Wadkin

OPERATING AND MAINTENANCE INSTRUCTIONS

20" Circular Saw Benches Types S.Q. and S.V.

INSTRUCTION BOOK No. 744

Wadkin

20" Circular Saw Benches Types S.Q. and S.V.

(with rising and falling saws)

PRINCIPAL DIMENSIONS AND CAPACITIES

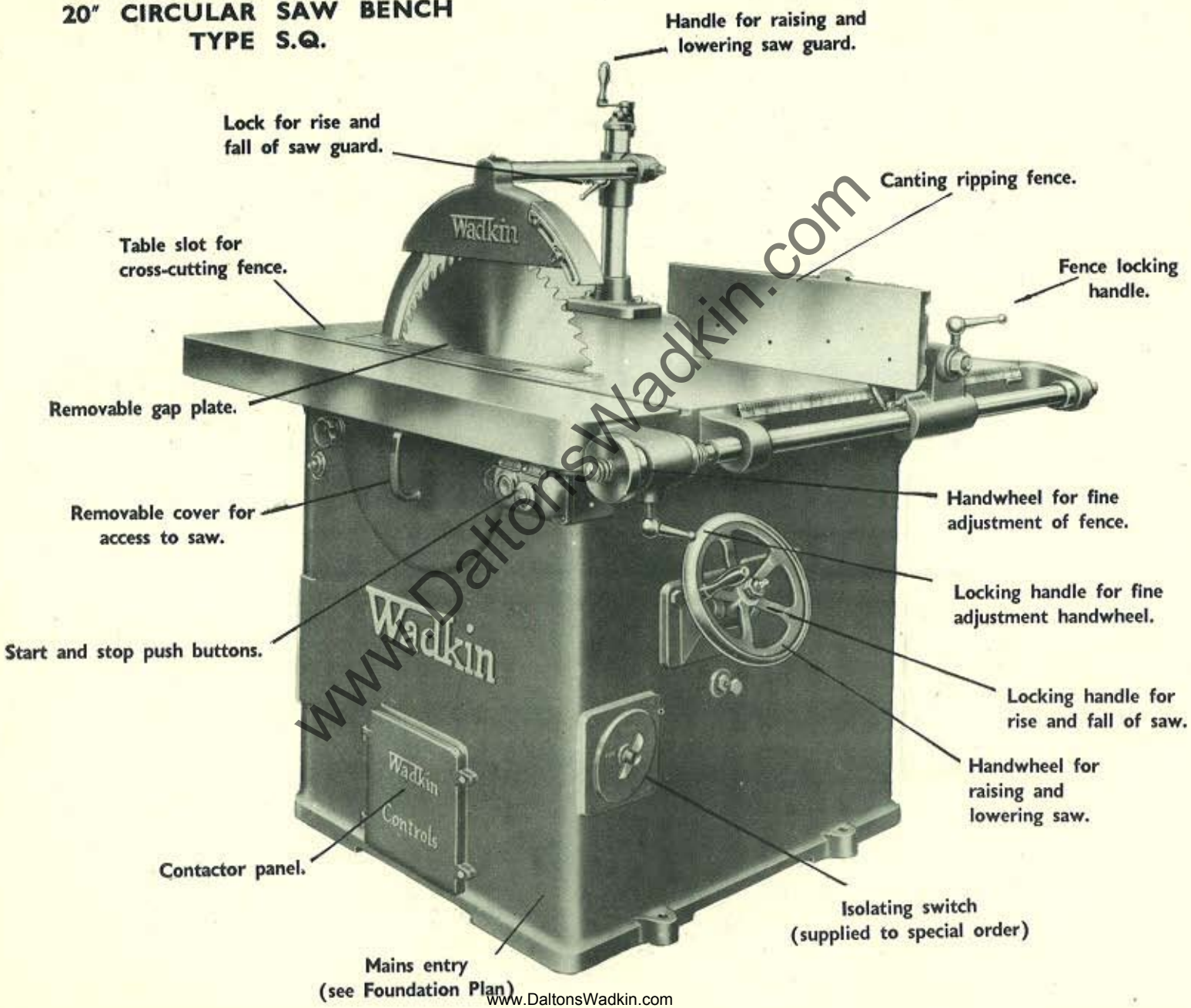
	Model S.Q.	Model S.V.
Maximum diameter of saw	20"	20"
Maximum depth of cut using 20" dia. saw ...	7"	7"
Height of table from floor level	2' 9"	2' 9"
Size of table	3' 4" x 3' 2½"	4' 4" x 3' 4"
Rise and fall of saw	5"	5"
Distance between front of table and saw ...	11½"	11½"
Maximum distance between saw and fence ...	22"	36"
Size of fence plate	20" long x 5¾" high – cants 45°	28" long x 4" high – non-canting
Speed of saw spindle	2,200 r.p.m.	2,200 r.p.m.
Power of motor	5 h.p. (for normal duty—A.C. and D.C.) 7½ h.p. (for heavy duty—A.C. only)	
Speed of motor for alternating current supply	1440 r.p.m.	1440 r.p.m.
Will accommodate grooving heads up to ...	1½" wide	1½" wide
Will cut mouldings up to	2½" wide	2½" wide
Net weight in cwts.	9¼	10¾
Gross weights in cwts.	11¼	13¼
Shipping dimensions in cubic feet	48	62

DETAILS INCLUDED WITH MACHINE

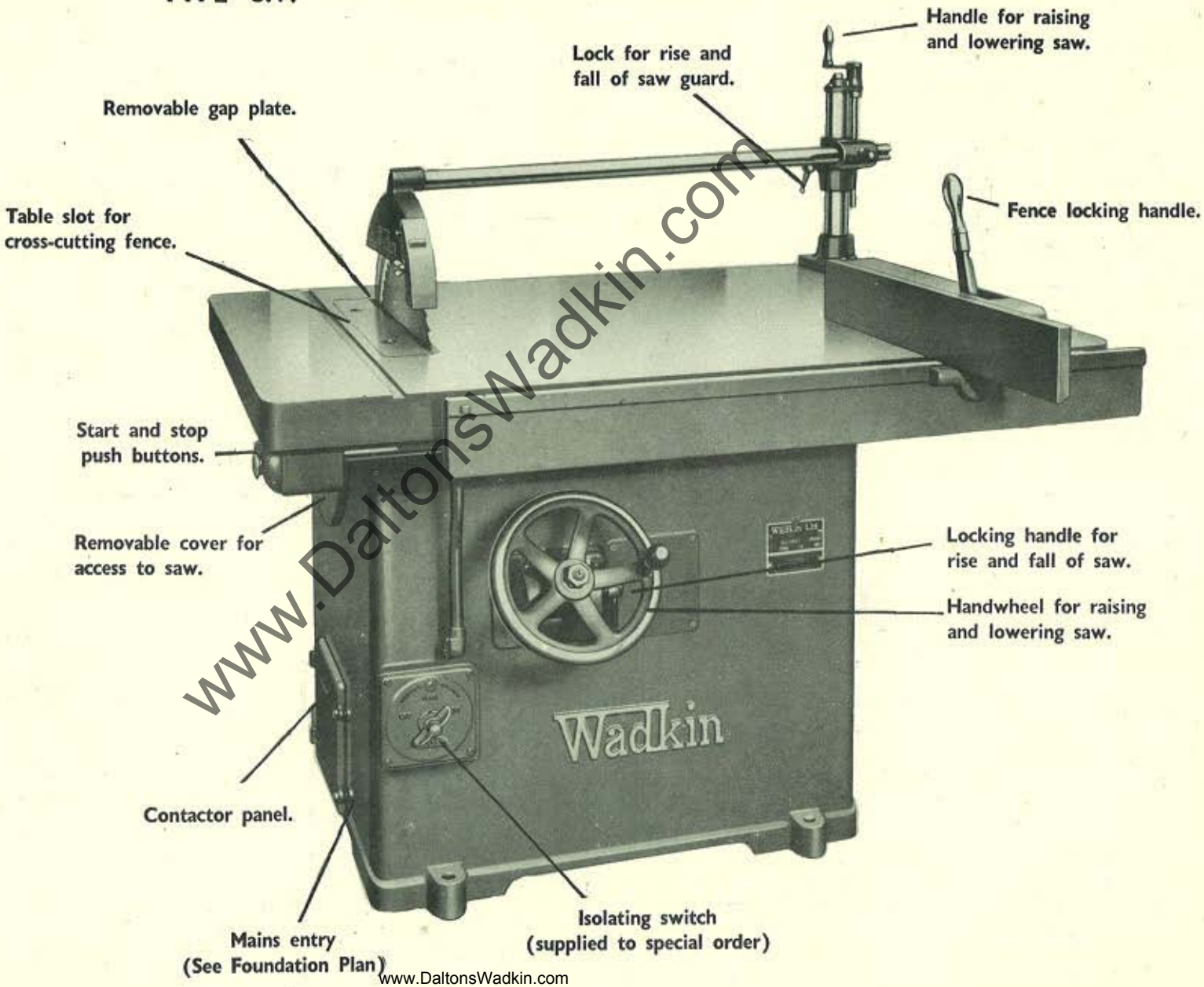
Motor and control gear with driving belts; ripping fence; adjustable saw guard and riving knife; one set of spanners; saw packing; one lubricating pump and tin of ball-bearing lubricant.

