

# Wadkin

## 24" PANEL PLANING AND THICKNESSING MACHINE, TYPE R. K.

### PRINCIPAL DIMENSIONS AND CAPACITIES.

	English	Metric
Planing and thicknessing capacity ... ..	24" x 9"	610mm x 229mm
Length of table ... ..	3'9 $\frac{1}{2}$ "	1156mm
Speed of cutterblock in r. p. m. on 50 cycles ... ..	4,000	4,000
Rates of feed in feet per minute on 50 cycles ... ..	20, 35, 40, 50, 70, 100.	6, 10.5, 12 ) Metres per 15, 21, 30. ) minute.
Speed of cutterblock in r. p. m. on 60 cycles ... ..	4,000	4,000
Rates of feed in feet per minute on 60 cycles ... ..	26, 40, 45, 60, 72, 100.	7.5, 12, 14 ) Metres per 18, 22, 30. ) minute.
Diameter of cutting circle ... ..	5.1/16"	128.5mm
Diameter of power feed rolls ... ..	4"	102mm
Floor space ... ..	4'6" x 4'2"	1370mm x 1270mm
Net weight in cwts. (electric driven) ... ..	33 (3696lbs.)	1676 kilos
Shipping dimensions in cubic feet ... ..	96	2.72 cu. metres

### DETAILS INCLUDED WITH THE MACHINE.

Motor and control gear for electric driven machines.  
 Built in countershaft and striking gear for belt driven machines.  
 One set of four high-speed steel knives.  
 Cutter setting and jointing unit.

Chip deflector or alternatively dust exhaust hood.  
 One set of spanners.  
 Lubricating pump and tin of special ball bearing lubricant.

### OPTIONAL EXTRA.

Motorised Knife Grinding Head and Jointing Attachment.

## INSTALLATION.

The machine is despatched from the Works with all bright surfaces greased to prevent rusting. This protective covering should be removed by applying a cloth damped in paraffin or turpentine.

### FOUNDATIONS.

Rag type bolts  $\frac{5}{8}$ " (16mm) diameter or bolts with plates should be used to fix the machine to the floor, but these are not supplied by Wadkin Ltd. unless specially ordered. If the mill floor consists of 4" (102mm) to 6" (152mm) solid concrete no special foundation is necessary. The outline in Fig. 1 gives details of bolt positions and clearances required. Cut 4" (102mm) square holes in the concrete and run in liquid cement with bolts in position. Alternatively rawl bolts may be used. A good wooden floor is also satisfactory in which case coach bolts may be used.

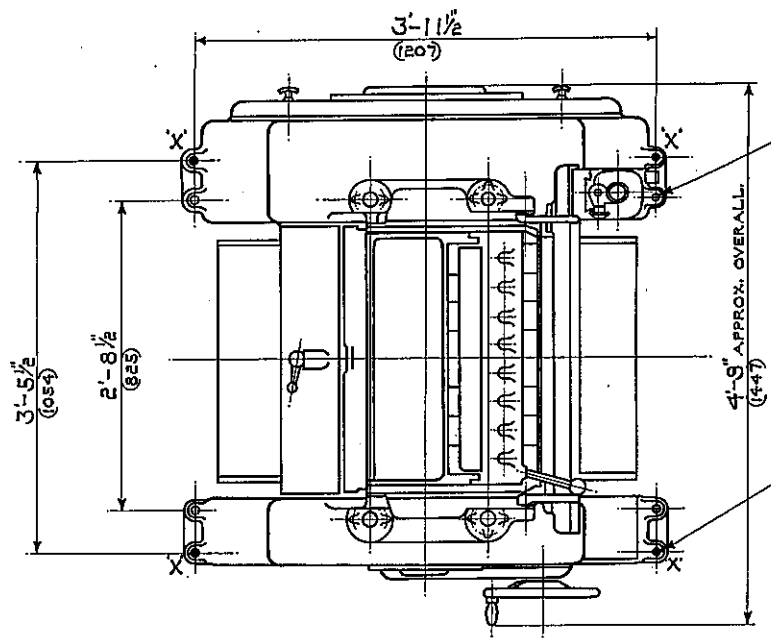
**IMPORTANT.** Owing to the three bearing mounting on the cutterblock and the extreme accuracy required when a knife grinder is fitted, it is essential that this machine be very carefully levelled in both directions before final bolting down. To assist accurate levelling four  $\frac{5}{8}$ " (16mm) diameter square head setting screws are provided and also steel plates to take the thrust of the levelling screws. These plates should be placed on the floor underneath the setting screws and the machine raised or lowered as necessary to bring it level. Shims should be inserted under the machine feet and the machine levelled by placing a spirit level across the thicknessing table in both directions. The setting screws are only for lifting the machine whilst it is being packed level with shims and should not be left to carry the weight of the machine when it is finally level. Check that the thicknessing table is free in its slide (unlocked) and that the cutterblock rotates freely in its bearing. It is essential that this procedure is carried out to ensure accurate alignment of the cutter grinder and thicknessing table.

### WIRING.

For details of full cabling instructions see pages 21 to 23. Wiring diagram D. 760 is for motors on 50 cycles and wiring diagram D. 534 is for motors on 60 cycles.

### DUST EXTRACTION.

A chip deflector is normally supplied but if the machine is to be connected to a main dust exhaust plant a dust hood is provided in lieu of deflector.

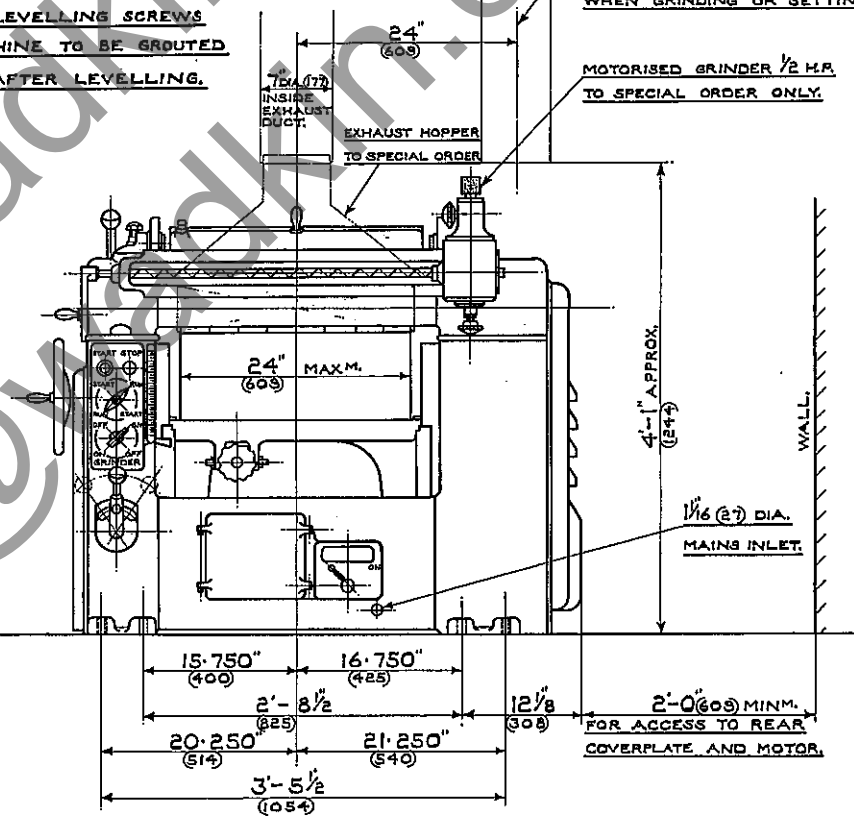
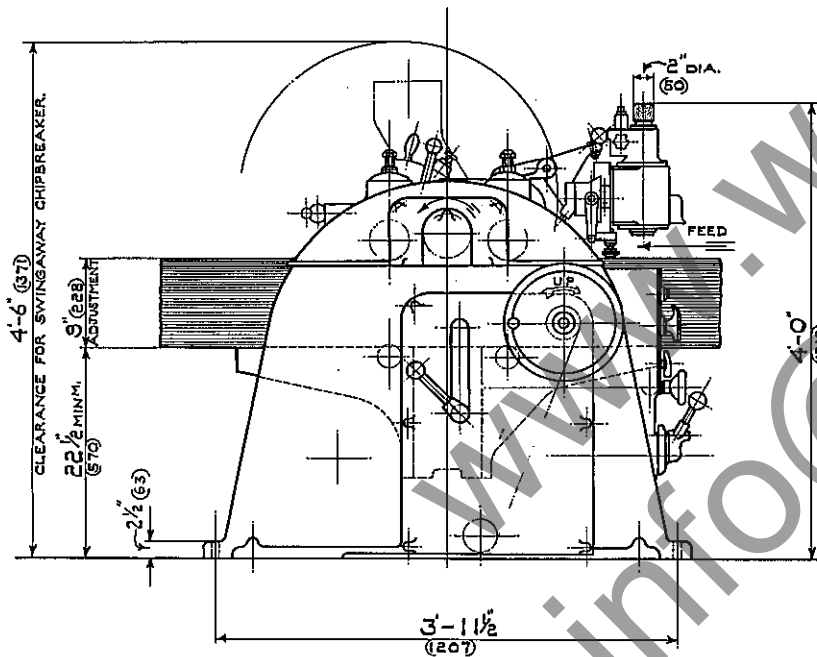


4- $\frac{3}{4}$  (18) CORED HOLES FOR  
 $\frac{5}{8}$  (16) DIA. FOUNDATION BOLTS.

AT X  
 4- $\frac{5}{8}$  WHIT. FOR LEVELLING  
 SCREWS & PACKING PLATES,  
 SUPPLIED WITH MACHINE.  
 4-3" x 3" x  $\frac{1}{4}$  PLATES TO  
 TAKE THRUST OF  $\frac{5}{8}$  x 3 SQ.  
 HD. LEVELLING SCREWS  
 MACHINE TO BE GROUTED  
 UP AFTER LEVELLING.

