

Modifications are made to these books from time to time and it is important therefore that only the book sent with the machine should be used as a working manual

INSTRUCTION MANUAL FOR

Panelmaster

Panel Sizing and Dimension Saw

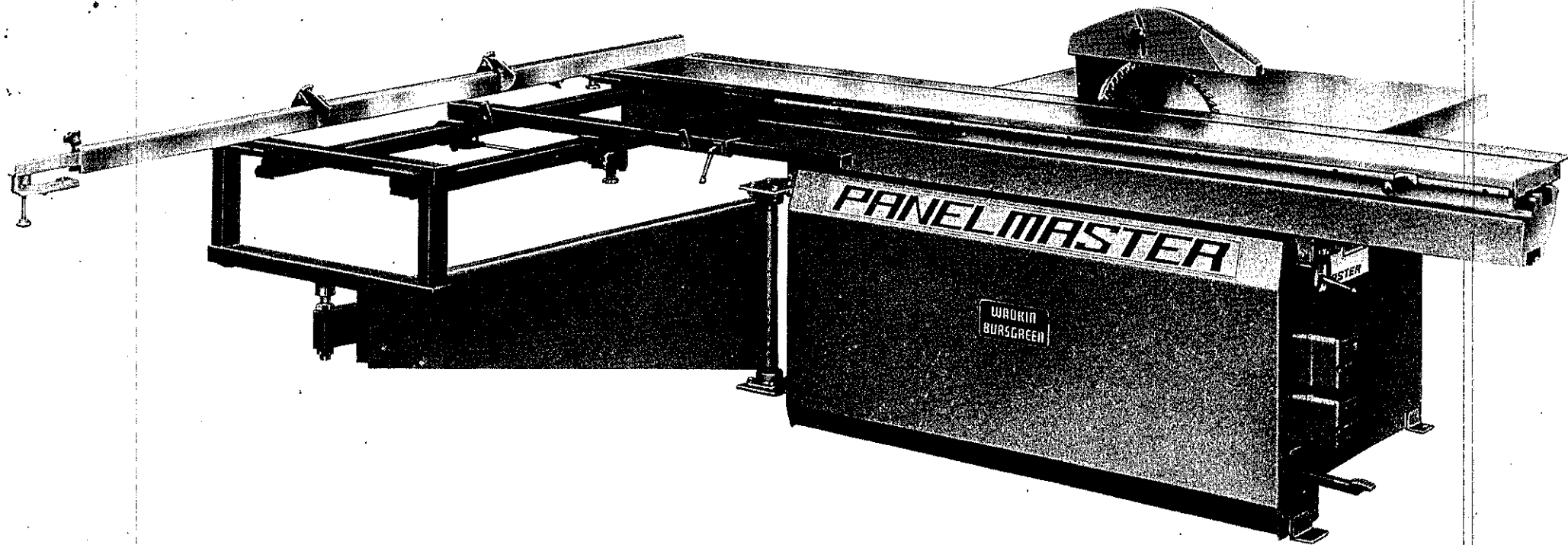
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PLEASE INSERT SERIAL NUMBER OF MACHINE

BOOK No. B563

Bursgreen (Durham) Ltd. Fence Houses, Houghton-le-Spring,
Tyne-Wear, England. DH4 5RQ



Panel Sizing & Dimension Saw – Type Panelmaster



HEALTH & SAFETY

SAFETY OF WOODWORKING MACHINES

Woodworking machines can be dangerous if improperly used. The wide range of work of which they are capable, requires adequate safeguarding arrangements against possible hazards.

Many injuries to machinists are caused by carelessness or failure to use the guards provided or to adjust them correctly.

WADKIN LTD., supply machinery designed for maximum safety which they believe, as a result of thorough testing, minimizes the risks inevitable in their use. It is the user's responsibility to see that the following rules are complied with to ensure safety at work:

1. The operation of the machine should conform to the requirements of the Woodworking Machines Regulations 1974. All guards should be used and adjusted correctly.
2. Safe methods of working only should be adopted as given in the Health and Safety Work Booklet No.41, "Safety in the Use of Woodworking Machines", (obtainable from Her Majesty's Stationery Office) and as advised by Wadkin Ltd.
3. Only personnel trained in the safe use of a machine should operate it.
4. Before making adjustments or clearing chips, etc., the machine should be stopped and all movement should have ceased.
5. All tools and cutters must be securely fixed and the speed selected must be appropriate for the tooling.

SAFETY IS OUR WATCHWORD BUT THE USER MUST COMPLY WITH THE ABOVE RULES IN HIS OWN INTEREST. WE WOULD BE PLEASED TO ADVISE ON THE SAFE USE OF OUR PRODUCTS.

oOo

SPECIFICATION

Maximum Saw diameter	400mm	16"
Maximum Depth of cut 90°	145mm	5¾"
45°	100mm	4"
Length of cut using sliding table		
std	2440mm	95"
(Optional extra)	3100mm	122"
Maximum distance saw to stop on		
crosscut fence Std.	2440mm	95"
(Optional extra)	3100mm	122"
Maximum distance saw to rip fence on		
right hand side	850mm	35½"
Saw spindle speed std	3000 & 4500 r.p.m.	
(Optional extra)	3000, 4000, 6000, & 8000 r.p.m.	
Saw spindle diameter	30mm	30mm
Fixed table size	620 x 750mm	24½" x 29½"
Sliding table size std	361 x 2520mm	14" x 100"
(Optional extra)	361 x 2780mm	14" x 109"
(Optional extra)	361 x 3180mm	14" x 125"
Scoring Saw (optional extra)		
Recommended diameter of main saw when		
scoring	300mm	12"
Dia of split scoring saw	105mm	14"
Speed of scoring saw	8250 r.p.m.	

INSTALLATION

SLINGING

Attach slings to machine as shown in FIG 1 and ensure damage will not be caused to machine during slinging operation.

CLEANING

Clean protective coating from all bright parts by applying a cloth soaked in paraffin, turpentine or other solvent.

MARKING OUT

The machine is front loading and should be sited to allow working room for all capacities. Refer to Foundation Plan. Mark out floor to suit 4 - 16 mm Rawlbolts. These bolts are not included with machine but can be supplied at additional charge.

NOTE: The machine has 3 fixed feet and 1 adjustable foot.

Move machine into position, resting on the 3 fixed feet then loosen 2 - hexagon head bolts "A" in FIG 2 and push adjustable foot "B" down to ensure rigid contact with floor.

Relock hexagon head bolts "A".

Securely bolt the machine to floor by 16mm Rawlbolts through each of the 4 feet.

WIRING DETAILS

The motor and control gear have been wired in before despatch.

All that is required is to connect the power supply to the isolating switch.

Points to note when connecting to power supply:-

1. Check the voltage, phase and frequency correspond to those on the motor plate, also the correct coils and heaters are fitted to the starter.
2. It is important that the correct cable is used to give the correct voltage to the starter as running on low voltage will damage the motor.
3. Check the main line fuses are of the correct capacity.
4. Connect the line leads to the appropriate terminals SEE WIRING DIAGRAM ON FOUNDATION PLAN.
5. Check all connections are sound.
6. Check the rotation of both motors for the correct direction. If these are incorrect, reverse any two of the line lead connections.

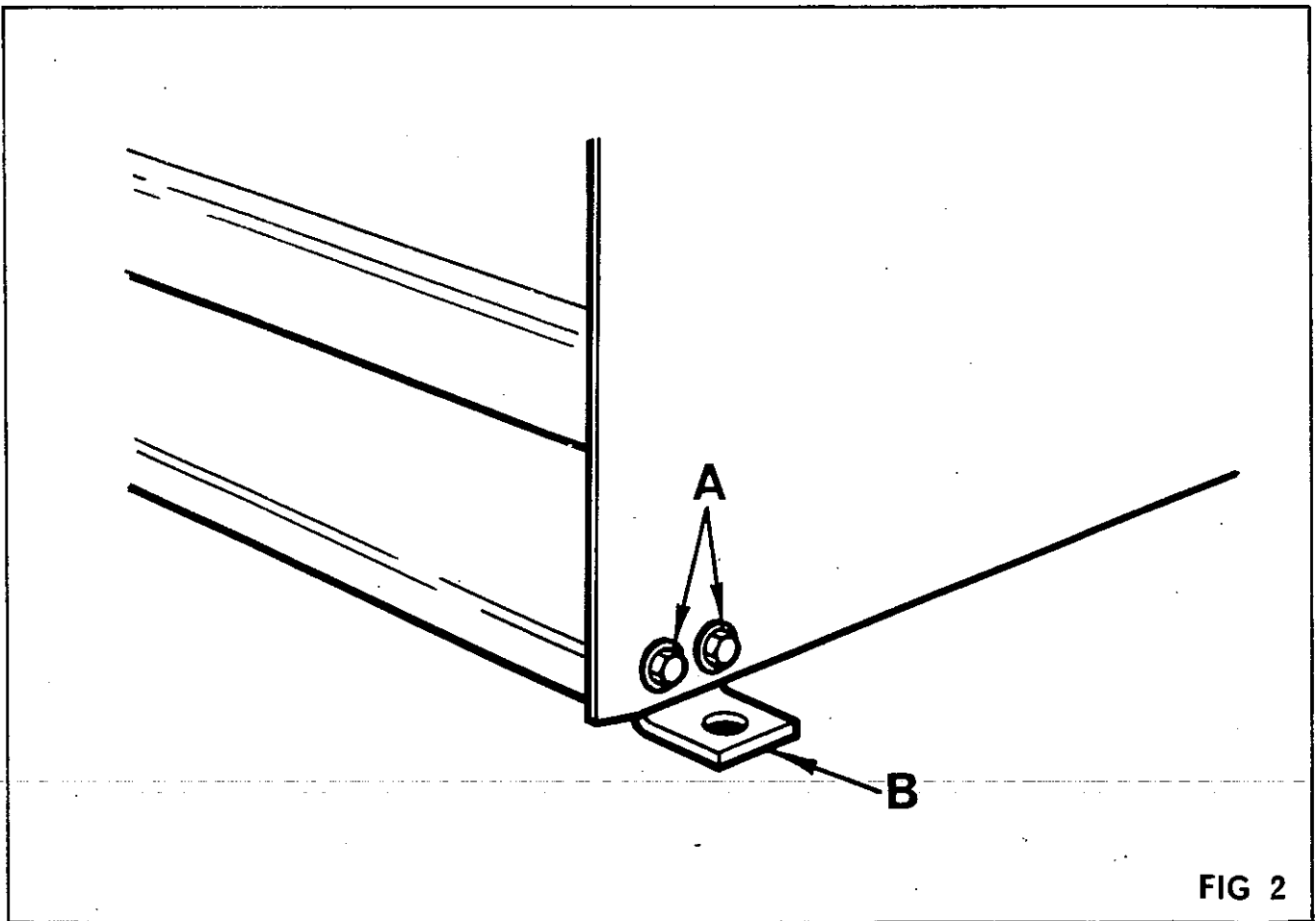
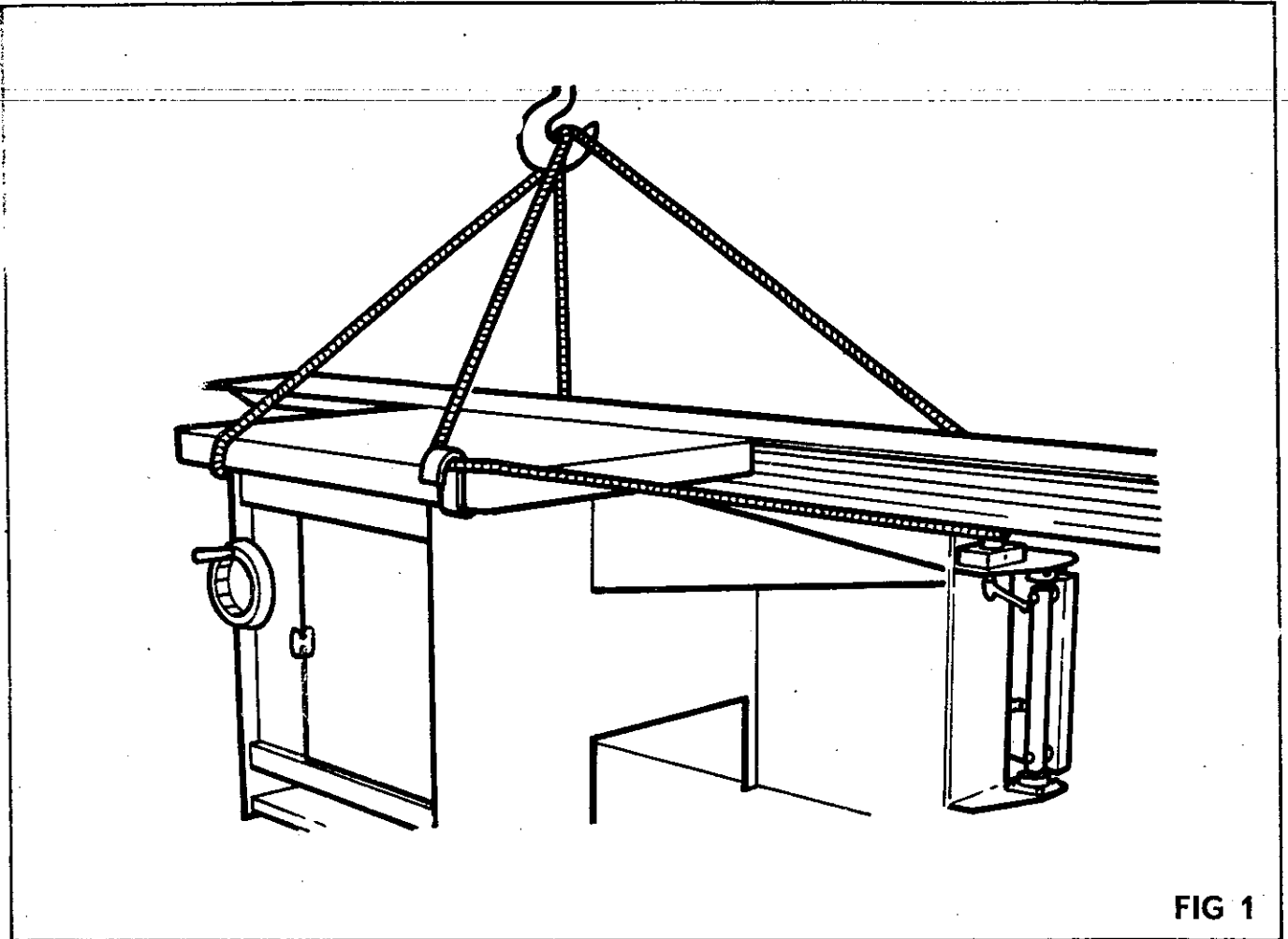
Voltage	Phase	H. P.	S. W. G. Tinned Copper Wire	Fuse Rating Amps
220	3	5 $\frac{1}{2}$	18	45
380/420	3	5 $\frac{1}{2}$	22	24
550	3	5 $\frac{1}{2}$	23	20

LUBRICATION

All bearings are sealed for life and require no lubrication.

