom scribing head.

SPINDLE ENDS. (Scribing heads).

The scribing cutterblocks are mounted direct on the cutterspindle as shown in Fig. 7, and driven with the 5/16" square key. They are locked in position with the locknut. The block is recessed to take the nut and a special box spanner is provided with the machine for locking this nut. A tommy bar hole through the front bearing end cap and into the shoulder of the spindle enables the spindle to be held when locking the nut. Access to the tommy bar hole is through the cut out portion in the scriber exhaust hood.

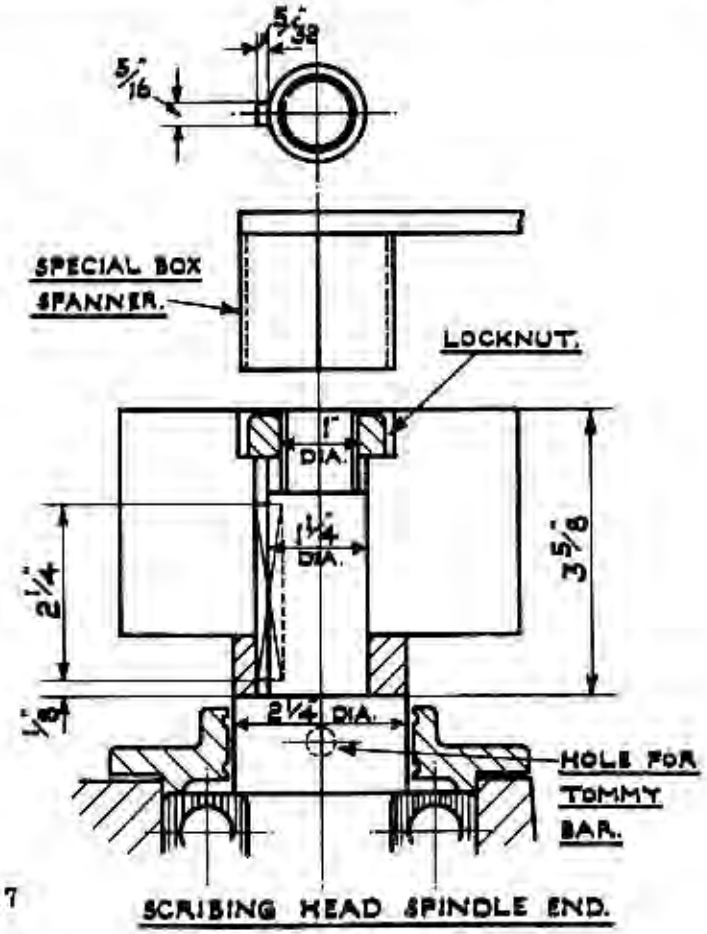


Fig. 7

PRESSURES.

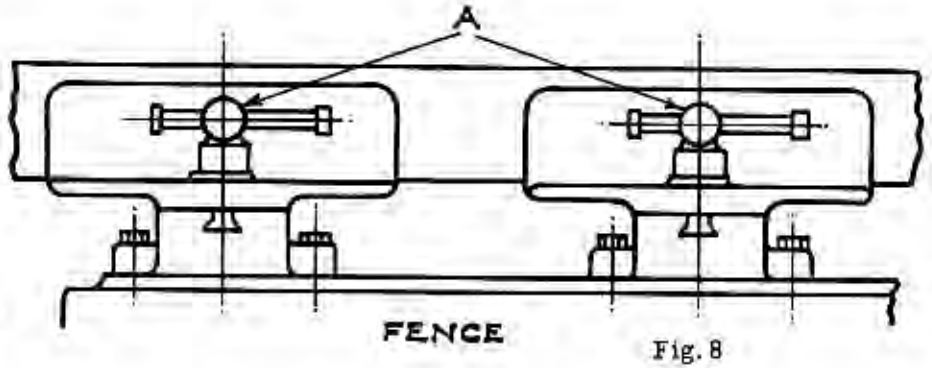
METHOD OF OPERATING.

The caterpillar type top pressure is generally illustrated on page 2, and the method of operating is identical on both fixed and adjustable headstocks. The pressure beam is mounted on two vertical shafts attached to the headstock columns. They are operated by spiral gears and screws actuated by the handwheel shown on page 2. A scale and pointer are fitted to indicate the vertical setting. The beams adjust up to $8\frac{1}{2}$" above the feed chain to give easy access to the cutterheads when setting up. At the feeding-in end of each pressure beam a spring-loaded pressure shoe is fitted to bring the work in contact with the feed chain dogs and to control the work before engaging the pressure beam chain. When working large panels with the feed dogs reversed, with the panels pushing up to the feed chain dogs, these pressure shoes must be raised to make them inoperative so that they do not push the panels away from the dogs. This is achieved by raising the pressure shoes and inserting the 'U' collar on the pressure beam underneath the two adjusting locknuts.

FENCE.

METHOD OF OPERATING.

The fence is fitted on the adjustable chain beam at the feeding-in end, the slide base being fitted on top of the control station. To obtain cross adjustment handle 'A' Fig. 8 is unlocked, this leaves the fence free to slide. The fence plate is drilled and countersunk to take No. 10 woodscrews when wood packing pieces are required. It is also drilled and tapped to enable a core gauge to be fitted when required. A core gauge is required to gauge from the end of the core of veneered pieces, when sizing material, where the veneer is overhanging.