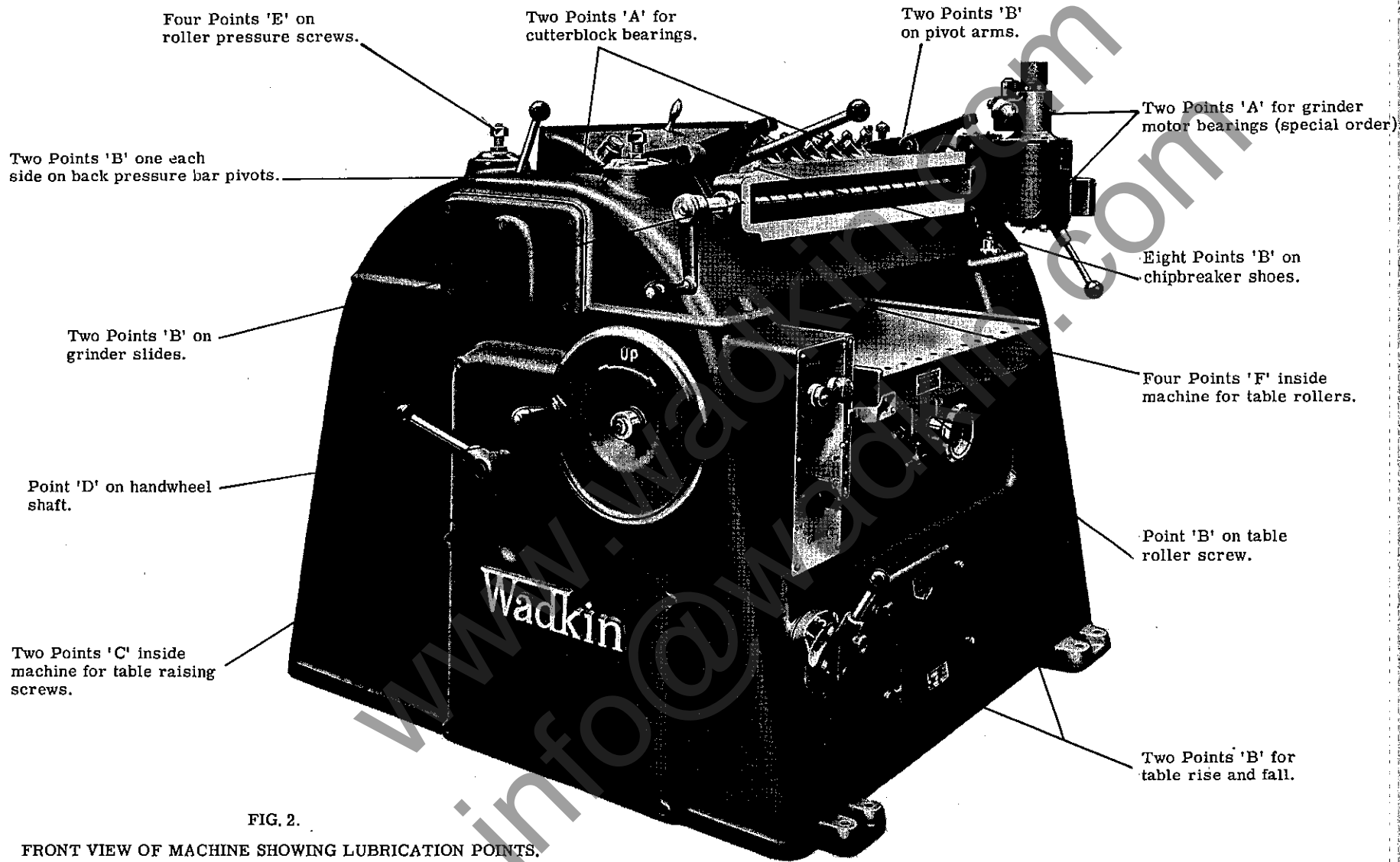
EXHAUST CONNECTION MUST  
 SWING AWAY TO THIS POSITION  
 TO CLEAR CHIPBREAKER ASSEMBLY  
 WHEN GRINDING OR SETTING KNIVES.

MOTORISED GRINDER  $\frac{1}{2}$  H.P.  
 TO SPECIAL ORDER ONLY.



**24" PANEL PLANER TYPE R.K.**  
 DIMENSIONS IN FEET, INCHES & MILLIMETRES.

LUBRICATION



## LUBRICATION (See Figs. 2 and 3).

Every week thoroughly clean down the machine and renew the thin film of oil on all bright parts not in constant use to prevent rusting.

All moving parts should be oiled monthly using Wadkin Oil Grade L. 4. Some of these include table slides, jointer slides, feed driving chain, rise and fall chain, gear change linkage, table roller eccentric collars, feed roller blocks, motor pivot shaft, table locking shaft and brake hinge pin.

- A 7 POINTS Give 4 to 6 depressions of grease gun every 3 months using Wadkin Ball Bearing Grease Grade L. 6.
- B 18 POINTS Every day give 1 depression of oil gun using Wadkin Oil Grade L. 4.
- C 2 POINTS Top up flap type oil caps with Wadkin Oil Grade L. 4 every 2 weeks.
- D 3 POINTS Give 2 depressions of grease gun every day using Wadkin Grease Grade L. 6.
- E 4 POINTS Top up oil cups every day using Wadkin Oil Grade L. 4.
- F 4 POINTS Dismantle bearing block every 12 months and re-pack with Wadkin Ball Bearing Grease Grade L. 6.
- G 1 POINT Inspect and top up to level of filling plug every 3 months. Drain and refill using Wadkin Heavy Gear Oil Grade L. 2.

NOTE. Feed roller sections are packed with grease and require no further lubrication. Some grease may be forced out whilst the machine is new and this should be wiped off the rollers.

### WADKIN RANGE OF OIL AND GREASE LUBRICANTS WITH EQUIVALENTS.

Wadkin Grade	Equivalent Lubricants.		
	Shell Mex and B. P. Ltd.	Mobil Oil Co. Ltd.	Caltex Lubricants
Gear Oil Grade L. 2.	Shell Vitrea Oil 69	Mobil Oil D. T. E. /BB	Meropa Lubricant No. 2 Oil
Machine Oil Grade L. 4.	Shell Vitrea Oil 33	Mobil Vactra Oil (Heavy Medium)	Caltex Aleph Oil
Ball Bearing Grease Grade L. 6.	Shell Nerita Grease 3	Mobil Grease B. R. B. No. 1.	Régal Starfak No. 2 Grease

LUBRICATION

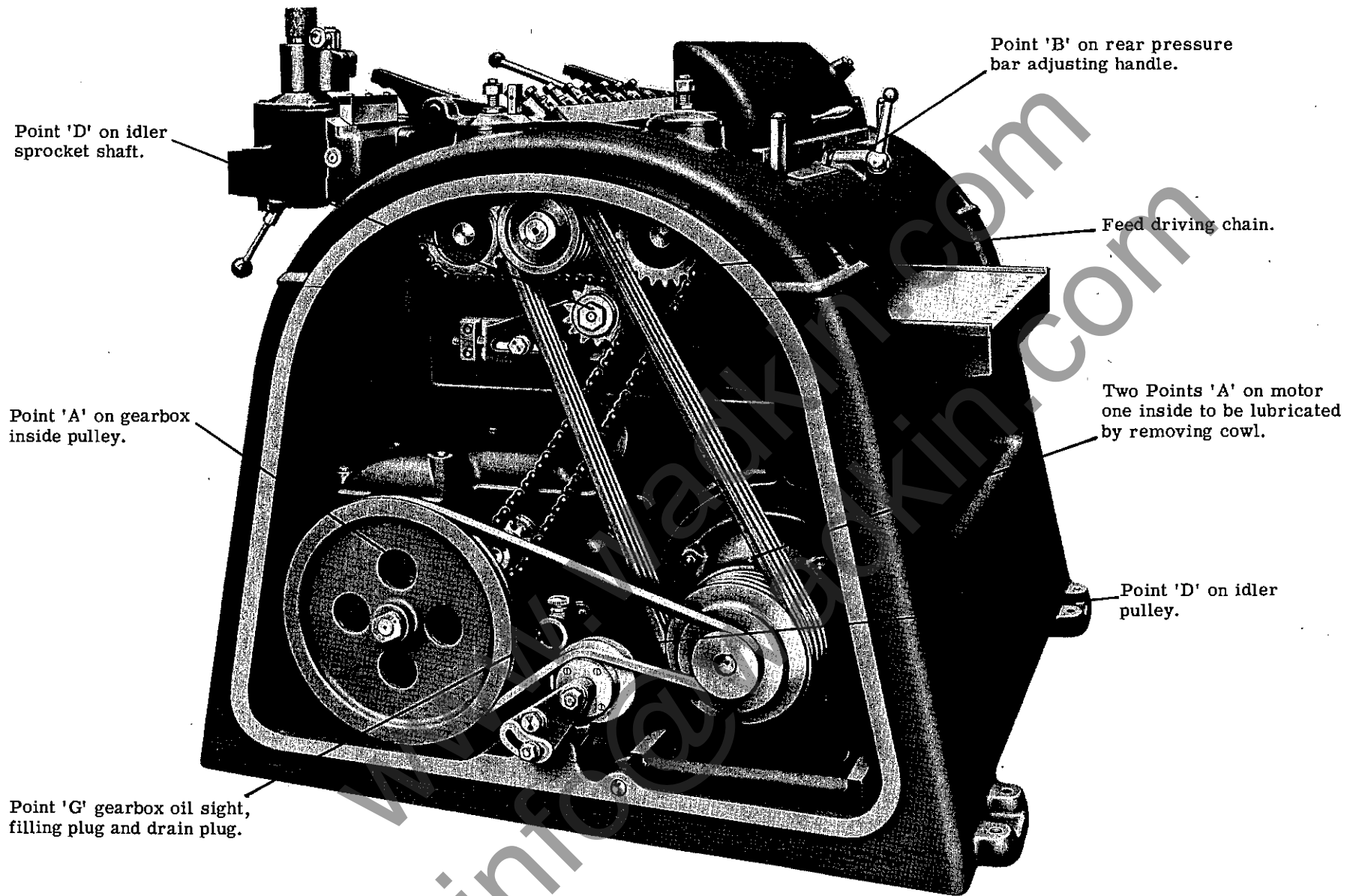


FIG. 3. REAR VIEW WITH COVER REMOVED.