Oil Rise/Fall screw and Canting screw:- once weekly. See Approved Lubricants, Page 24.

It is advisable to keep all bright parts covered with a thin film of oil to prevent rusting.



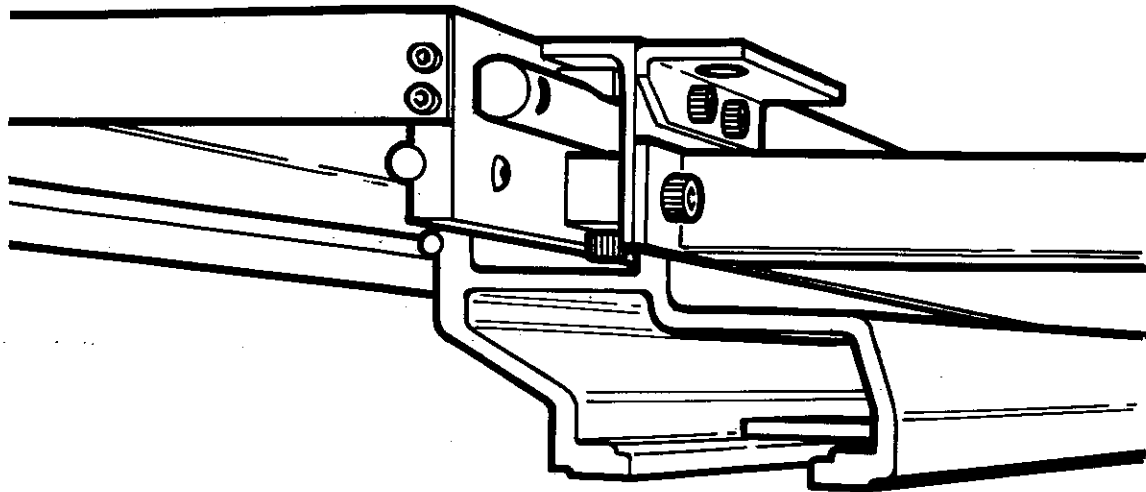


FIG 3

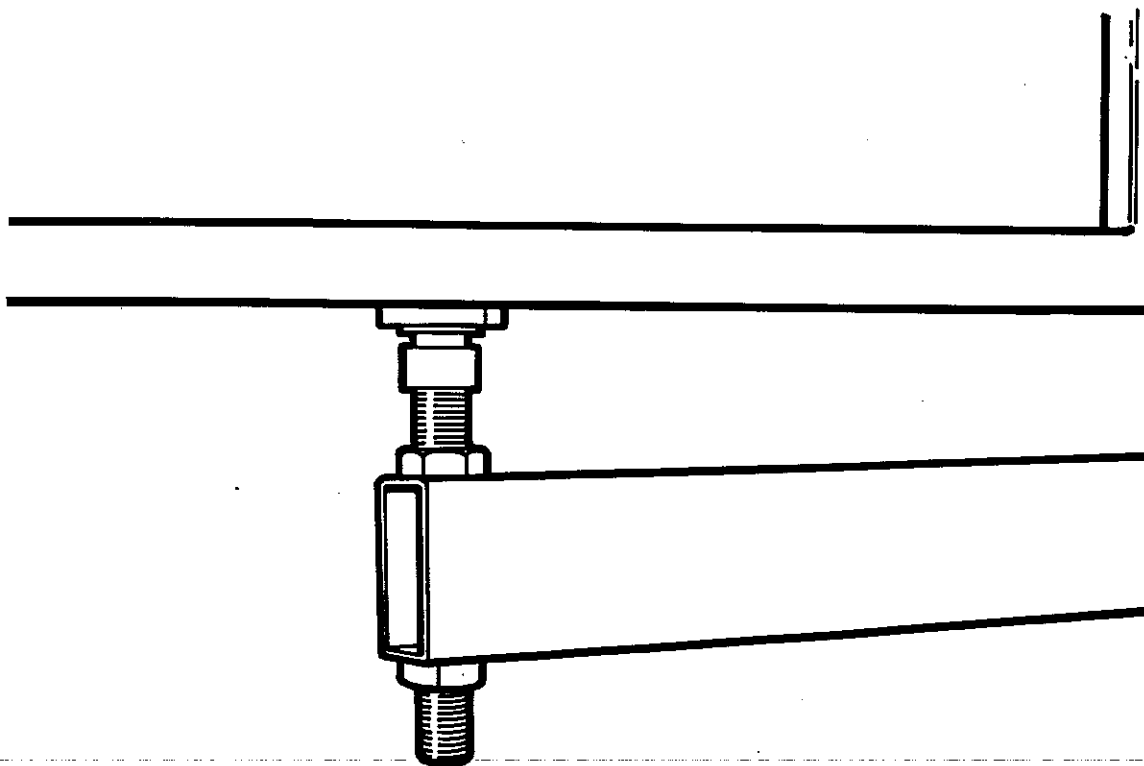


FIG 4

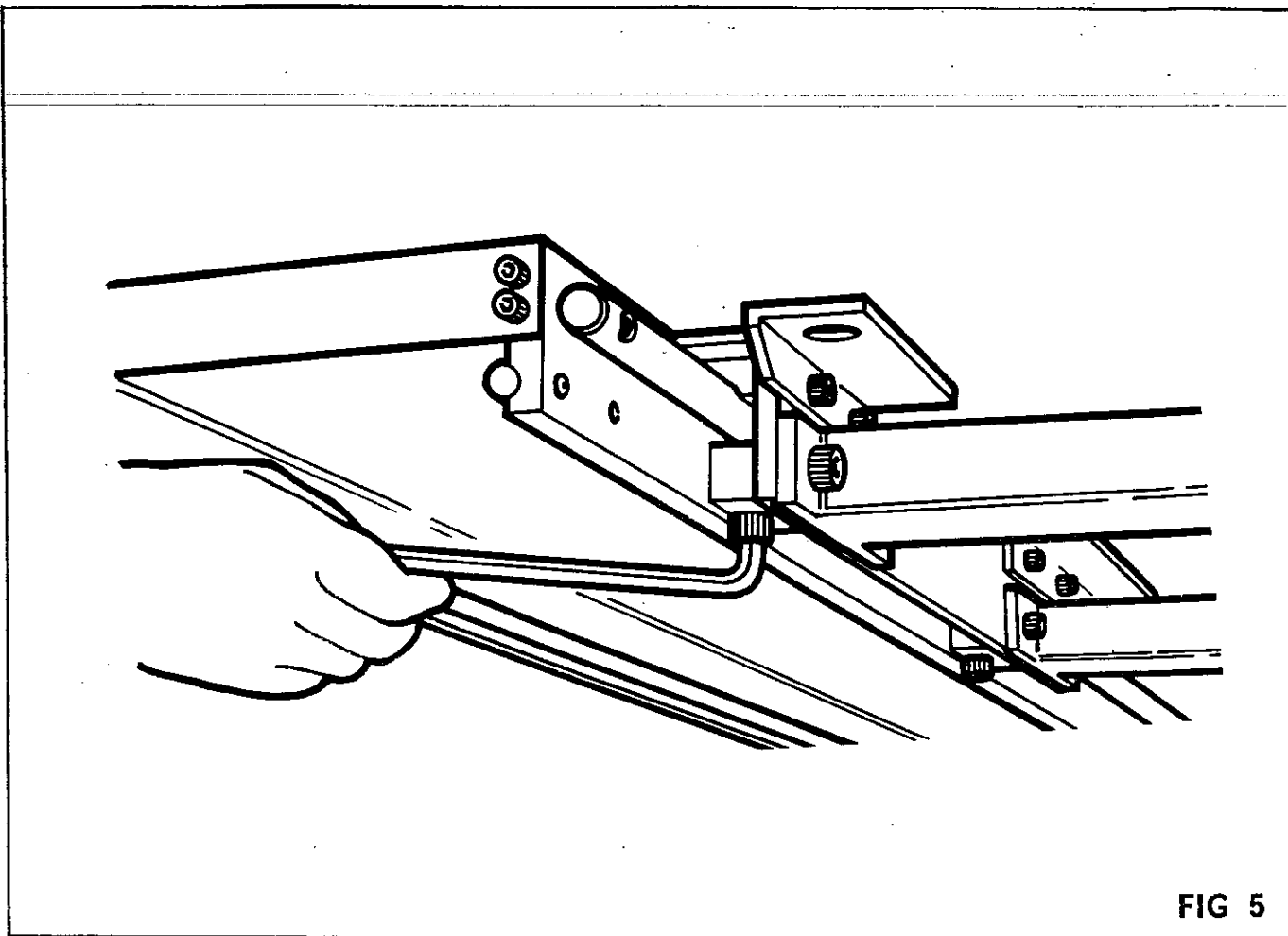


FIG 5

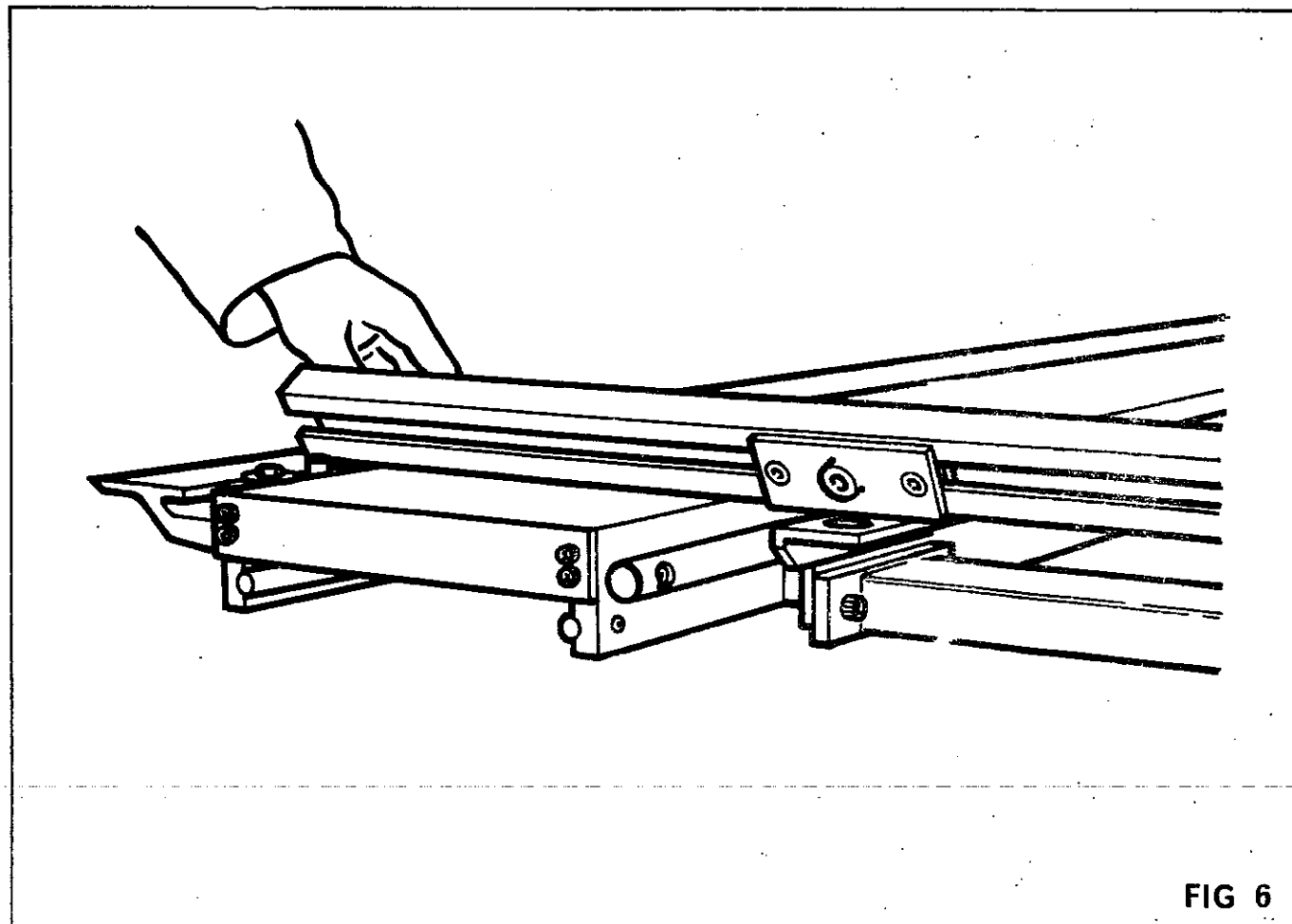


FIG 6

ASSEMBLY OF MACHINE

When the machine is for the home market, the extension table and crosscut fence are removed for ease of transportation. These should be assembled as described in SECTION 1.

