

WOODWORKING
MACHINERY



SPECIALISTS IN WOODWORKING MACHINERY



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INTRODUCTION

IN presenting this abridged edition of our General Catalogue, we wish to point out that the descriptions and technical details are of necessity brief, and that we are always pleased to forward illustrated leaflets giving more complete information of our machines.

The contents of the Catalogue give a fairly accurate description of the various machines as at present made, but we do not guarantee them absolutely correct in detail owing to modifications being made from time to time.

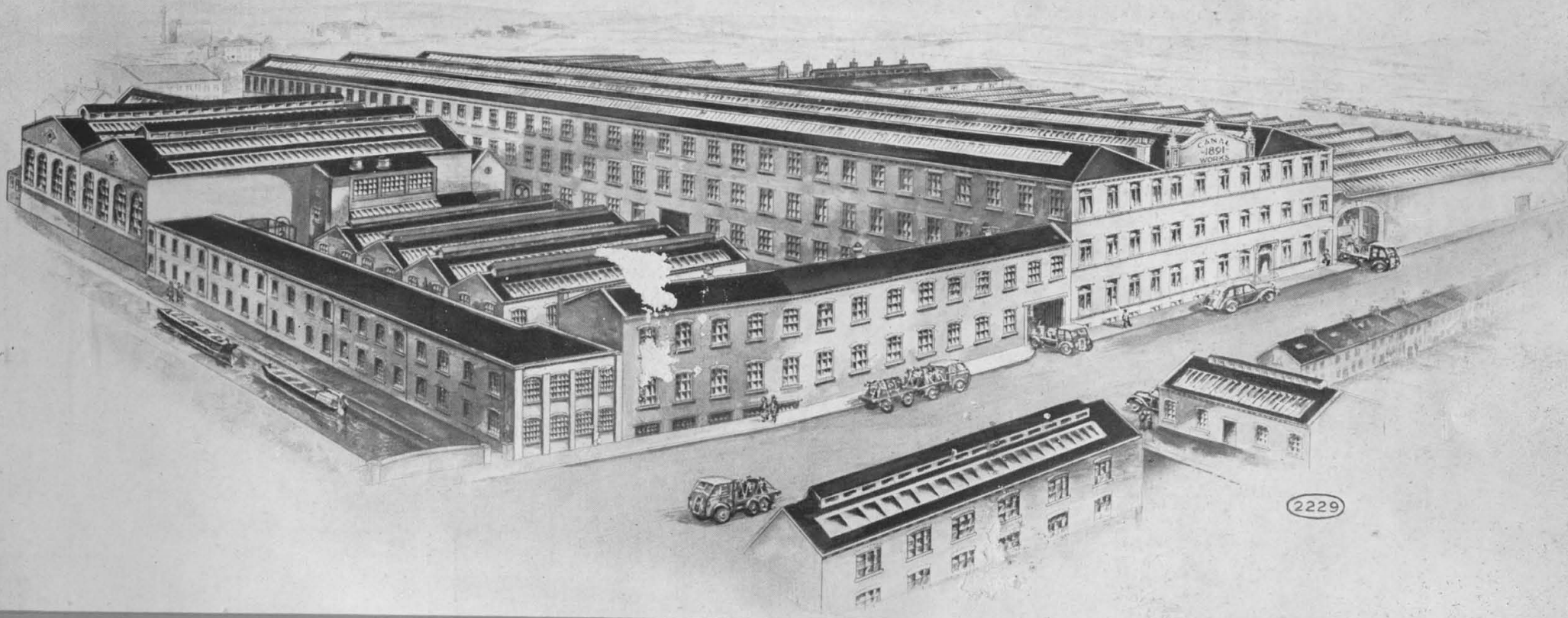
The specifications of the various machines have been given in English weights and measurements, but for the convenience of those who use the Metric system, an equivalent scale will be found on page iii.

We are always delighted to receive visitors at our Works, which is equipped with the most modern and up-to-date plant and its own foundry. If you have not previously called, the route map shown on page iv indicates in red all the main arteries into Halifax from the north, south, east and west, and the direct approach to our modern Works, where you will be welcome.



CONVERSION TABLES:—ENGLISH TO METRIC

Feet	Inches	Millimetres	Cu. Feet	Cu. Metres	Tons Cwts.	Kilogrammes
	$\frac{1}{8}$	3.175	$\frac{1}{4}$	.007	$\frac{1}{4}$	12.7
	$\frac{1}{4}$	6.35	$\frac{1}{2}$	.0142	$\frac{1}{2}$	25.4
	$\frac{3}{8}$	9.525	$\frac{3}{4}$	.0212	$\frac{3}{4}$	38.1
	$\frac{1}{2}$	12.7	1	0.0283	1	50.8
	$\frac{5}{8}$	15.875	2	0.0566	2	101.6
	$\frac{3}{4}$	19.05	3	0.0850	3	152.4
	$\frac{7}{8}$	22.225	4	0.1133	4	203.2
	1	25.4	5	0.1416	5	254
	2	50.8	6	0.1699	6	304.8
	3	76.2	7	0.1982	7	355.6
	4	101.6	8	0.2265	8	406.4
	5	127	9	0.2549	9	457.2
	6	152.4	10	0.2832	10	508
	7	177.8	20	0.5663	11	558.8
	8	203.2	30	0.8495	12	609.6
	9	228.6	40	1.1327	13	660.4
	10	254	50	1.4159	14	711.2
	11	279.4	60	1.6990	15	762
1	— 0	304.8	70	1.9822	16	812.8
2	— 0	609.6	80	2.2654	17	863.6
3	— 0	914.4	90	2.5485	18	914.4
4	— 0	1219.2	100	2.8317	19	965.2
5	— 0	1524	200	5.6634	1 — 0	1016
6	— 0	1828.8	300	8.4951	2 — 0	2032.1
7	— 0	2133.6	400	11.3268	3 — 0	3048.1
8	— 0	2438.4	500	14.1585	4 — 0	4064.2
9	— 0	2743.2				
10	— 0	3048				
11	— 0	3352.8				
12	— 0	3657.6				



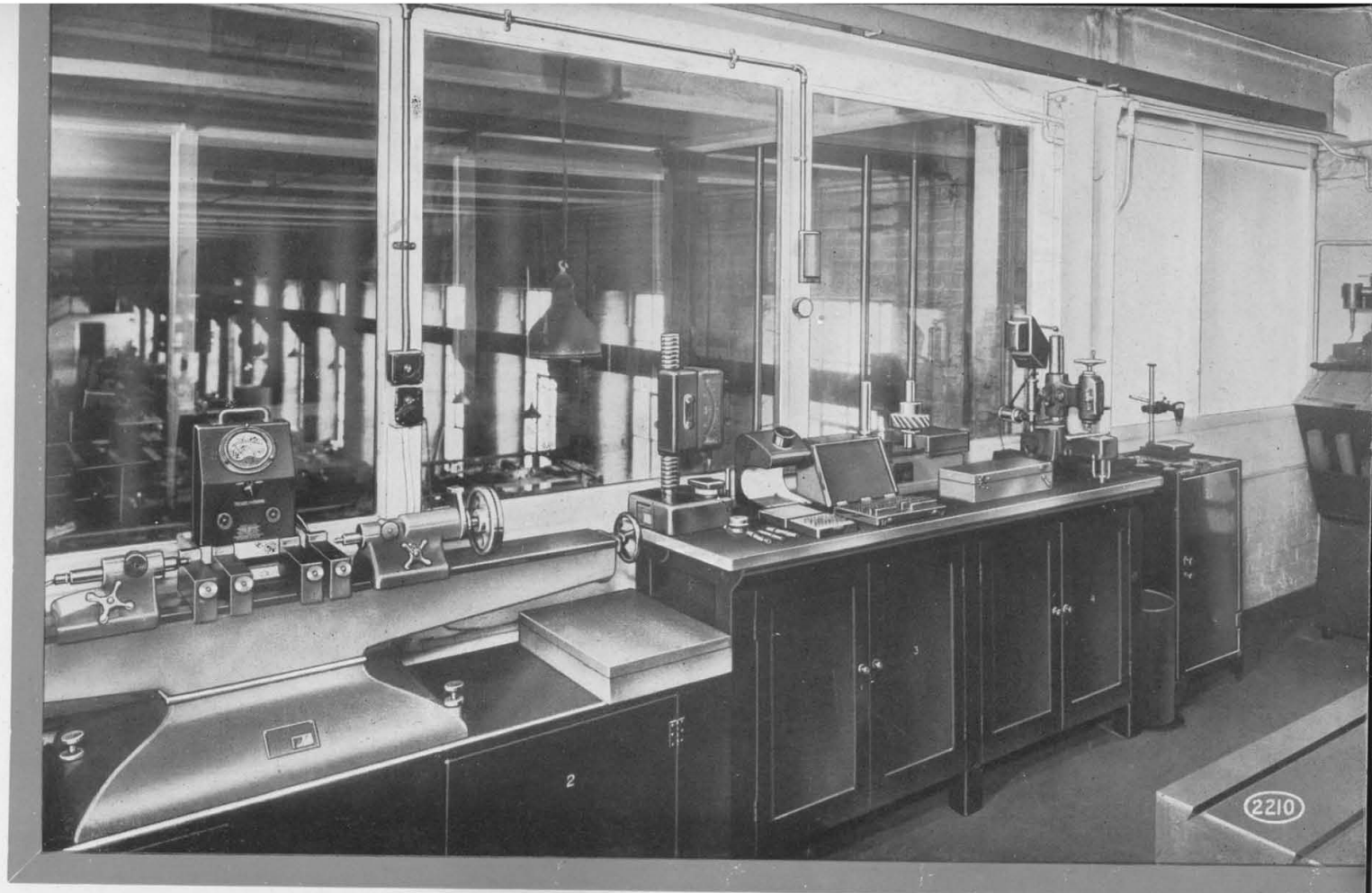
Canal Works, Halifax, England



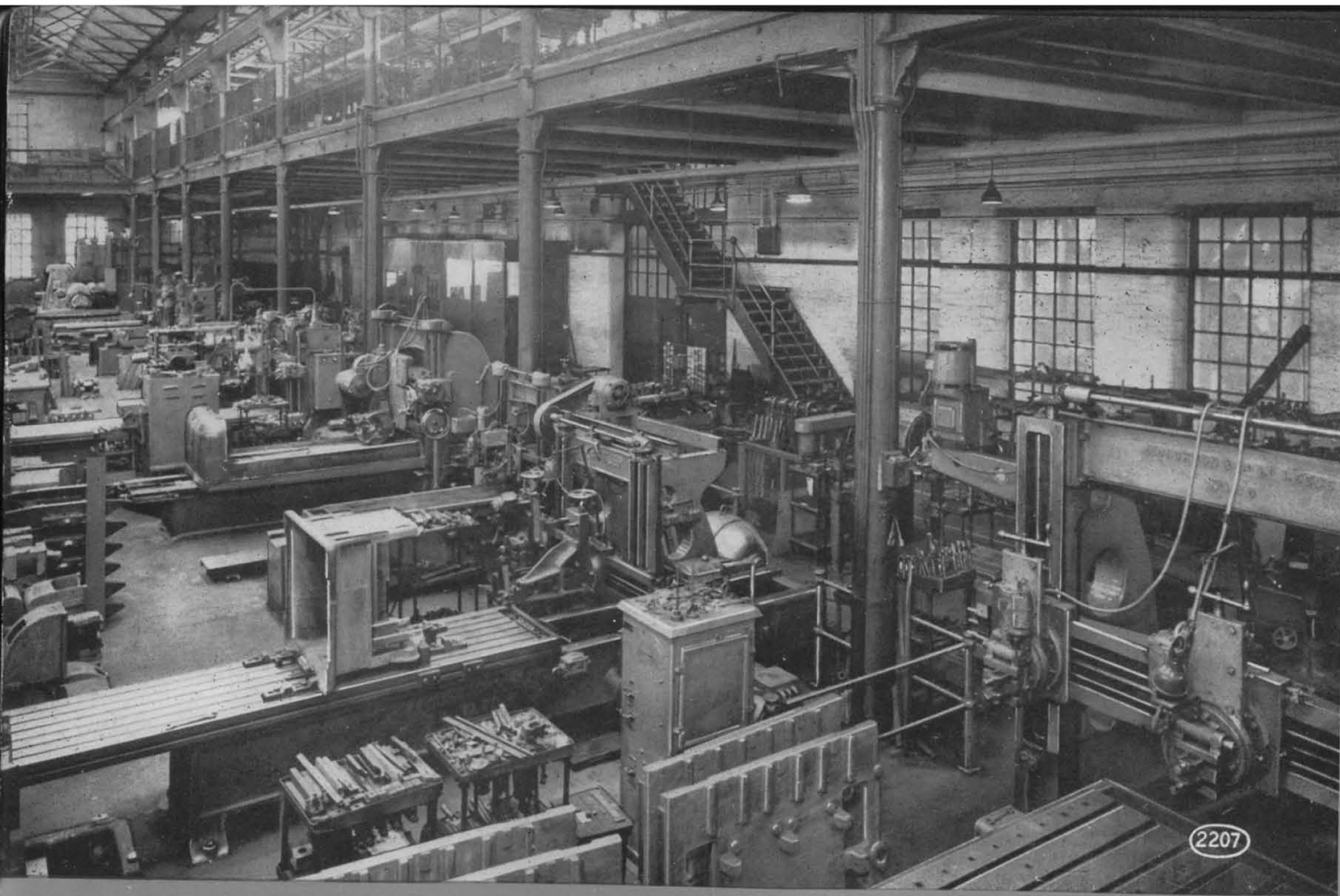
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A section of the Drawing Office

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A corner of the Instrument Room where tools, gauges, templates, etc., are checked at regular intervals.



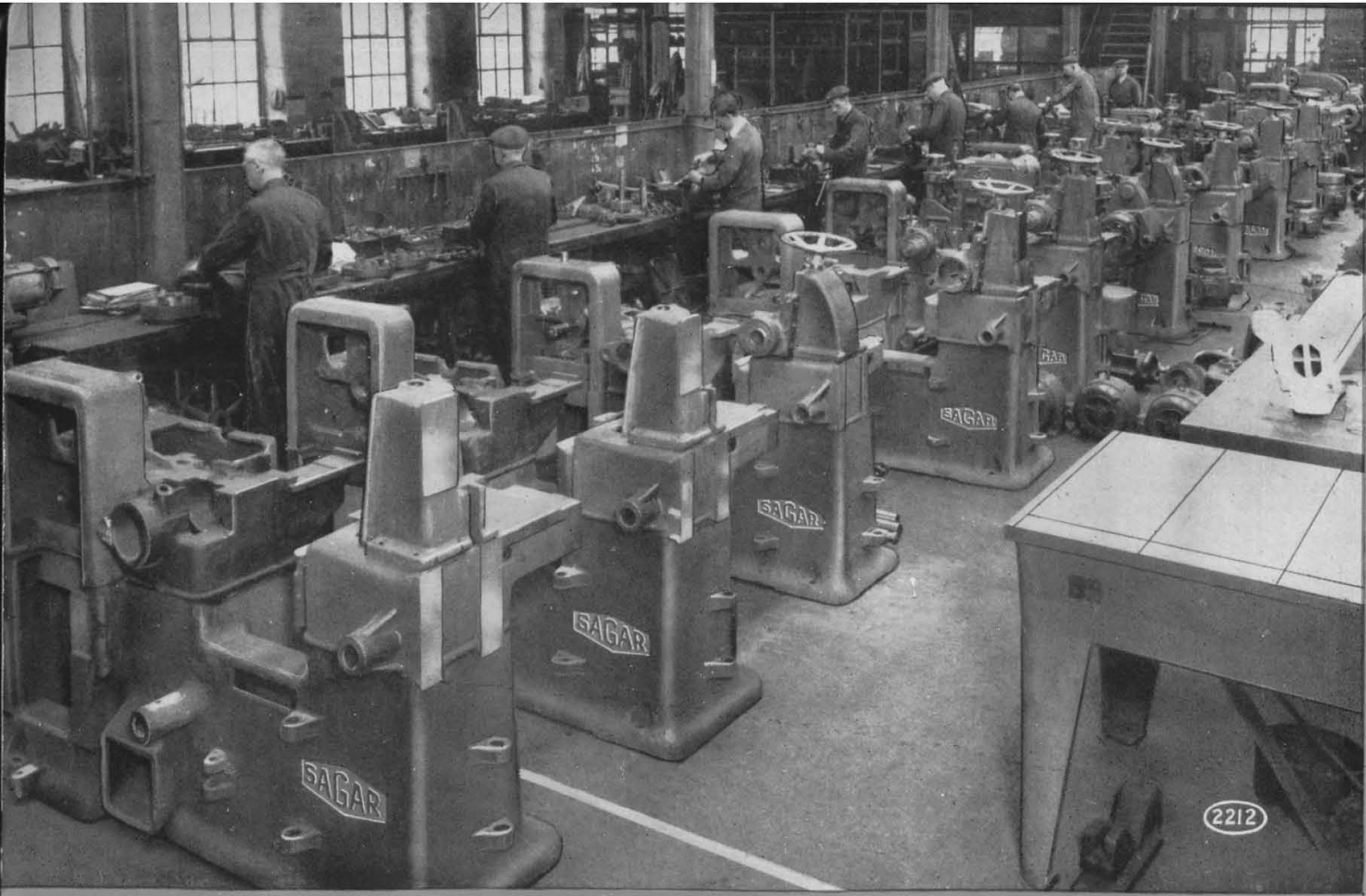
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A section of the heavy planing department

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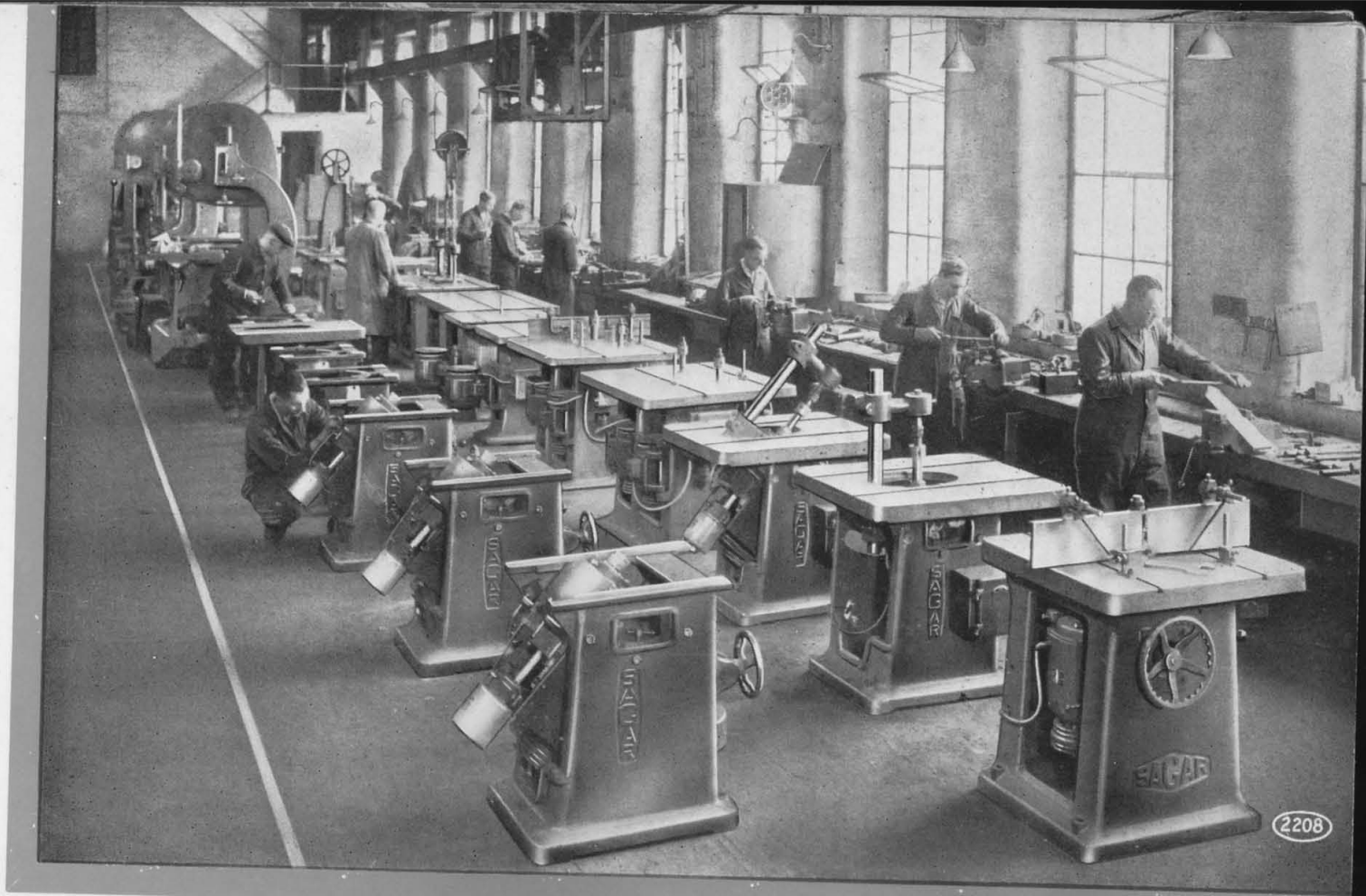
A turning machine bay



SAGAR

One of the fitting bays. A batch of Four-cutter
Planing and Moulding Machines on the assembly
line

SAGAR



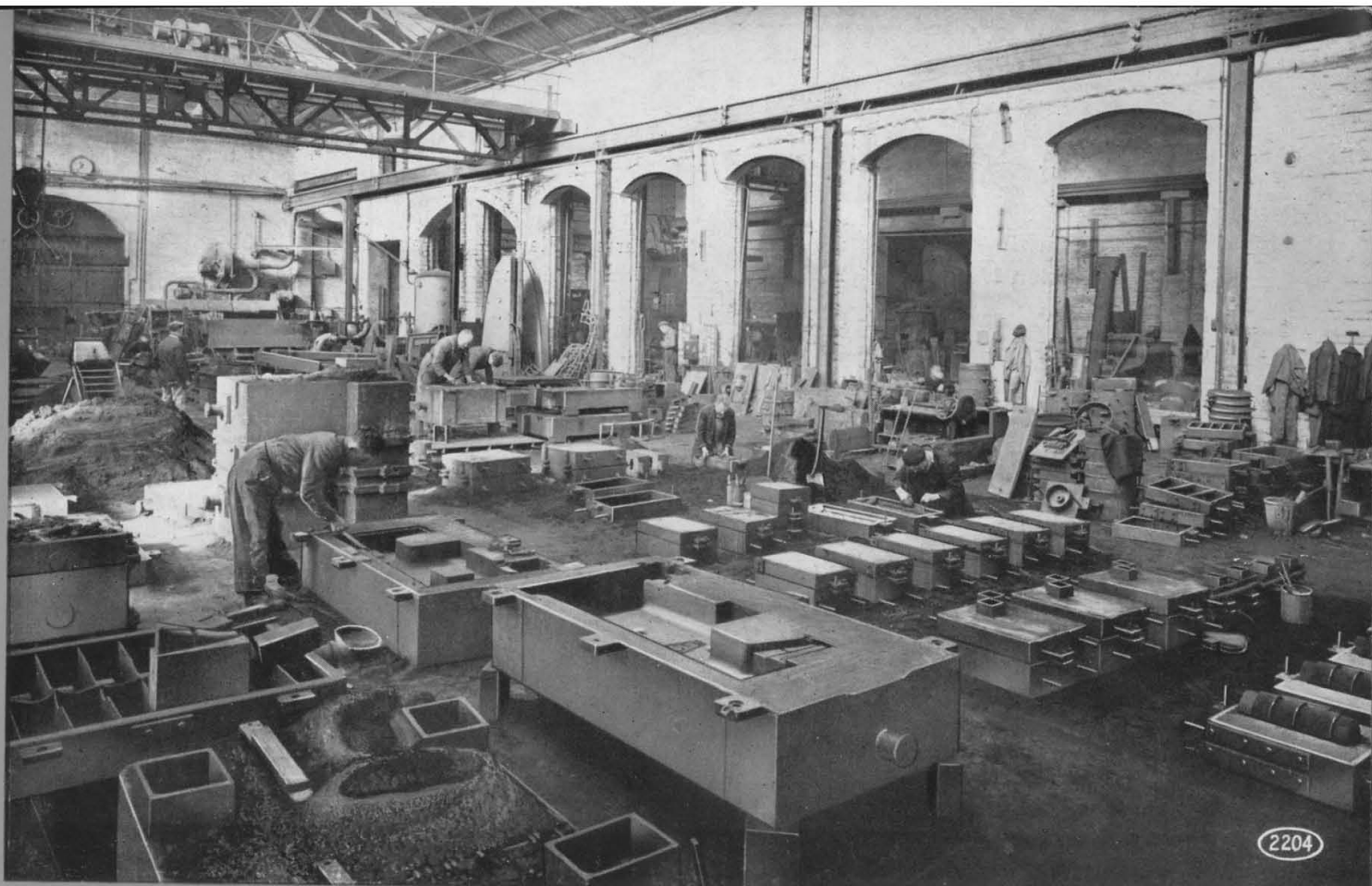
Another fitting bay showing Spindle Moulders
being assembled

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A Section of the Pattern Shop serving the Foundry

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One of the bays in the Iron Foundry

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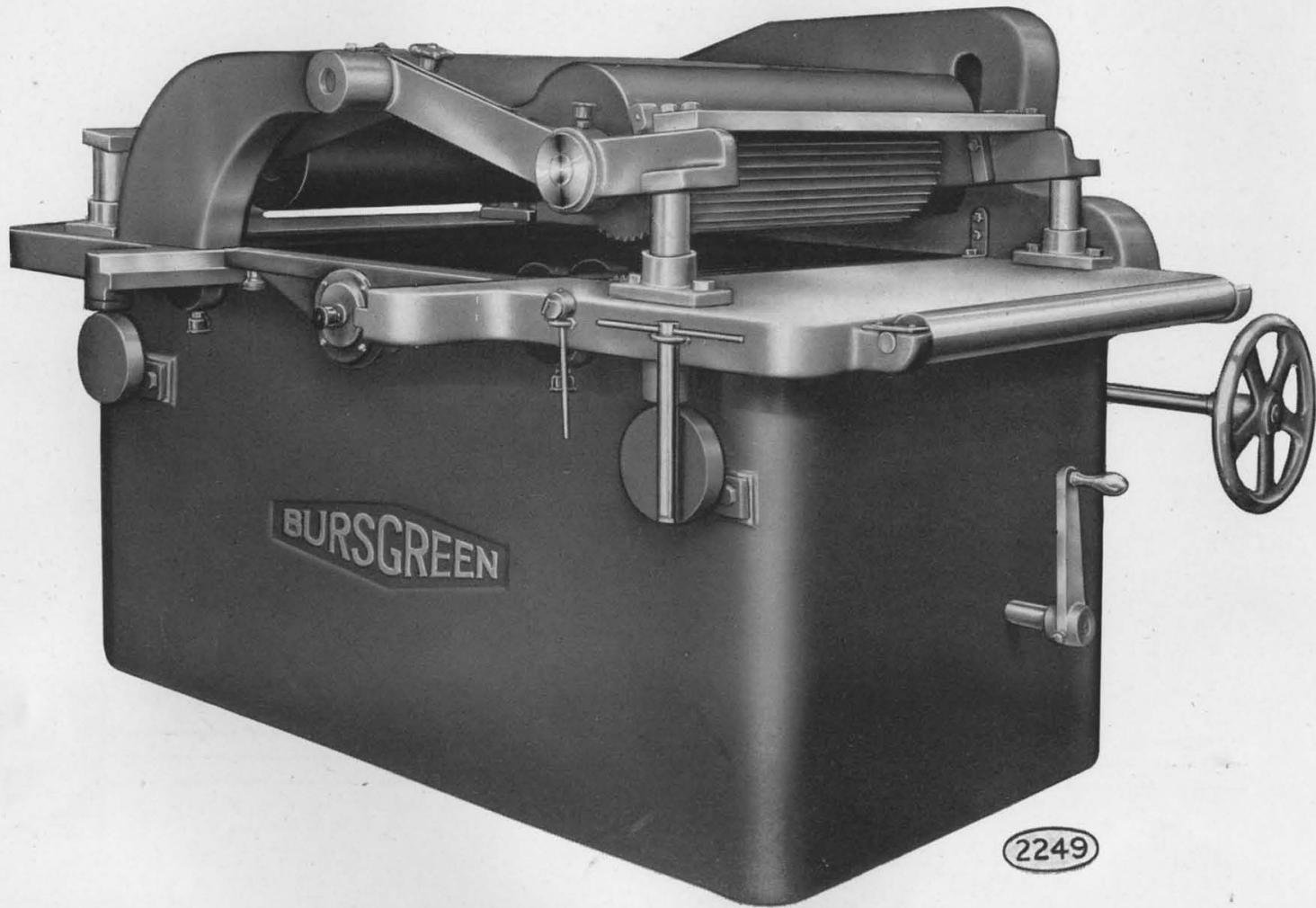
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Section I





'BURSGREEN' ROLLER FEED MULTIPLE EDGING
OR BREADTHING SAW (VL)



2249



'BURSGREEN' ROLLER FEED MULTIPLE EDGING OR BREADTHING SAW (VL)

This is a heavy duty machine suitable for edging slabs and boards to width.

CONSTRUCTION

THE MAIN FRAME is a substantial one piece cored casting on which two heavy table sections are mounted. The housing castings carrying the spindle bearings bridge the tables at each end and loose bridge plates are also provided to carry the timber between the saws. Bridge plates are fitted with quick acting clamping motion to facilitate removal of the saws.

THE SAW SPINDLE revolves in ball bearings and may be arranged to carry from two to six saws, spaced by accurately machined collars to suit requirements. Front ball bearing housing is mounted with adapter and provided with quick acting clamping motion for easy removal when changing saws.

THE FEED is by four rollers, three fluted and one plain, all mounted on ball bearings. The two bottom and in-feed top are fluted and driven by heavy roller chain. Top rollers

have independent rise and fall motion, and are fitted with arrangement for adjusting gap between top and bottom rollers to facilitate entry of butt end slabs or boards. Recoil springs are provided to absorb the shock when the timber leaves the rollers.

THE FEED is by two-speed gear box fitted with a clutch for starting and stopping feed, and also to provide a slipping member in case of jams.

GUARDS are provided which give adequate protection from all the working parts. Saw guard is hinged for easy access to saw.

THE MOTOR is mounted on slide rails with screw adjustment. Drive to saw spindle and gear box is by means of multiple vee ropes.

DETAILS INCLUDED IN THE PRICE

Motor and Starter. Guards. Six heavy gauge Circular Saws, 20" diameter. Set of Spanners. Tin of Lubricant.

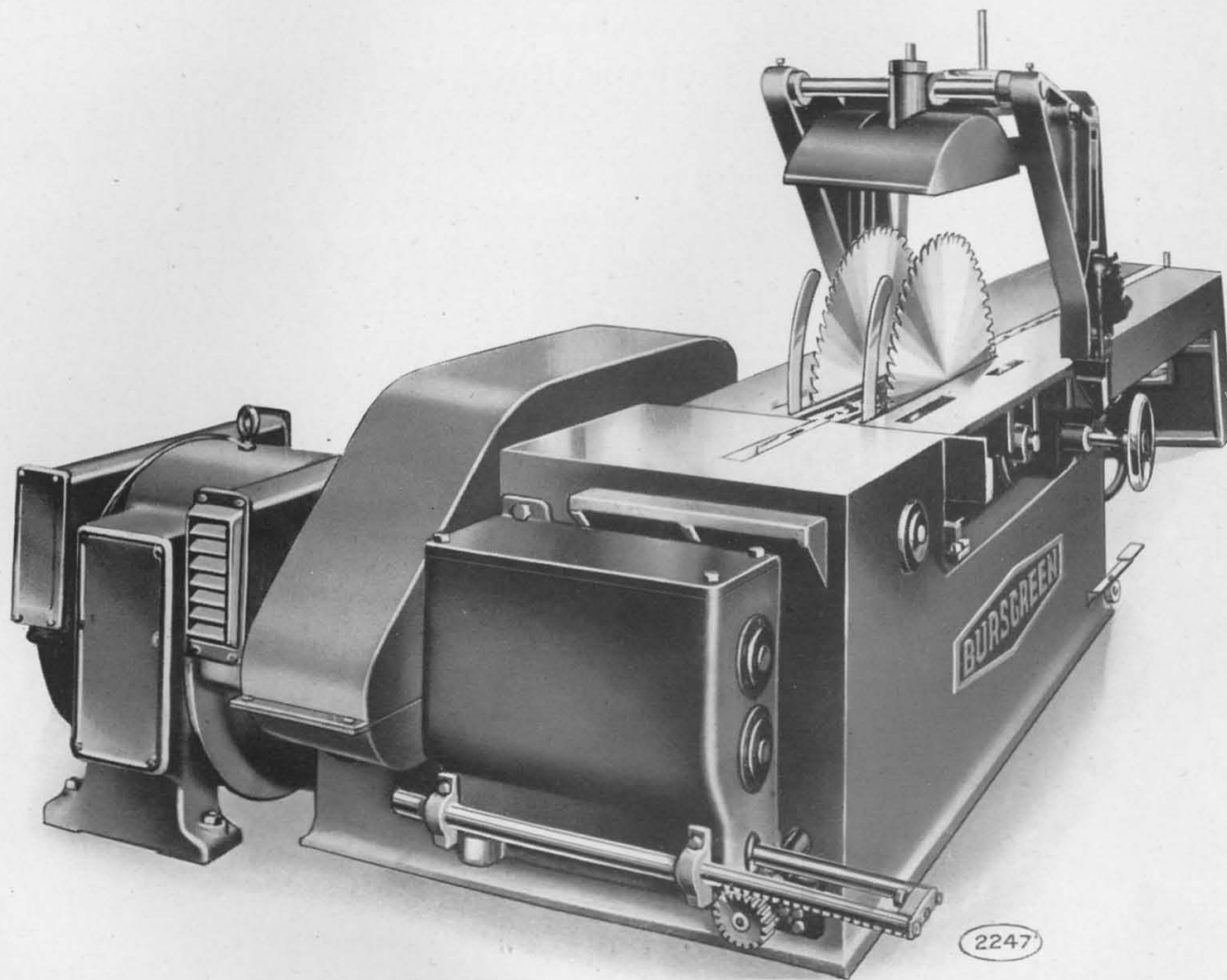
CODE WORD "ZORZY" PRICE £

SPECIFICATION

Overall size of tables	6' 8" long × 3' 6" wide.	Rates of feed	60 ft. and 90 ft. per min.
Diameter of saws	20"	Approximate floor space	7' 8" × 4' 0"
Maximum depth of cut.. .. .	7"	" gross weight	45 cwts.
Maximum width between saws	2' 0½"	" nett weight	40 cwts.
Speed of saw spindle	2,000 r.p.m.	" measurement	154 cu. ft.
Horse power	30		



'BURSGREEN' CHAIN FEED DOUBLE SAW BENCH (VP)





'BURSGREEN' CHAIN FEED DOUBLE SAW BENCH (VP)

This is a heavy duty machine designed specially for rapidly squaring circular logs.

CONSTRUCTION

TWO MEMBERS mounted on underside of table, incorporated with spindle housings, are adjustable simultaneously along the slides by conveniently placed handwheel, for adjusting distance between the two saws. This operation can be performed whilst the machine is running.

THE SAW SPINDLE, although provided with adjustment for saws, is extremely rigid, made of nickel steel, ground all over and mounted on six heavy section ball bearings. Adequate lubrication is provided for the sliding members of the spindle.

THE FEED MOTION is operated by endless chain on which three driving dogs are mounted at ten feet intervals as standard.

A FOUR SPEED GEAR BOX with steel gears running in oil and ball bearings throughout, is controlled by handwheel mounted at feed-in end of machine. Feed motion is operated through a friction clutch by foot pedal.

THE SAW GUARD, which is fully adjustable, is of heavy duty steel and fitted with adjustable spike bar arranged to trail along top of log being sawn, thereby preventing it being kicked back or lifted up by the saws. Riving knives are provided.

THE MOTOR is mounted on slide rails at rear of machine. Drive to saw spindle and gear box is by means of multiple vee ropes.

DETAILS INCLUDED IN THE PRICE

Motor and Starter. Saw Guard. Two heavy gauge Circular Saws, 40" diameter. Riving Knives. Set of Spanners. Tin of Lubricant.

CODE WORD "ZORWO" PRICE £

SPECIFICATION

Max. width of material admitted between vertical pillars	2' 0"	Overall length of tables	16' 8"
Max. and minimum width of cut between saws	12" and 3½"	Width of machine table	2' 4"
Maximum depth of cut	15"	Width of extension table	2' 1"
Maximum length of timber admitted (as standard)	10' 0"	Approximate floor space	18' 7" × 7' 6"
Maximum diameter of saws	40"	„ gross weight	92 cwts.
Speed of saw spindle	1,000 r.p.m.	„ nett weight	84 cwts.
Horse power	60	„ measurement	185 cu. ft.
Rates of feed	30, 50, 70 and 90 ft. per min.		



15" and 20" CIRCULAR SAW BENCHES (CB)



CONSTRUCTION

THE TABLE has a gap plate which provides easy access to the spindle for mounting saws, cutterblocks, etc. A groove which runs parallel with the saw can be used with a sliding fence for squaring and mitring.

THE FENCE is fitted with an adjustable front plate, cants up to 45° and has quick and fine screw adjustment across the table.

A SAFETY GUARD and riving knife combined, fully adjustable, are supplied.

A HOPPER is incorporated underneath the saw for collecting the saw dust and diverting it to an outlet which can be connected up to an existing exhaust system.

DETAILS INCLUDED IN THE PRICE

Motor and Starter. Combined Overtable Guard and Riving Knife. Fence. Set of Spanners. Tin of Lubricant.

CODE WORDS AND PRICES

No. 1. 15" Machine..	..	..	..	..	" ZILNY "	£
No. 2. 20" Machine..	..	..	..	..	" ZUBUM "	£
Extension Table—see page 9	..	..	..	..	" ZODFA "	£
Mitring Fence	..	..	..	..	" ZIOL "	£

SPECIFICATION	No. 1	No. 2
Maximum size of saw	15"	20"
Maximum depth of cut	4"	6½"
Size of table	3' 0" × 2' 3"	3' 0" × 2' 3"
Maximum width between saw and fence ..	19"	19"
Rise and fall of spindle	2½"	2½"
Horse power	3	5
Speed of motor	3,000 r.p.m. syn.	3,000 r.p.m. syn.
Speed of saw spindle	2,540 r.p.m.	1,920 r.p.m.
Approximate floor space	3' 0" × 2' 3"	3' 0" × 2' 3"
" gross weight	9½ cwts.	10 cwts.
" nett weight	8½ cwts.	9 cwts.
" measurement	44 cu. ft.	50 cu. ft.



20" CIRCULAR SAW BENCH (HQ)

CONSTRUCTION

THE TABLE which rises and falls by means of handwheel and screw is provided with a gap plate, and a groove for a sliding fence. THE FENCE is fitted with an adjustable front plate to suit various sizes of saws. It will cant up to 45° for bevel cutting, turn over the end of the table for cross-cutting, and has quick adjustment by hand and fine adjustment by screw across the table. A HOPPER is supplied underneath the saw for collecting sawdust and diverting it to an outlet which can be connected to an exhaust unit or existing exhaust system. AN EXTENSION TABLE for cross-cutting long lengths can be supplied. A suitable fence is supplied fitted with a turnover stop and gauge rule 6-ft. long.

DETAILS INCLUDED IN THE PRICE

Motor and Starter. Canting Turnover Fence. Hopper. Combined Overtable Guard and Riving Knife. Set of Spanners. Tin of Lubricant.

CODE WORDS AND PRICES

Standard Machine .. .. .	..	..	..	..	..	" ZAPOF "	£
Extension Table—see page 9 .. .. .	..	..	..	..	..	" ZIFEC "	£
Mitring Slide .. .. .	..	..	..	..	..	" ZEGWA "	£

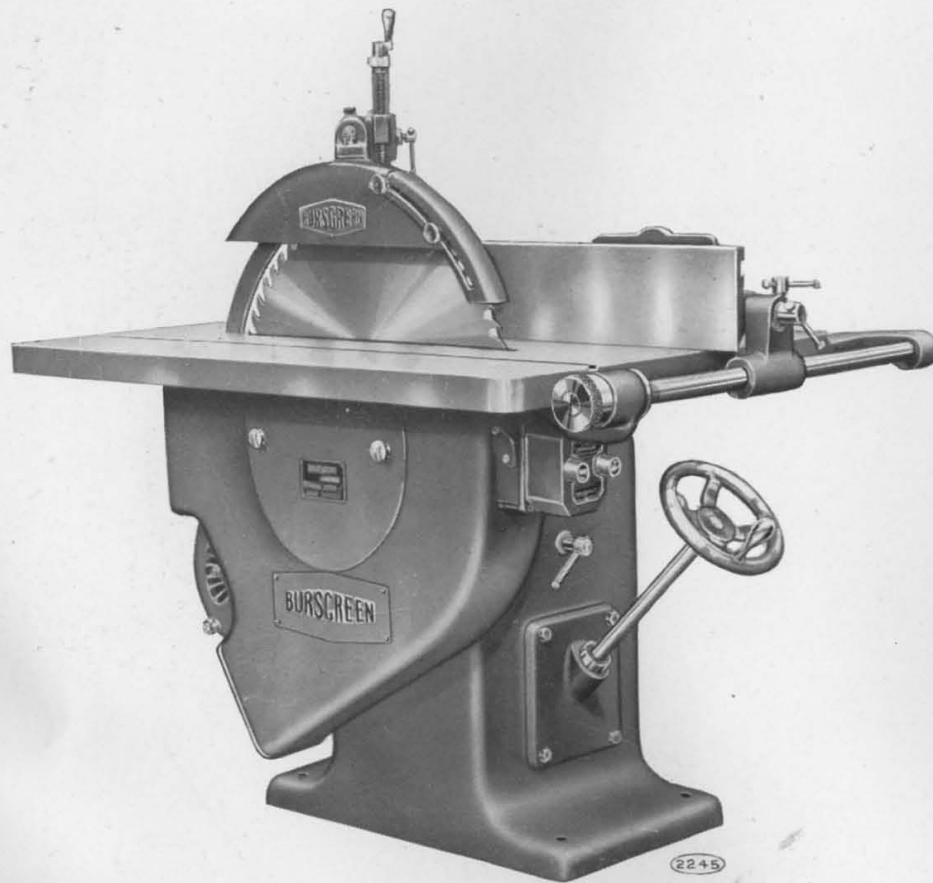
SPECIFICATION

Maximum size of saw .. .. .	..	..	..	..	..	20"
Maximum depth of cut .. .. .	..	..	..	..	..	6½"
Maximum width between saw and fence .. .. .	..	..	..	..	..	18"
Size of table .. .. .	..	..	..	..	..	3' 0" × 2' 0½"
Rise and fall of table .. .. .	..	..	..	..	..	3¾"
Horse power .. .. .	..	..	..	..	..	5
Speed of motor .. .. .	..	..	..	..	..	1,500 r.p.m. syn.
Speed of saw spindle .. .. .	..	..	..	..	..	2,400 r.p.m.
Approximate floor space .. .. .	..	..	..	..	..	4' 0" × 2' 9"
.. gross weight .. .. .	..	..	..	..	..	12½ cwts.
.. nett weight .. .. .	..	..	..	..	..	10½ cwts.
.. measurement .. .. .	..	..	..	..	..	47½ cu. ft.





'BURSGREEN' 24" CIRCULAR SAW BENCH (LY)



CONSTRUCTION

THE TABLE is extremely rigid and is provided with rise and fall motion operated by a conveniently placed handwheel at front of machine. It is grooved to take a mitring slide, a gap plate being provided for easy access to spindle end for changing saws and also when using a cutterblock or other fitting, in place of saw. THE FENCE is fitted with an adjustable front plate, will cant to 45° for bevel cutting, and turn over table end for cross-cutting. It has quick adjustment by hand, and fine adjustment by screw across table.

A HOPPER is supplied underneath the saw for collecting sawdust and diverting it to an outlet which can be connected up to an exhaust unit or to an existing exhaust system.

DETAILS INCLUDED IN THE PRICE

Motor and Starter. Canting Turnover Fence. Hopper. Saw Guard. Set of Spanners. Tin of Lubricant.

CODE WORDS AND PRICES

Standard Machine	"ZOOJN" £
Extension Table—see page 9	"ZOOXD" £
Mitring Slide	"ZOONS" £

SPECIFICATION

Maximum size of saw	24"
Maximum depth of cut	8"
Maximum width between saw and fence	18"
Size of table	3' 8" long × 2' 6" wide.
Rise and fall of table	8"
Height from floor to table in lowest position	32"
Horse power	7½
Speed of saw spindle	1,740 r.p.m.
Approximate floor space	4' 7" × 3' 2"
" gross weight	15 cwts.
" nett weight	12¾ cwts.
" measurement	54 cu. ft.



EXTENSION TABLE FOR CIRCULAR SAWING MACHINES (CB, HQ, and LY)

AN EXTENSION TABLE mounted on ball bearing runners can be added to the table for cross-cutting long lengths. The outer end of the extension table slides along an outer stand support fixed to the floor. A suitable fence is supplied fitted with a turnover stop and gauge rule. This table can be quickly detached from the machine when not required.

CODE WORDS AND PRICES

Extension Table for CB	..	..	..	" ZODFA "	£
" " HQ	..	..	..	" ZIFEC "	£
" " LY	..	..	..	" ZOOXD "	£

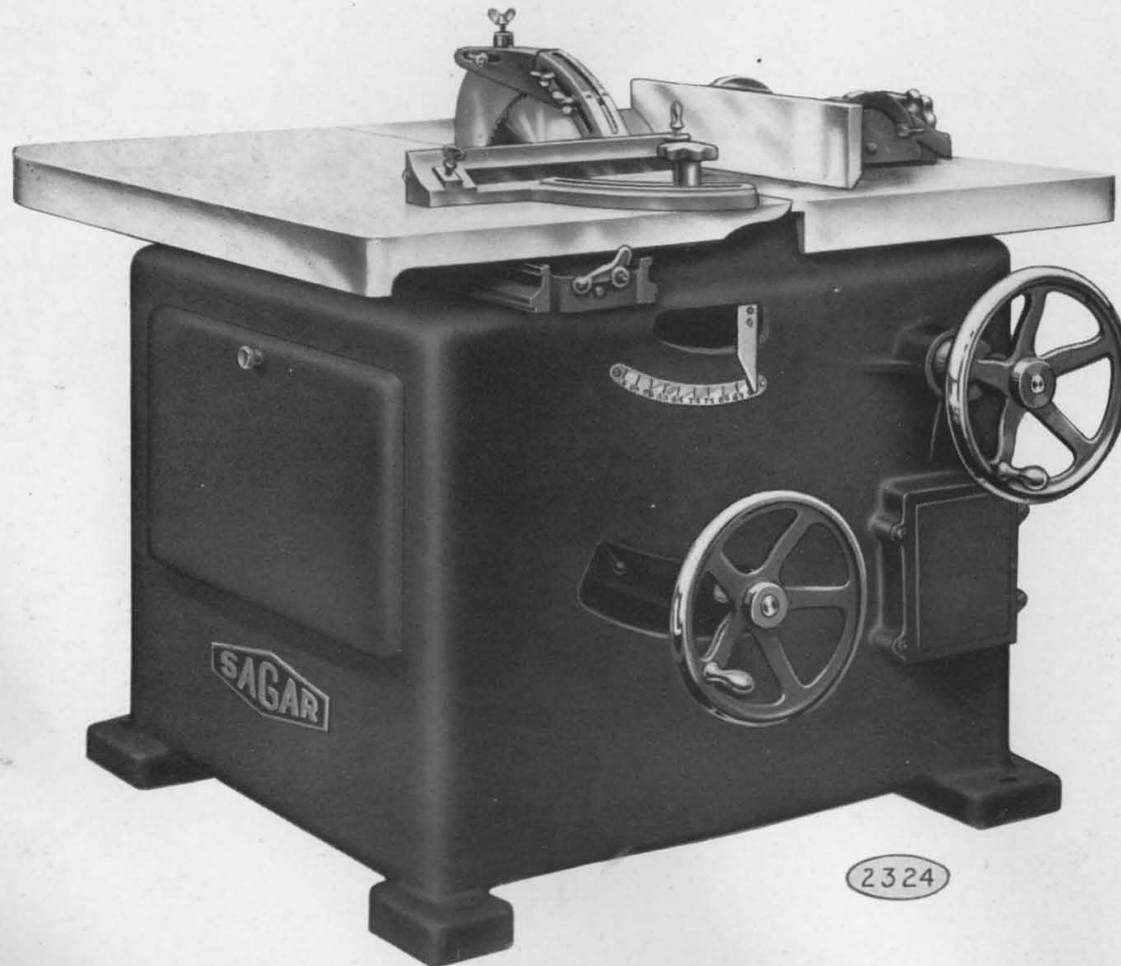
SPECIFICATION

Maximum width of material will take (CB)	..	..	..	..	22"
Maximum width of material will take (HQ)	..	..	..	..	20"
Maximum width of material will take (LY)	..	..	..	..	20"
Maximum length with turnover stop	..	..	..	..	6' 0"
Approximate gross weight	..	..	..	..	2 cwts.
" nett weight	..	..	..	..	1 3/4 cwts.
" measurement	..	..	..	..	17 cu. ft.





18" CANTING SPINDLE DIMENSION SAWING MACHINE (AFN9)



DETAILS INCLUDED IN THE PRICE

Angle Fence complete with Adjustable Gauge. Plain Cross-cutting Fence. Two Swivelling Angle Fences. Ripping Fence. Combined Saw Guard and Riving Knife. Set of Spanners. Tin of Lubricant.

CODE WORDS AND PRICES

Standard Machine	" ZEEBS "	£
Extension Table	" ZEECT "	£
Cutterblock 5½" square by 2" wide, with two bolts	" ZEDYO "	£

SPECIFICATION

Machine will cross-cut 1" deep up to a width of	3' 0"
Machine with 18" saw will cut	4½" deep.
Size of sliding table	3' 8" long × 1' 7¼" wide.
Size of fixed table	3' 8" long × 2' 8½" wide.
Spindle will cant to	45°
Maximum distance from saw to ripping fence	2' 1"
Horse power	5
Speed of motor	3,000 r.p.m. syn.
Speed of saw spindle	2,880 r.p.m.
Approximate floor space	4' 6" × 3' 8"
„ gross weight	22 cwts.
„ nett weight	19½ cwts.
„ measurement	74 cu. ft.