## TABLE ROLLERS

The table rollers should be set  $1/64$ " (.4mm) above the table level for boards which are reasonably straight and a little higher for badly twisted boards.

## BELT TENSION (See Fig. 3)

The main drive belts are endless of the Vee Rope Type and are tensioned correctly before leaving the Works. Should they however require re-tensioning owing to belt stretch a belt tensioning screw is provided. The feed driving belt is also a Vee Belt and may be adjusted by moving the tightener pulley provided.

## FEED DRIVING CHAIN (See Fig. 3)

The feed driving chain should always be run with enough slack in the chain to allow the front feed roller to lift to its maximum lift of  $\frac{1}{2}$ " (13mm). Adjustment is by means of the idler sprocket.

## CHANGING FEED SPEED

Feed rollers are driven from a 3 speed gearbox with 2 speed cone pulleys giving 6 speeds from 20 to 100ft./min. (6 to 30 metres/min.). The vee belt is moved from the small pulley to the large pulley to obtain the second range of speeds. Access to the cone pulleys is gained by removing the rear cover. Gears should be changed whilst the machine is slowing down or nearly stopped. Never change gear under load.

Speeds on small pulley 20, 35, 50 ft/min. (6, 10.5, 15 metres/min.)	For motor
	on
Speeds on large pulley 40, 70, 100 ft/min. (12, 21, 30 metres/min.)	50 cycles.

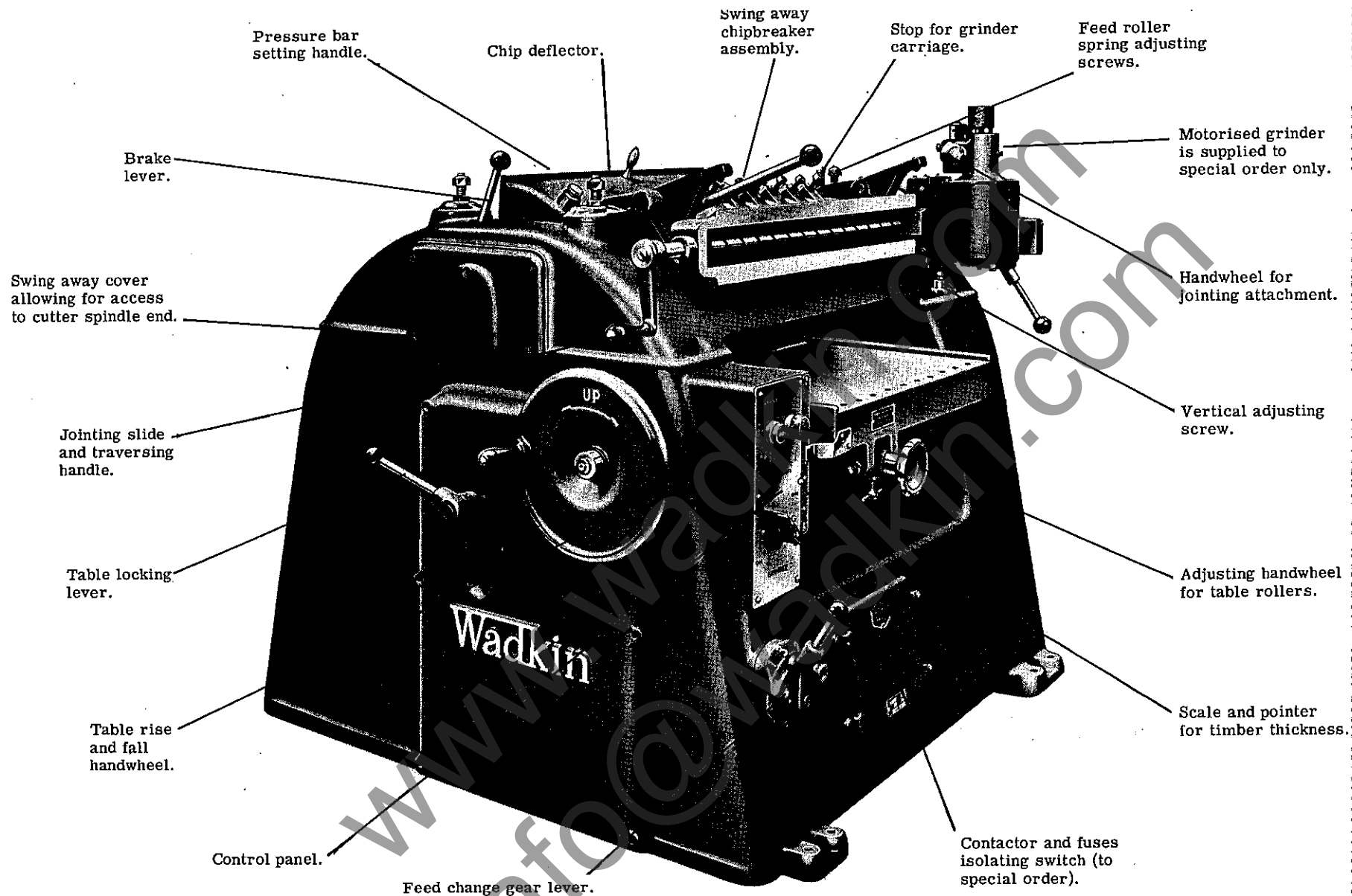


FIG. 4. FRONT VIEW OF MACHINE SHOWING PRINCIPAL CONTROLS.



# CUTTERBLOCK AND CUTTERS.

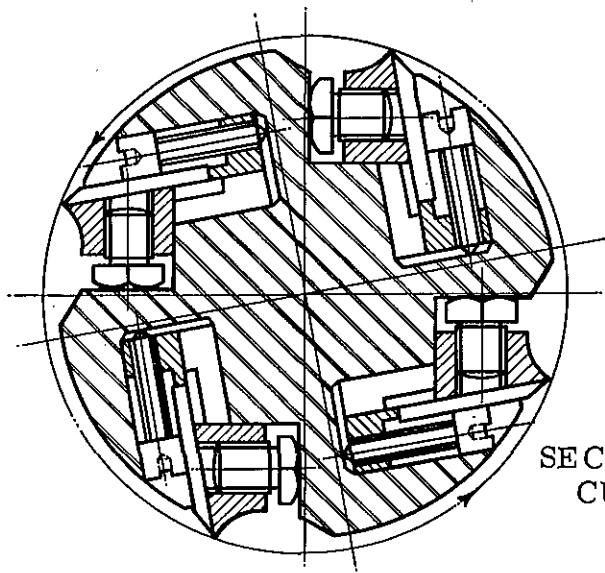


Fig. 5

The cutterblock supplied is the wedge type block. It carries four knives held by wedge clamps and has adjusting screws for quick and accurate setting. A cross section through the block is shown in Fig. 5.

SECTION THROUGH CUTTERBLOCK.

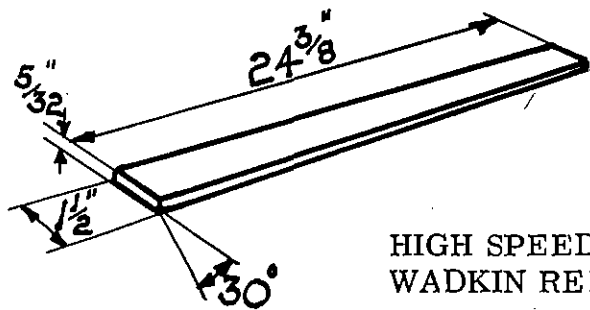


Fig. 6

Cutters to size shown in Fig. 6 are supplied in balanced sets of 4. They should be kept in balanced sets of 4 by ensuring that the cutters have equal dimensions after grinding or jointing and that the cutting edge of each cutter is parallel to the back edge.

HIGH SPEED STEEL KNIVES  
WADKIN REF. V. P. 9.

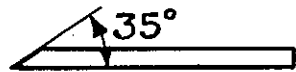


FIG. 7 FOR SOFT WOOD.

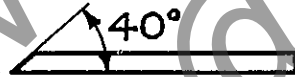


FIG. 8 FOR HARD WOOD.

For general work we recommend knife angles for soft and hard woods as shown in Figs. 7 and 8. Where a very fine finish is required on dry soft and hard woods, a slight front bevel is given as shown by Figs. 9 and 10. For wet or green timber the cutting bevel may be increased by 5 degrees but front bevel should not be given.

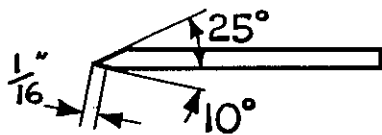


FIG. 9 FOR DRY  
SOFT WOOD.

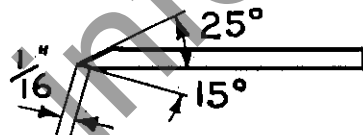


FIG. 10 FOR DRY  
HARD WOOD.

## CUTTER SETTING AND JOINTING DEVICE.

In order to ensure that all the knives in the cutterblock are all actually cutting and each doing its share of work per revolution of the spindle, it is essential they all run in one common circle at the cutting edge. To give the operator the desired means of obtaining the accuracy required a combined Knife Setting and Jointing Device is fitted on a slide attached to the machine. Before this device can be brought into position for use, the sectional chipbreaker assembly and chip deflector have to be swung clear, and the exhaust hopper, if supplied to special order, removed.