When the machine is for the export market, the beam and sliding table are packed in a separate case. For re-assembly see SECTION 2 then refer to SECTION 1 for re-assembly of the extension table and crosscut fence.

SECTION 1 To assemble Extension Table to aluminium sliding table, proceed as follows:-

1. Engage location vee's at front of extension table over round bar on edge of sliding table as shown in FIG 3.
2. Support extension table and locate pin on pivot arm in central bush at outer end of extension table as shown in FIG 4.
3. Position extension table approx' 3" (76mm) from rear of aluminium sliding table and securely lock in position by socket head capscrews "A" in FIG 5.

The Crosscut Fence is fitted to the rear of the table and is accurately located in a hole at the inner end of the extension table, clamped at the outer end against a pre-set bobbin and supported on the sliding table by an adjustable stop located in the bottom groove of the fence section.

To fit the Crosscut Fence, proceed as follows:-

1. Locate spigot on bottom of fence into hole in extension table as shown in FIG 6.
2. Lock front of fence in position by handwheel "A" in FIG 7.
3. Locate outer end of fence against pre-set bobbin "A" in FIG 8 and secure by handwheel "B".
4. The front of the fence is supported by the adjustable stop which is locked to the sliding table by the hexagon head bolt "B" in FIG 7.

NOTE: Ensure handwheels are securely locked before using crosscut fence.

SECTION 2 To assemble Beam and Sliding Table, proceed as follows:-

1. Lift beam/sliding table assembly and locate on 2 - brackets "A" in FIG 9 (the brackets are situated at front and rear of machine)
2. Locate the 2 clamping pads "B" (supplied with machine) over the 2 dowels "C", one per bracket at front and rear of machine.
3. Secure the beam by locking the 2 adjustable handles "D" (supplied with machine) at front and rear of machine as shown in FIG 9.