FENCE

Fig. 8

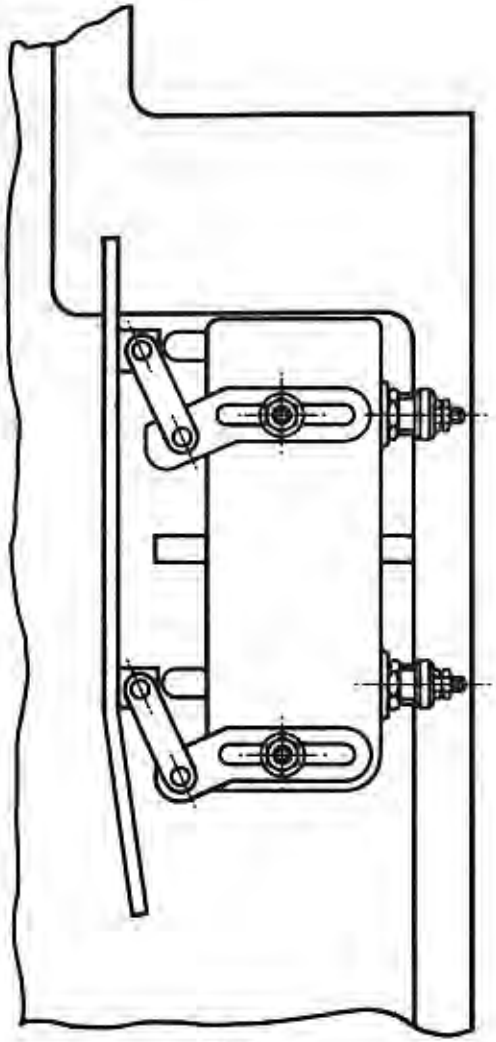


Fig. 9

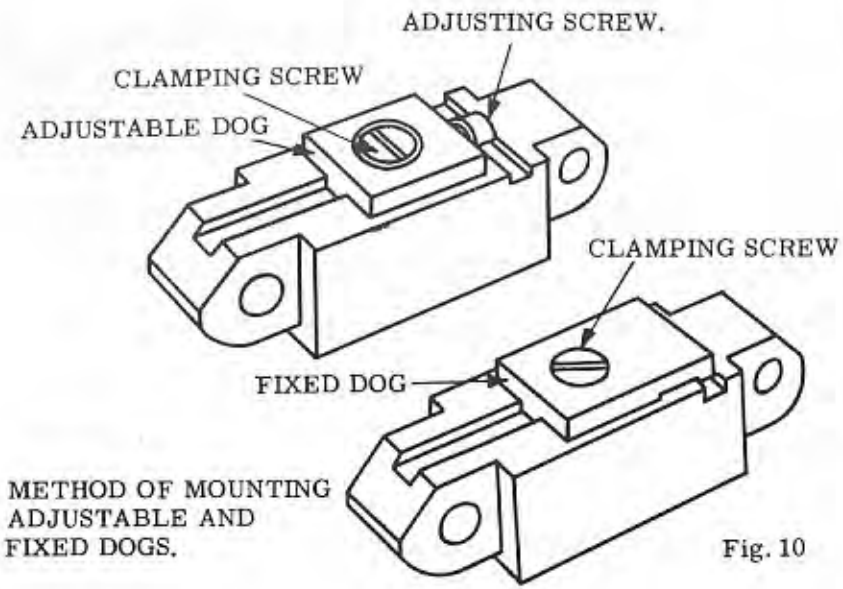
SPRING LOADED SIDE PRESSURE.

SPECIAL SIDE PRESSURE FOR HAUNCHING.

When doing a haunching operation it is essential that the timber is held up to the fence until taken up by the top pressures. If the timber moves sideways at all, the haunch will not match up with the shoulders of the tenons. To facilitate this operation a special spring loaded side pressure has been designed, Fig. 9. This is fitted on top of the control box on the opposite side to the fence. It has adjustment laterally and has a parallel link action, spring pressure being adjustable. The timber being fed through is held hard up to the fence by means of the parallel bar on the side pressure, thus ensuring a constant dimension from the fence to the shoulder of the tenon.

FEED CHAIN OPERATION.

The complete range of feed dogs for both chains is shown on page 29, one set consists of 16 fixed and 16 adjustable feed dogs at 16" pitch. Disappearing dogs can be fitted (to special order). A standard set consists of 4 fixed and 4 adjustable disappearing dogs at 5'4" pitch. For panel work, the disappearing dogs are mounted facing the operator and a standard set consists of 4 fixed and 4 adjustable disappearing dogs at 5'4" pitch with the exception



METHOD OF MOUNTING ADJUSTABLE AND FIXED DOGS.

Fig. 10

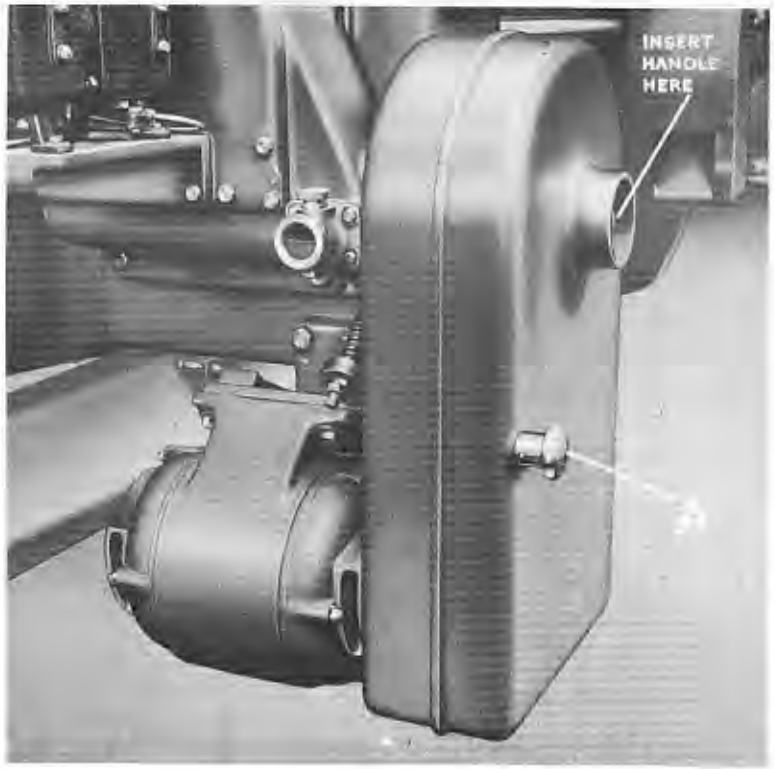


Fig. 11

of the 5/16" and 9/16" dogs, all other sizes are arranged to take backing pieces and are drilled accordingly. After selecting and assembling the feed dogs, Fig. 10, they should be tested for alignment by placing a square on the fence and checking that the dogs on the fixed chain beam are directly opposite and in line with the dogs on the adjustable beam. Adjustment can be obtained with the adjusting screw on the adjustable chain feed dogs.

When setting up it is often found desirable to move the feed chain without the power motion, and to facilitate this, a special cranked handle box spanner is provided with the machine to fit on the square worm shaft extension. This shaft is shrouded and a compression spring is fitted so that to use the hand traverse the handle must be inserted in the shroud and held against the spring, Fig. 11. The handle should be turned in an anti-clockwise direction to advance the feed chains.

