

Wadkin

30" PANEL PLANING AND THICKNESSING MACHINE TYPE F. X.

PRINCIPAL DIMENSIONS AND CAPACITIES

	ENGLISH	METRIC
Planing and thicknessing capacity	30" x 9"	762mm x 229mm
Length of table	3' 8"	1118mm
Speed of cutterblock in r. p. m. on 50 cycles	4,000	4,000
Rates of feed in ft. per min. on 50 cycles	20, 35, 45 50, 75, 100	6, 10.5, 14) Metres per 15, 23, 30) minute
Speed of cutterblock in r. p. m. on 60 cycles	4,000	4,000
Rates of feed in ft. per min. on 60 cycles	25, 40, 50 60, 90, 120	7.5, 12, 15) Metres per 18, 27, 36) minute
Diameter of cutting circle	5½"	139.7mm
Diameter of top feed rolls	5"	127mm
Diameter of table rolls	4"	101.6mm
Floor space	4'8" x 5'5"	1422mm x 1651mm
Net weight in cwt.	38(4260 lb)	1930 kilos.
Shipping dimensions in cubic feet	132	3.73 cu. metres

DETAILS INCLUDED WITH MACHINE

Motor and control gear.	Chip deflector or alternatively
One set of four high speed steel knives.	Dust exhaust hood.
Cutter setting and jointing stone.	Lubricating pump and tin of ball bearing lubricant.

OPTIONAL EXTRA

Motorised knife grinding head and jointing attachment.
Power rise and fall to thicknessing table.



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. Extreme accuracy is required when a knife grinder is fitted and it is essential that this machine be very carefully levelled in both directions before final bolting down. Packing should be inserted under the machine feet and the machine levelled using a spirit level across the thickening table in both directions. Check that the thickening table is free in its slide and the cutterblock rotates freely in its bearings.

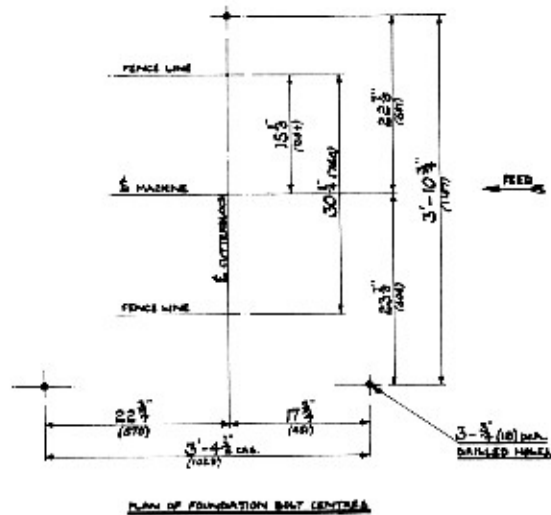
IT IS ESSENTIAL THAT THIS PROCEDURE IS CARRIED OUT TO ENSURE ACCURATE ALIGNMENT OF THE CUTTER GRINDER WITH THE THICKENING TABLE.

WIRING.

For details of full cabling instructions see pages 18 to 21. Wiring diagram D.1206 is for motors on 50 cycles and wiring diagram D. 1205 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.

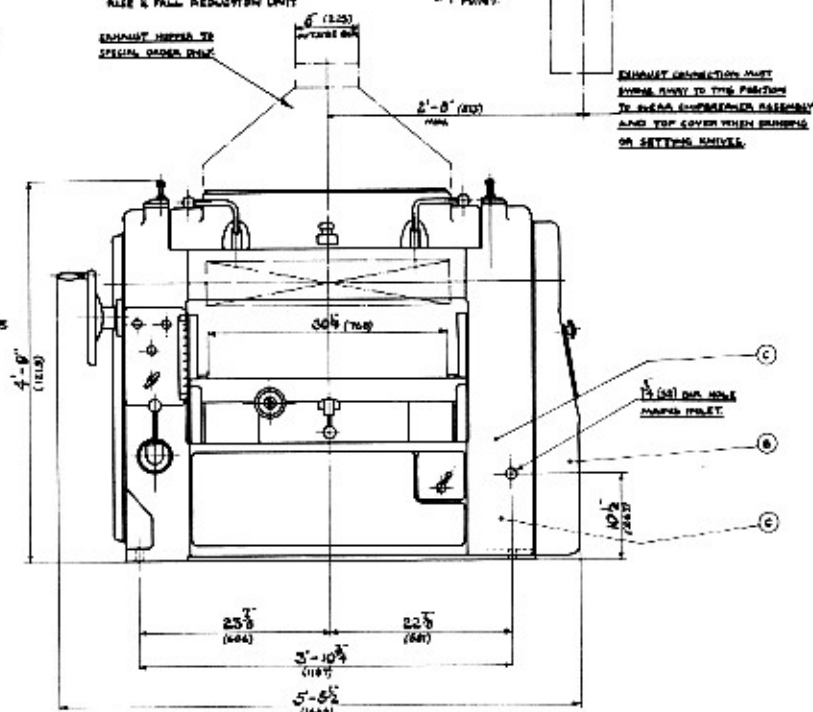
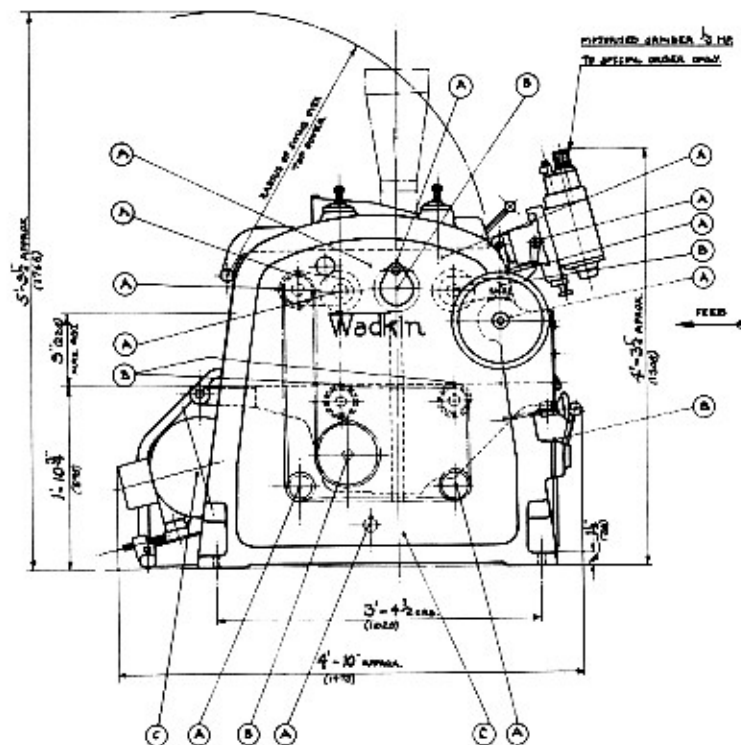