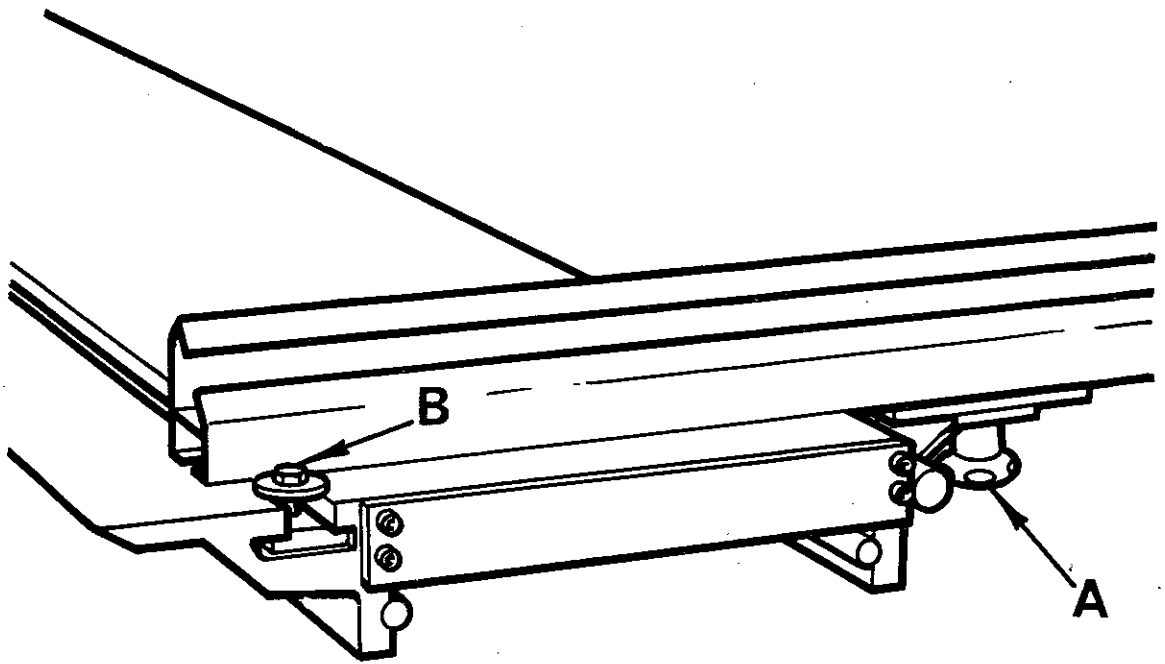


FIG 7

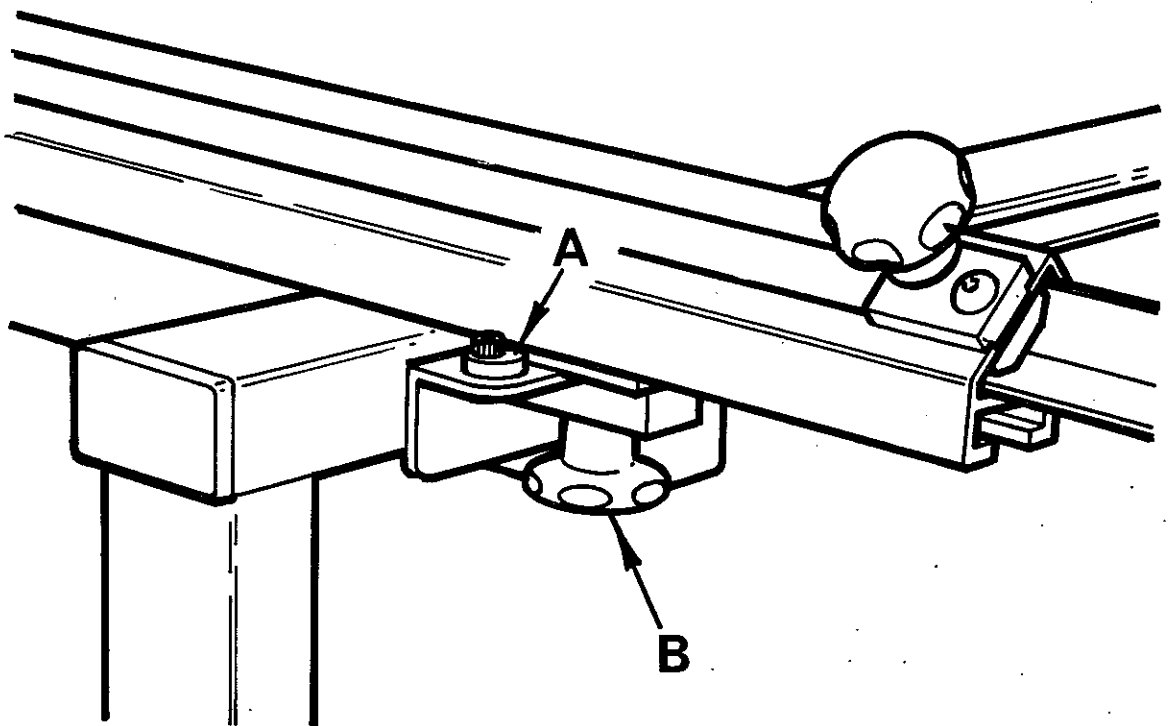


FIG 8

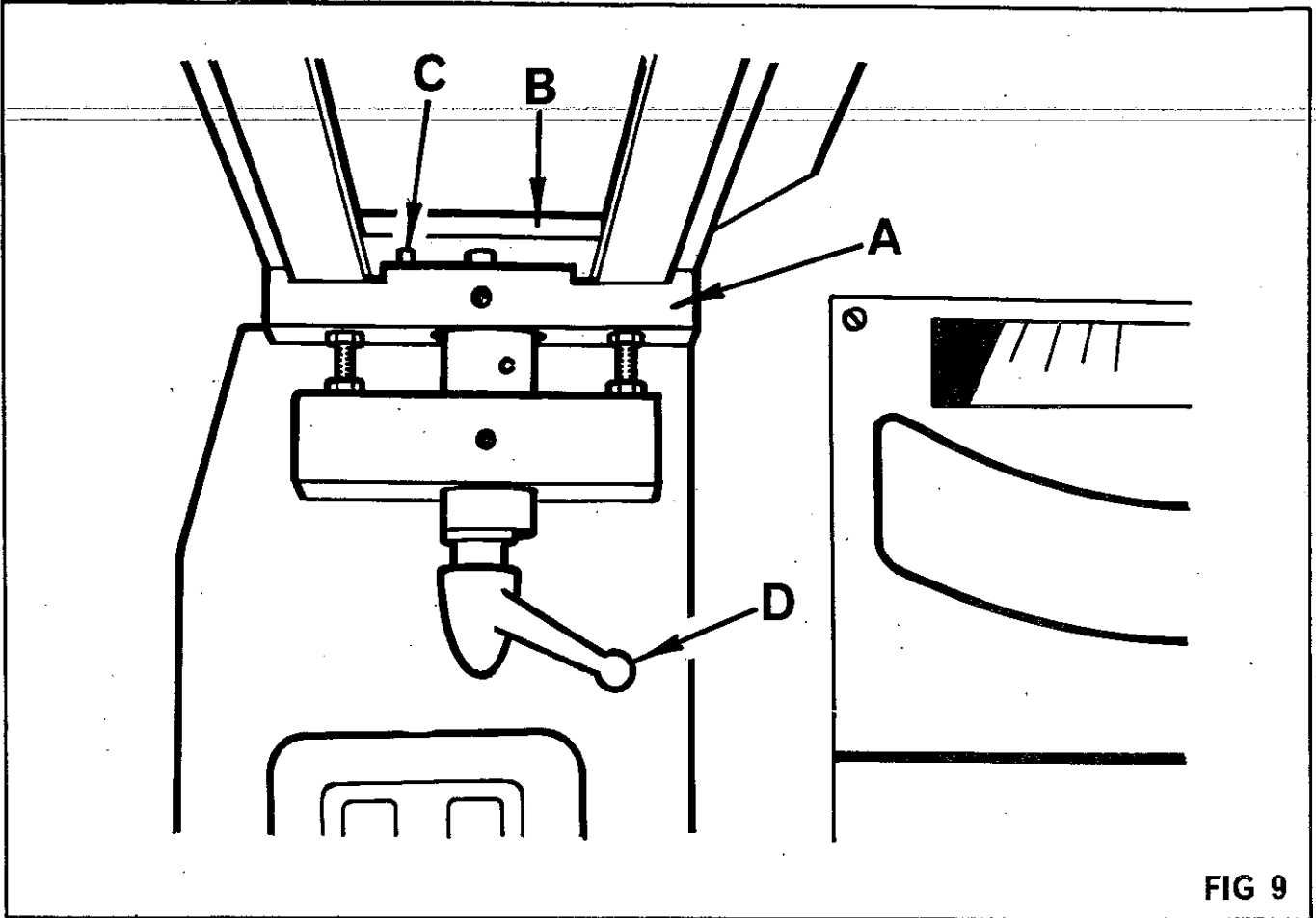


FIG 9

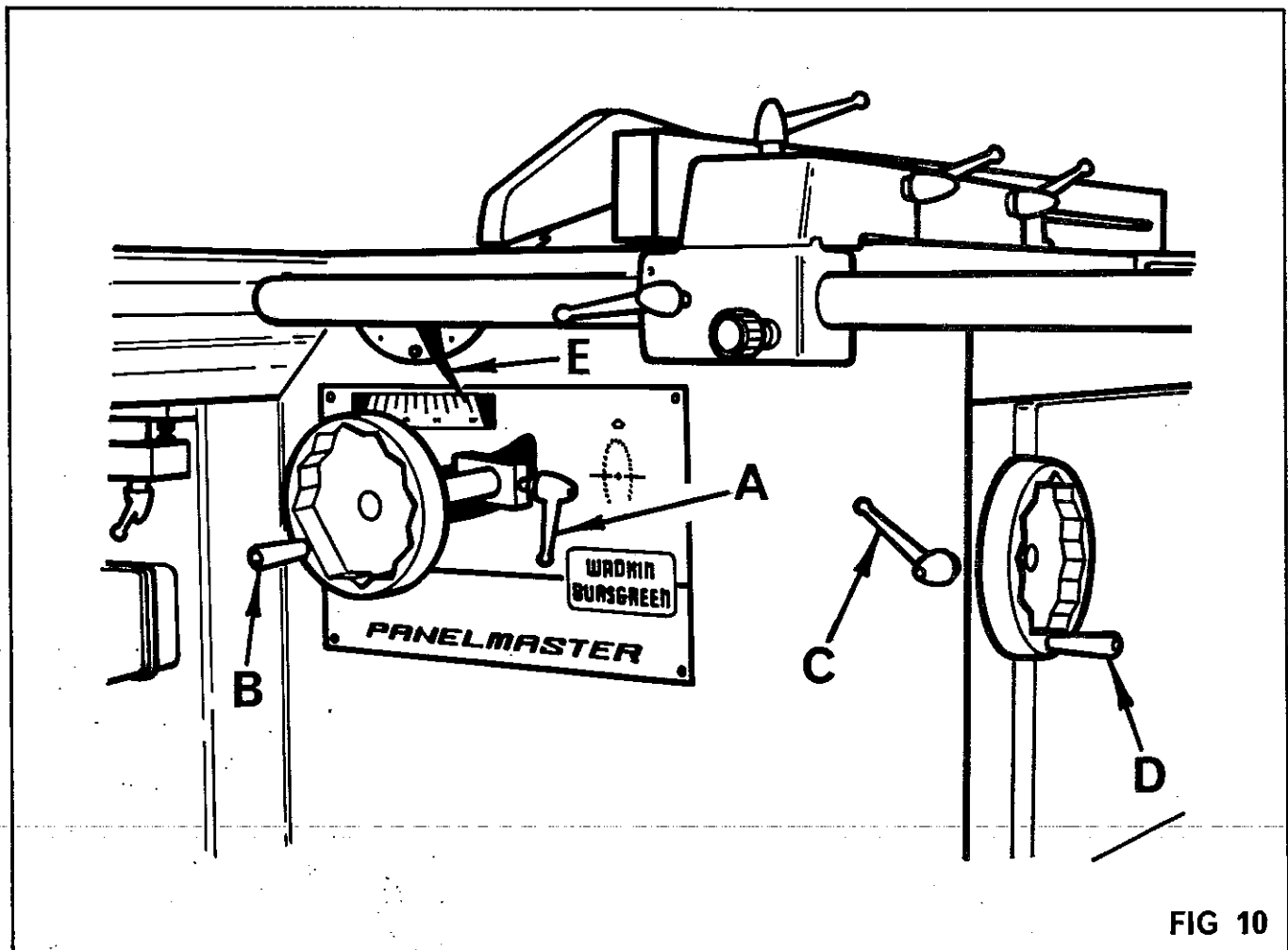


FIG 10

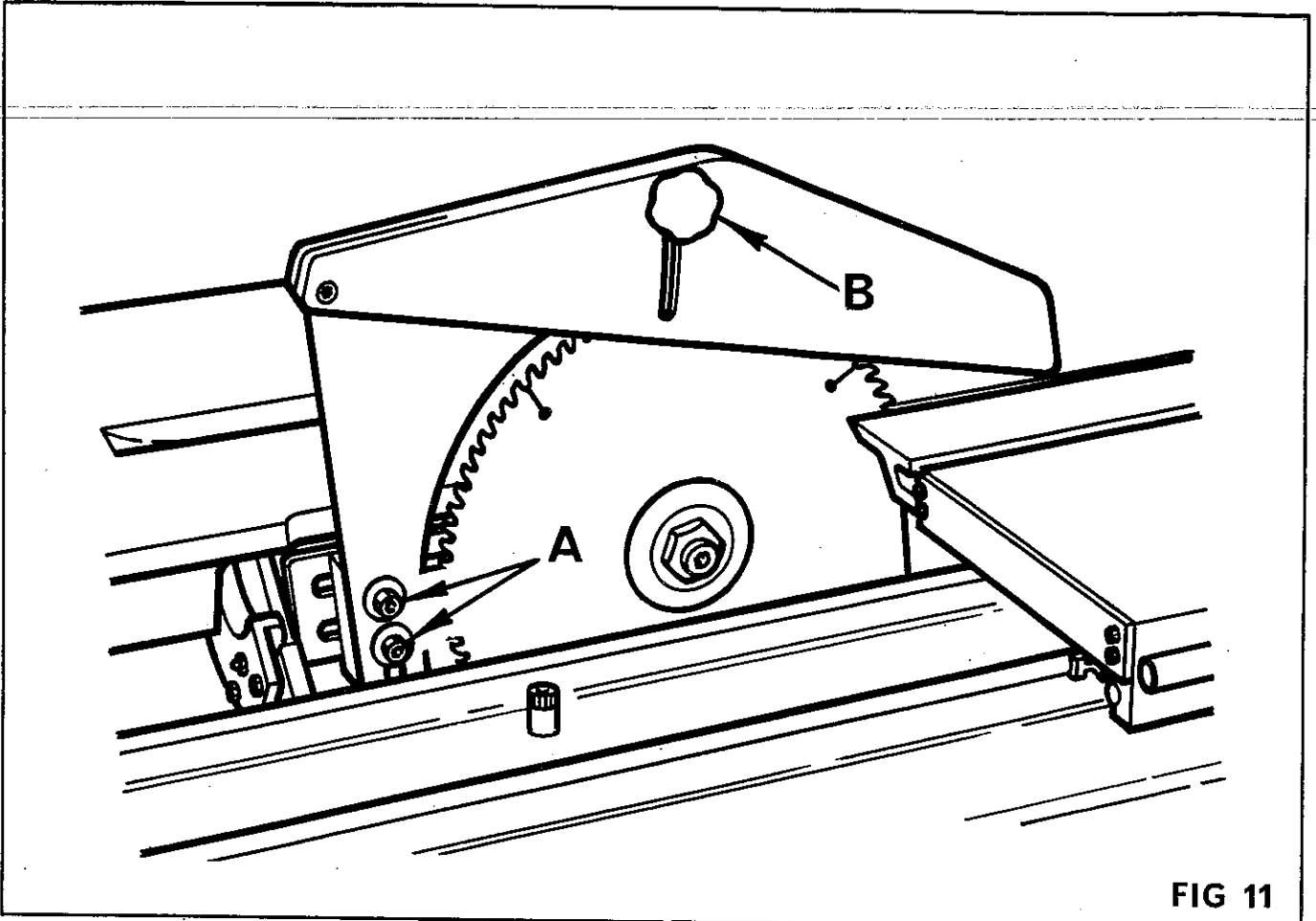


FIG 11

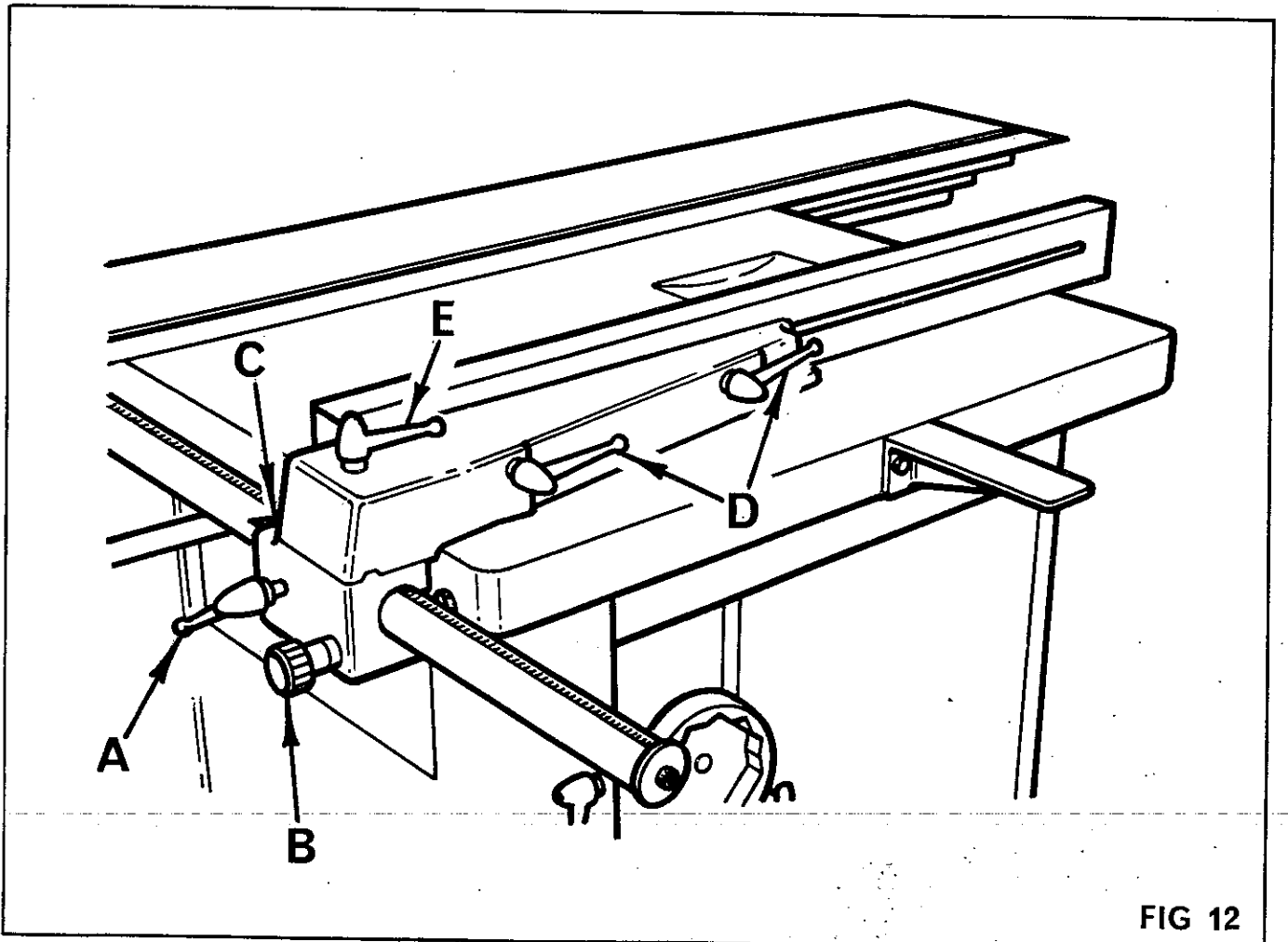


FIG 12

CONTROLS & ADJUSTMENTS

RISE AND FALL CONTROLS

For rise and fall of saw arbor proceed as follows:-

Release locking handle "A" in FIG 10 and raise or lower the saw arbor by the handwheel "B" to the required position then relock handle "A".

CANTING CONTROLS

The saw cants 45° to the right with positive stops at 90° and 45° .
For canting of saw arbor proceed as follows:-

Release locking handle "C" in FIG 10 and turn handwheel "D" working in conjunction with the canting scale indicated by the pointer "E" to the required saw position. Relock handle "C".

GUARD AND RIVING KNIFE ADJUSTMENT

The riving knife and guard rise and falls with the saw.
The riving knife should be adjusted to the closest practicable distance from the saw teeth.
To adjust the riving knife to this position proceed as follows:-

Loosen the 2 - hexagon head nuts "A" in FIG 11, position riving knife as required then relock nuts "A".

The guard should then be adjusted to protect as much of the saw as possible, by loosening handwheel "B" positioning the guard as required then relocking handwheel "B".

RIP FENCE CONTROLS

The Rip Fence slides on a 50mm dia round bar at the front of the fixed table as shown in FIG 12

For rapid fence adjustment proceed as follows:-

Release locking handle "A" in FIG 12 and disengage pinion from fence racked bar by pulling handwheel "B" from the fence bracket. Slide fence to required position using scale indicated by pointer "C" then relock handle "A".

For fence micro-adjustment proceed as follows:-

Release locking handle "A" and engage pinion in the racked bar by pushing handwheel "B" into the fence bracket. Turn handwheel "B" in conjunction with the scale indicated by the pointer "C" to the required fence position then relock handle "A".

To adjust rip fence front plate parallel to sawblade proceed as follows:-