18" CANTING SPINDLE DIMENSION SAWING MACHINE (AFN9)

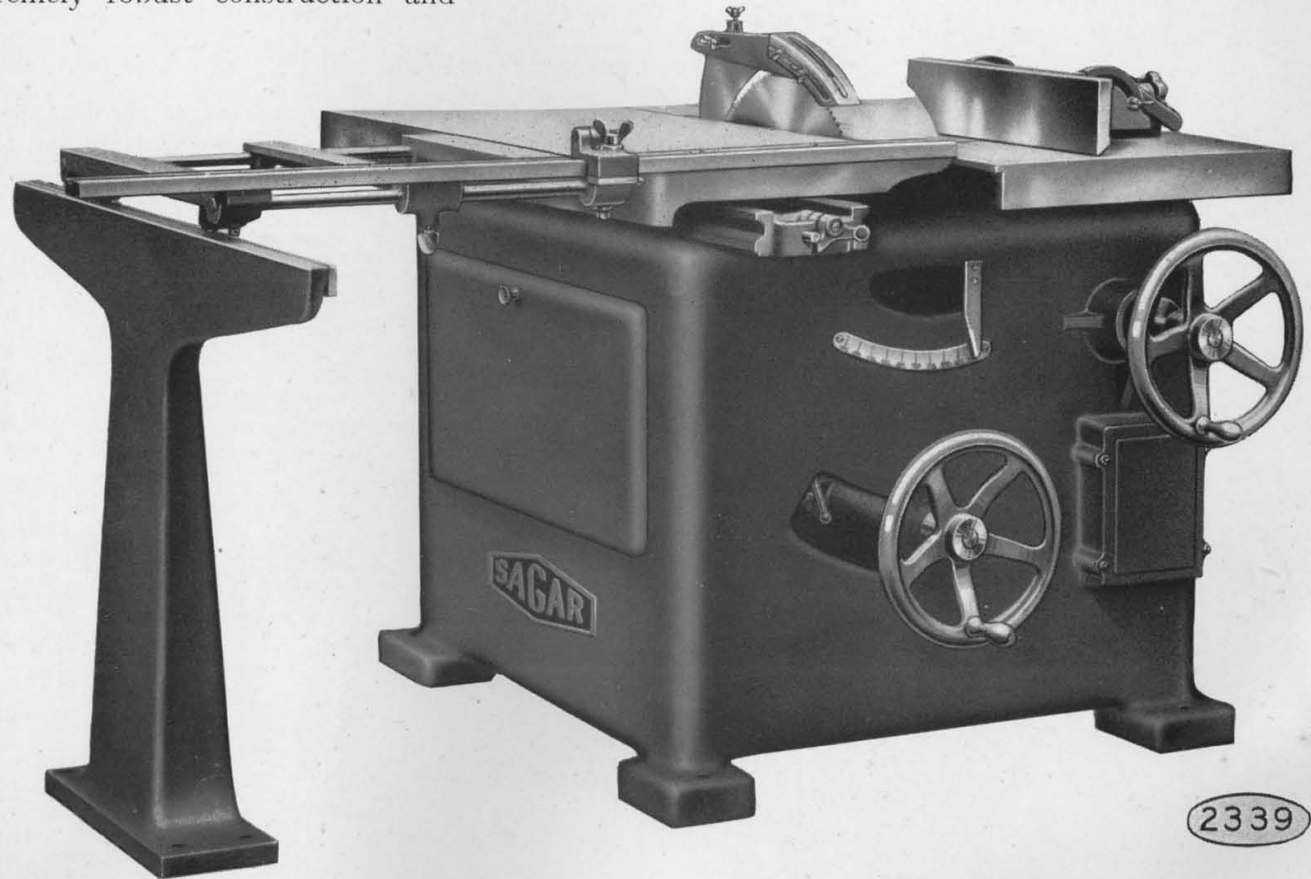
CONSTRUCTION

THE MAIN FRAME is of extremely robust construction and has a large base area.

THE SAW SPINDLE is of high quality steel, has canting motion up to 45°, and rise and fall motion in vee slides by means of hand-wheel and screw.

FENCES. The ripping fence is quickly adjustable across the fixed table for varying widths of material and will cant to 45° for bevel cutting. The angle fence is mounted on the sliding table and can be adjusted for varying types of work, the table being suitably calibrated. Three other fences are supplied with the machine, a plain cross-cutting fence and two swivelling angle fences. All fences are instantly detachable when not in use.

AN EXTENSION TABLE for cross-cutting long lengths can be fitted to the front sliding table. It is mounted on precision ball bearing runners and can be instantly locked in the normal position when not required for cross-cutting.



Showing Machine with Extension Table



26", 32" and 38" CIRCULAR SAW BENCHES (BQ and BT)

CONSTRUCTION

THE MAIN FRAME is a rigid one-piece cored casting.

THE SAW is mounted on a spindle of high quality steel, which revolves in ball bearings.

THE TABLE, which is fitted with a removable gap plate, is extremely rigid in construction and is supported on the heavy main frame. In the case of the (BQ) type machine, rise and fall motion is operated by a conveniently placed hand-wheel through screws and bevel gears, the latter being provided with hoods giving adequate protection against dust.

THE FENCE has a specially deep front plate which is adjustable, can be canted up to 45° for bevel cutting, and will turn over the end leaving the table clear for cross-cutting.

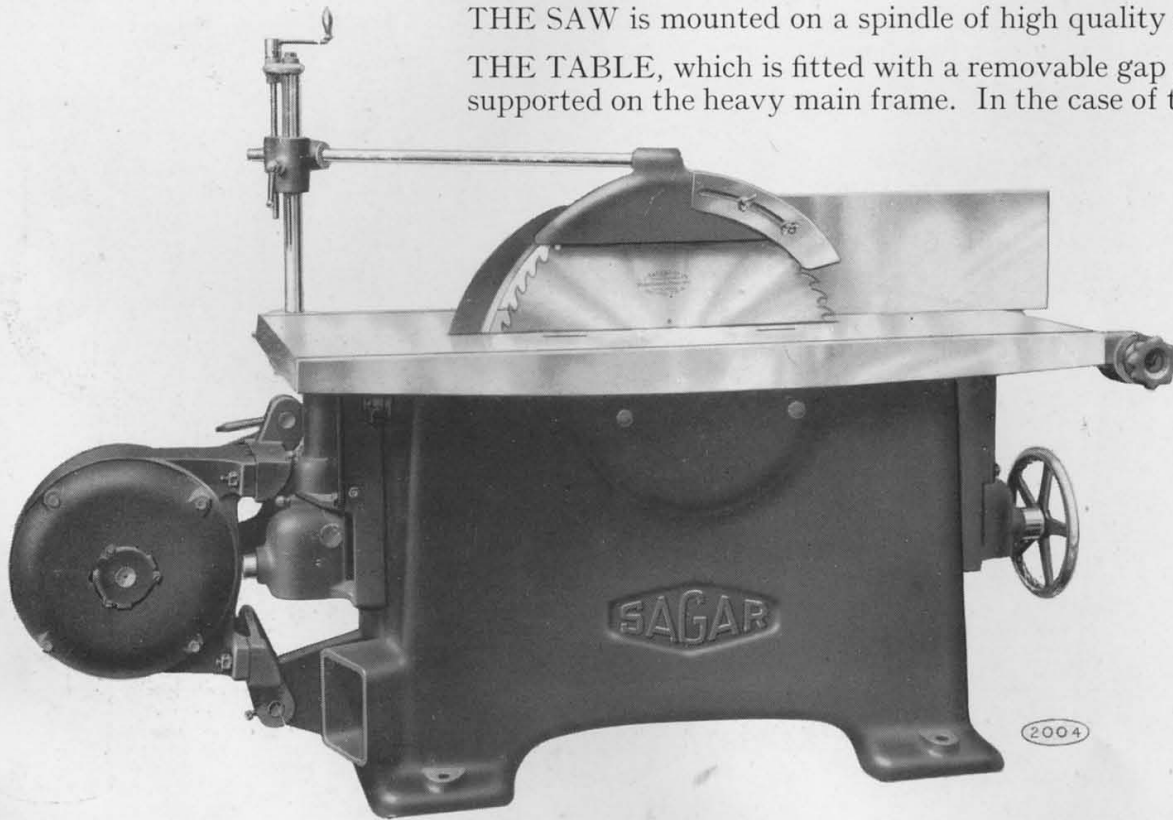
A GRADUATED SCALE and stop indicates immediately the distance between the saw and the fence.

THE SAW GUARD is readily adjustable to the size of saw being used.

THE RIVING KNIFE is also adjustable to the diameter of saw being used.

BELT DRIVE. Fast and loose pulleys are supplied.

A CROSS-CUTTING TABLE may be supplied as an extra if required.



Showing Front View of Machine (BQ) with Rise and Fall Table



26", 32" and 38" CIRCULAR SAW BENCHES (BQ and BT)

PRINCIPAL FEATURES

Body is a solid casting, and not built up.

Saw Spindle revolves in a compartment which is cast solid with the body. Compartment in which saw revolves acts as a hopper with an exhaust opening, which can be connected to any existing exhaust system.

Plate fitted on side of body to facilitate fixing cutterblocks, etc.

Graduated Scale indicates distance between saw and fence.

All Machines designed to carry boring bits.

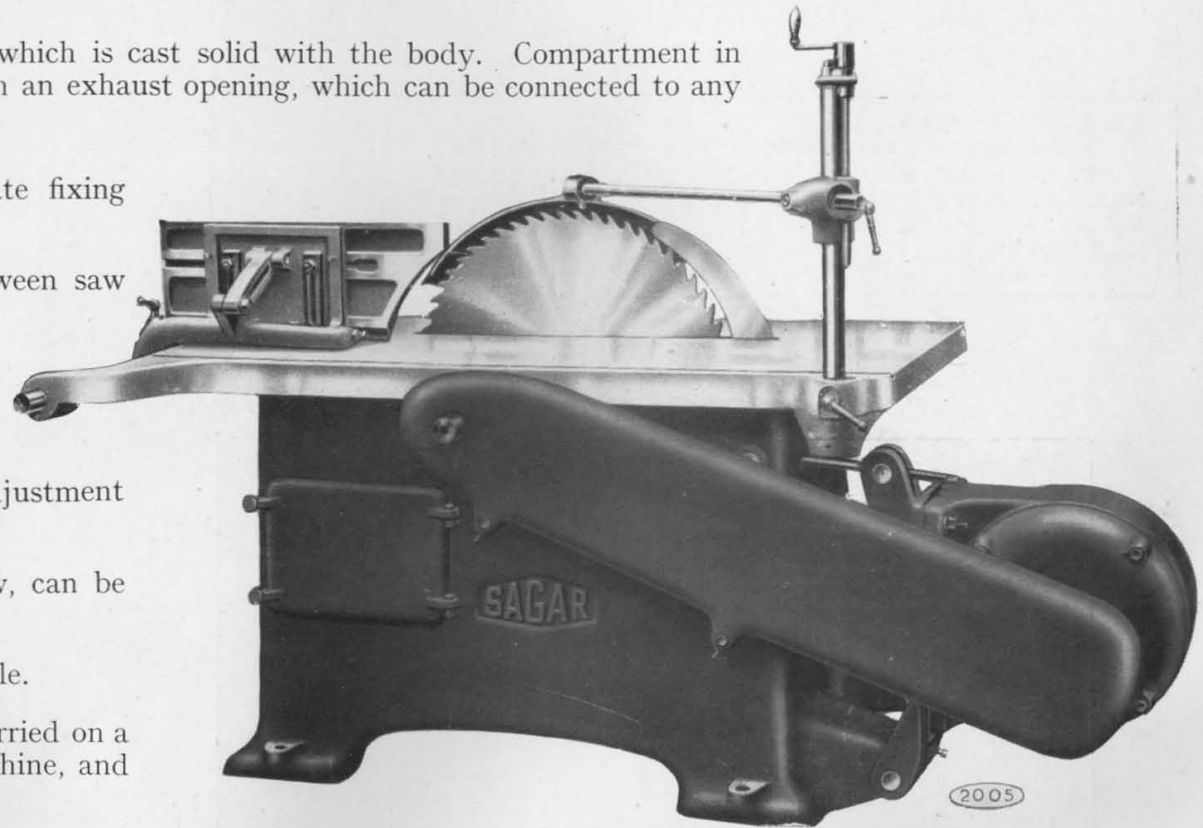
Fence can be turned over the end of the table for cross-cutting, has fine adjustment and cants to 45°.

Saw Guard raised and lowered by screw, can be swung clear of saw.

Adjustable Riving Knife is fixed under table.

Belt Driven Machine has outer bearing carried on a bracket which is both bolted to the machine, and to the floor.

Loose-Pulley is ball bearing mounted.



Showing Rear View of Machine (BT) with Fixed Table



26", 32" and 38" CIRCULAR SAW BENCHES (BQ and BT)

CODE WORDS AND PRICES

Plain Saw Bench (BT) and Rising Table Saw Bench (BQ)

	BT		BQ	
	Code Word	Price	Code Word	Price
No. 1. 26" Electrically driven	" ZIJYL "		" ZIKMY "	
No. 1. 26" Belt driven	" ZIKHE "		" ZILAH "	
No. 2. 32" Electrically driven	" ZIKAJ "		" ZIKOK "	
No. 2. 32" Belt driven	" ZIKIJ "		" ZILHA "	
No. 3. 38" Electrically driven	" ZIKGA "		" ZIKUL "	
No. 3. 38" Belt driven	" ZIKKO "		" ZILIK "	

**DETAILS INCLUDED
IN THE PRICE**

**Motor and Starter.
Adjustable Fence.
Guard.
Set of Spanners.
Tin of Lubricant.**

Cross-cutting table for any of the above machines " WYCAC "

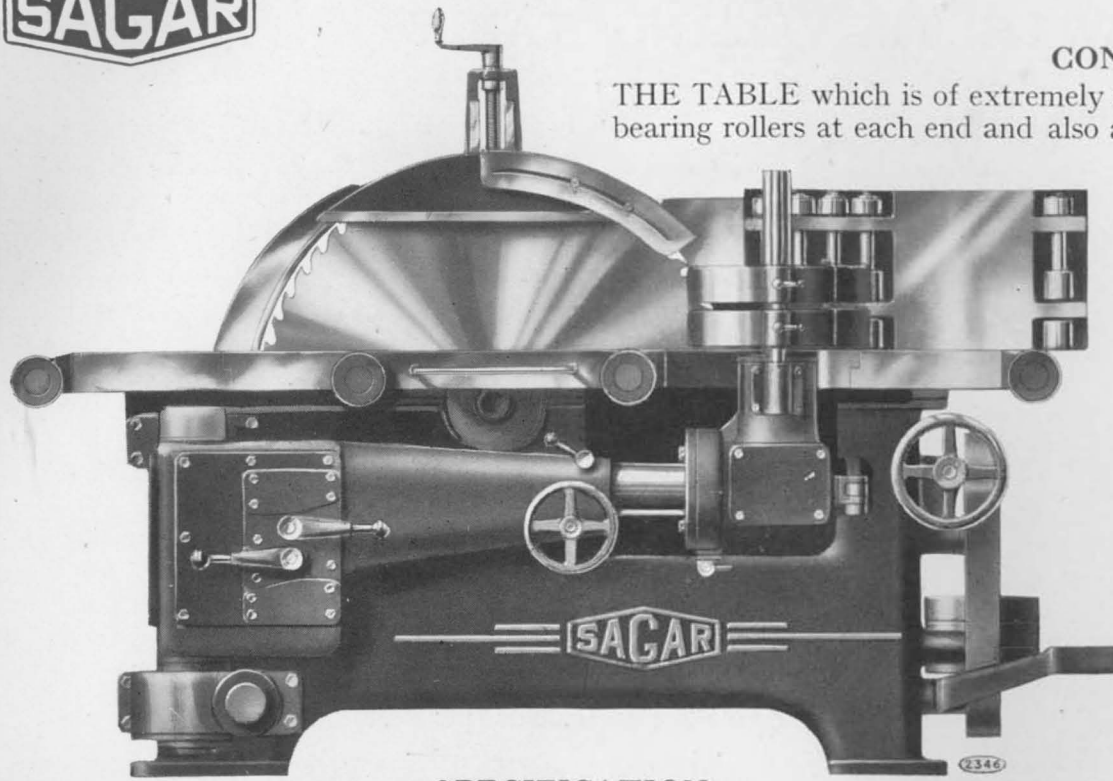
SPECIFICATION

	Rise and fall table—BQ		
	No. 1	No. 2	No. 3
Size of table	5' 2" × 2' 8½"	5' 2" × 2' 8½"	5' 8" × 2' 8½"
Largest saw will take	26"	32"	38"
Depth of cut	9"	12"	15"
Max. distance from saw to fence	18"	18"	18"
Max. rise and fall of table	6"	6"	6"
Speed of saw spindle r.p.m.	1550	1300	1000
Horse power required to drive	10	12	15
Speed of motor-syn. r.p.m.	1500	1500	1500
Approximate floor space	7' 4" × 4' 0"	7' 4" × 4' 0"	7' 6½" × 4' 3½"
Approximate gross weight			
Elec. driven machine	28 cwts.	29 cwts.	29½ cwts.
Belt " "	27½ cwts.	28½ cwts.	29 cwts.
Approximate nett weight			
Elec. driven machine	23½ cwts.	24½ cwts.	25 cwts.
Belt " "	23 cwts.	23½ cwts.	24½ cwts.
Approximate measurement			
Elec. and belt	110 cu. ft.	113 cu. ft.	127 cu. ft.

	Fixed Table—BT		
	No. 1	No. 2	No. 3
Size of table	5' 2" × 2' 8½"	5' 2" × 2' 8½"	5' 8" × 2' 8½"
Largest saw will take	26"	32"	38"
Depth of cut	9"	12"	15"
Max. distance from saw to fence	18"	18"	18"
Speed of saw spindle r.p.m.	1550	1300	1000
Horse power required to drive	10	12	15
Speed of motor-syn. r.p.m.	1500	1500	1500
Approximate floor space	7' 4" × 4' 0"	7' 4" × 4' 0"	7' 6½" × 4' 3½"
Approximate gross weight			
Elec. driven machine	25 cwts.	26 cwts.	26½ cwts.
Belt " "	24½ cwts.	25½ cwts.	26 cwts.
Approximate nett weight			
Elec. driven machine	20½ cwts.	21½ cwts.	21¾ cwts.
Belt " "	20 cwts.	21 cwts.	21¼ cwts.
Approximate measurement			
Elec. and belt	110 cu. ft.	113 cu. ft.	127 cu. ft.



36" ROLLER FEED SAW BENCH (OA)



CONSTRUCTION

THE TABLE which is of extremely rigid construction, is fitted with anti-friction ball bearing rollers at each end and also at the front for ease in handling large stock. A graduated scale is provided for setting the fence. The front part of the table has draw-out motion to facilitate changing the saw. THE FEED ROLLERS are mounted on a radial arm and have horizontal adjustment to suit size of saw being used. In addition, they will cant to 30° and can be inverted leaving the table clear for use as a plain saw bench.

A GEAR BOX provides nine feed speeds. All revolving shafts are mounted on ball bearings and the steel gears run continuously in oil.

THE FENCE has handwheel adjustment across the table and will cant up to 30° for bevel sawing. The front plate, fitted with anti-friction rollers, will adjust horizontally for different sizes of saws.

THE SAW GUARD and riving knife are fully adjustable to suit varying diameters of saws.

THE MOTOR is mounted on slide rails at rear of machine, drive to saw spindle being by multiple vee ropes and grooved pulleys.

DETAILS INCLUDED IN THE PRICE
Motor and Starter. Saw Guard. Riving Knife. Set of Spanners. Tin of Lubricant.

SPECIFICATION

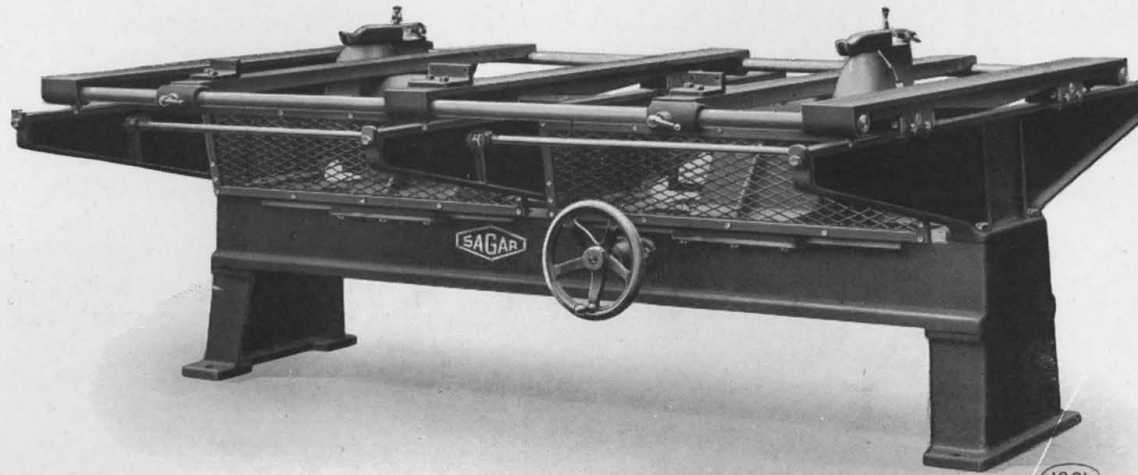
Diameter of saw	36"
Maximum depth of cut	13"
Size of table	5' 10½" × 3' 0"
Horse power	30
Speed of motor	1,500 r.p.m. syn.
Nine feed speeds from	25 to 150 ft. per min.
Maximum distance from saw to feed rollers	12"
Maximum distance from saw to fence	12"
Approximate floor space	9' 0" × 5' 0"
" gross weight	50 cwts.
" nett weight	45 cwts.
" measurement	150 cu. ft.

CODE WORDS AND PRICES

Electrically Driven Machine "ZOMNA" £
Belt Driven Machine "ZOTOZ" £



DOUBLE-ENDED CROSS-CUTTING MACHINE (LN9) WITH TRAVELLING TABLE



1891

CONSTRUCTION

THE TABLE slides on ball bearings which ride on accurately machined rails.

THE CROSS RAILS carrying the fences are adjustable along the table for different lengths of timber, and are locked in position by handscrews.

THE HEADSTOCKS are fully ball bearing and have sliding adjustment along the bed by means of large handwheel and screws.

UNDERTABLE GUARDS as illustrated are supplied with the machine.

DETAILS INCLUDED IN THE PRICE

Undertable Guards. Riving Knives. Fences. Set of Spanners. Tin of Lubricant.

CODE WORDS AND PRICES

Machine with Integral Electric Drives "ZAHET" £
Overtable Safety Guards (per pair) "ZAGRA" £

SPECIFICATION

Maximum diameter of saws	18"
Minimum cut between saws	6"
Maximum cut between saws	7' 0"
Maximum depth of cut	3¼" up to 32" wide.
Width will cut	36" up to 1" thick.
Horse power of each motor	4
Speed of saw spindles	2,880 r.p.m.
Approximate floor space	8' 0" × 7' 8"
„ gross weight	14½ cwts.
„ nett weight.. .. .	12 cwts.
„ measurement	59 cu. ft.



24" and 30" SUSPENDED CROSS-CUTTING MACHINES (QN9)

CONSTRUCTION

AN AUTOMATIC COUNTERBALANCE arrangement is provided to return the swinging frame, to which it is fitted, in such a manner that the action gradually decreases as the frame is brought forward in cutting, being almost nil at the limit of the movement and at its maximum, when the frame is at the back position.

A SAFETY GUARD arranged to carry suitable packings on each side of the saw, is provided. THE WORK TABLE is usually made of wood (by the purchaser), to suit special requirements, and we can furnish drawings for same if required. They can be made wholly in wood, or we can supply various component parts to assist in building up these tables.

CODE WORDS AND PRICES

No. 1 Machine suitable for saws up to 24" dia. . . . .	..	..	..	..	..	" YUVOL "	£
No. 2 " " " " 30" dia. . . . .	..	..	..	..	..	" ZAYKA "	£
All Metal Table 8' 6" long each side of saw, mounted on Four Cast Iron Legs, and with Five Ball Bearing Rollers on each side of saw, complete with Automatic Graduated Cutting-off Gauge, with Two Adjustable Spring Stops . .	..	..	..	..	..	" ZINAK "	£
Four Cast Iron Legs only . . . . .	..	..	..	..	..	" ZELAC "	£
Two Strips of Steel 8' 6" long with Two Turnover Stops only, to build a wooden fence . . . . .	..	..	..	..	..	" ZELCA "	£
Automatic Graduated Cutting-off Gauge 8' 6" long, including Two Adjustable Spring Stops . . . . .	..	..	..	..	..	" ZELED "	£
Extra Adjustable Spring Stops . . . . .	..	..	..	..	each	" ZELDE "	£

SPECIFICATION

	No. 1	No. 2		No. 1	No. 2
Maximum size of saw . .	24"	30"	Will cut timber	18" wide when	20" wide when
Distance from spindle to top of suspended bracket	6' 3"	7' 9"		5" deep or	7" deep or
Speed of saw spindle . .	1,440 r.p.m.	1,440 r.p.m.		20" wide when	24" wide when
Approx. gross weight . .	8½ cwts.	9¾ cwts.		4" deep.	4" deep.
.. nett weight . .	6¼ cwts.	7½ cwts.	Horse power . .	6	7
			Approx. measurement	23 cu. ft.	37½ cu. ft.





'BURSGREEN' 14" and 16" SNIPPER CROSS-CUT SAWS (HS)



CONSTRUCTION

THE MACHINE can be supplied either as a straight cross-cutting machine or as a combined straight-cutting and swivelling saw machine for angle cutting.

THE TABLE carries the saw arm and motor which are counter-balanced by adjustable springs. The No. 2 machine is provided with a table 16" diameter which swivels in either direction to an angle of 45°.

THE TABLE of the angular cutting machine may be readily brought into the desired position by means of two quick-acting hand-screws. The saw arm, motor, and table pivot together, leaving the fences in their original position.

THE TABLES of both machines are designed for the addition of a wooden or metal supplementary table if required.

THE FOOT OPERATION for the movement of the saw can be quickly set for the required length of stroke.

FENCES are fitted which are adjustable laterally and horizontally.

THE SAW GUARD which is a fixture and always moves with the saw, is fitted with hinged members which completely protect the operator from the parts of the saw not covered by the fixed semi-circular guard.



'BURSGREEN' 14" and 16" SNIPPER CROSS-CUT SAWS (HS)

DETAILS INCLUDED IN THE PRICE

Motor and Starter. Guards. Fences. Set of Spanners. Tin of Lubricant.

CODE WORDS AND PRICES

No. 1 Machine for Straight Cutting only "ZISPA" £

No. 2 Machine for Straight Cutting and with Swivelling Table and Saw
for Angular Cutting "ZISSO" £

Extension Table Supports for Table 8' 6" long each side, Fences and Two
Turnover Stops. (Customer provides wood table tops). "ZEBIF" £

Extension Table as before, but including metal table tops, with Six Ball
Bearing Rollers each side "ZINAK" £

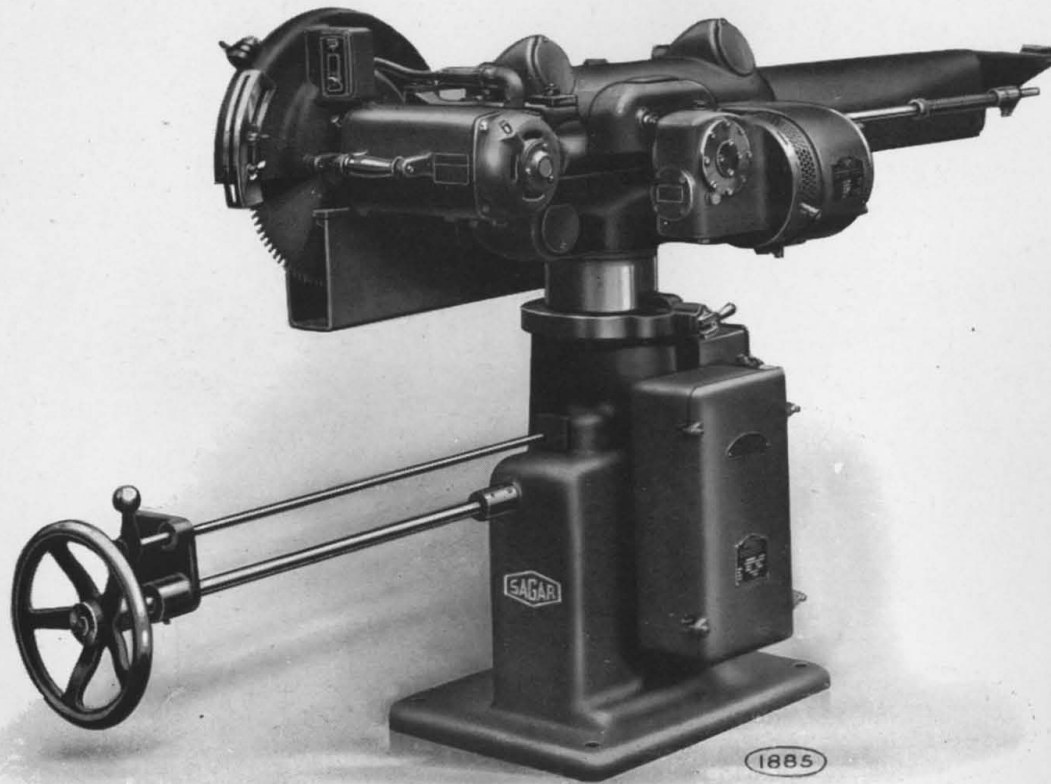


Showing
Swivelling
Head
Machine

SPECIFICATION	No. 1	No. 2
Maximum size of saw	16"	14"
Maximum cuts	14" wide × 1" deep. 12" wide × 2" deep. 11" wide × 3" deep. 9" wide × 4" deep.	12" wide × 1" deep. 10" wide × 2" deep. 8" wide × 3" deep. 5" wide × 4" deep.
Saw will swivel to	—	45°
Horse power	3	3
Speed of motor	3,000 r.p.m. syn.	3,000 r.p.m. syn.
Approximate floor space	4' 3" × 2' 7"	4' 3" × 4' 6"
" gross weight	8½ cwts.	8¾ cwts.
" nett weight	6½ cwts.	7 cwts.
" measurement	50 cu. ft.	50 cu. ft.



CROSS-CUTTING AND TRENCHING MACHINE (AFP9)



Showing No. 2 Machine with Rising, Falling and Swivelling Head and Automatic Feed for angle cross-cutting, cross-grooving, trenching, etc.

DETAILS INCLUDED IN THE PRICE

Motor and Starter. Guard. Hopper. Set of Spanners.
Tin of Lubricant.

The machine can be supplied made in three ways :—

- No. 1 with Fixed Head for cross-cutting only.
- No. 2 with Rising, Falling and Swivelling Head for square and angle cross-cutting and trenching.
- No. 3 with Rising, Falling, Swivelling and Canting Head for square, angle and compound cross-cutting and trenching.

CONSTRUCTION

THE TRAVELLING RAM is a one piece aluminium casting and although of rigid construction it is extremely light. Two ground steel runways are inserted, one at the top and the other at the bottom, which not only assist in the ease of operation of the ram, but also ensure absolutely silent movement. The ram moves on four ball bearing runners which are adjustable for wear.

A COIL SPRING assists in the return stroke of the ram, and at the end of the return stroke a pneumatic buffer is fitted to absorb any shock.

THE RISING, FALLING AND SWIVELLING HEAD MACHINE has rise and fall motion operated from the front of the machine by a conveniently placed handwheel. It can be swivelled in either direction to an angle of 45° for angle cross-cutting, cross-grooving, trenching, etc.

THE RISING, FALLING, SWIVELLING AND CANTING HEAD MACHINE has the various movements as previously described, but in addition, the head is made to cant in one direction to an angle of 45°.



CROSS-CUTTING AND TRENCHING MACHINE (AFP9)

CODE WORDS AND PRICES

No. 1 Machine with Fixed Head .. "ZEKOF" £

No. 2 Machine with Rising, Falling and Swivelling Head .. "ZEKUG" £

All metal table, 8' 6" long each side of saw, mounted on four cast iron legs, and with five ball bearing rollers on each side of saw, complete with automatic graduated cutting-off gauge, with two adjustable spring stops .. "ZINAK" £

The worktables for these machines are usually made of wood (by the purchaser), to suit special requirements. They can be made wholly in wood, or we can supply various component parts to assist in building up these tables, as follows:—

Four cast iron legs only .. "ZELAC" £
 Two strips of steel 8' 6" long with two turnover stops only, to build a wooden fence .. "ZELCA" £
 Automatic graduated cutting-off gauge, 8' 6" long including two adjustable spring stops .. "ZELED" £
 Extra adjustable spring stops .. each "ZELDE" £

No. 3 Machine with Rising, Falling, Swivelling and Canting Head .. "ZEKYH" £
 Automatic Saw Feed Motion for Nos. 1, 2 or 3 Machines .. "ZELJY" £

SPECIFICATION	No. 1	No. 2	No. 3
Maximum diameter of saw ..	18"	18"	18"
" thickness of cut ..	5" thick when up to 22" wide.		
" width of cut ..	22" x 5" thick.	27" wide x 2" thick.	
" straight groove in material 20" wide	—	3" wide x 1 3/4" deep.	
" angle groove in material 20" wide	—	3" wide x 1 3/4" deep.	
" rise and fall of saw	—	9 1/2"	9 1/2"
Horse power ..	5	5	5
Speed of motor .. syn.	3,000 r.p.m.	3,000 r.p.m.	3,000 r.p.m.
Approx. gross weight cwts.	11 1/2	12 1/4	12 1/2
" nett weight cwts.	8 1/2	9 1/2	9 3/4
" measurement cu. ft.	67	64	64
" gross weight with auto. feed .. cwts.	15	16	16 1/4
" nett weight with auto. feed .. cwts.	12	13	13 1/4
" measurement with auto. feed cu. ft.	84	81	81



1879



30" and 36" BAND-SAWING MACHINES (NEA)

CONSTRUCTION

THE TABLE is mounted on a quadrant for canting. An extension table, recessed to form a tool tray, is also provided to support the timber between the table and the column.

THE SAW PULLEYS are ground all over, balanced, and faced with rubber vulcanised to the rims. The upper saw pulley can be canted by means of a single handle to track the position of the saw, and both pulleys are detachable and interchangeable.

THE TENSIONING of the saw is automatically regulated by means of a spring compensating gear.

THE SAW GUIDE consists of an adjustable hardened ball-bearing disc. Adjustable steel guards are provided above, below and in front of guide wheel, the whole assembly being counterbalanced.

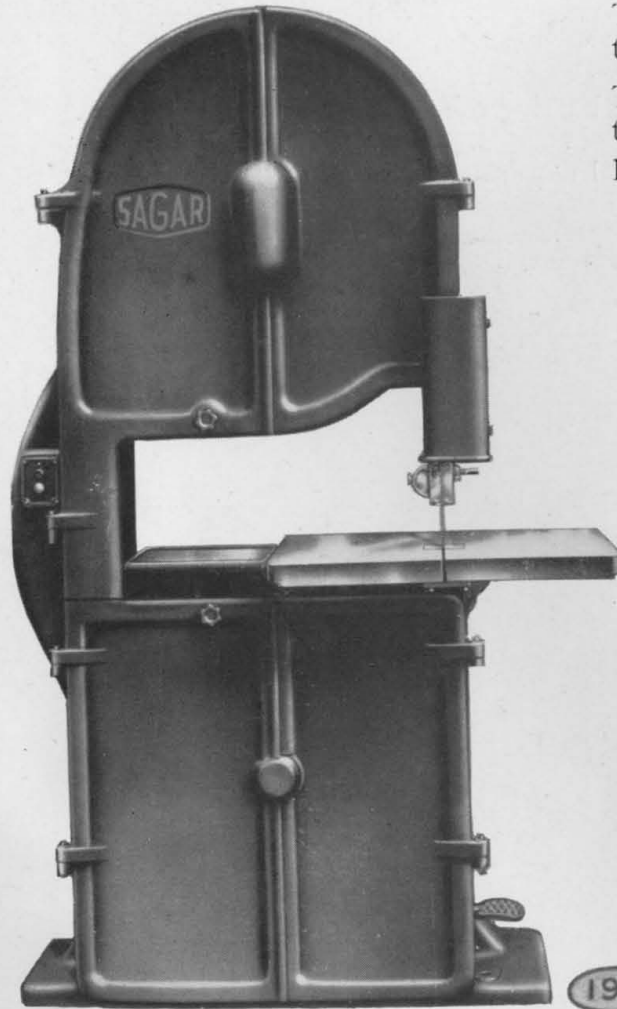
A CLEANING BRUSH is fitted in order to keep the lower saw pulley free from dust or chips.

A CHUTE is provided for removing the sawdust.

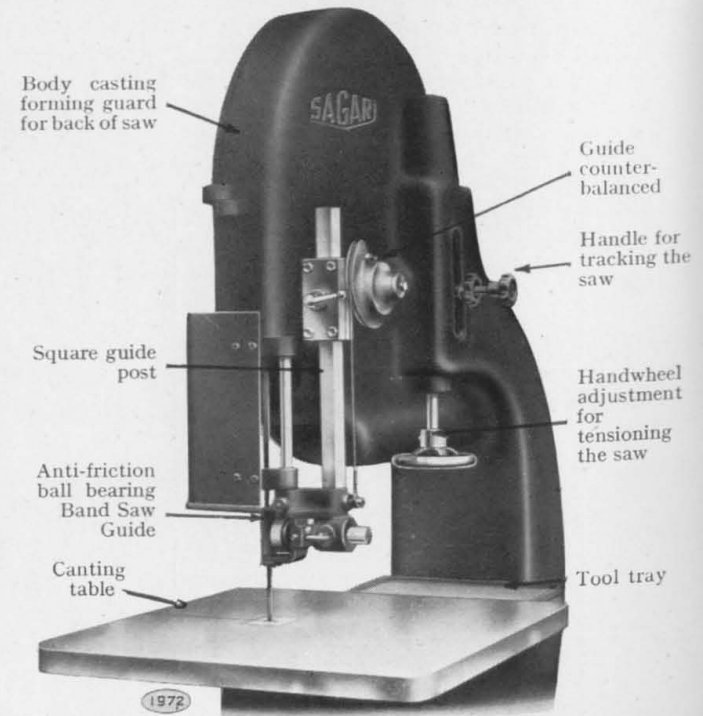
A MECHANICAL BRAKE is foot operated and has synchronous operation on both saw pulleys.

IF SPECIAL SPEEDS are required for metal cutting, etc., the machine can be offered driven by multiple vee ropes running in grooved pulleys.

BELT DRIVE. Fast and loose pulleys with belt shifting gear and countershaft are supplied.



1969



A Few of the Principal Features



30" and 36" BAND-SAWING MACHINES (NEA)

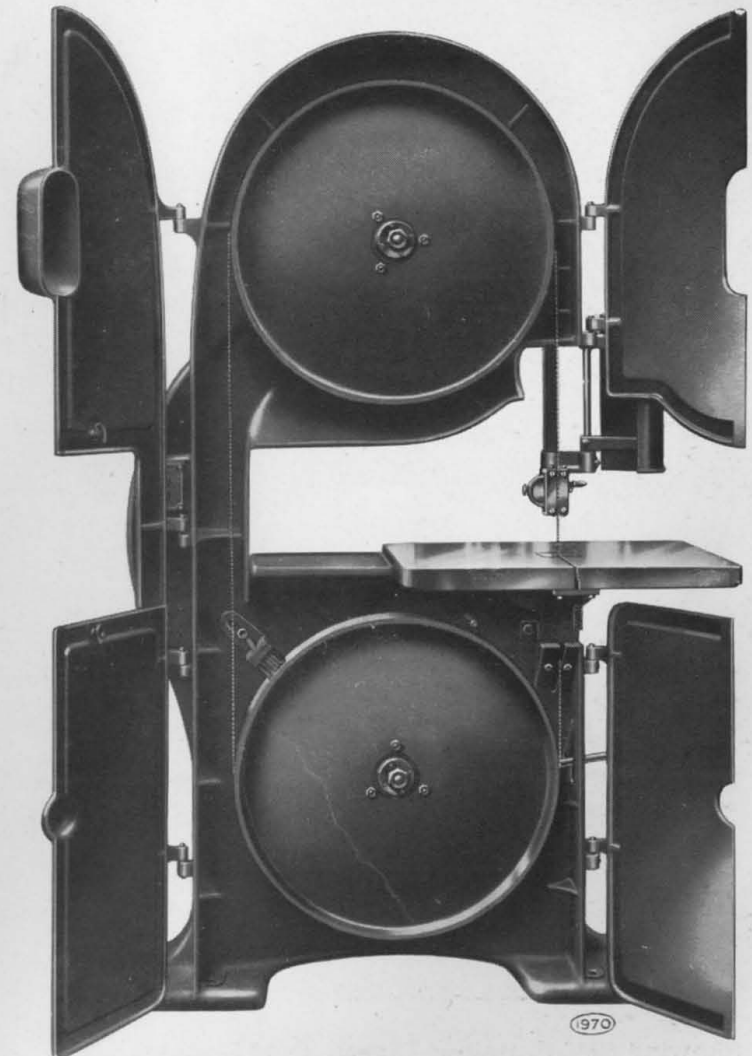
DETAILS INCLUDED IN THE PRICE

Motor and Starter. Mechanical Foot Brake.
Set of Spanners. Tin of Lubricant.

CODE WORDS AND PRICES

No. 2. 30" Electrically driven machine (NEA9)	" ZABIP "	↳
No. 2. 30" Electrically driven vee-rope machine (NEA) ..	" ZEKCE "	↳
No. 2. 30" Belt driven machine (NEA)	" YUGAR "	↳
No. 3. 36" Electrically driven machine (NEA9)	" ZABMA "	↳
No. 3. 36" Electrically driven vee-rope machine (NEA) ..	" ZEKEC "	↳
No. 3. 36" Belt driven machine (NEA)	" YUGIT "	↳
Plain fence for any size of machine—see page 159	" WYOVZ "	↳
Canting fence for any size of machine—see page 159 ..	" WYOWB "	↳
Electric band saw brazing machine (AGK)—see page 126	" ZIDZA "	↳
" " welding machine (KD)—see page 127 ..	" ZIVAR "	↳
" " filing and setting machine (TP)—see page 116	" ZICAY "	↳

SPECIFICATION	No. 2	No. 3
Diameter of saw pulleys	30"	36"
Size of table	30" square.	36" square.
Distance from saw to body	2' 4 $\frac{1}{2}$ "	2' 10 $\frac{1}{2}$ "
Maximum length of saw	17' 0 $\frac{1}{2}$ "	20' 3 $\frac{3}{4}$ "
Minimum length of saw	16' 2"	19' 3 $\frac{3}{4}$ "
Size of fast and loose pulleys (NEA) ..	10" dia. \times 3 $\frac{3}{4}$ " wide.	12" dia. \times 3 $\frac{3}{4}$ " wide.
Speed of driving pulley	750 r.p.m.	600 r.p.m.
Depth of cut under saw guide	18"	24"
Speed of saw pulleys on (NEA9)	750 r.p.m.	600 r.p.m.
Horse power required to drive	3	5
Approx. gross weight (NEA), belt drive	13 $\frac{3}{4}$ cwts.	18 $\frac{3}{4}$ cwts.
" nett weight " "	12 $\frac{1}{4}$ cwts.	17 cwts.
" measurement " "	85 cu. ft.	108 cu. ft.
" gross weight (NEA9)	17 cwts.	21 $\frac{1}{4}$ cwts.
" nett weight "	14 $\frac{1}{2}$ cwts.	19 cwts.
" measurement "	85 cu. ft.	108 cu. ft.
" gross weight (NEA) vee-rope drive	26 $\frac{1}{2}$ cwts.	36 $\frac{3}{4}$ cwts.
" nett weight " " "	22 $\frac{3}{4}$ cwts.	32 $\frac{1}{4}$ cwts.
" measurement " " "	85 cu. ft.	108 cu. ft.



The Machine with Pulley Guards Open



FRET SAWS (JS9 and VT9)

CONSTRUCTION

THE TABLE which cants left or right to an angle of 30°, is fitted with two fences, one for straight cutting and the other for cross-cutting.

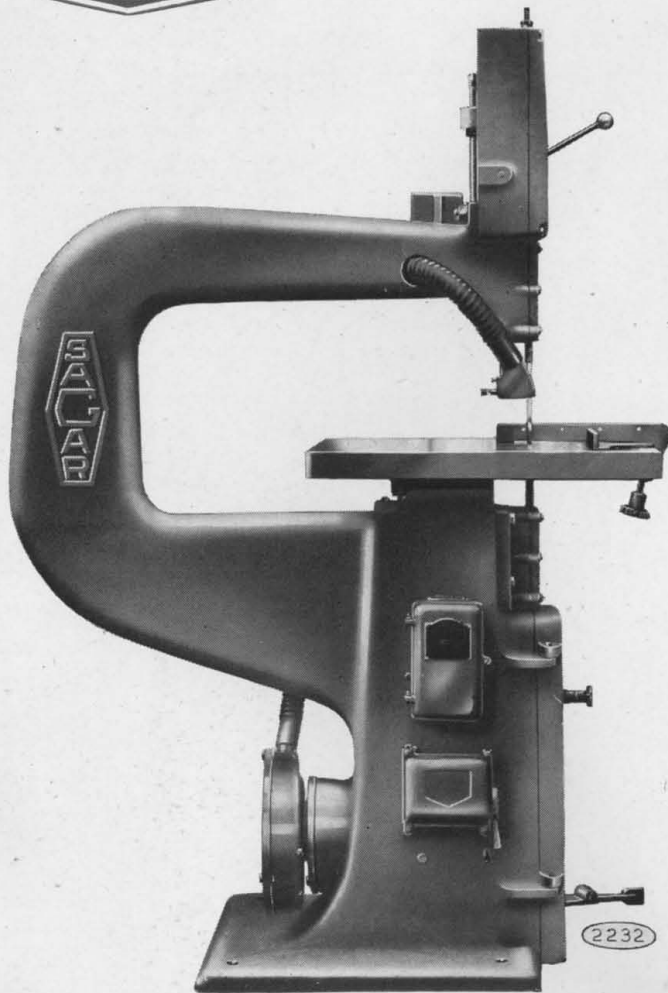
THE ARM which forms a part of the one-piece main frame, carries the upper reciprocating motion which is adjustable vertically for varying lengths of saws.

THE TENSIONING of the saw is by means of two heavy spiral springs which can be adjusted to regulate the pull on the saw, a hand lever being provided to relieve the pressure of the springs when changing saws.

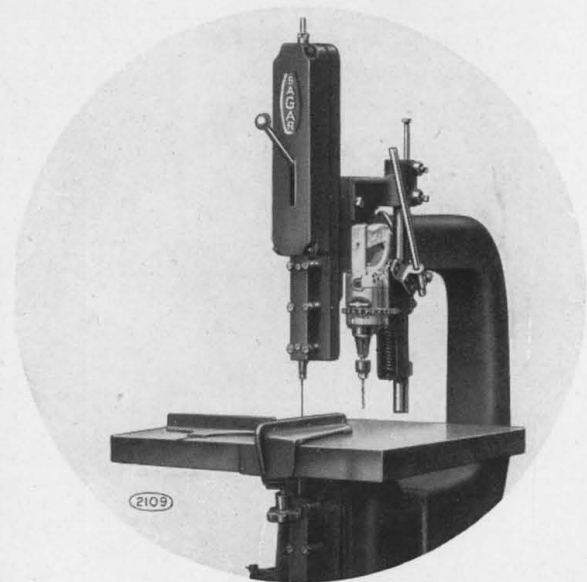
A FOOT LEVER controls the starting and stopping of the motor, and also applies a brake which instantly stops the machine.

A FAN which is mounted directly on the motor spindle, delivers a blast of air through a flexible tube which runs through the main casting down to the cutting edge of the saw.

THE BLOWER NOZZLE is integral with the adjustable ball thrust saw guide.



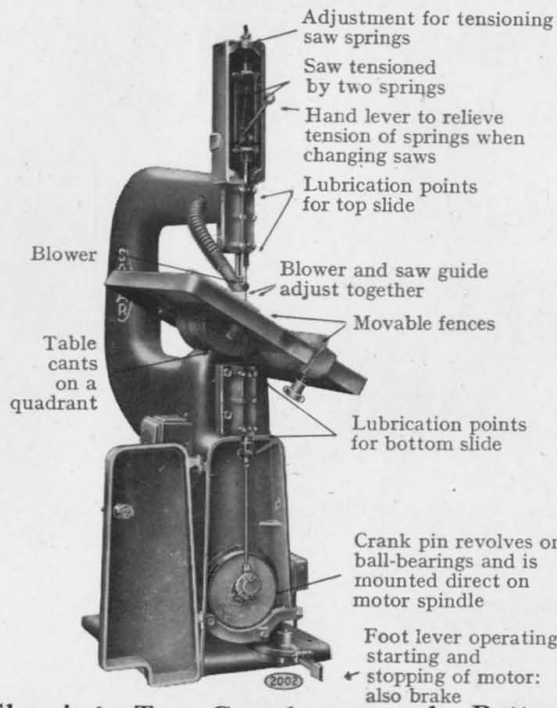
Showing Self-contained Closed Type Machine (JS9)



Showing Electrically driven Boring Attachment. It can be supplied with either the (JS9) or (VT9) Machines.



FRET SAWS (JS9 and VT9)



Showing Top Guard removed, Bottom Guard open and Table canted on (JS9)

DETAILS INCLUDED WITH (JS9) or (VT9)

Motor and Starter. Isolating Switch. Brake. Fence for Straight Cutting. Fence for Cross-Cutting. Blower. 10 Assorted Fret-Saws. Set of Spanners. Tin of Lubricant. Additional when (VT9) Machine is supplied. Four Tie Rods with End Connections for Wooden Beam Support.