IMPORTANT - EXTREME ACCURACY IS REQUIRED WHEN A KNIFE GRINDER IS FITTED AND IT IS ESSENTIAL THAT THE MACHINES BE VERY CAREFULLY LEVELLED IN BOTH DIRECTIONS BEFORE FINAL BOLTING DOWN. PACKINGS SHOULD BE INSERTED UNDER THE MACHINE FEET AND THE MACHINES LEVELLED USING A SPIRIT LEVEL ACROSS THE THICKENING TABLE IN BOTH DIRECTIONS. CHECK THAT THE THICKENING TABLE IS FREE IN ITS SLIDE AND THAT THE CUTTERBLOCK ADJUSTS FREELY IN ITS BEARINGS. IT IS ESSENTIAL THAT THIS PROCEDURE IS CARRIED OUT TO ENSURE ACCURATE ALIGNMENT OF THE CUTTER SAUNDER WITH THE THICKENING TABLE.

MAINTENANCE

POINTS A - LUBRICATE EVERY WEEK WITH MINIMUM OIL GRADE L2	
CLAMP FOR 2ND ROLL DRIVE SHAFT	- 2 POINTS
CUTTER ROLLER SHIMS	- 2 POINTS
CLAMP FOR CHAINWHEEL SHAFT	- 2 POINTS
BUSH FOR HANDWHEEL SHAFT	- 1 POINT
PRESSURE BAR TENSIONERS	- 2 POINTS
CHESSBOARD SHOES	- 15 POINTS
CUTTER ROLL	- 2 POINTS
INFEED ROLL	- 2 POINTS
TENSIONER ARM SPRING (2ND ROLL DRIVE)	- 1 POINT
2ND SHAFT FOR ROLLER SPRING (2ND ROLL DRIVE)	- 1 POINT
TENSION ROLLER (TOP ROLL DRIVE)	- 1 POINT
SAUNDER CROSS SLIDE	- 2 POINTS
POINTS B - LUBRICATE EVERY 2 MONTHS WITH WADKIN OIL GRADE L2	
INFEED ROLLER SHIMS	- 2 POINTS
CLAMP BALL	- 2 POINTS
SEAL CHANGE SHAFT	- 1 POINT
TRUSS ROLLERS	- 4 POINTS
GEARBOX DRIVE JERKEY PULLEY	- 1 POINT
TABLE ROLLER SPRING	- 1 POINT
MOTOR BALLS (POWER RISE & FALL)	- 2 POINTS
MOTOR BALLS (C/W/DRIVE)	- 2 POINTS
POINTS C - CHECK LEVEL EVERY 12 MONTHS TOP UP WITH MINIMUM OIL GRADE L2	
STRETCHER RAISING GEAR	- 2 POINTS
GEARBOX	- 1 POINT
RISE & FALL REDUCTION UNIT	- 1 POINT

ALL MOVING PARTS AS FOLLOWS SHOULD BE OILED MONTHLY USING WADKIN OIL GRADE L2:
 TABLE SLIDES
 TABLE GEARBOX
 JAWHEEL GEARBOX
 DRIVE GEARBOX
 RISE & FALL CHAINS
 SEAL CHANGE LINKAGE
 TABLE ROLL ECCENTRIC COLLAR
 TRUSS ROLLER SHIMS
 TABLE ROLL RAISING GEAR
 GEARBOX HOIST PIN



30' PANEL PLANER TYPE FX.
 DIMENSIONS IN FEET, INCHES AND MILLIMETRES.

LUBRICATION (See Fig. 1).

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. 33 POINTS. Lubricate every week with Wadkin Oil Grade L. 4.
- B. 11 POINTS. Give 2 to 3 depressions of grease gun every 3 months using Wadkin Grease Grade L. 6. Motor bearings to be lubricated every 12 months . . 4 points.
- C. 4 POINTS. Oil level to be checked every 12 months. Top up with 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.	Regal Starfak No. 2 Grease

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

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 CHAINS

The feed drive chains are tensioned correctly before leaving the Works. Should any re-tensioning be required adjustment is provided.

The primary chain drive can be adjusted by raising or lowering gearbox with square headed jack screws provided.

Bottom roll drive chain can be adjusted by moving pivoting arm tension sprocket.

Top roll drive chain is adjusted by rotating cutterblock housing in the front side frame bore.

CHANGING FEED SPEED

Feed rollers are driven from a 3 speed gearbox with 2 speed cone pulleys giving 6 speeds from 20 to 100 ft./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:	45, 75, 100 ft./min.	(14, 23, 30 metres/min.).	50 cycles.