Wadkin Ltd., Green Lane Works, Leicester. Telephone: Leicester 27114 (4 lines), 28021 (3 lines).
London Office: Brookfield House, 62-64 Brook Street, W.1. Telephone: Mayfair 7048 and 7049.

20" CIRCULAR SAW BENCH TYPE S.Q.



20" CIRCULAR SAW BENCH
TYPE S.V.



INSTALLATION

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

FOUNDATIONS

If mill floor consists of concrete, no special foundation is necessary, ½" dia. rag bolts or plates and bolts can be used. (Not supplied with machine.) Cut 4" square holes in concrete and run with liquid cement to fix. Alternatively, rawlplugs may be used.

A wood floor, if rigid, is satisfactory with coachscrews for fixing.

The machine should be carefully levelled before fixing and again after final fixing to ensure that no distortion has taken place.

WIRING

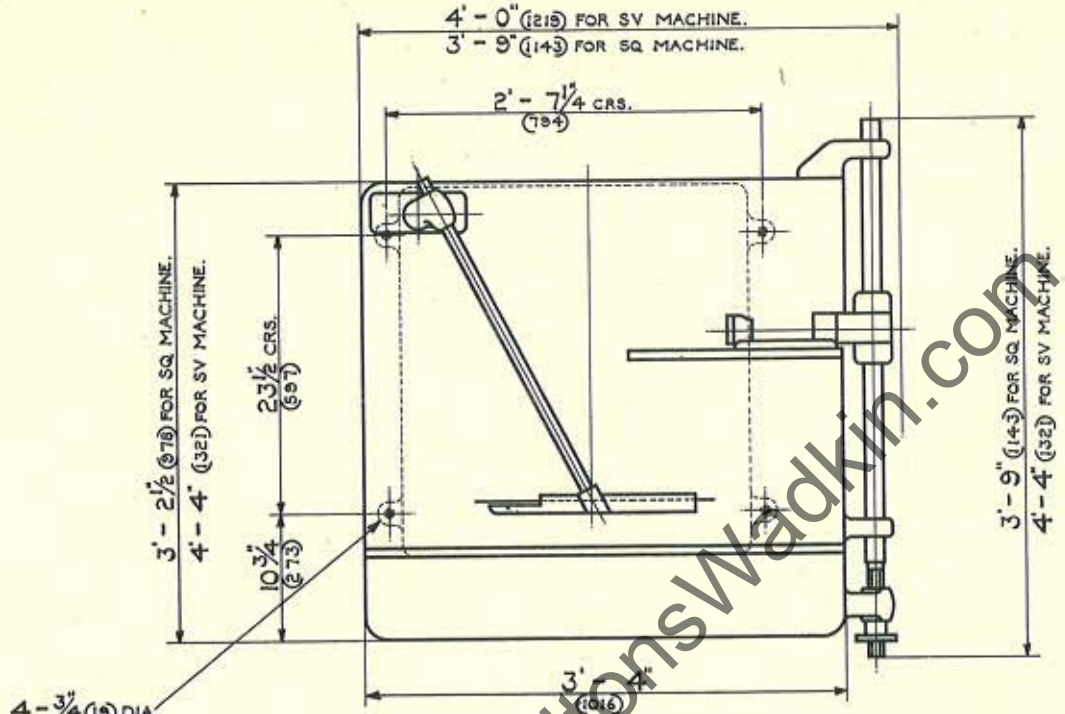
For detailed cabling instructions, see wiring diagram D191/3A (for 5 h.p.) or D402 (for 7½ h.p.) on end pages.

DUST EXTRACTION

The machine has a 4½" x 9" rectangular exhaust outlet for connecting to dust extraction piping, the exhaust hood being built in the machine.

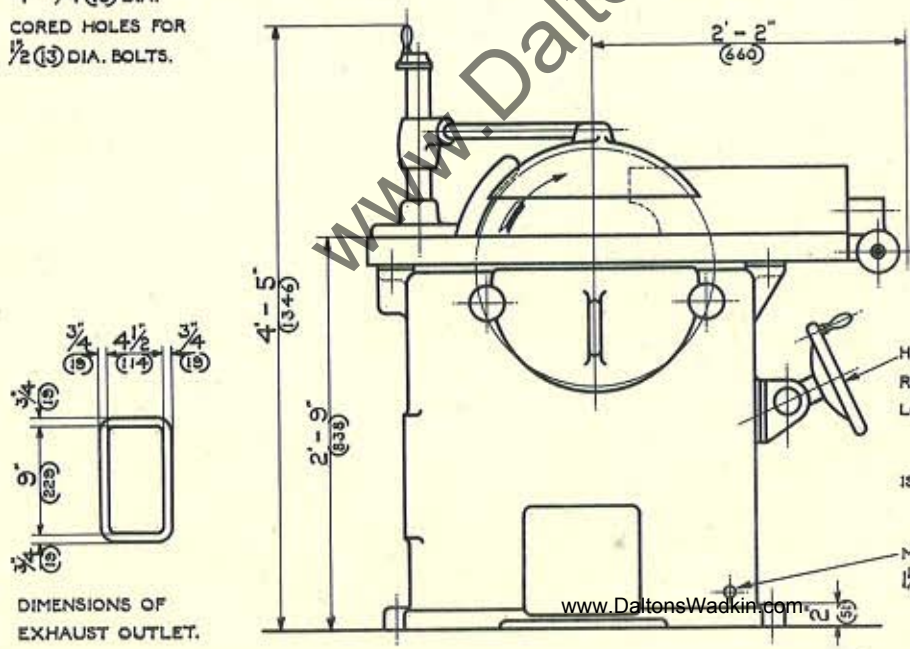
BALL AND ROLLER BEARING LIST

Position on Machine		Makers' Number	Quantity	Bore	Outside Dia.	Thickness
Saw spindle (saw end)		SKF CRL 14	1	1¼"	3¼"	13/16"
Saw spindle (pulley end)		SKF RM 11	1	1⅜"	3½"	⅞"
Saw raising screw		SKF O 8	1	1"	1¾"	⅝"
5 h.p. motor KZ3519	Drive end	Hoffman RMS 11	1	1⅛"	2 11/16"	13/16"
	Non-drive end	Hoffman MS 11	1			
7½ h.p. motor KZ4120	Drive end	Hoffman RMS 12	1	1¼"	3⅛"	⅞"
	Non-drive end	Hoffman MS 12	1			

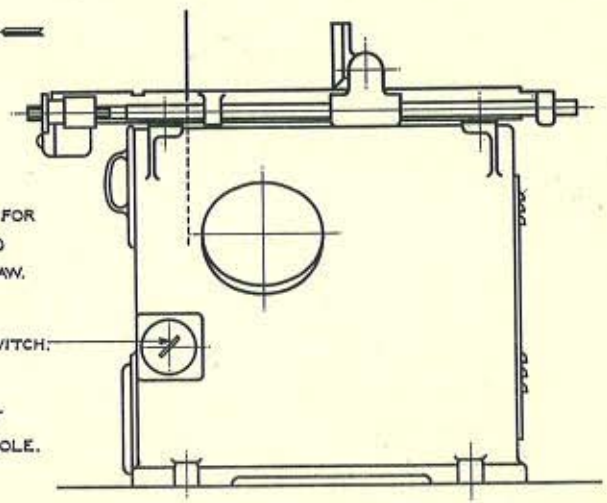


FOUNDATION PLAN FOR 20" SAW BENCHES. TYPES SQ AND SV.