CODE WORDS AND PRICES

Electrically Driven Machine (JS9) "ZASUZ" £
 Electrically Driven Machine (VT9) "ZEACS" £
 All Electric Boring Attachment for (JS9) or (VT9) .. "ZIARN" £

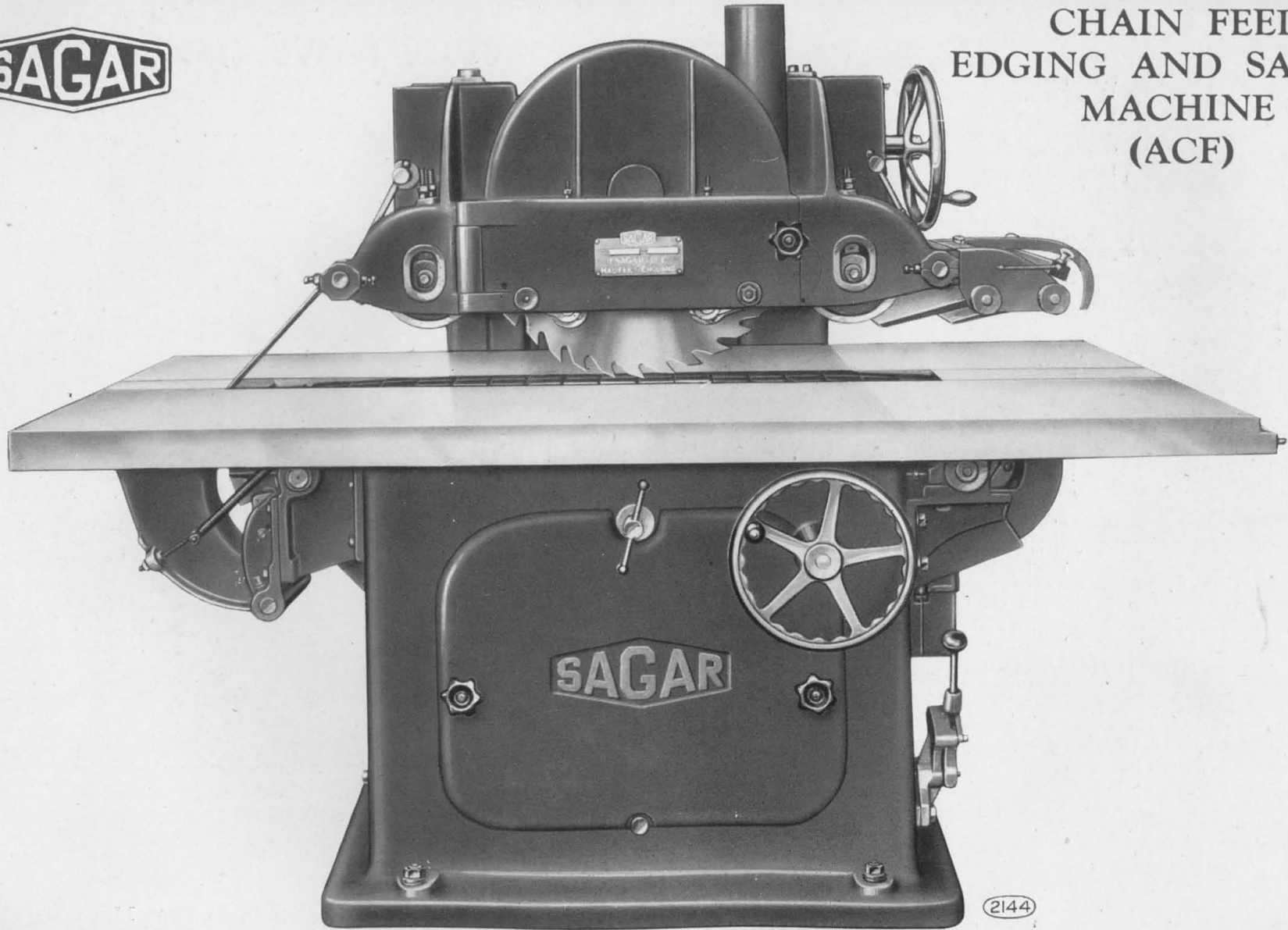


Showing Open Type Machine (VT9)

SPECIFICATION	JS9	VT9
Size of table	2' 3" x 2' 0"	2' 3" x 2' 0"
Table cants left or right	30°	30°
Maximum depth of cut	6"	6"
Speed of driving shaft	950 r.p.m.	950 r.p.m.
Horse power	2	2
Speed of motor	1,000 r.p.m. syn.	1,000 r.p.m. syn.
Distance from saw to column	2' 7"	Unlimited.
Approximate floor space	4' 6" x 2' 0"	2' 0" x 3' 4"
" gross weight	15 cwts.	9 cwts.
" nett weight	12½ cwts.	7¾ cwts.
" measurement	55 cu. ft.	27 cu. ft.

SAGAR

**CHAIN FEED
EDGING AND SAWING
MACHINE
(ACF)**



2144



CHAIN FEED EDGING AND SAWING MACHINE (ACF)



Section of End Table lowered, giving access to Chain and Brush

CONSTRUCTION

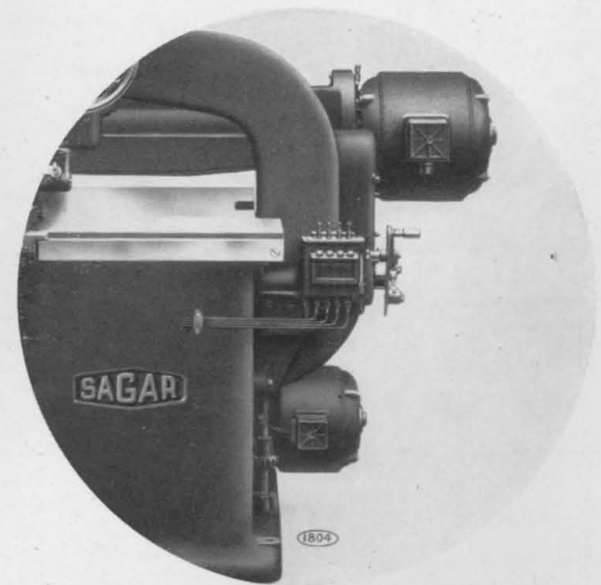
THE TABLE is made in two sections mounted on the main frame, one on each side of the feed chain. THE PRESSURE APPARATUS over the feed chain consists of two rollers, $7\frac{1}{2}$ " dia. and four small pressure rollers. The large roller in front of the saw is driven by means of a flexible shaft, the others being friction rollers only. All the pressure rollers are spring loaded and are adjustable for lineability with the feed chain. The box casting housing the rollers and the saw may be raised or lowered for different thicknesses of material.

THE FEEDING MECHANISM consists of an endless chain which ensures smooth running and continuous feed. The chain is fitted with a series of serrated metal lags which give a firm and continuous grip on the material being sawn. The front chain sprocket wheel bracket is adjustable horizontally to take up any slackness in the chain. The feed chain guideways are lubricated by force feed pump lubrication.

A GEAR BOX is fitted which gives three rates of feed. All revolving shafts are mounted on ball bearings.

A DOUBLE ROW KICK BACK GUARD is fitted immediately in front of the first feed roller and effectually prevents any accidental "kick-back" to the danger of the operator.

DETAILS INCLUDED IN THE PRICE
 Special Slotted Circular Saw, 17" diameter.
 Truing Device. Grease Gun. Set of Spanners.
 Tin of Lubricant.



Showing Two-Motor Drive

CODE WORD AND PRICE

Two-motor Driven Machine "ZAARD" £

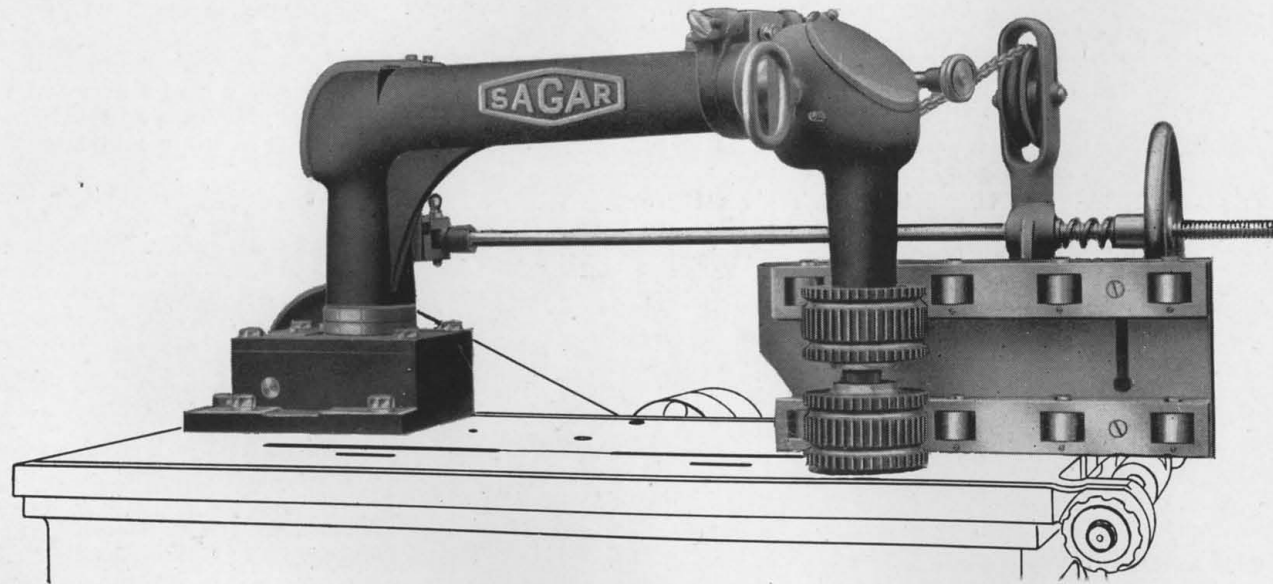
SPECIFICATION

Shortest length	8"	Feeding speeds	66, 110 and 152 ft./min.
Maximum thickness	5"	Horse power for spindle	15
Saw to column	30"	Horse power for feed	3
Size of table	6' 3" x 4' 10"	Speed of feed motor	1,000 r.p.m. syn.
Maximum size of saw used	17" dia.	Approximate floor space	6' 1 $\frac{1}{2}$ " x 6' 5"
Minimum size of saw used	9" dia.	" gross weight	49 cwts.
Speed of saw spindle	2,880 r.p.m.	" nett weight	45 cwts.
		" measurement	234 cu. ft.



ROLLER FEED ATTACHMENT (KT) FOR CIRCULAR SAW BENCHES

THIS ATTACHMENT is suitable for fitting to almost any make of sawbench, thereby converting it into a roller feed saw bench.



CONSTRUCTION

THE RADIAL ARM which carries the vertical feed roller is telescopic, and can be instantly swung into position for automatic feeding and as easily turned out of the way when the bench is required to be clear for ordinary sawing. The feed rollers can be canted either way to ensure satisfactory feeding.

THE GEARING is enclosed, the worm and worm wheel running in an oil bath in a dust-proof metal casing. The rate of feed can be varied by means of suitable pulleys which are driven direct by a belt from the saw spindle.

SPECIFICATION

Suitable for machines carrying saws up to ..	..	..	..	..	..	..	..	..	..	..	..	..	..	32" dia.	38" dia.
Approximate gross weight ..	..	..	..	..	..	..	..	..	..	..	..	..	..	7 $\frac{3}{4}$ cwts.	8 $\frac{1}{2}$ cwts.
" nett weight ..	..	..	..	..	..	..	..	..	..	..	..	..	..	6 $\frac{1}{4}$ cwts.	7 cwts.
" measurement ..	..	..	..	..	..	..	..	..	..	..	..	..	..	28 cu. ft.	29 cu. ft.
Code Word ..	..	..	..	..	..	..	..	..	..	..	..	..	..	" WYERS "	" WYEWY "
Price ..	..	..	..	..	..	..	..	..	..	..	..	..	..	£	£

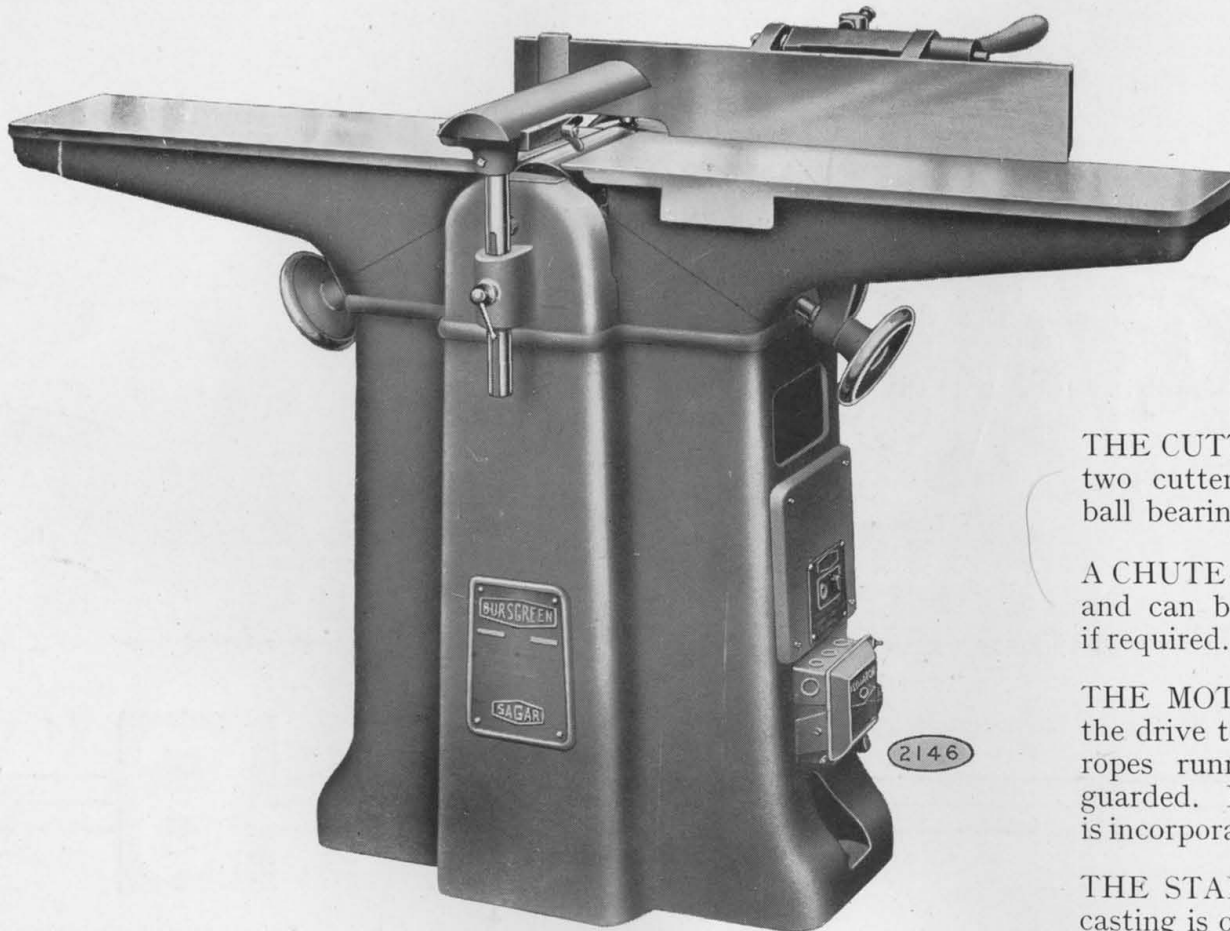
Section 2

SAGGAR
PLANING MACHINES





'BURSGREEN' HAND SURFACE PLANING MACHINE (JR)



CONSTRUCTION

THE TABLES are surface ground, have vertical adjustment in inclined slides, and are arranged to draw out for access to the cutterblock.

THE FENCE is arranged to move across the table on a rigid bar mounting which has a locking device to locate it in a fixed position. It cants up to an angle of 45°.

THE CUTTERBLOCK is of the circular type with two cutters. It gives a shear cut, revolves in ball bearings and is dynamically balanced.

A CHUTE is provided for exhausting the chippings and can be connected up to an existing system if required.

THE MOTOR is housed within the main frame, the drive to the cutterblock being by multiple vee ropes running in grooved pulleys, all suitably guarded. Provision for tensioning the vee ropes is incorporated.

THE STARTER which is mounted in the main casting is operated by start and stop push buttons and is in circuit with an isolating switch.



'BURSGREEN' HAND SURFACE PLANING MACHINE (JR)

DETAILS INCLUDED IN THE PRICE

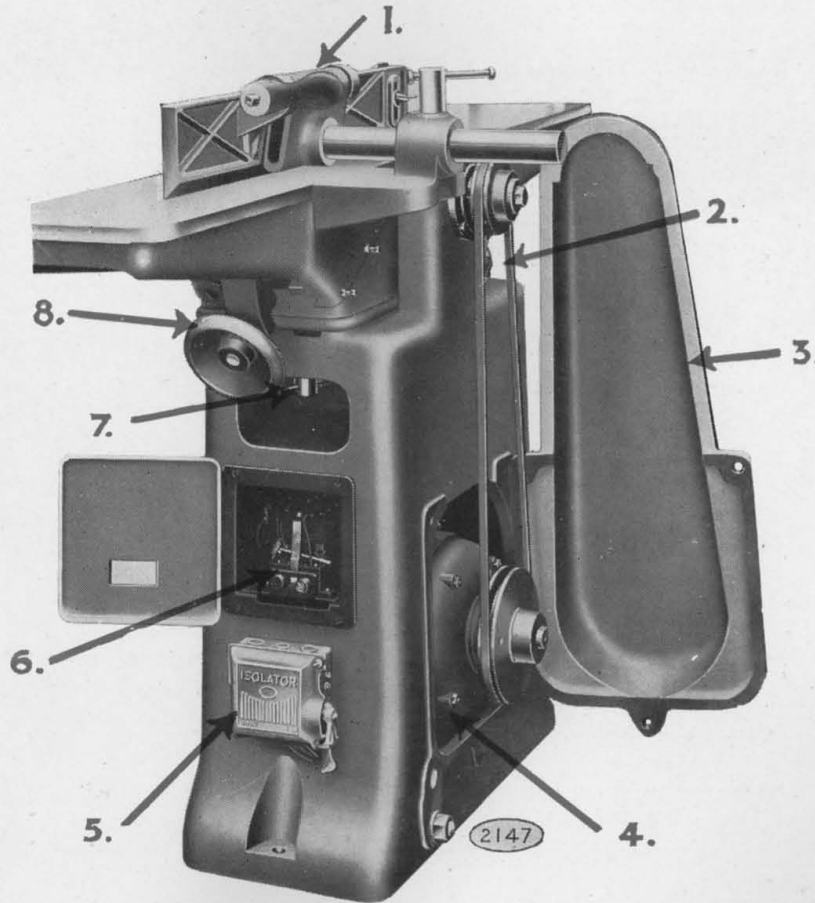
Motor and Starter. Canting Fence and Springs. Guards. Set of Planing Cutters. Set of Spanners. Tin of Lubricant.

CODE WORDS AND PRICES

No. 1 Machine to take 8" wide material "ZOCIG" £
 No. 2 Machine to take 12" wide material "ZOHJA" £
 Extra for Rebating Table "ZIROR" £
 Extra for High-speed Steel Cutters
 Per pair £
 Planer Guard—see page 156

SPECIFICATION

	No. 1	No. 2
Width will plane	8"	12"
Length of tables	4' 7"	6' 0"
Height of tables from base . .	2' 9"	
Tables rise and fall	$\frac{3}{4}$ "	
Tables open out leaving gap of	$3\frac{1}{2}$ "	
Speed of cutterblock	5,000 r.p.m.	
Horse power	$1\frac{1}{2}$	2
Speed of motor	3,000 r.p.m. syn.	
Approximate floor space	4' 7" × 2' 3"	6' 0" × 2' 6"
„ gross weight	9 $\frac{1}{4}$ cwts.	12 $\frac{1}{4}$ cwts.
„ nett weight	7 $\frac{1}{4}$ cwts.	10 $\frac{1}{4}$ cwts.
„ measurement	44 cu. ft.	60 cu. ft.



1. Canting Fence.
2. Vee Rope Drive.
3. Guard for Drive.
4. Motor.
5. Isolating Switch.
6. Contactor Switch.
7. Locking Lever for draw-out motion of tables.
8. Handwheel for rise and fall of table.



HAND FEED PLANING,
JOINTING, ETC., MACHINE (DK)



2029



HAND FEED PLANING, JOINTING, ETC., MACHINE (DK)

CONSTRUCTION

THE TABLES are precision ground all over, have vertical adjustment in inclined slides and are arranged to draw out for access to cutterblock.

THE FENCE which cants up to 45° has quick movement across the table by means of rack and pinion, all adjustments being provided with suitable locking devices.

THE CUTTERBLOCK is precision ground, dynamically balanced, and mounted on ball bearings in dust-proof housings. It is of the safety circular type, giving a shear cut. The machine can be supplied with the cutterblock suitable for carrying moulding cutters without removing the planing cutters.

A CHUTE is provided for exhausting the chippings and can be connected up to an existing exhaust system.

THE MOTOR is housed within the main frame, the drive to the cutterblock being by suitably guarded multiple vee-ropes running in grooved pulleys. Provision is made for tensioning the vee ropes.

THE STARTER, in circuit with an isolating switch, is mounted in the main casting and is operated by start and stop push buttons.

BELT DRIVE. A countershaft is supplied with the machine.

DETAILS INCLUDED IN THE PRICE

Pair of Cutters. Cutter Setting Gauge. Canting Fence and Springs. Guard. Motor and Starter. Set of Spanners. Tin of Lubricant.

CODE WORDS AND PRICES

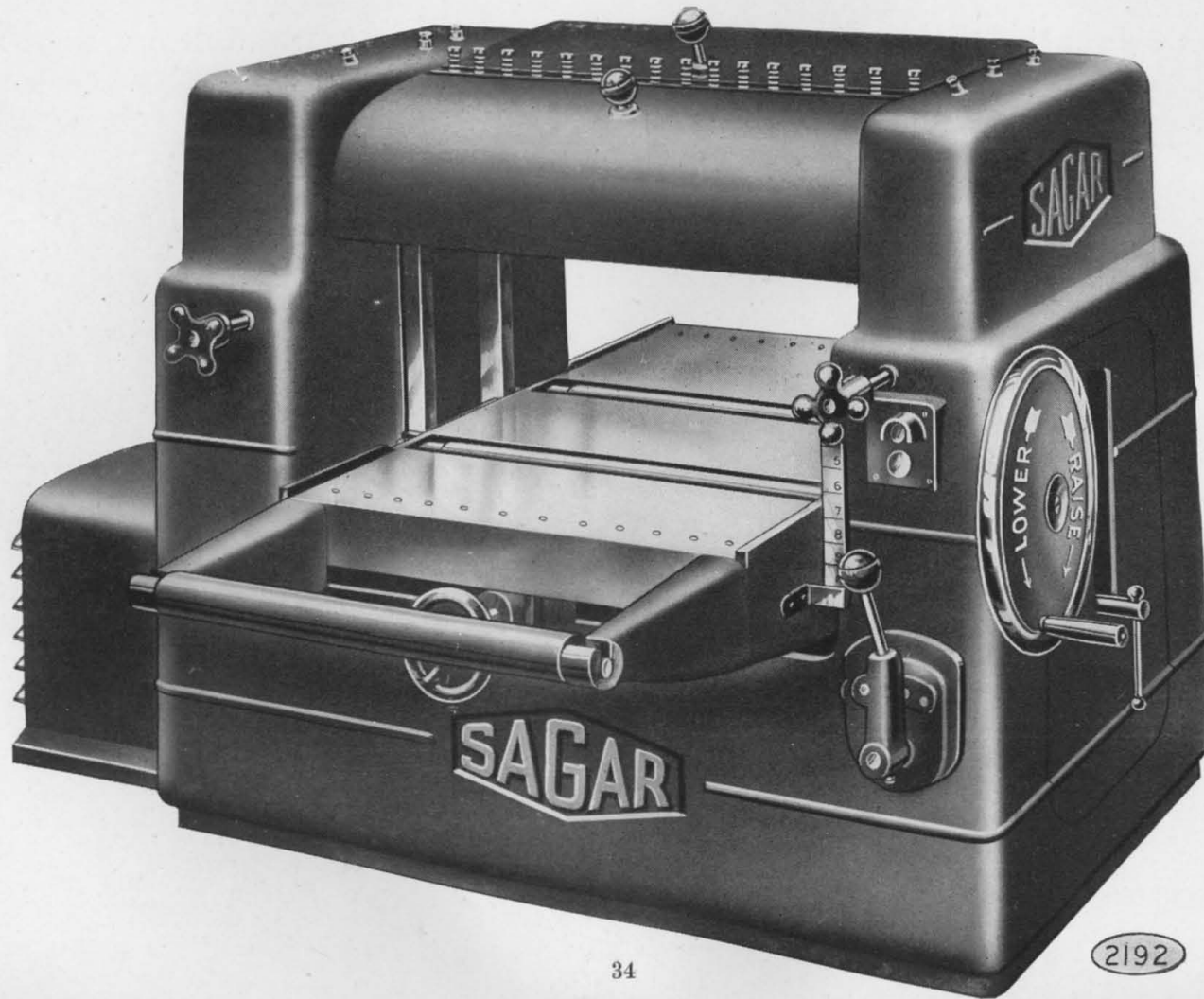
Machine, Electrically Driven	" ZINUP " £
Machine, Belt Driven	" ZIPEM " £
Extra if made to take Moulding Cutters	" ZIOXY " £
Extra for Rebating Table	" ZIROR " £
Extra if Spot Lighting is supplied—see page 160	" ZIRNA " £

SPECIFICATION

Capacity	18"
Length over tables	7' 6"
Maximum depth of cut	$\frac{3}{4}$ "
Maximum depth of rebate	$\frac{3}{4}$ "
Speed of cutterblock	4,000 r.p.m.
Speed of motor	3,000 r.p.m. syn.
Horse power	3
Size of fast and loose pulleys on countershaft ..	8" × 3 $\frac{1}{4}$ "
Speed of countershaft	800 r.p.m.
Approximate floor space	7' 6" × 4' 4"
Approximate gross weight, Electric Drive	18 $\frac{1}{2}$ cwts.
" " " Belt	17 $\frac{1}{2}$ cwts.
" nett weight, Electric	15 $\frac{1}{2}$ cwts.
" " " Belt	14 $\frac{1}{2}$ cwts.
" measurement, Electric	71 $\frac{1}{2}$ cu. ft.
" " " Belt	71 $\frac{1}{2}$ cu. ft.



ROLLER FEED PANEL PLANING
AND THICKNESSING MACHINE (XP)





ROLLER FEED PANEL PLANING AND THICKNESSING MACHINE (XP)

CONSTRUCTION

THE TABLE, rigid in construction, has rise and fall motion by means of conveniently placed handwheel and chain reduction gear with large diameter screws which are fitted with anti-friction ball thrust washers. Two anti-friction rollers are fitted into table which are adjustable vertically by handwheel placed at feed-in end of machine. A conveniently placed index scale indicates thickness at which machine is planing.

THE CUTTERBLOCK is dynamically balanced, and mounted on precision ball bearings in dust proof housings. As standard, it is of the two knife rectangular type with provision to carry moulding cutters. A four knife circular block mounting thin cutters can be supplied in lieu of standard block.

THE GEAR BOX is fitted within the machine frame. The gears are of high quality steel mounted on six-spline steel shafts on ball bearings in dust-proof housings.

SECTIONAL FEED can be supplied if required. This consists of a grooved sectional feed roller in front of the cutterblock which instantly adapts itself to varying thicknesses of material. A sectional pressure bar is incorporated. Roller and pressure are in 1½-in. sections.

BOTTOM TABLE ROLLERS can be power-driven if required, being correctly synchronised with top-feed rollers ensuring a steady feed.

A CUTTER TRUING ATTACHMENT can be supplied which can be instantly brought into position when required, and swung clear when not in use.

AN ELECTRICALLY DRIVEN CUTTER GRINDING ATTACHMENT, can be supplied if required. This attachment is for use with circular cutterblocks only.

DETAILS INCLUDED IN THE PRICE

Motor and Starter. Set of Planing Cutters. Set of Spanners. Tin of Lubricant.

CODE WORDS AND PRICES

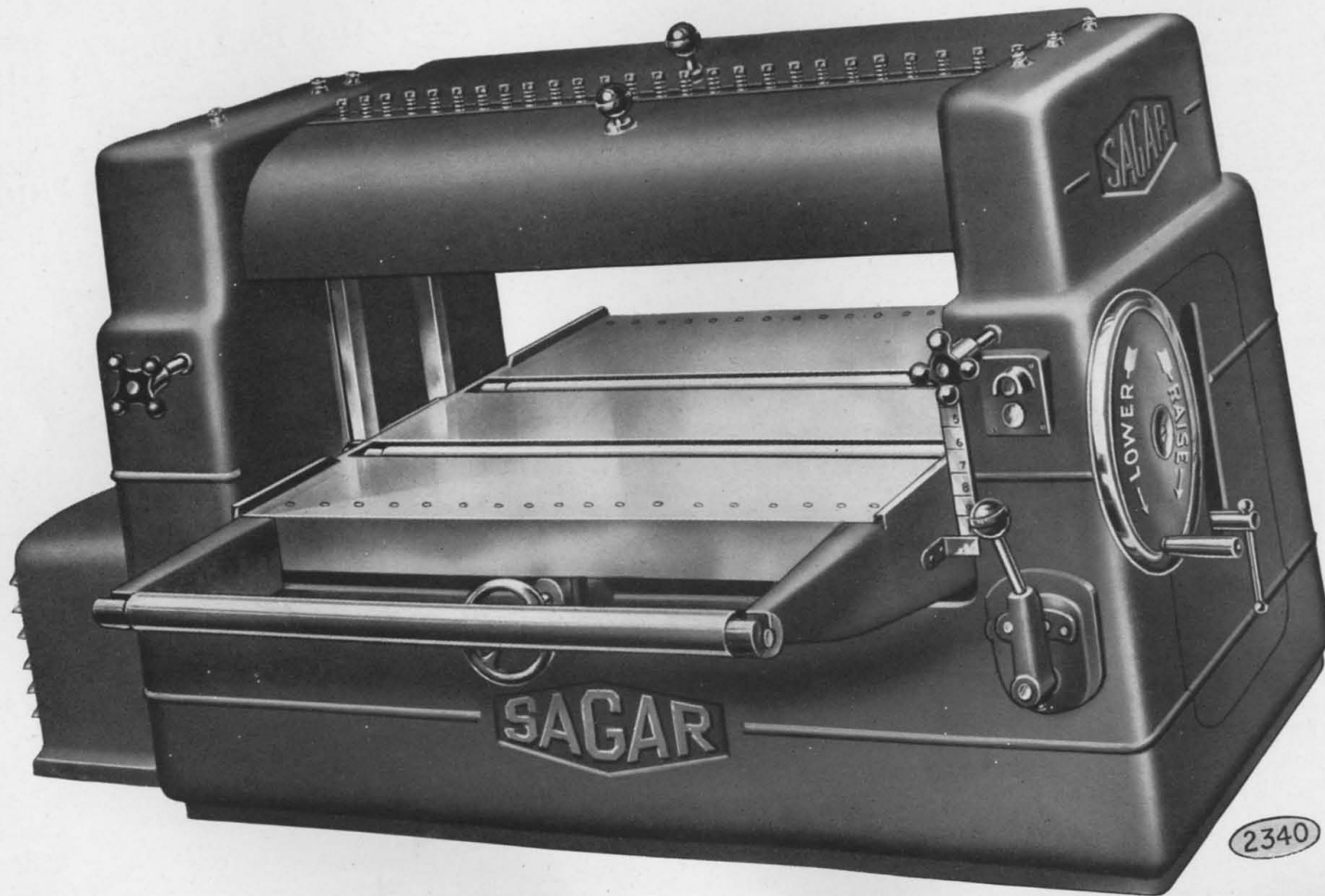
Standard Machine fitted with two knife rectangular cutterblock	" ZUCYP "	£
Extra if fitted with four knife circular cutterblock	" ZUFLA "	£
Machine fitted with Sectional Feed Roller and Pressure Bar	" ZUDEL "	£
Extra for Driven Bottom Table Rollers	" ZUFEM "	£
Extra for Cutter Truing Device	" ZOWIS "	£
Extra for Electrically Driven Cutter Grinding Attachment (for Circular Cutterblocks only)	" ZUFAL "	£

SPECIFICATION

Capacity	24" × 9"
Length of thicknessing table	3' 10"
Speed of cutterblock	5,000 r.p.m.
Cutting circle	5"
Rates of feed in feet per minute from	24 to 60
Horse power	7½
Speed of motor	1,500 r.p.m. syn.
Approximate floor space	5' 5" × 4' 6"
" gross weight	24 cwts.
" nett weight	21 cwts.
" measurement	106 cu. ft.

SAGAR

DOUBLE-GEARED ROLLER FEED PANEL PLANING AND THICKNESSING MACHINE (KH)





DOUBLE-GEARED ROLLER FEED PANEL PLANING AND THICKNESSING MACHINE (KH)

CONSTRUCTION

THE TABLE, rigid in construction, has rise and fall motion by means of conveniently placed handwheel and chain reduction gear with large diameter screws which are fitted with anti-friction ball thrust washers. Two anti-friction rollers are fitted into table which are adjustable vertically by handwheel placed at feed-in end of machine. A conveniently placed index scale indicates thickness at which machine is planing.

THE CUTTERBLOCK is dynamically balanced, and mounted on precision ball bearings in dust proof housings. As standard, it is of the two knife rectangular type with provision to carry moulding cutters. A four knife circular block mounting thin cutters can be supplied in lieu of standard block.

THE GEAR BOX is fitted within the machine frame. The gears are of high quality steel mounted on six-spline steel shafts on ball bearings in dust-proof housings.

SECTIONAL FEED can be supplied if required. This consists of a grooved sectional feed roller in front of the cutterblock which instantly adapts itself to varying thicknesses of material. A sectional pressure bar is incorporated. Roller and pressure are in 1½-in. sections.

BOTTOM TABLE ROLLERS can be power-driven if required, being correctly synchronised with top-feed rollers ensuring a steady feed.

A CUTTER TRUING ATTACHMENT can be supplied which can be instantly brought into position when required, and swung clear when not in use.

AN ELECTRICALLY DRIVEN CUTTER GRINDING ATTACHMENT can be supplied if required, which swings clear when not in use. This attachment is for use with Circular Cutterblocks only.

DETAILS INCLUDED IN THE PRICE

Motor and Starter. Set of Planing Cutters. Set of Spanners. Tin of Lubricant.

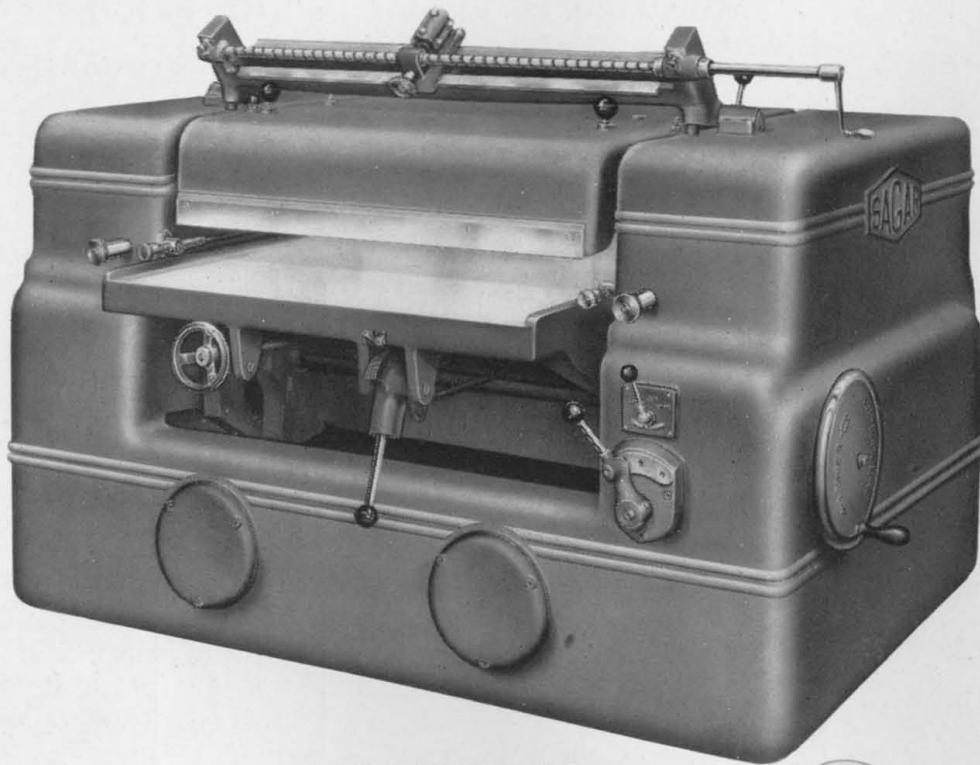
CODE WORDS AND PRICES

Standard Machine fitted with two knife rectangular cutterblock	" ZOTZO "	£
Extra if fitted with four knife circular cutterblock	" ZUFPO "	£
Machine fitted with Sectional Feed Roller and Pressure Bar	" ZUYFR "	£
Extra for Driven Bottom Table Rollers	" ZUFEM "	£
Extra for Cutter Truing Device	" ZUGAM "	£

SPECIFICATION	No. 1	No. 2
Capacity	30" × 9"	36" × 9"
Length of thicknessing table	3' 6"	3' 6"
Speed of cutterblock	4,000 r.p.m.	4,000 r.p.m.
Diameter of cutterblock	5"	5"
Rates of feed in feet per minute from	24 to 60	24 to 60
Horse power	15	17½
Speed of motor	1,500 r.p.m.	1,500 r.p.m.
Approximate gross weight	31 cwts.	35½ cwts.
" nett weight	28 cwts.	32 cwts.
" measurement	130 cu. ft.	140 cu. ft.



HEAVY DUTY, DOUBLE-GEARED PLANING AND THICKNESSING MACHINE (PE)



CONSTRUCTION

2389

THE TABLE has vertical adjustment by a subsidiary wedge frame, travelling horizontally by two heavy-duty screws, in combination with the inclined seating. Power rise and fall is incorporated, being operated from a subsidiary motor by hand-operated built-in reversing switch. An efficient table cam-operated table lock is controlled by a lever under the feeding-in end of table with ratchet positioning. A gauge shows the thickness at which machine is planing.

THE FEEDING MECHANISM consists of four rollers, two being fitted in the work-table and two above the timber to be worked, one grooved roller in front of, and one smooth roller behind the cutterblock. The table rollers have fine vertical adjustment by handwheel and screw. The grooved feed roller and the in-feed pressure bar are sectional, each section being $1\frac{1}{2}$ " wide. All rollers are driven by roller-chain from the gearbox.

THE CUTTERBLOCK which is of the circular type, mounts four thin knives and is precision ground, dynamically-balanced, and mounted on heavy ball-bearings in dust-proof housings.

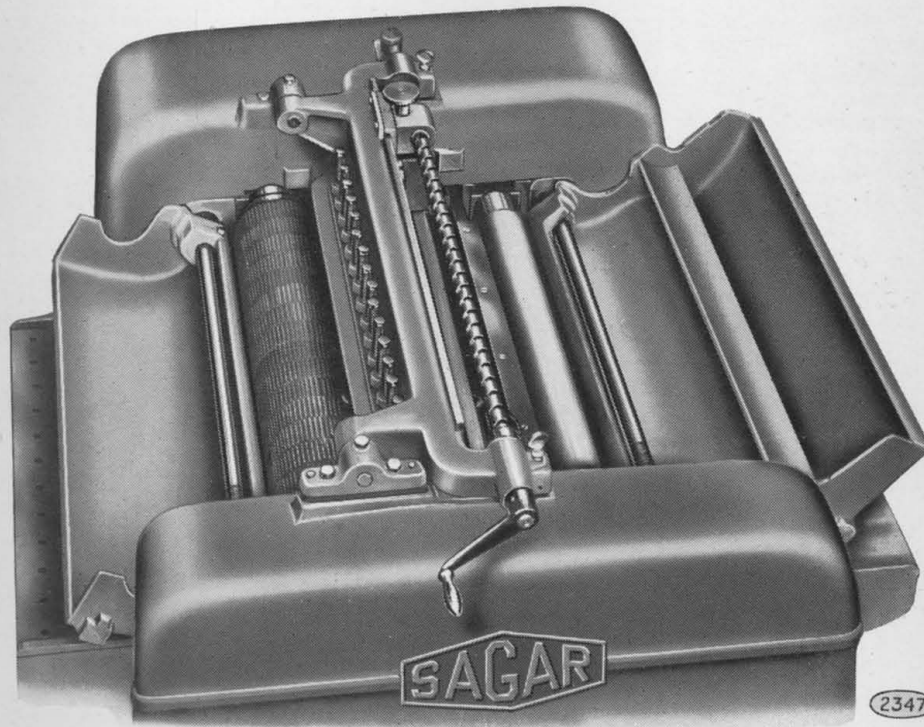
FEED SPEEDS are from 22 to 90 feet per minute. The built-in gear box has all shafts mounted on ball bearings, and the gears, which are machine-cut from high duty heat-treated steel, move on six-way precision splined shafts.

A CUTTER SETTING AND TRUING ATTACHMENT is provided which can be instantly brought into position when required, and easily swung clear when not in use. The slide, which carries a setting roller and truing stone, is traversed across the cutters by handle and screw. The setting roller and truing stone are mounted in a reversible unit which can be quickly set for either operation, and clamped by a conveniently-placed handle. The cutter truing operation is, of course, performed whilst the cutters are in motion.

AN ELECTRICALLY DRIVEN CUTTER GRINDING ATTACHMENT, can also be supplied if required. This attachment is for use with circular cutterblocks only.



HEAVY DUTY, DOUBLE-GEARED PLANING AND THICKNESSING MACHINE (PE)



2347

DETAILS INCLUDED IN THE PRICE

All Electrical Equipment including Motors and Starters, etc., Power Elevation for Table. Cutter Truing and Setting Device. Sectional Feed Roller and Pressure Bar. Set of H.S.S. Planing Cutters. Set of Spanners. Tin of Lubricant.

CODE WORDS AND PRICES

No. 1 Machine for material 36" x 8" .. "ZUDLE" £

No. 2 Machine for material 42" x 8" .. "ZUDNO" £

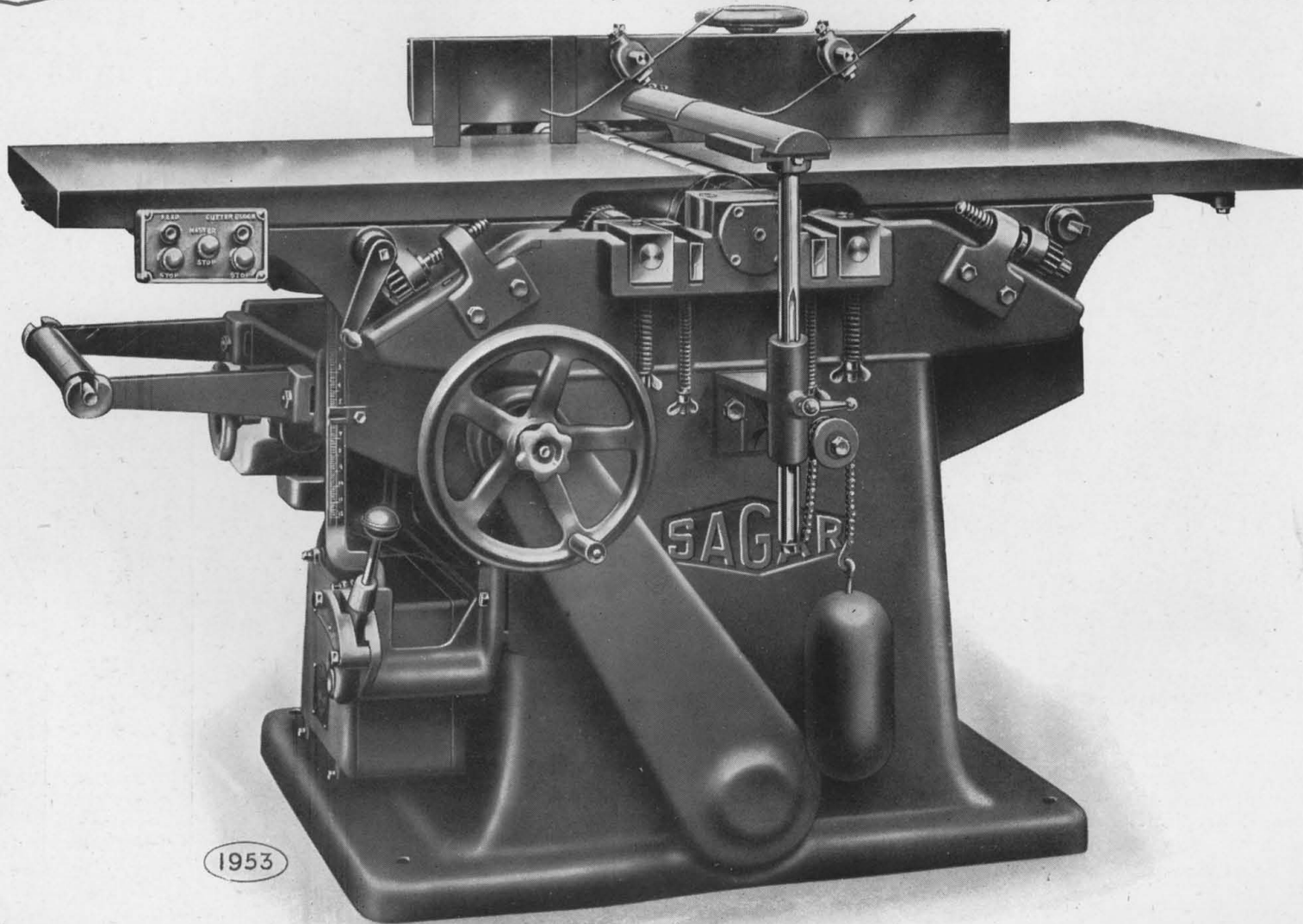
No. 3 Machine for material 48" x 8" .. "ZUCJA" £

Extra for Electrically Driven Cutter Grinding Attachment (for Circular Cutterblocks only) "ZUFAL" £

SPECIFICATION	No. 1	No. 2	No. 3
Capacity	36" x 8"	42" x 8"	48" x 8"
L'gth of thicknessing table	5' 0"	5' 0"	5' 0"
Diameter of cutterblock	7"	7"	7"
Speed of cutterblock ..	3,600 r.p.m.	3,600 r.p.m.	3,600 r.p.m.
Diameter of feed rollers	5"	5"	5"
Feed speeds in feet per minute	22 to 90	22 to 90	22 to 90
Horse power of cutterblock motor	17½	22½	27½
Horse power of feed motor	3	4	5
Approximate floor space	8' 0" x 5' 4"	9' 0" x 5' 4"	10' 0" x 5' 4"
Approximate gross weight	70 cwts.	75 cwts.	80 cwts.
Approximate nett weight	62¼ cwts.	67¼ cwts.	72¼ cwts.
Approximate measurement	176 cu. ft.	188 cu. ft.	198 cu. ft.



HAND AND ROLLER FEED, SURFACE PLANING,
THICKNESSING, MOULDING, ETC., MACHINE (AF)



1953



HAND AND ROLLER FEED, SURFACE PLANING, THICKNESSING, MOULDING, ETC., MACHINE (AF)

CONSTRUCTION

THE TOP TABLES have rise and fall motion on diagonally placed slides, and cannot come in contact with the cutters if adjusted when the machine is running.

THE BOTTOM TABLE has rise and fall motion by handwheel and chain reduction gear by means of screws fitted with anti-friction ball-thrust washers.

THE FEEDING MECHANISM consists of two top-driven feed rollers, the feeding-in roller being fluted and the feeding-out roller plain.

THE GEAR BOX is of special construction, mounted within the machine frame, and provides three feeding speeds up to 50 feet per minute. The machine cut steel gears are mounted on six-spline solid steel shafts and run continuously in oil. Controlling hand lever is conveniently placed at the front of the machine.

THE FENCE can be moved to any desired position on the table by means of rack and pinion, the adjustment being almost instantaneous. It will cant to 45° for chamfering, cornering, etc.

THE CUTTERBLOCK is of the safety circular type, precision ground and dynamically balanced. It is designed to give a shearing cut and provision is made for carrying moulding cutters without disturbing the planing cutters.

BELT DRIVE. Fast and loose pulleys with belt shifting gear and countershaft are supplied.

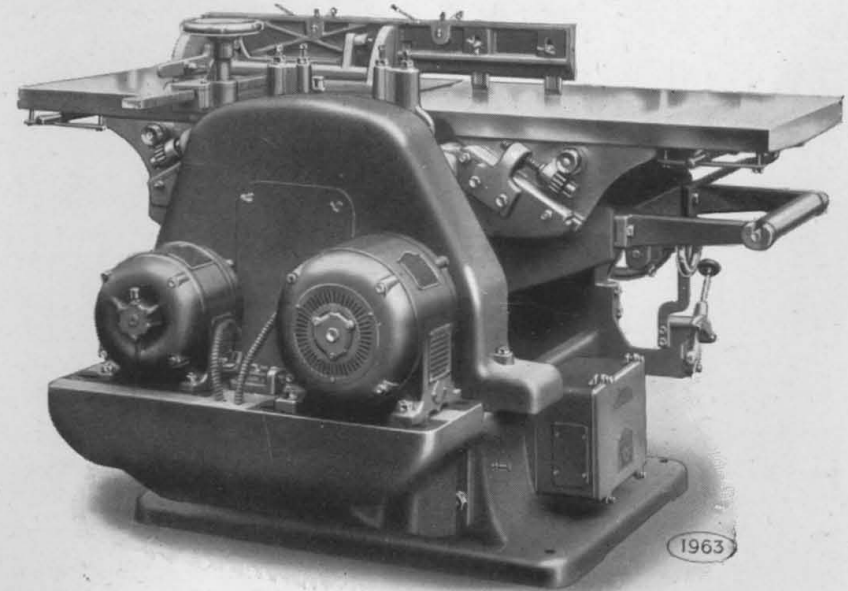
DETAILS INCLUDED IN THE PRICE

Motors and Starters. Movable Canting Fence and Holding Down Springs. Set of Planing Cutters. Setting Gauge for cutters. Safety Guard. Set of Spanners. Tin of Lubricant.

CODE WORDS AND PRICES

No. 1. Two-motor Vee-rope Machine	16" × 9"	"ZAUCS" £
No. 1. Belt driven Machine	.. .. 16" × 9"	"WYZAZ" £
No. 3. Two-motor Vee-rope Machine	24" × 9"	"ZAUTL" £
No. 3. Belt driven Machine	.. .. 24" × 9"	"WYZDO" £
Taper Planing Attachment	.. .. .	"YOMAS" £
Spot Lighting—see page 160.		