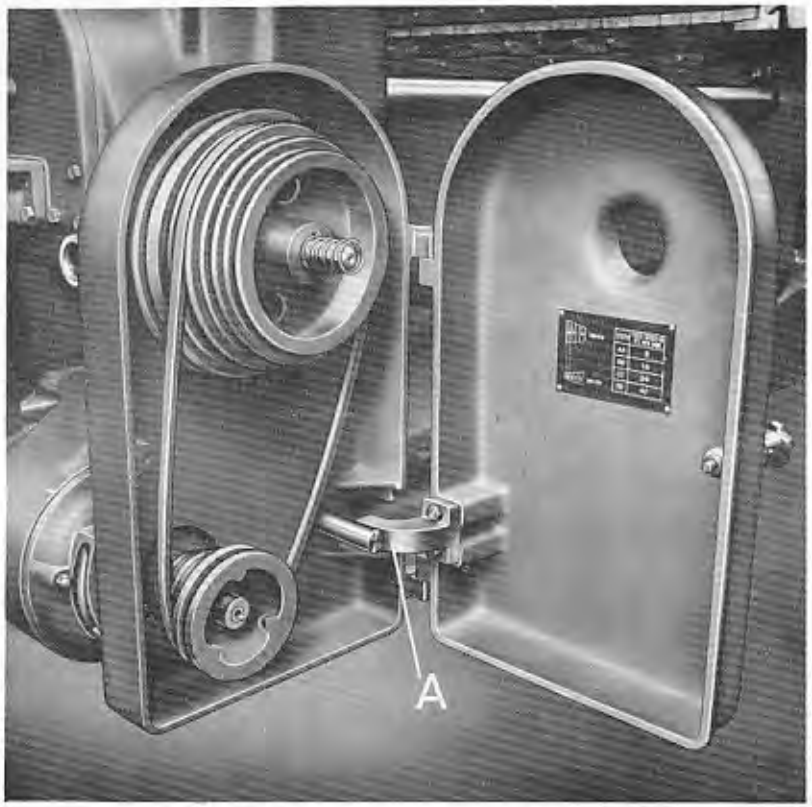


Fig. 12

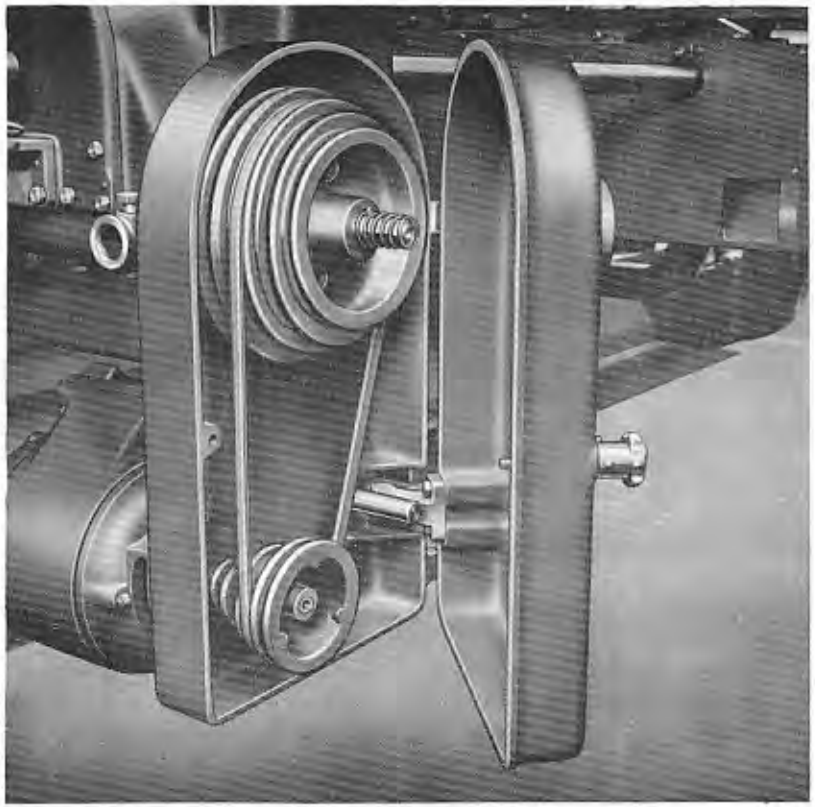


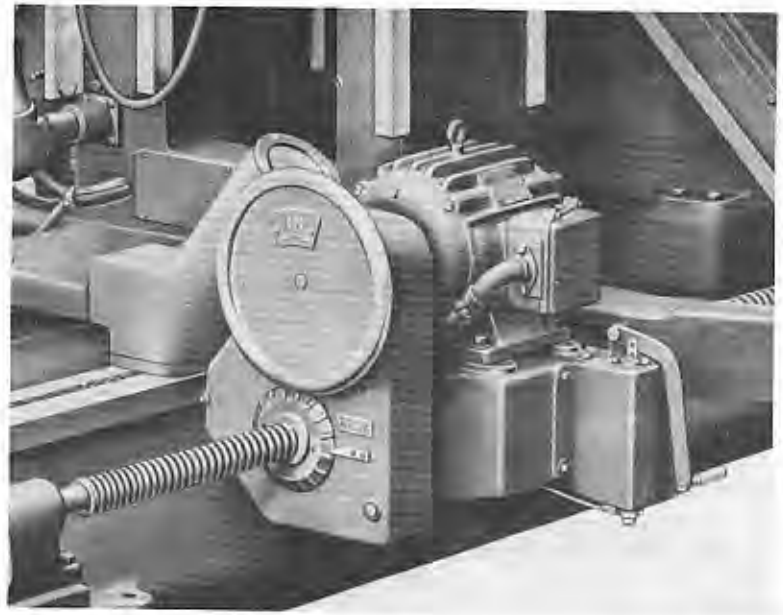
Fig. 13

CHAIN OPERATION (CONTD.)

The drive to the feed chain is transmitted via the rear feed shaft. The power from the motor is transmitted by a vee belt over four step cone pulleys to the worm shaft and wormwheel which drives the feed shaft. To obtain the various speeds unscrew handle 'A' Fig. 11 and open the door as shown in Fig. 12. This movement causes the cam 'A' to swing the motor out - wards, thus slackening the belt. On selecting the required speed the door should be closed to 45^{O} as shown in Fig. 13. This replaces the tension in the belt and enables the operator to see that the belt is in the correct position before finally fastening the door.

OPERATING TRAVERSE MOTION TO ADJUSTABLE BEAM.

The power traverse motion to the adjustable beam is obtained through a 1 H. P. motor mounted on the headstock as shown on page 2. The actual control for adjusting in or out is by rotary switch and push button mounted on the control station Fig. 17. For fine adjustment however, the carriage can be moved by hand by rotating the handwheel on the traverse unit. One complete revolution of the traverse handwheel gives $\frac{1}{4}$" horizontal movement either in or out to the adjustable beam. As stated at the control station, the headstock should be traversed manually above 74" and below 10". This will ensure that the beams are not jammed together under power when traversing inwards and that the traverse unit will not foul the end bearing of the traverse screw when traversing outwards. The rule which is set into the bed slide, is magnified and illuminated at the cursor line and can be read through the magnifier from both operating positions, that is, when traversing the beam under power from the switch on the control station, and also when making fine adjustment with the handwheel. Before moving the adjustable beam, give the hand pump four or five movements of the handle - this provides a film of oil to the bearing surfaces and reduces the effort needed to move the headstock.



TRAVERSE UNIT AND SCALE MAGNIFIER. Fig. 14

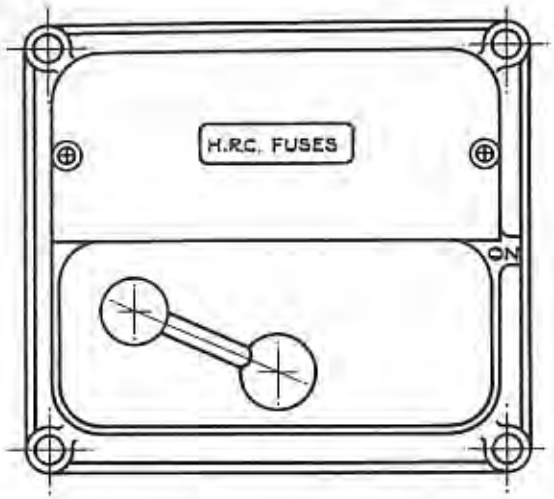


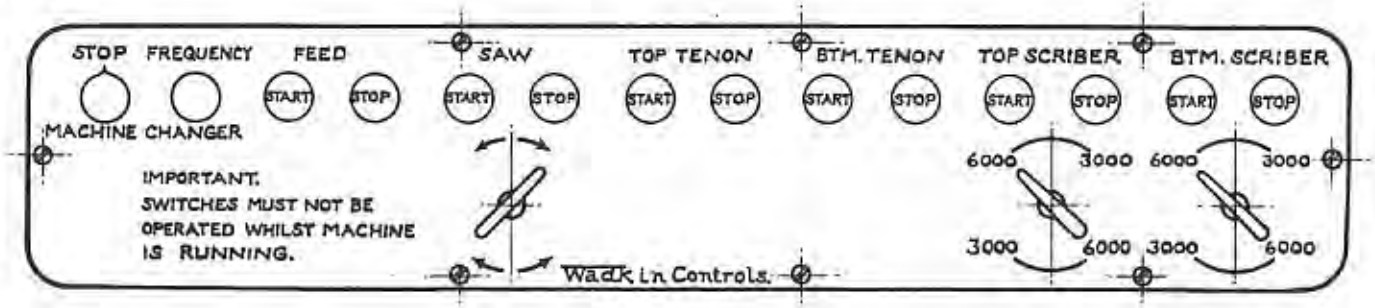
Fig. 15 ISOLATING SWITCH

TO SWITCH ON THE MAIN SUPPLY.