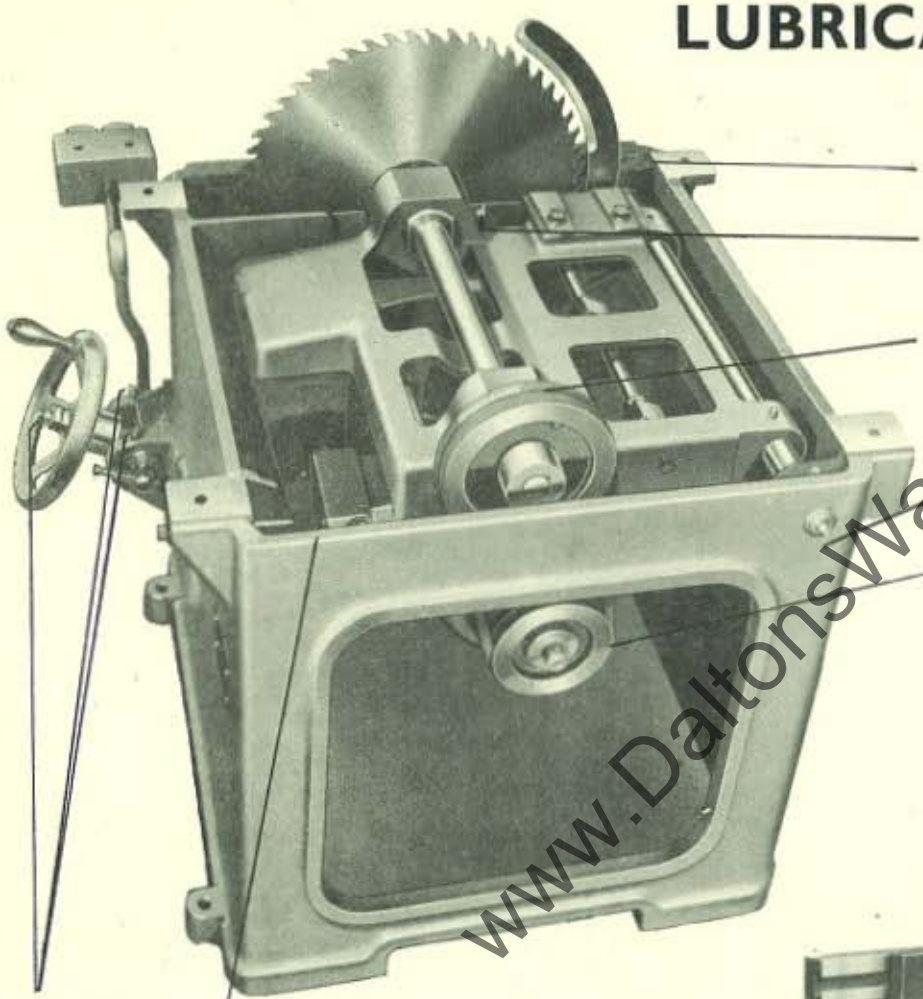
DIMENSIONS IN FEET, INCHES AND MM.



DIMENSIONS OF EXHAUST OUTLET.



LUBRICATION CHART



C—1 point. Pivot shaft. Grease nipple (front).

A—1 point. Front saw bearing. Grease nipple.
Remove front cover and saw for access to this point.

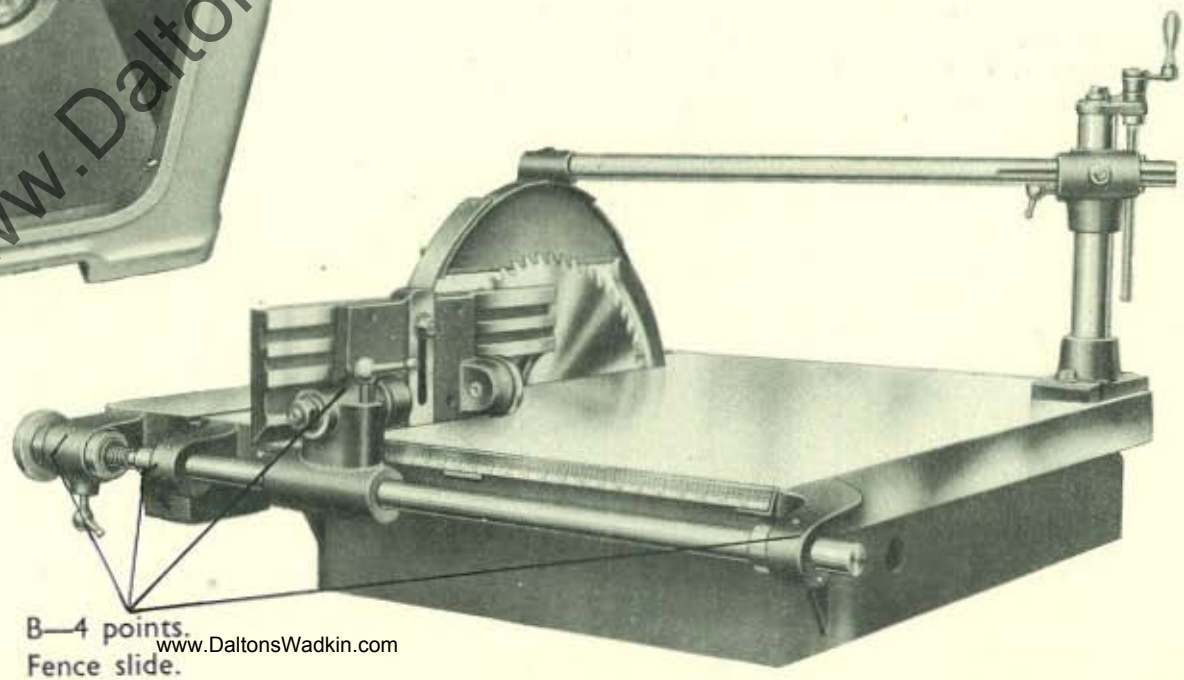
A—1 point. Rear saw bearing. Grease nipple.
Remove rear cover and lower saw carriage to lowest position for access to this point.

C—1 point. Pivot shaft. Grease nipple.

A—2 points. Motor. Grease nipples.
Remove rear cover for access to these points.

C—3 points.
Grease nipples.

C—2 points.
Elevating arm.
Grease nipples.
Remove rear
cover for access
to these points.



B—4 points.
Fence slide.

LUBRICATION INSTRUCTIONS

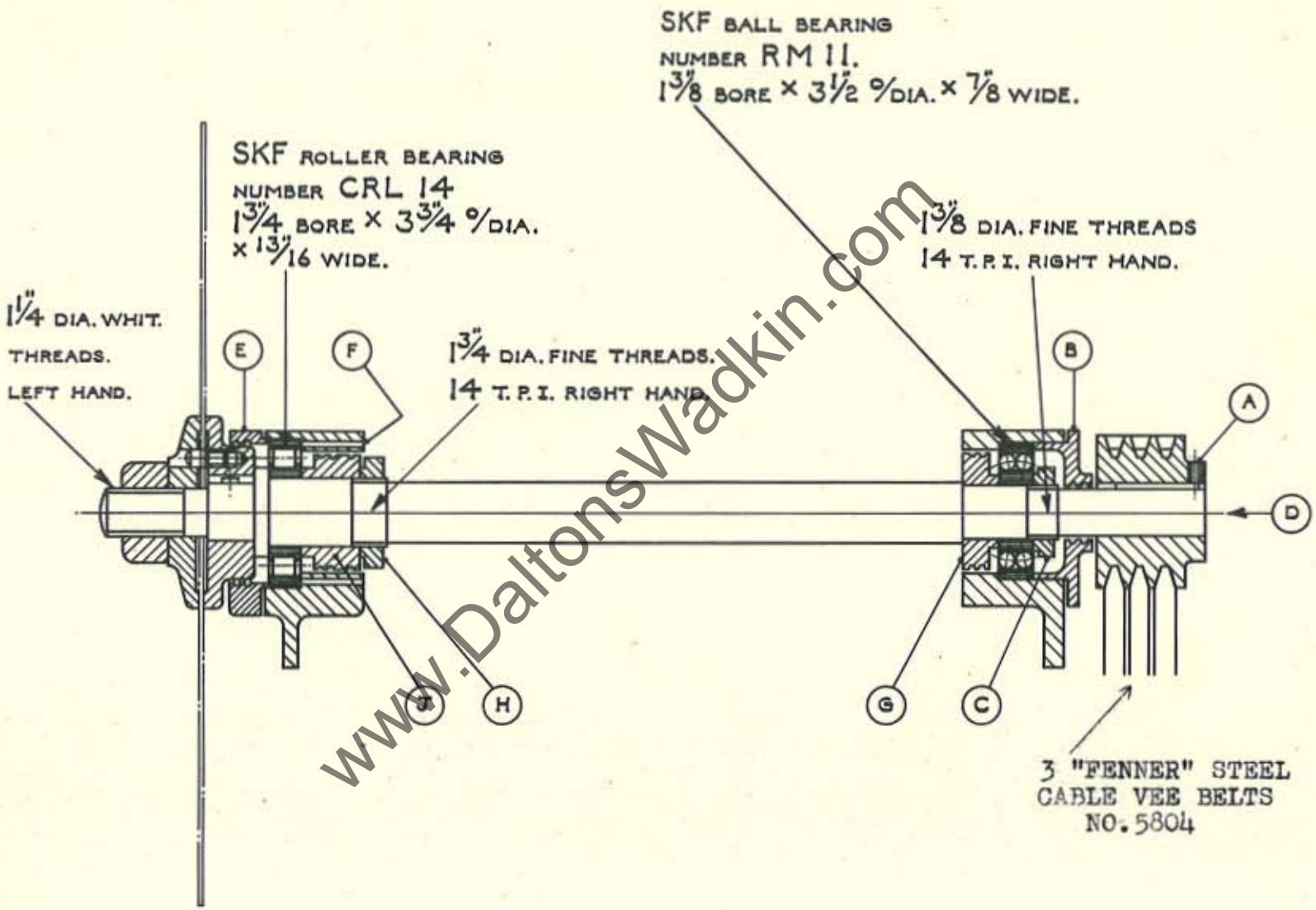
Points A—Give 4 to 6 depressions of grease gun every 3 to 6 months, using Wadkin ball-bearing grease, grade L.6.