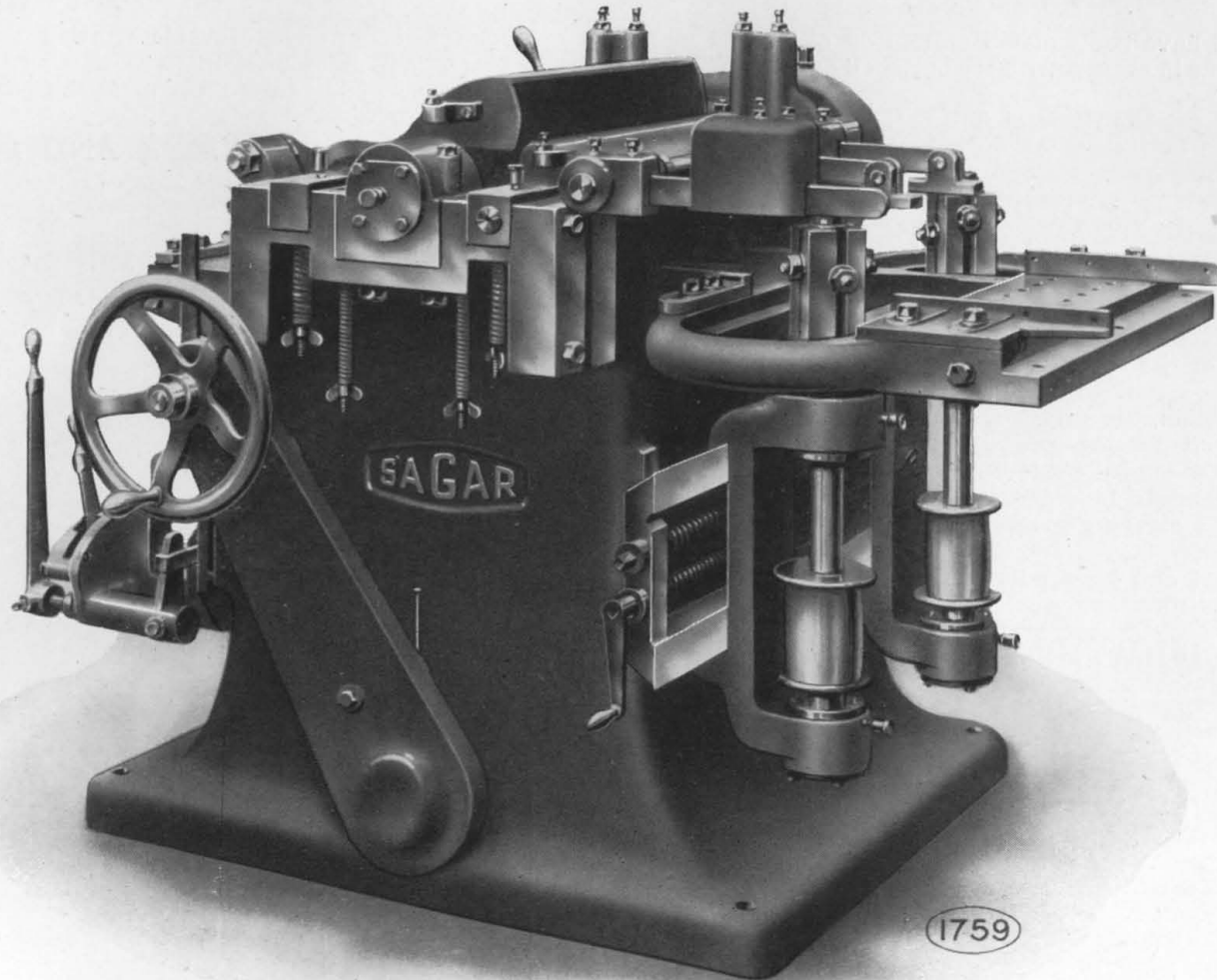
SPECIFICATION	No. 1	No. 3
Capacity	16" × 9"	24" × 9"
Speed of cutterblock	4,000 r.p.m.	4,000 r.p.m.
Rates of feed in feet per minute	23, 34, 50.	23, 34, 50.
Horse power of cutterblock motor	3	5
Horse power of feed motor	1	1½
Speed of cutterblock motor	3,000 r.p.m.	3,000 r.p.m.
Speed of feed motor	1,500 r.p.m.	1,500 r.p.m.
Approximate gross weight, motor driven ..	26 cwts.	35 cwts.
" " " belt	22½ cwts.	31½ cwts.
" nett weight, motor	23 cwts.	32 cwts.
" " " belt	19½ cwts.	28½ cwts.
" measurement motor	120 cu. ft.	136 cu. ft.
" " belt	63 cu. ft.	80 cu. ft.



Rear view of Two-motor Machine

SAGAR

THREE-CUTTER PANEL PLANING, THICKNESSING,
MOULDING, ETC., MACHINE (OD)





THREE-CUTTER PANEL PLANING, THICKNESSING, MOULDING, ETC., MACHINE (OD)

THE TABLE is raised and lowered by conveniently placed handwheel and chain reduction gear by means of screws situated in the centre of the table slides, which are fitted with anti-friction ball thrust washers. Two adjustable anti-friction rollers are fitted into the table. A conveniently placed index scale indicates the thickness at which the machine is planing. Suitable spring pressures are provided to hold the work to the fence.

THE SIDE SPINDLES are ball bearing mounted and have separate adjustment by screw on wide vee slides. The cutterblocks provided with the side spindles are slotted on all four sides and detachable from the side spindles.

A GEAR BOX gives three rates of feed. The gear wheels which are mounted on six-spline shafts revolve continuously in oil.

THE FEEDING MECHANISM is totally enclosed, easily removable covers being provided so that the mechanism may be readily inspected. There are two top rollers; the feeding-in roller grooved, and the feeding-out roller plain, both being adjustable for varying pressures. A flexible pressure bar is placed on each side of the cutterblock.

BELT DRIVE. Ball bearing loose pulley, belt shifting gear, and ball bearing countershaft are supplied.

DETAILS INCLUDED IN THE PRICE

Set of Planing Cutters. Pair of $\frac{1}{8}$ " Tonguing and Grooving Cutters. Pair of $1\frac{3}{4}$ " Rebating Cutters. Two Loose Cutterblocks, 5" long, $2\frac{3}{4}$ " square, complete with Cutterblock Bolts. Spring Pressure on table. Motor and Starter. Set of Spanners. Tin of Lubricant.

CODE WORDS AND PRICES

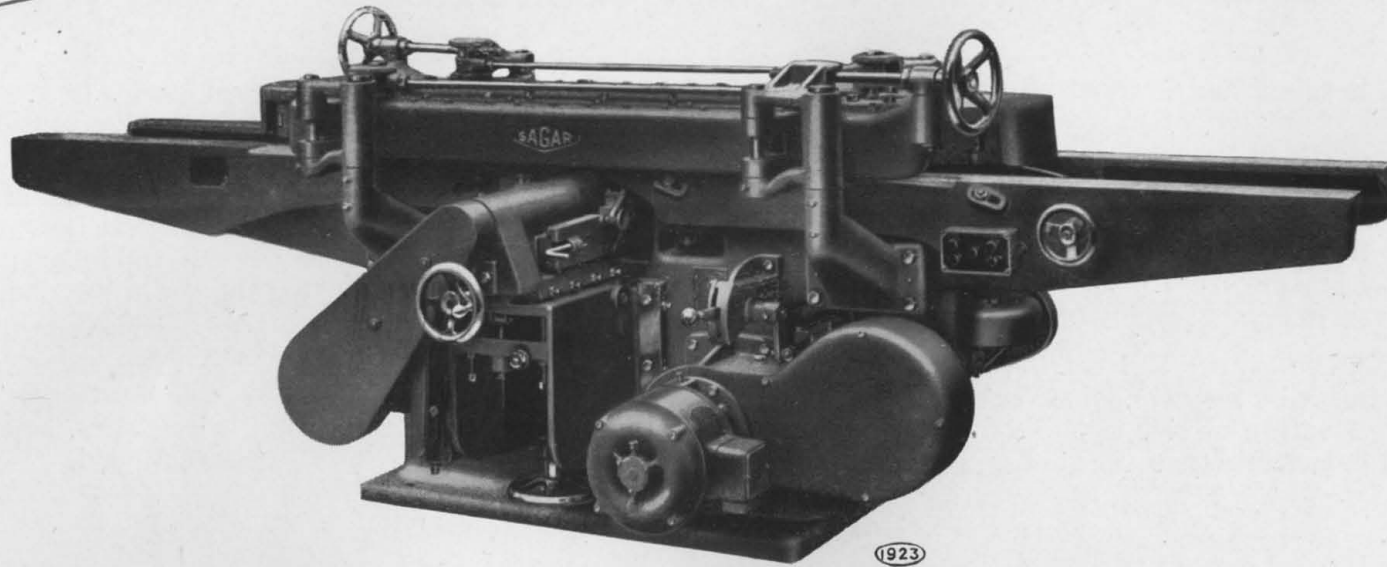
Belt Driven Machine .. .. .					.. " WYZZA " £
Electrically driven Machine with Vee Rope Drive from Motor to Countershaft .. .. .					.. " ZOSAT " £

SPECIFICATION

Capacity	24" x 4 $\frac{1}{2}$ "	Size of feed driving pulleys	8" x 1 $\frac{3}{4}$ "
Horse power required to drive	10	Size of fast and loose pulleys	12" x 5 $\frac{1}{4}$ "
Speed of cutterblock Horizontal	4,500 r.p.m.	Approximate floor space	4' 2" x 4'
Speed of cutterblocks Vertical	3,600 r.p.m.	.. gross weight	29 cwts.
Rates of feed per minute 23' 0", 34' 0" and 50' 0"		.. nett weight	26 cwts.
Speed of countershaft	900 r.p.m.	.. measurement	91 cu. ft.
Speed of feed driving pulleys	425 r.p.m.		



AUTOMATIC JOINTING MACHINE (UK)



CONSTRUCTION

THE CUTTER SPINDLES are placed one at each side of the machine so that two boards can be operated upon at the same time. Each spindle headstock has vertical and horizontal adjustments by handwheel and screw, and canting adjustment for making bevel joints.

THE FEEDING MECHANISM consists of an endless chain with continuous travel along fixed guideways and around chain wheels which are driven from a gear box. Tensioning adjustment is provided for the chain. A series of anti-friction rollers working in radial hinged arms, mounted in adjustable rails, hold the boards to be jointed rigidly against the travelling chain. The adjustment for different

thicknesses of board is made by turning a handwheel conveniently placed at the feeding-in end of each rail.

A GEAR BOX for the feed is arranged to give three rates of feed up to 97 feet per minute.

HOLLOW JOINTS can be produced by making a simple adjustment.

THE TABLES have draw-out motion to accommodate different sizes and types of cutterheads. In addition, the leading-on tables have a rise and fall motion by handwheel and screw.



AUTOMATIC JOINTING MACHINE (UK)

DETAILS INCLUDED IN THE PRICE

Motors and Starters. Set of Spanners. Tin of Lubricant.

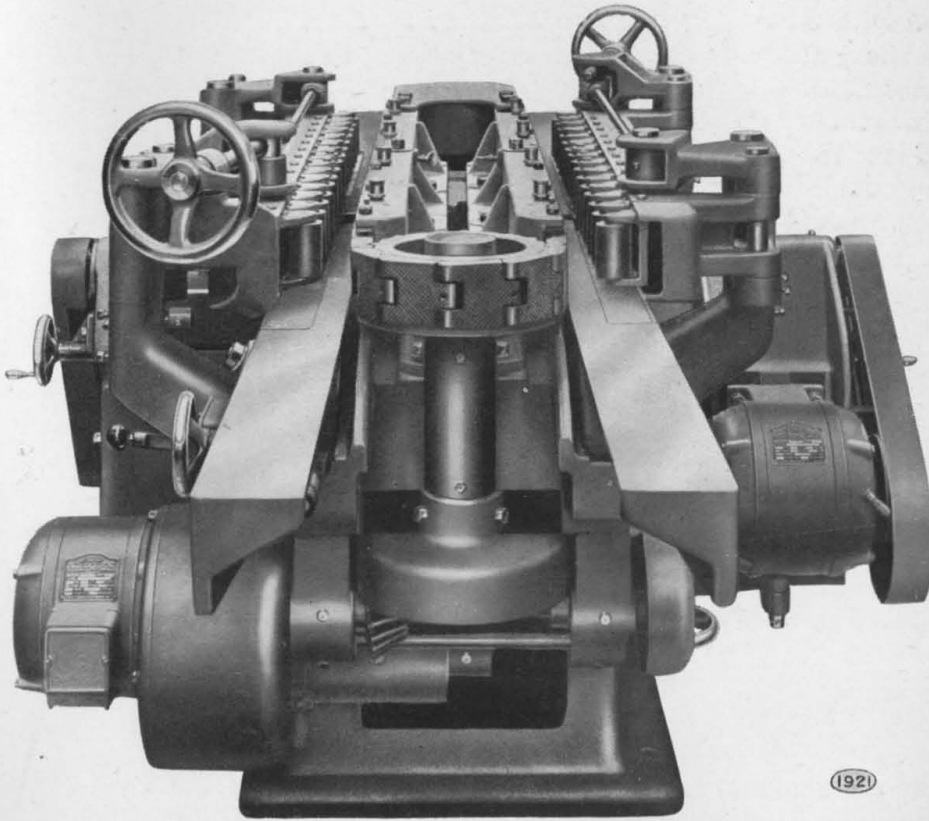
CODE WORDS AND PRICES

Electrically Driven Machine	" YUTUL "	£
Jointer Heads without Cutters	each	£
H.S.S. Cutters for standard joints ..	per set of 6	£
H.S.S. Cutters for special joints ..	per set of 6	£
H.S.S. Flat Cutters 2" wide for flat joints ..	per set of 6	£
Cutter Truing Attachments	" YUVAH "	£
Six-knife Circular Blocks for flat jointing	"ZAEMZ "	£

Separate leaflet supplied on request for all types of Milled to Pattern Jointer Cutterheads.

SPECIFICATION

Thickness of material	From ¼" to 4½"
Length of material will take	Unlimited.
Shortest material will take	6"
Minimum width of material will take ..	1¼"
Speed of cutter spindles	6,000 r.p.m.
Rates of feed	52, 67 and 97 ft. per min.
Horse power of each spindle motor	3
Horse power of feed motor	2
Speed of spindle motors	3,000 r.p.m. syn.
Speed of feed motor	1,500 r.p.m. syn.
Approximate floor space	12' 0" × 5' 8"
„ gross weight	56 cwts.
„ nett weight	48½ cwts.
„ measurement	170 cu. ft.

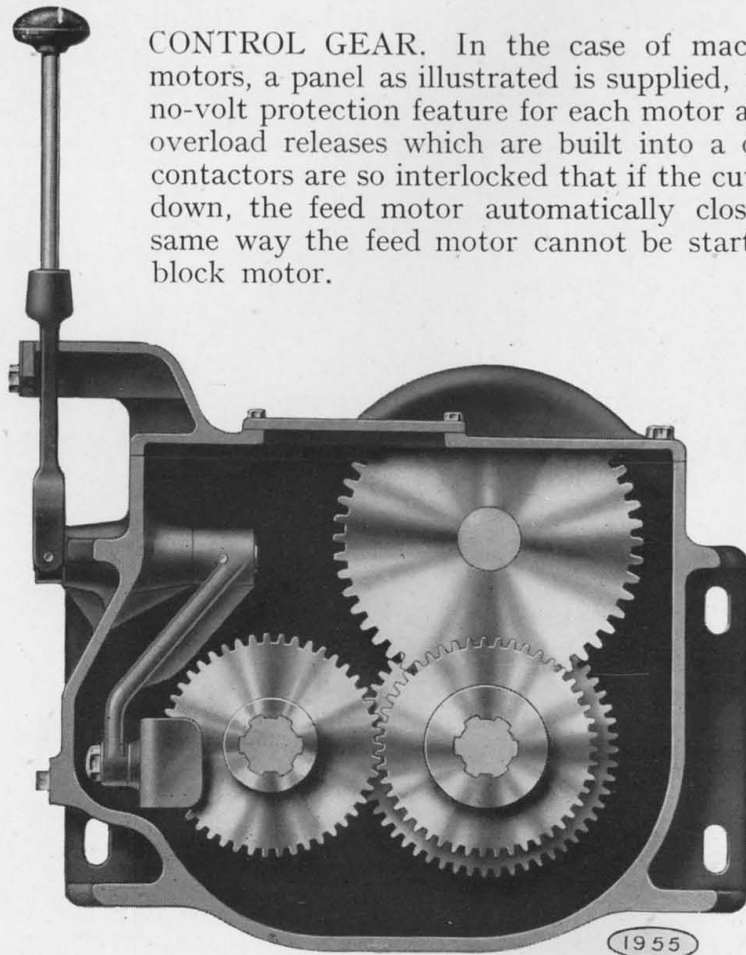


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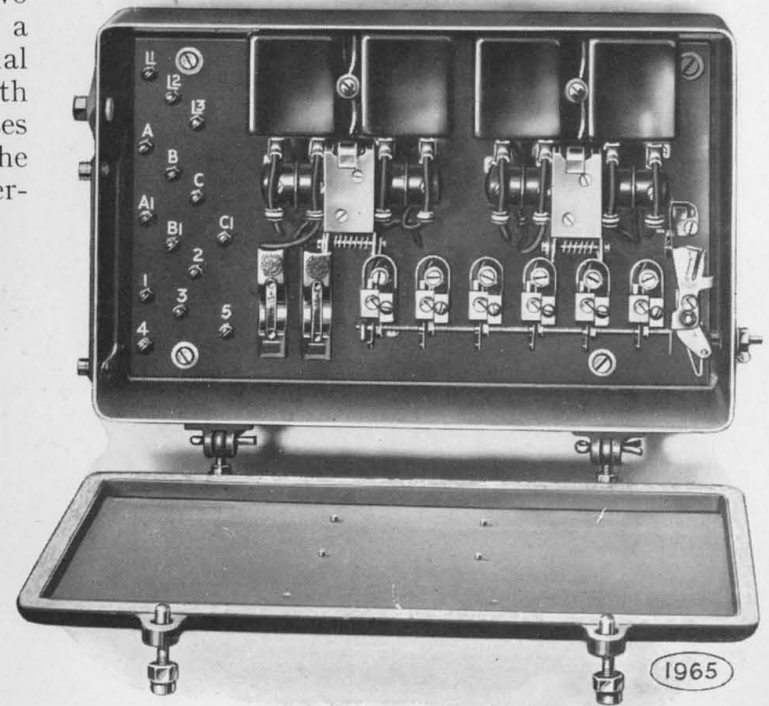


PLANING MACHINES

CONTROL GEAR. In the case of machines driven by two motors, a panel as illustrated is supplied, which is fitted with a no-volt protection feature for each motor and also three thermal overload releases which are built into a dust-proof case. Both contactors are so interlocked that if the cutterblock motor closes down, the feed motor automatically closes down, and in the same way the feed motor cannot be started before the cutterblock motor.



Sectional view of Feed Gear Box



THE GEARS are made of high quality steel, the teeth being rounded to ensure easy engagement when changing speed. The gear wheels which are mounted on six-spline shafts, revolve continuously in oil, and are controlled by a conveniently placed hand lever in front of the machine.

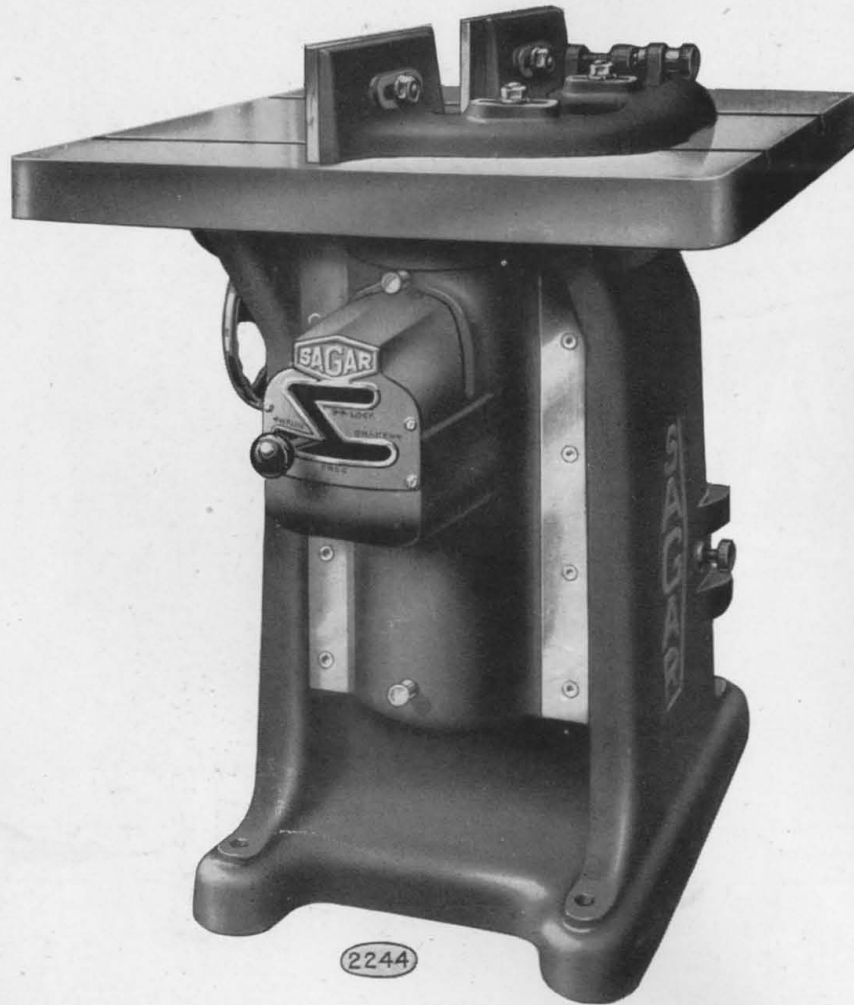
Section 3

SPINDLE MOULDING and
ROUTING MACHINES





LIGHT VERTICAL SPINDLE MOULDING MACHINE (UW)



2244

CONSTRUCTION

THE BODY is a one piece cored casting of substantial construction. THE TABLE, which is extremely rigid is provided with two loose rings and swings clear when using undertable work rest. This rest is fully adjustable both laterally and vertically.

THE SPINDLE is dynamically balanced and mounted on ball-bearings. Brake and lock mechanism with single lever control is provided to stop motor, lock spindle and isolate motor. Rise and fall motion is by handwheel and screw.

THE MOTOR is mounted on a swinging baseplate on the machine frame. The drive is by endless flat belt and two spindle speeds are obtainable by means of interchangeable motor pulleys. The spindle bearing is detachable for ease in changing belts.

THE FENCES are of the horse shoe type, adjustable together or independently. Adjustment is also provided to and from spindle.

BELT DRIVE. Ball bearing countershaft is supplied.

DETAILS INCLUDED IN THE PRICE

Loose Top Piece 1" dia. Pair Grooved Cutter Collars 2½" dia. Three Spacing Collars. Pair of Fences. Four Pressure Springs. Motor and Starter. Set of Spanners. Tin of Lubricant.

CODE WORDS AND PRICES

Electrically Driven Machine	" ZOKLA "	£
Electrically Driven Machine with Reversible Motor	" ZOKME "	£
Belt Driven Machine—single speed only	" ZOOFK "	£
Eccentric Ring Fence 6" diameter	" ZILJE "	£
Safety Guard—see page 157	" YAFOZ "	£
Loose Slotted Top Piece 1½" diameter	" ZOKOP "	£
Undertable Work Rest	" ZOOHM "	£

SPECIFICATION

Size of table	2' 8" square.
Speeds of spindle on electrically driven machine	4,500 and 6,000 r.p.m.
Vertical adjustment of spindle	4¾"
Top piece shank	1" diameter.
Horse power required to drive	4
Size of fast and loose pulleys on countershaft	8" diameter × 3" wide.
Speed of fast and loose pulleys on countershaft	1,000 r.p.m.
Approximate floor space	3' 1" × 2' 8"
" gross weight	10½ cwts.
" nett weight	9 cwts.
" measurement	32 cu. ft.



HEAVY VERTICAL SPINDLE MOULDING MACHINE (QG)

CONSTRUCTION

THE BODY is a heavy one piece cored casting, of rigid construction.
 THE TABLE, of very heavy proportions, is provided with three loose rings.
 THE FENCES have independent adjustment in dovetail grooves in the table with fine screw adjustment to and from the spindle.
 THE SPINDLE is of high quality steel, precision ground all over and mounted on ball bearings. Brake and lock mechanism with single lever control is provided to stop motor, lock spindle and isolate motor. Rise and fall of spindle is operated by handwheel through worm and worm gear motion.
 THE MOTOR is mounted on the rear of spindle slide with vee rope drive to spindle giving two speeds. Handwheel and screw adjustment is provided for changing speed and tensioning drive.

DETAILS INCLUDED IN THE PRICE

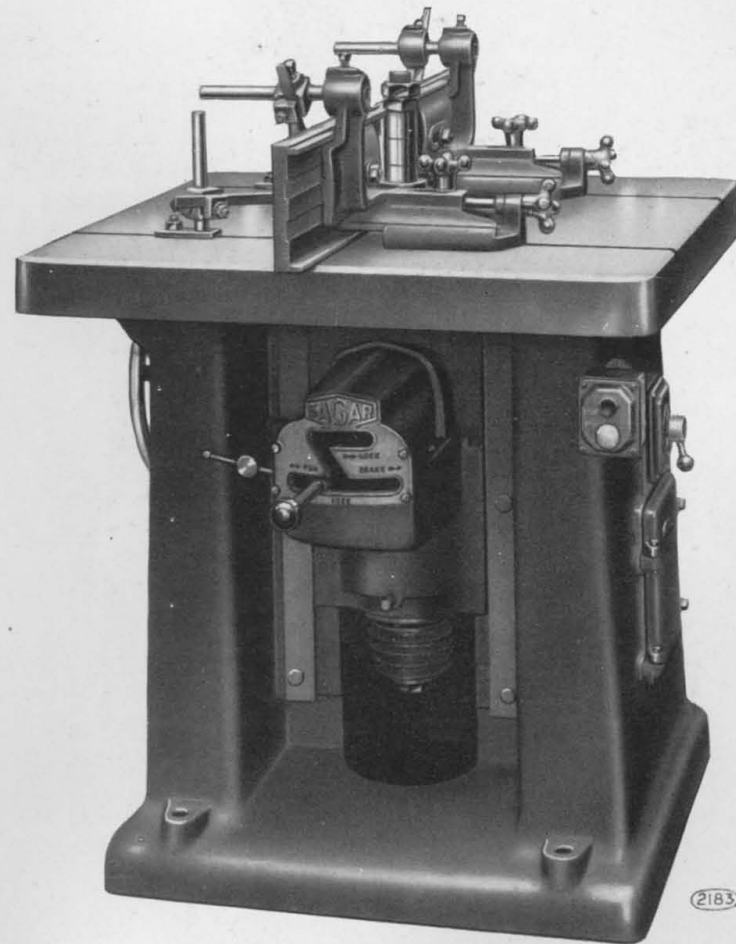
Loose Top Piece 1 1/4" diameter. Pair Grooved Cutter Collars 2 3/4" diameter. Cutterblock 2 1/2" square x 4" long with 4 bolts. 3 Spacing Collars. Pair of Fences. 4 Pressure Springs. Set of Spanners. Tin of Lubricant.

CODE WORDS AND PRICES

Electrically Driven Machine	" ZOHEK " £
Electrically Driven Machine with Reversible Motor	" ZOHIL " £
Loose Slotted Top Piece 1 1/2" diameter	" YOSYG " £
Eccentric Ring Fence 6" diameter	" ZILJE " £
Safety Guard—see page 157	" YAFOZ " £
Outer Bearing for blocks up to 8" long with Top Piece— see page 158	" ZEMUJ " £

SPECIFICATION

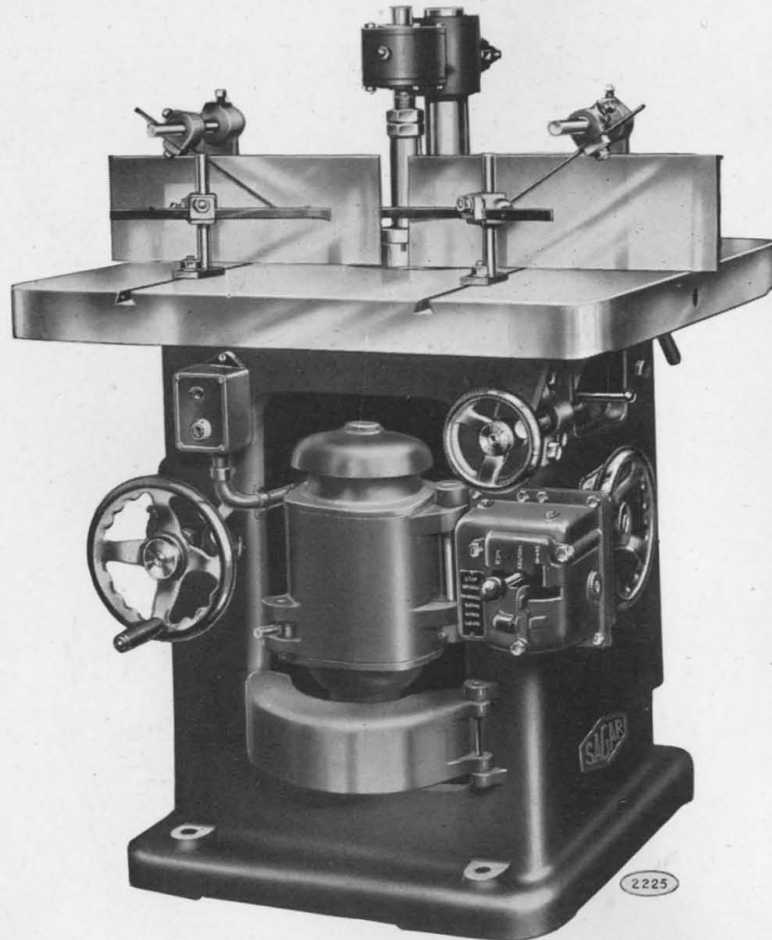
Size of table	2' 8" square.
Vertical adjustment of spindle	6"
Speed of spindle	4,500 and 6,000 r.p.m.
Loose spindle head shank	1 1/2" diameter.
Horse power	4
Speed of motor	3,000 r.p.m. syn.
Approximate floor space	2' 8" x 2' 8"
" gross weight	15 cwts.
" nett weight	13 cwts.
" measurement	44 cu. ft.



(2183)



CANTING SPINDLE MOULDING AND SHAPING MACHINE (CA)



CONSTRUCTION

THE TABLE has a horizontal adjustment by means of handwheel and screw for setting the depth of cut and for fixing the edges of the table gap in the most suitable position for the cutterhead. It is provided with dovetail grooves, so that the fences may be located square, and in any position in front of or behind the spindle, without loss of time in setting. An adjustable gap plate is also provided.

THE FENCES have loose front plates which are adjustable to suit the cutters being used. They are independent and have fine screw adjustment, a suitable locking device being incorporated. Top and side pressure springs are also provided.

THE SPINDLE, which revolves in ball bearings, is mounted in a heavy vee slide within the body, the canting movement being controlled by handwheel and screw. A graduated scale is provided to indicate angle of cant.

OUTER BEARING. This is a particularly desirable feature, especially when working deep moulds and long cutterblocks have to be used.

LOCKING DEVICES are provided for all the moving slides.

THE MOTOR is mounted on rear of canting spindle frame on hinged mounting, with quick adjustment for tensioning drive and changing speed. The drive to spindle is by vee ropes with stepped pulleys giving two speeds.

BRAKE AND LOCKING DEVICE, controlled by single lever, stops motor, applies brake to spindle and locks spindle. The motor is isolated except when in running position.



CANTING SPINDLE MOULDING AND SHAPING MACHINE (CA)

DETAILS INCLUDED IN THE PRICE

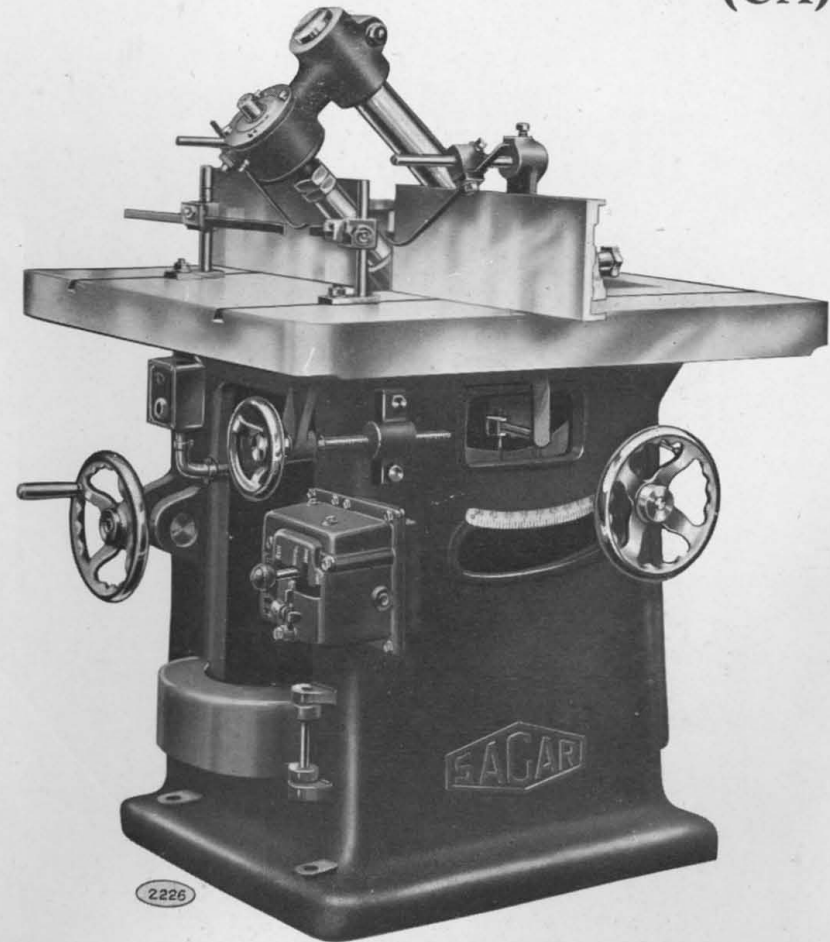
Three Making-up Collars. Outer Bearing. One Pair of Fences for straight work. Four Adjustable Pressure Springs. Special Top Piece $1\frac{1}{4}$ " diameter. Set of Spanners. One Pair Grooved Cutter Collars $2\frac{3}{4}$ " diameter. Tin of Lubricant.

CODE WORDS AND PRICES

Standard Machine "ZILUM" £
 Loose Slotted Top Piece $1\frac{1}{2}$ " diameter "YOSYG" £
 Safety Guard—see page 157 "ZIMEK" £

SPECIFICATION

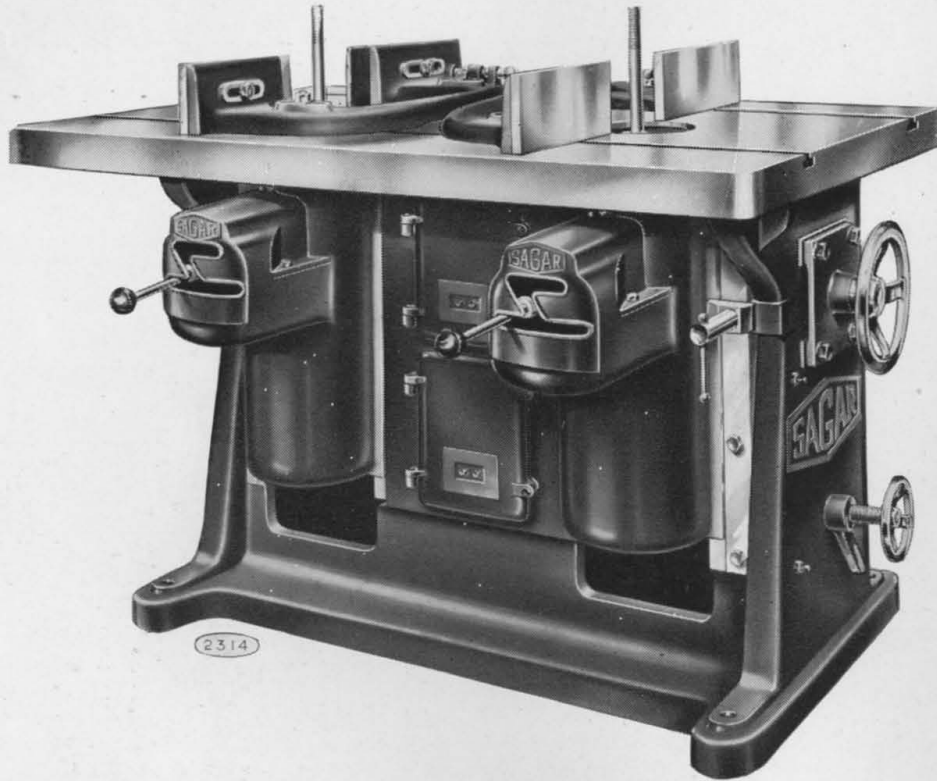
Size of table	2' 8" × 3' 0"
Spindle will cant up to	45°
Size of fence plates	6" × 17"
Vertical adjustment of spindle	6"
Speeds of spindle	4,500 and 6,000 r.p.m.
Loose top piece shank	$1\frac{1}{2}$ " diameter.
Horse power	4
Speed of motor	3,000 r.p.m. syn.
Approximate floor space	3' 1" × 3' 4"
" gross weight	15 cwts.
" nett weight	13 cwts.
" measurement	49 cu. ft.



Showing Spindle Canted.



LIGHT DOUBLE VERTICAL SPINDLE MOULDING MACHINE (XC)



2314

CODE WORDS AND PRICES

Electrically driven Machine	" ZOYBE "	£
Belt driven Machine—single speed only	" ZUCAJ "	£
Eccentric Ring Fences 6" diameter	" ZILJE "	each £
Safety Guards	" YAFOZ "	each £
Loose slotted top pieces 1½" diameter	" ZOKOP "	each £

CONSTRUCTION

THE MAIN FRAME is a one piece cored casting and designed so that the table is correctly supported over a large area.

THE TABLE is of heavy construction, well ribbed and fitted with two loose rings for each spindle recess.

BRAKE AND LOCK MECHANISM to spindles, with single lever control, is provided to stop motors, lock spindles and isolate motors.

THE LOOSE TOP PIECES are of high quality steel, precision ground, and have self-centring conical mountings which ensure perfect alignment at all times.

THE FENCES are of the horse shoe type, adjustable together or independently. Adjustment is also provided to and from spindle, suitable locking devices being incorporated.

THE MOTORS are mounted on swinging base plates on the machine frame, with screw operated motion for tensioning drive. The drive to each spindle is by endless flat belt and change pulley is provided thereby giving two spindle speeds.

BELT DRIVE. Ball bearing countershaft complete is supplied.

DETAILS INCLUDED IN THE PRICE

Two Loose Top Pieces 1" dia. Two pairs Grooved Cutter Collars 2½" dia. Two sets Spacing Collars. Two pairs Fences with Pressure Springs. Motors and Starters. Set of Spanners. Tin of Lubricant.

SPECIFICATION

Size of table	4' 3" × 2' 10"
Speed of spindles on electrically driven machine	4,500 and 6,000 r.p.m.
Vertical adjustment of spindles	4½"
Top piece shanks	1" diameter.
Horse power required for each head	4
Size of fast and loose pulleys on countershaft	8" diameter × 3" wide.
Speed of fast and loose pulleys on countershaft	1,000 r.p.m.
Approximate floor space	4' 3" × 2' 11"
„ gross weight	20 cwts.
„ nett weight	17½ cwts.
„ measurement	49½ cu. ft.



HEAVY DOUBLE VERTICAL SPINDLE MOULDING MACHINE (WB)

THE BODY is a heavy cored casting of great rigidity, mounting all the working parts.

THE TABLE is heavily ribbed, surface ground all over, each spindle hole being provided with three loose rings.

THE FENCES have independent adjustment in dovetail grooves in the table with fine screw adjustment to and from spindle.

THE SPINDLES are of steel, ground all over, dynamically balanced and mounted on ball bearings. They have rise and fall motion by handwheels operated through mitre wheels and screws which are fully protected from chips.

THE MOTORS have vee rope drive to machine spindles and are provided with adjustment for changing speed and tensioning drive.

SPECIFICATION

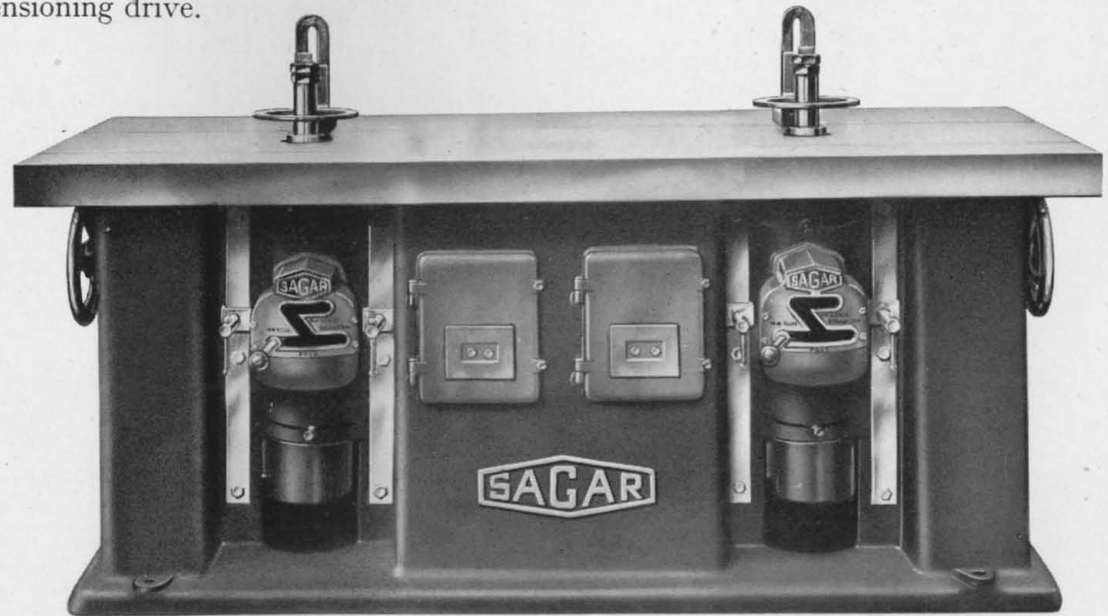
Size of table	6' 0" x 3' 0"
Vertical adjustment of spindle	6"
Speeds of spindle	4,500 and 6,000 r.p.m.
Speed of motors	3,000 r.p.m. syn.
Horse power of each motor	5
Loose spindle head shank	1½" diameter.
Approximate floor space	6' 0" x 3' 0"
" gross weight	32 cwts.
" nett weight	27 cwts.
" measurement	80 cu. ft.

DETAILS INCLUDED IN THE PRICE

Two Pairs of Fences with Pressure Springs. Two Loose Top Pieces 1¼" diameter. Two Pairs Grooved Cutter Collars. Two Sets of Making-up Collars. Set of Spanners. Tin of Lubricant.

CODE WORDS AND PRICES

Electrically Driven Machine	" ZATIJ "	£
1½" Slotted Loose Top Pieces	" YOSYG "	each £
Eccentric Ring Fences ..	" ZILJE "	each £
Adjustable Fences with Springs	" YAFIX "	each £
Safety Guards—see page 157	" YAFOZ "	each £
Outer Bearings with Long Top Pieces—see page 158	" ZEMUJ "	each £



(2189)



TENONING ATTACHMENT (WV) FOR VERTICAL SPINDLE MOULDING MACHINES

CONSTRUCTION

THIS ATTACHMENT consists of a swinging slide carrying the table, and cramp for holding the timber in a vertical position. When the material to be tenoned has been fixed in position, the swinging slide is brought over against the left hand stop and the cramp slide is pushed forward past the cutterblock which forms half the tenon. Then the swinging slide is moved over against the right hand stop and the cramp slide is pulled back past the cutterblock completing the tenon.

ADJUSTABLE STOPS are provided on the table to regulate the thickness of tenon and depth of shoulders, an arrangement being included so that the length between the shoulders of tenons may be accurately gauged, no marking out is therefore necessary, and all pieces are finished exactly alike.

A GUARD as shown on illustration, which gives ample protection to the operator, is provided.

DETAILS INCLUDED IN THE PRICE

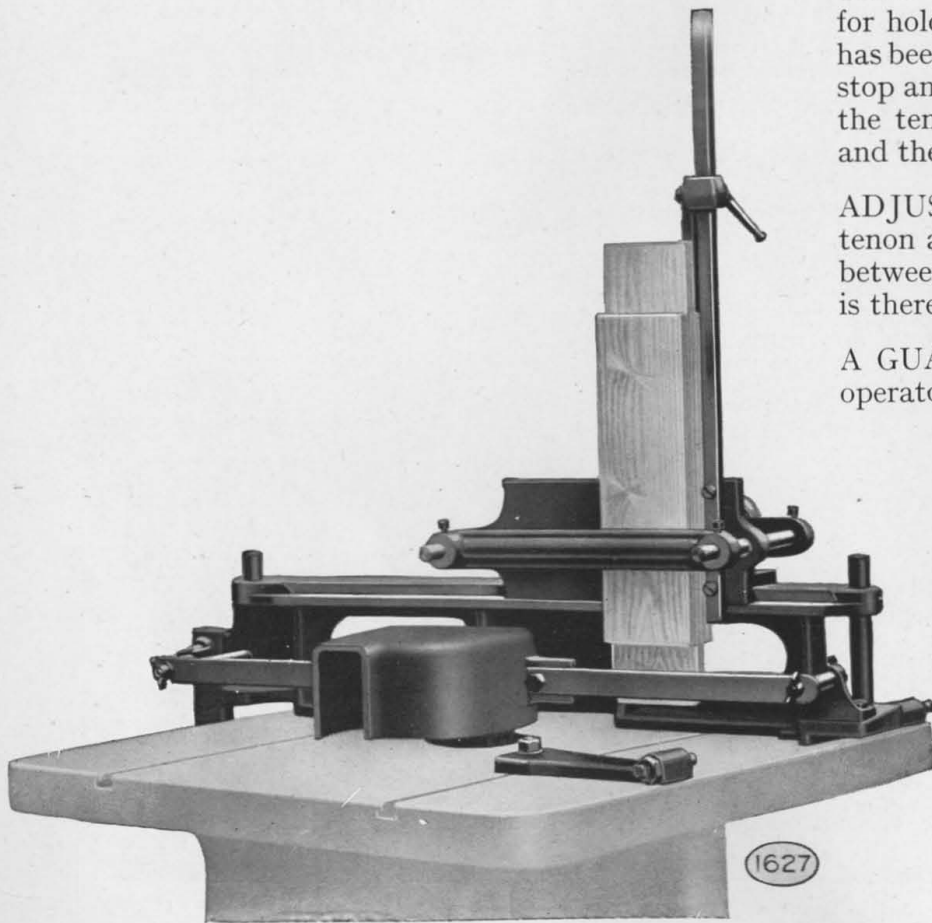
Special Top Piece. Cutterhead with Set of Facing and Shoulder Cutters. Set of Stops.

CODE WORD AND PRICE

"YADVE" £

SPECIFICATION

Will cut tenons	4½" long × 11" wide.
Stop arranged for material between shoulders up to	3' 0" long.
Maximum thickness of material	4½"
Approximate gross weight	2¼ cwts.
,, nett weight	1½ cwts.
,, measurement	8 cu. ft.





CORNER LOCKING ATTACHMENT (QX) FOR VERTICAL SPINDLE MOULDING MACHINES

CONSTRUCTION

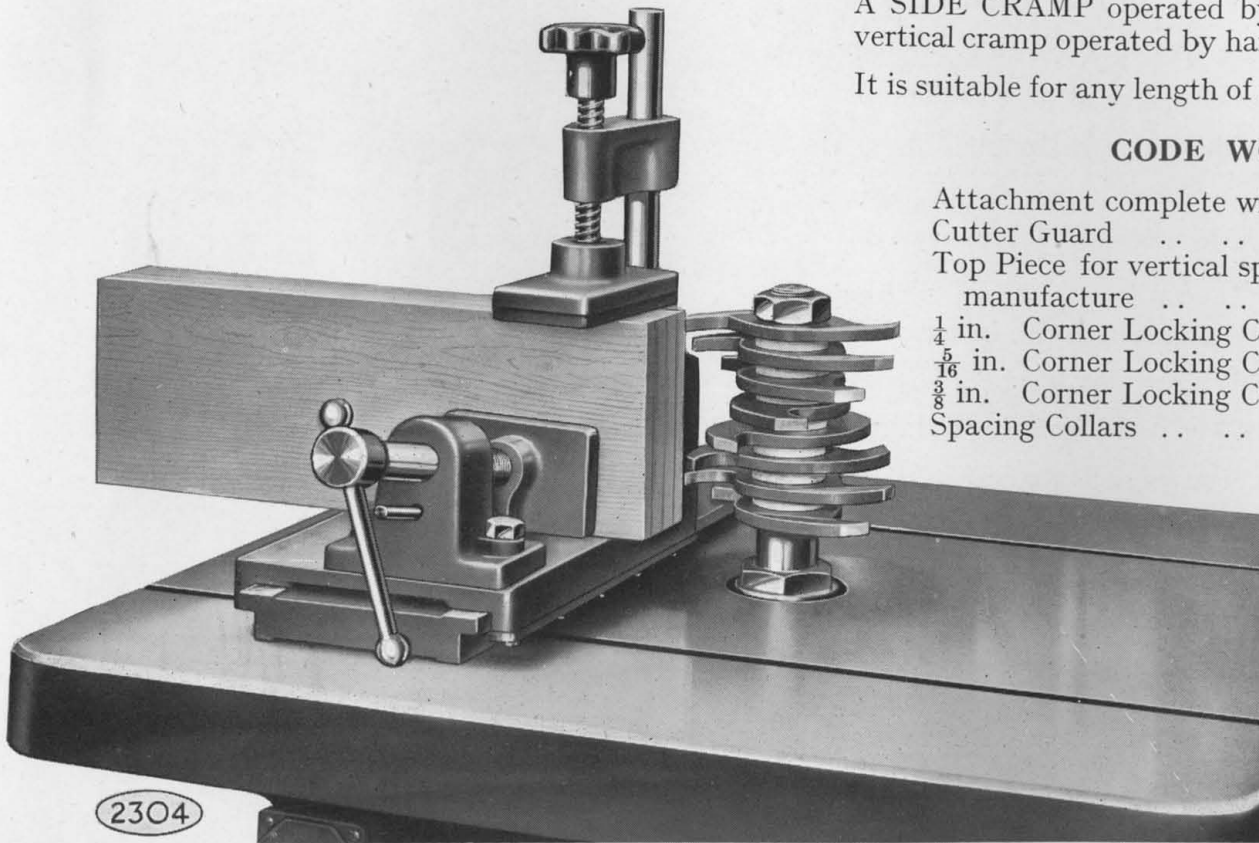
THIS ATTACHMENT consists of a cast iron base plate upon which a movable slide incorporating a fence is mounted.