Move the isolating switch handle Fig. 15 to the 'ON' position. This switch is situated at the bottom of the fixed headstock column as shown on Fig. 4 . With this switch in the 'ON' position and the master stop buttons not locked off, the machine is ready to operate. When leaving the machine or setting up, or before exposing live terminals, always move this switch to the 'OFF' position. Access to the main fuses is gained by removing the cover above the switch handle, when visual indication shows a blown fuse.

CONTROL OF FIXED HEADSTOCK.

The fixed headstock control station is situated on the end of the beam at the infeed end and is engraved as shown in Fig. 16. If high frequency is supplied and the scribers (copes) are to run at 6000 r. p. m. the frequency changer should first be switched on as instructed on page 18. The switches on the fixed headstock controlling the cutterheads can now be started in any order.



CONTROL STATION FIXED HEADSTOCK. Fig. 16

(INCORPORATING HIGH FREQUENCY CONTROL)

CONTROL OF ADJUSTABLE HEADSTOCK.

The adjustable headstock control station is situated at the end of the beam at the infeed end and is engraved as shown in Fig. 17. The method of operating the switches is exactly the same as the fixed headstock switches.

TO SWITCH ON THE HIGH FREQUENCY SUPPLY. (When supplied).

After switching on the main supply ensure that all the switches are in the 6000 r.p.m. position and press the frequency changer start button. This will start the frequency changer set, which enables the scribers to run at 6000 r.p.m. as required.

CUT-OFF SAW.

The cut-off saw can be run above or below the track. The rotation of the saw is clockwise when cutting above the track and anti-clockwise when cutting below, looking at the non-driving end of the saw motor. To start the saw, set the switch in the 'Forward' or 'Reverse' position and press the start button. The saw will coast to rest when the stop button is pressed. For braking see page 6.

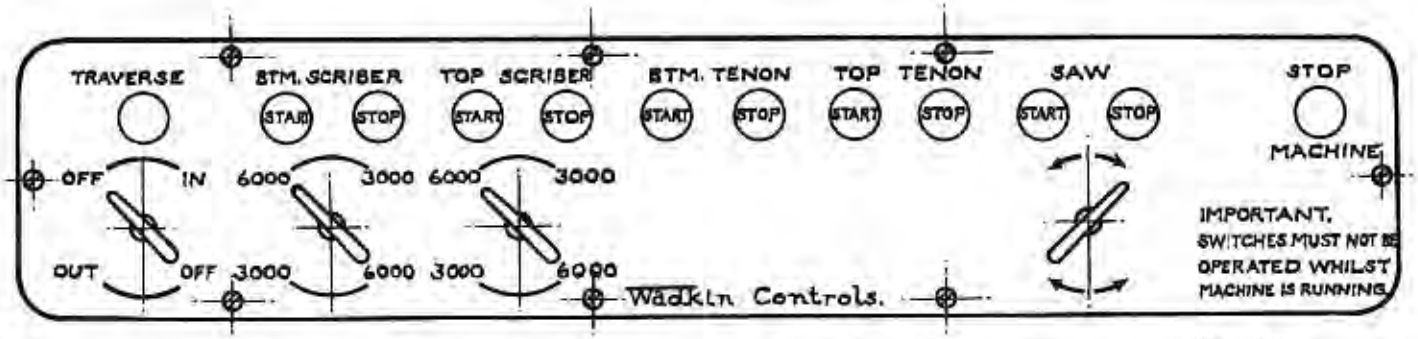


Fig. 17

CONTROL STATION ADJUSTABLE HEADSTOCK.
(INCORPORATING HIGH FREQUENCY CONTROL)

TOP AND BOTTOM TENON HEADS.

To start the top and bottom tenon heads, press the start buttons allocated to these heads on the control station. As on the other heads they coast to rest when the stop button is pressed. For braking see page 8 .

TOP AND BOTTOM SCRIBERS. (COPE HEADS).

To start the top and bottom scribing heads (cope heads) select the speed required, that is, 3000 or 6000 r.p.m. and press the start buttons. These heads also coast to rest when the stop button is pressed. For braking see page 10 .

FEED CONTROL.

The feed control is situated on the fixed headstock control station. There are two buttons for controlling the feed, a 'START' button and a'STOP'button. If the'STOP'button is pressed the feed chain will coast to rest.

MASTER STOP.

The master stop is the mushroom head red button marked 'STOP MACHINE' and when operated, stops all electrically driven units of the machine. This button is fitted with a lock off feature and should be depressed and half turned to lock the button in the 'OFF' position. This renders all controls inoperative and is used when leaving the machine or attending to cutter blocks. NOTE: This must be released before a start can be made.

TRAVERSE.

The traverse in and out is from the top left hand control of the adjustable control station by moving the switch to either 'IN' or 'OUT' positions, depressing and holding in the 'INCH' button. The traverse will operate only while this button is depressed. The traverse must be operated manually above 74" and below 10".

OPERATING THE LIMIT SWITCH.

To prevent power traversing the headstock too far along the bed, a limit switch is fitted to the saddle. The roller on the switch engages with a cam plate at each end of the bed, Fig. 18, and automatically stops the traverse unit. The plate at the fixed headstock end is mounted on two horizontal studs and may be adjusted vertically or horizontally, in or out. The cam plate at the adjustable headstock end of the bed is mounted on two vertical studs as shown in Fig. 18 and may be adjusted vertically or horizontally. These plates are set before despatch and only require further adjustment if not working correctly. It should be noted that the limit switch is set to operate at 10" when traversing towards the fixed beam and at 74" when traversing away from the fixed beam. Any further adjustment under 10" to a minimum of 6½" or over 74" to a maximum of 78" should be made by hand adjustment.