Points B—Oil once per week, using Wadkin oil Grade L.4.
Oil also elevating screw and saw guard adjusting screw.

Points C—Give 1 to 2 depressions of grease gun each week, using Wadkin ball-bearing grease Grade L.6.

If it is desired to use lubricants other than Wadkin, the equivalents are listed below :—

Wadkin ball-bearing grease Grade L.6.	Equivalents : Shell " Nerita " Grease 3 (VW). Vacuum Oil Co. " Gargoyle " BRB.3.
Wadkin oil Grade L.4.	Equivalents : Shell " Vitrea " Oil 33. Vacuum Oil Co. " Vactra " Oil (heavy medium).



SECTION THROUGH SAW SPINDLE.

SPINDLE ASSEMBLY

To remove saw spindle from machine (for renewing ball and roller bearings, etc.), proceed as follows :—

1. Isolate machine electrically.
2. Remove gap plate, saw and saw guard complete, also front and rear covers on main frame.
3. Remove push-button plate, remove two hexagon head screws inside push-button box.
4. Remove four hexagon head screws holding table to main frame, remove table and fence complete.
5. Remove two locknuts and washer from bottom of raising screw, wind saw carriage to lowest position.
6. Remove two hexagon head screws holding raising screw bracket and handwheel, unscrew raising screw and wind completely out of nut.
7. Swing saw carriage and motor upwards until pulley clears top of main frame. Securely wedge in this position.
8. Slacken vee belts by adjusting two nuts on motor foot and remove vee belts.
9. Unscrew hexagon hole grubscrew (A) in saw spindle pulley, remove pulley and key.
10. Remove four hexagon head screws thus exposed, remove end cap (B).
11. Remove bearing locknut (C) after loosening small countersunk locking screw.
12. Knock out spindle in direction of arrow (D), using a piece of wood or soft metal (brass, copper, lead).
13. Knock bearing out of rear housing.
14. Remove four hexagon hole capscrews in end cap on front saw carriage bearing and end cap (E). Outer race of roller bearing can now be knocked out by using a piece of $\frac{1}{8}$" dia. steel inserted through two holes (F).
15. Clamp spindle in vice, remove grease retainer (G), remove bearing locknut (H) after loosening small countersunk locking screw. Remove grease retainer (J) after which inner race of roller bearing can be removed.

To reassemble, reverse the above procedure, packing the bearing housings with Wadkin ball-bearing grease Grade L.6, ensuring that no dirt or grit enters the housings or bearings.

TO FIX THE SAW

The saw guard must first be swung outwards. Remove the loose plate or gap piece in the table as well as the packing. The left-hand thread saw nut and front collar are to be taken off and the spindle revolved by hand to bring the small driving peg to the top. The saw blade, which must be a good fit on the spindle, is now placed on the spindle up to the back collar and hard back on the driving pin. The front collar and nut are refixed. Take care the threads and the faces of the collars are clean. Place the gap piece in the table and fit the hardwood mouthpiece and felt packing as shown in Fig. 9

CIRCULAR SAWS

Efficient operation of a circular saw depends on 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. The Wadkin Circular-Saw Bench embodies all these requirements and, provided the saw is maintained in a sharp condition with the teeth correctly sharpened and set, efficient service will be given.

After careful study we have evolved a saw that will give good results for general sawing in hard and soft woods.

The standard saws supplied are illustrated in Fig. 1. It is advisable to note the shape of the teeth and the manner in which the teeth are set when the saw is new and to maintain it in that condition. As stated, these saws are for general sawing in hard and soft woods but slight variations can be made to suit prevailing conditions if found necessary.

BEFORE PUTTING A NEW SAW to use, it is essential that it is "ranged down" on the teeth to ensure each tooth is cutting and to maintain true running.

Run the saw at normal speed and bring a piece of emery stone up against the teeth very lightly. The stone must be held square with the saw and the process continued until all the teeth show signs of having been touched. The saw is then removed from the machine and completed by filing the tops of the teeth very lightly on the top bevel to take away any "ranging marks" showing on the points. At the same time each tooth is sharpened by filing square across the face with a flat file. Each tooth should be filed with an equal number of strokes.

Take care when replacing the saw in the machine to fix it hard back on the driving pin again.