A SIDE CRAMP operated by hand-lever and screw, and an adjustable vertical cramp operated by handgrip and screw are provided.

It is suitable for any length of material and up to 6 in. deep \times 6½ in. wide.

CODE WORDS AND PRICES

Attachment complete with Cramps	" ZODAF "	£
Cutter Guard	" ZOZBA "	£
Top Piece for vertical spindle moulder not of our manufacture		£
¼ in. Corner Locking Cutters—6 in. diameter .. each		£
5/16 in. Corner Locking Cutters—6 in. diameter .. each		£
3/8 in. Corner Locking Cutters—6 in. diameter .. each		£
Spacing Collars		£



Approximate gross weight .. 85 lbs.
 ,, nett weight .. 72 lbs.
 ,, measurement .. 2 cu. ft.



HIGH-SPEED ROUTING MACHINE (AFS9)

CONSTRUCTION

THE MAIN FRAME is a one piece casting of well balanced and substantial construction, all possible chance of vibration due to high speed of the motor being eliminated. The overhang is as long as possible in order to provide adequate space for working large material.

THE TABLE, which is precision ground, has rise and fall movement by means of conveniently placed handwheel and screw. A compound table with rising, falling, longitudinal and lateral motion can be supplied if desired. A table pin is provided for use when working irregular shapes, which is positioned in the centre of the table, five positions being obtained by handlever at the front of the machine. Provision is made for fitting a fence to the table if required.

ELECTRICAL EQUIPMENT is the finest procurable to withstand the high duty it is called upon to perform, and consists of a Frequency Changer connected through a Direct-on-Line Contactor Starter, Push Button operated, which controls the Frequency Changer, and the Motor in the Headstock which runs at 18,000 or 24,000 r.p.m.





HIGH-SPEED ROUTING MACHINE (AFS9)

DETAILS INCLUDED IN THE PRICE

Frequency Changer Set and Control Gear. High Speed Motor. One each Collets for $\frac{1}{4}$ ", $\frac{3}{8}$ " and $\frac{1}{2}$ " Shanks. One each Guide Pins $\frac{3}{16}$ ", $\frac{1}{4}$ ", $\frac{5}{16}$ ", $\frac{3}{8}$ ", $\frac{7}{16}$ ", $\frac{1}{2}$ ", $\frac{9}{16}$ ", and $\frac{5}{8}$ ". Set of Spanners. Grease Gun. Tin of Lubricant.

CODE WORDS AND PRICES

Machine with two speeds, 18,000 and 24,000 r.p.m. "ZEHUD" £
 Extra for Compound Table "ZIDEB" £

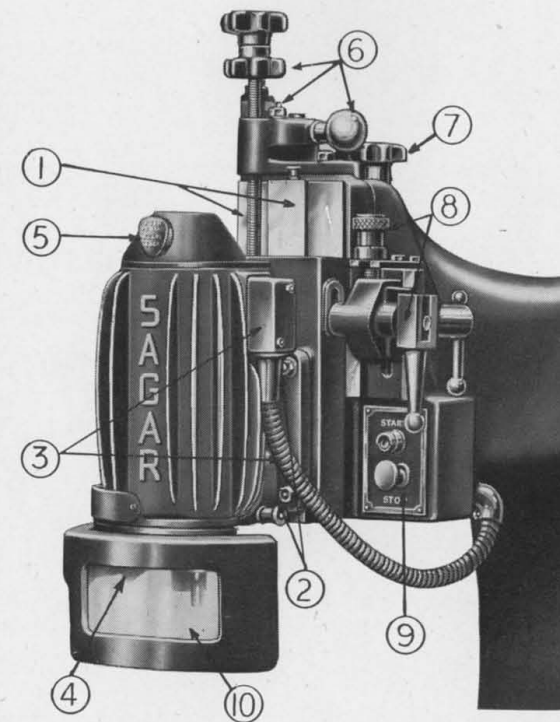
SPECIFICATION	Standard Table Machine.	Compound Table Machine.
Spindle to inside of body	24 $\frac{3}{4}$ "	24 $\frac{3}{4}$ "
Size of table	30" square.	41" × 21"
Rise and fall of table	11"	9"
Lateral movement of table	—	12"
Longitudinal movement of table	—	35"
Max. dist. between table and chuck	13 $\frac{1}{2}$ "	10"
Max. movement of spindle	4 $\frac{1}{2}$ "	4 $\frac{1}{2}$ "
Horse power	2 $\frac{3}{4}$	2 $\frac{3}{4}$
Speed of motor (r.p.m. syn.)	18,000/24,000	18,000/24,000
Approximate floor space	30" × 60"	78" × 68"
„ gross weight with frequency changer	22 $\frac{1}{4}$ cwts.	23 cwts.
„ nett weight with frequency changer	18 $\frac{1}{4}$ cwts.	19 cwts.
„ measurement	106 cu. ft.	106 cu. ft.



HIGH-SPEED ROUTING MACHINE (AFS9)

PRINCIPAL FEATURES

1. The headstock is mounted on wide slides.
2. Headstock is easily and quickly removed from the body in order to effect repairs and adjustments.
3. The terminal block for the motor and the flexible tubing in which the lines are encased are detachable as a whole from the headstock without having to pull wires back.
4. A fan which is mounted in the headstock assists in keeping the motor cool and also acts as a blower to keep the work clear.
5. A brake is provided in order to instantly stop the spindle and so facilitate a rapid cutter change. A locking device is incorporated.
6. In order to operate at varying depths at one setting, a series of adjustable stops are provided, which may be readily selected by means of a hand lever.
7. To overcome the unnecessary over-return of the headstock following an operation, an adjustment is provided for the control of the movement.
8. For certain work the headstock may require to be set in a fixed position and this calls for very fine setting to specified limits. A fine screw adjustment is incorporated for this purpose.
9. Push-button control is mounted in a convenient position for the operator.
10. A transparent guard is fitted round the cutter which gives the operator adequate protection.
11. A reliable and well known make of motor is fitted which is equipped with special bearings to withstand the very high speed.



2120

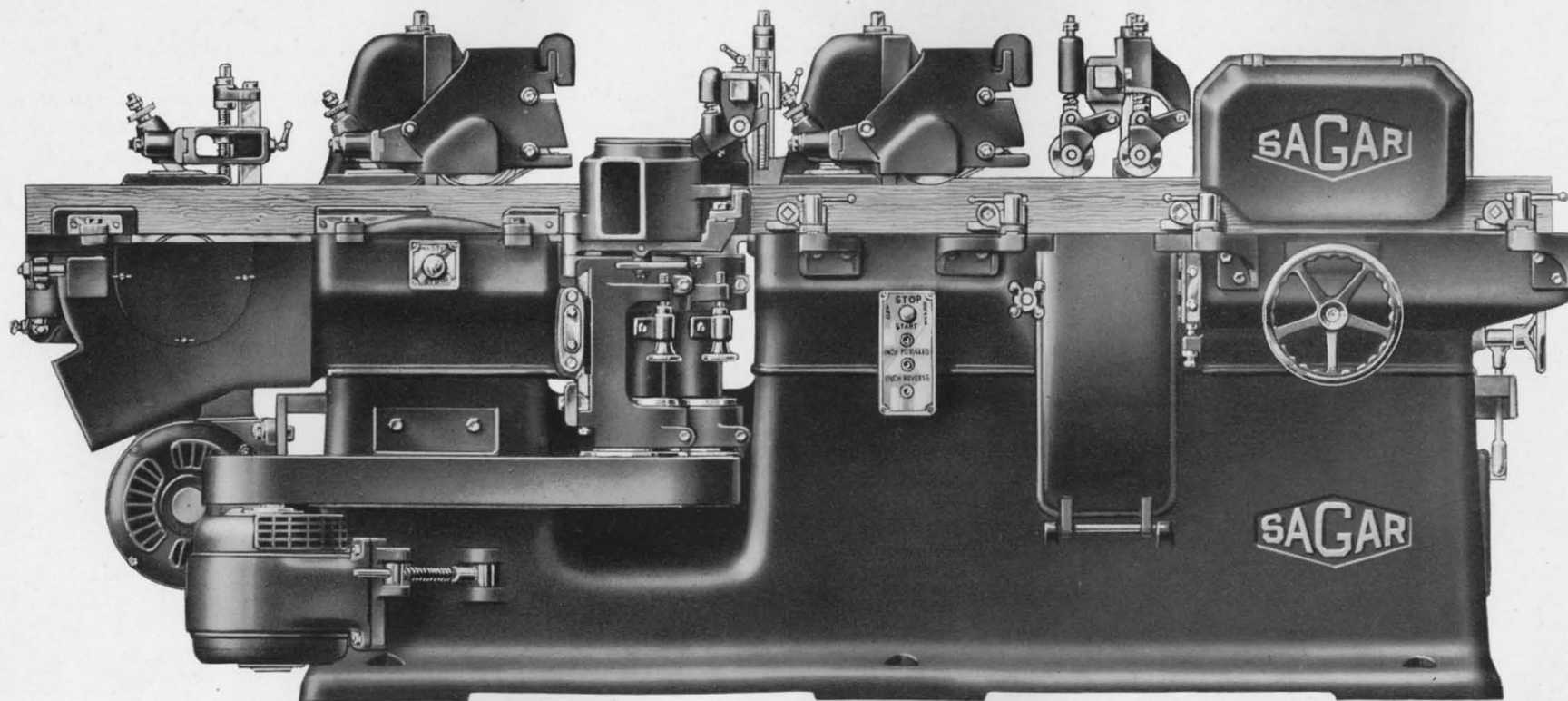
Section 4

MOULDING and PLANING
MACHINES





MOULDING AND PLANING MACHINE (AGC)



2432

Capacities: 4" × 3" and 7" × 4"



MOULDING AND PLANING MACHINE (AGC)

CONSTRUCTION

THREE-SPEED GEAR BOX and two-speed cone pulleys provide six feeding speeds from 15 feet to 112 feet per minute.

THE CUTTERHEADS which have four lips, are of high quality steel, dynamically balanced and quickly removable. They have horizontal and vertical adjustment, and are provided with chutes for connection to dust extracting plant. The cutterheads and feed gear are driven by independent motors through adequately guarded vee ropes and grooved pulleys. A pressure is mounted in front of and behind the top head. The front one which is in two sections forming chip breakers, is mounted on the hood and can be weighted with detachable weights. A fence type side pressure controls the timber as it approaches and leaves the top head. The front side head carries a chip breaker spring-loaded type side pressure. Top pressures are mounted on strong vertical steel slides, with rise and fall motion by handwheel and screw. They have also horizontal adjustment for varying widths of work. Pressure over bottom head consists of dual rollers, mounted on ball bearings, with provision for canting for bevel sawn stock. Both are independently spring loaded and arranged to swing clear from the work when setting up. The pressure between the side heads consists of one ball bearing mounted roller. Spring-loaded roller side pressures are provided at feeding-in end of machine and immediately before the bottom head, to hold the timber firmly against the fence.

FEED ROLLERS are mounted on ball bearings and adjustable by means of handwheel and screw. Top rollers are loaded by long coil springs, which have independent adjustment. The in-feed top feed roller is grooved spirally, thus giving the timber a permanent lead towards the fence. Increased pressure may be given to both rollers together by additional turning of rise and fall handwheel on front of machine, after rollers have touched the timber.

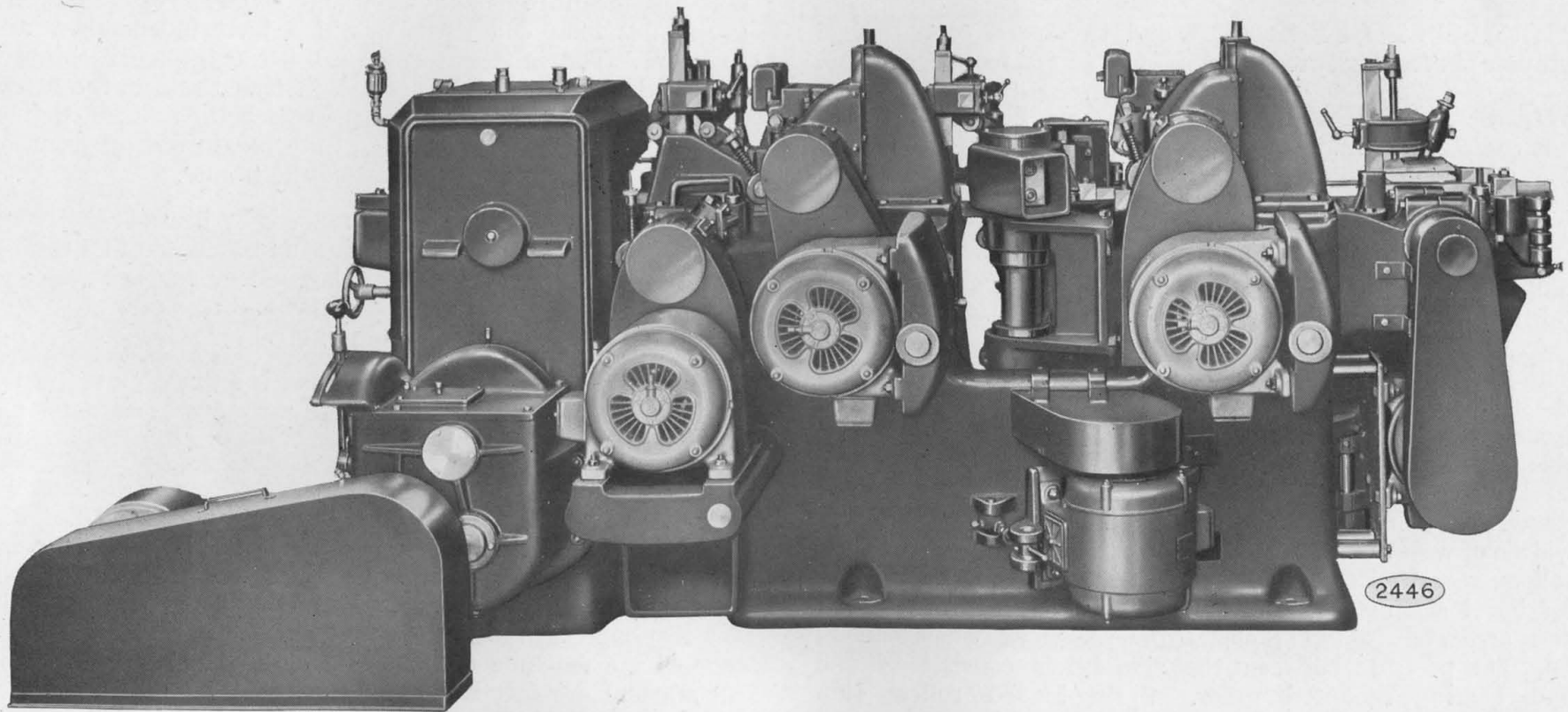
DRIVE from gear box to feed roller is by heavy duty roller chain, with provision for tensioning, and mounted in a totally enclosed compartment, with a large door for access. The gear box is flanged mounted, and this and feed gear are easily dismantled for access for cleaning, etc.

THE TABLE before the bottom head is adjustable vertically for depth of cut, and horizontally to give clearance for moulding cutters.

ELECTRICAL EQUIPMENT. All cutter spindle motors are of the squirrel-cage continuously rated type. Each motor is controlled by a separate starter fitted with no volt and overload protection on two phases, all the motors having contactor starters for direct or star delta starting, fitted with no volt and two overload releases. Master stops are provided at both ends of the machine for instantly closing the motors down. All starters are interlocked so that feed motor cuts out if any one, or all of the head motors cut out. The whole of the starting equipment is housed in a separate floor mounted console type panel.



MOULDING AND PLANING MACHINES (AGC)



Rear view of Machine showing independent motor drive to each head and gear box.



MOULDING AND PLANING MACHINE (AGC)

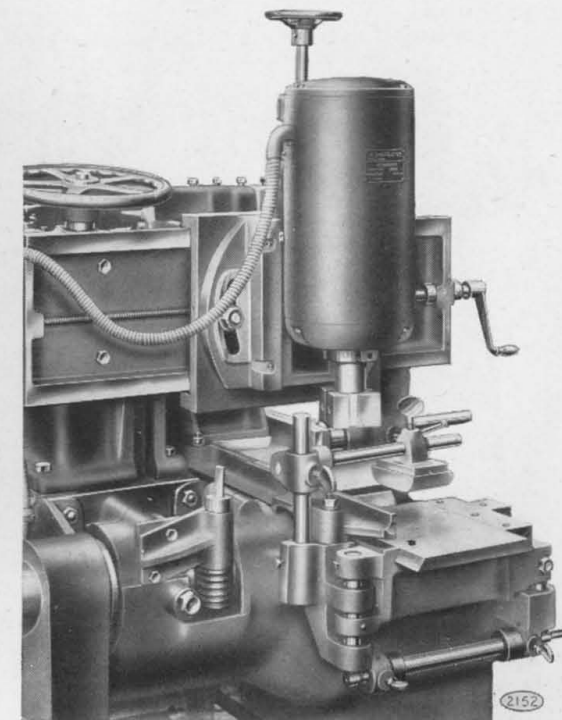
CODE WORDS AND PRICES

No. 1 Machine with a capacity of 4" x 3"	" ZIGIF " £
No. 2 Machine with a capacity of 7" x 4"	" ZIGGO " £
Additional Top Head for No. 2 Machine	" ZIHHO " £
Additional Bottom (Beading) Head for No. 1 Machine	" ZIHKY " £
Additional Bottom (Beading) Head for No. 2 Machine	" ZITER " £
Combined Bottom (Beading) and Throating Head for No. 2 Machine ..	" ZIYMP " £
Extra Square Lipped Blocks for Horizontal Heads	each £
Extra Square Lipped Blocks for Vertical Heads	each £
Extra Four Knife Circular Blocks for Horizontal Heads	each £
Extra Four Knife Circular Blocks for Vertical Heads	each £
Extra Six Knife Circular Blocks for Horizontal Heads	each £
Extra Six Knife Circular Blocks for Vertical Heads	each £

Six wing solid relieved back cutters for tongued and grooved joints, special moulds, etc., will be quoted for on receipt of requirements.

DETAILS INCLUDED IN THE PRICE

All Electrical Equipment. One Pair of Cutters and Bolts for each Head. Set of Spanners. Grease Gun. Tin of Lubricant.

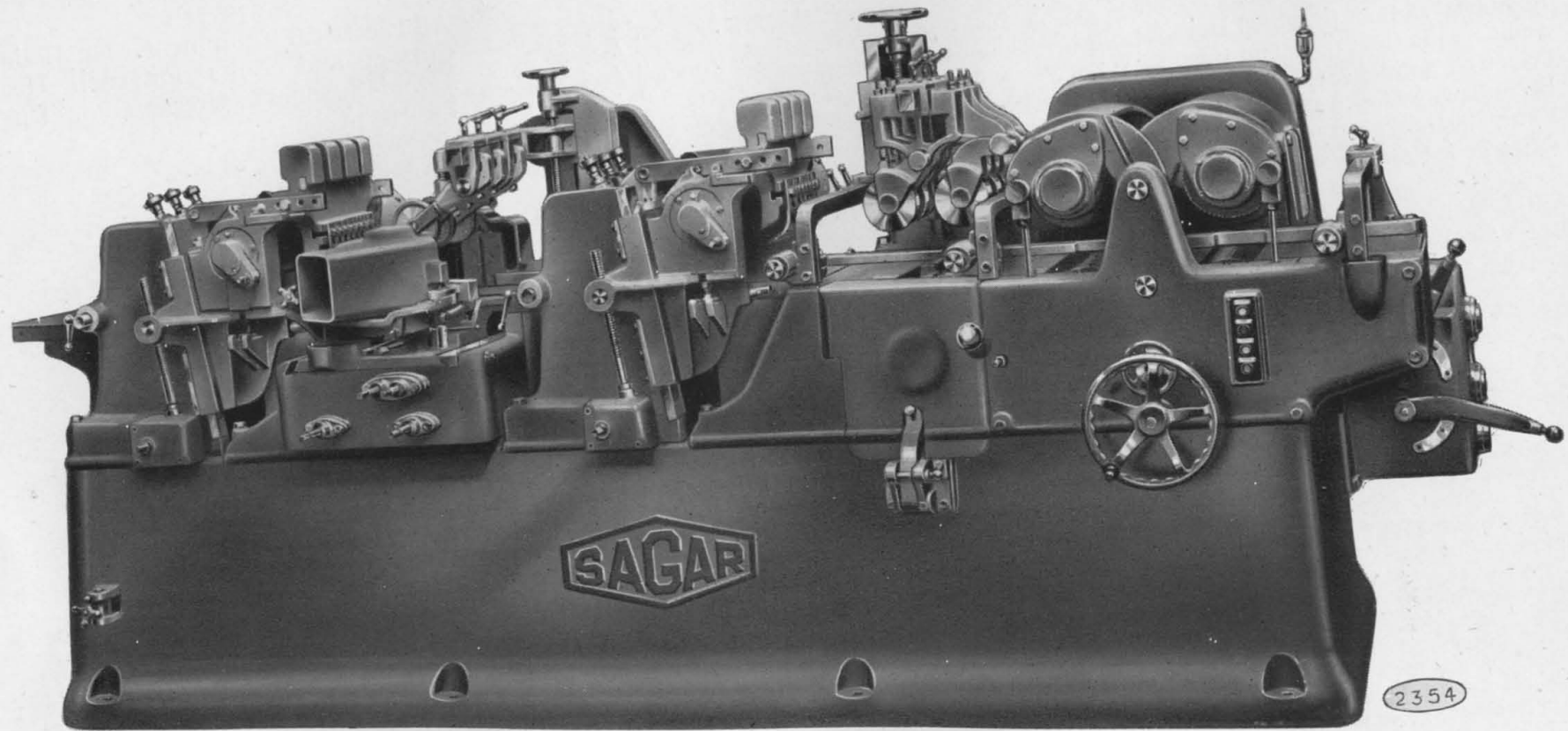


Showing additional Bottom (Beading) Head and Throating Head, mounted at Feed-out end of Machine.

SPECIFICATION	No. 1	No. 2
Capacity	4" x 3"	7" x 4"
Speed of cutterheads	6,000 r.p.m.	5,000 r.p.m.
Top and bottom cutterhead motors	5 h.p.	7½ h.p.
Speed of top and bottom cutterhead motors	3,000 r.p.m. syn.	3,000 r.p.m. syn.
Side head motors	5 h.p.	5 h.p.
Speed of side head motors	3,000 r.p.m. syn.	3,000 r.p.m. syn.
6 feeding speeds from	15 to 112 ft. per min.	15 to 112 ft. per min.
Feed motor	3 h.p.	5 h.p.
Speed of feed motor	1,500 r.p.m. syn.	1,500 r.p.m. syn.
Height from floor level to table	3' 0"	3' 0"
Approximate gross weight—Four head machine only ..	42 cwts.	49½ cwts.
„ nett weight—Four head machine only ..	38 cwts.	44½ cwts.
„ measurement—Four head machine only ..	131 cu. ft.	188 cu. ft.

MOULDING AND PLANING MACHINE (BD)

SAGAR





MOULDING AND PLANING MACHINE (BD)

CONSTRUCTION

THE BASE is a heavy cored casting of substantial construction on which the component units are mounted.

THE FEED is by four power driven rollers mounted on ball bearings. The front bearings are detachable, so that grooved rollers may be fitted for bevelled or shaped work. Large handwheel conveniently placed at the front of the machine controls rise and fall motion of feed rollers through gearing and link motion. Pressure of top rollers on to work is applied by coil springs, and continued rotation of handwheel after rollers are in contact with work compresses springs thereby increasing pressure.

THE BOTTOM FEED ROLLERS have rise and fall adjustment by handwheel.

THE GEAR BOX drive from the feed motor provides 9 rates of feed from 15 to 120 feet per minute by nine speed gear box and two speed vee rope drive. The drive from the gear box to the feed rollers is through totally enclosed worm and worm wheel running in oil. All rotating shafts are mounted on ball bearings.

THE BOTTOM HEAD is provided with horizontal and vertical adjustment, and arranged with a draw-out motion for changing cutters or cutterblock. Cutterblocks are mounted on self-centring spindles. The in-feed table between feed gear and bottom head has rise and fall adjustment for depth of cut and adjustable loose platen.

THE SIDE HEADS, which are mounted on ball bearings, have vertical and horizontal adjustment.

THE TOP HEAD on the standard four head machine is mounted after the side heads. The additional top head, when supplied, is mounted between the bottom head and the side heads—its purpose being to reduce the amount of cut on the standard top head where most of the moulding is performed. The top heads are of the under-slung type, have rise and fall motion of 5" through dual screws operated from the front of the machine and also horizontal adjustment. The front bearing is detachable to facilitate changing cutterblocks which are mounted on self-centring spindles.

AN EXTRA BOTTOM (BEADING) HEAD may be supplied and is mounted after the normal top head. The whole head has rise and fall

motion relative to the machine table. The out-feed table after this head has rise and fall motion for depth of cut on the head. The head also has horizontal adjustment and a detachable front bearing is fitted.

A VERTICAL THROATING HEAD may be supplied which consists of a motorised unit mounted on a horizontal beam after the last or standard top head. It has vertical adjustment by handwheel and screw, horizontal adjustment across the full width of the machine, and will cant to 30° in either direction.

PRESSURES. All roller pressures are mounted on ball bearings. Pressures over the bottom head consist of spring loaded rollers with horizontal and vertical adjustment and are provided with canting adjustment for bevelled stock. Roller pressure may be withdrawn and another fitment with wooden shoes substituted, for shaped work. A combined radial weight-loaded pressure and exhaust hood over the top head is provided with adjustable weights and shoes. A spring loaded adjustable pressure is fitted after the top head. Spring loaded adjustable side pressures are provided at feeding-in end of machine and before first bottom head. A radial spring-loaded chip breaker type pressure is fitted immediately in front of first side head with adjustable shoes and quick acting release motion. Fence type adjustable pressures are provided after the front side head, adjustable for width of material.

TRUING DEVICES for plain or universal jointing cutters can be supplied.

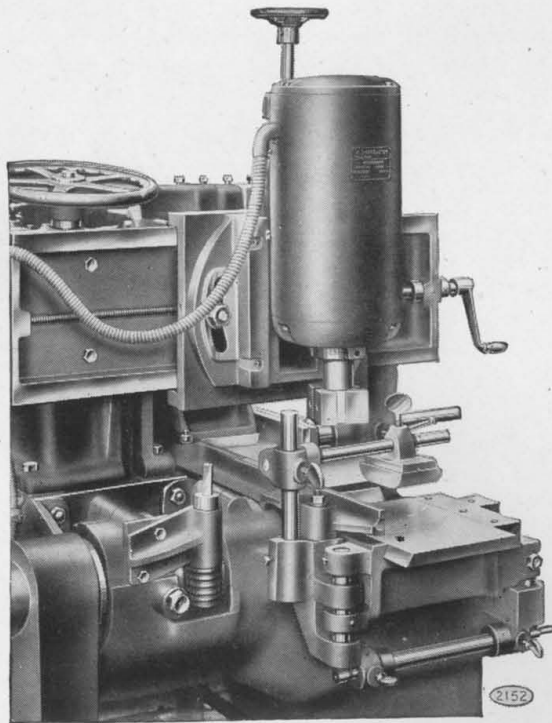
MOTORS are of the Totally Enclosed Squirrel Cage type and are mounted on swinging base plates on machine frame making the machine entirely self contained. The switchgear consists of push button operated star-delta starters controlling head motors, and direct-on contactor starter controlling feed motor, all starting equipment being housed in a floor mounted console type cabinet. The feed motor is provided with forward and reverse inching device for setting up, with an extra control station on machine frame. All starters are electrically interlocked to stop the feed motor in the event of any head motor cutting out.



MOULDING AND PLANING MACHINE (BD)

DETAILS INCLUDED IN THE PRICE

Cutterblocks. Pair of Cutters and Bolts for each head. Motors and Starters. Set of Spanners. Grease Gun. Tin of Lubricant.



Showing additional Bottom (Beading) and Throating Heads mounted at Feeding-out end of Machine.

CODE WORDS AND PRICES

Machine with cutterheads running at 4,500 r.p.m.	" ZIUJK "	£
Machine with cutterheads running at 6,000 r.p.m.	" ZIULM "	£
Additional Top Head	" ZIUMH "	£
Additional Bottom (Beading) Head	" ZIURS "	£
Vertical Throating Head	" ZIUST "	£
Extra Square Lipped Blocks for Horizontal Heads	each	£
Extra Square Lipped Blocks for Vertical Heads	each	£
Extra Four Knife Circular Blocks for Horizontal Heads	each	£
Extra Four Knife Circular Blocks for Vertical Heads	each	£
Extra Six Knife Circular Blocks for Horizontal Heads	each	£
Extra Six Knife Circular Blocks for Vertical Heads	each	£
Plain Truing Device for Horizontal Heads	" ZIWIV "	£
Plain Truing Device for Vertical Heads	" ZIWUX "	£
Universal Truing Device for Horizontal Heads	" ZIYAT "	£
Universal Truing Device for Vertical Heads	" ZIYBD "	£

Six wing solid relieved back cutters for tongued and grooved joints, special moulds, etc., will be quoted for on receipt of requirements.

SPECIFICATION

Capacity	12" × 5"
Speed of cutterheads as required	4,500 or 6,000 r.p.m.
9 Rates of feed from	15 to 120 ft. per min.
Horse power of motors—horizontal heads	10
Horse power of motors—vertical side heads	7½
Horse power of motors—feed drive	7½
Speed of cutterhead motors	3,000 r.p.m. syn.
Speed of feed motor	1,500 r.p.m. syn.

Section 5

**BORING, TENONING and
MORTISING MACHINES**





LIGHT DUTY BORING MACHINE (XN)

CONSTRUCTION

THE BASE is a substantial cored casting supporting a 2 $\frac{3}{4}$ " dia. steel vertical column. Surface is machined and provided with slots for clamping heavy work. THE TABLE is 10" square and provided with slots for fixing a wooden fence or clamps. It can be canted to 90° right or left and swivels through 360°. THE SPINDLE is fully ball bearing, operated by a capstan handwheel rack and pinion motion, and provided with a return spring, with ratchet type adjustment to tension. THE DRIVE from motor to machine spindle is by vee ropes and grooved pulleys, giving five speeds. Drive is enclosed by a guard instantly detachable for changing speeds. THE MOTOR is mounted at the rear of the headstock on an adjustable base plate for tensioning pulley drive. Suitable locking devices are incorporated throughout.

DETAILS INCLUDED IN THE PRICE

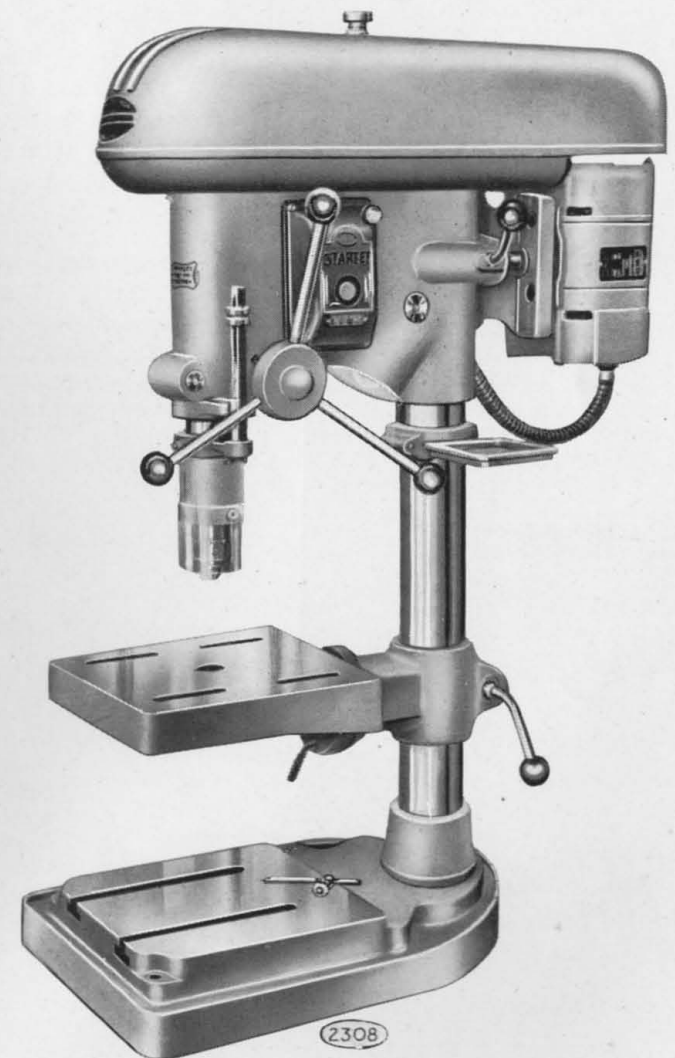
Motor and Starter. Adjustable Drill Chuck and key.

CODE WORDS AND PRICES

Machine for Floor Mounting	.. .. .	" ZUBLO "	£
Machine for Bench Mounting	.. .. .	" ZUBOL "	£
Extra for Foot Pedal Operation	.. .. .	" ZUELS "	£

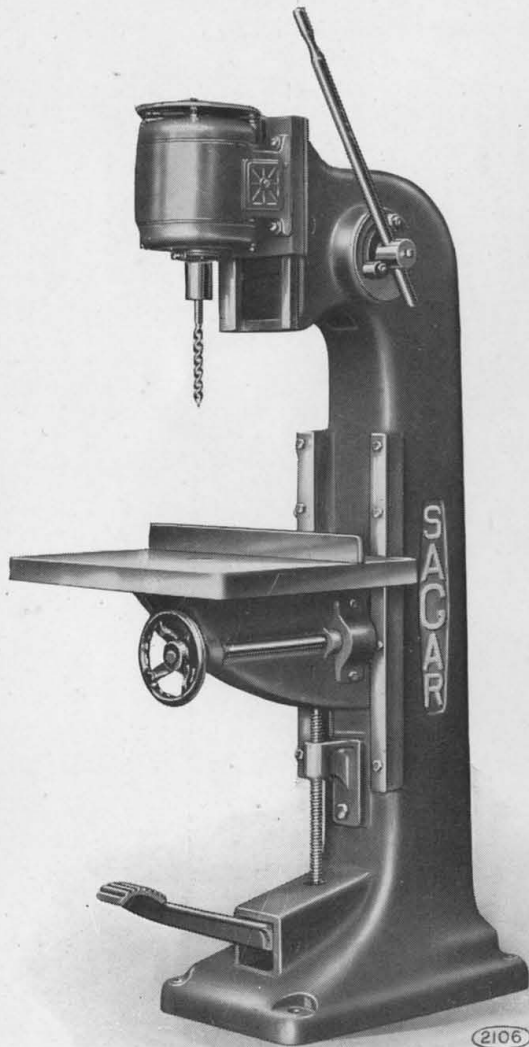
SPECIFICATION

Approximate maximum drilling capacity in soft wood	.. .. .	$\frac{3}{4}$ " dia.
Approximate maximum drilling capacity in metal	.. .. .	$\frac{1}{2}$ " dia.
Distance between column and spindle	.. .. .	8 $\frac{1}{2}$ "
Maximum distance chuck to table (Pillar Model)	.. .. .	41"
Maximum distance chuck to base (Pillar Model)	.. .. .	46"
Spindle speeds	.. .. .	340 to 2,600 r.p.m.
Approximate floor space	.. .. .	2' 3" x 1' 3"
.. gross weight	.. .. .	4 $\frac{1}{2}$ cwts.
.. nett weight	.. .. .	3 $\frac{1}{4}$ cwts.
.. measurement	.. .. .	24 cu. ft.





HEAVY DUTY VERTICAL BORING MACHINE (FN)



CONSTRUCTION

THE TABLE is built to carry heavy work and has rise and fall motion by handwheel through mitre gears and screw. An adjustable fence is fitted to the table which can be fixed in any position.

THE BORING HEAD consists of a two-speed motor with a special shaft designed to carry the boring bits. The sliding motion of the head is operated by either a foot lever or a hand lever, the latter being adjustable for convenience in working. The headstock is provided with compensating linkage and spring-loaded return.

ADJUSTABLE STOPS are provided to regulate depth of bore for repetition work.

THE MOTOR is controlled by a Contactor Switch for Direct Starting, interlocked with a Speed Selector Switch.

DETAILS INCLUDED IN THE PRICE

Motor and Starter. Speed Selector. Fence. Set of Spanners. Tin of Lubricant.

CODE WORD AND PRICE

Machine with two speeds "ZIREP" £

SPECIFICATION

Will bore holes up to	2" diameter.
Maximum distance from fence to boring bit	7"
Size of table	1' 8" x 2' 0"
Vertical adjustment of head	6"
Maximum distance between chuck and table	2' 0"
Chuck made to carry bits with shanks	$\frac{5}{8}$ " diameter.
Speeds of motor	1,500 and 3,000 r.p.m. syn.
Horse power	$\frac{3}{4}$ —1 $\frac{1}{2}$
Approximate floor space	2' 0" x 3' 2"
" gross weight	11 cwts.
" nett weight	8 cwts.
" measurement	50 $\frac{1}{2}$ cu. ft.



HORIZONTAL BORING AND SLOT MORTISING MACHINES (HJ) and (HJM)

Apart from the table units, these two Machines are identical.

CONSTRUCTION

THE MACHINES are electrically self-contained, the motor and starter being mounted within the main frame, with drive from motor to boring spindle by means of link belt.

THE SPINDLE at one end carries a boring bit, and at the opposite end a disc wheel for grinding and shaping moulding cutters. In addition, a grinding cone can be adapted for grinding hollow chisels, gouges, etc.

THE BORING TABLE rides on ball-bearing runners and has vertical adjustment by handwheel and screw.

THE SLOT MORTISING TABLE has movement to and from boring bit by handwheel and screw, and traverse movement by lever motion. Screw operated cramp and fence are incorporated.

DETAILS INCLUDED IN THE PRICE

Motor and Starter. 9" dia. Grinding Wheel. 1/2" Boring Bit. Fence. Cramp. Set of Spanners. Tin of Lubricant.

CODE WORDS AND PRICES

Boring Machine (HJ)	" ZOCUJ "	£
Slot Mortising Machine (HJM)	" ZUBYN "	£
Grinding Cone for hollow chisels, gouges, etc.	" ZISUT "	£

SPECIFICATION

Size of boring table—HJ	.. . . .	30" x 14"
Size of slot mortising table—HJM	.. . . .	16" x 6"
Screw traverse motion—HJM	.. . . .	9"
Traverse motion with lever, between stops—HJM	.. . . .	6 1/2"
Capacity will bore up to	.. . . .	1" diameter.
Horse power	.. . . .	1
Speed of spindle	.. . . .	3,300 r.p.m.
Approximate floor space	.. . . .	3' 6" x 2' 7"
" gross weight	.. . . .	8 cwts.
" nett weight	.. . . .	6 1/2 cwts.
" measurement	.. . . .	29 cu. ft.



Boring Machine (HJ)

(2151)



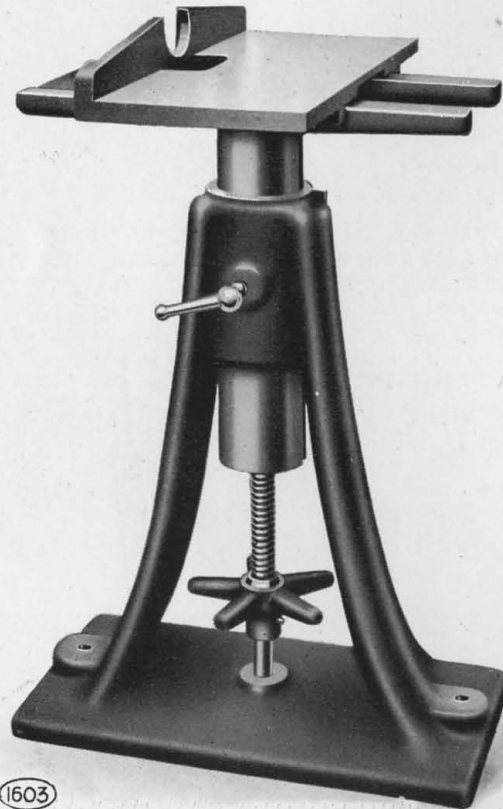
Showing Table on Slot Mortising Machine (HJM)

(2349)



PLAIN BORING STAND (ME)

This Stand may be used for ordinary boring or slot mortising operations, attached to a Hand Saw Bench or similar machine on which the spindle to take boring bits is mounted. All "SAGAR" Circular Saw Benches are arranged to take boring bits and this Stand may be used with them.



1603

CONSTRUCTION

THE BORING TABLE AND SLIDE are mounted on a rigid floor mounted casting, with rise and fall motion by means of handwheel and screw, a suitable locking device being incorporated. The boring table moves towards and away from the boring bit on a machined slide. An adjustable depth stop is provided.

CODE WORD AND PRICE

"YAMKY" £

SPECIFICATION

Maximum height from floor to table	2' 6"
Minimum height from floor to table	1' 10½"
Size of table	18" long × 8" wide.
Approximate gross weight	2¼ cwts.
„ nett weight	1¾ cwts.
„ measurement	5¼ cu. ft.



ROTARY SLOT MORTISING AND BORING STAND (DS)

This Stand may be used for ordinary boring or slot mortising operations, attached to a Hand Saw Bench or similar machine on which the spindle to take boring bits is mounted.

All "SAGAR" Circular Saw Benches are arranged to take boring bits and this Stand may be used with them.

CONSTRUCTION

THE MAIN FRAME is a cast iron standard mounting all the working parts.

THE TABLE has compound movement: rise and fall movement by handwheel and screw; to and from boring bit, also by handwheel and screw. The traversing movement for slot mortising is operated by lever motion.

A SCREW OPERATED CRAMP AND FENCE are incorporated.

STOPS, which are fully adjustable, are provided for both the longitudinal and lateral movements of the table.

CODE WORD AND PRICE

"YAMOH" £

SPECIFICATION

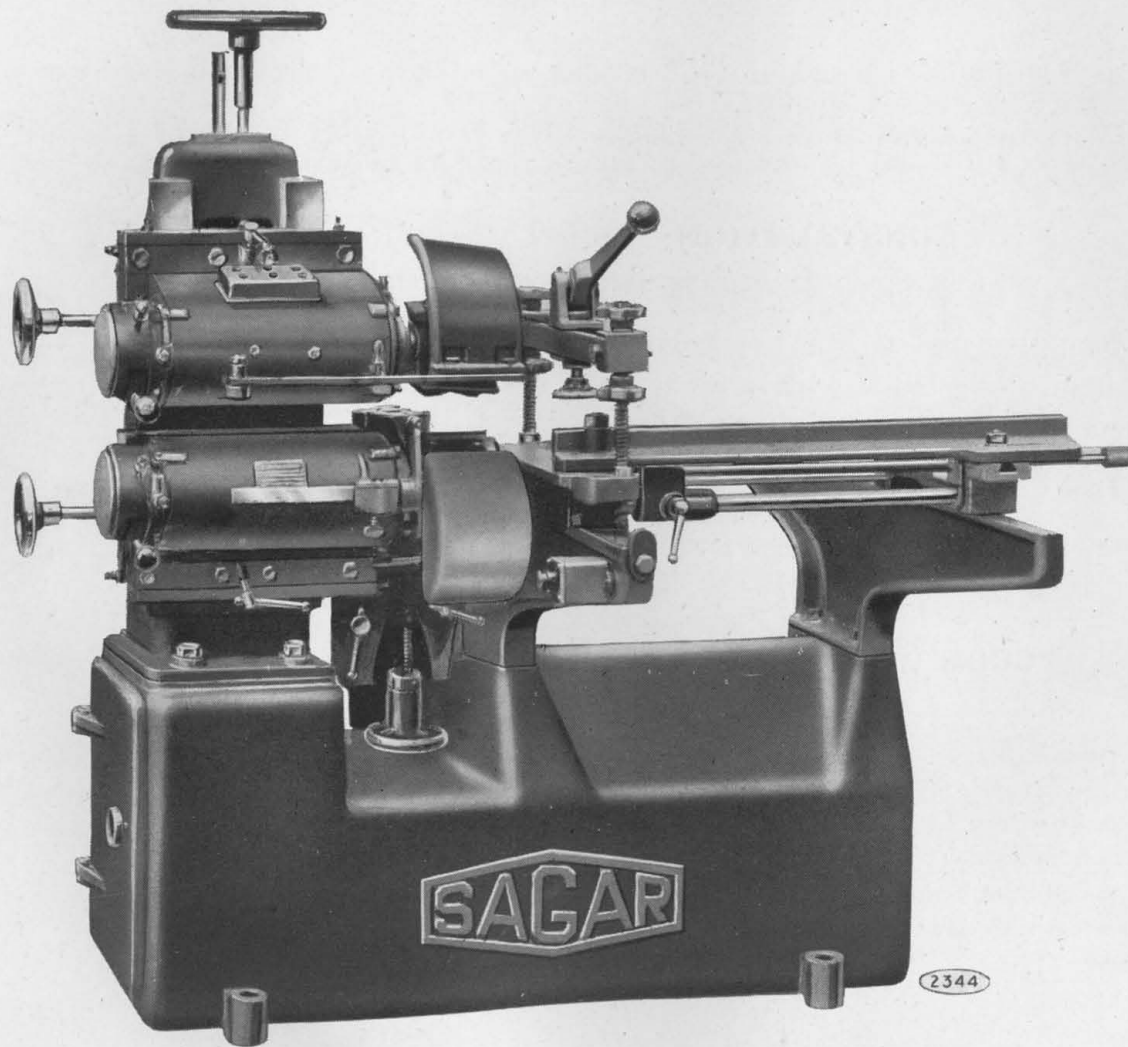
Maximum height of table from floor	2' 9"
Minimum height of table from floor	2' 2"
Screw traverse motion to and from boring bit	9"
Longitudinal traverse motion with lever	6½"
Approximate gross weight	3¼ cwts.
" nett weight	2½ cwts.
" measurement	10¾ cu. ft.



(1604)



TENONING AND SCRIBING MACHINE (MH9)





TENONING AND SCRIBING MACHINE (MH9)

CONSTRUCTION

THE MAIN FRAME has a large base area, is of substantial construction and supports the table over its whole area.

THE TABLE, whilst being rigid in construction with consequent increased stability and capacity for doing accurate work, rides easily on ball bearing runners. A quick-acting hand clamp is incorporated for securing the work. A fence is also provided. In addition, a disappearing spring stop, adjustable the length of the table, is fitted for use when working small lengths of stock. Another stop, adjustable on a bar mounting, is also provided for use when working longer lengths.

ALL CUTTERBLOCK SPINDLES are of high quality steel and revolve in ball bearings. Horizontal and vertical adjustment is provided. The tenon cutterblocks are fitted with straight cutters which give a shearing cut, and the shoulder cutters are milled from the solid. Suitable guards are fitted which have swing-away motion, thereby providing immediate access to the cutterblocks.

When required, the machine can be supplied with scribing spindles, so that single or double scribing may be done at the same operation as cutting the tenon.

A CUT-OFF SAW ATTACHMENT, mounted behind the cutterblocks can be supplied if required.

INDEPENDENT TOTALLY ENCLOSED MOTORS are built into each head in dust-proof, ball bearing housings, the tenon heads being provided with brakes. The control gear is built into the machine on a swinging door and is of the automatic

straight-on type, each motor being controlled by a separate push button. A master stop, which closes down all the motors simultaneously, embodies a lock-out feature which makes it impossible to start the machine inadvertently.

DETAILS INCLUDED IN THE PRICE

One set of Cutters for each cutterblock. Motors and Starters. Set of Spanners. Tin of Lubricant.

CODE WORDS AND PRICES

No. 1 Machine without Scribing Spindles	"ZENEG"	£
No. 2 Machine with Bottom Scribing Spindle	"ZENFA"	£
No. 3 Machine with Double Scribing Spindles	"ZENGE"	£
Extra for Cut-off Saw	"ZICYA"	£

SPECIFICATION

Admits timber up to	.. .. .	20" × 4½"
Cuts tenons up to	.. .. .	4½" long.
Cross-cuts up to	.. .. .	20" × 3" thick.
Size of table	.. .. .	2' 4" × 1'-9"
Height of table from floor	.. .. .	2' 9½"
Approximate floor space	.. .. .	6' 6" × 6' 8"
Horse power of each motor	.. .. .	2
Speed of cutterheads	.. .. .	2,880 r.p.m.
		No. 1 No. 2 No. 3
Approximate gross weight	.. .. cwts.	21 21½ 22½
" nett weight	.. .. cwts.	17¼ 18 18¾
" measurement	.. .. cu. ft.	77 77 77



TENONING AND SCRIBING MACHINE (NN9)

CONSTRUCTION

THE MAIN FRAME, carrying the cutterheads, is of the swan neck type and is supported by a rigid base casting with large base area.

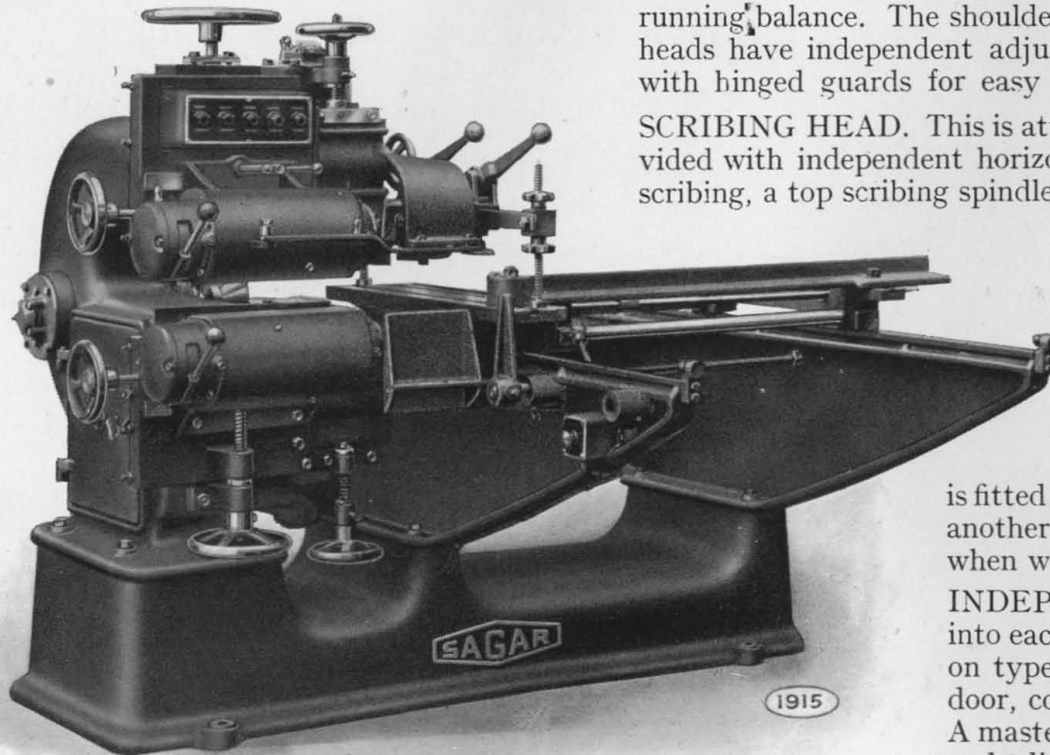
TENON HEADS. The spindles are of high quality steel and revolve in heavy ball bearings. The cutterblocks are machined from steel, and carry four straight cutters placed on the bevel to give a clean shearing cut. They are fixed on opposite sides of the cutterblocks in order to divide the cut and also to give a better running balance. The shoulder cutters are milled or serrated from the solid. Both heads have independent adjustment horizontally and vertically and are provided with hinged guards for easy access to the cutterblocks.