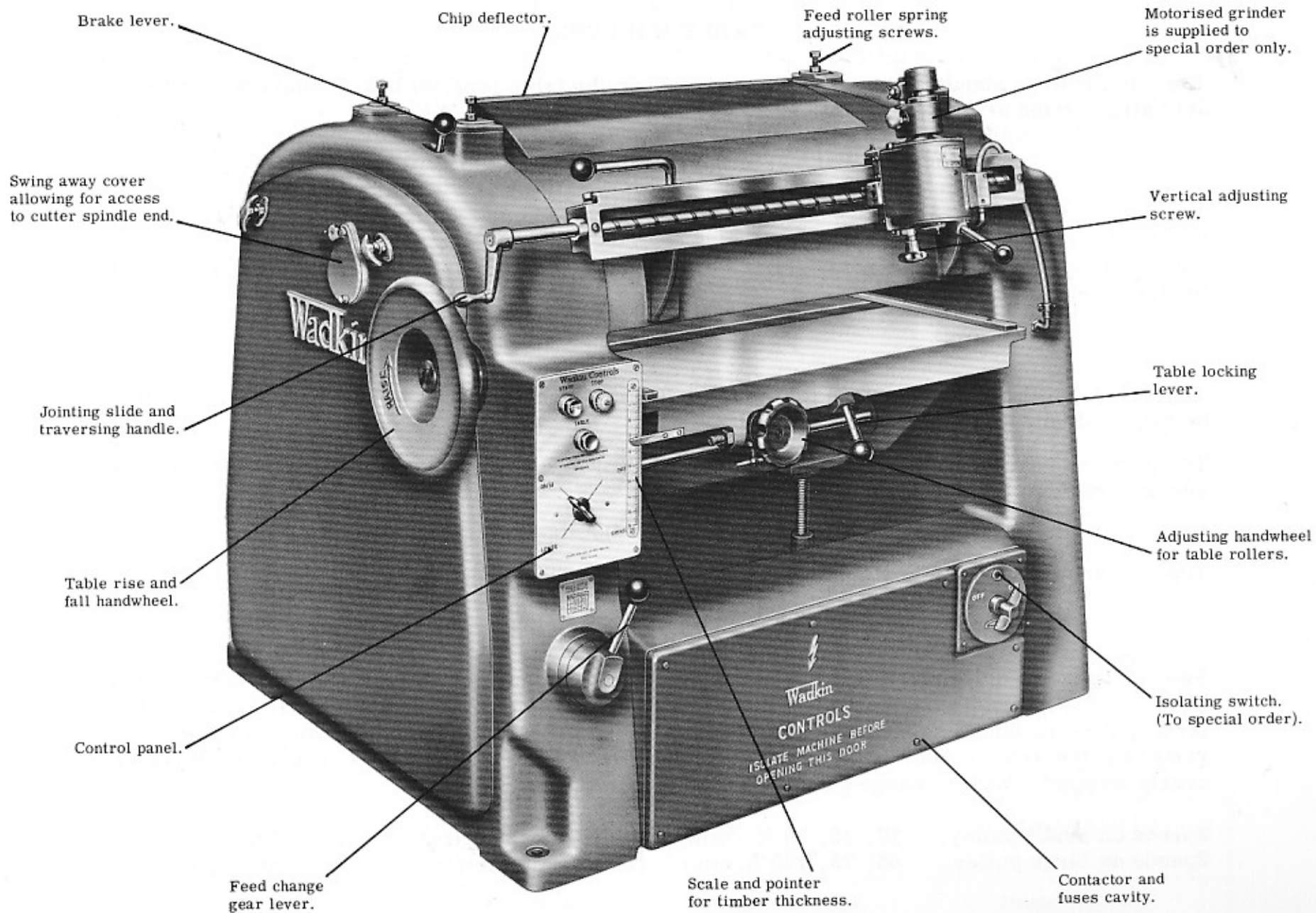


FIG. 2. FRONT VIEW OF MACHINE SHOWING PRINCIPAL CONTROLS.

CUTTERBLOCK AND CUTTERS.

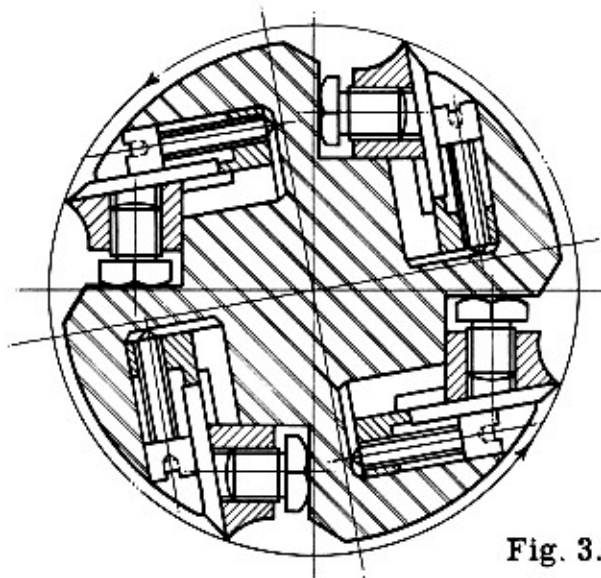


Fig. 3.

SECTION THROUGH
CUTTERBLOCK.

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. 3.

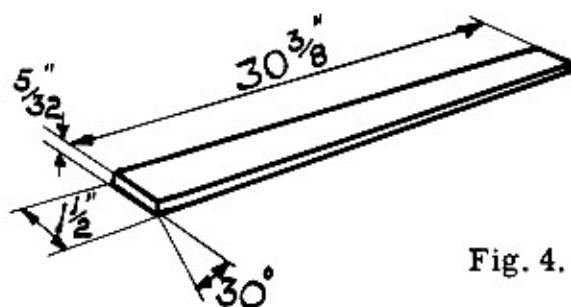


Fig. 4.

HIGH SPEED STEEL KNIVES
WADKIN REF. V. P. 12.

Cutters to size shown in Fig. 4 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.

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. 5, 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 $5.1/16''$ (128.5 mm). 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. 6, 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.