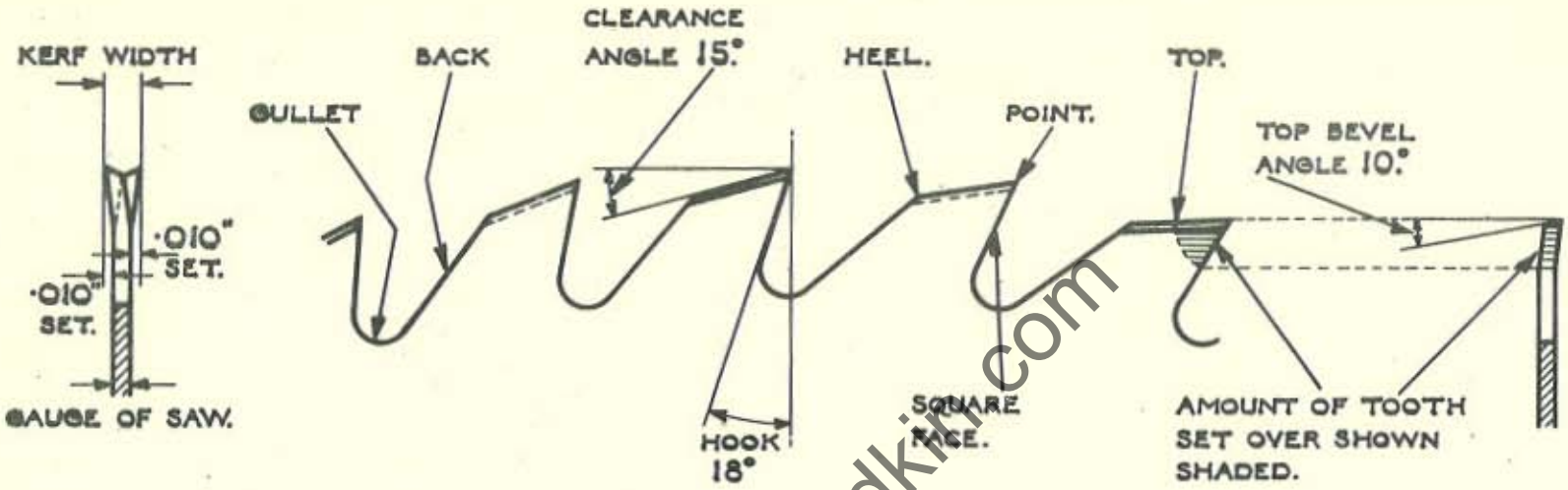
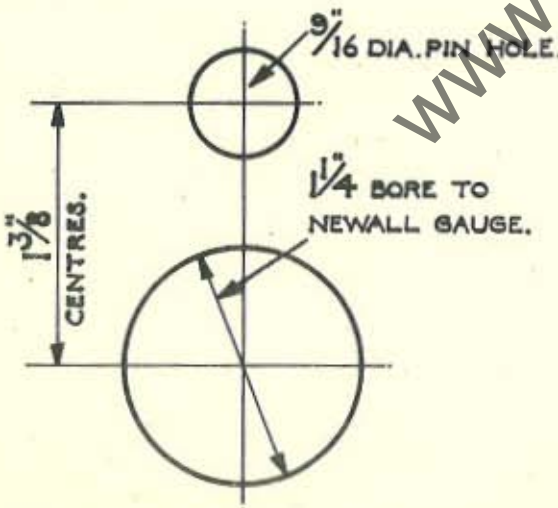
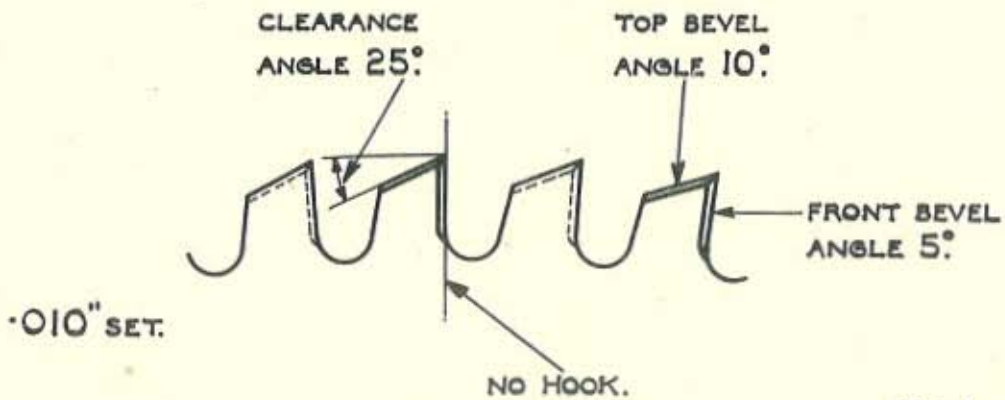


DIAGRAM OF SAW TOOTH SHOWING TERMS USED IN DESCRIBING PARTS AND ANGLES.

20" DIA. RIP SAW. 54 TEETH. 14 GAUGE. QS 62.



DIAMETER OF SPINDLE & DRIVING



20" DIA. FLAT CROSS CUT SAW.

FIG. 1.

SAW MAINTENANCE

The shape and spacing of the teeth are of great importance in governing the performance of a saw. Keep the teeth sharp and bevelled as shown. Do not allow the set on the teeth to become worn down before resetting. Maintain correct tooth formation and rounded gullets. If the saw does not run true, do not attempt to correct it by forceful packing, but have it sent in for inspection and retensioning.

SET. 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., the tips of alternate teeth are bent to the right and left as shown in Fig. 2. 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 seen as Fig. 3. The exact amount of set each side varies with the timber being cut, usually .010" to .015".

For clean cutting, just sufficient should be allowed to prevent binding 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 those for ripping.

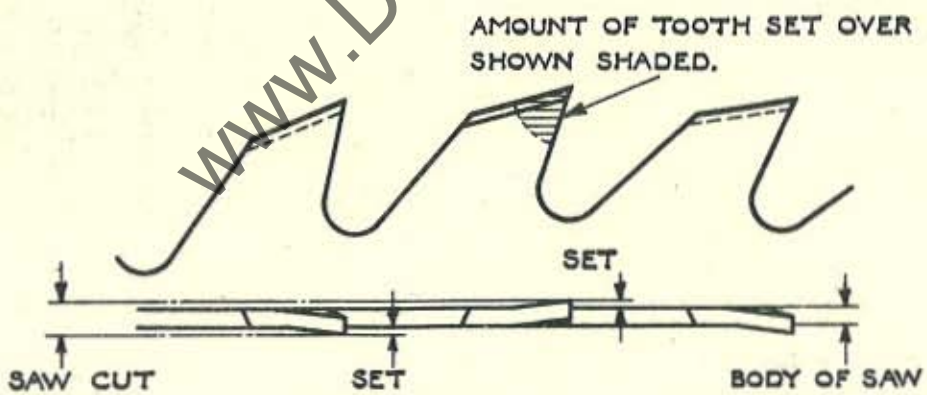


Fig. 2.

Fig. 3.

SAW MAINTENANCE (contd.)

MACHINE SETTING

A machine made by Wadkin Ltd., recommended for efficiently setting the teeth, is illustrated in Fig. 4, and will deal with saws 8" to 36" diameter. The micrometer dial indicates accurate readings 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 are set by hand using a tool as shown in Fig. 5. This tool is provided with six notches to take saws from 8 to 14 gauge thick, while the amount of "set over" is derived by using the gauge shown in Fig. 6.

For the process of setting, the saw is securely clamped in a vice.

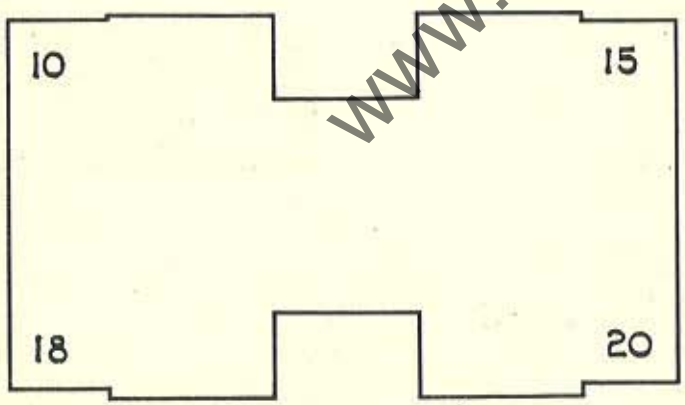


Fig. 6.

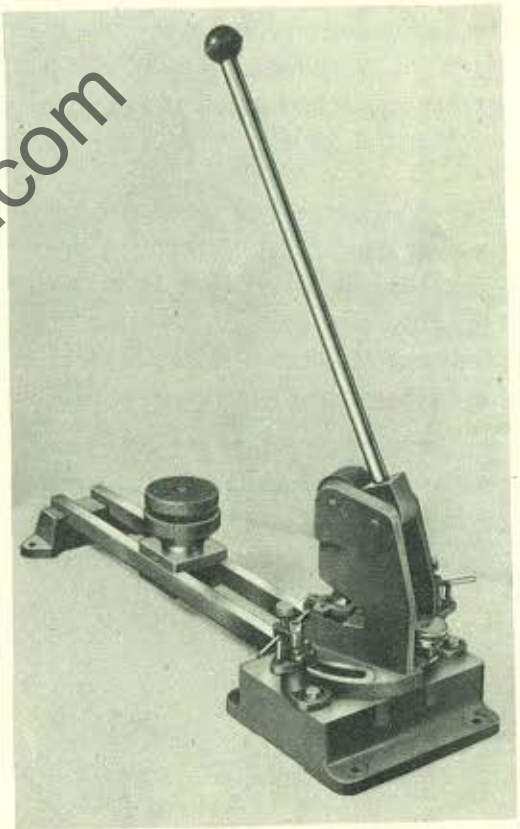


Fig. 4.

Fig. 5.

SAW SHARPENING

Saw teeth get blunt in the course of use and need to be reconditioned. Do not run a saw when blunt, but remove from the machine and resharpen. Hold the saw rigid in a vice, Fig. 7, and file the face of each tooth (square across for ripsaws and along the bevel for cross-cut saws) by giving an equal number of strokes and at the same time file the gullet, taking care to keep the gullet well rounded. A flat faced saw file with rounded edges, as Fig. 8, must be used. File the tops of the teeth very lightly on the bevel merely to remove any slight burr. In the course 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 teeth by means of a grinding wheel on a saw sharpening machine. The machine is usually of the automatic type and feeds each tooth, giving equal spacing or pitch. It is essential to "range down" the saw in the machine before use in the manner described under the heading "CIRCULAR SAWS."