Release 2 locking handles "D" and position fence as required. Relock handles "D".

To remove rip fence body and front plate from machine proceed as follows:-

RIP FENCE CONTROLS & ADJUSTMENTS (Cont'd)

Unscrew handle "E" and lift unit clear of machine table. The body is located on a machined wedge to ensure accurate alignment when replacing body. All machine faces must be clean before replacing and locking in position by handle "E".

TURN OVER STOPS

2 - Turn Over Stops are supplied with machine and are fitted to the crosscut fence as shown in FIG 13.

These stops are fitted to enable timber to be positioned in correct relation to sawblade and for repeat cuts on same size timber.

To move each stop, loosen handwheel "A", position stop as required then relock handwheel "A".

BEAM ADJUSTMENT

The beam and sliding table unit can be positioned relative to the sawblade depending on the position of the crosscut fence and size of panel being cut. The unit can also be positioned at the rear when machine is used as a rip bench (see Sliding Table Lock).

To adjust beam proceed as follows:-

Loosen 2 locking handles "D" in FIG 9 (one at front and rear of machine beneath beam) then slide beam and table unit to the required position. Relock handles "D".

POSITIONING OF SLIDING TABLE CARRIAGE

At the start of each working day push sliding table to maximum forward position then to maximum rear position to ensure sliding table carriage is correctly positioned in relation to table stops. This will avoid "shuffling" of table and carriage.

SLIDING TABLE LOCK

When the machine is used for ripping operations the sliding table can be locked by locating the locking bar "A" in the bracket "B" as shown in FIG 14.

WANNEY EDGE BOARD SUPPORT

The Waney Edge Board Support is shown in FIG 15 and is locked in the sliding table "tee" slot by handwheel "A". This attachment is used to support boards or planks when no square edge is available, to give a straight edge from which future operations can be carried out.

MITRE FENCE (EXTRA)

A Mitre Fence as shown in FIG 16 can be supplied for angle cutting or for cutting packs of thin material up to 3ft square.