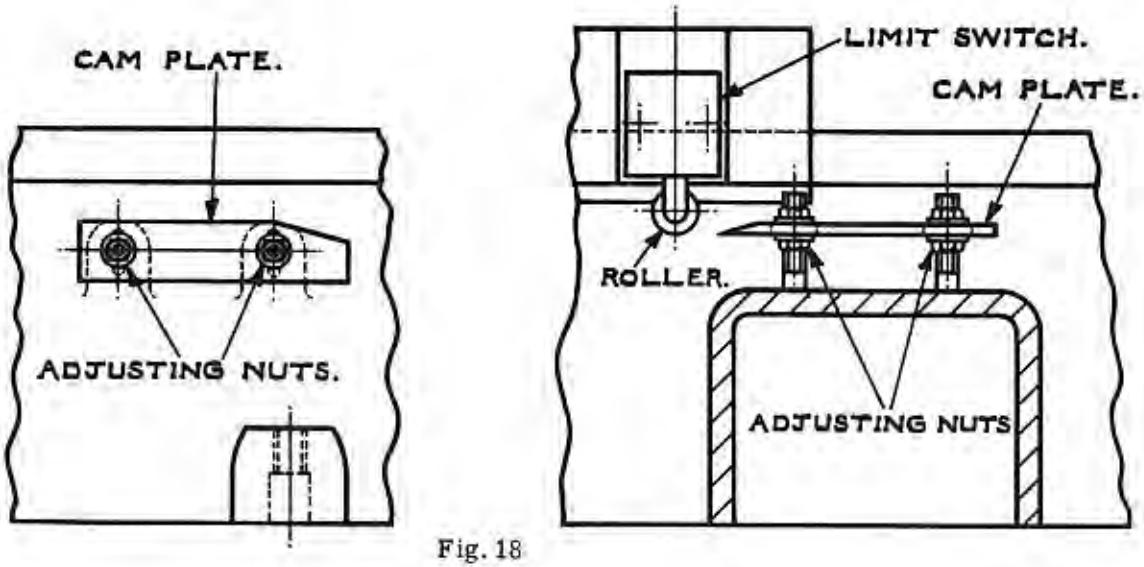


Fig. 18

BEARING LIST

POSITION ON MACHINE	MAKERS NO.	QUANTITY	BORE DIA.	OUTSIDE DIA.	THICK-NESS
Raising screws for top pressures and all cutterheads.	SKF. 08 Thrust washer	1 per raising screw.	1"	1.25/32"	5/8"
Nut for traversing headstock.	SKF. 019 Thrust washer	2	2.3/8"	3.9/16"	1"
Non driving end of all cutter spindles.	SKF. 1306 Double row self-aligning ball bearing.	1 per head	30 m/m	72 m/m	19 m/m
Driving end of all cutter spindles.	SKF. 6309 Deep groove single row ball bearing.	1 per head	45 m/m	100 m/m	25 m/m
Outer support end of feed shaft.	SKF. 6308 Deep groove single row ball bearing.	1	30 m/m	72 m/m	19 m/m
Wormwheel end of feedshaft.	SKF. 6408 Deep groove single row ball bearing.	1	40 m/m	110 m/m	27 m/m
Top pressure chainwheels.	Hoffmann 130DR Narrow double row ball journal.	2	30 m/m	62 m/m	20 m/m
Wormwheel end of wormshaft.	SKF. 6307 Deep groove single row ball bearing.	2	35 m/m	80 m/m	21 m/m
Pulley end of wormshaft.	SKF. 1307 Double row self-aligning ball bearing.	1	35 m/m	80 m/m	21 m/m
Traverse motor.	Hoffmann 125 Deep groove ball journal bearings (light series)	2	25 m/m	52 m/m	15 m/m
Feed motor.	Hoffmann 130 Deep groove ball journal bearings (light series)	2	30 m/m	62 m/m	16 m/m
Non-driving end of Frequency Changer and Driving Motor.	Ransome & Marles Single Row Ball Bearing	2	1.3/8"	3"	11/16"
Driving end of Frequency Changer and Driving Motor.	Ransome & Marles Single Row Roller Bearing	2	$1\frac{3}{4}$"	$3\frac{3}{4}$"	13/16"

ADJUSTING TOP PRESSURE TRACK.

The method of tensioning the top caterpillar track is shown in Fig. 19. The bracket holding the quadrant moves on a check strip on the beam. The clamping nuts 'A' should first be slackened and then the locknut on the adjusting screw 'B' should be unlocked. By turning the screw 'C' the bracket can be moved either in or out. When the required adjustment has been made the locknut 'B' should be locked up against the square face and clamping nuts 'A' relocked. The rubber pressure pads are held in position with two screws and special washers and are easily detachable. Care must be taken always to replace the special washers.

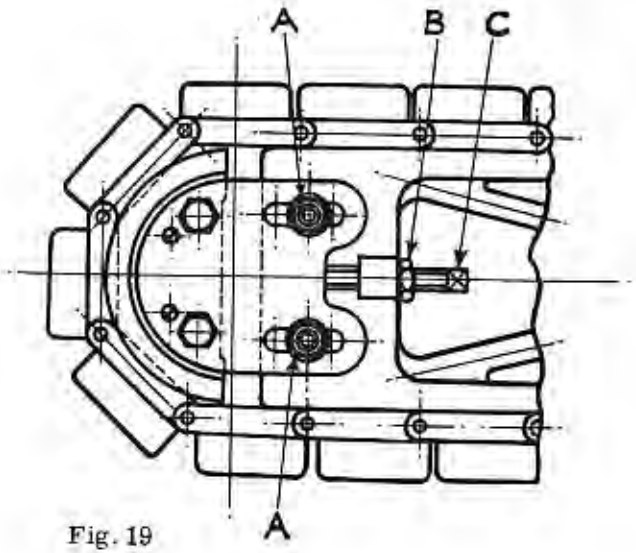


Fig. 19

ADJUSTING FEED CHAINS.

Adjustment for both feed chains is provided at the feeding-in end of the beams as shown in Fig. 20. The idler chain sprockets are supported in bearing blocks and these blocks move between the slideways and are held in position by lip plates. To tension the chain, the locknut 'A' should be slackened off and the screw 'B' turned until the required tension has been obtained. Both chains should be adjusted an equal amount and aligned as described on page 23. After adjustment has been made the sheet iron covers should be removed to ensure that the feed dogs are clearing all points.

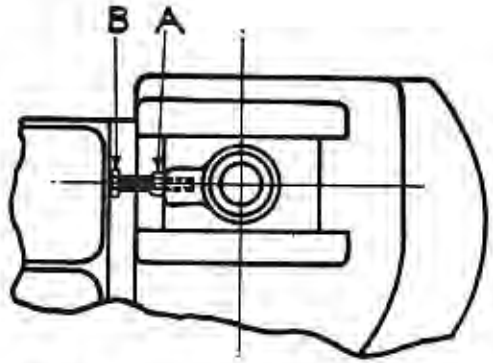
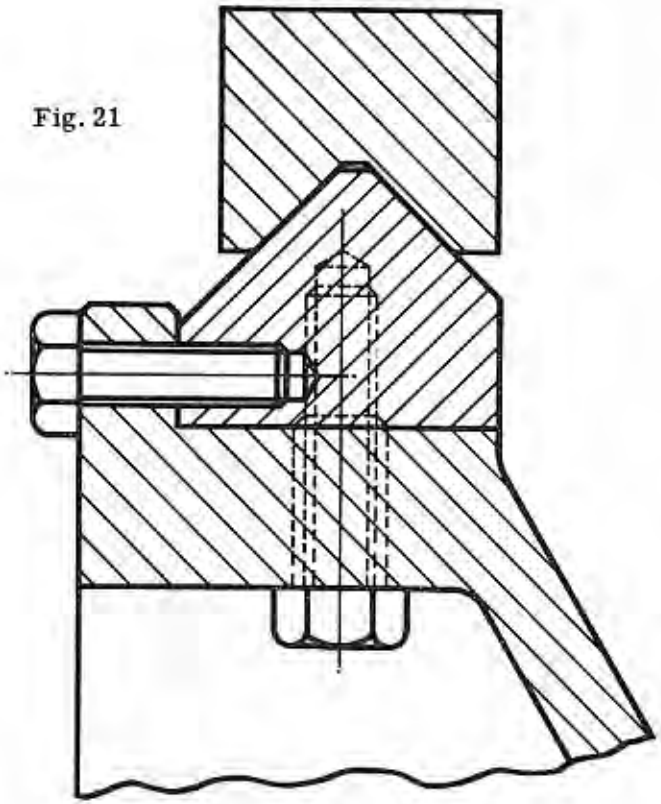


Fig. 20

ALIGNMENT OF FEED CHAIN RAILS.

The inverted vee-shaped rails for the feed chains are mounted on a facing running the length of the chain beam, and bolted in position as shown in Fig. 21. Provision is made at various points along the rail for setting the rails in alignment with the heads and parallel to each other. The setting of the rails in alignment must be carried out very accurately using precision measuring instruments. The rails are set on the machine correctly before despatch and should not normally need adjusting. If at any time the rails are found to be out of alignment, it is advised that Wadkin Ltd. be consulted for further information on this matter.

Fig. 21



SECTION THROUGH FEED CHAIN.

HEADSTOCK MOTORS (Cut-off Saws, Tenon Heads and Scribing Heads).