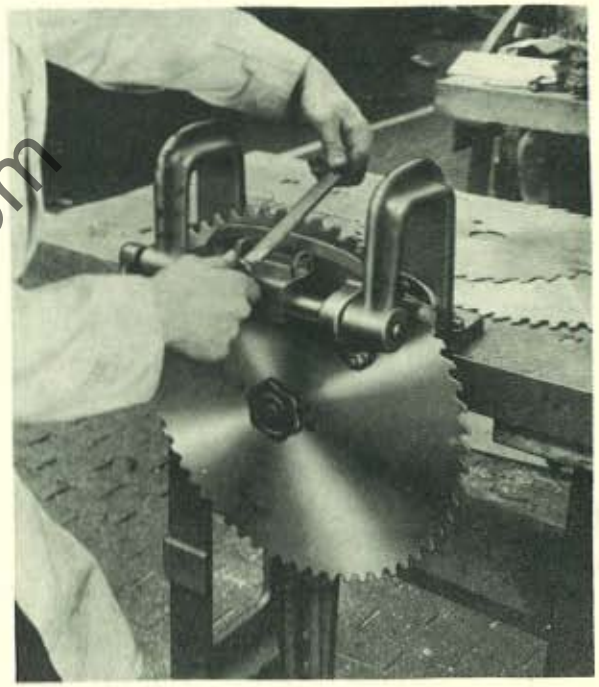


Fig. 7.

SAW PACKING

Although it is usual to provide a circular saw with some form of packing, it is not intended to correct a saw that is not running true or is buckled. The idea of packing is to steady the saw, but the packing must not be too tight otherwise heat is generated with consequent loss of tension in the saw. A packing recommended by us is hard white felt approximately $\frac{1}{2}$" thick, fixed in the manner shown in Fig. 9.

A hardwood mouthpiece is necessary of a length to extend beyond the bottom of the saw teeth in order to hold the felt in position. Wood strips secured to the underside of the table and gap piece support the felt at the front of the saw, while wood strips behind the saw close the gap in the table.

Apply a small quantity of lubricating oil to the felt before use.

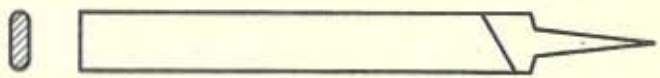


Fig. 8.

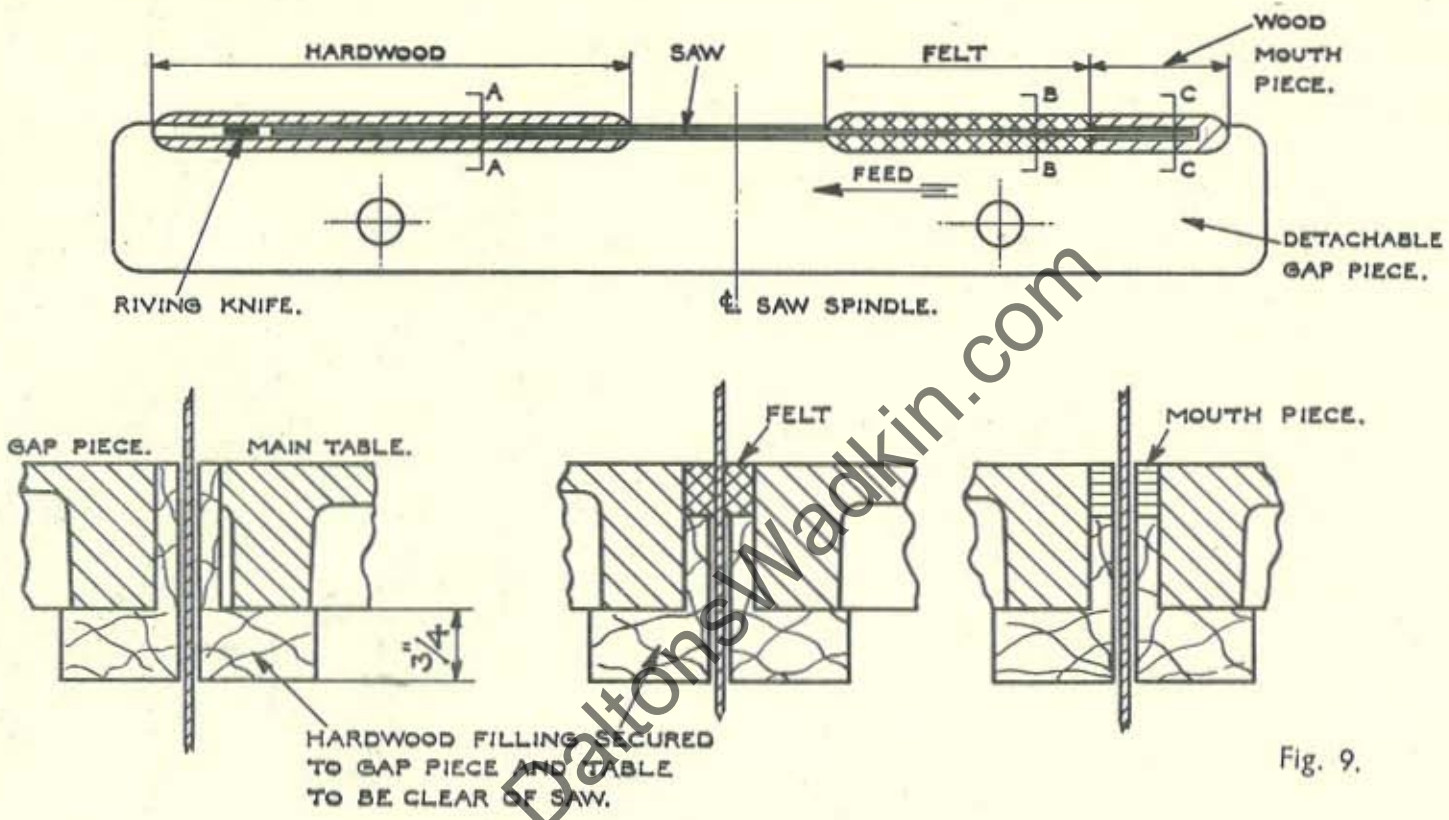


Fig. 9.

SAFETY PRECAUTION

Always adjust the guard to protect as much of the saw as possible and fix the riving knife $\frac{1}{4}$" behind the saw at the rear. The knife must conform to the curvature of the saw.
Use a push-stick, as Fig. 10, as much as practicable when feeding timber in order to avoid accident.

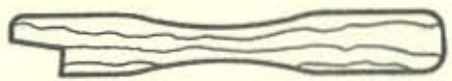


Fig. 10.

HOLLOW GROUND SAWS

Where an exceptionally clean surface finish is required, we can supply a saw of this description for cross-cutting in hard or soft woods. It is hollow ground from collar to rim with clearance on the teeth for working without set. The teeth are sharpened in a similar manner to a flat cross-cut saw.

CUTTER EQUIPMENT

MOULDING

By fitting a $4\frac{1}{16}$" square x $2\frac{1}{2}$" wide cutterblock, QW.7, to the saw spindle of the SQ Saw Bench, a wide range of moulding up to $2\frac{1}{2}$" wide can be carried out. Details of cutters can be obtained on application. When using a square cutterblock the metal gap plate must be removed from the table and a wood filling-in piece used. The opening must be sufficient only to clear the cutters as they protrude through the table. The rise and fall adjustment on the spindle gives the desired depth of cut.

TRENCHING AND GROOVING HEADS

can also be supplied for cutting up to a maximum of 2" wide 2" deep for machine Model SQ. The type of head is shown in Fig. 11 and is provided with side or spur cutters to give clean shoulders in the grooves. It is made in two parts and spacing collars give the desired width of groove rising by $\frac{1}{16}$".

13" diameter cutting circle.

Head JP.550 for grooves $\frac{1}{2}$" to 1" wide up to $1\frac{1}{2}$" deep.

Head JP.558 for grooves $1\frac{1}{16}$" to 2" wide up to 2" deep.

A sleeve, SQ.185, with nuts and a set of spacing collars, is required with either head to secure it to the saw spindle. The complete head can be removed from the machine without the setting being altered. Alternatively a wobbling or grooving saw unit is offered as shown in Fig. 12 which will cut grooves from $\frac{1}{8}$" to $2\frac{1}{8}$" wide and can be used where a flat bottom to the groove is not essential and the finish not important. The saw is 12" diameter and mounted on a sleeve which, once set and the saw and collars locked tight, can be removed from the saw spindle without the setting being altered. A special fixing nut is required to secure it to the saw spindle.