### SETTING.

In operating the device it is essential the knives are set to one common diameter. Insert the setting gauge 'H' between the hardened steel roller 'J' and the cutterblock body as shown in Fig. 11, and adjust the vertical slide screw 'K' so that the roller 'J' presses the gauge 'H' onto the cutterblock, thus forming a common tangent. This gives the correct setting diameter of  $5.1/16''$  (128.5mm). The cutter is brought outwards from the cutterblock by means of a special key inserted at 'L' which is adjusted until the cutter comes lightly in contact with the underside of the roller. The knife should be located by the roller at both ends and in the mid position, so use the key to adjust the screws at 'M' and 'N' as necessary. The clamping wedges in the block should hold the knife sufficiently rigid while it is moved by the key. Setting is correct when, as shown in Fig. 12, the knife just rotates the roller as the cutterblock is rotated slowly by hand using the crank handle. After which all the cutter locking screws should be securely tightened. The remaining knives are all set in a similar manner. Although this setting procedure enables cutters to be set accurately for most work it may be desired to joint the cutters in position for fine finish at high feed speeds.

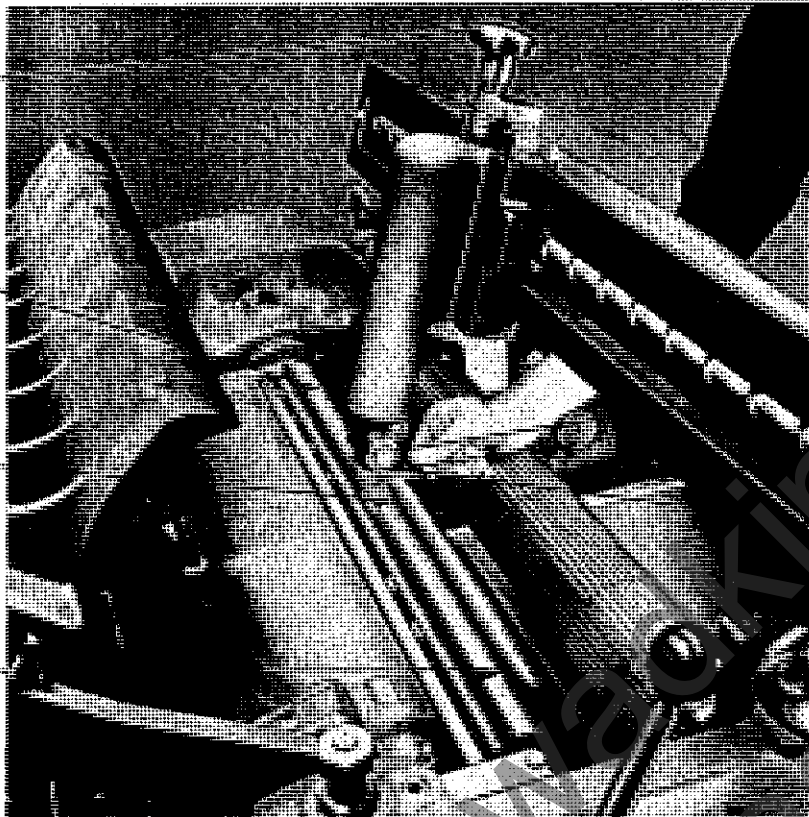


FIG. 11.  
SETTING GAUGE IN USE.

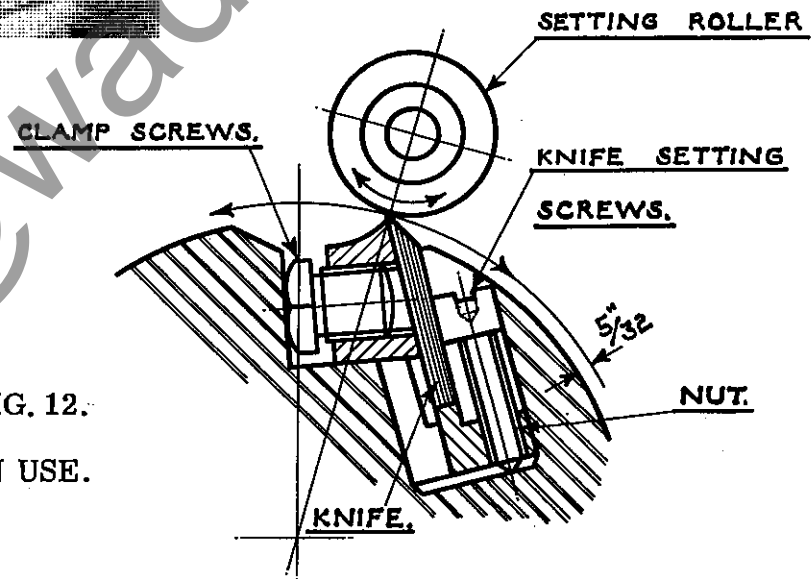


FIG. 12.  
SETTING ROLLER IN USE.

## CUTTER SETTING AND JOINTING DEVICE (CONTINUED)

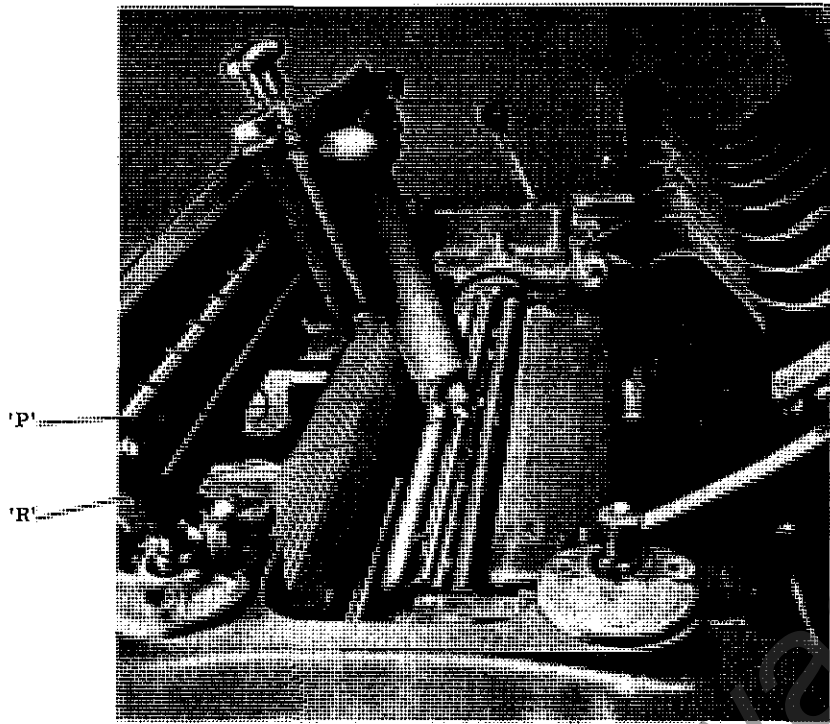


FIG. 13. MACHINE SET UP FOR JOINTING.

When the setting operation has been completed and it is desired to true up all the cutting edges to a greater degree of accuracy by jointing, loosen the wing nut 'P' Fig. 13 to lower the jointing stone 'R' below the setting roller and then tighten up securely. Start the cutterblock running and allow to attain full speed. Very slowly and evenly traverse the device by means of the handle. The vertical slide screw 'K' should be carefully adjusted until the stone touches the knives and gives off a very light spark. This operation is carried on very lightly until the knives appear to be in a true circle. A slight flat or heel as shown in Fig. 14 will be produced, thus ensuring that all the knives are cutting equally. The jointing operation may be performed two or three times before re-grinding, but never allow a heel greater than  $1/32$ " (.8mm) wide on the bevel.

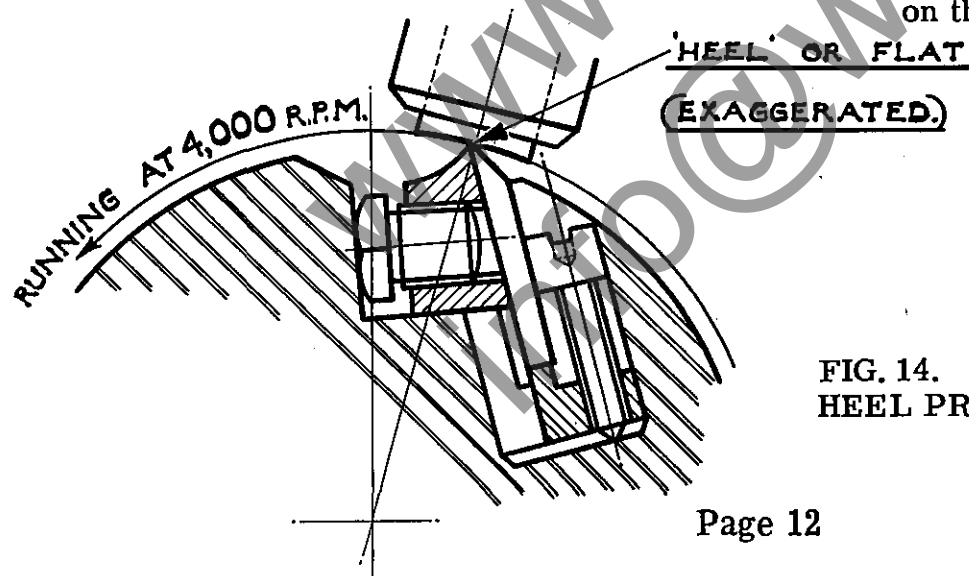


FIG. 14.  
HEEL PRODUCED BY JOINTING.

## GRINDING.

If no grinder is fitted to the machine the knives must be removed from the cutterblock and ground on a knife grinder, taking care to grind off the same amount from each knife to maintain perfect balance.

## MOTORISED CUTTER GRINDER

(TO SPECIAL ORDER ONLY)

## SETTING AND JOINTING.

When the motorised grinder is supplied to special order the knives may be re-ground in place in the cutterblock, in addition to setting and jointing. Both setting and jointing operations are carried out as described on pages 10 to 12. Fig. 15 shows the machine set up for jointing when the motorised grinder is fitted.