The headstock motor bearings are lubricated by grease only. It is recommended that only WADKIN special ball bearing grease is used. The bearings should be given three depressions of the grease gun every three months. It is essential that the specified amount of grease is delivered to the bearings at regular intervals to ensure the true running of the spindle.

Use WADKIN GREASE GRADE L. 6. The two grease lubricator points on the cut-off saw motor are shown at 'A' Fig. 22.

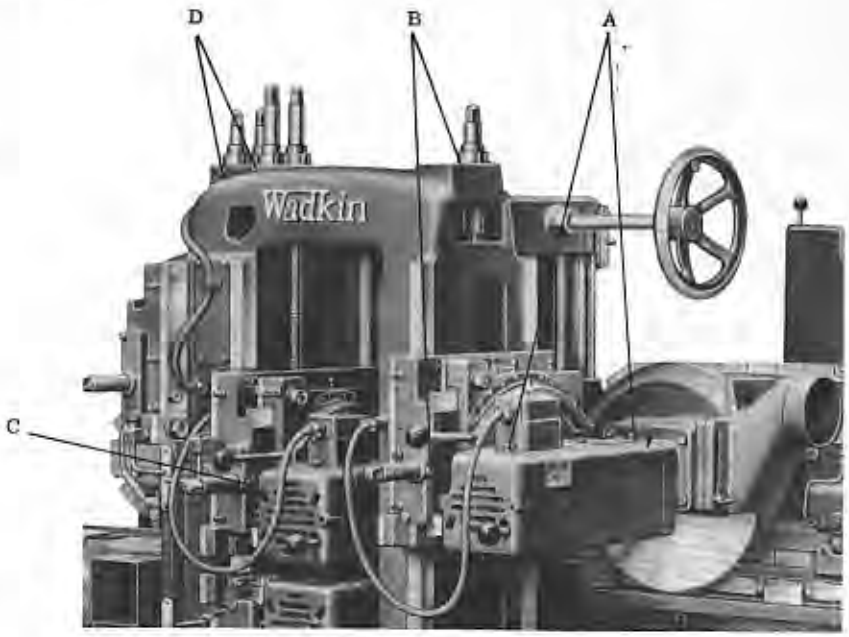


Fig. 22

Two similar points are on each of the other cutterhead motors, some of which will be on the underside of the motor frames for reasons of accessibility. The two points 'B' Fig. 22 on the cut-off saw unit are oiling points and should be given three depressions of the oil gun weekly. Two similar points to these will be found on each tenon and scribing head and should be oiled similarly. The point 'C' on the tenon head, Fig. 22, is the oiling point for the horizontal adjusting screw. 'D' indicates the position of the oil nipples for the raising screw bearings, one for each raising screw, making four points in all. These points should be given three or four depressions of the oil gun weekly. Use WADKIN OIL GRADE L4. A slight film of oil applied with an oil can on the slide faces of all the heads will result in smooth operation. Also, oil should be applied to the main rise and fall screws and horizontal adjustment screws.

All the greasing and oiling points referred to above are applicable to both fixed and adjustable headstocks.

TRAVERSE MOTION.

The bed slides of the traverse motion are lubricated by the hand-operated oil pump mounted on the front of the motor bracket, Fig. 23. Pipes are taken from this pump to the slides on the saddle and the traverse screw. The pump should be kept filled with WADKIN GRADE 4 OIL, and the oil level in the tank checked daily. As previously noted under 'OPERATING TRAVERSE MOTION TO ADJUSTABLE BEAM', this pump should be operated four or five times before headstock is traversed. The end bearings of the traverse motor are lubricated by a grease nipple at each end of the motor as shown at 'A' Fig. 23, which should be given three depressions of the grease gun every six months.

FEED SHAFT BEARING BRACKET.

The feed shaft support bracket houses a ball bearing for supporting the end of the shaft. The bearing is lubricated by a grease nipple on the cover 'B' Fig. 23. Three depressions of the grease gun every three months are required at this point, using WADKIN GREASE GRADE L6.

WORM BOX LUBRICATION.

The oil filler fitted on the worm box is combined with the sight glass and an oil drain plug as shown in Fig. 11. The oil used in the worm box should be WADKIN HEAVY GEAR OIL GRADE L2. Check the oil level each month and top up the supply if necessary. The oil level should be about one third of the way up the sight glass.

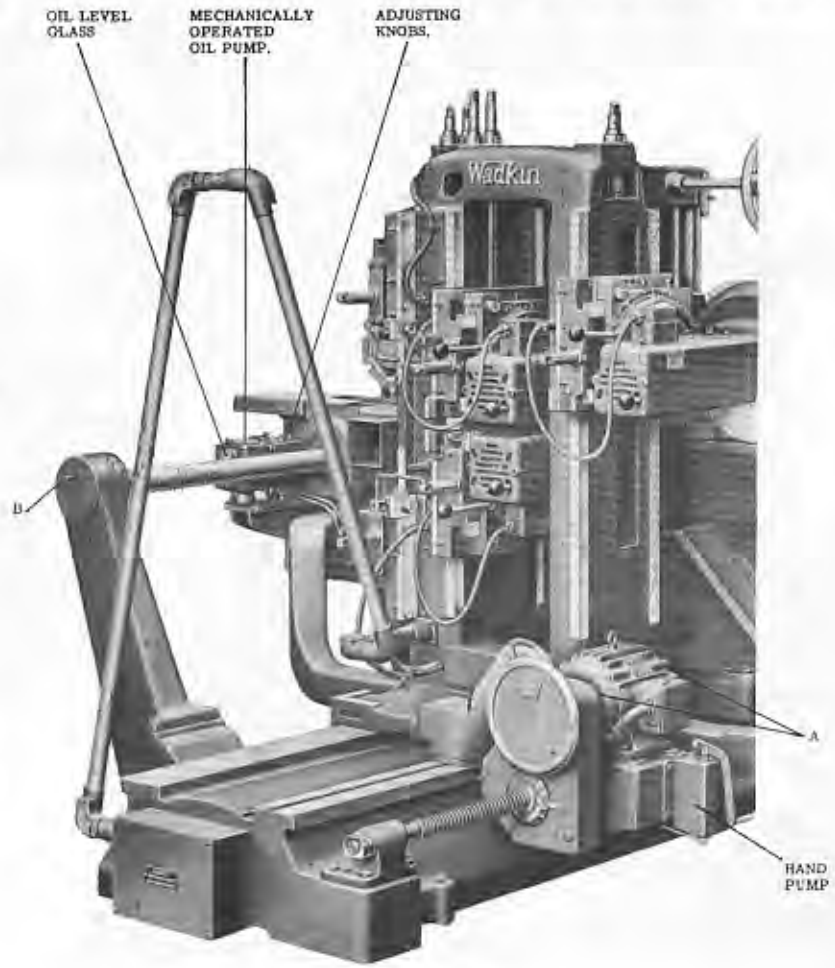


Fig. 23.