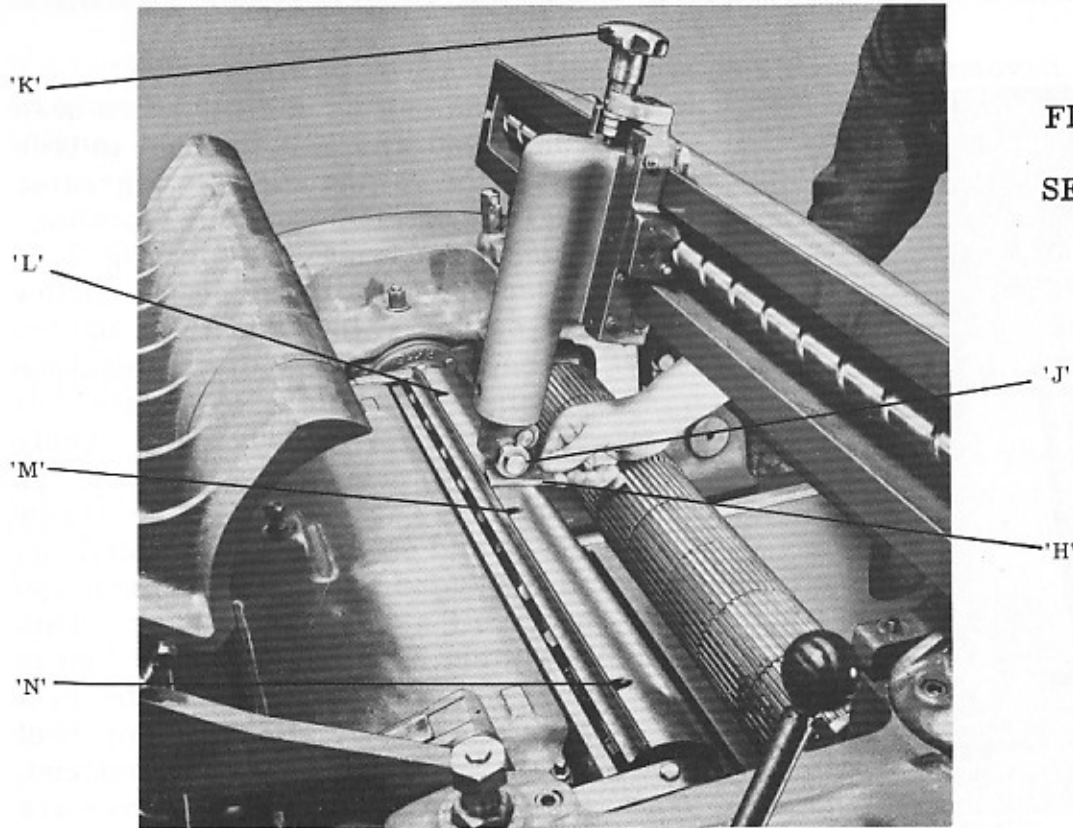


FIG. 5
SETTING GAUGE IN USE.

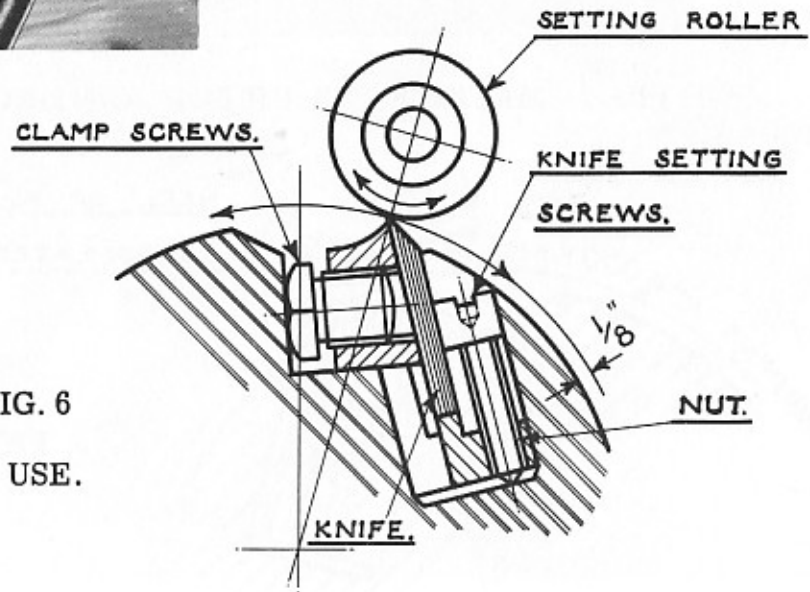


FIG. 6
SETTING ROLLER IN USE.

CUTTER SETTING AND JOINTING DEVICE (CONTINUED)

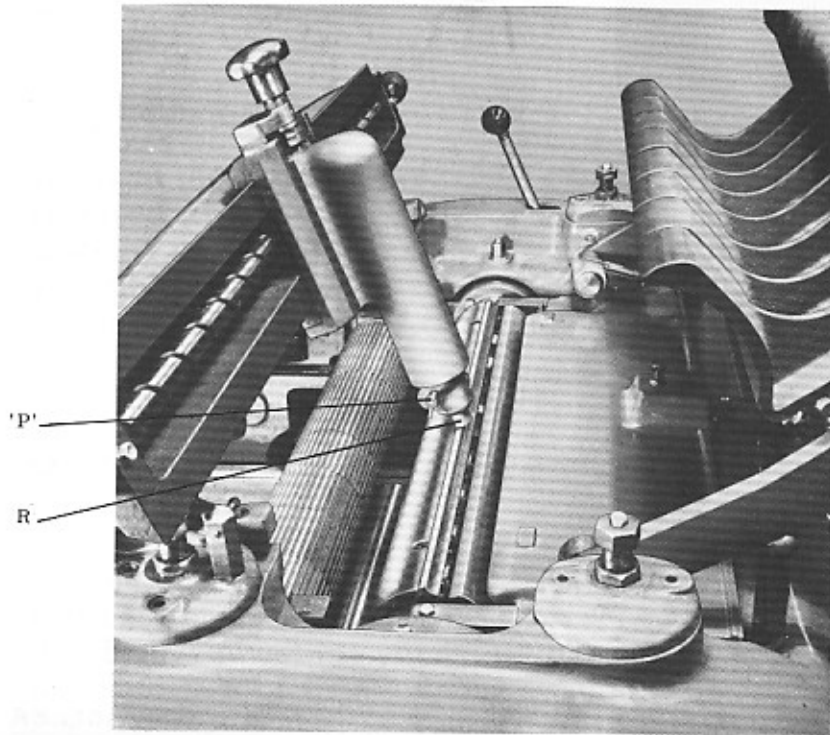


FIG. 7. MACHINE SET UP FOR JOINTING.