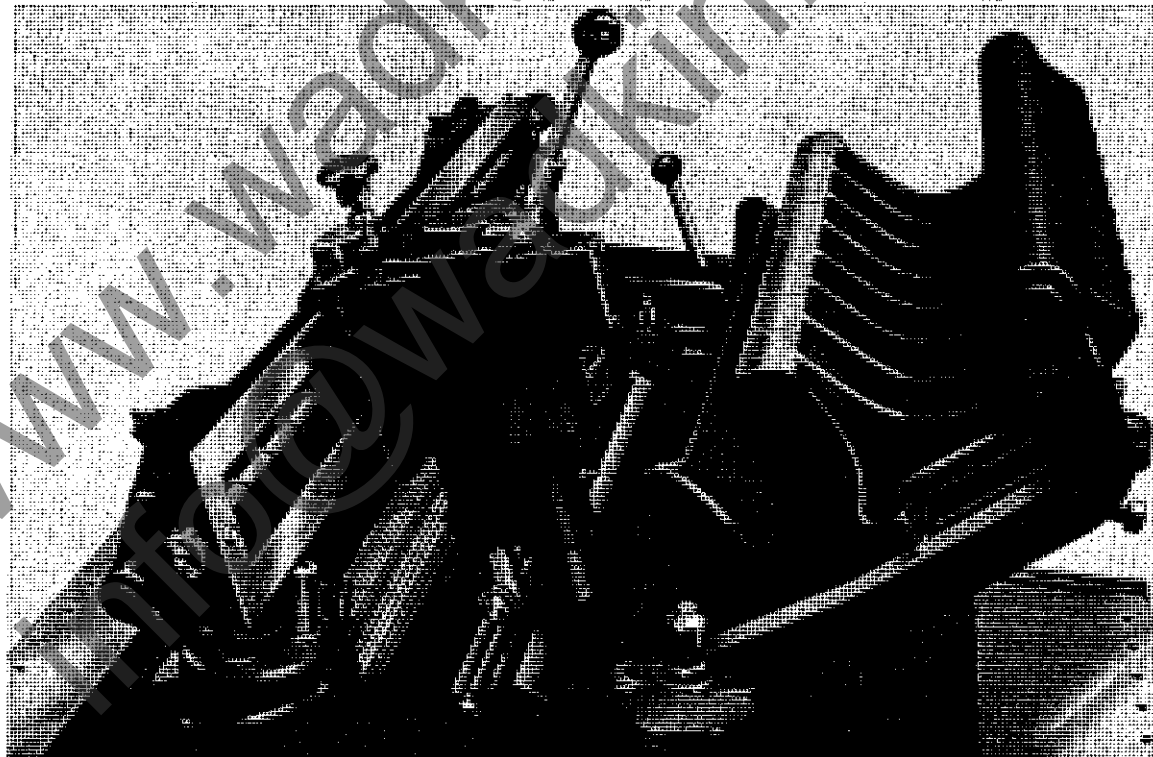
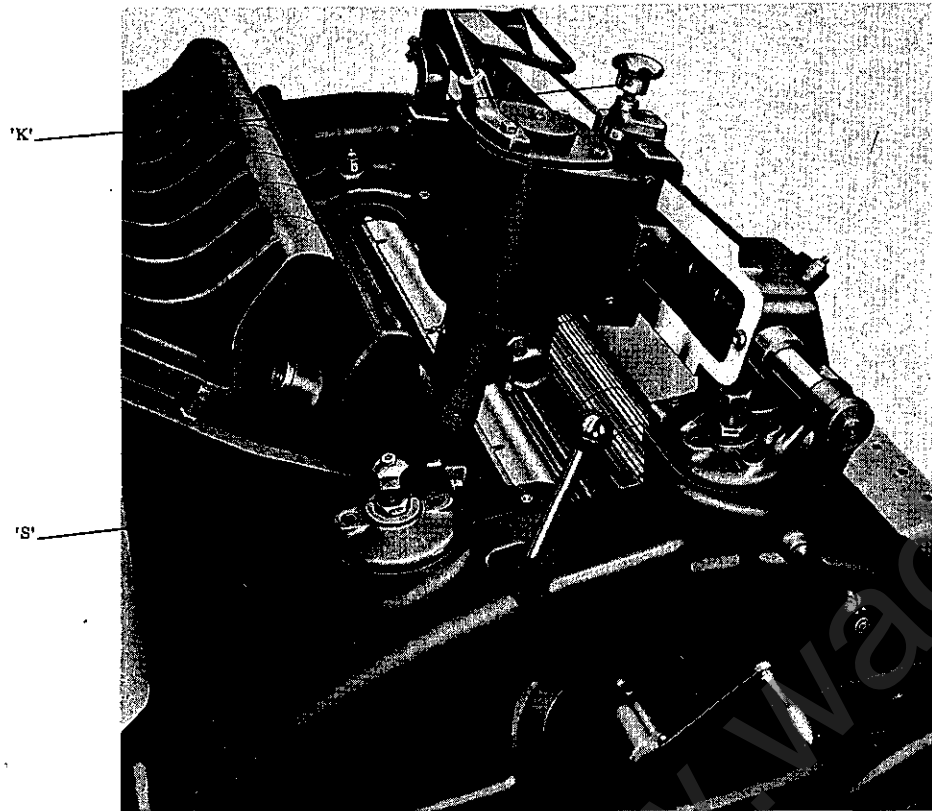
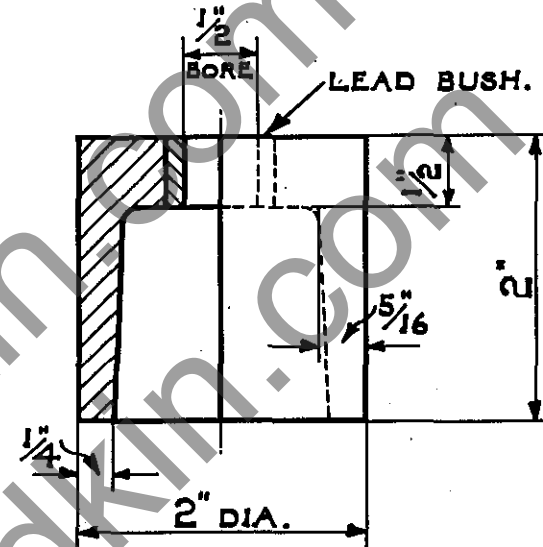


FIG. 15.  
MACHINE ARRANGED  
FOR JOINTING.

## MOTORISED CUTTER GRINDER (CONTINUED)



CARBORUNDUM CUP WHEEL.



DETAIL OF GRINDING WHEEL. 3,000 R.P.M.  
WADKIN REF. R K 962. GRADE RN 6050 V.

FIG. 16. MACHINE ARRANGED FOR GRINDING.

### GRINDING.

Arrange the machine as illustrated in Fig. 16 for grinding. Release the indexing finger 'S' from 'out position' and rotate the cutterblock by hand using the crankhandle until the indexing finger rests in front of the knife edge 'in position'. Fig. 18 shows the indexing finger both in position and out of position. Start the grinder spindle and adjust the vertical slide screw 'K' to bring the grinding wheel on to the back bevel of the knife. Traverse the grinding wheel across the knife two or three times and finish with the stone clear of the cutter at the rear end of cutterblock. The cutterblock is then rotated clockwise to the next knife, positioned and located by the indexing finger. Grind all 4 knives at one setting and if necessary lower the grinding wheel and take further

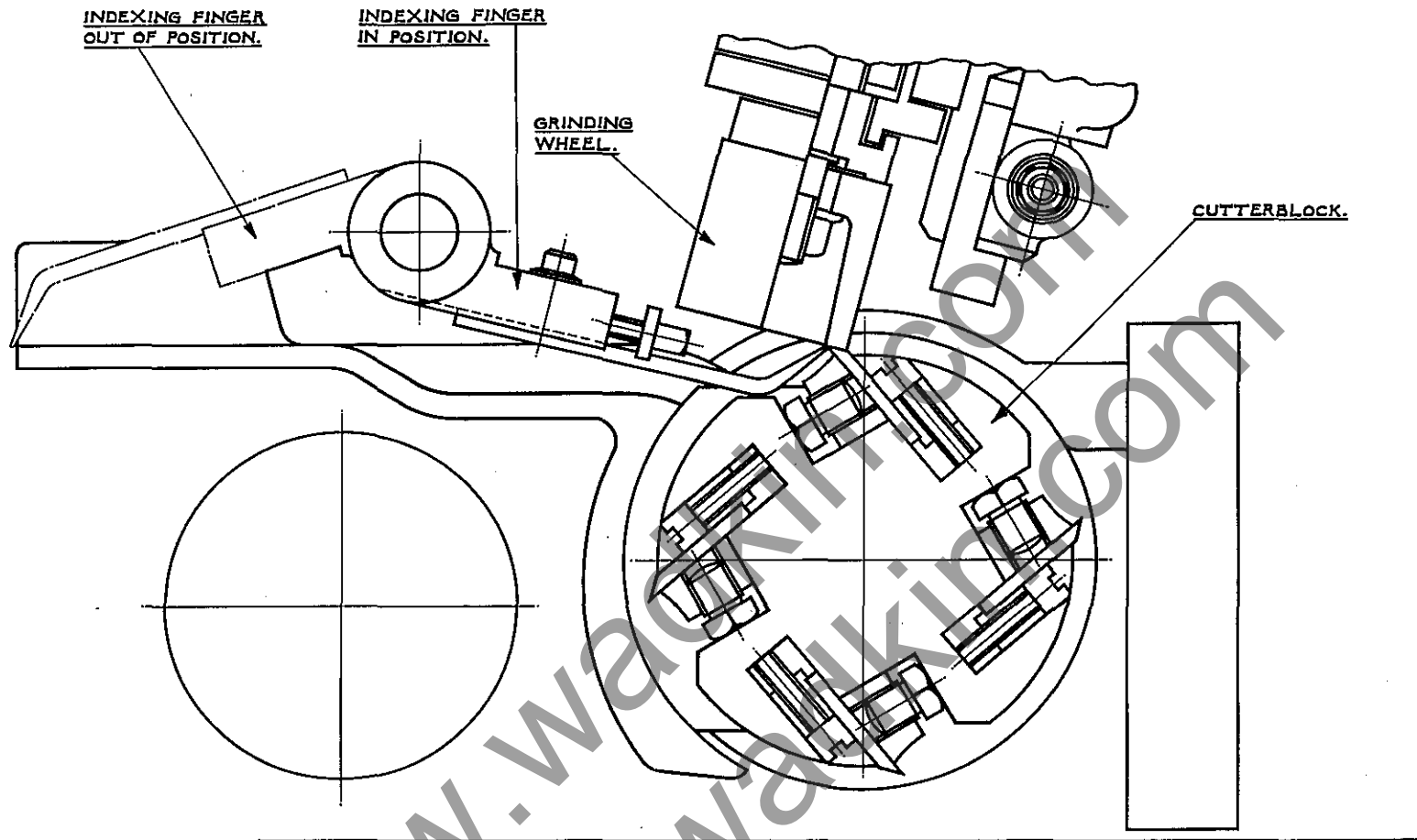


FIG.18. SKETCH SHOWING INDEXING FINGER IN AND OUT OF POSITION.

cuts on each knife in turn until all the bevels are evenly ground. A light pressure should be exerted by the left hand on the crank handle whilst grinding to ensure that the knife edge does not move away from the indexing finger. It is possible to grind the knives six or eight times before it is necessary to re-set them. This is because the rear pressure bar can easily be set to compensate for reduced cutting circle after re-grinds, as described on page 17

**IMPORTANT.** Make certain that the indexing finger is latched back properly out of position as Fig. 18 before re-starting the machine.