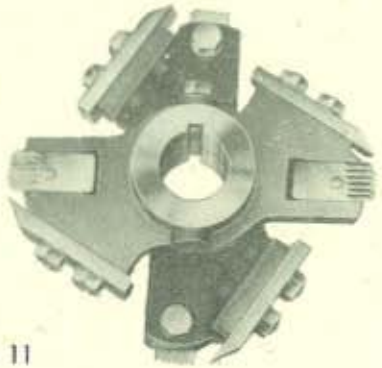


Fig. 11

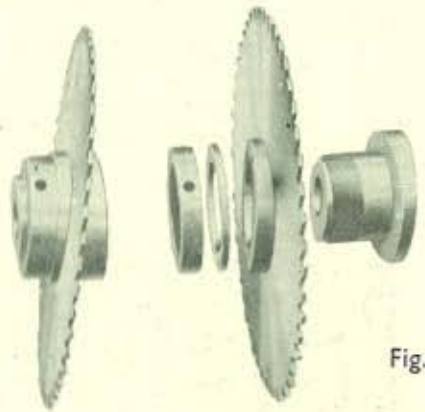


Fig. 12

ACCESSORIES

The addition of the fence shown in Fig. 13 enables cross-cutting and mitring to be carried out. It is fitted with an adjustable stop for quick setting of the timber and will cut off angles up to 45° to the saw. The fence used on Wadkin Saw Benches Type SQ. and SV. is No. 1 size cross-cutting and mitring fence.

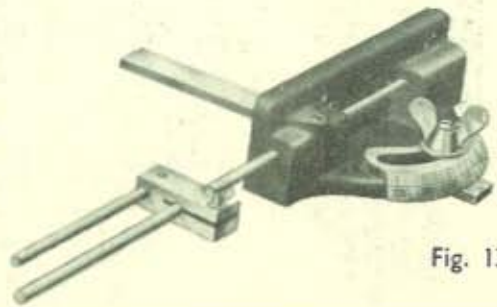
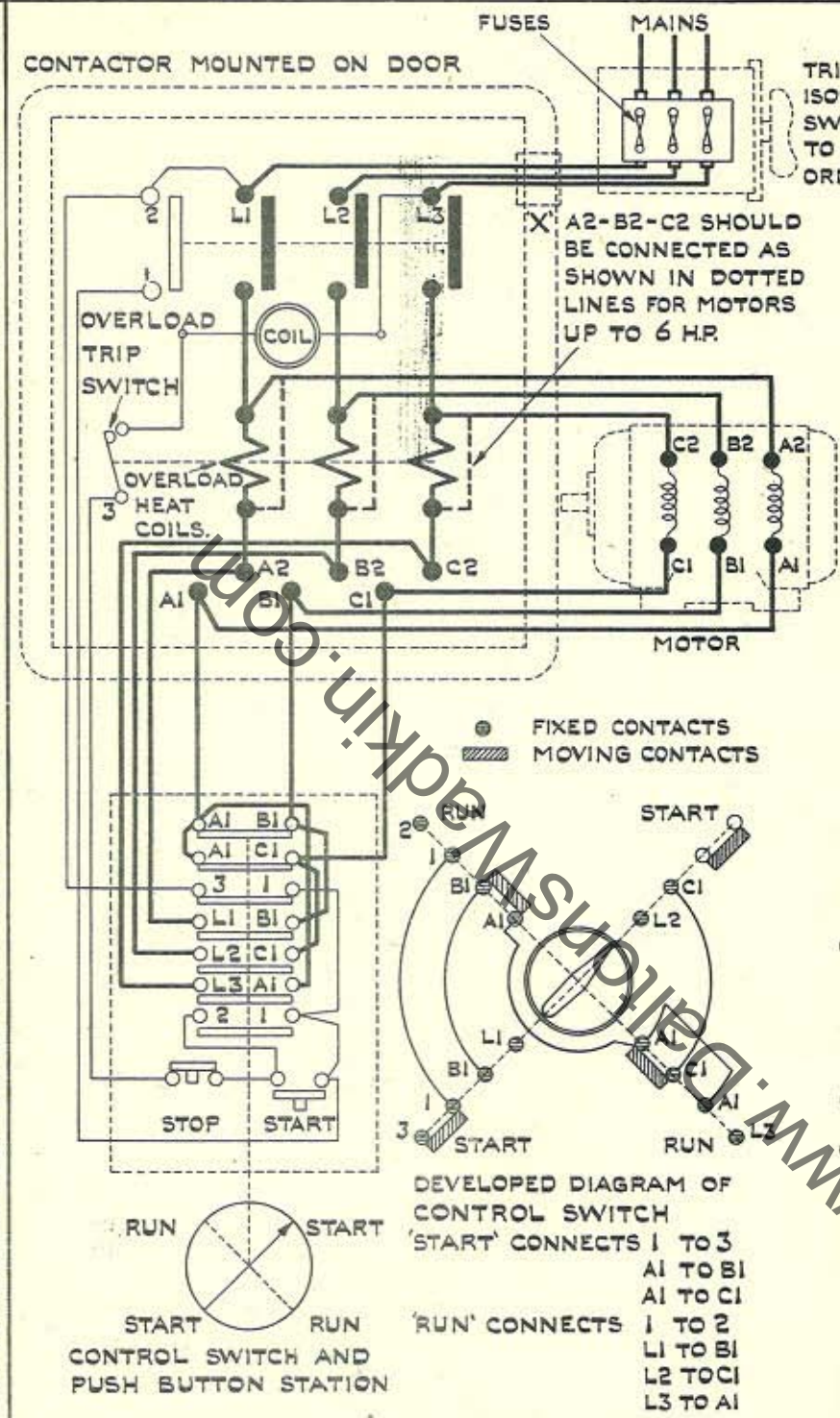


Fig. 13



SUPPLY PARTICULARS	
VOLTAGE	
PHASE	
FREQUENCY	
OUTPUT	

INSTALLATION INSTRUCTIONS.

FIT TRIPLE POLE ISOLATING SWITCH FUSE NEAR MACHINE UNLESS SUPPLIED BY WADKIN LTD. TO SPECIAL ORDER. SO THAT THE ELECTRICAL GEAR MAY BE READILY ISOLATED FOR INSPECTION PURPOSES. BRING LINE CABLES TO ISOLATING SWITCH AND TO L1-L2-L3 AT CONTACTOR THROUGH CONDUIT WHICH SHOULD BE SCREWED INTO THE MACHINE AND SECURED BY MEANS OF LOCKNUTS. A HOLE IS PROVIDED IN THE MACHINE FRAME FOR THE CONDUIT. CARRYING THE LINES TO THE CONTACTOR.

IMPORTANT.

CLEAT LINES AT 'X' BY MEANS OF THE CLEAT PROVIDED. LEAVE SUFFICIENT SLACK IN THE LINES TO ALLOW THE DOOR TO OPEN FREELY.

OPERATION.

TO START MOTOR TURN SWITCH TO 'START' POSITION AND HOLD 'START' BUTTON DEPRESSED UNTIL MOTOR ATTAINS FULL SPEED, THEN TURN SWITCH TO 'RUN' POSITION AND AT THE SAME TIME RELEASE 'START' BUTTON. TO STOP MOTOR PRESS 'STOP' BUTTON. TO LOCK OFF MACHINE PRESS AND TURN 'STOP' BUTTON. THIS MUST BE RELEASED BEFORE A START CAN BE MADE. ENSURE THAT THE DIRECTION OF ROTATION IS CORRECT BEFORE PUTTING MACHINE INTO SERVICE. TO REVERSE ROTATION INTER-CHANGE L1 AND L2.

OVERLOAD.

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

EARTH MACHINE

RETAIN THIS DIAGRAM FOR FUTURE REFERANCE

FOR PARTICULARS OF WADKIN PORTABLE ELECTRIC BLOWER FOR CLEANING DOWN MACHINE & ELECTRICAL GEAR SEE LEAFLET No.687.