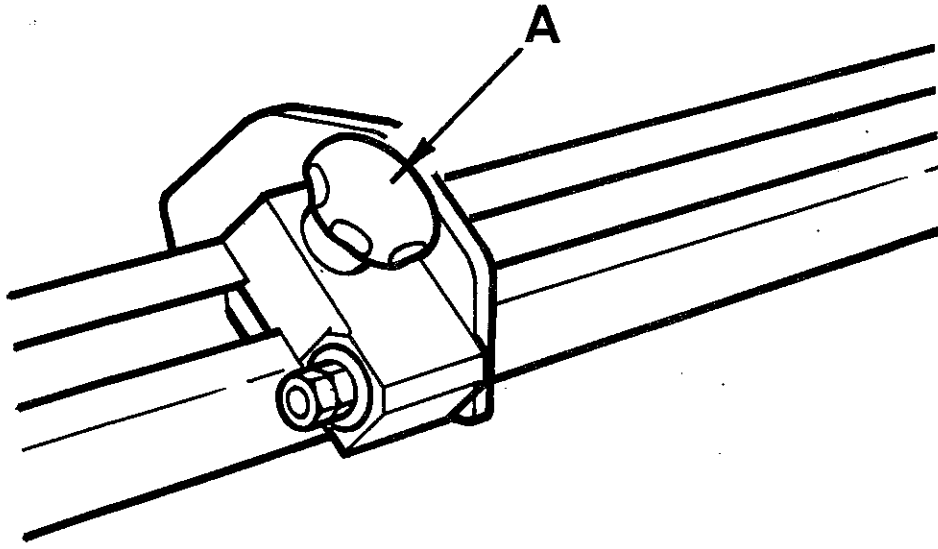


FIG 13

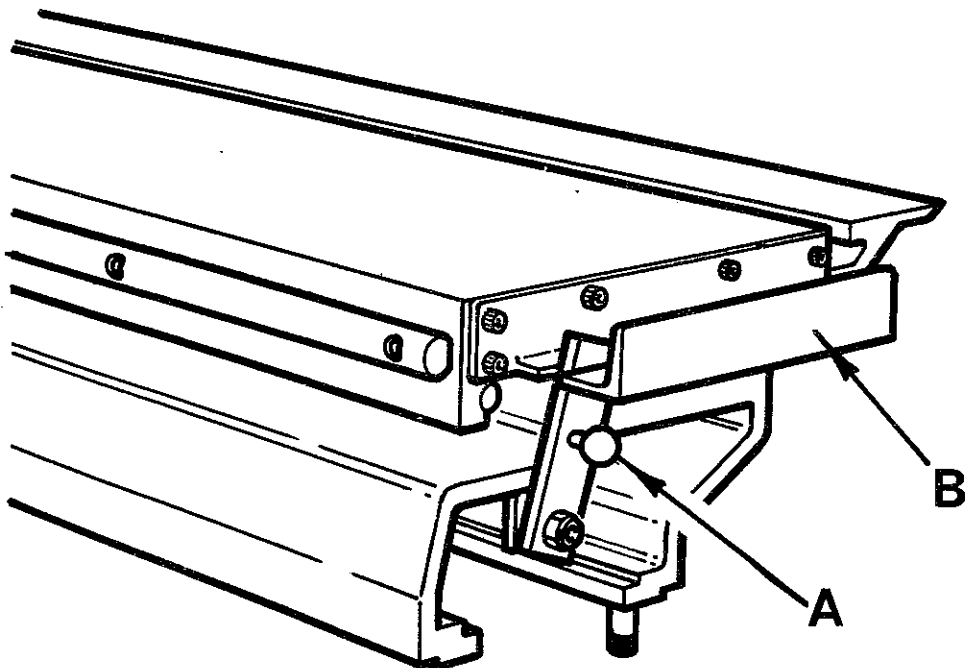


FIG 14

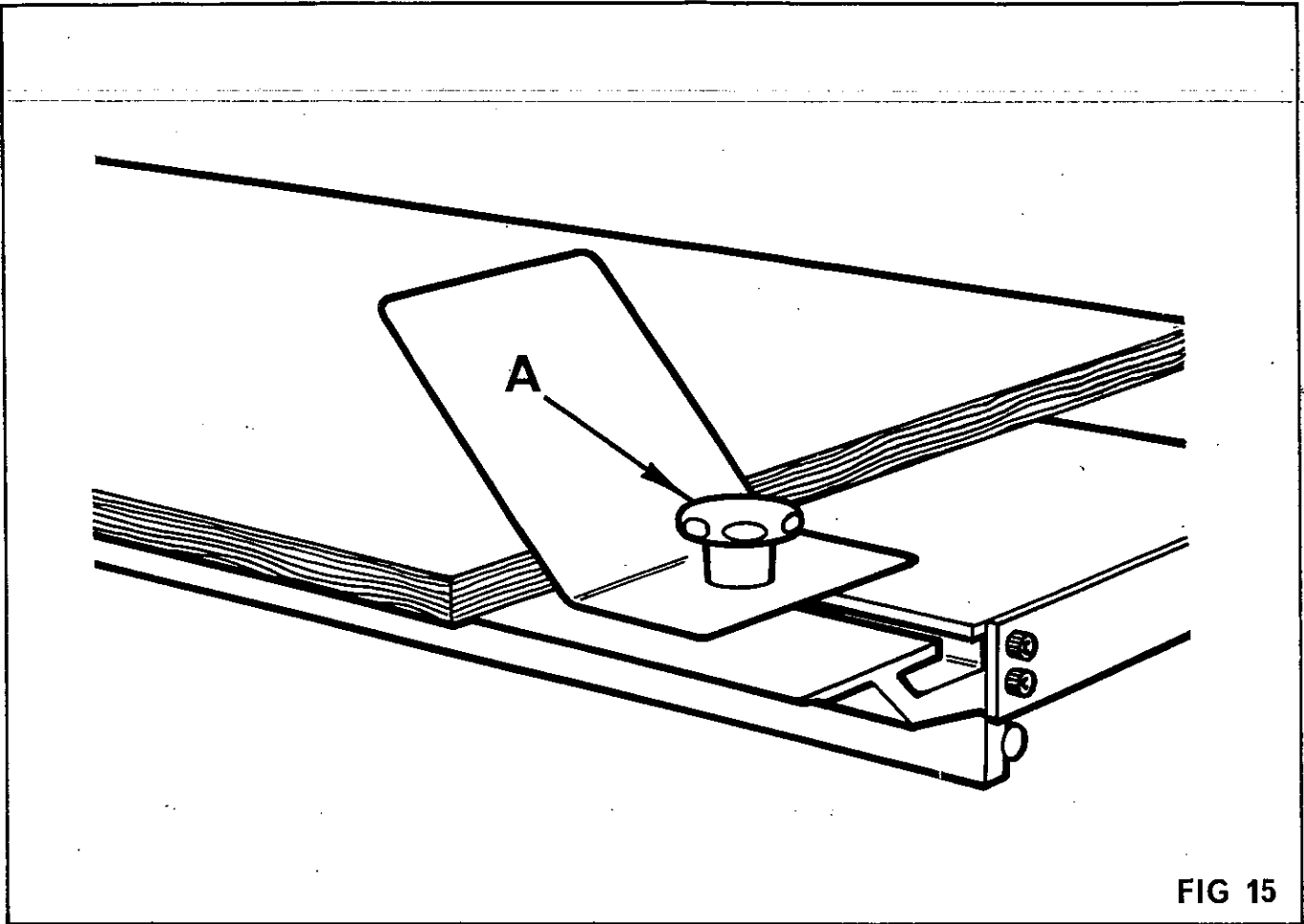


FIG 15

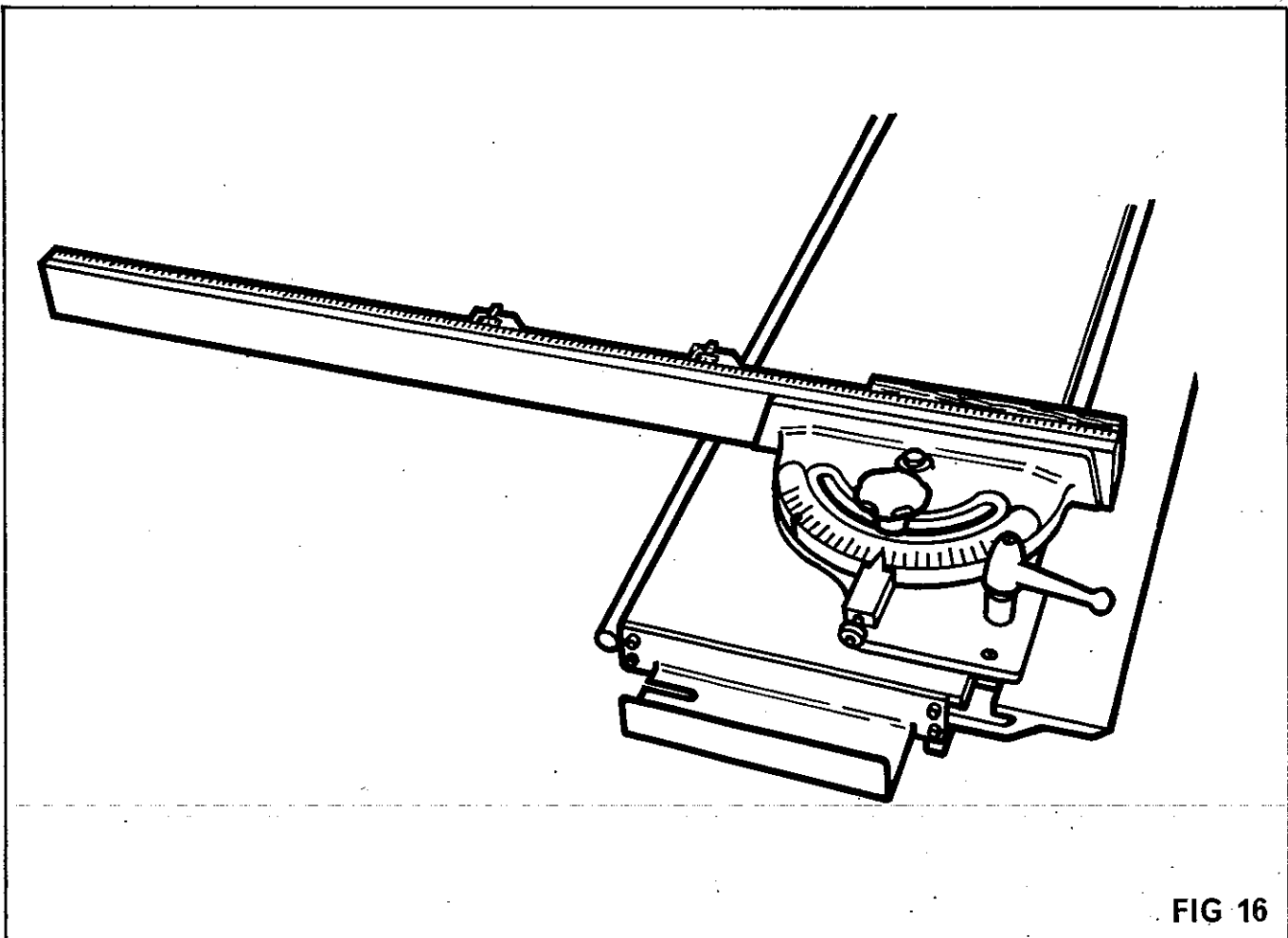


FIG 16

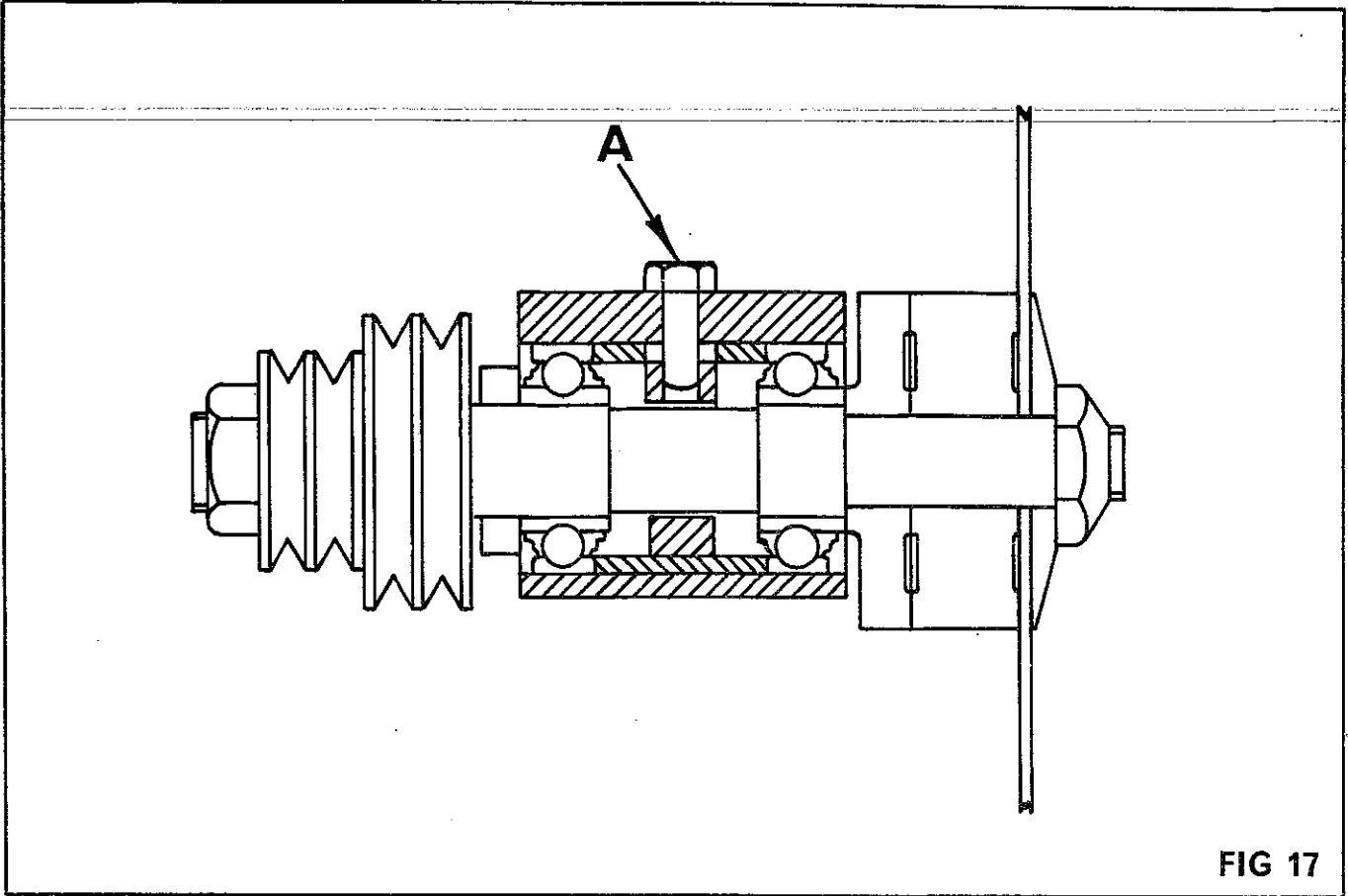


FIG 17

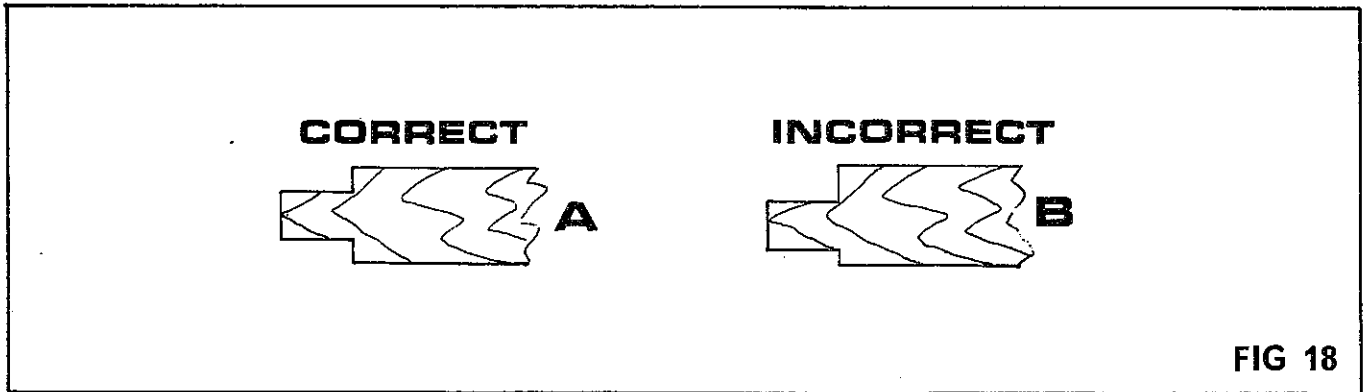


FIG 18

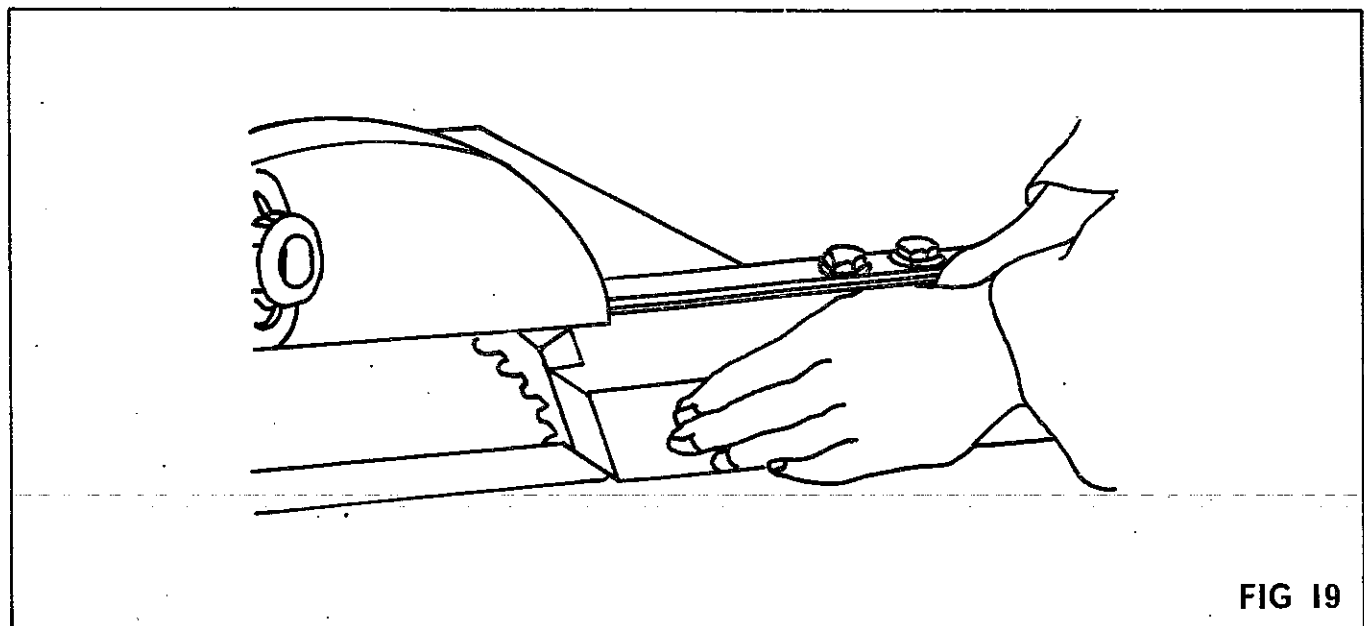


FIG 19

CONTROLS & ADJUSTMENTS (Con't)

MACHINE FITTED WITH SCORING SAW (EXTRA)

See Pages 25 and 26.

MOUNTING SAWBLADES

To mount a sawblade, the undermentioned procedure should be followed:-

1. Check the machine is isolated electrically before starting to fit sawblade.
2. Swing the sawguard to the top position.
3. Raise saw arbor to its highest position then move sliding table to gain access to the saw arbor.
4. Remove the arbor nut (left hand thread) and front saw flange.
5. Select the blade which is required depending on the type of work which is to be done. Check the blade is free from all dirt, gum or sawdust especially where it will be gripped by the flanges. Mount the blade on the arbor ensuring that the spigot on the spindle distance piece locates in the centre of blade. Check the front saw flange is clean and then fit on to saw arbor. The saw teeth should point towards the front of the machine.

NOTE:- If the flanges and the saw are not clean, the saw will run out of true, hence causing vibration.

6. Lock the saw securely in position with the arbor nut (left hand thread). To tighten arbor nut hold spindle in position with the toggle bar in the back saw flange.
7. Position the saw guard depending on the thickness of timber to be worked. Clearance between sawguard and timber should be as small as is practicable and at no time should it be possible for the fingers to pass between guard and timber.

SETTING SAW TO RIVING KNIFE

It is most important that the saw and riving knife are in line. To re-set if spindle bearings have been changed or saw is cutting out of line proceed as follows:-

1. Loosen the hexagon head adjuster bolt "A" in FIG 17 , and tap spindle (with hide-face hammer) as required, taking care not to damage the threads on spindle ends.
Place a steel rule along both sides of riving knife to check that saw is central.
2. When set re-tighten the hexagon head bolt "A".
3. To check this setting, feed a short piece of timber from the rear, along both sides of the riving knife. If riving knife is set correctly the blade will cut equal shoulders as shown in FIG 18 (A) and when set incorrectly, unequal shoulders as shown in FIG 18 (B).