# FEED ROLLERS.

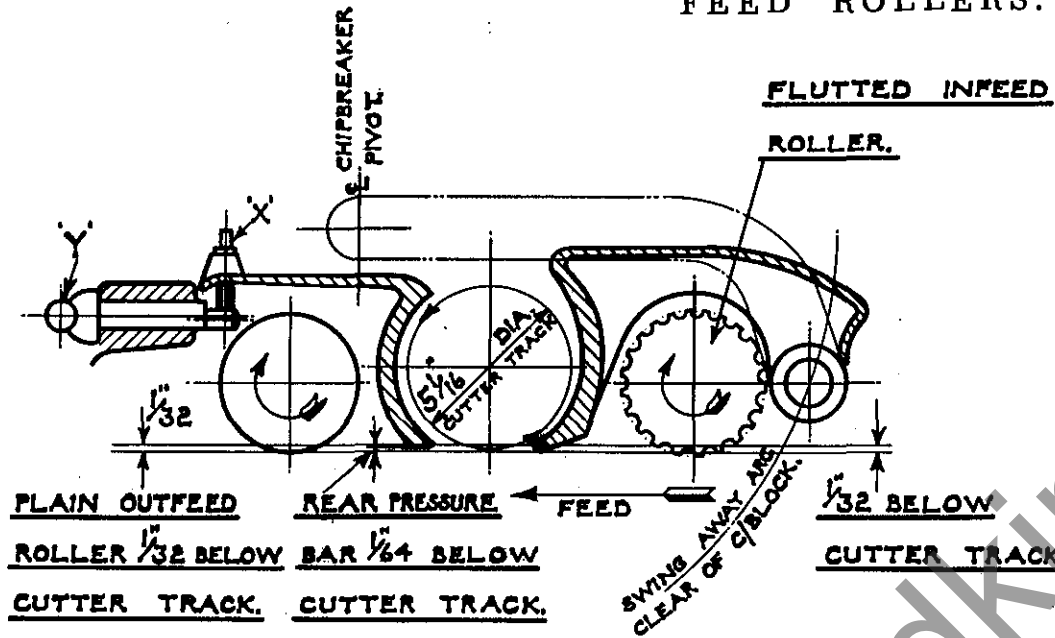


FIG. 19.

SHOWING SETTING OF FEED ROLLERS SECTIONAL CHIPBREAKER ASSEMBLY AND REAR PRESSURE BAR.

The fluted section in feed roller or solid in feed roller whichever is supplied to customer's own choice should be set  $1/32''$  (.8mm) below the cutter track as shown in Fig. 19. Then apply spring pressure by adjusting the hexagon head screw. The plain outfeed roller should be set at the same distance below the cutter track and spring pressure applied similarly.

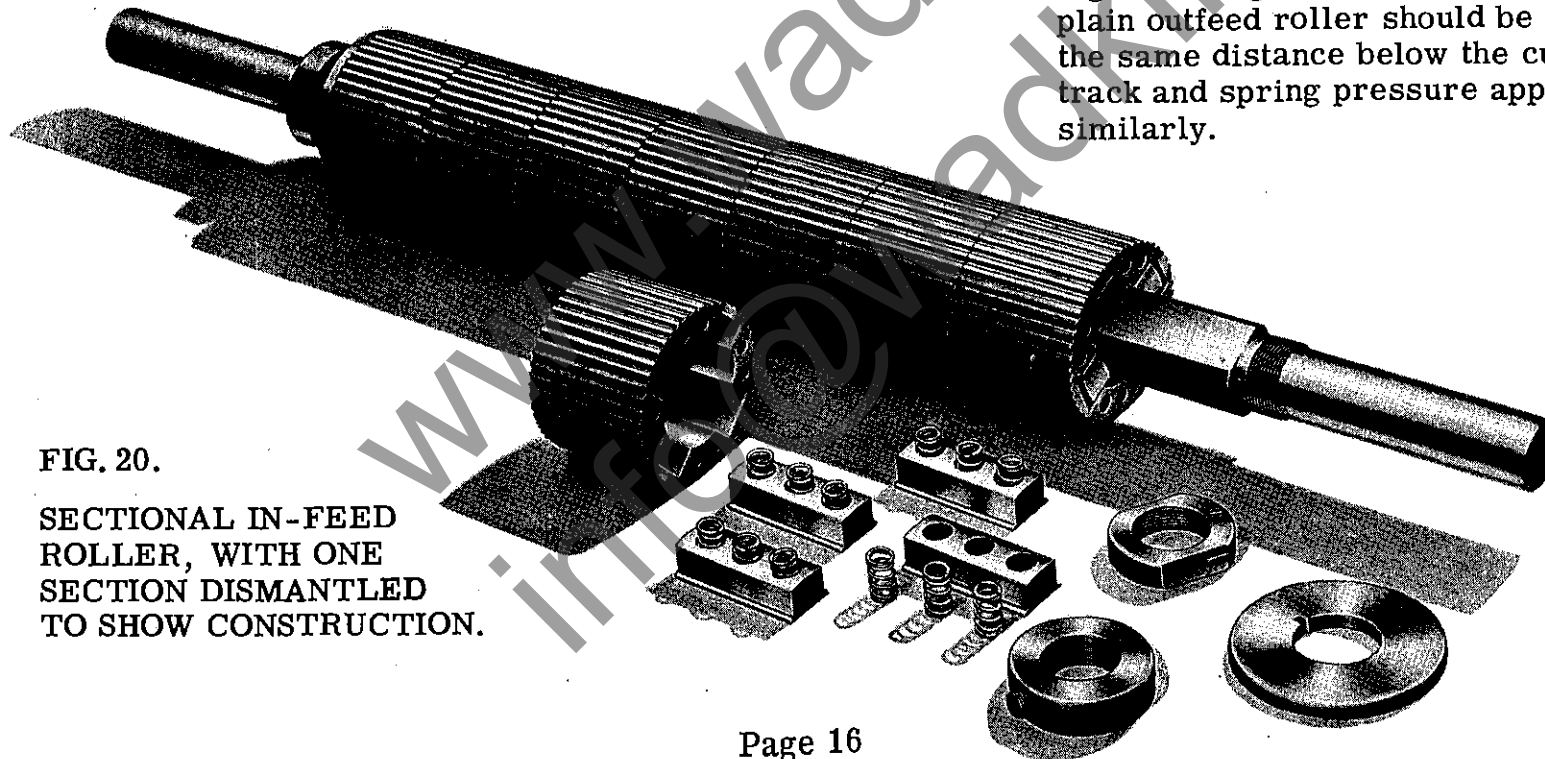


FIG. 20.

SECTIONAL IN-FEED ROLLER, WITH ONE SECTION DISMANTLED TO SHOW CONSTRUCTION.



## SECTIONAL CHIPBREAKER ASSEMBLY.

Set all 8 shoes in line by adjusting the stop screws and apply spring pressure by setting the hexagon head screws on the top rail shown in Fig. 4. An initial lift of  $3/16''$  (5mm) is given to the chipbreaker from a pivoting point in front of the cutterblock as illustrated in Fig. 19. This keeps the gap between the shoes and the cutterblock close and it gives a light easy lift useful when planing thin boards, because only the shoes of the chipbreaker unit are lifted. The initial lift is radially in the same direction as the feed, thus eliminating any possibility of timber jamming under the chipbreaker. Alternatively a solid chipbreaker can be supplied to special order to suit customer's own requirements

### REAR PRESSURE BAR (See Fig. 19).

The rear pressure bar should be set  $1/64''$  (.4mm) below the cutter track by means of the screw 'X' with the handle 'Y' in its lowest position towards the front of the machine. As grinding or jointing operations are performed this handle should be turned towards the rear of the machine as the pressure bar is lifted to compensate for the reduction in the cutter track diameter resulting from repeated jointing or grinding operations. When the knives have to be reset to the full track diameter of  $5.1/16''$  (128.5mm) the setting handle 'Y' should be brought back to its original position towards the front of the machine. If the work tends to stick on the rear pressure 1 or 2 notches of the setting handle will release it and maintain an even feed through.

### BRAKE.

The hand brake should be applied gently and only after the stop button has been pressed.

### CRANK HANDLE.

Make certain that the crank handle is removed and the swingaway cover replaced before starting the machine.