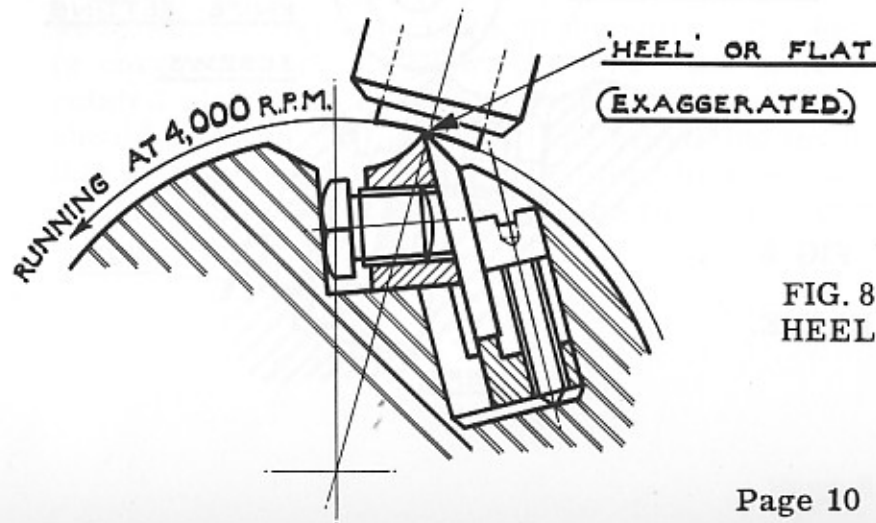


FIG. 8.
HEEL PRODUCED BY JOINTING.

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. 7 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. 8 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.

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 8 to 10. Fig.9 shows the machine set up for jointing when the motorised grinder is fitted.

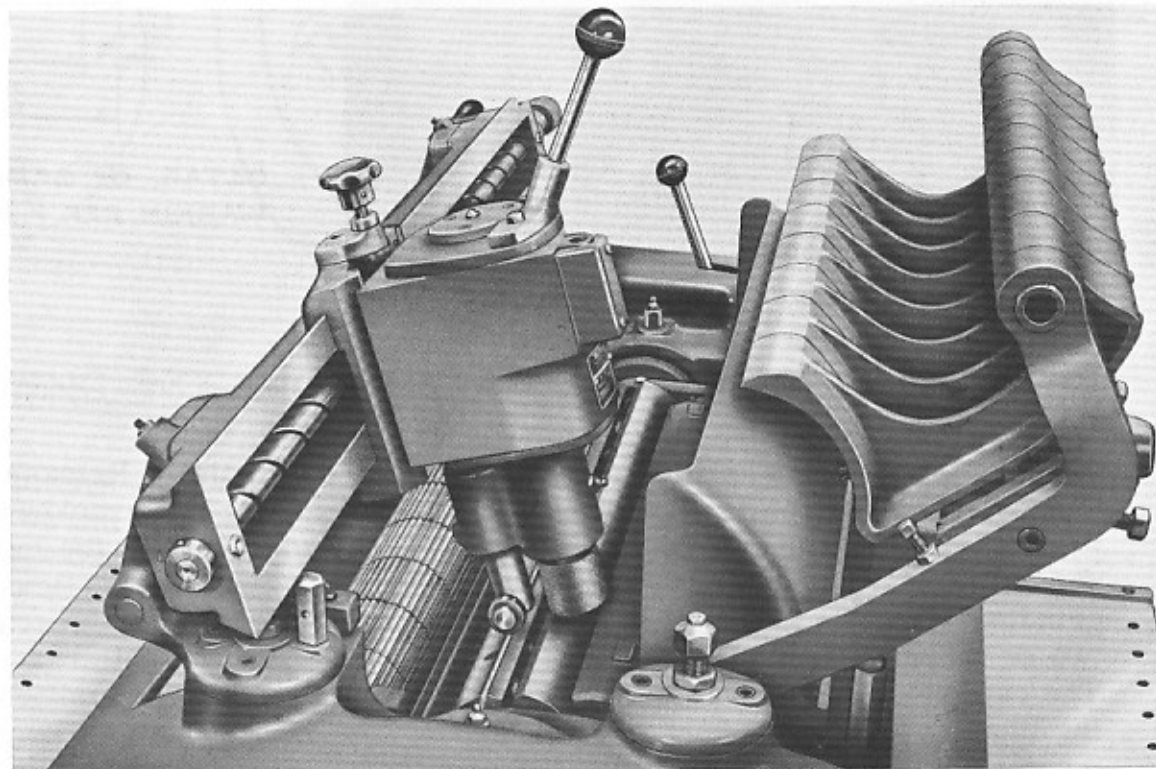


FIG. 9
MACHINE ARRANGED
FOR JOINTING.

MOTORISED CUTTER GRINDER (CONTINUED)

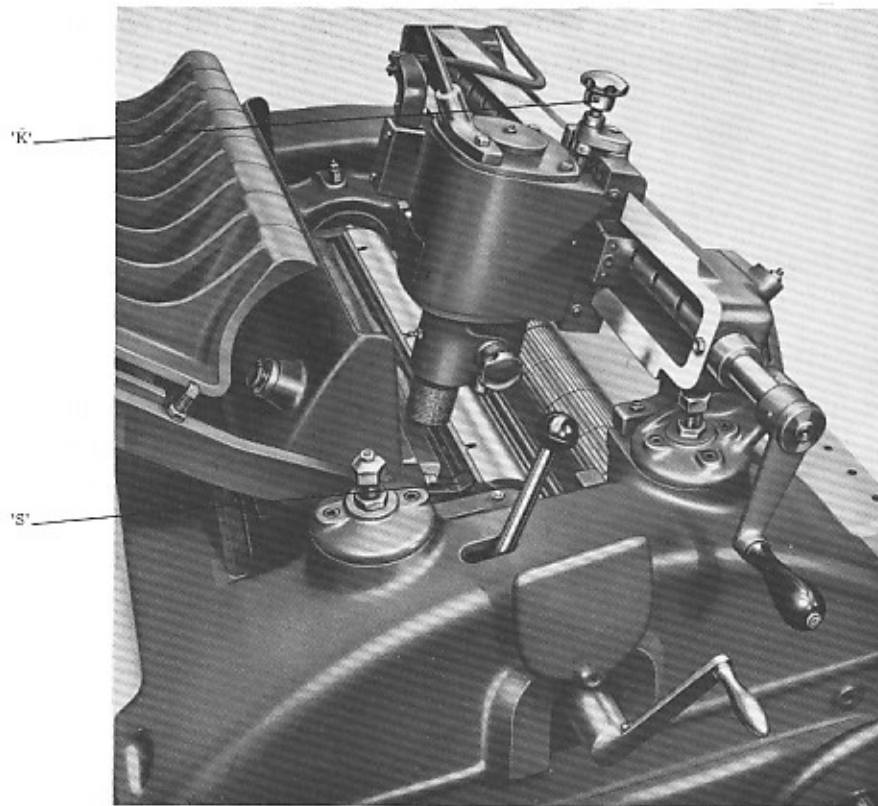
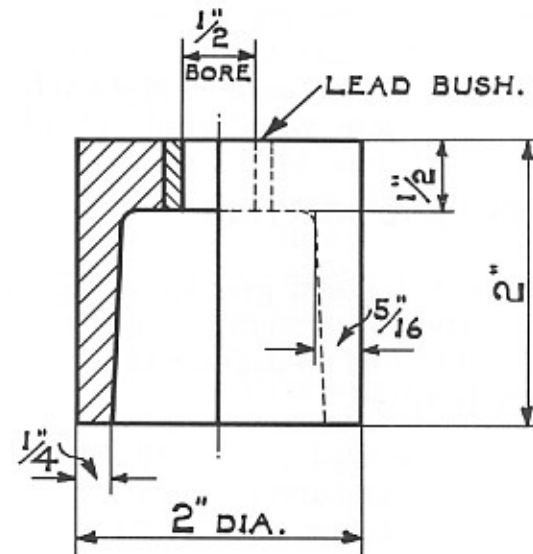