SCRIBING HEAD. This is attached to the rear of the bottom tenon head and is provided with independent horizontal and vertical adjustment. If required for double scribing, a top scribing spindle can be fitted.

THE TABLE, whilst being of heavy construction with consequent increased stability and capacity for doing accurate work, rides easily on ball bearing runners. It is equipped with two quick-acting hand cramps which are easily adjustable for different sizes of material. The fence may be swivelled for angular work. A disappearing spring stop, adjustable the length of the table

is fitted for use when working small lengths of stock. In addition, another stop, adjustable on a bar mounting, is provided for use when working longer lengths.

INDEPENDENT TOTALLY ENCLOSED MOTORS are built into each head in dust-proof housings. The automatic straight-on type control gear is built into the machine on a swinging door, control to each motor being by a separate push button. A master stop, which closes down all the motors simultaneously, embodies a lock-out feature which makes it impossible to start the machine inadvertently.





TENONING AND SCRIBING MACHINE (NN9)

OUTSTANDING FEATURES

- All spindles adjustable independently and are ball bearing mounted.
- Heavy table mounted on ball bearing runners.
- Spring stops for lengths up to 7 ft. between shoulders.
- Two quick-acting eccentric cramps for securing the work.
- Suitable for double tenons, tenons with unequal shoulders and angle tenons.
- Can be used for cross-cutting or squaring by using saw on top tenon spindle.
- Any kind of grooving can be done, across the grain, straight or at an angle.
- A cut-off saw can be supplied if required.
- Brakes fitted on tenon heads.
- Totally-enclosed motors and starting equipment built in.

SPECIFICATION

Admits timber up to	24" x 6"
Cuts tenons.. .. .	6" long.
Cross-cuts up to	24" wide x 4 1/2" deep.
Size of table	3' 7" long x 24" wide.
Height of table from floor	3' 0"
Will trench across a board	1" deep and 20" wide.
Will make double tenons	6" long.
Upper tenoning spindle will admit a saw ..	12" diameter.
Speed of cutterheads.. .. .	2,880 r.p.m.
Horse power of motors on tenoning, bottom scribing and cut-off saw spindles	3
Horse power of top scribing spindle	2
Approximate floor space	6' 6" x 6' 7"
.. gross weight	37 1/2 cwts.
.. nett weight	32 1/2 cwts.
.. measurement	136 cu. ft.

Weights and measurement based on Machine with Double Scribing and Cut-off Saw.

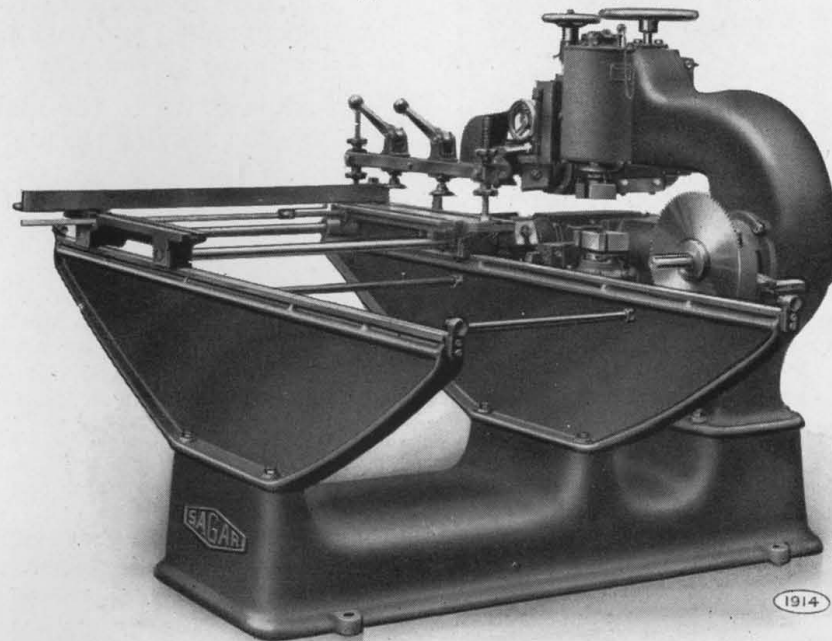
DETAILS INCLUDED IN THE PRICE

Set of Cutters for each cutterblock. Motors and Starters. Nuts and Making-up Collars for each spindle. Set of Spanners. Tin of Lubricant.

CODE WORDS AND PRICES

Machine with Bottom Scribing Spindle only ..	"ZACPE"	£
Machine arranged for Double Scribing	"YUTOK"	£
Extra for Cut-off Saw	"ZIDBE"	£
Nut Stud	"ZOVBO"	£

When the Machine is required for Double Tenoning, an extension spindle is required for the bottom scribing spindle, which can be supplied at an extra price of £



Rear View of Machine with Double Scribing and Cut-off Saw.



HOLLOW CHISEL MORTISING AND BORING MACHINE (AGN)

CONSTRUCTION

THE TABLE is mounted on the main frame and has longitudinal movement by machine-cut rack and pinion. It also has lateral movement by screw and a quick-acting clamp is provided for holding the timber.

THE CHISEL SLIDE which carries the motor is operated by a hand lever on the right of the machine and is counterbalanced. A depth gauge is provided for regulating the depth to be mortised or bored.

THE HAND LEVER can be adjusted for varying sizes of timber, so that it is always in a convenient and easy position for the operator.

A FAN, which forms an integral part of the chisel slide, delivers a blast of air through a duct down to the material being worked which blows away the chippings as they are made, leaving the material being worked clear.

DETAILS INCLUDED IN THE PRICE

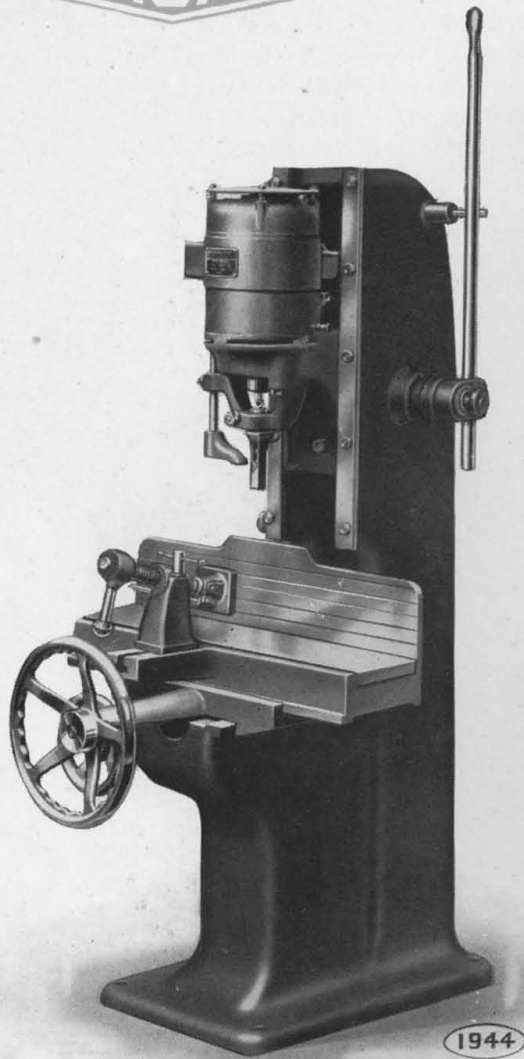
Motor and Starter. Set of Spanners. Tin of Lubricant.

CODE WORDS AND PRICES

Electrically Driven Machine	" ZIGED "	£
Setting-out Attachment—see page 83	" ZIGUH "	£
Floor Stand for Setting-out Attachment	" ZIGYJ "	£
Automatic Turret Stop—see page 84	" ZEFWE "	£

SPECIFICATION

Largest chisel which can be used	1" square.
Admits timber	12" deep × 8" wide.
Lateral movement of table	4"
Longitudinal movement of table	1' 10"
Speed of chisel motor	3,000 r.p.m. syn.
Horse power	1½
Approximate floor space	4' 9" × 2' 11"
" gross weight	9¾ cwts.
" nett weight	8¼ cwts.
" measurement.. .. .	41 cu. ft.





CHAIN CUTTER AND HOLLOW CHISEL MORTISING MACHINE (ACO9)

CONSTRUCTION

THE TABLE has a compound movement, the lateral motion being by means of screw and handwheel and the longitudinal motion by pinion and machine-cut steel rack. It is fitted with a quick-action screw clamp. THE HOLLOW CHISEL ATTACHMENT is a self-contained unit which fixes to the sliding headstock. A STEEL GUARD for the chain cutter rests on the wood during the cutting operation and withdrawal from the mortise. It is hinged to give easy access to the chain cutter. A CHIP BREAKER is provided to prevent splintering the edge of the mortise. AN EXHAUST FAN is fitted to the Nos. 1 and 3 Machines which draws away the chippings as they are made by the chain cutter and deposits them through a tube which may be connected to any existing exhaust system. A CHAIN CUTTER GRINDER is fixed to the Machine and is driven directly from the chain cutter motor. THE MACHINE is available with swing-away table for door lock mortising, as illustrated on page 84.

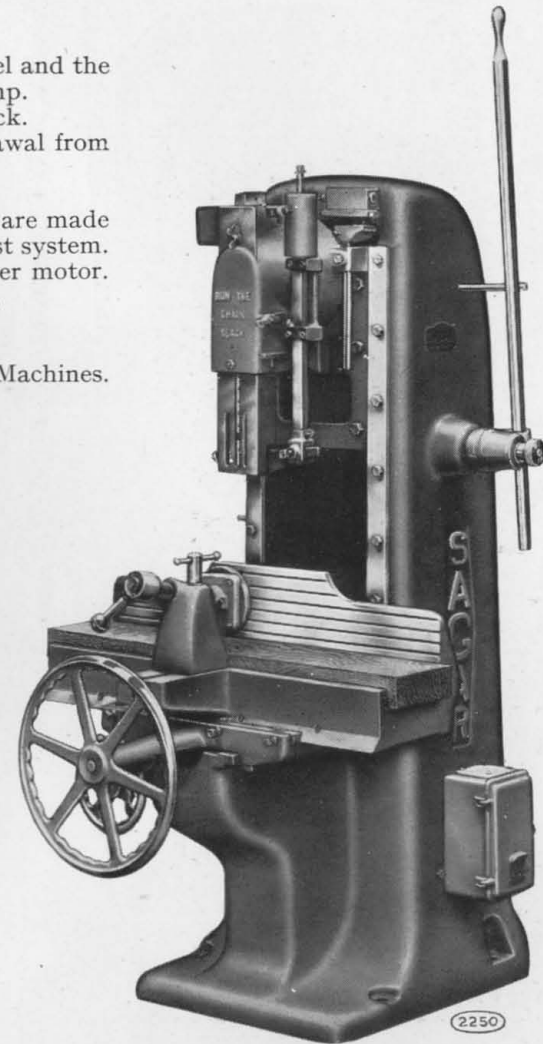
DETAILS INCLUDED IN THE PRICE

Motor and Starter. Chain Cutter Grinding Machine (AFO) with Grinding Wheel with Nos. 1 and 3 Machines. Set of Spanners. Tin of Lubricant.

CODE WORDS AND PRICES

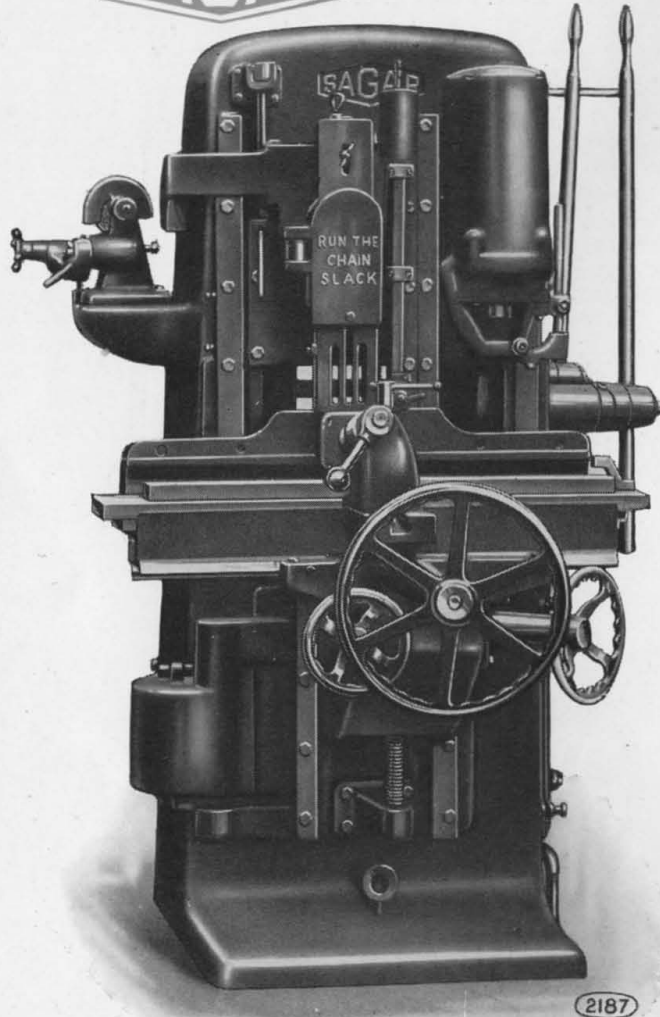
No. 1 Machine for Chain Cutter Mortising	" ZAFTO "	£
No. 2 Machine for Hollow Chisel Mortising	" ZAFUV "	£
No. 3 Machine for Chain and Hollow Chisel Mortising	" ZAFWY "	£
Machine with Swing-away Table for Door Lock Mortising—see page 84	" ZOFMY "	£
Automatic Turret Stop—see page 84	" ZEFWE "	£
Setting-out Attachment—see page 83	" ZIGUH "	£
Floor Stand for Setting-out Attachment	" ZIGYJ "	£

SPECIFICATION	No. 1	No. 2	No. 3
Admits timber		12" deep × 8" thick.	
Size of table		2' 8" long × 7" wide.	
Lateral motion of table		4"	
Longitudinal motion of table		1' 10"	
Height of table from floor		2' 2"	
Horse power		4	
Speed of motor		3,000 r.p.m. syn.	
Maximum size of mortise, using chain	1" × 2½" × 6"		1" × 2½" × 6"
Maximum size of hollow chisel	—	1" soft wood. ¾" hard wood.	1" soft wood. ¾" hard wood.
Approximate floor space	4' 9" × 3' 11"	4' 9" × 3' 11"	4' 9" × 3' 11"
" gross weight	11 cwts.	11 cwts.	11½ cwts.
" nett weight	9½ cwts.	9½ cwts.	10 cwts.
" measurement	36 cu. ft.	36 cu. ft.	36 cu. ft.





CHAIN CUTTER AND HOLLOW CHISEL MORTISING MACHINE (IS)



(2187)

CONSTRUCTION

THE TABLE for carrying the work will admit material 12" deep \times 8" wide, and has a compound movement, the lateral motion being by means of handwheel and screw, and the longitudinal motion by means of pinion and machine-cut rack. The rise and fall of the table is by means of a handwheel at right-angles to the raising screw in a convenient position for the operator, and the table is fitted with a quick-action screw clamp.

THE CHAIN AND HOLLOW CHISEL SPINDLES are of high quality steel, revolve in ball bearings, and are mounted in suitable headstocks which have vertical adjustment. Both spindles are mounted on slides on the main frame and the chain is adjustable for lineability with the chisel.

A STEEL GUARD for the chain rests on the wood during the cutting operation, and withdrawal from the mortise. It is hinged to give easy access to the chain cutter.

A CHIP BREAKER is provided to prevent splintering the edge of the mortise.

AN EXHAUST FAN is fitted to the chain spindle which draws away the chippings as they are made, and deposits them through a tube which may be connected to any existing exhaust system.

STOPS for regulating the depth of mortise, which can be easily adjusted as required, are provided for both the Chain and Hollow Chisel spindles.



CHAIN CUTTER AND HOLLOW CHISEL MORTISING MACHINE (IS)

STARTING AND STOPPING is automatically controlled by hand levers, so that the spindles only revolve when the chain or chisel is cutting.

THE SLIDES for the Chain and Hollow Chisel are counter-balanced by tension springs and cams mounted within the machine frame.

AN EXTENDED TABLE can be supplied. This is of large and robust design, being 7' 3" long, and has longitudinal traverse of 7' 2" and a lateral movement of 3 $\frac{3}{4}$ ". It also has a vertical adjustment of 7" by handwheel, screw and chain gear. Three cramps are provided.

A SETTING-OUT ATTACHMENT can be supplied which is very useful for repetition work and does away entirely with setting-out by hand. When this attachment is used, it reduces the capacity of the table to take material 12" deep \times 7" wide. Movable stops are included with the attachment, and a support to carry the outer end—also overhanging timber whilst being mortised.

A TURRET STOP can be supplied for working mortises of different length in one piece of timber. There are four length

stops on this turret, and when these are set, by turning the handwheel after the mortise is cut, the next stop is brought into position.

A CHAIN GRINDING MACHINE is supplied as illustrated on page 125. The chain is mounted on a sliding bar which moves backwards and forwards past the grinding wheel, and as each link is sharpened, by turning the handwheel, each successive link is brought into the same position. Adjustments are provided for correctly setting the angle and depth of cut. The grinding wheel Spindle revolves in ball bearings.

DETAILS INCLUDED IN THE PRICE

Chain Cutter Grinding Machine (AFO) with Grinding Wheel. Six Bushes for Chisels and Bits. Motors and Starters. Set of Spanners. Grease Gun. Tin of Lubricant.

CODE WORDS AND PRICES

Standard Machine	" ZOLAM " £
Extended Table—see page 83	" ZOLEN " £
Setting-out Attachment—see page 83	" ZOLIP " £
Turret Stop—see page 84	" ZOLMA " £



CHAIN CUTTER AND HOLLOW CHISEL MORTISING MACHINE (IS)

SPECIFICATION

Table will admit timber up to	12" deep × 8" wide.
Size of table	32" long × 7" wide.
Lateral motion of table	4"
Longitudinal motion of table	1' 10"
Maximum size of mortise using chain	3" × 1 $\frac{1}{4}$ "
Maximum size of mortise using chisel, soft wood	$\frac{3}{4}$ "
Maximum size of mortise using chisel, hard wood	$\frac{5}{8}$ "
Height of table from floor (minimum)	22 $\frac{1}{4}$ "
Rise and fall of table	6 $\frac{1}{2}$ "
Horse power of Chain Cutter Motor	4
Horse power of Hollow Chisel Motor	1 $\frac{1}{2}$
Speed of motors	3,000 r.p.m. syn.
Approximate floor space covering maximum movements	4' 9" × 3' 9 $\frac{1}{2}$ "
,, gross weight	22 $\frac{1}{2}$ cwts.
,, nett weight	19 cwts.
,, measurement	84 cu. ft.

EXTENDED TABLE

Will admit timber up to	11" deep × 8" wide.
Size of table	7' 2 $\frac{3}{4}$ " long × 4 $\frac{3}{4}$ " wide.
Lateral motion of table	3 $\frac{3}{4}$ "
Longitudinal motion of table	7' 2"
Rise and fall of table	7"
Approximate floor space covering maximum movements	15' 1" × 4' 0"

CHAIN GRINDER

Size of pulley	1 $\frac{3}{4}$ " dia. × 1 $\frac{3}{4}$ " wide.
Speed of grinding wheel	4,500 r.p.m.
Size of dished grinding wheel	4 $\frac{1}{2}$ " diameter.

TURRET STOP

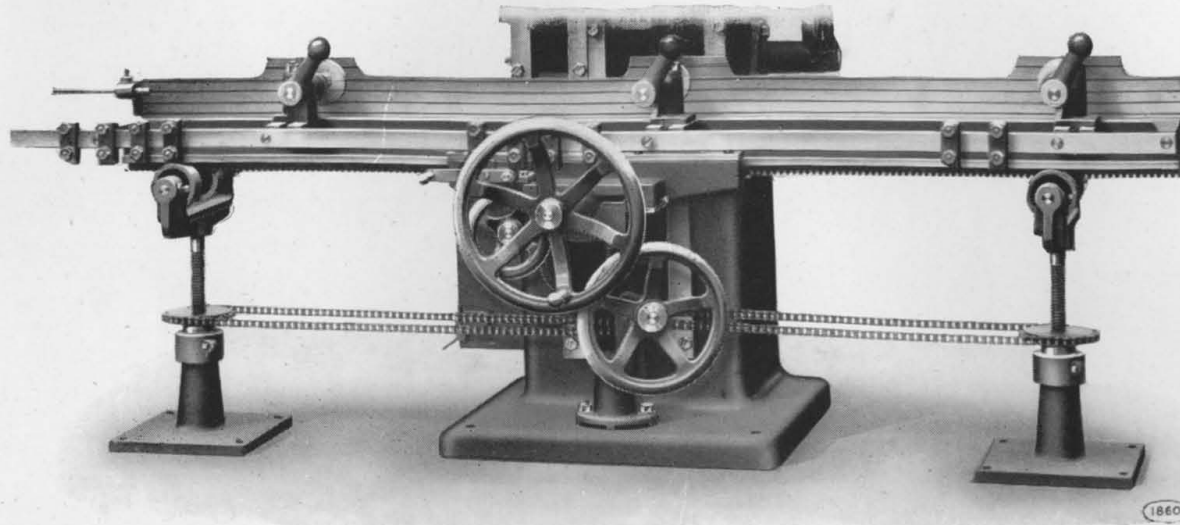
Maximum setting for length of mortise	13"
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SETTING-OUT ATTACHMENT

Table will admit timber up to	12" deep × 7" wide.
Approximate floor space covering maximum movements	10' 2" × 3' 9 $\frac{1}{2}$ "

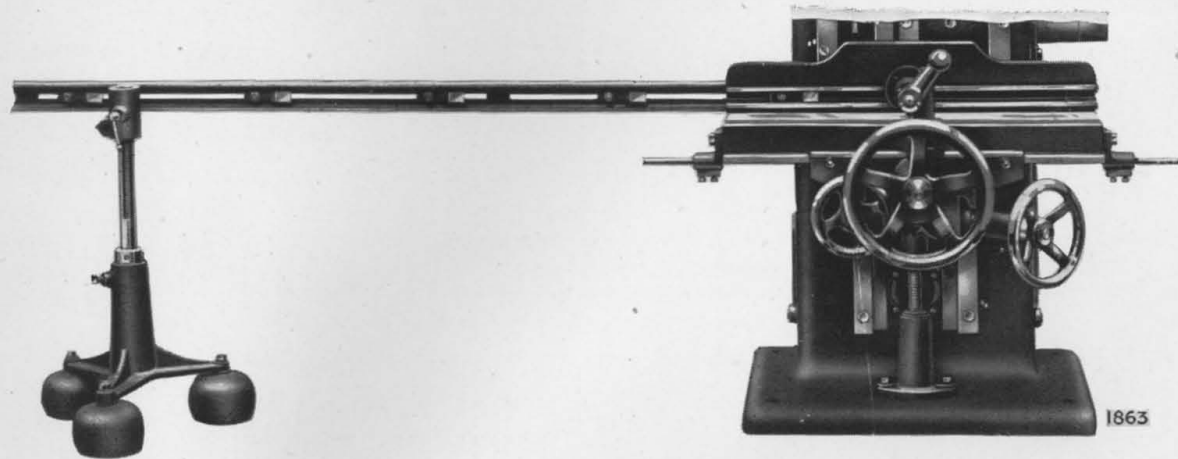


MORTISING MACHINE TABLES



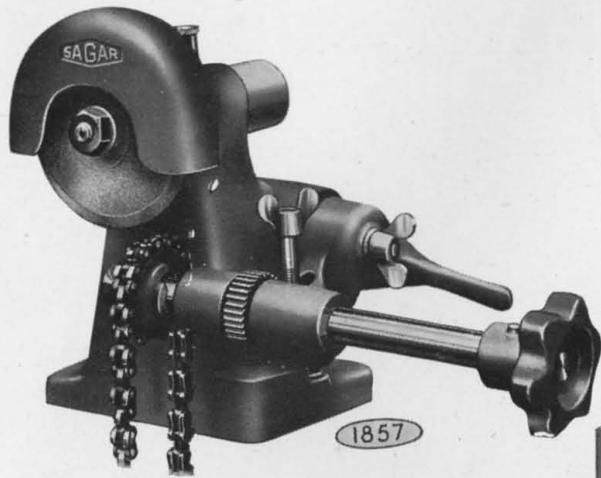
Extended Table for
Repetition Mortising on
(IS)

Setting-out Attachment
for Repetition Mortising
on (AGN), (ACO9) and
(IS)

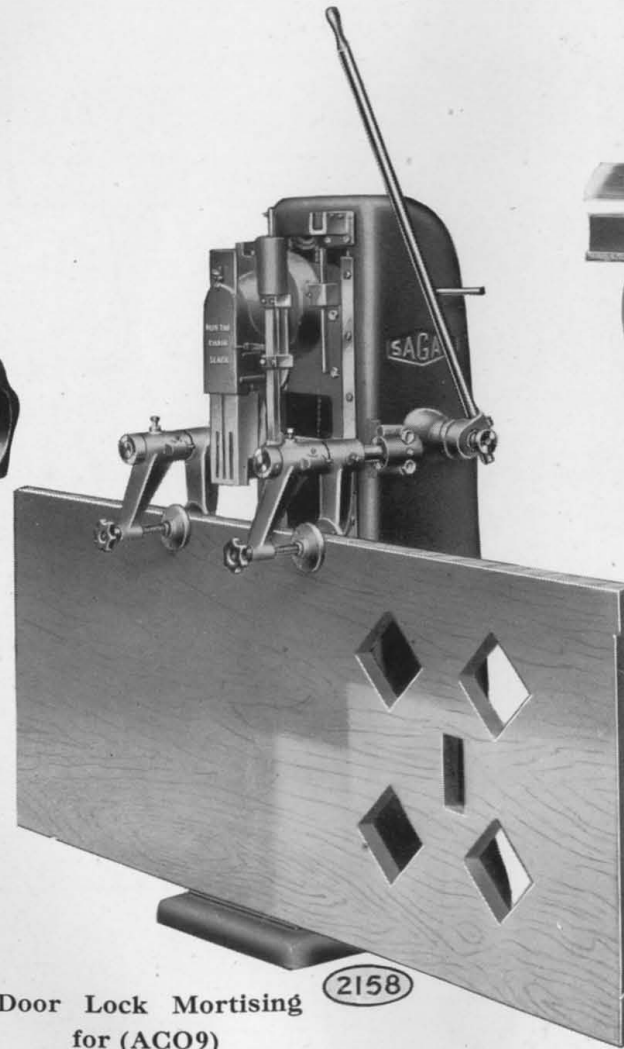




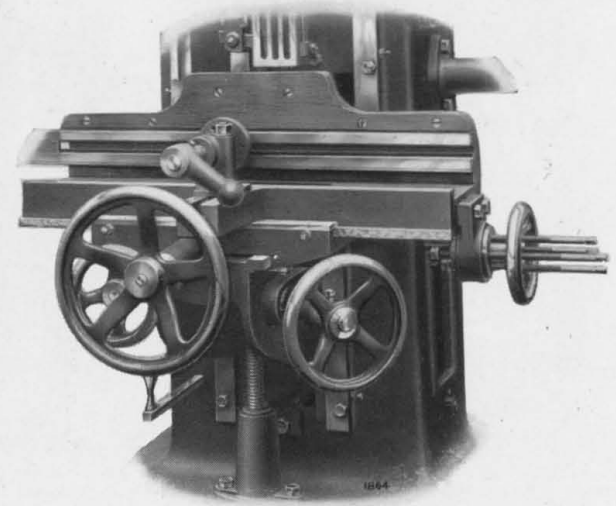
MORTISING MACHINE ATTACHMENTS



Chain Cutter Grinding Machine (AFO)
(see page 125)
as supplied with (ACO9) and (IS)



Door Lock Mortising
for (ACO9)



Automatic Turret Stop for
Repetition Mortising on (AGN),
(ACO9) and (IS)

Section 6

SANDPAPERING and TURNING
MACHINES





18" DISC AND CYLINDER SANDPAPERING MACHINE (EV)

CONSTRUCTION

THE DISCS are machined all over, and have special cork facings providing a cushioning effect, the whole being accurately balanced. The sandpaper is attached by quickly adjustable metal rings.

THE TABLES can be canted to different angles, an adjustment being provided for setting the tables close to the discs. A fence is provided for each table which has longitudinal movement and is indexed for setting to angles of 30°, 45°, 60° and 90°.

DUST COLLECTING HOODS are provided for each disc.

THE CYLINDER is made in halves, hinged together, for quick renewal of paper.



(2193)



(2168)

DETAILS INCLUDED IN THE PRICE

Motor and Starter. Sandpaper. Set of Spanners. Tin of Lubricant.

CODE WORDS AND PRICES

- No. 1 Machine with Disc and Cylinder "ZALIZ" £
- No. 2 Machine with Double Disc .. "ZALOB" £
- No. 3 Machine with Single Disc "ZIUZB" £
- Dust Collecting Unit complete with Connecting Piping from Machine to Unit—standard position, see page 161 "ZISYV" £

SPECIFICATION	No. 1	No. 2	No. 3
Diameter of disc	18"	18"	18"
Speed of disc	900 r.p.m.	900 r.p.m.	900 r.p.m.
Size of disc table	22" x 10"	22" x 10"	22" x 10"
Horse power	2	2	2
Size of sanding cylinder ..	4" dia. x 7" long.	—	—
Approximate gross weight ..	8 cwts.	9 cwts.	7½ cwts.
„ nett weight ..	6¾ cwts.	7¾ cwts.	6½ cwts.
„ measurement ..	29 cu. ft.	35 cu. ft.	28 cu. ft.



36" DISC AND BOBBIN

SANDPAPERING MACHINE (KU)

CONSTRUCTION

THE DISC is machined all over and has a special cork facing which provides a cushioning effect—an essential in sanding operation. The sandpaper is attached by a quickly adjusted metal ring on a tapered seating. This method has a stretching effect on the paper from the centre outwards, thereby preventing crinkling and high spots found due to failure of a fixative when paper is cemented or glued to the disc.

BOTH TABLES, which are precision ground, can be canted and are provided with graduated scales showing angle of cant. A mitre fence is supplied for the disc table.

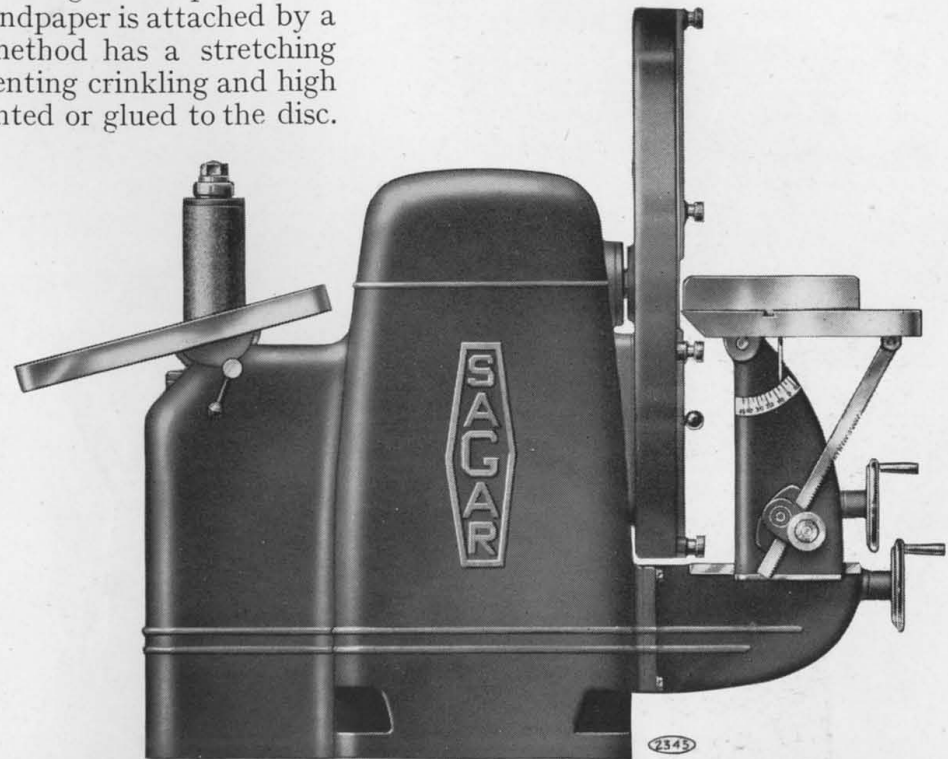
THE VERTICAL BOBBIN has rotary and vertical reciprocating motion ensuring a smooth finish to work.

DETAILS INCLUDED IN THE PRICE

Motors and Starters. Mitre Fence. One $\frac{1}{2}$ " and one 1" dia. Loose Top Pieces for bobbin and one $1\frac{1}{2}$ " and one 3" Sanding Bobbin. Sandpaper. Set of Spanners. Tin of Lubricant.

CODE WORDS AND PRICES

Electrically Driven Machine .. "ZEANF" £
 Dust Collecting Unit complete
 with Connecting Piping from
 Machine to Unit—standard
 position, see page 161 "ZIYCE" £



SPECIFICATION

Diameter of sanding disc	36"
Size of disc table	3' 10" × 1' 7"
Tables cant to	45°
Speed of disc	750 r.p.m.
Horse power for disc	4
Vertical bobbin sands up to	4" deep.

Speed of vertical bobbin	2,880 r.p.m.
Size of bobbin table	2' 6" × 1' 8"
Horse power	1
Approximate gross weight	25 cwts.
„ nett weight	21 cwts.
„ measurement	140 cu. ft.



36" DOUBLE DISC or DISC AND CYLINDER SANDPAPERING MACHINES (JW)

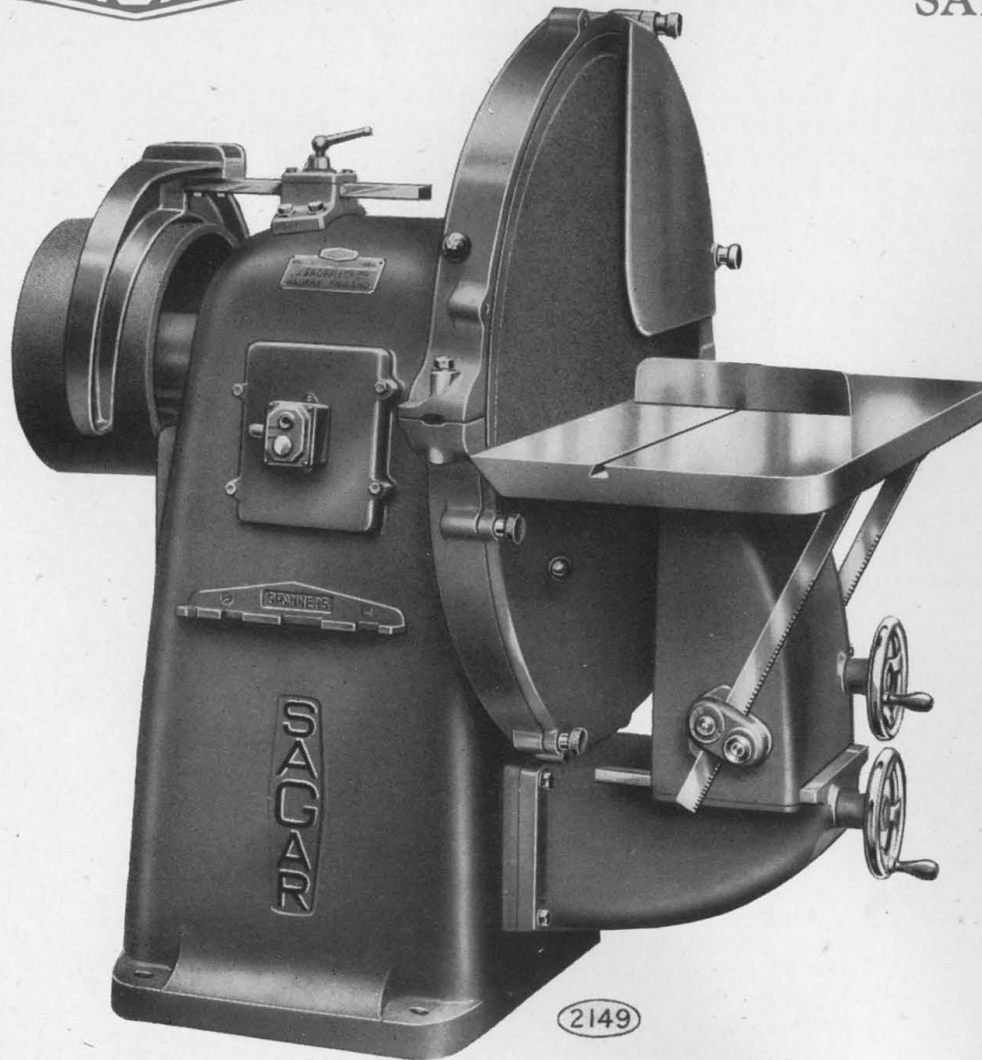
CONSTRUCTION

THE DISCS are machined all over and have special cork facings providing a cushioning effect which is an essential in sanding operations.

THE SANDPAPER is fixed on the discs by an adjustable metal ring on a tapered seating held in position by a series of clamping screws. The tapered seating has a stretching effect on the paper from the centre outwards, preventing crinkling and high spots found due to failure of a fixative when paper is cemented or glued to the disc.

THE TABLES can be canted by handwheel and screw and are provided with graduated scales showing angle of cant. There is also a movement to and from the sanding disc, controlled by handwheel and screw and adjusting screws to the slides. Each table, which is precision ground, is graduated and provided with an adjustable mitre fence, mounted in a groove.

DUST COLLECTING HOODS are provided, enclosing top and bottom halves of the disc with provision for connecting to an exhaust system.





36" DOUBLE DISC or DISC AND CYLINDER SANDPAPERING MACHINES (JW)

DETAILS INCLUDED IN THE PRICE

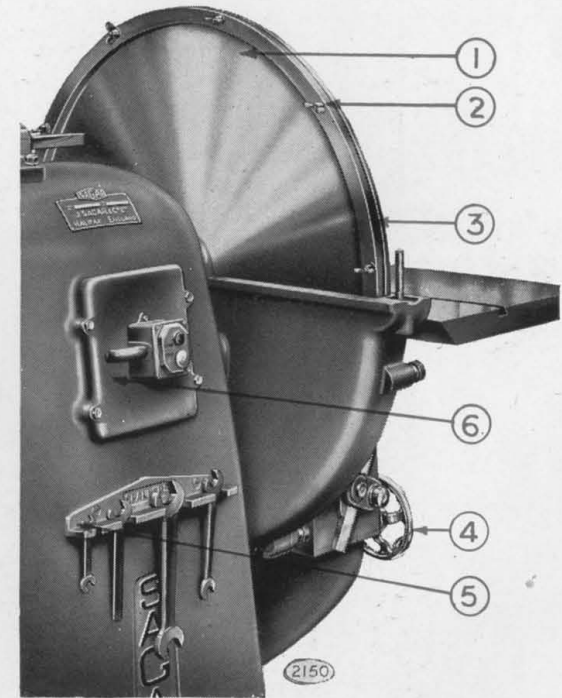
Motor and Starter. Adjustable Fences. Disc Guards. Sandpaper for each disc or cylinder. Set of Spanners. Tin of Lubricant.

CODE WORDS AND PRICES

No. 1 Machine with two Discs	“ZIVOV” £
No. 2 Machine with Disc and Cylinder	“ZIVIT” £
Dust Collecting Unit, complete with Connecting Piping from Machine to Unit—standard position (see page 161)	“ZIYCF” £

SPECIFICATION

Diameter of sanding disc	36"
Size of sanding table	3' 10" × 1' 7"
Height of table from floor	1' 11 $\frac{3}{4}$ "
Table cants to	45°
Size of sanding drum	24" dia. × 12" wide.
Speed of disc or drum spindle	750 r.p.m.
Horse power	5
Speed of motor	1,500 r.p.m. syn.
Approximate gross weight, No. 1	35 cwts.
" nett weight, No. 1	30 cwts.
" measurement, No. 1	127 cu. ft.
" gross weight, No. 2	23 $\frac{1}{2}$ cwts.
" nett weight, No. 2	20 cwts.
" measurement, No. 2	103 cu. ft.



1. Back of disc, guard removed.
2. Clamping screws.
3. Adjustable metal ring.
4. Handwheel controlling horizontal movement of table.
5. Spanner rack.
6. Built-in contactor.



VERTICAL BELT SANDPAPERING MACHINE (FZ9)

CONSTRUCTION

THE TABLE is fitted with an adjustable fence for use when sanding straight work.

THE SPINDLES are 1' 10" apart, and have rotary and vertical reciprocating motion in a sliding frame.

THE SAND BELT is 8" wide and is tensioned by a screw adjustment, provision being made for the tracking of the belt.

THE TABLE at motor end of machine is arranged to cant so that by detaching the vertical table at back of sand belt, and exchanging bobbin, this end of machine may be used as a vertical bobbin sander.

DETAILS INCLUDED IN THE PRICE

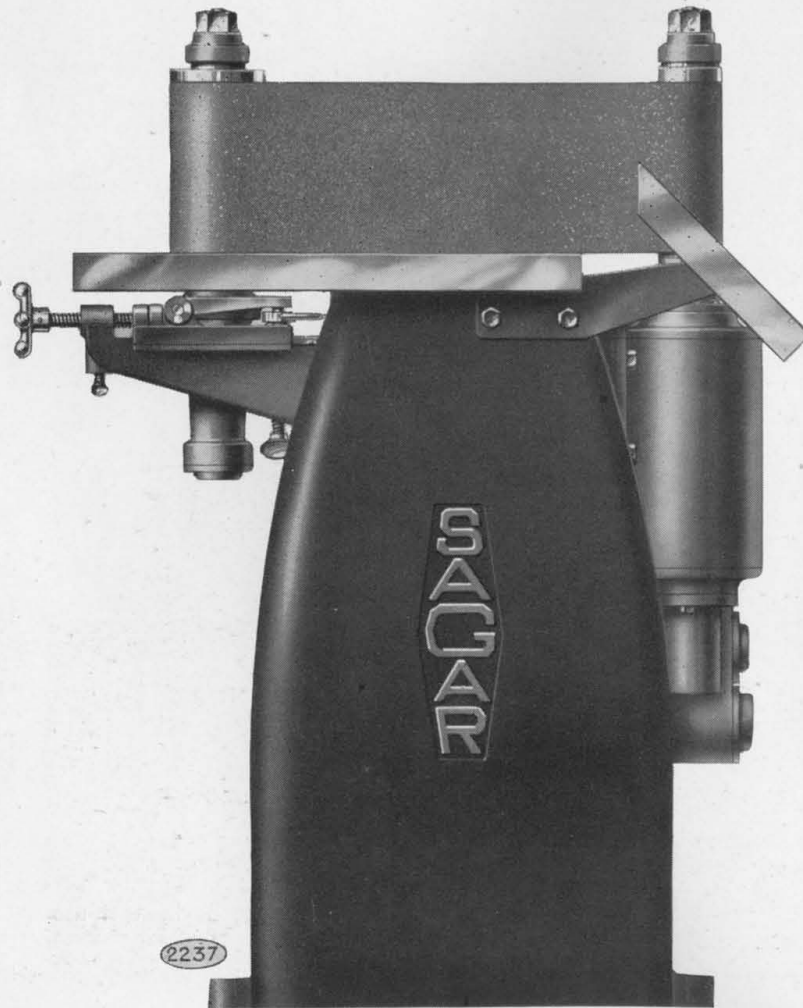
Two Sanding Bobbins. Fence. Sand Belt. Set of Spanners. Tin of Lubricant.

CODE WORD AND PRICE

Electrically Driven Machine "ZEFZO" £

SPECIFICATION

Sand belt	.. .. .	8" wide × 4' 7" long.
Speed of sand belt	.. .. .	2,200 ft. per min.
Centres of bobbins	.. .. .	1' 10"
Horse power	.. .. .	2
Speed of motor	.. .. .	3,000 r.p.m. syn.
Length of table	.. .. .	3' 0"
Width of table	.. .. .	1' 6"
Approximate floor space	.. .. .	3' 4" × 2' 0"
" gross weight	.. .. .	11 cwts.
" nett weight	.. .. .	9 cwts.
" measurement	.. .. .	32 cu. ft.





VERTICAL BELT SANDPAPERING MACHINE (YA9)

CONSTRUCTION

THE MAIN FRAME, on which all the working parts are mounted, is substantially built and rests on a large base area.

THE THREE TABLES are rigid in construction, each canting 45° above and 30° below the horizontal and provided with graduated scales. The end tables have adjustment to and from the cylinders on machined slides, the long table having vertical adjustment by handwheel and screw.

THE SAND BELT is mounted on two cylinders on vertical spindles, each mounted in a sliding frame and with reciprocating motion operated from electric motor through worm and worm wheel.

A SUPPLEMENTARY BOBBIN can be supplied if required, for sanding work with small radii.

ALL SPINDLES are mounted on precision ball bearings.

BOTH MOTORS are controlled by push button operated direct-on-line contactor starters, with no volt and overloaded releases, mounted in a common panel on the machine frame.

DETAILS INCLUDED IN THE PRICE

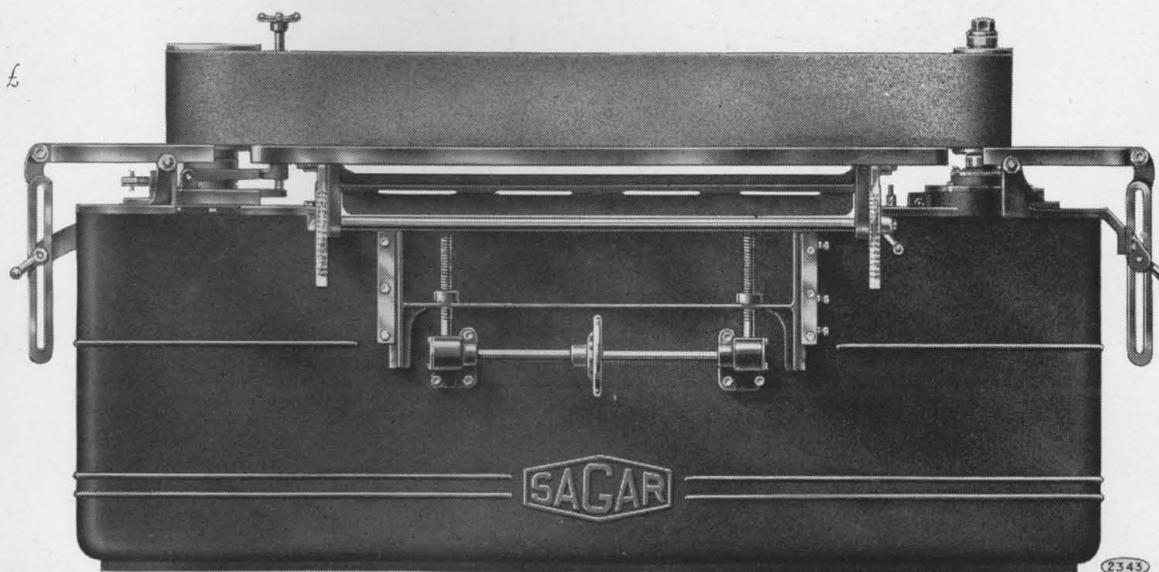
Motors and Starters. Three Sandpaper Belts. Set of Spanners. Tin of Lubricant.

CODE WORD AND PRICE

Electrically Driven machine... .. "ZATOK" £

SPECIFICATION

Sand belt	8" wide × 12' 8" long.
Size of front table	5' 0" × 1' 0"
Size of end tables	1' 6½" × 1' 2"
Distance between main spindles	5' 6"
Length of fence	5' 0"
Speed of sand belt	3,700 ft. per min.
Horse power of motor driving sand belt	5
Horse power of motor for reciprocating motion ..	1
Approximate floor space ..	8' 6" × 2' 3½"
„ gross weight ..	22 cwts.
„ nett weight ..	18 cwts.
„ measurement ..	94 cu. ft.



2343



TRIPLE DRUM SANDPAPERING MACHINE (OT)





TRIPLE DRUM SANDPAPERING MACHINE (OT)

CONSTRUCTION

MADE IN THREE SIZES, 36-in., 42-in., and 48-in. wide, the (O.T.) Motorised Triple Drum Sander is designed to meet the needs of firms requiring a high quality machine capable of high output and fine finish. The machine is of modern design with all working parts enclosed, and is of rigid construction throughout.

THE DRUMS are of special grade cast iron, precision balanced, and carried on heavy shafts mounted in special type roller bearings. Synchronised self-contained oscillation is provided to each drum. Spiral mounting of sandpaper is provided. Each drum has individual rise and fall motion, and foot-lever operated brake mechanism is provided for all drums. Ammeters are mounted on the front of the machine to indicate loading of drums. Independent drive is provided for each drum from three built-in motors driving by enclosed multi-vee belts.

PRESSURE PLATENS are fitted before and after each drum allowing a minimum drum opening so that short stock may be sanded satisfactorily.

THE ENDLESS TRAVELLING BED is of rigid construction with handwheel operated rise and fall. Instant pressure release is obtained by pull on hand lever. The feed mechanism consists of a heavy endless conveyor belt mounted on ball bearing guide rollers and driven through reduction gearing by a separate motor mounted within the machine frame. Variable feeding speeds of between 15 and 30 feet per minute are available, operated by handwheel conveniently situated at front of machine. Direct reading feed dial is provided.

SWITCHGEAR is totally-enclosed in the machine frame so that the machine is entirely self-contained. Master Stop and Mains Isolator Switches are provided.