**IMPORTANT. LOCK STOP BUTTON IN OFF POSITION WHILST SETTING UP.**

## BALL BEARING LIST

Maker's Number	Size			Number Per Machine	Where used on machine
	Bore	Outside Diameter	Width		
SKF. 2308F	40mm	90mm	33mm	1	Cutterblock front
SKF. RM12F	1½"	3¾"	15/16"	2	Cutterblock rear
SKF. RLS5	⅝"	1.9/16"	7/16"	4	Table rollers
SKF. RLS8	1"	2¼"	⅝"	4	Gearbox front
SKF. RLS6	¾"	1⅞"	9/16"	4	Gearbox rear
SKF. 0. 8 Thrust washer	1"	1¾"	⅝"	2	Raising screw
SKF. ALS6 Paired Bearing or Hoffman N. 5080 (LS. 8AC Paired back to back)	¾"	1⅞"	9/16"	1	Grinder motor
SKF. CRL6 or Hoffman RL8E	¾"	1⅞"	9/16"	1	Grinder motor

### PROBABLE CAUSES OF TIMBER STICKING WHEN PLANING.

Should the material stick when planing three probable causes are given below :-

- (1) The bed rollers set too low in the table when thickening rough timber.
- (2) Pressure bar too low.
- (3) Chipbreaker or sectional pressure too hard on through spring pressure.

SECTION THROUGH CUTTER BLOCK.

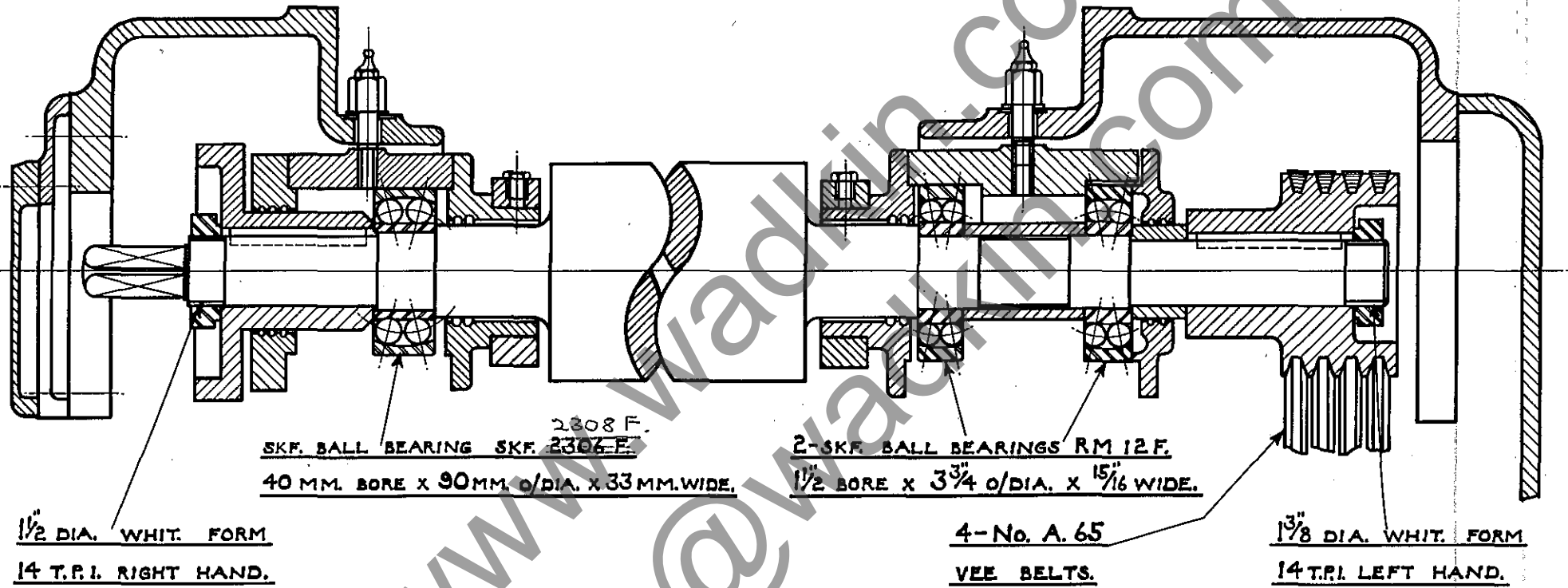


FIG. 21

## TABLE SLIDE LOCK

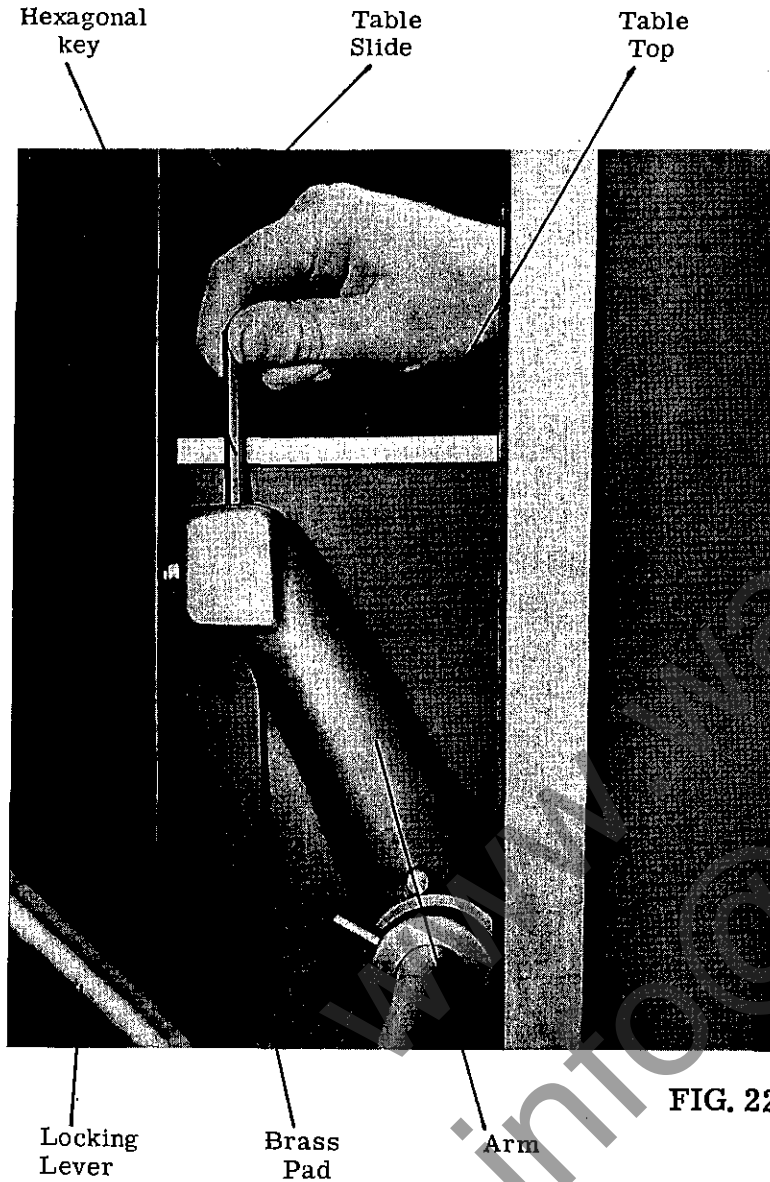


FIG. 22

To prevent movement of the table when located in its desired position a locking device is fitted. An eccentric shaft runs the full width of the table and beyond the machine at the front. The shaft is fitted with an arm on either side of the table and where the shaft protrudes beyond the machine a lever is fitted to operate the lock. An adjustable brass pad is fitted on the top end of both arms to ensure that the arms lock firmly on the table slide.

If through wear it is found that when the locking lever is brought over, the arms do not lock, the brass pads should be adjusted. Fig. 22 shows the brass pad on the front arm being adjusted. For illustration purposes only the front cover and handwheel have been removed. Access to the top of the arm is gained between the table, when in its lowest position, and the overhead feed rollers. An hexagonal key is used as shown to adjust the grub screw clockwise which pushes the brass pad out as far as required. The arm at the rear side of the table is adjusted similarly. Make sure that both brass pads are adjusted the same amount, so that both ends of the two arms simultaneously lock on the table slide.

## ELECTRICAL INSTALLATION INSTRUCTIONS.

The cabling between the motor and the control gear has been carried out by Wadkin Ltd. , and it is only necessary to bring the line leads to the machine for it to be put into service. This should be done as follows :

1. Fit triple pole isolating switch near the machine unless it has been supplied to special order by Wadkin Ltd. when it will be fitted and connected to the machine.
2. Connect the line lead to the appropriate terminals. See diagram of connections. The cables should be taken to the machine in conduit and secured to the control gear by locknuts.
3. Connect solidly to earth.
4. Close isolating switch and press start button. If motor does not rotate in the correct direction, interchange any two incoming line leads.

### FAILURE TO START.

1. Electric supply is not available at the machine.
2. Fuses have blown or have not been fitted.
3. Isolating switch has not been closed.
4. Lock-off or stop button has not been released.