FIG. 10. MACHINE ARRANGED FOR GRINDING.

GRINDING.

Arrange the machine as illustrated in Fig. 10 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. 11 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 level 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 knives at one setting and if necessary lower the grinding wheel and take

NORTON CUP WHEEL.



DETAIL OF GRINDING WHEEL. 5,800 R.P.M.
WADKIN REF. F.X. 576. GRADE A-463-18VBE

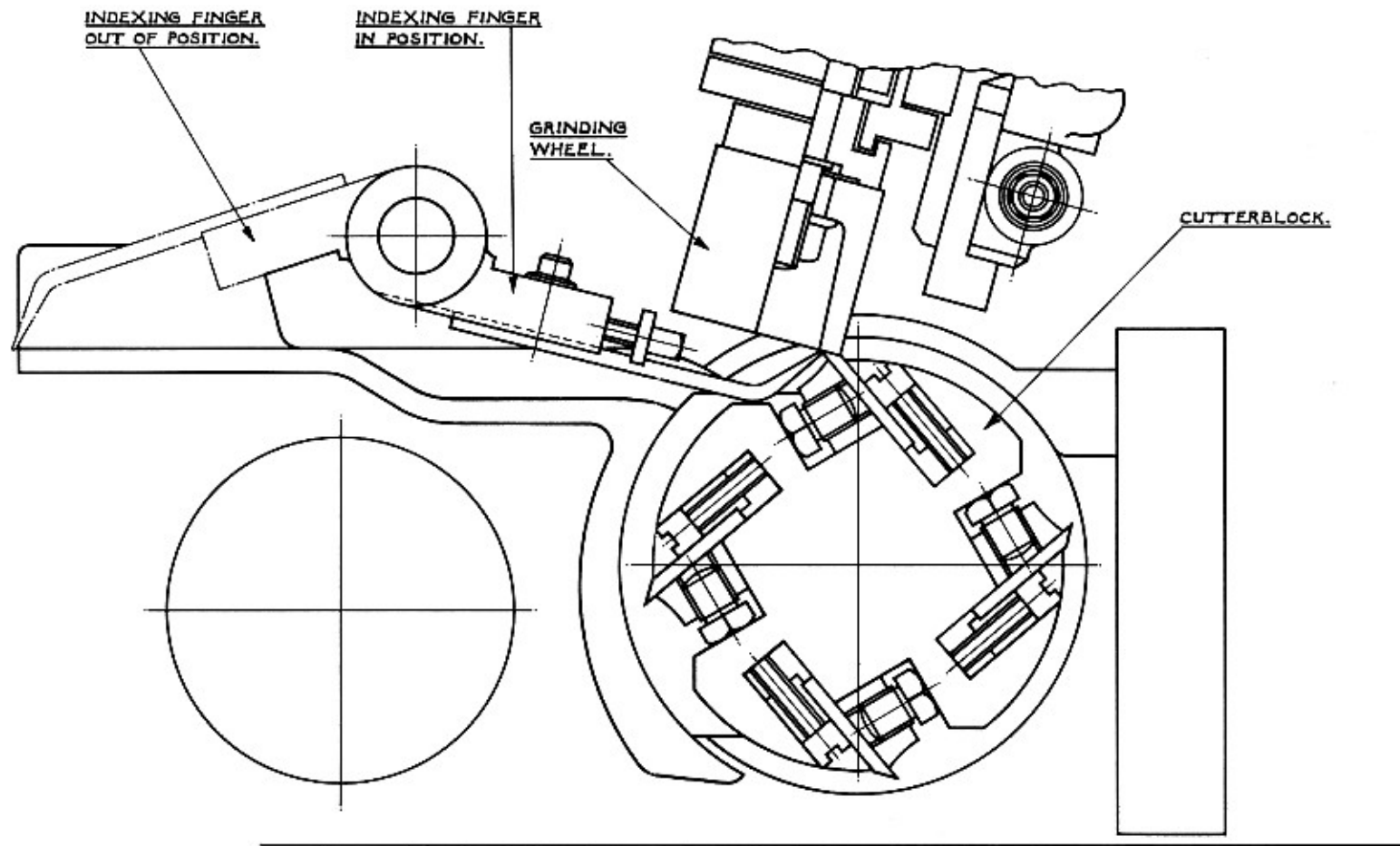


FIG. 11. SKETCH SHOWING INDEXING FINGER IN AND OUT OF POSITION.

further 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 15.

IMPORTANT. Make certain that the indexing finger is latched back properly out of position as Fig. 11 before re-starting the machine.