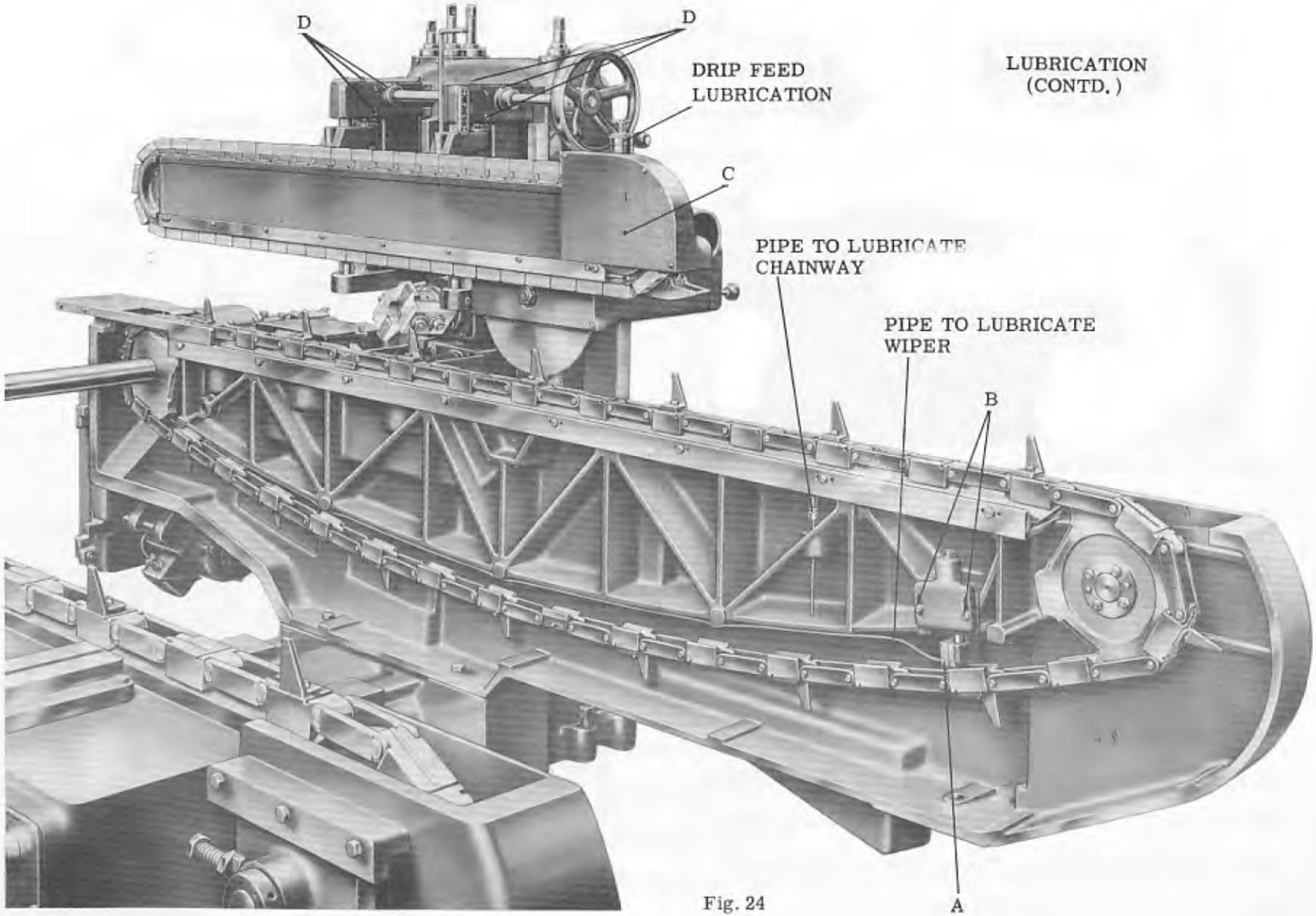

D
D
DRIP FEED
LUBRICATION
C
PIPE TO LUBRICATE
CHAINWAY
PIPE TO LUBRICATE
WIPER
B
A

Fig. 24

FEED MOTOR LUBRICATION.

The bearings of the feed motor are lubricated by grease nipples situated at each end of the motor. These points should be given three depressions of the grease gun every three months using WADKIN GREASE GRADE L6.

FEED CHAINS.

Each feed chain is automatically lubricated by a mechanical oilpump, driven from the main feed shaft. A pipe is taken from the pump to lubricate the feed shaft bearing. Another pipe is taken to lubricate the chainway. A felt wiper is fitted in each beam as shown at 'A' Fig. 24, which takes a third pipe from the oil pump to feed the felt pad. The wiper is kept in contact with the chain by a spring-loaded plunger and the initial positioning of the bracket is obtained by releasing the nuts 'B' Fig. 24 and sliding the bracket up or down in the slots provided. Should it be found necessary to replace the felt pad, it should be soaked in oil before fitting.

Although a mechanical pump supplies the various points with oil automatically it should be remembered that this pump can only function when the pump tank has sufficient supply. The oil level shown on the glass should be checked daily, and the tank re-filled with WADKIN OIL GRADE L4. The supply to the three oil pipes must be regulated by adjusting the knurled knobs on the top of the pump. These knobs are engraved showing the direction of rotation for increasing the oil supply. As a general guide the supply to the felt pad and the chainways can be cut down to just below half pressure. The remaining pipes to the feed shaft bearing should be delivering full pressure.

TOP PRESSURES.

The chainwheel at the front end of the top pressure is mounted on a ball bearing and is grease lubricated. The grease nipple is on the inside of the beam as shown at 'C' Fig. 24. Three depressions of the grease gun are required every three months, using WADKIN GREASE GRADE L6. The underside of the track slideway is oil lubricated, a pipe being taken

TOP PRESSURES (CONTD.)

from a drip feed oiler to the slide. The drip feed oiler should be filled with WADKIN OIL, GRADE L4, daily and the flow should be checked at the sight glass underneath the oiler. A little powdered graphite spread along the top and bottom slideways will greatly increase the efficiency of this pressure.

The spiral gearboxes are oil lubricated by three points, 'D' Fig. 24 on each box. All these points should be given three depressions of the oil gun each week, using WADKIN OIL, GRADE L4. Oil should be applied occasionally to the raising screws and the vertical slide rods to ensure easy operation.

GENERAL CLEANLINESS OF THE MACHINE.