DETAILS INCLUDED IN THE PRICE

Motors and Starters. Sandpaper for each drum. Set of Spanners. Tin of Lubricant.

CODE WORDS AND PRICES

No. 1 Machine "ZOVOB" £
 No. 2 Machine "ZOHPY" £
 No. 3 Machine "ZOVUC" £

SPECIFICATION	No. 1	No. 2	No. 3
Capacity	36" x 6"	42" x 6"	48" x 6"
Speed of 1st and 2nd drums	1390 r.p.m.	1390 r.p.m.	1390 r.p.m.
Speed of 3rd drum	1650 r.p.m.	1650 r.p.m.	1650 r.p.m.
Rates of feed in feet per minute ..	15 to 30	15 to 30	15 to 30
Horse power of each drum motor ..	7½	7½	10
Speed of each drum motor	3,000 r.p.m.	3,000 r.p.m.	3,000 r.p.m.
Horse power of feed motor	2	2	2
Speed of feed motor	1,500 r.p.m.	1,500 r.p.m.	1,500 r.p.m.
Approximate floor space	6' 7" x 6' 10"	6' 7" x 7' 4"	6' 7" x 8' 0"
„ gross weight	80 cwts.	86 cwts.	92 cwts.
„ nett weight	65 cwts.	70 cwts.	75 cwts.
„ measurement	408 cu. ft.	423 cu. ft.	456 cu. ft.

TRIPLE DRUM SANDPAPERING MACHINE (XK)

SAGAR



2392



TRIPLE DRUM SANDPAPERING MACHINE (XK)

CONSTRUCTION

THE DRUMS, mounted on very heavy shafts carried on roller bearings, are of the spiral type with a first-class automatic "take-up" to maintain the sandpaper at the correct tightness. Ammeters are mounted on the front of the machine in the drum circuit, so that loading can be readily seen and the risk of torn papers minimised.

OSCILLATION motion is provided for all three drums—self-contained on each drum shaft and thus automatically synchronised.

INDEPENDENT DRIVE is provided for each drum from three built-in totally enclosed, surface cooled motors. A yoked braking system, controlled by a single handle at the front of the machine, quickly brings the drums to rest.

A REVOLVING BRUSH, driven from, and following the third drum, is incorporated for cleaning the sanded surface.

THE ENDLESS TRAVELLING BED is of the slat type built on substantial steel block chain and carried on heavy longitudinal steel members provided with regulated forced lubrication and a tensioning arrangement. The frame of the travelling bed is supported on knife edges, spring loaded, and

coupled to a foot-lever, permitting the bed to be immediately lowered so as to relieve the pressure in an emergency.

THE RISE AND FALL of the bed is operated by totally-enclosed chain drives from a built-in motor to four corner-mounted large diameter elevating screws fitted with ball thrust washers.

THE FEED GEAR is integral with the bed unit, is compact, and ultra-efficient. All gears are of high quality steel.

THE EXHAUST HOODS are built in a single unit covering the entire top of the machine, and can be elevated to swing clear instantly with a foot pedal.

THE STARTERS are housed in a console unit.

DETAILS INCLUDED IN THE PRICE

Motors and Starters. Automatic Pressure Lubrication System. Exhaust Canopy. Sandpaper for each Drum. Set of Spanners. Tin of Lubricant.

CODE WORDS AND PRICES

No. 0 Machine to take material 42" wide "ZUFOP"	£
No. 1 Machine to take material 48" wide "ZUERZ"	£
No. 2 Machine to take material 60" wide "ZUEVD"	£
No. 3 Machine to take material 72" wide "ZUEWF"	£
No. 4 Machine to take material 84" wide "ZUCIL"	£

SPECIFICATION	No. 0	No. 1	No. 2	No. 3	No. 4
Capacity	42"	48"	60"	72"	84"
Speed of 1st and 2nd drums r.p.m.	1170	1170	1170	1170	1170
Speed of 3rd drum .. r.p.m.	1350	1350	1350	1350	1350
Rates of feed .. feet per min.	15, 22, 30.	15, 22, 30.	15, 22, 30.	15, 22, 30.	15, 22, 30.
Horse power of motor on each drum	7½	10	12½	15	17½
Horse power of feed motor	3	4	5	7½	10
Approximate floor space	9' 3" × 7' 9"	9' 3" × 8' 3"	9' 3" × 9' 3"	9' 3" × 10' 3"	9' 3" × 11' 3"
„ gross weight	153 cwts.	156 cwts.	163 cwts.	170 cwts.	177 cwts.
„ nett weight	130 cwts.	133 cwts.	140 cwts.	147 cwts.	154 cwts.
„ measurement	725 cu. ft.	765 cu. ft.	845 cu. ft.	925 cu. ft.	1005 cu. ft.



6" BELT SANDPAPERING MACHINE (AGL)

CONSTRUCTION

THE MAIN COLUMNS, each a separate one-piece cored casting of robust construction, are united by two bars at the top and two bars at the bottom.

THE TABLE, which is built up of wooden lags, has a lateral motion so that any part of the work can be quickly brought under the sand belt. The table runs on special type totally enclosed ball bearings running on steel guides and therefore requires very little effort on the part of the operator in manipulation. Vertical adjustment is through mitre gears by conveniently placed hand lever.

A HOPPER for collecting dust is fitted on the left-hand column. It is provided with a door for convenience in changing sand belts, and is connected by ducting to an exhaust fan mounted on the same column.

A LEVER PAD arrangement running on ball bearing rollers is supplied. The pad travels the full length of the table.

A TURNABLE in the centre of the table can be supplied, which enables work to be turned round and sanded with the grain in the required direction.

BELT DRIVE. Fast and loose pulleys and belt shifting gear are supplied.

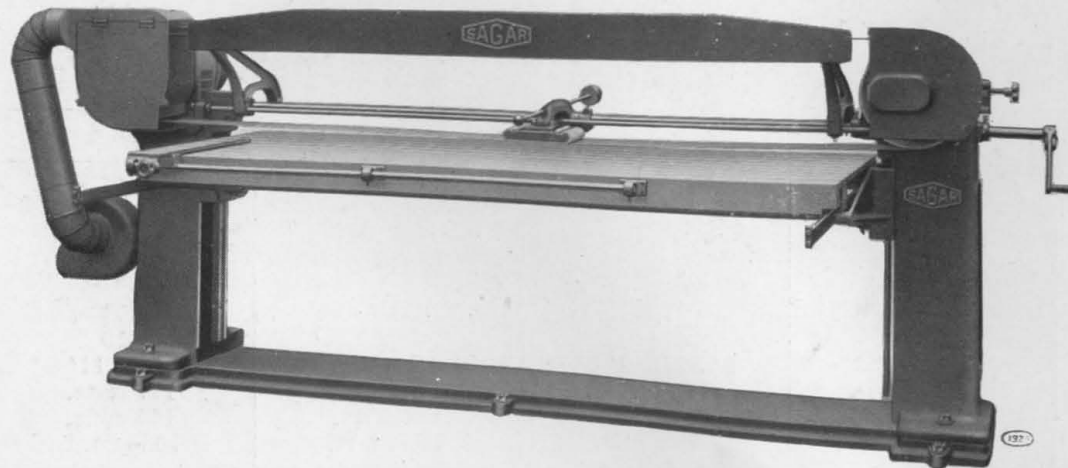
DETAILS INCLUDED IN THE PRICE

One Garnet Paper Belt. Exhaust Fan. Motor and Starter. Hopper and Piping. Set of Spanners. Tin of Lubricant.

CODE WORDS AND PRICES

Electrically Driven machine "ZIELJ" £
 If lever pad is not required, price reduced.. . . . £
 If exhaust fan is not required, price reduced £

Turntable.. "YUVLO" £
 Dust Collecting Unit "ZIBBO" £
 Connecting Piping from Machine to Unit—standard position.. £



SPECIFICATION

Maximum depth between table and sand belt..	2' 6"
Maximum length sanded between columns	8' 8"
Height from floor to sand belt	3' 4"
Size of table	8' 6" × 3' 6"
Speed of fast and loose pulleys	1,000 r.p.m.
Size of fast and loose pulleys ..	8" dia. × 3 $\frac{3}{4}$ " wide.
Size of sand belt	24' 4" long × 6" wide.
Horse power	4
Speed of motor	1,000 r.p.m. syn.
Approximate floor space ..	13' 9 $\frac{1}{2}$ " × 7' 5 $\frac{1}{2}$ "
" gross weight ..	23 $\frac{1}{2}$ cwts.
" nett weight.. ..	18 $\frac{3}{4}$ cwts.
" measurement ..	157 cu. ft.



6" OPEN END BELT SANDPAPERING MACHINE (AGE)

CONSTRUCTION

THE TABLE, built up of wooden lags on a metal frame, has a lateral travelling motion so that any part of the work can be quickly brought under the sand belt. It travels on totally enclosed ball bearing runners riding on steel runways and needs little effort on the part of the operator to manipulate it. A handle for operating the lateral motion runs along the front of the table, and when working deep built-up work an auxiliary handle can be fitted. The table has vertical movement by handwheel and chain through mitre gears.

A SPRING LOADED JOCKEY PULLEY which is used for tracking and tensioning the sanding belt is mounted on the bridge member casting connecting the main columns.

THE SAND BELT. Over the top side of the belt is stretched a piece

of flexible material, so that in applying pressure the pad does not come in contact with the travelling belt. A lever pad arrangement which runs on ball bearings the full length of the table is supplied.

A TURNTABLE can be supplied, fitted in the centre of the table upon which the work can be turned round, enabling it to be sanded with the grain in any direction.

BELT DRIVE. Fast and loose pulleys with belt shifting gear are supplied.

DETAILS INCLUDED IN THE PRICE

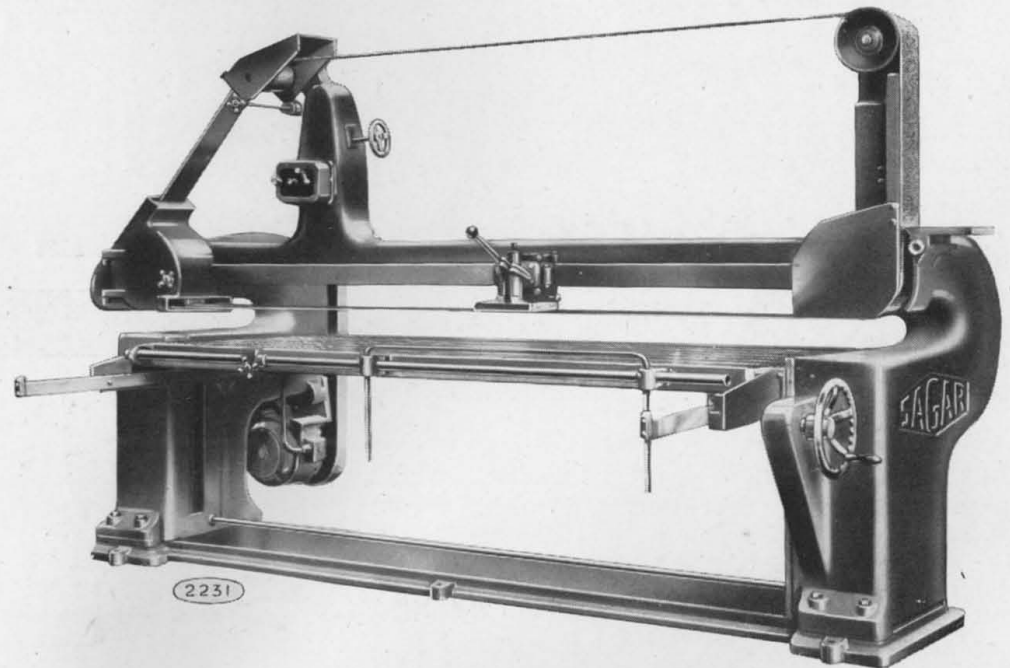
One Garnet Paper Belt. Hopper and Piping. Exhaust Fan. Motor and Starter. Set of Spanners. Tin of Lubricant.

CODE WORDS AND PRICES

Electrically Driven Machine.	" ZIAXT "	£
If Lever Pad is not required, price reduced		£
If Exhaust Fan is not required, price reduced		£
Turntable	" YUVLO "	£
Dust collecting unit	" ZIBBO "	£
Connecting Piping from Machine to Unit—standard position		£

SPECIFICATION

Maximum depth between table and sand belt	2' 3"
Maximum length sanded between columns	8' 8"
Height from floor to sand belt	3' 3"
Size of table	8' 6" × 3' 6"
Speed of fast and loose pulleys	1,200 r.p.m.
Size of fast and loose pulleys	8" dia. × 3 $\frac{3}{4}$ " wide.
Size of sand belt	26' 4" long × 6" wide.
Horse power	5
Speed of motor	3,000 r.p.m. syn.
Approximate floor space	12' 4" × 7' 0"
„ gross weight	45 cwts.
„ nett weight	37 $\frac{3}{4}$ cwts.
„ measurement	176 cu. ft.





WOOD TURNING LATHE (GFA)

CONSTRUCTION

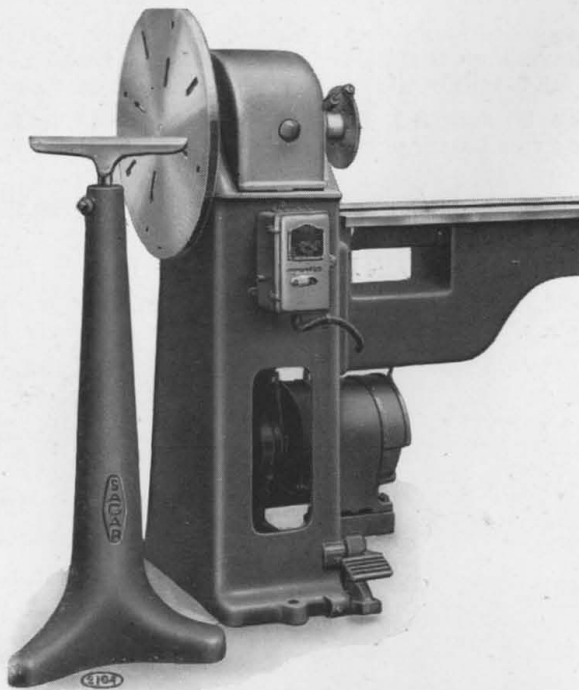
THE BED is of rigid construction, cast in one piece and provided with a gap. It can be made of a suitable length to suit customers' requirements.

THE HEADSTOCK is fitted with a faceplate and four-speed cone pulley.

THE TAILSTOCK is fitted with a long sliding poppet operated by a large handwheel and screw. The front end is bored to the same taper as the headstock spindle.

THE SPINDLE of the headstock can be extended at the rear end and arranged to carry a faceplate for turning work of large diameter. When made in this way an outer standard with rest is supplied.

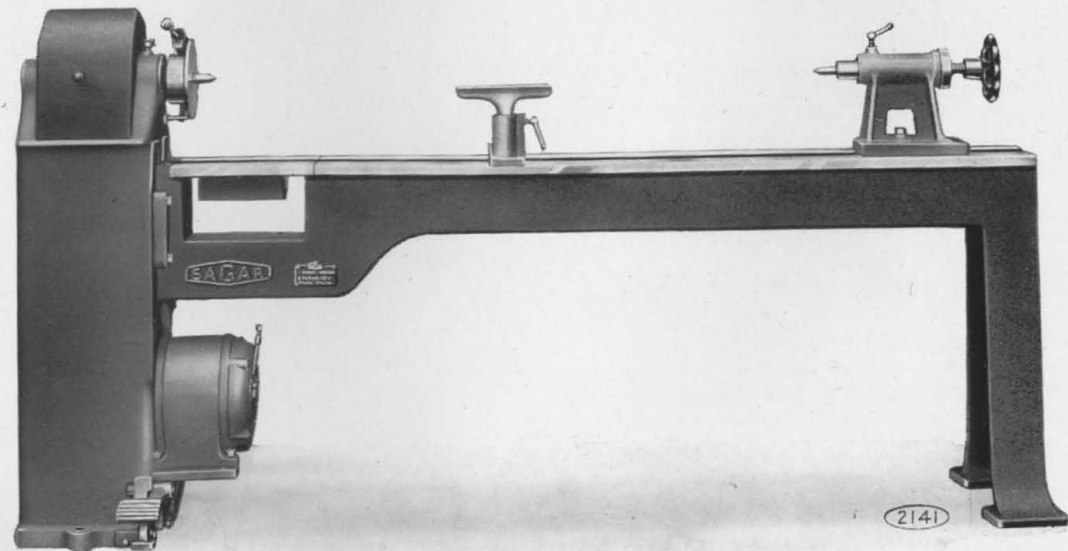
THE TEE REST can be quickly adjusted to any desired position, or a Compound Tool Rest can be supplied as an extra.



A HAND BRAKE is fitted to the headstock to bring the spindle quickly to rest.

THE ELECTRICALLY DRIVEN MACHINE has the motor mounted on a baseplate which is pivoted and can be raised by means of a foot lever to facilitate the changing of speed.

BELT DRIVE. A countershaft is supplied.





WOOD TURNING LATHE (GFA)

DETAILS INCLUDED IN THE PRICE

Motor and Starter. Faceplate. Tee Rest. Fork Centre. Screw Centre. Hand Rest. Two Dead Centres. Set of Turner's Chisels and Gouges. Set of Spanners. Tin of Lubricant.

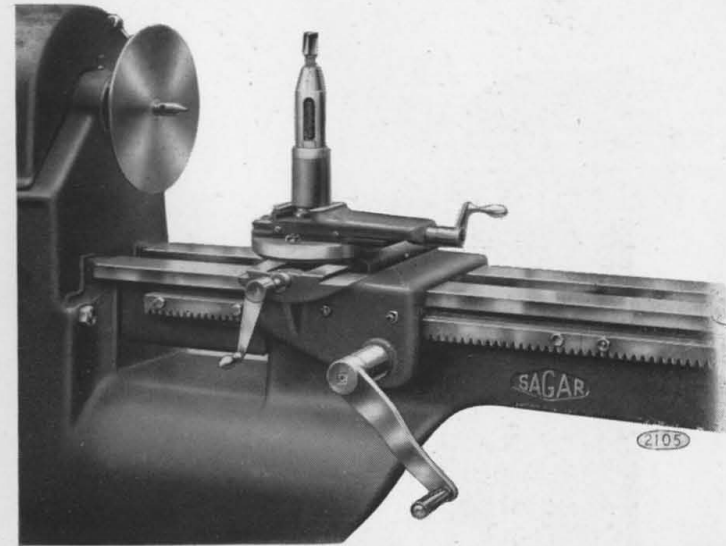
CODE WORDS AND PRICES

	Electrically Driven	Belt Driven
No. 1 Machine, 6" centres	"ZASUK" £	"YICEF" £
No. 2 Machine, 8" centres	"ZASYL" £	"YICFE" £
No. 3 Machine, 10" centres	"ZATAG" £	"YICHO" £
No. 4 Machine, 12" centres	"ZATGA" £	"YICIG" £

If outside turning is required the extra prices are as follows:—

No. 1 Machine "YOHTY" £	No. 3 Machine "YOHYT" £
No. 2 Machine "YOHUS" £	No. 4 Machine "YOIKS" £

Compound Tool Rest, "ZOAJK" £



SPECIFICATION	No. 1	No. 2	No. 3	No. 4
Height from top of bed to centre of spindle	6"	8"	10"	12"
Length of bed	6' 0"	8' 0"	10' 0"	12' 0"
Will turn between centres	3' 8"	5' 5"	7' 0"	8' 8"
Speeds available on belt driven machine r.p.m.	376, 640, 1010, 1700	280, 470, 760, 1275	170, 300, 520, 910	160, 270, 450, 770
Speed of countershaft r.p.m.	800	600	400	350
Size of fast and loose pulley	6" dia. × 2¼" wide.	6" dia. × 3¼" wide.	8" dia. × 3¾" wide.	10" dia × 3¾" wide.
Horse power for belt driven machine	2	2	2	3
Horse power of motor driven machine	1½	1½	2	2
Speed of motor		1,000 r.p.m. syn.		
Speeds available on electrically driven machine		280, 660, 1,360 and 3,200 r.p.m.		
Approximate gross weight	11¼ cwts.	13 cwts.	14½ cwts.	17 cwts.
" nett weight	8¾ cwts.	10½ cwts.	12 cwts.	15 cwts.
" measurement	38½ cu. ft.	47 cu. ft.	55 cu. ft.	65 cu. ft.



5" CENTRE LATHE (WW)

DETAILS INCLUDED IN THE PRICE

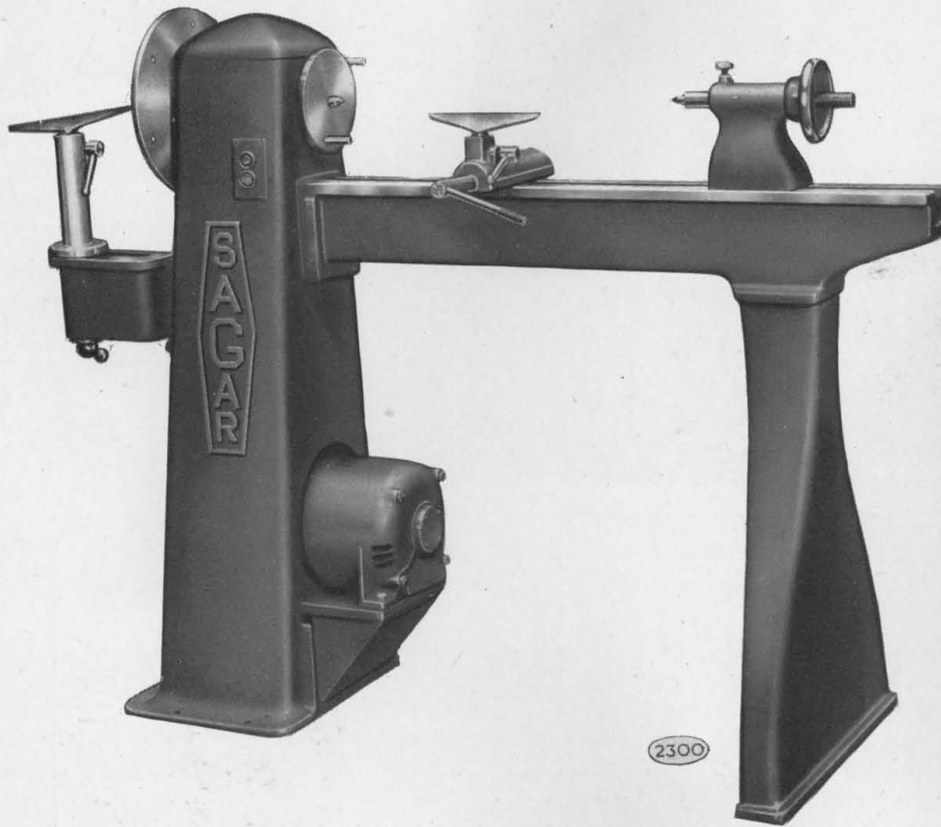
Motor and Starter. Outside faceplate. Tee Rests. Two Cone Centres. One Fork Centre. Driver Plate.

CODE WORDS AND PRICES FOR TYPE (WW)

Standard Machine	" ZOZCE " £
Compound Tool Post	" ZOZEC " £
Lever-operated Tailstock	" ZOZFO " £
Three-jaw Chuck	" ZOZHY " £
Four-jaw Chuck	" ZOZID " £
Screwed Flanged Chuck	" ZOZOF " £
Saw Table, Mandrel and Saw	" ZOZUG " £
Sandpaper Disc	" ZOZYH " £
Set of Turners' Tools	" ZUAGM " £
Machine arranged to admit 4' 6" between centres	" ZUBJE " £

SPECIFICATION

Height—bed to centre	5"
Admits between centres—standard	30"
Height from base to centre	40"
Horse power	$\frac{3}{4}$
Range of speeds	r.p.m. 425, 790, 1330, 2250.
Spindle thread	1" \times 10 t.p.i.
Morse taper in spindle	No. 1
Diameter of outside faceplate	12"
Capacity with outside faceplate	18" \times 5" wide.
Approximate floor space	5' 8" \times 1' 8"
„ gross weight	5 $\frac{1}{2}$ cwts.
„ nett weight	4 $\frac{1}{2}$ cwts.
„ measurement	36 cu. ft.



This model provides for a much wider range of work than most Lathes of this capacity. Technical Schools, Pattern Makers and Cabinet Makers will find this a most useful addition to their workshop equipment.

Section 7

WOOD HEEL SHAPING
SAGAR
MACHINES





'BURSGREEN' WOOD HEEL PRODUCTION MACHINES

Primary operations in preparing timber to the required size for the various special operations on wood heels may be undertaken by conventional woodworking machines, the type of machine varying according to the production of a particular size of plant. In a smaller plant, standard circular saw benches, and panel planing machines may be sufficient. It is not usually necessary to surface the timber before planing, as the very short subsequent lengths used in the production of wood heels do not require that the material must be absolutely straight. The most important factor is that the material shall be to the exact size for which the special purpose machines have been set up.

The SAGAR 20" Circular Saw Bench (HQ), or 26" Circular Saw Bench (BQ) are particularly suitable for the sawing operations, and SAGAR Panel Planers (CC2) or (XP) for the planing operations. Where a large plant is to be considered, possibly embodying multiples of the various special operations,

then higher production machines are required for the preliminary operations. The SAGAR Straight Line Edger (ACF) will cut material up to 5" thick, and at speeds of up to 150 ft. per min. and will take care of a multiplicity of subsequent operations. For the planing required, SAGAR Moulding and Planing Machine (AGC) will machine timber to the correct sizes at high rates of feed. This machine may be supplied with four, five or six rotary cutterheads, and for material 4" wide \times 3" thick or 7" wide \times 4" thick.

When the material has been machined to size, it requires cross-cutting to the required length for the heel pieces. Slight saving of material can be effected by cross-cutting on the angle, which removes some of the material which would otherwise be removed by the cutterhead at the first forming operation, referred to later. This operation can be performed on either the BURSGREEN Snipper Cross Cut Saw (HS) with swivelling head and fitted with adjustable setting-out stops, or the



J. SAGAR & CO. LTD., HALIFAX, ENGLAND

in association with BURROWS, GREEN, LTD., TRAWDEN, Nr. COLNE

SAGAR 15" Saw Bench (CB) which has been designed with a special sliding mitre fence and adjustable stop, for this work. After cross-cutting, the first special forming or breasting operation is performed. This is carried out on the BURSGREEN Double Spindle Breasting Machine (MC)—pages 104 and 105. When this operation has been performed at both ends of the material, the piece is sawn through on Circular Saw Bench (CB) to form pieces of correct size for two heels, prior to the main shaping operations. The main shaping or forming operation on the back part of the heel may then be performed. This is worked on the BURSGREEN Double Spindle Wood Heel Shaping Machine (MM) as illustrated on pages 106 and 107. The next operations consist of dressing the base of the heel, and cupping the top where it fits on to the sole of the shoe. Both are performed on the BURSGREEN Saw Angling and Cupping Machine (MO), as shown on pages 108 and 111. Dressing the base of the heel is performed on the left-hand side of the machine, which mounts a special clean-cutting hollow-ground

saw. The heel is located from the top face, and secured with a quick acting eccentric clamp. It is then moved past the saw with a radial movement, bringing the heel to the finished thickness from top to bottom. The last machining operation is to form the oval cup in the top of the heel where it fits on to the sole of the shoe. This is performed on the other side of the machine, as illustrated on page 111.

The final operation is the sanding on a BURSGREEN Vertical Double Belt Sander (MQ)—page 109, of the circular shaped part of the heel, produced on the Double Spindle Shaping Machine (MM). This machine is arranged for long or short sand belts 2" wide, and can be operated by practically any type of labour. As this work is essentially for manual operation it has to be divided into several operations, but the high production obtained from operators after they have become accustomed to the operation, is remarkable.



'BURSGREEN' DOUBLE SPINDLE
WOOD HEEL BREASTING MACHINE (MC)





‘BURSGREEN’ DOUBLE SPINDLE WOOD HEEL BREASTING MACHINE (MC)

CONSTRUCTION

THE STANDARD MACHINE includes two breasting attachments for standard wood heels, with rise and fall adjustment, quick acting screw clamps, and slides with adjustable circular ways. Circular breasting attachment for special shaped or “Louis” type heels may be supplied if desired.

THE CUTTERHEADS are driven by vee ropes from totally-enclosed motors mounted on the machine frame.

GUARDS are provided for the vee rope drives and both cutterheads.

DETAILS INCLUDED IN THE PRICE

Motors and Starters. Square Cutterblocks and Bolts. Cutter Guards. Set of Spanners.
Tin of Lubricant.

CODE WORD AND PRICES

Standard Machine	“ZOFHE” £
Circular Breasting Attachment for “Louis” type heels	£
Allowance for Straight Breasting Attachment in lieu of Circular Breasting Attachment	£

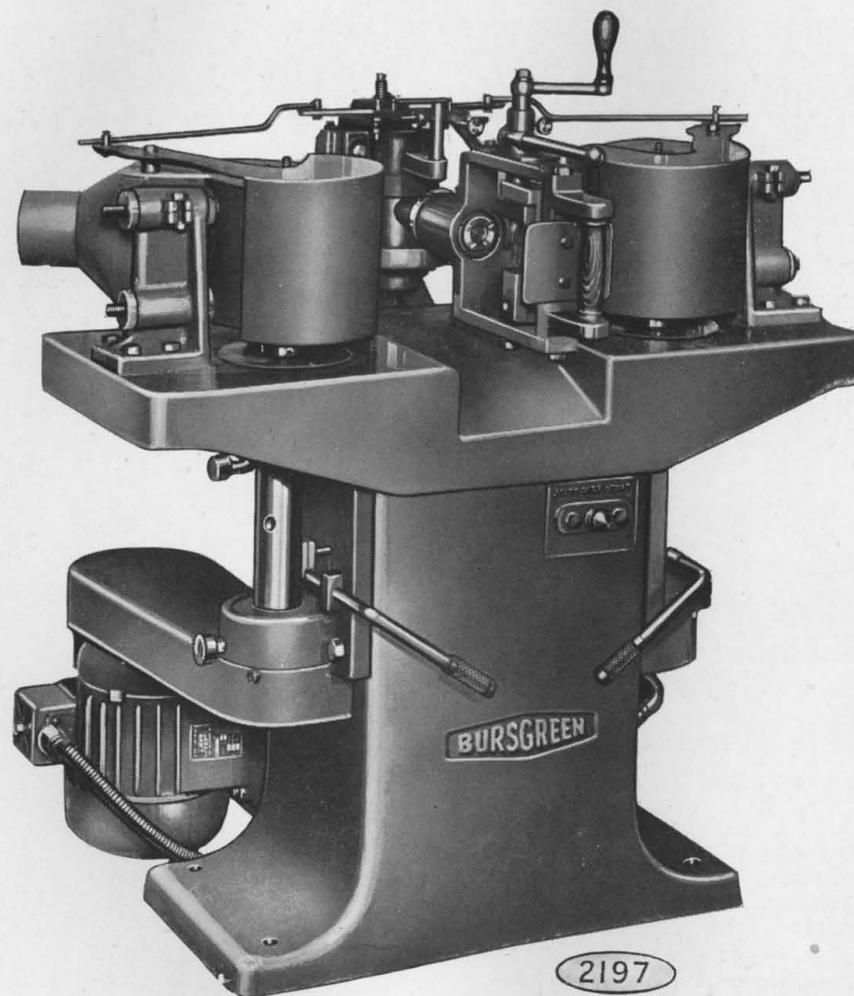
H.S.S. Cutters extra at cost according to shape of heel required.

SPECIFICATION

Horse power of each motor	2
Speed of cutterheads	6,000 r.p.m. syn.
Approximate floor space	3' 11" × 3' 3"
" gross weight	8 cwts.
" nett weight	6 cwts.
" measurement	67 cu. ft.



'BURSGREEN' DOUBLE SPINDLE
WOOD HEEL SHAPING MACHINE (MM)





'BURSGREEN' DOUBLE SPINDLE WOOD HEEL SHAPING MACHINE (MM)

CONSTRUCTION

THE MAIN FRAME of the machine consists of a substantial one piece cored casting, mounting spindles, motors and machine table.

THE SPINDLES are of high quality steel, revolve in ball bearings, and are driven by vee ropes from motors mounted on adjustable baseplates on machine frame.

THE MACHINE is fitted with special guards entirely enclosing cutterheads, which automatically open when work fixture is moved towards cutterhead.

A WORK HOLDING FIXTURE with angular motion, screw clamp and revolving motion for passing the heel past the cutterheads is included.

BRAKES are fitted to both cutter spindles.

DETAILS INCLUDED IN THE PRICE

Motors and Starters. Square Cutterblocks and Bolts. Set of Spanners.
Tin of Lubricant.

CODE WORD AND PRICES

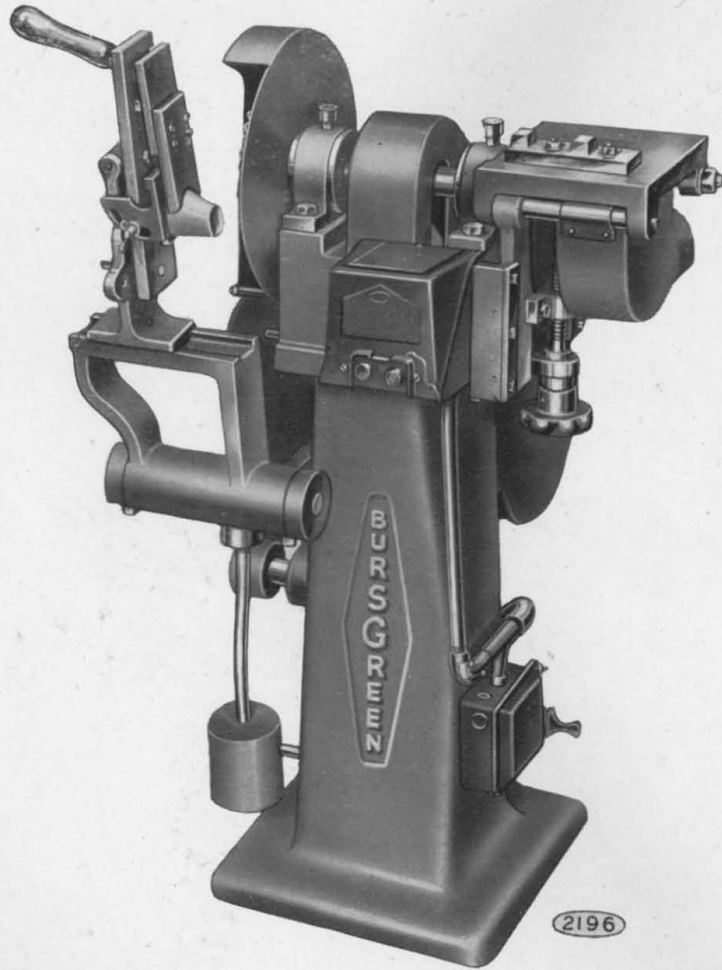
Standard Machine " ZOFGA " £
 Special Action Clamp operated by single movement of handle (in lieu of screw clamp) with ratchet motion for locking. This clamp is very much faster in operation than the screw clamp and only requires a single downward movement of lever for engagement. . £
 H.S.S. Cutters extra at cost according to shape of heel to be worked.

SPECIFICATION

Horse power of each motor	.. .. .	2
Speed of cutterheads	.. .. .	6,000 r.p.m. syn.
Approximate floor space	.. .. .	3' 10" X 3' 0"
" gross weight	.. .. .	11 cwts.
" nett weight	.. .. .	10 cwts.
" measurement	.. .. .	41 cu. ft.



'BURSGREEN' WOOD HEEL SAW ANGLING AND CUPPING MACHINE (MO)



CONSTRUCTION

THE MAIN FRAME is a one piece cored casting, mounting angling and cupping attachments.

THE SPINDLE is of high quality steel and revolves in ball bearings. It is driven by a motor mounted on the machine frame through vee ropes and grooved pulleys.

SAW ANGLING ATTACHMENT consists of counterbalanced hinged work holder with quick acting clamp for heel.

CUPPING ATTACHMENT consists of an adjustable table and fence with suitable guard and exhaust chute.

DETAILS INCLUDED IN THE PRICE

Motor and Starter. Guards to Circular Saw and Milling Cutter. Hollow Ground Circular Saw, 9" diameter. Set of Spanners. Tin of Lubricant.

CODE WORD AND PRICE

Standard Machine "ZOFIJ" £

H.S.S. Milling Cutters extra at cost for cupping operation according to type of recess required in heel.

SPECIFICATION

Horse power	.. .. .	2
Approximate floor space	.. .. .	2' 1" X 1' 11"
" gross weight	.. .. .	5 cwts.
" nett weight	.. .. .	4½ cwts.
" measurement	.. .. .	20 cu. ft.



'BURSGREEN' DOUBLE BELT SANDPAPERING MACHINE (MQ) FOR WOOD HEELS

CONSTRUCTION

THE SPINDLE is of high quality steel and is ball bearing mounted. It is driven by a motor mounted on the machine frame through multiple vee ropes and grooved pulleys.

THE TOP PULLEYS for long sand belts are spring loaded for tension and adjustable along the support bar for length of belt. These and the lower pair of pulleys revolve in ball bearings.

THE BELTS are 2" wide and the machine is arranged to take two long and two short belts.

DETAILS INCLUDED IN THE PRICE

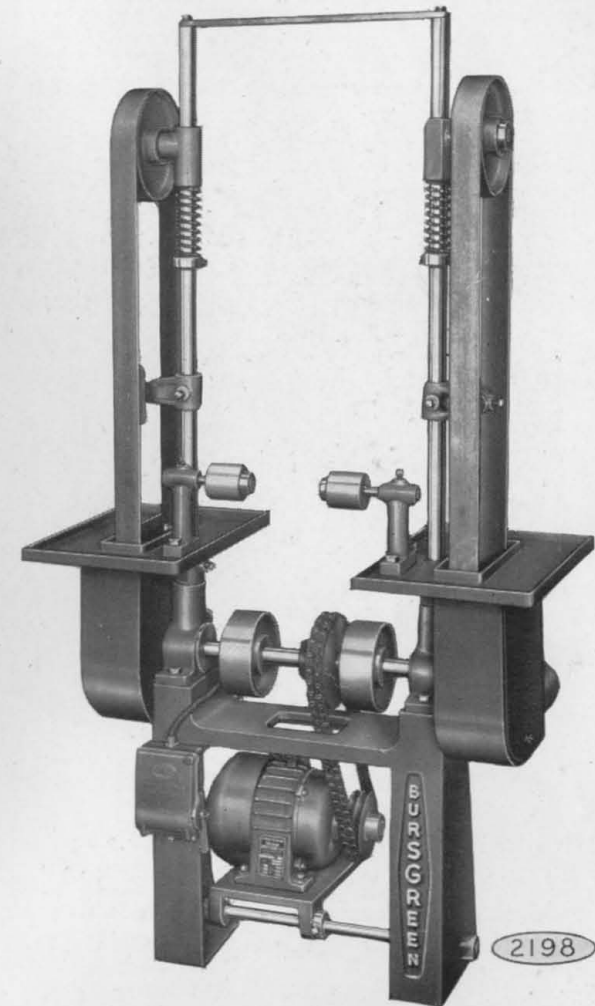
Motor and Starter. Exhaust Chutes. Pulley Guards. Set of Spanners.
Tin of Lubricant.

CODE WORD AND PRICE

Standard Machine "ZOFKO" £

SPECIFICATION

Horse power	.. .. .	1
Width of sand belt	.. .. .	2"
Approximate floor space	.. .. .	2' 7" X 1' 8"
" gross weight	.. .. .	4½ cwts.
" nett weight	.. .. .	3½ cwts.
" measurement	.. .. .	38 cu. ft.





'BURSGREEN' WOOD HEEL PRODUCTION MACHINES



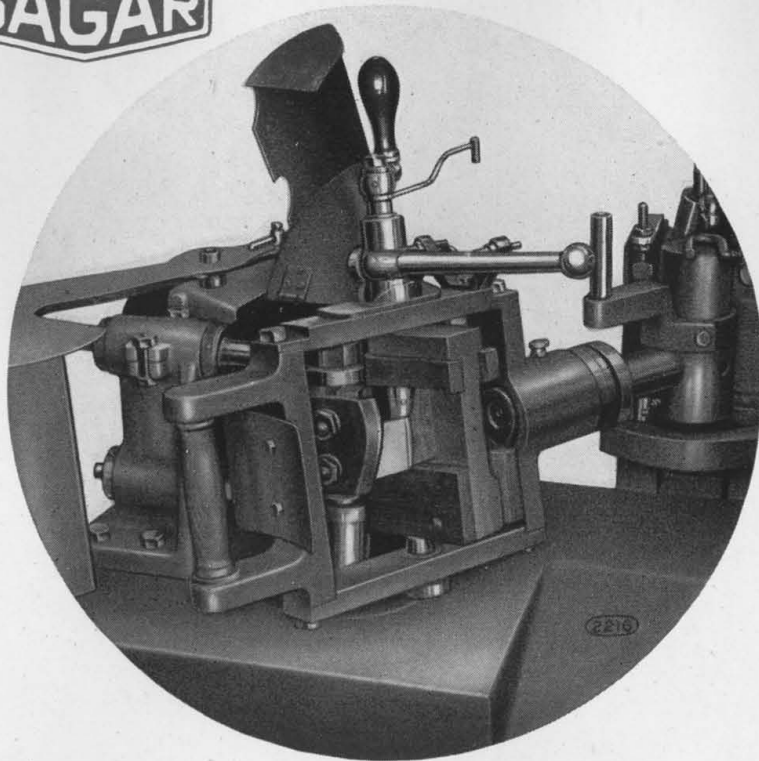
CIRCULAR BREASTING ATTACHMENT on (MC) for special shaped or "Louis" type heels. This is similar to the straight attachment, but the fixture is carried on a hinged mounting to give a radial movement past the cutterhead, necessary with the breasting of this type of heel.



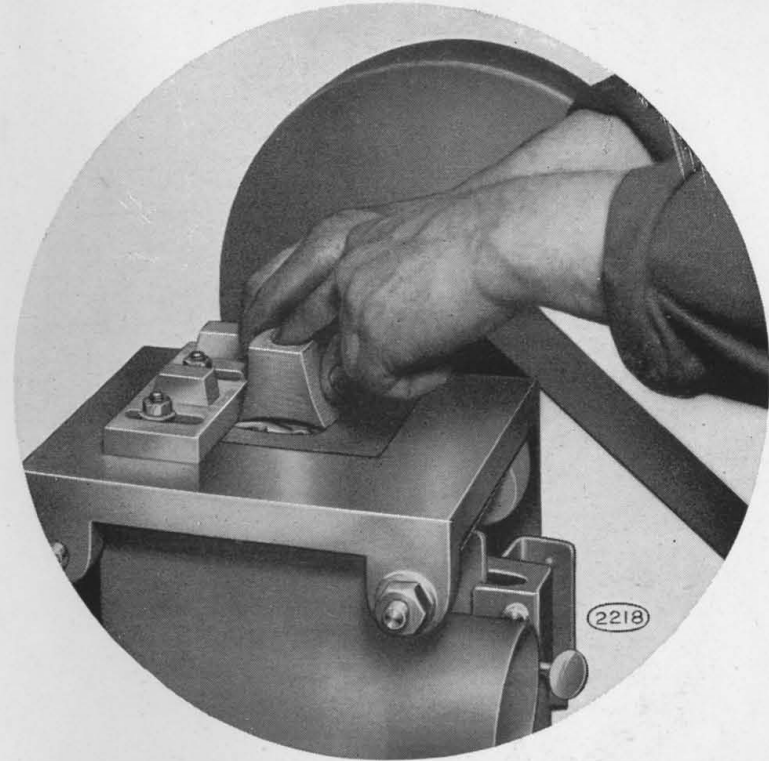
STRAIGHT BREASTING ATTACHMENT on (MC) for machining conventional type heels. This illustration shows the slide in the action of passing the cutterhead—the attachment is provided with rise and fall adjustment and with adjustable and renewable guide ways for the slide movement.

SAGAR

'BURSGREEN' WOOD HEEL PRODUCTION MACHINES



ILLUSTRATING on left above, SPECIAL GUARDS, WORK HOLDING AND OPERATING FIXTURE on (MM). This consists of a centrally mounted arm with vertical hinge movement, so that it may be moved over to either cutterhead at will. The arm also has a horizontally mounted hinge so that it may be angled either way as required. Wooden or metal formers of the shape of heel being machined are mounted above and below heel in the cramp. Adjustable steel rings against which the formers are allowed to bear are mounted above and below cutterhead. In operation, the heel is clamped in position, and arm is moved over to left hand cutterhead, and angled over until formers come into contact with the steel rings. The arm is held in this position, and heel moved half way round past cutterhead by means of a handle controlling radial movement of heel mounting. The operation



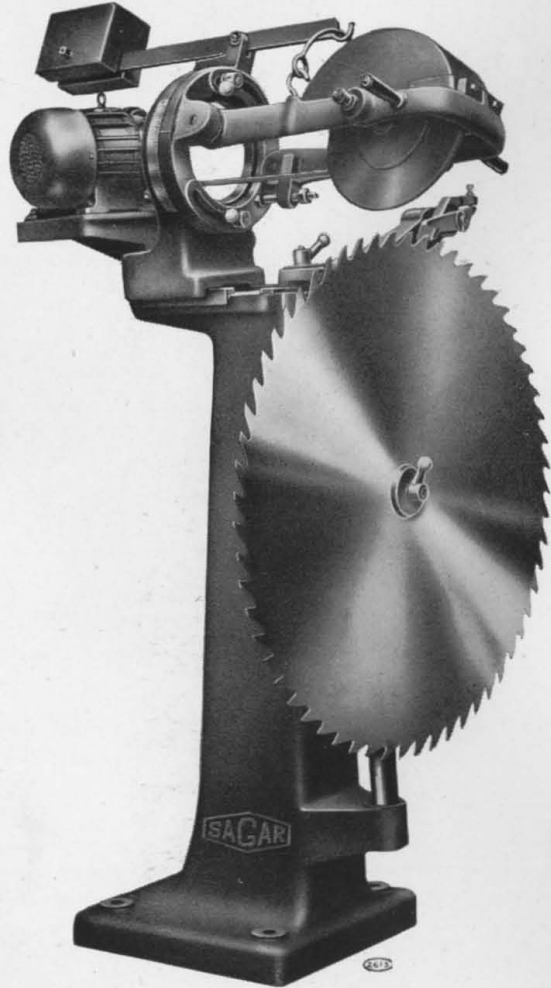
is repeated on other side of heel with right hand cutterhead, so that grain on both sides is with direction of cut.

CUPPING OPERATION illustrated on right above, performed on Saw Angling and Cupping Machine (MO). This operation forms the oval cup in top of heel, where it fits on to sole of shoe. An oval shaped milling cutter protrudes through the machine table, which is provided with a small strong fence. The heel is placed downwards on table and moved into milling cutter whilst kept against fence. When the cut has progressed about half way through heel it is rotated bodily, still keeping it against fence, through approximately 180°, so that cutter comes out of heel with opposite side against fence to that which entered.

Section 8

TOOL ROOM MACHINES





SAW SHARPENING MACHINE (L)

CONSTRUCTION

THE BALANCED SWING CARRIAGE which carries the grinding wheel is brought down to the saw by hand and can be canted to any desired angle, a scale being provided for quick setting.

THE PILLAR carrying the saw can be swivelled to different positions indicated on a scale, a suitable locking device being incorporated.

AN ADJUSTABLE SLIDE AND PAWL is fitted, which is used for keeping the teeth to a regular size and shape.

A LONG VICE mounted on a horizontal slide can be provided for sharpening frame saws. This vice slides by means of rack and pinion motion, for spacing between the saw teeth.

A GUARD is provided for the grinding wheel.

DETAILS INCLUDED IN THE PRICE

One each—Round-edge Grinding Wheels, 12" diameter— $\frac{1}{4}$ " and $\frac{3}{8}$ " thick. One Square-edge Grinding Wheel, 12" diameter \times $\frac{1}{2}$ " thick. Motor and Starter. Guard for grinding wheel. Set of Spanners. Tin of Lubricant.

CODE WORDS AND PRICES

Electrically Driven Machine	" ZIRRO "	£
Belt Driven Machine	" YAMAD "	£
Attachment for Frame Saws	" YAMDA "	£
Emery Wheel Dresser	" ZIRTY "	£
Emery Wheels 12" diameter up to $\frac{1}{2}$ " thick with square or round edges		£

SPECIFICATION

Maximum circular saw	6' 0" diameter.
Minimum circular saw	12" diameter.
Minimum length of frame saw	3' 6"
Diameter of grinding wheel	12"
Horse power	1
Speed of grinding spindle	1,640 r.p.m.
Size of fast and loose pulleys	8 $\frac{1}{2}$ " diameter \times 2 $\frac{1}{4}$ " wide.
Speed of fast and loose pulleys	675 r.p.m.
Approximate floor space	3' 2" \times 1' 6"
" gross weight	8 $\frac{3}{4}$ cwts.
" nett weight	7 $\frac{1}{2}$ cwts.
" measurement	24 cu. ft.



AUTOMATIC SAW SHARPENING MACHINE (HM)

CONSTRUCTION

THE GRINDING WHEEL is mounted on a canting frame, allowing it to be set to the correct angle for the saw being ground.

SAWS are mounted on a stub mandrel on a slide with vertical adjustment necessary for varying types of saw. A horse shoe type clamp gives support to both sides of the tooth being ground.

All movements of the machine are fully automatic comprising, (a) Spacing of saw, (b) Vertical movement of grinding wheel, (c) Swivel movement to grinding wheel for rake of tooth. All three movements are synchronised with individual screw adjustments for length of stroke in each case. The swivel movement to grinding wheel may be disconnected when not required.

EXHAUSTING SYSTEM. A channelled duct passes through the body of the machine from the point of grinding to an outlet at the rear of the machine frame for connecting to a dust exhausting unit.