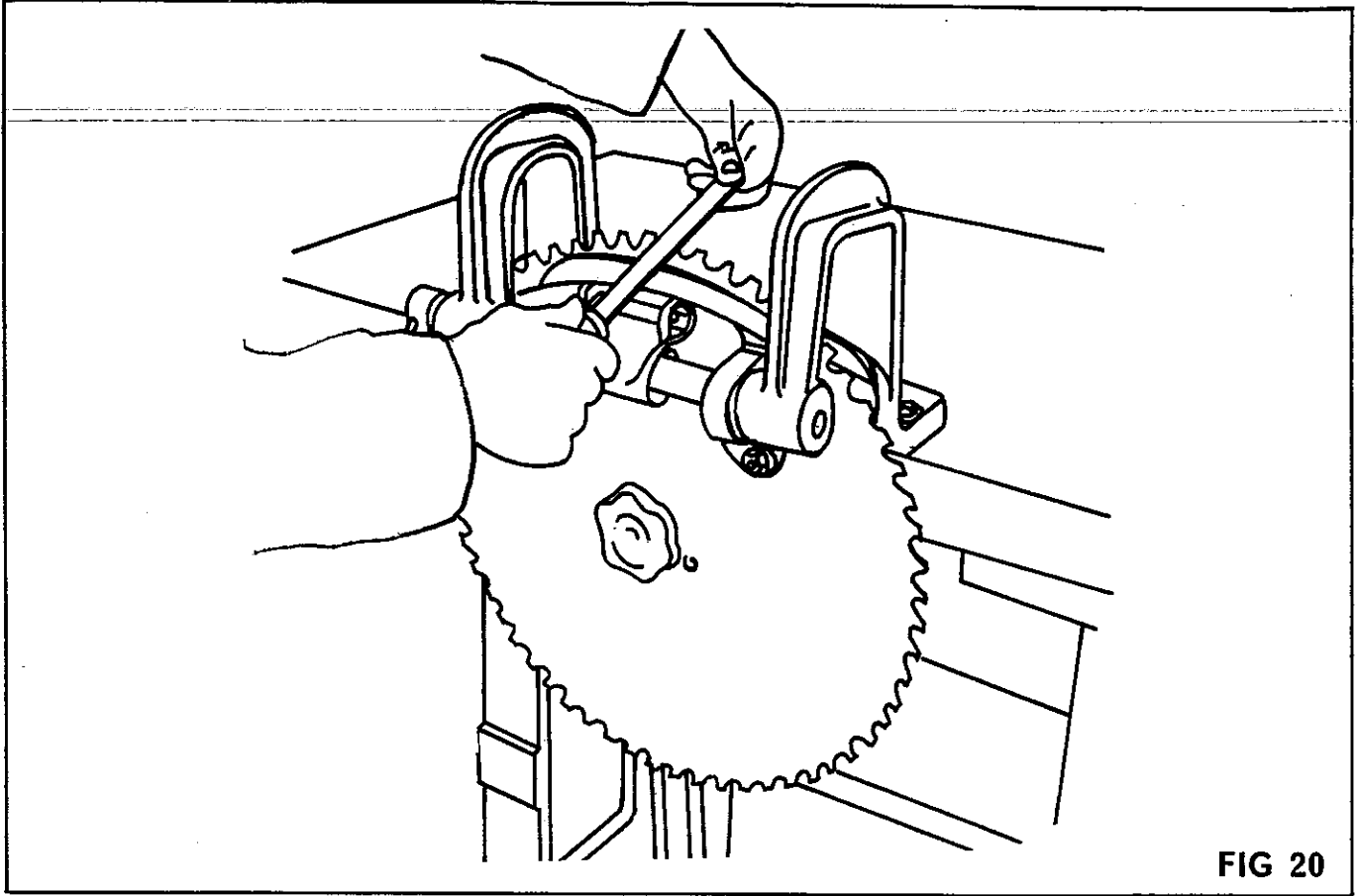


FIG 20

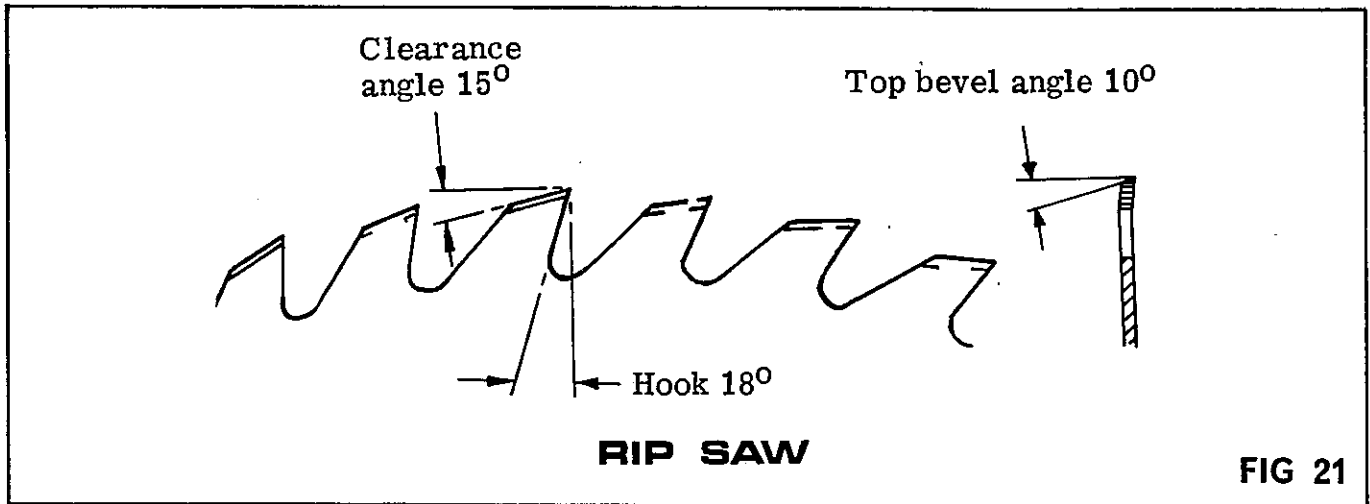


FIG 21

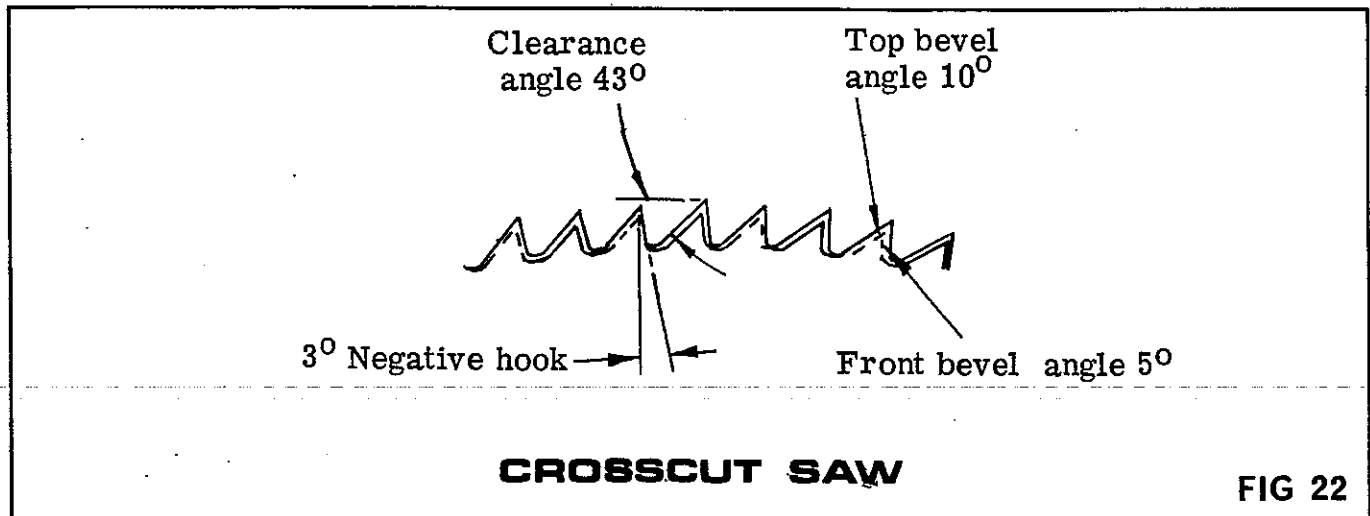


FIG 22

SAFETY SECTION

All safety precautions should be taken to comply with relevant safety regulations i. e. Woodworking Machines Safety Regulations 1974 - No. 903 (Great Britain) Always adjust the riving knife and guard to protect as much of the saw as is possible. These adjustments have been previously described.

Do not use sawblades at higher than recommended speed. When changing sawblades, belts or any other maintenance or lubrication etc, always isolate the machine electrically. Use a wood push stick as much as practicable when feeding timber, to avoid accidents.

SAW MAINTENANCE

Efficient operation of a circular saw depends on the true running of the saw spindle and the collars being perfectly square on the faces with the axis of the spindle, it must run at the correct peripheral speed to ensure straight cutting.

All Bursgreen circular saw benches embody these requirements and provided the sawblade is maintained in a sharp condition with the teeth correctly sharpened and set efficient service will be given.

Carbide tipped saws can be returned to Bursgreen to be resharpened for a nominal charge.

NOTE: Before using an "Alloy Steel Saw", it is essential that it is "ranged down" on the teeth to ensure each tooth is cutting and to maintain true running.

IMPORTANT: Carbide Tipped Saws should not be "ranged down"

RANGING (ALLOY STEEL SAWS)

Ranging down should be done on a new "alloy steel saw" or any alloy steel saw after the fourth or fifth re-sharpening

To range down a saw proceed as follows:-

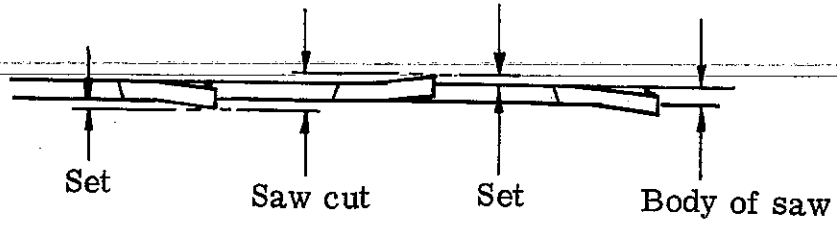
Feed a square edge abrasive block in a wooden holder, as shown in FIG 19, lightly against the saw teeth whilst running. The saw should then be removed and the tops of the teeth filed to remove the ranging marks on the points.

SAW SHARPENING (ALLOY STEEL SAWS)

Do not run a saw when blunt, remove and re-sharpen.

To sharpen by hand, hold the saw rigid in a vice as shown in FIG 20, then proceed to sharpen the saw. With Rip Saw Teeth chisel edges and square faces are required, see FIG 21. Sharpen by giving each tooth an equal number of strokes with a flat face saw file with rounded edges. At the same time file the gullet, taking care to keep the gullet well rounded.

With a Crosscut Saw, points are needed with back and front bevels as FIG 22 In the case of repeated filing the teeth lose the original shape and the gullets shallow. To restore the shape of each tooth essential for satisfactory performance it is necessary to grind the saw on a sharpening machine. These machines are usually of the automatic type and feed each tooth giving equal spacing or pitch.



Amount of tooth set
over shown shaded

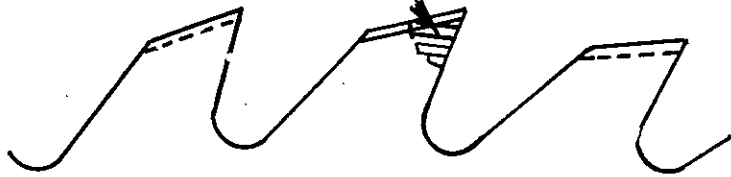


FIG 23

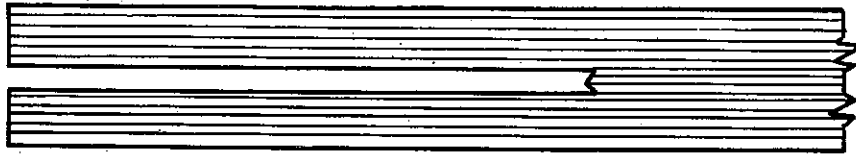


FIG 24

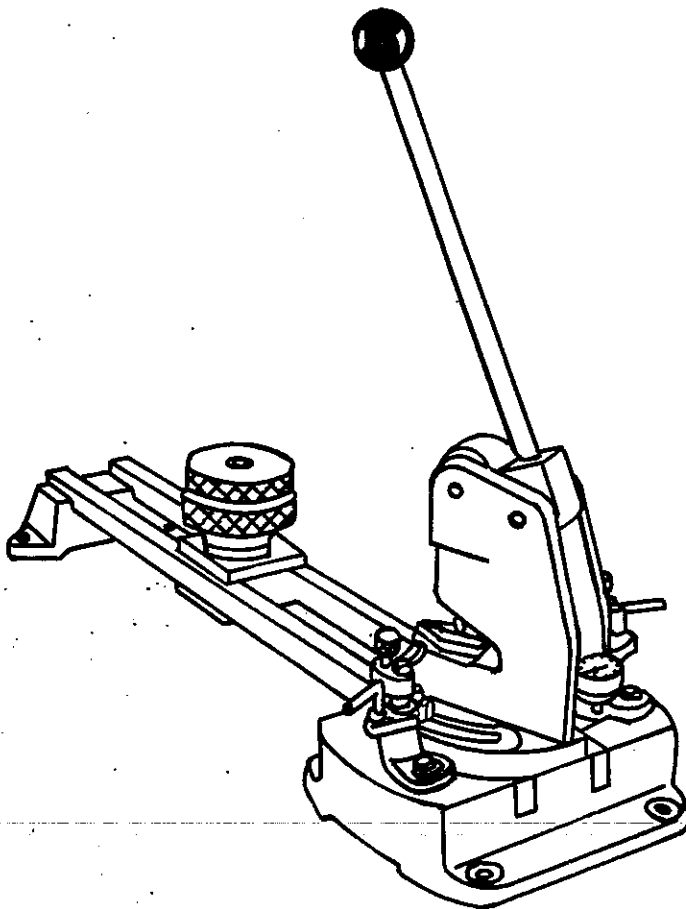


FIG 25

SAW MAINTENANCE (Cont'd)

SETTING

The amount of set to the teeth should be sufficient to give clearance to the body of the saw, so that there is freedom from friction between saw and timber. It is generally accepted that the teeth are "spring set" i. e. tips of alternate teeth are bent to the right and left, as shown in FIG 23. For good sawing the amount of set on each side of the saw must be identical, otherwise the saw will run to one side. To check the set, cut into a piece of wood a few inches when a small even triangle should be cut, as in FIG 24.

The exact amount of set each side varies with the timber being cut, usually .010" to .015" (.3mm to .4mm). For clean cutting, just sufficient set should be allowed to prevent bending and heating. More set is required for wet woolly timber than for dry close grained timber and the amount of set is greater for crosscutting saws than for ripping.

MACHINE SETTING

We can supply a small machine for efficiently setting the teeth, as illustrated in FIG 25 and will deal with saws 8" to 36" (202mm to 910mm) diameter. The micrometer dial indicates accurate reading of the amount of set in thousandths of an inch.

HAND SETTING

Where the number of saws does not warrant a machine being installed, the saws can be set by hand using a tool, as shown in FIG 26. This tool is provided with six notches to take saws 8 to 14 gauges thick.

For this process of setting, the saw should be securely clamped in a vice.

SAWBLADES

For best results we recommend the purchase of sawblades from Bursgreen (Durham) Limited. All blades have a kerf of 3.2mm.

Sawblades over 300mm dia should be run at 3,000 r.p.m. and blades 300mm dia and less should be run at 4,500 rpm.

Sawblades available:-

400mm diameter x 30mm bore alloy rip sawblade B-S-239

400mm diameter x 30mm bore alloy crosscut sawblade B-S-240

300mm diameter x 30mm bore T.C.T. sawblade B-S-242

105mm diameter x 20mm bore T.C.T. split scoring sawblade B-S-230

Do not use sawblades at higher than recommended speed.

The material should be fed past the sawblade at a reasonable speed otherwise overheating of the blade will occur causing cracks.

The machine is available with a range of 4 speeds up to 8,000 rpm as an optional extra. The additional speeds are for use with smaller diameter sawblades at the customers discretion. As a guide, the normal peripheral speed for alloy sawblades is approximately 10,000 rpm and for T.C.T. sawblades approximately 12,000 rpm.

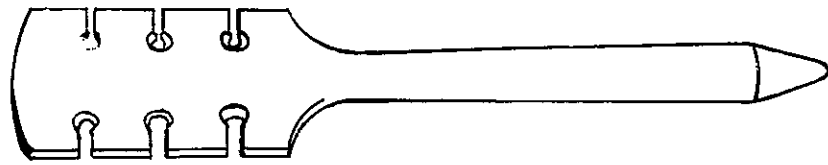


FIG 26

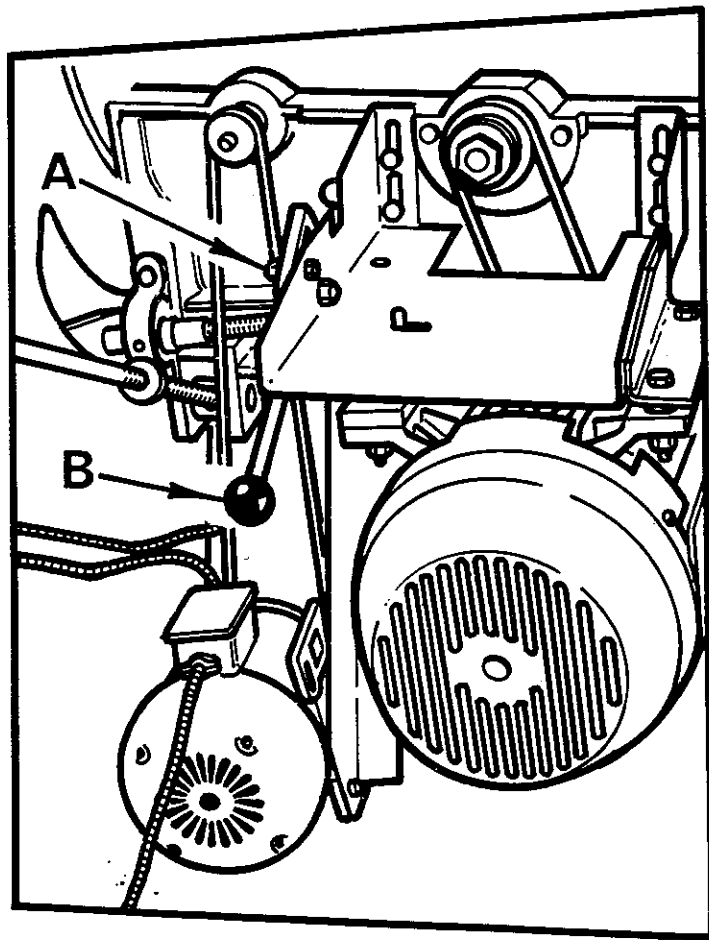


FIG 27

GENERAL MAINTENANCE

SAW SPINDLE SPEED CHANGING OR BELT CHANGING

The saw spindle is driven by 2" Poly Vee" belts on a 2 step pulley from the main motor giving speeds of 3,000 rpm or 4500 rpm.

To change belts for required speed proceed as follows:-

1. Isolate machine electrically.
2. Open access door at rear of machine.
3. Loosen aerotight nut "A" in FIG 27 and move handle "B" to release belt tension. Hold motor in this position and securely re-tighten nut "A".
4. Change belts "C" to required pulley on spindle pulley and motor pulley. See pulley diagram FIG 28 for required spindle speed.
5. When belt has been changed, hold handle "B" in FIG 27 and loosen aerotight nut "A" then pull handle "B" to apply tension to belts.

NOTE: Belts tensioned too tight will cause bearing failure.
Belts tensioned too slack will cause belt slip.