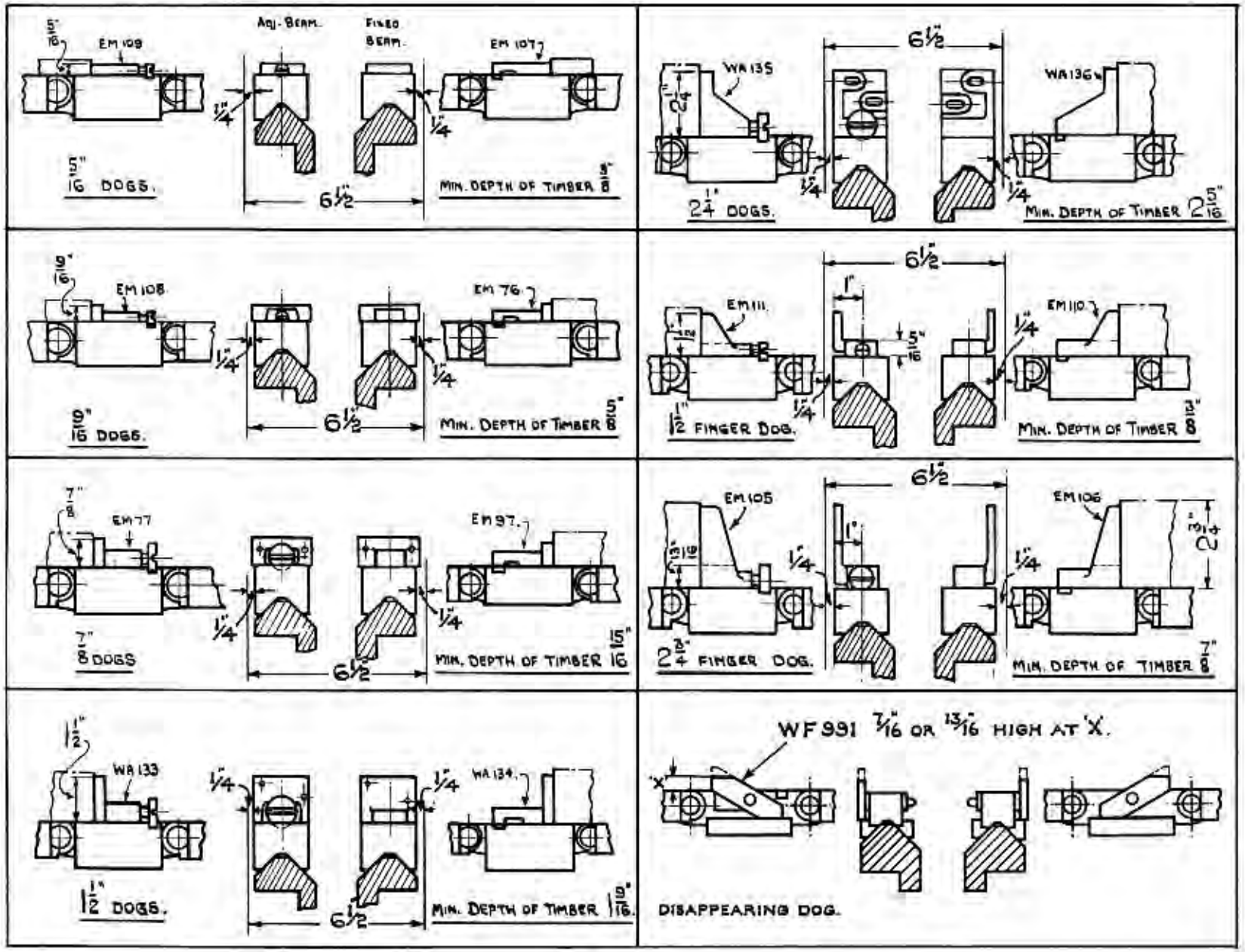
A WADKIN Portable Blower should be used to clean the machine from accumulation of chips and sawdust every day. Particular attention should be given to keep the feed chains as clean as possible. The sheet iron covers on the inside of the chain beams should be removed each week and the sawdust blown out. The caterpillar top pressure needs attention daily, blowing out the chips and sawdust that will be found clogging the end guards. Any excess oil on the machine will tend to collect dust and all oil pipes should be checked for excessive pressure if this trouble is found.

LUBRICATION EQUIVALENTS.

If it is desired to use lubricants other than WADKIN types, the equivalents are listed below :-

WADKIN OIL, GRADE L. 2.	Equivalents :-	Mobil Oil Co. - DTE oil BB. Castrol - Alpha 417. Shell - Vitrea oil 69. Caltex - Meropa lubricant No. 2. oil. Duckham - F. 20.
WADKIN OIL, GRADE L. 4.	Equivalents :-	Mobil Oil Co. - Mobil Vactra Oil (heavy medium). Castrol - Perfecto NN. Caltex - Aleph Oil. Shell - Vitrea Oil 33. Duckham - H3.
WADKIN BALL BEARING GREASE L. 6.	Equivalents :-	Mobil Oil Co. - Mobilux Grease No: 2. Castrol - Spheerol S. Caltex - Regal Starfak No. 2. Shell - Nerita Grease 3. Duckham - H. S. G.

RANGE OF FEED DOGS AVAILABLE.



ELECTRICAL INSTRUCTIONS

INSTALLATION

The whole of the cabling between motors and the control gear is carried out by WADKIN LTD., but it is necessary to make certain disconnections in order that the machine can be dismantled for despatch. To put the machine into service it is necessary to remake the connections broken for transit, and bring the line cables to the machine. This should be carried out as follows :-

1. Replace the cable harness in the stretchers, and reconnect at the terminal blocks the corresponding markings.
2. If a frequency changer is included, the cables should be connected to the corresponding marked terminals, at the terminal box situated at the end of the machine bed.
3. Re-connect the feed motor to corresponding marked terminal blocks.
4. Connect the machine solidly to 'EARTH'.
5. Connect the incoming supply cables to the isolating switch.
   For a machine with a frequency changer included, 45 amp cables are required for a 400 volt 3 phase 50 cycle supply.
   For a machine without a frequency changer, 30 amp cables are required for a 400 volt 3 phase 50 cycle supply.
   Check any one cutterhead for correct direction of rotation, and if incorrect, interchange any two line cables at the isolating switch. All other motors will then be correct.

FAILURE TO START :-

1. Electric supply not available at machine.
2. Fuses have blown or have not been fitted. The main fuses supplied with the machine are incorporated in the isolating switch, Fig. 15.
3. Isolating switch has not been closed.
4. Imperfect connections causing faulty contact. Check reconnections, and if necessary at other points.
5. One or both of the master stop buttons are locked off.

STOPPAGE DURING OPERATION AND FAILURE TO RE-START :-

1. Fuses have blown, the fuses are fitted in the isolating switch, Fig. 15.
2. Overloads have tripped. They will reset automatically after a short time and the machine can be started in the usual manner.

FEED FAILURES :-

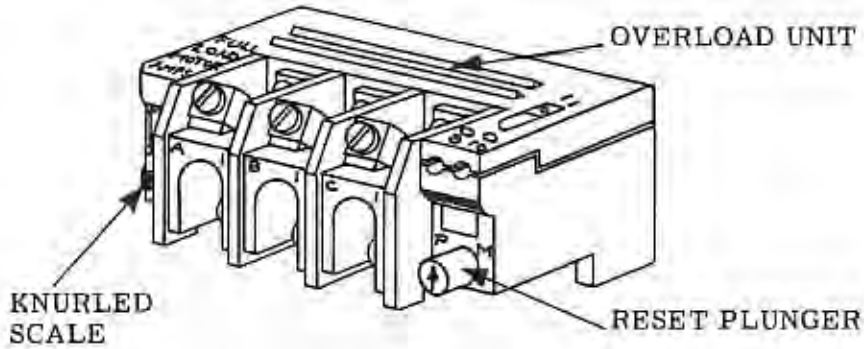
Overloads have tripped. It should be noted that overloads on the headstocks (or Frequency Changer) would stop the feed only, because if both the headstocks and feed trip simultaneously the headstocks would stop quicker than the feed, with consequent jamming of the stock into stationary cutters.

ELECTRICAL MAINTENANCE :-

The machine does not require regular electrical maintenance apart from blowing down motors and checking earth connection. Control gear should not be opened up unless a fault occurs. Do not file switchgear contacts and do not change them because they look burnt, unless they are definitely faulting. In the case of a high frequency machine, inspect the brushes on the slip rings of the frequency changer occasionally.

OVERLOAD PROTECTION.

The knurled scale should be set at the full load current of the motor. The arrow on the reset plunger should be set to point to "M" for automatic reset and "P" for hand reset.
NOTE:- On leaving our Works all overloads are set for automatic reset and to a trip rating corresponding to the normal full load current of the respective motor.



GENERAL :-

Check the earth connection from time to time. Users are recommended to display in an appropriate position in the Maintenance Department Wadkin Electrical Maintenance Instructions, Card No. 356, which is issued gratis on application.

ELECTRICAL SPARES.

		LIST NO.
CONTACTOR SPARES (B. 15)	(Main fixed contacts.	16000/11
	(Main moving contacts.	16000/12
	(Auxiliary contact unit.	16021
	(Operating Coils.	State voltage.

PUSH BUTTONS : Start and stop B/H Type 759

BRUSHES FOR R12/14/2 FREQUENCY CHANGER :
1" x 3/8" Cat No. A. 1930

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