FEED ROLLERS

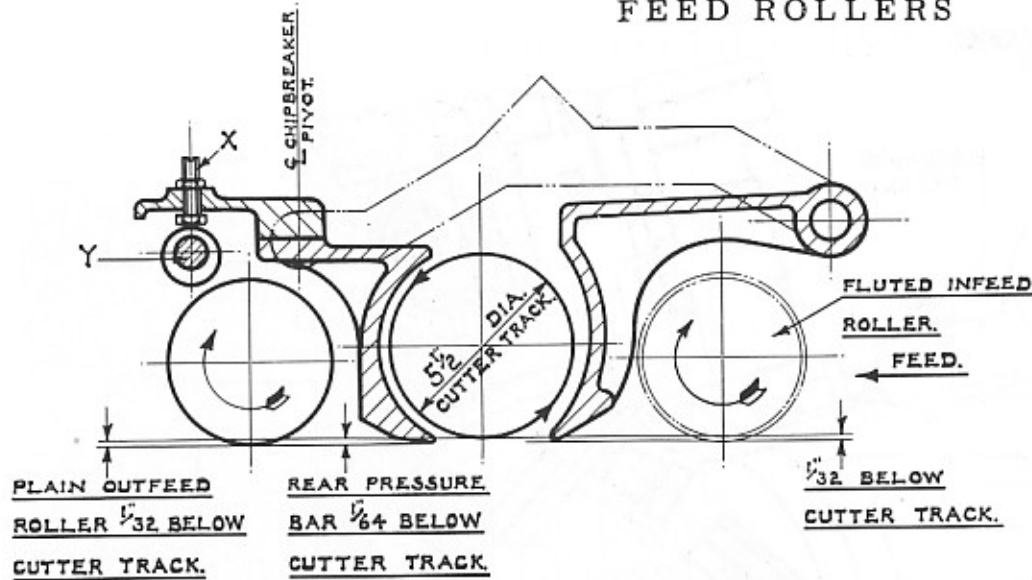


FIG. 12

SHOWING SETTING OF
FEED ROLLERS SEC-
TIONAL CHIPBREAKER
ASSEMBLY AND REAR
PRESSURE BAR.

The fluted section infeed roller should be set $1/32"$ (.8 mm) below the cutter track as shown in Fig. 12. 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.

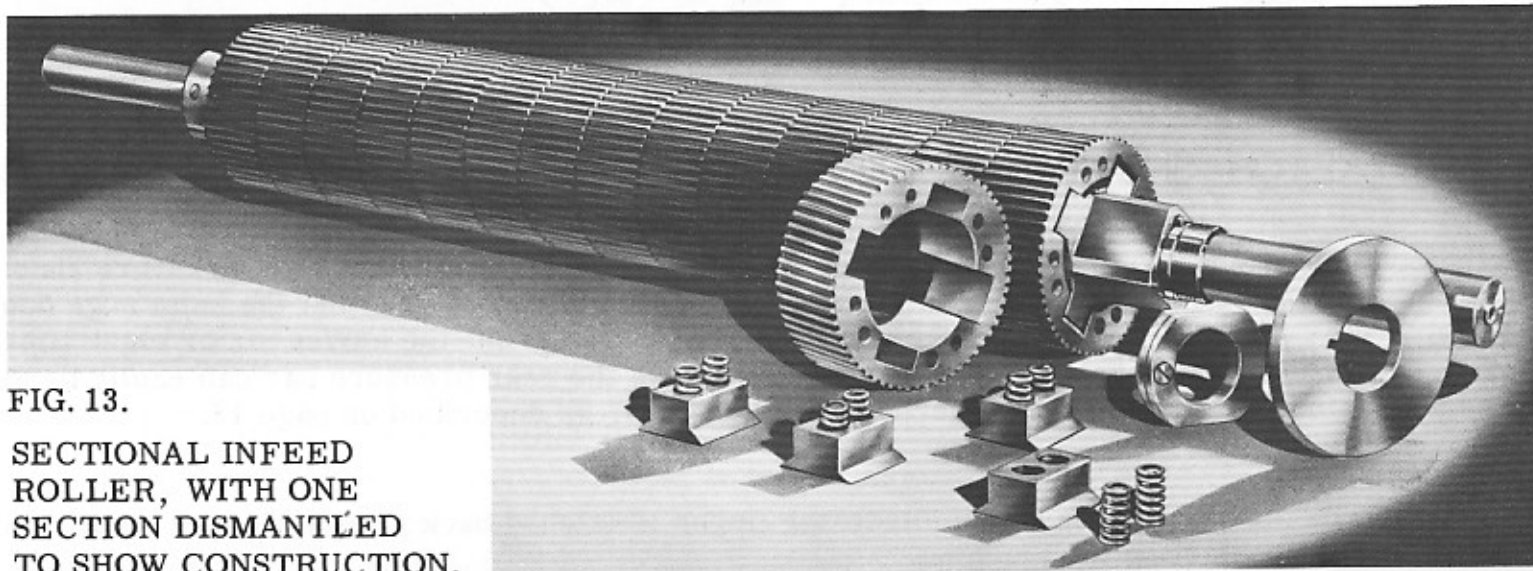


FIG. 13.

SECTIONAL INFEED
ROLLER, WITH ONE
SECTION DISMANTLED
TO SHOW CONSTRUCTION.

SECTIONAL CHIPBREAKER ASSEMBLY

Set all 15 shoes in line by adjusting the stop screws and apply spring pressure by setting the hexagon head screws on the top rail. 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. 12. 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.

REAR PRESSURE BAR (See Fig. 12)

The rear pressure bar should be set $1/64''$ (.4mm) below the cutter track by means of the screw 'X' with the eccentric 'Y' in its lowest position. As grinding or jointing operations are performed this eccentric 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 $5\frac{1}{2}''$ (140mm) the eccentric 'Y' should be brought back to its original position. 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

Makers' Number	Bore	Size Outside Diameter	Width	Number per Machine	Where used on machine
Fischer DN 2100 Rose bush assembly. RBJ. 424	1"	2 $\frac{1}{4}$ "	$\frac{5}{8}$ "	2	Top roll reversing drive shaft.
SKF 2311	1 $\frac{1}{2}$ "	2. 7/16"	1. 5/16"	2	Infeed roll swing brackets.
SKF RLS 6	55mm	120mm	43mm	2	Front & rear cutterblock brgs.
SKF RLS 8	$\frac{3}{4}$ "	1 $\frac{7}{8}$ "	9/16"	3	Gearbox.
SKF RLS 9	1"	2 $\frac{1}{4}$ "	$\frac{5}{8}$ "	3	Gearbox.
Torrington Needle Roll Brg. No. HR 2724	1 $\frac{1}{8}$ "	2 $\frac{1}{2}$ "	$\frac{5}{8}$ "	2	Jockey pulley (gearbox drive).
Torrington Needle Roll Brg. No. BR 2016	1. 11/16"	2. 17/32"	1 $\frac{1}{2}$ "	4	Table rollers.
Thrust washer SKF 012	1 $\frac{1}{4}$ "	1 $\frac{7}{8}$ "	1"	2	Table idler sprocket.
Hoffman paired bearings. No. 5830A (120 AC paired back to back)	1 $\frac{1}{2}$ "	2. 5/16"	23/32"	3	Raising screw.
Hoffman sealed bearing No. 125 RS. V2	20mm	47mm	14mm	1	Grinding spindle.
Hoffman sealed bearing No. LS 8. RS. V2.	25mm	52mm	15mm	1	Grinding motor.
	$\frac{3}{4}$ "	1 $\frac{7}{8}$ "	9/16"	1	Grinding 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 thicknessing rough timber.
- (2) Pressure bar too low.
- (3) Chipbreaker or sectional pressure too hard on through spring pressure.