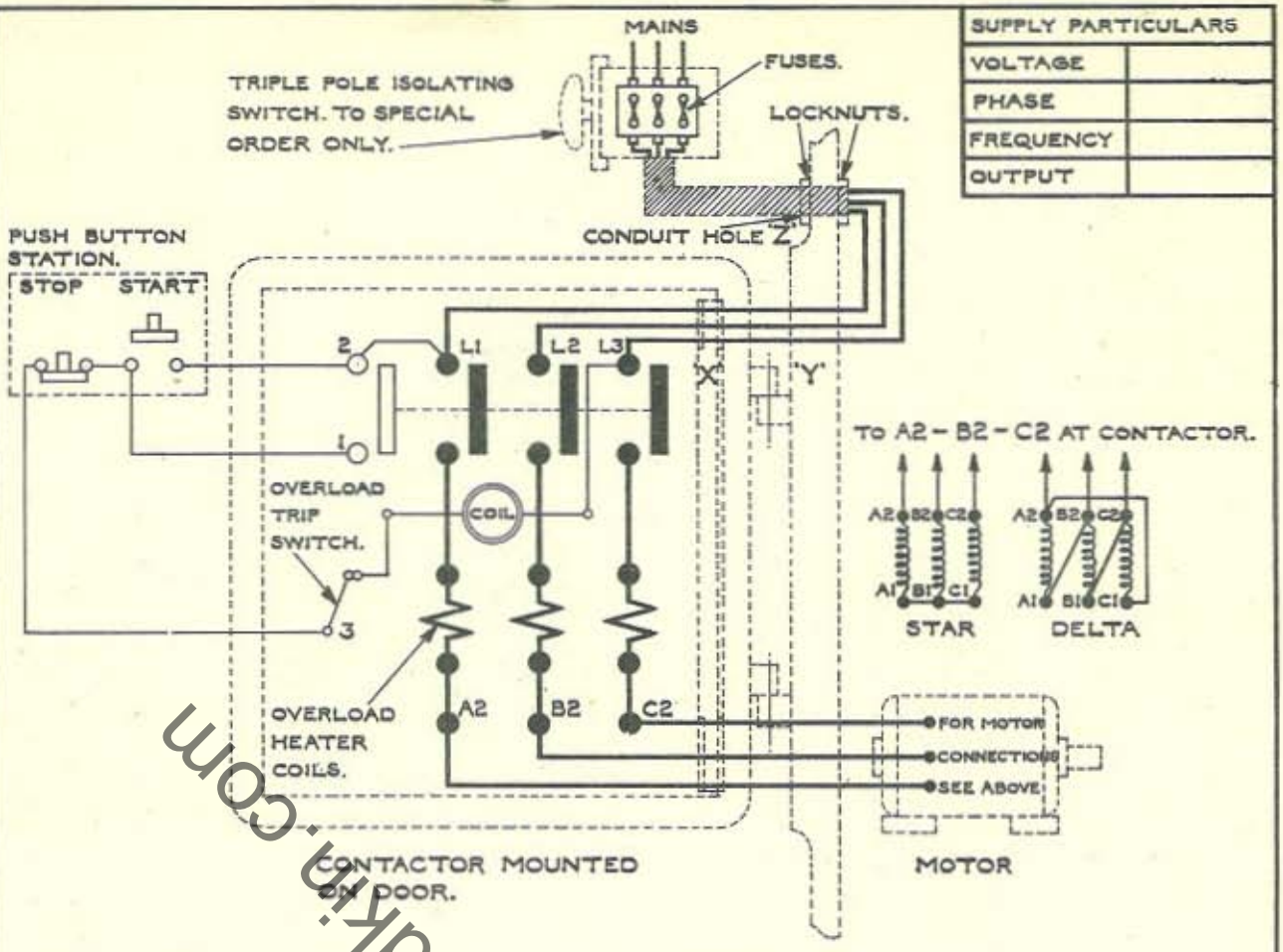
WADKIN LTD.
LEICESTER.

DIAGRAM OF CONNECTIONS. D 402/1.

RETAIN THIS DIAGRAM FOR FUTURE REFERENCE.

FOR PARTICULARS OF WADKIN PORTABLE ELECTRIC BLOWER FOR CLEANING M/C. & ELECTRICAL GEAR SEE LEAFLET No. 687.

SUPPLY PARTICULARS	
VOLTAGE	
PHASE	
FREQUENCY	
OUTPUT	



INSTALLATION INSTRUCTIONS.

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OPERATING INSTRUCTIONS.

TO START MOTOR, CLOSE ISOLATING SWITCH AND PRESS START BUTTON. TO STOP MOTOR PRESS STOP BUTTON. TO LOCK OFF MACHINE PRESS AND TURN STOP BUTTON. THIS MUST BE RELEASED BEFORE A START CAN BE MADE.

NOTE :–

CABLING SHOWN THUS ▨ TO BE CARRIED OUT BY CUSTOMER UNLESS ISOLATING SWITCH HAS BEEN FITTED BY WADKIN LTD.

IMPORTANT.

SECURE LINE CABLES AT 'X' BY MEANS OF THE CLEAT PROVIDED. LEAVE SUFFICIENT SLACK IN LINES AT 'Y' TO ALLOW THE DOOR TO OPEN FREELY.

WHEN DUAL VOLTAGE MOTORS ARE EMPLOYED THE FOLLOWING CONNECTIONS SHOULD BE MADE 200/250 VOLT CIRCUITS CONNECT MOTOR IN 'DELTA', 340/440 VOLT CIRCUITS CONNECT MOTOR IN 'STAR', THE CONNECTIONS BEING MADE EITHER WITHIN THE CONTROL GEAR CAVITY OR AT THE MOTOR TERMINAL BLOCK.

ENSURE THAT THE MACHINE IS ADEQUATELY 'EARTHED' AND THAT THE DIRECTION OF ROTATION IS CORRECT BEFORE PUTTING INTO SERVICE. TO REVERSE ROTATION INTERCHANGE L1 & L2.

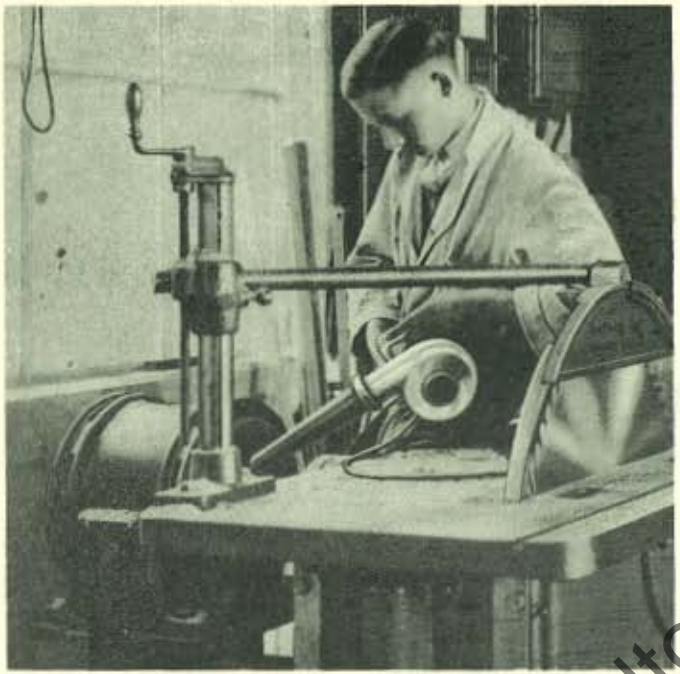
OVERLOAD.

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

EARTH MACHINE.

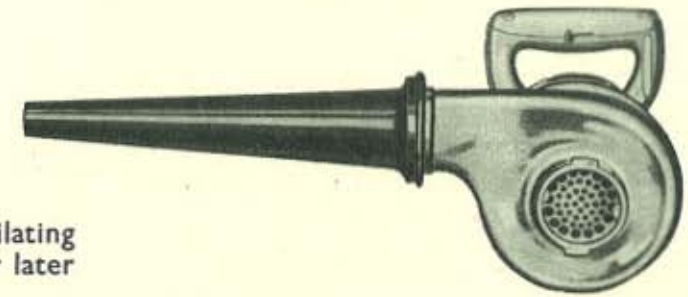
WADKIN LTD.
LEICESTER.

DIAGRAM OF CONNECTIONS. D.191/3A.



DONT LEAVE ELECTRIC MOTORS TO LOOK AFTER THEMSELVES . . .

. . . 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.

SPECIFICATION

Horse-power of motor	⅓rd
Net weight...	7 lbs.
Speed	11,400 r.p.m.
Velocity of air in feet per minute	... 14,800
Fully guaranteed for one year	