6. When belt is tensioned correctly securely tighten aerotight nut "A".

BELT CHANGING ON SCORING MOTOR (IF FITTED)

To change belt on scoring motor, proceed as follows:-

1. Isolate machine electrically.
2. Open access door at rear of machine.
3. Pivot motor by hand to change belt.

BEARINGS & BELTS

See Foundation Plan.

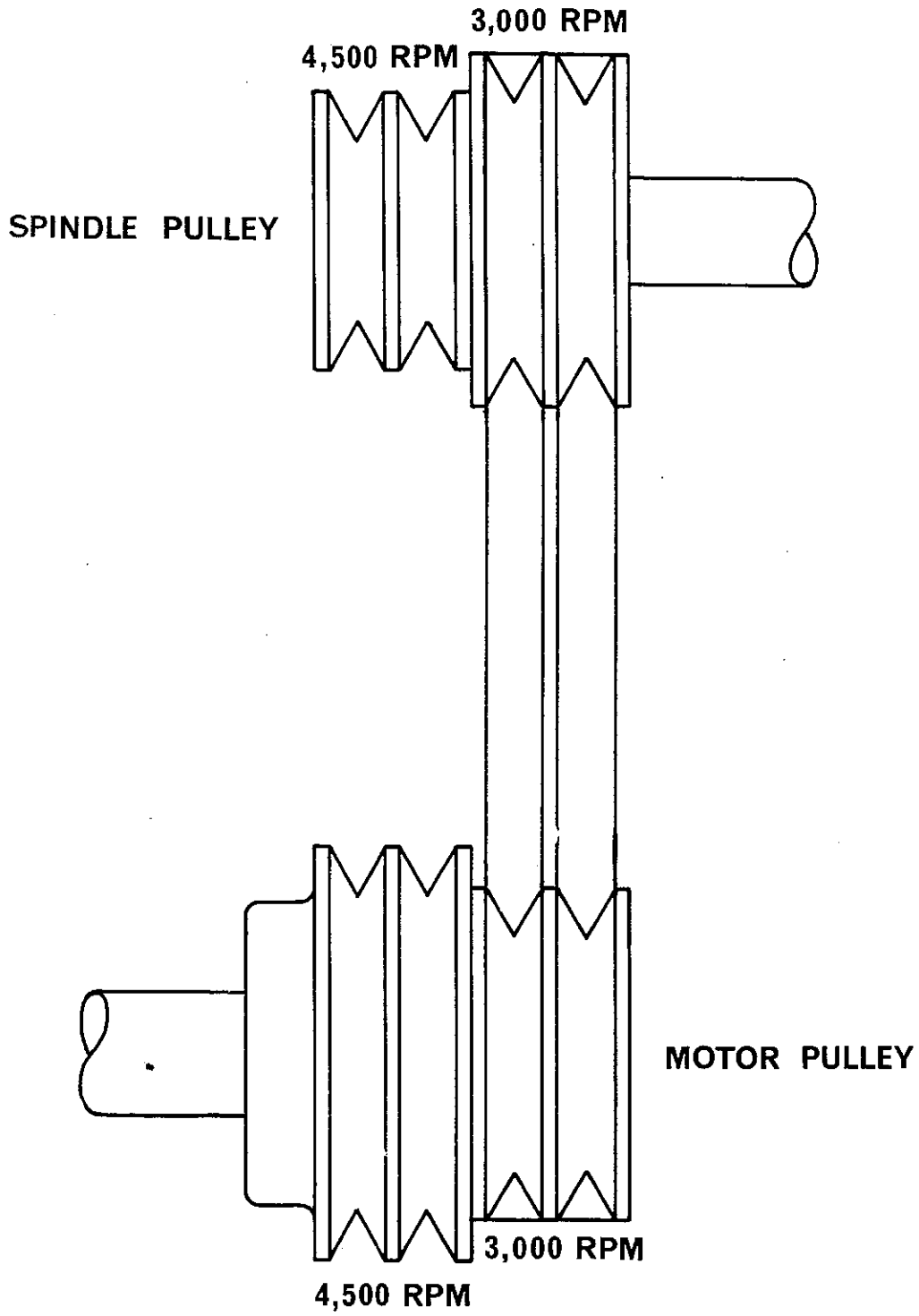


FIG 28

Application	APPROVED LUBRICANTS						
	Castrol	B. P.	Shell	Esso	Texaco/ Caltex	Gulf	Wadkin
Worm Boxes	Alpha 617	Energol CS 425	Vitrea 75	Pen-O-Led E. P. 3	Regal Oil J	EP Lubricant S104	L. 2.
General Lubrication	Magna ED	Energol HP. 20	Vitrea 33	Esstic 50	Ursa Oil P. 20	Security 53	L. 4.
Pneumatic Lubricators	Hyspin AWS 32	Energol HL 65	Tellus 27	Nuto H44	Rando Oil HDA	Harmony 43 AW	L. 1.
Grease	Spheerol AP. 2	Energrease LS. 2	Alvania 2	Beacon 2 Starfak Premium 2	Regal	Gulf Crown Grease No. 2	L. 6.
Brake Cables	Brake cable grease	Energrease L21M	Alvania 3	Multi- purpose grease H		Gulf crown Grease EP No. 2	
Variable Pulley's		Ennergrease RBB2 * or Ennergrease LS2	Alvania 2	Andok B or Beacon 2			
Chain Tracks	REDEX						

Panelmaster Fitted With Scoring Saw (extra)

is designed to prevent splintering of all materials including plywood, fibreboard, chipboard, thicker solid plastics and materials having two face layers of veneer, etc.

A twin blade scoring saw is supplied with 3 shims of 0.010", 0.005" and 0.003" thick. These shims can be positioned between the blades as required to ensure the scoring saw kerf is identical to the main saw kerf.

Scoring saw lateral and vertical adjustments are provided to ensure accurate alignment to thickness of main saw blade so that brittle materials can be cut with perfect finish on upper and lower edges at both sides of cut.

For correct alignment of the scoring blade to main blade, proceed as follows:-

1. Place a steel rule or similar straight edge across main blade and scoring blade to check approximate lateral alignment.
2. Lateral adjustment to scoring blade is by releasing 8mm socket head cap screw lock "A" in FIG.29. (8mm allen key supplied) then adjust blade laterally by 8mm socket head cap screw "B". When set correctly, re-lock socket head cap screw "A".
3. Adjust scoring blade vertically by loosening 8mm socket head cap screw lock "A" in FIG.29, then move blade vertically by lever "C". When set correctly, re-lock socket head cap screw "A". Correct vertical adjustment is attained when the scoring saw scores the full underside length of panel.
NOTE: Some panels may be badly bowed in which case the scoring saw should be vertically adjusted to suit.
4. Proceed to take trial cuts to establish the accuracy of your approximate alignment of the scoring blade with main blade. The correct alignment is shown in FIG.30. overleaf.

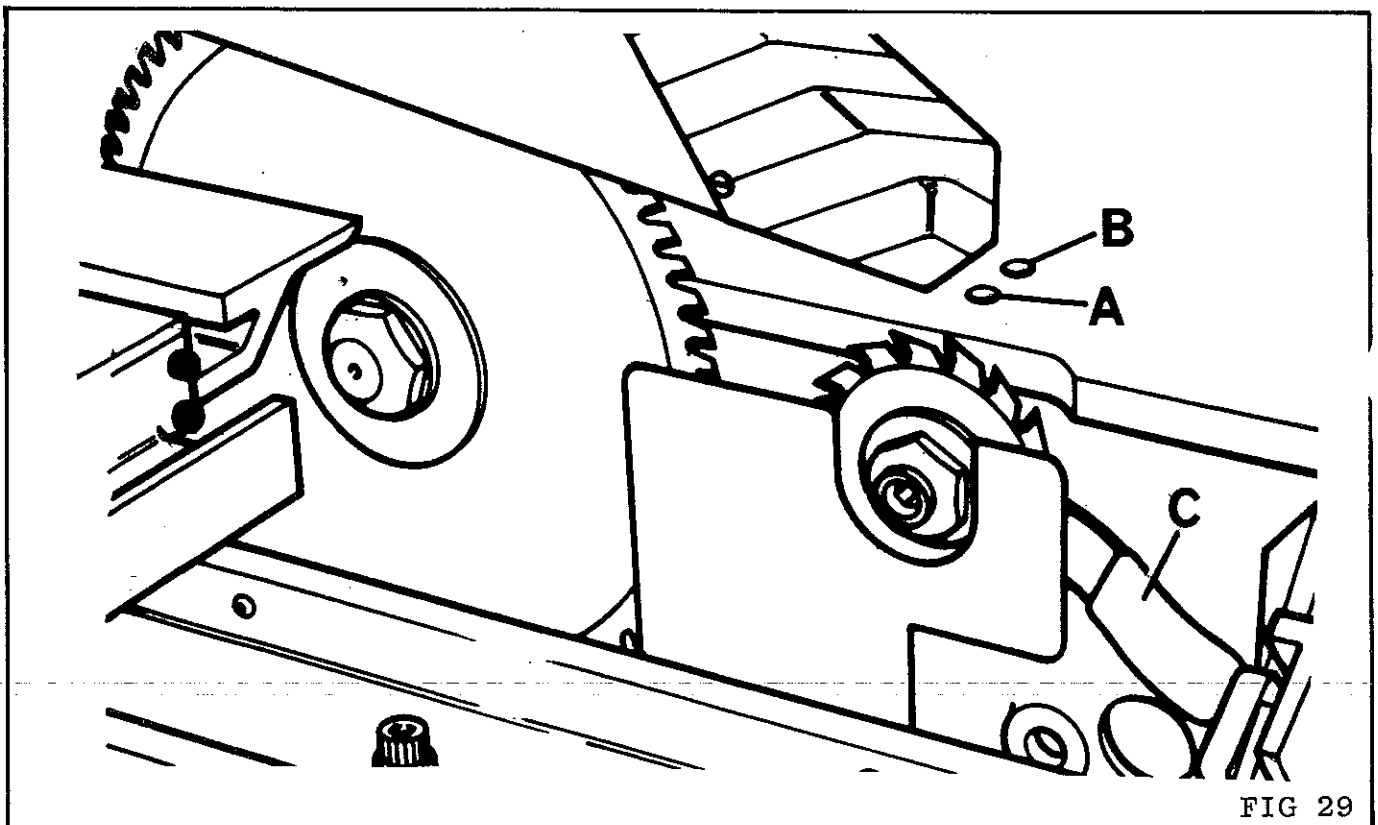
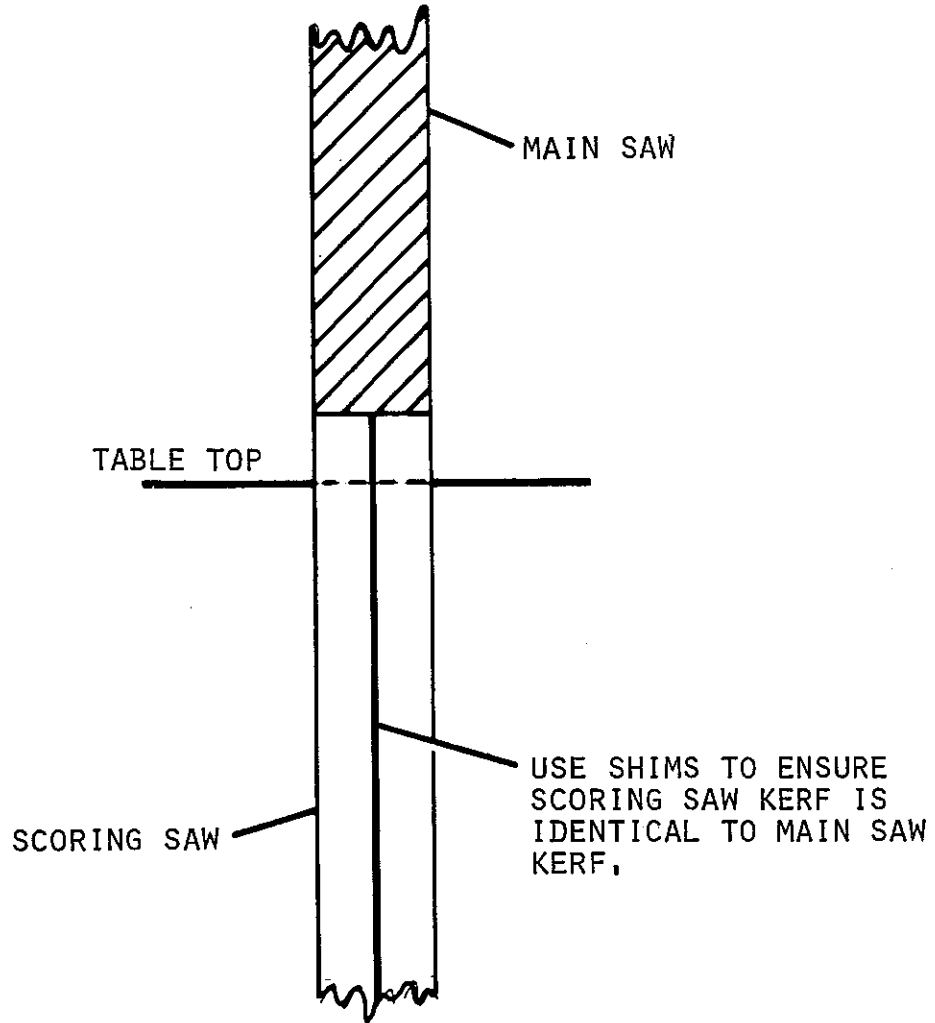


FIG 29

END VIEW OF SAWBLADES.



ADJUSTING SCORING SAW Laterally
UNTIL IN LINE WITH MAIN
SAW AS SHOWN.

FIG 30