SECTION THROUGH CUTTERBLOCK.

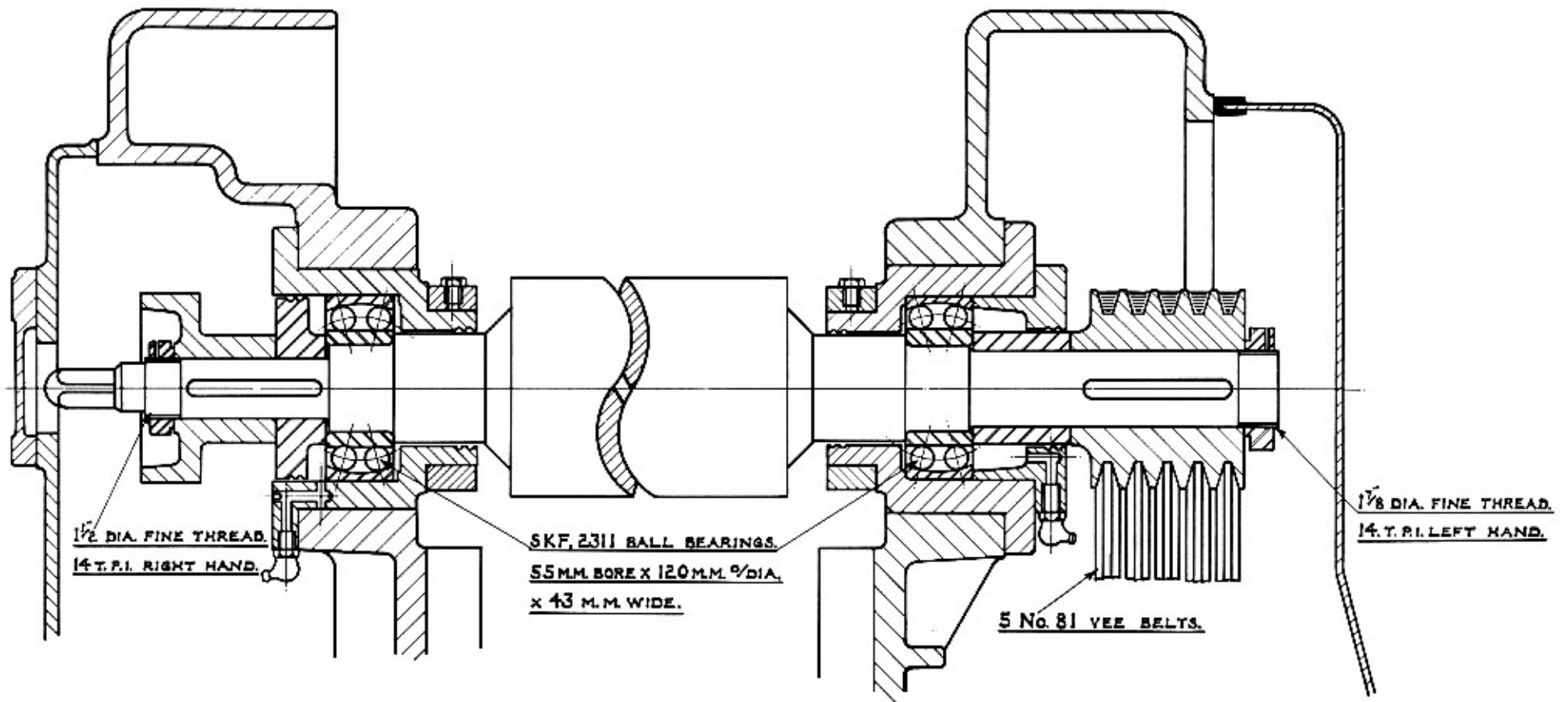


FIG. 14

ELECTRICAL INSTALLATION INSTRUCTIONS

The cabling between the motors and the control gear is carried out by Wadkin Ltd., and it is only necessary to bring the supply cables to the machine for it to be put into service.

PROCEED 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 supply cables to the appropriate terminals. See diagram of connections. These cables should be taken to the machine in conduit and secured to the machine frame by means of locknuts.
3. Connect solidly to 'EARTH'.
4. Close isolating switch and press 'Start Cutterblock' button, if the cutterblock does not rotate in the correct direction interchange any two incoming supply cables.

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.

OPERATING INSTRUCTIONS.

To start machine: Close isolating switch and press 'Start Cutterblock' button. To stop machine: Press 'Stop' button. To lock off machine: Press and turn 'Stop' button, this must be released before a start can be made. To start power raise and lower table, if fitted, turn the selector switch to 'Raise' or 'Lower' and hold 'Start Table' button depressed until the position required is reached. To start motorised grinder, when fitted, turn selector switch to 'Grind'.

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. The overloads are set at these Works for automatic resetting.

RAISE, LOWER AND GRIND SELECTOR SWITCH CONNECTIONS.

'Off' makes no connections.

'Raise' connects : L1 to A1, L2 to B1, L3 to C1.

'Lower' connects : L1 to C1, L2 to B1, L3 to A1.

'Grind' connects : 1L to A1G, 2L to B1G, L3 to C1G.

RAISE AND LOWER ONLY SELECTOR SWITCH CONNECTIONS.

'Raise' connects : L1 to A, L2 to B, L3 to C.

'Lower' connects : L1 to B, L2 to A, L3 to C.

GRIND ONLY SELECTOR SWITCH CONNECTIONS.

'Off' makes no connections.

'Grind' connects : L1 to A, L2 to B, L3 to C.