### STOPPAGE DURING OPERATION AND FAILURE TO RESTART.

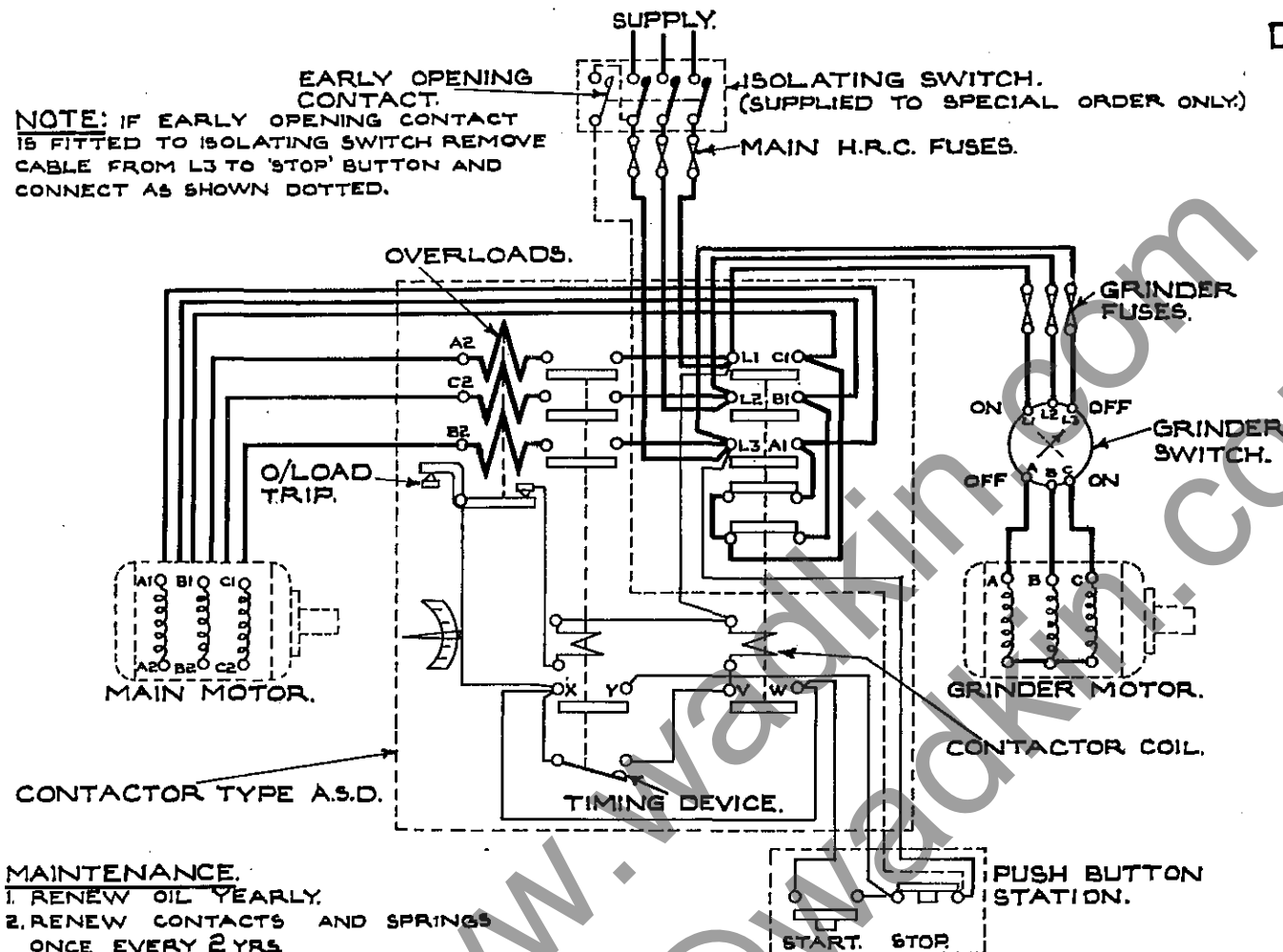
1. Fuses have blown.
2. Overloads have tripped. They will reset automatically after a short time and the motor can be restarted in the usual manner.

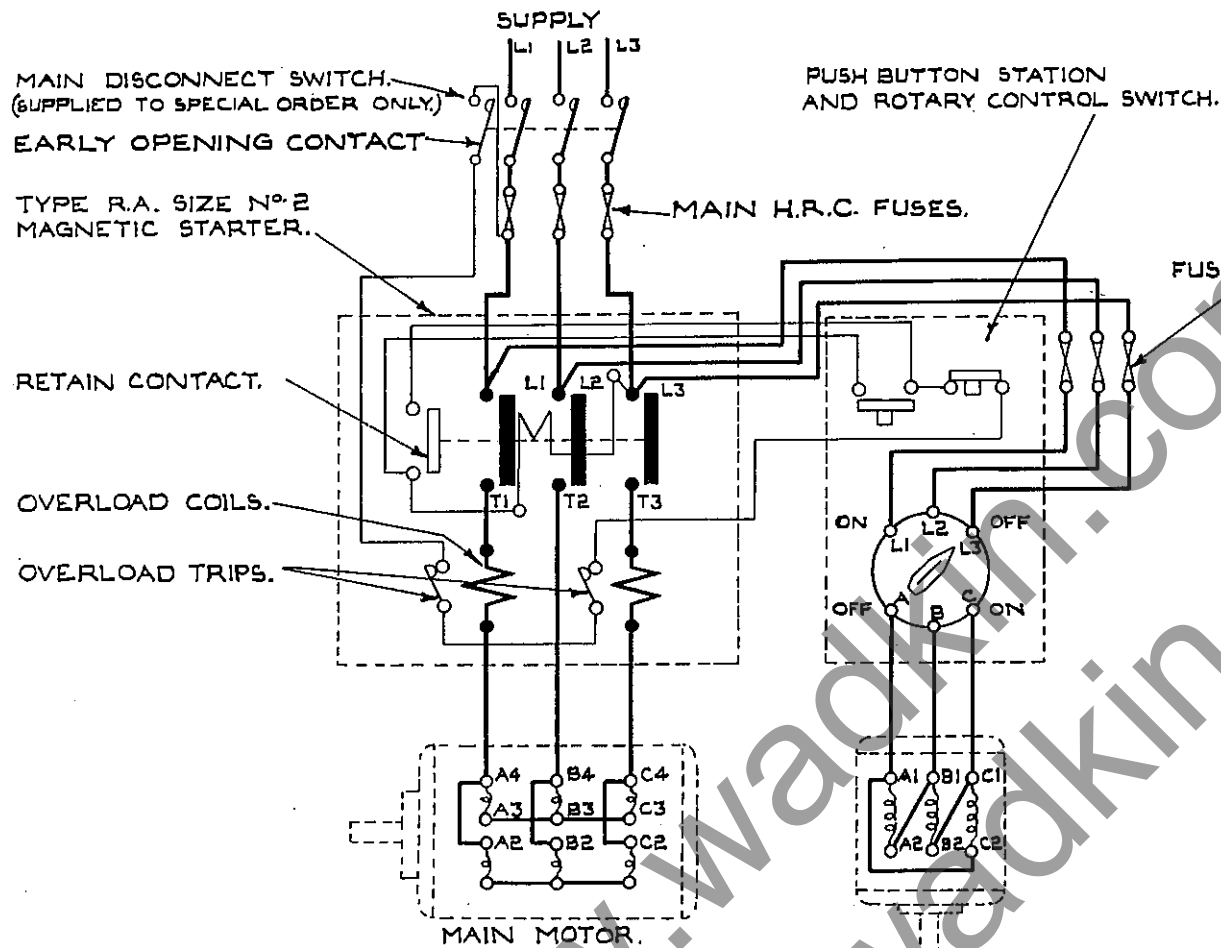
### ADJUSTMENTS.

For a finer overload setting, set the load indicator to a lower value and vice-versa for a less fine setting.

### GENERAL.

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

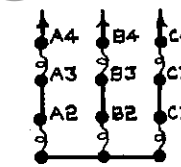




**DUAL VOLTAGE MOTOR CONNECTIONS.**

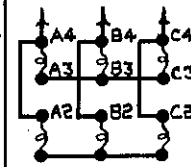
WHEN DUAL VOLTAGE MOTORS ARE SUPPLIED WITH 9 LEADS THE CONNECTIONS SHOWN BELOW ARE NECESSARY:-  
 SERIES/STAR - 440 VOLTS.  
 PARALLEL/STAR - 220 VOLTS.

TO T1-T2-T3 AT STARTER.



SERIES/STAR.

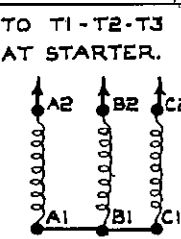
TO T1-T2-T3 AT STARTER.



PARALLEL/STAR.

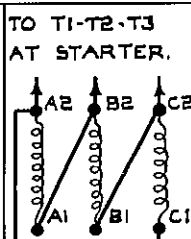
WHEN DUAL VOLTAGE MOTORS ARE SUPPLIED WITH 6 LEADS THE CONNECTIONS SHOWN BELOW ARE NECESSARY.  
 STAR - 340/440 VOLTS.  
 DELTA - 200/250 VOLTS.

TO T1-T2-T3 AT STARTER.



STAR

TO T1-T2-T3 AT STARTER.



DELTA.

**INSTALLATION INSTRUCTIONS.**

FIT MAIN DISCONNECT SWITCH NEAR MACHINE UNLESS SUPPLIED BY WADKIN LTD. TO SPECIAL ORDER, SO THAT THE ELECTRICAL GEAR MAY READILY BE ISOLATED FOR INSPECTION PURPOSES. BRING SUPPLY CABLES TO DISCONNECT SWITCH AND TO L1-L2-L3 AT MAGNETIC STARTER THROUGH CONDUIT WHICH SHOULD BE SCREWED INTO MACHINE AND SECURED BY MEANS OF LOCKNUTS. ENSURE THAT THE DIRECTION OF ROTATION IS CORRECT BEFORE PUTTING THE MACHINE INTO SERVICE, TO REVERSE ROTATION INTERCHANGE L1 AND L2 AT MAGNETIC STARTER.

**OPERATING INSTRUCTIONS.**

TO START MAIN MOTOR: CLOSE MAIN DISCONNECT SWITCH AND PRESS 'START' BUTTON. TO STOP MAIN MOTOR: PRESS 'STOP' BUTTON. TO LOCK OFF MAIN MOTOR: PRESS AND TURN 'STOP' BUTTON, THIS MUST BE RELEASED BEFORE A START CAN BE MADE. TO START GRINDER: TURN ROTARY CONTROL HANDLE TO 'ON' POSITION. TO STOP GRINDER: TURN ROTARY CONTROL HANDLE TO 'OFF' POSITION.

**OVERLOAD.**

SHOULD THE MACHINE STOP DUE TO OVERLOAD WAIT FOR A SHORT TIME TO ALLOW THE HEATER COILS TO COOL, THEN START IN THE USUAL MANNER.



## ... blow away harmful dust, chips and dirt with a Wadkin Electric Blower

No motor can run at its maximum efficiency with its ventilating duct or control gear covered with dust and dirt. Sooner or later the resultant overheating will cause serious trouble.

Similarly, accumulations of chips and dust, in the mechanical parts of the machine can interfere with its efficiency. A few minutes a week for blowing down all Woodworking Machinery will be amply repaid in better and easier running, in increased life, and freedom from breakdown.

Blowers can be supplied for single phase A.C. or Direct Current for any voltage up to 250.

Please state voltage when ordering.