DETAILS INCLUDED IN THE PRICE

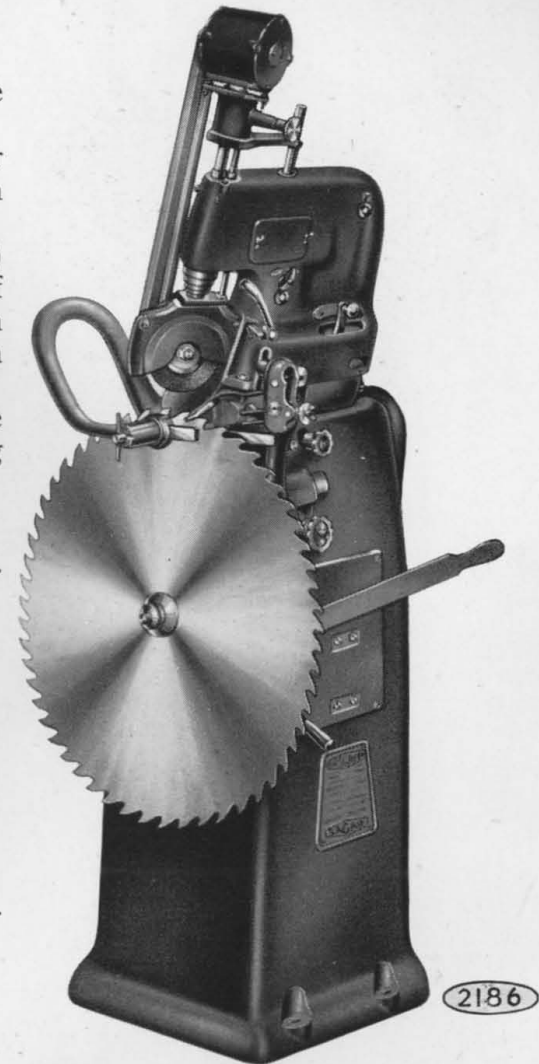
Motors and Starters. Grinding Wheel. Set of Spanners. Grease Gun. Tin of Lubricant.

CODE WORDS AND PRICES

Standard Machine	" ZOCHO " £
Attachment for Wide Bandsaws	" ZOKAL " £
Spare Grinding Wheels	£
Dust Collecting Unit complete with Connecting Piping from Machine to Unit— standard position—See page 161	" ZISYV " £

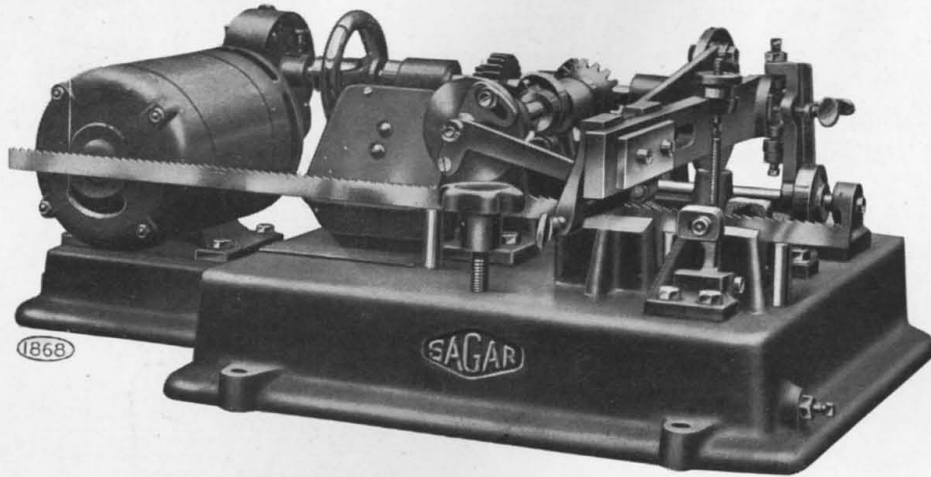
SPECIFICATION

Maximum circular saw	3' 4" diameter.
Minimum circular saw	6" diameter.
Horse power of grinding wheel motor	$\frac{1}{2}$
Speeds of grinding wheel motor	2,400/3,050 r.p.m. syn.
Horse power of motor driving various machine movements	$\frac{1}{2}$
Speed of motor driving various machine movements	1,500 r.p.m. syn.
Approximate floor space	3' 3" x 2' 6"
" gross weight	7 $\frac{1}{2}$ cwts.
" nett weight	6 cwts.
" measurement	53 cu. ft.





AUTOMATIC BAND-SAW FILING AND SETTING MACHINE (TP)



CONSTRUCTION

A DISC CRANK and connecting rod operate the file backward and forward past the teeth, sharpening the teeth in the forward movement, a lifting arrangement being provided on the back stroke. The pressure on the forward stroke is regulated by means of a spring.

THE SAW is fed forward by a pawl actuated by an adjustable cam, which is set according to the pitch of the teeth.

SETTING HAMMERS are arranged one on each side of the saw, and consist of two steel dies actuated by cams and springs. After the teeth have been fed forward by the pawl, the hammers strike the teeth alternately; the amount of set of the teeth can be varied by means of a handwheel.

THE MOTOR is of the geared reduction type.

BELT DRIVE. A countershaft is supplied.

DETAILS INCLUDED IN THE PRICE

Motor and Starter. Set of Spanners. Tin of Lubricant.

CODE WORDS AND PRICES

Electrically Driven Machine	" ZICAY "	£
Belt Driven Machine	" YALDE "	£
Suitable Stands and Carrier Pulleys can be supplied to support saws whilst being sharpened	" YALGO "	£

SPECIFICATION

The machine will take saws up to	2½" wide.
Will work teeth of varying pitches up to	1⅛" pitch.
Size of fast and loose pulleys on belt driven machine	10" dia. × 1⅝" wide.
Speed of fast and loose pulleys on belt driven machine	70 r.p.m.
Horse power	¼
Speed of motor	1,500 r.p.m. syn.
Overall dimensions of electrically driven machine	2' 8" × 1' 11½"
Overall dimensions of belt driven machine	2' 1" × 1' 11½"
Approximate gross weight	2¾ cwts.
" nett weight	2 cwts.
" measurement	10 cu. ft.



GRINDING MACHINE (DQ)

CONSTRUCTION

THE SPINDLE is dynamically balanced and mounted on ball bearings in dust proof housings.

TOOL RESTS are adjustable both laterally and longitudinally for convenience of varying sizes of cutters.

GRINDING WHEELS of any shape can be supplied, and are specially bonded to run at a speed 100% faster than normal, thus giving more accurate and quicker grinding of cutters. Guards provide adequate protection to each wheel.

GRINDING CONES may be fitted to either end of the grinding wheel spindle for grinding hollow chisels, gouges, etc.

THE MOTOR is housed within the main frame, the drive to spindle being by link vee belt and vee pulleys. This method of driving not only ensures the correct speed to the grinding wheels, but also eliminates the necessity of removing the main spindle when a replacement of belt becomes necessary.

DETAILS INCLUDED IN THE PRICE

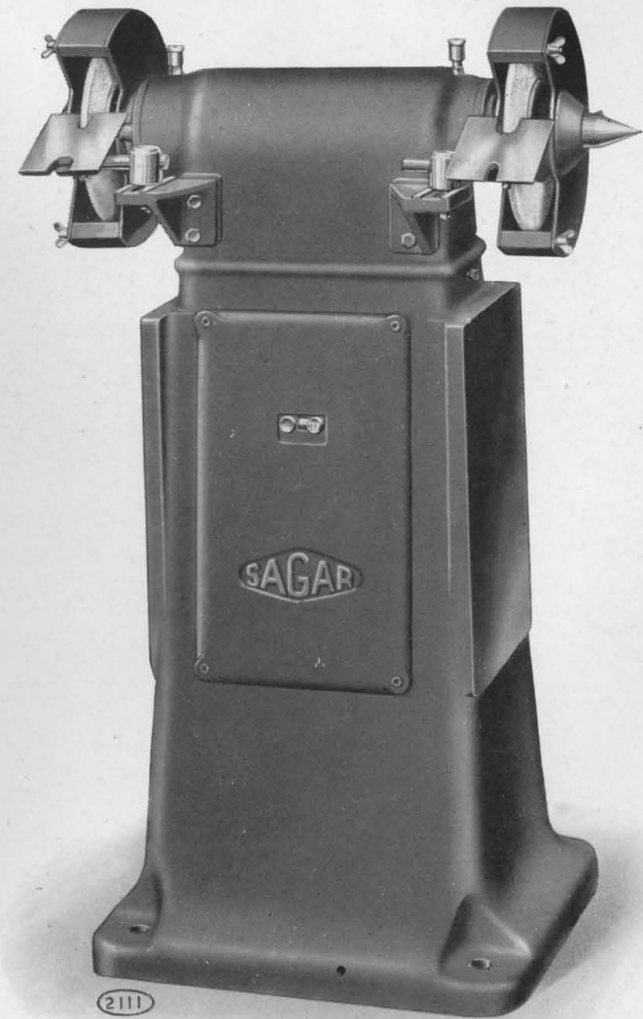
Motor and Starter. Two Grinding Wheels, 9" diameter \times $\frac{1}{2}$ " thick. Guards. Set of Spanners. Tin of Lubricant.

CODE WORDS AND PRICES

Standard Electrically Driven Machine.. .. "ZASGE" £
 Grinding Cone for gouges, etc. "ZISUT" £
 Dust collecting unit, complete with Connecting Piping from
 Machine to Unit—standard position—see page 161 .. "ZISYV" £

SPECIFICATION

Overall height	3' 5 $\frac{3}{4}$ "
Maximum size of grinding wheels.. .. .	9" diameter.
Centre hole of grinding wheel	$\frac{7}{8}$ " diameter.
Horse power	1
Speed of grinding spindle	2,880 r.p.m.
Approximate floor space	2' 8" \times 1' 6"
.. gross weight	7 cwts.
.. nett weight	6 cwts.
.. measurement	25 cu. ft.





PLANING AND MOULDING CUTTER GRINDING MACHINE (NR)



CONSTRUCTION

THE MAIN FRAME is a one-piece cored casting of rigid construction.

THE SPINDLE is mounted on precision ball bearings, at one end carrying a cup wheel for grinding thick and thin planing cutters, and at the opposite end a disc wheel for grinding and shaping moulding cutters. A fully adjustable tool rest is provided for the disc wheel.

In addition, a cone wheel can also be fitted for sharpening hollow chisels, gouges, etc. The grinding wheels are specially bonded to run at a speed 100% faster than normal, thus giving more accurate and quicker grinding of cutters.

THE HEADSTOCK carrying the grinding wheels can be swivelled for hollow grinding of cutters.

THE CUTTER HOLDER has adjustment for providing any required bevel or cutting edge. A screw adjustment by handwheel to and from the cup wheel is incorporated to compensate for wear on the grinding wheel. The slide carrying the holder has a traversing movement by handle, and stops with spring-loaded cushioning are provided for regulating the travel of the table according to the length of cutter being ground.

THE MOTOR is housed within the machine base, the drive to spindle being by link vee belt and vee pulleys. This method of driving, not only ensures the correct speed to the grinding wheels, but also eliminates the necessity of removing the main spindle when a replacement of belt is desired.

A CIRCULAR SAW SHARPENING ATTACHMENT, suitable for saws from 10" to 38" diameter, can be supplied if desired.



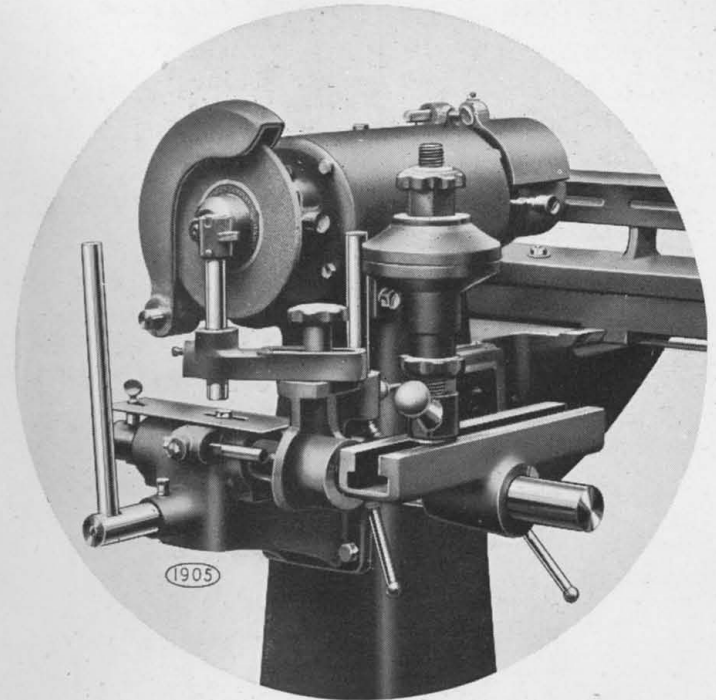
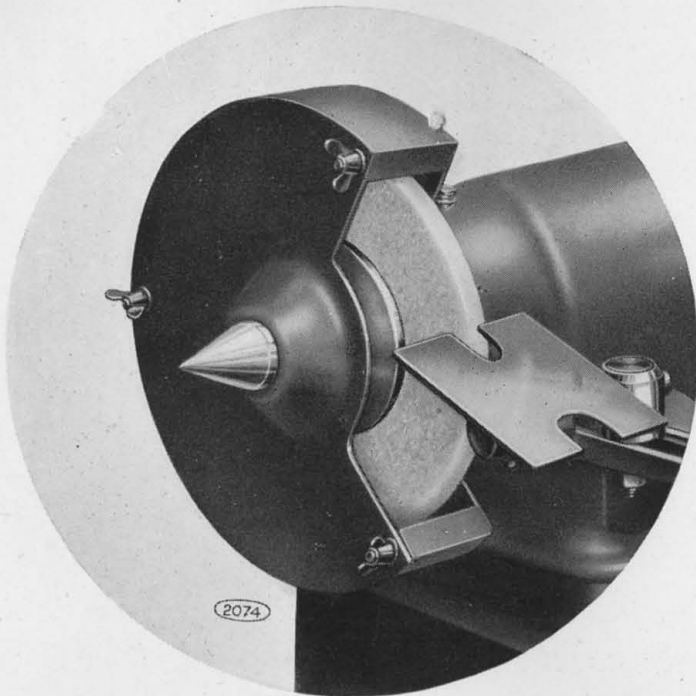
PLANING AND MOULDING CUTTER GRINDING MACHINE (NR)

DETAILS INCLUDED IN THE PRICE

Cup Grinding Wheel 4 $\frac{3}{4}$ " diameter. Disc Grinding Wheel 9" diameter \times $\frac{1}{2}$ " wide.
Motor and Starter. Set of Spanners. Tin of Lubricant.

CODE WORDS AND PRICES

Standard Machine	" ZAPAB "	£
Thin Cutter Attachment	" ZADYV "	£
Grinding Cone for gouges, etc.	" ZISUT "	£
Circular Saw Sharpening Attachment	" ZAVIK "	£
Dust Collecting Unit complete with Connecting Piping from Machine to Unit—standard position—see page 161 ..	" ZISYV "	£



Circular Saw Sharpening Attachment.

SPECIFICATION

Maximum length of planing cutters	32"
Diameter of disc grinding wheel	9"
Horse power	1
Speed of spindle	3,300 r.p.m.
Approximate gross weight	8 $\frac{3}{4}$ cwts.
" nett weight	7 cwts.
" measurement	30 $\frac{1}{2}$ cu. ft.



AUTOMATIC PLANING CUTTER GRINDING MACHINE (OH)

THE GRINDING HEADSTOCK may be canted to any angle to give hollow grinding to cutters and to the horizontal for access in changing grinding wheels. Automatic and hand feed is incorporated for the downward feed of grinding wheel. An extension of the grinding spindle is in the form of an impeller and directs a constant stream of coolant from the trough on to the point of grinding, eliminating the use of a pump.

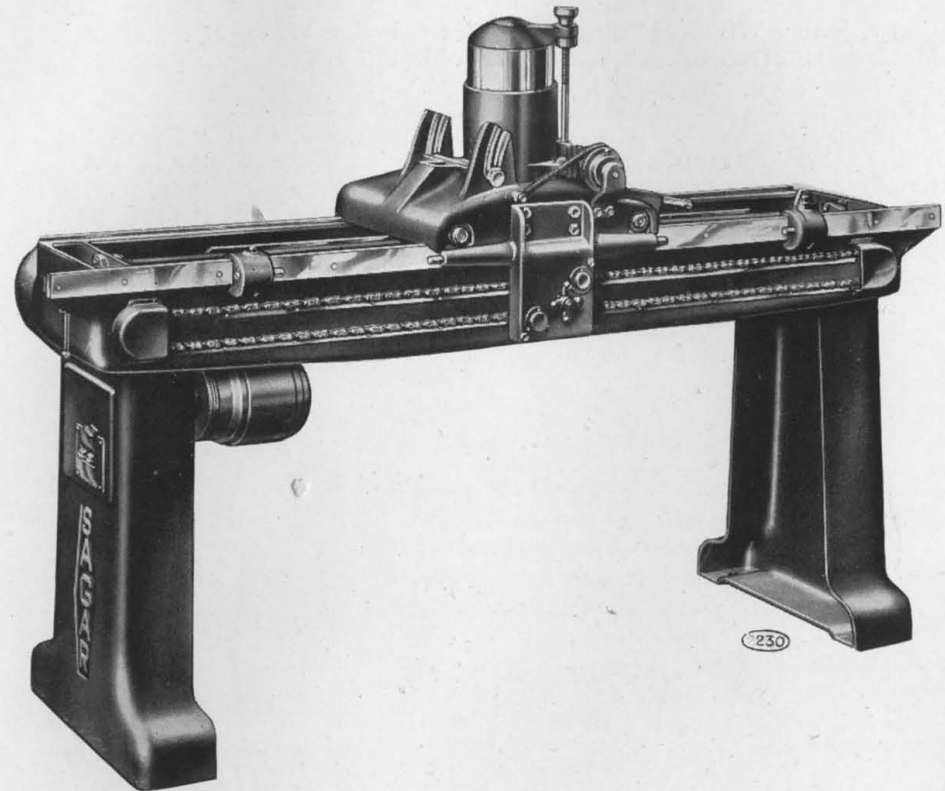
THE HEADSTOCK TRAVERSE is fully automatic through reversing motor and switch, operated by dogs, adjustable for length of traverse required.

DETAILS INCLUDED IN THE PRICE

Motors and Starters. Cup Grinding Wheel. Set of Spanners. Tin of Lubricant.

CODE WORDS AND PRICES

Standard Machine	" ZOHKE "	£
Thin Cutter Attachment	" YIWEZ "	£
Spare Cup Grinding Wheels (each)		£



SPECIFICATION

Maximum size of planing cutters	42" long x 6" wide.
Diameter of cup grinding wheel	6"
Speed of grinding spindle	3,000 r.p.m.
Horse power of grinding head motor	1½
Horse power of traversing motor	¼

Traversing speed	30 ft. per min.
Approximate floor space	6' 0" x 1' 10"
" gross weight	11 cwts.
" nett weight	9 cwts.
" measurement	69 cu. ft.



WOODWORKERS TOOL GRINDING MACHINE (NU)

CONSTRUCTION

This machine is capable of dealing with Plane Irons, Wood Chisels, Gouges, Planing Machine Knives, Trimmer Knives and any other type of wood cutting tool, with the exception of saws.

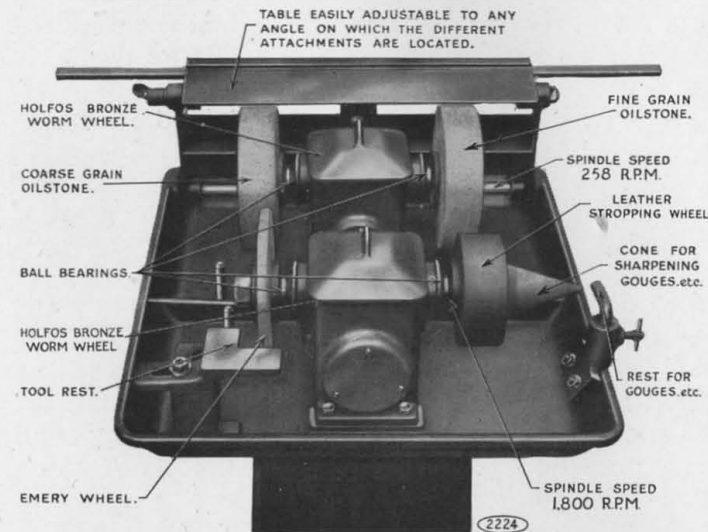
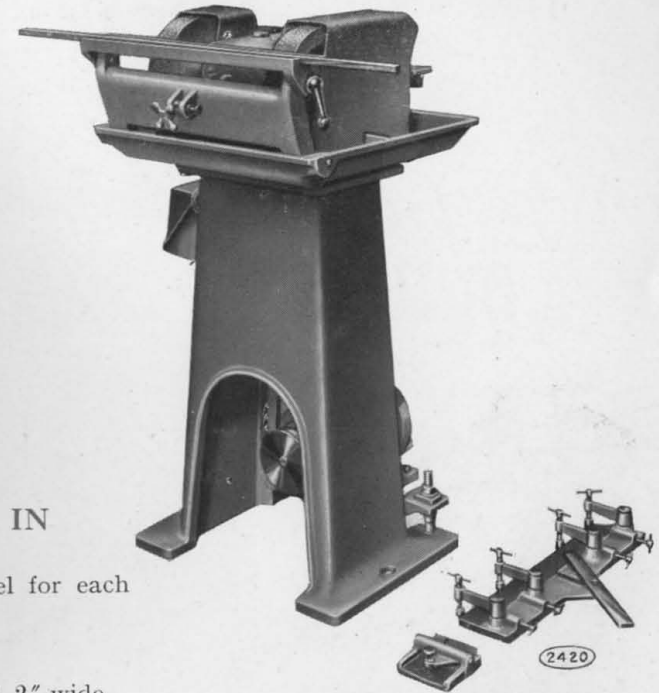
The machine embodies two spindles; one carrying a coarse wheel for rough grinding and a fine oilstone for finishing, whilst the second carries a grinding cone, an ordinary emery wheel and a stropping wheel.

Tools such as Plane Irons, Chisels, Planer and Trimmer Knives are ground either on the oilstone or the coarse wheel, and are held in an attachment on the table which swivels to the angle required. The fine oilstone is equipped with a Patent Internal Oiling System by which the lubricating oil is carried in the recess of the wheel and percolates through to the surface, keeping it uniformly oiled and washing away all the dirt.

All the wheels are adequately guarded with arrangement to facilitate the changing of the wheels. The standard machine is not intended for the use of water whilst grinding, but a water pot and pipe can be supplied if desired.

CODE WORDS AND PRICES

Standard Machine	" ZOGHA " £
Water Pot and Pipe	" ZOKEM " £



DETAILS INCLUDED IN THE PRICE

Motor and Starter. Grinding wheel for each spindle.

SPECIFICATION

Size of oilstones	8" dia. × 2" wide.
Size of grinding cone	3" dia. × 5" long.
Size of emery wheel	7" dia. × 5/8" wide.
Size of stropping wheel	5" dia. × 2" wide.
Speed of oilstones	258 r.p.m.
Speed of other wheels	1,800 r.p.m.
Horse power	3/4
Speed of motor	1,500 r.p.m. syn.
Approximate floor space	3' 0" × 2' 6"
" gross weight	6 1/2 cwts.
" nett weight	4 1/2 cwts.
" measurement	36 cu. ft.



UNIVERSAL CUTTER GRINDING MACHINE (AFT9)

ADAPTABLE FOR GRINDING TUNGSTEN CARBIDE TIPPED SAWS AND CUTTERS



CONSTRUCTION

THE SPINDLE carries a dished grinding wheel at one end for grinding milled to pattern, solid, or standard type heads, and at the opposite end a disc grinding wheel for grinding and shaping moulding cutters.

THE SPINDLE HEADSTOCK is arranged to swivel through 360°, and is suitably calibrated. There is a quick adjustment by hand lever for the movement to and from the cutters for the preliminary setting of the cut required.

THE TABLE is precision ground all over and mounted on totally enclosed adjustable ball bearings, providing a delicate and very easy movement for the longitudinal traverse. This is operated by handwheel through rack and pinion motion, which may be disconnected leaving table free to be moved by hand. Short traverse to and from grinding head operated by handwheel and screw with large dial calibrated in thousandths of an inch. It has rise and fall motion by large diameter handwheel and screw, with renewable phosphor bronze nut. Adjustable stops with rubber buffers are provided for longitudinal traverse.

GUARDS over each grinding wheel, and a tool rest for the disc wheel are provided.

FIXTURES of different types can be supplied to carry the cutters being ground. Fig. 1 shows a fixture suitable for carrying thick and thin planing cutters. Fig. 2 shows the fixture required for grinding tungsten carbide tipped circular saws. Fig. 3 shows the fixture for carrying multi-wing solid profile cutters, milled to pattern cutterheads, etc. A roller setting gauge is incorporated.



UNIVERSAL CUTTER GRINDING MACHINE (AFT9)

DETAILS INCLUDED IN THE PRICE

Motor and Starter. Dished Grinding Wheel, 8" diameter. Disc Grinding Wheel, 7" diameter. Set of Spanners. Tin of Lubricant.

CODE WORDS AND PRICES

Electrically Driven Machine	" ZEMDA "	£
Fixture to carry Solid Cutterheads	" ZIFYH "	£
Fixture to carry Square or Circular Blocks	" ZIGAC "	£
Roller Setting Gauge for " ZIGAC "	" ZIGCA "	£
Fixture to carry Planing Cutters	" ZIGDE "	£
Thin Cutter Attachment for " ZIGDE "	" YIWEZ "	£
Fixture to carry Tungsten Carbide Tipped		
Saws	" ZOEVEY "	£
Self Indexing Fixture for Solid or Milled		
to Pattern Cutters.. .. .	" ZOEWZ "	£
Magnetic Chuck for surface grinding	" ZOMPE "	£

SPECIFICATION

Size of table	39" × 10 $\frac{3}{4}$ "
Rise and fall of table	10"
Length of horizontal movement of table	24"
Movement of table to and from grinding wheel	4"
Movement of headstock	4"
Horse power of motor	1 $\frac{1}{2}$
Speed of grinding spindle	2,830 r.p.m.
Approximate gross weight	13 cwts.
" nett weight	11 cwts.
" measurement	55 cu. ft.

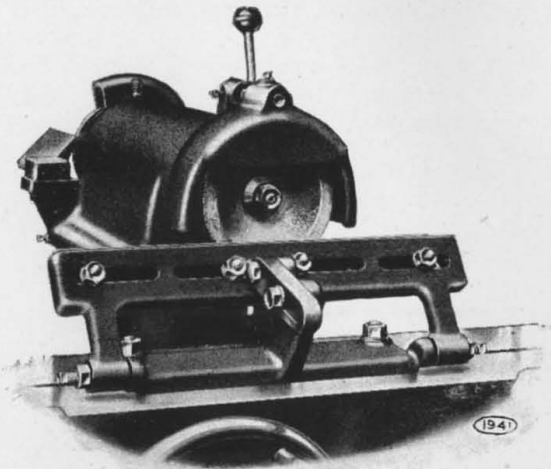


Fig. 1. Planing Cutter Attachment.

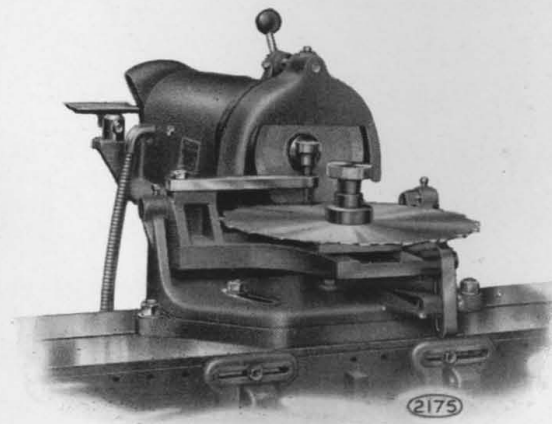


Fig. 2. Tungsten Carbide Tipped Saw Attachment.

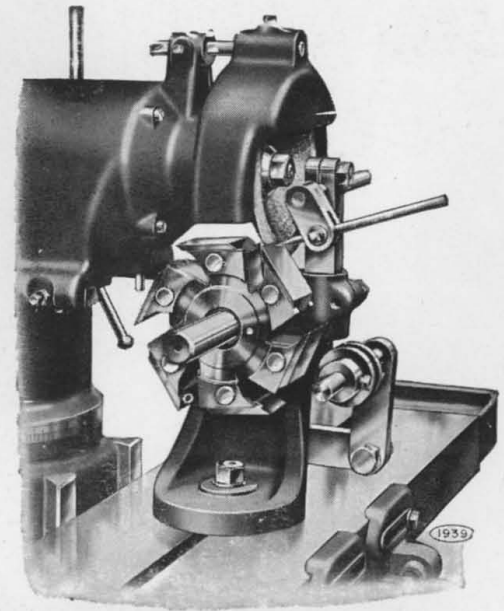
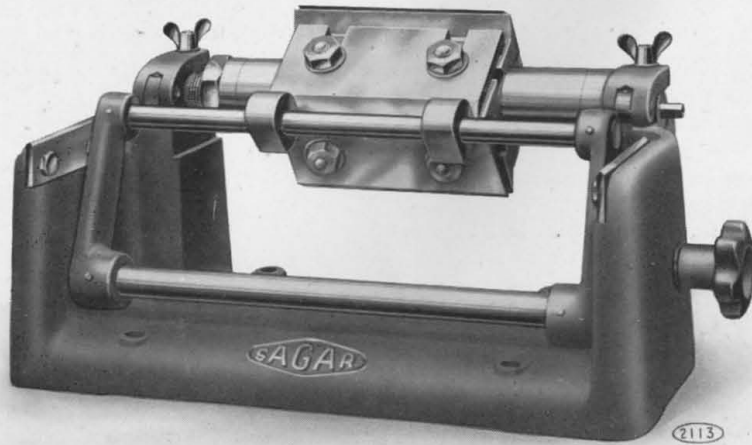


Fig. 3. Multi-wing Cutterhead Attachment.



CUTTER SETTING AND BALANCING STANDS



Type (BA)

As a cutter setting stand this can be used for setting straight cutters or moulding cutters from a template, so that cutterblocks may be set up ready for use thereby saving time usually absorbed in setting them on the machine.

When the cutters are set the template bar can be lowered and the block balanced on vee slides provided for the purpose. The stand takes blocks for setting and balancing up to 12" wide x 8" diameter.

DETAILS INCLUDED IN THE PRICE

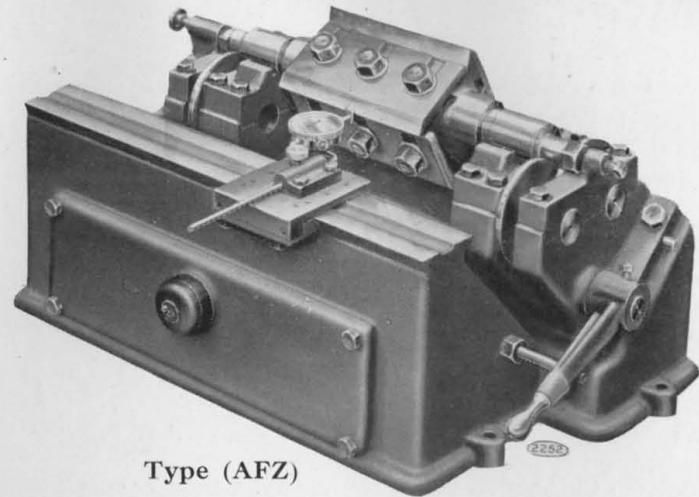
One Arbor with Nut and Spacing Washers.

CODE WORD AND PRICE

"ZIHDA" £

SPECIFICATION

Approximate gross weight	.. .. .	1½ cwts.
" nett weight	.. .. .	1¼ cwts.
" measurement	.. .. .	2¾ cu. ft.



Type (AFZ)

This is similar to Type (BA) but is fitted with two ball bearing precision rollers at each end on which the cutterblock revolves. This method is extremely sensitive and provides a means of having perfectly balanced cutterblocks. A micrometer gauge mounted on vee slides is provided for use when setting planing cutters. Provision is made for fitting a template—this is used for setting up moulding cutters on the cutterblock. For this purpose an electric light illuminates a frosted glass panel beneath the cutterblock and enables the operator to see at a glance whether the moulding cutters are set correctly.

DETAILS INCLUDED IN THE PRICE

One Arbor with Nut and Spacing Washers. Two Slides for holding Template or Dial Indicator. Roller Setting Gauge.

CODE WORDS AND PRICES

Stand suitable for cutterblocks up to 12" wide by 8" diameter	.. .. .	"ZOYZA" £
Dial Indicator Gauge as illustrated	.. .. .	"ZUBIK" £

SPECIFICATION

Approximate gross weight	.. .. .	1½ cwts.
" nett weight	.. .. .	1 cwt.
" measurement	.. .. .	6.3 cu. ft.



CHAIN CUTTER GRINDING MACHINE (AFO)

CONSTRUCTION

THE CHAIN is mounted on a sprocket on a sliding bar which reciprocates past the grinding wheel. This bar passes through a ratchet wheel, and as each link is sharpened, the next is brought into position by turning the hand nut.

ADJUSTMENTS are provided for correctly setting the angle and the depth of cut.

THE GRINDING WHEEL SPINDLE revolves in ball bearings.

DETAILS INCLUDED IN THE PRICE

Dished Abrasive Wheel. Sprocket Wheel. Spanner. Tin of Lubricant.

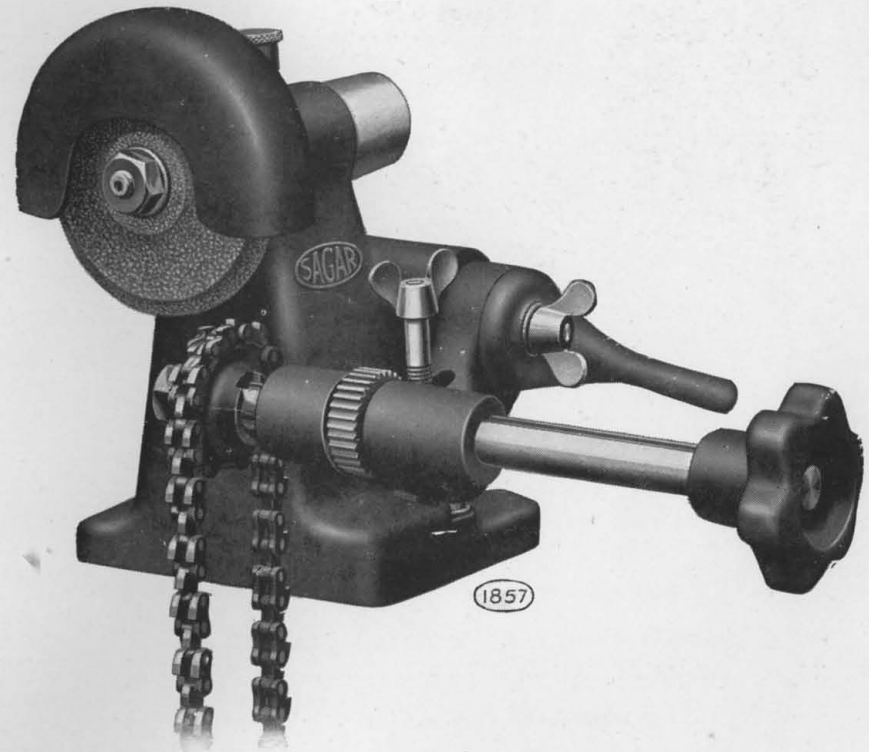
CODE WORD AND PRICE

Machine for bench mounting "ZEELD" £

SPROCKETS—The following can be supplied to fit chain sizes :—
 $\frac{1}{4}$ " , $\frac{5}{16}$ " , $\frac{3}{8}$ " , $\frac{7}{16}$ " , $\frac{1}{2}$ " , $\frac{5}{8}$ " , $\frac{3}{4}$ " , $\frac{7}{8}$ " and 1" \times .89" Pitch ; $\frac{7}{16}$ " , $\frac{1}{2}$ " , $\frac{9}{16}$ " ,
and $\frac{5}{8}$ " \times .62" Pitch ; $\frac{3}{16}$ " , $\frac{1}{4}$ " , $\frac{5}{16}$ " and $\frac{3}{8}$ " \times .54" Pitch.

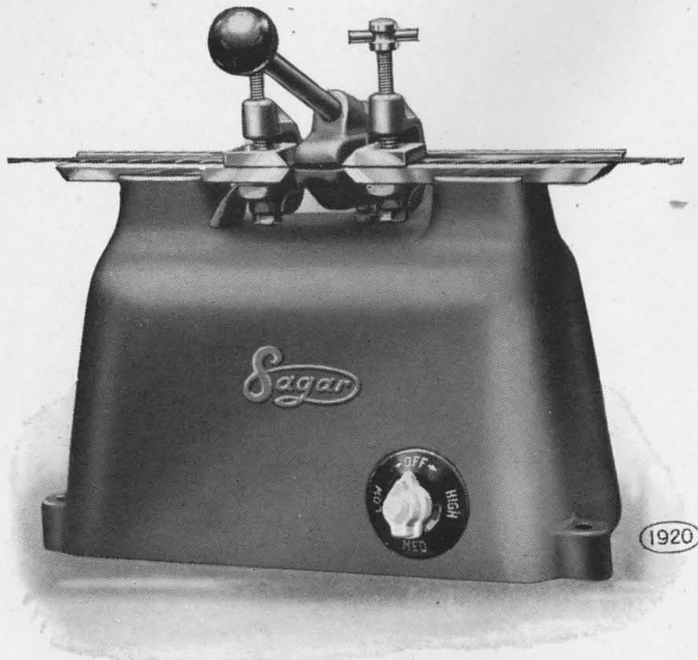
SPECIFICATION

Approximate gross weight	. . . . .	42 lbs.
„ nett weight	. . . . .	27 lbs.
„ measurement	. . . . .	1½ cu. ft.





BAND-SAW BRAZING MACHINE (AGK)



An extremely simple and effective appliance for quickly brazing band saws up to 1½-in. wide.

It is substantial in construction and demands no special skill to operate.

TO OPERATE, file the overlapping ends over a distance of $\frac{3}{8}$ " to $\frac{3}{4}$ " according to width of saw, and clamp firmly with the brazing point central between the clamps. Then slip in piece of Silver Solder so that a little projects all round, and cover the joint with flux.

A four-position switch regulates the heat. Use the low position for narrow saws, the medium position for wider saws, and the high position for the widest saws. The operation is completed by pressing with the hand clamp, and dressing the joint by filing off the waste material, leaving to an even thickness.

DETAILS INCLUDED IN THE PRICE

Supply of Silver Solder. Flux.

CODE WORD AND PRICE

"ZIDZA" £

Approximate gross weight	5/8 cwts.
„ nett weight	1/2 cwt.
„ measurement	2 cu. ft.



BAND-SAW WELDER (KD)

THE WELDER is suitable for joining Band Saw Blades with flexible backs and flame-hardened teeth or for file-sharpened band saws up to $\frac{3}{4}$ " wide. The unit is mounted in a cast iron case which is suitable for either bench or wall mounting. Overall measurement is 1' 6" high \times 8 $\frac{3}{4}$ " wide \times 11 $\frac{3}{4}$ " deep.

THE TRANSFORMER is of ample capacity to supply the maximum current required from a 200-230 volts single-phase 50 cycles supply. To make a weld, the ends of the saw are clipped square, the selector knob is rotated to the position for the width of saw being joined, and the two ends are then clamped by the screw clamp and aligned by the guide plates provided. The pressure knob is rotated from the saw width position to the weld position, which automatically applies the required pressure on the ends to be joined.

A HEAT SWITCH is then positioned, and the weld button depressed. After welding the joint is brittle and requires annealing. The clamps are released to relieve pressure and the blade re-clamped. The pressure and heat knob are then rotated to the annealing position, the operation being performed by bringing the joint to a dull red heat, by depression of the welding switch, and allowing the saw to cool.

A BUILT-IN GRINDING UNIT, consisting of a guarded wheel mounted on a fractional horse power motor, is incorporated for dressing the weld. The guard is provided with two thickness gauges for testing the thickness of saw after welding.

SPOT LIGHTING is provided by a 15-watt tubular lamp mounted in the top of the unit.



CODE WORD AND PRICE

"ZIVAR" £

SPECIFICATION

Approximate gross weight	.. .. .	1 cwt.
" net weight	.. .. .	$\frac{3}{4}$ cwt.
" measurement	.. .. .	5 $\frac{3}{4}$ cu. ft.

Section 9





'BURSGREEN' DOUBLE-ENDED CUTTING OFF, TURNING AND BORING MACHINE (LE)

CONSTRUCTION

BOTH HEADS have adjustment vertically and also at right angles to the bed in vee slides by handwheel and screw. The left chucking head base is fixed horizontally. Both heads swivel 15° either side of a line parallel to the bed, the right hand one having a canting motion backwards up to 15° in a vertical plane.

SAW SPINDLES AND BORING HEAD are mounted on a ball bearing carriage at the rear of the machine.

RAILS OR STRETCHERS are held by clamps operated by foot pedal on two adjustable tables.

ADJUSTABLE STOPS at the back are provided for positioning the timber and a disappearing type stop locates the rail endways.

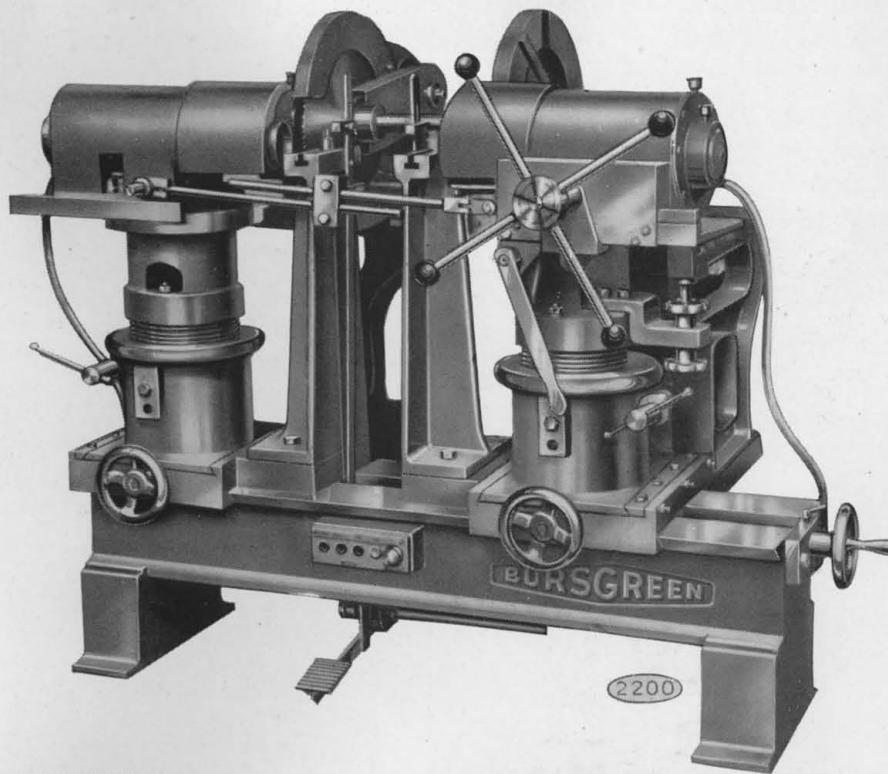
ALL MOVEMENTS of the machine are adequately guarded.

DETAILS INCLUDED IN THE PRICE

Two 15" diameter Cross-cut Saws. One pair each Turning Heads for tenons $\frac{1}{2}$ " and $\frac{5}{8}$ " diameter, complete with H.S.S. Cutters and Chamfer Cutters. One each $\frac{1}{2}$ " and $\frac{5}{8}$ " H.S.S. Boring Bits. Set of Spanners. Tin of Lubricant.

CODE WORD AND PRICES

Standard Machine	" ZIYUZ "	£
6" Length of Bed for extra length of rails, up to a maximum of 48" long	per 6"	£
Turning Heads, up to a maximum of 1" dia.	each	£
If Turning Heads are required to perform end boring operations, adaptor may be supplied to take $\frac{1}{2}$ " shank drills	each	£



This machine is suitable for the manufacture of Chair Under-Rails or Stretchers and similar parts.

SPECIFICATION

Maximum and minimum length of rails ..	30" and 8"	Speed of motors	3,000 r.p.m. syn.
Maximum length of rails. Special	48"	Approximate floor space	5' 3" x 3' 8"
Horse power of motors for each turning head	1	" gross weight	18 cwts.
Horse power of motor for boring head	$\frac{1}{2}$	" nett weight	15 cwts.
Horse power of motor for saw spindle	2	" measurement	118 cu. ft.



24" AUTOMATIC DOVETAILING MACHINE (VY)

CONSTRUCTION

THE SPINDLE carrying the dovetail cutter is mounted in a slide, which feeds and returns automatically by means of cams and weights.

THE WORKTABLE has automatic mechanism for spacing the dovetails, and is arranged to carry the two pieces to be jointed in such a manner that a complete dovetail joint is made at one operation.

THE DOVETAIL PINS are undercut automatically to hide the round ends of the mortises, and this undercut can be regulated by means of a screw adjustment on the cutter slide.

CONTROL LEVERS to stop the spacing or feeding motions at any position as required are conveniently placed for the operator.

BELT DRIVE. Countershaft fitted with suitable pulleys is supplied.

DETAILS INCLUDED IN THE PRICE

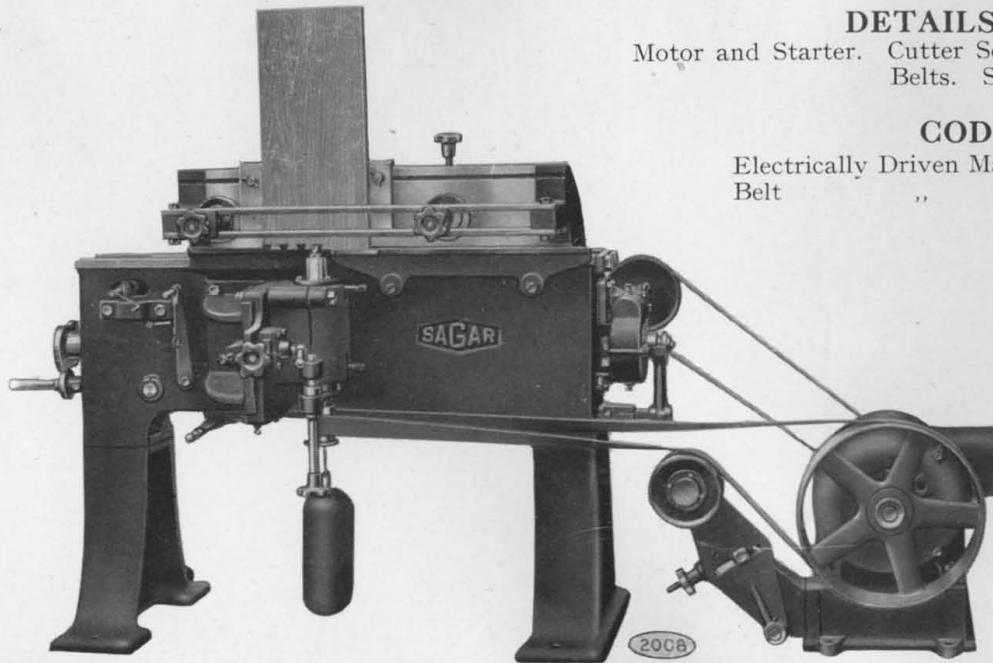
Motor and Starter. Cutter Setting Gauge. Three Dovetail Cutters of different sizes. Belts. Set of Spanners. Tin of Lubricant.

CODE WORDS AND PRICES

Electrically Driven Machine to take 24" wide	..	" ZECET "	£
Belt	..	" YECZE "	£

SPECIFICATION

Width will take	.. .. .	24"
Higher cutting speeds, per min.	..	22 and 34 dovetails.
Lower cutting speeds, per min.	..	11 and 17 dovetails.
Largest dovetail will make	..	1½" pitch.
Speed of countershaft	.. .. .	950 r.p.m.
Size of fast and loose pulleys	..	6" × 3¼"
Speed of cutter spindle	.. .. .	7,100 r.p.m.
Speed of motor	.. .. .	1,000 r.p.m. syn.
Horse power	.. .. .	3
Approximate floor space	.. .. .	8' 0" × 3' 6"
.. gross weight	.. .. .	15 cwts.
.. nett	.. .. .	12½ cwts.
.. measurement	.. .. .	51 cu. ft.





'BURSGREEN' AUTOMATIC MULTIPLE GROOVING MACHINE (LL)

CONSTRUCTION

THE TOP HEAD will either remain stationary to cut through a groove or can be set to automatically lift when the desired length of groove has been cut.

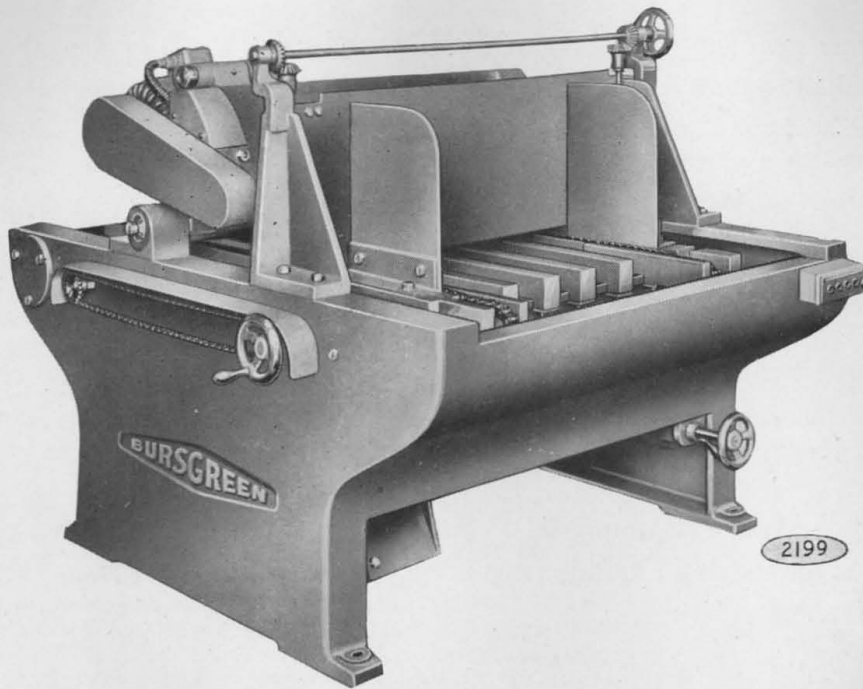
THE BOTTOM HEAD is stationary and cuts through grooves only. It can be raised or lowered for depth of groove.

AN INCHING DEVICE is fitted to facilitate setting and trial of the first board.

THE HOPPER consists of two side plates and a back. The side plates are bolted to the bed plates which are grooved to carry heavy roller chains.

The right hand bed plate and thus the hopper side is adjustable by means of a handwheel and screw. The back of the hopper has rise and fall motion, which gives the correct gap according to thickness of board. After leaving the hopper the board passes under flat springs, which hold it firmly to the bed whilst flat steel adjustable fences control the board endwise throughout its travel. A lever is fitted to tension all the flat springs at one operation.

TWIN ROLLER CHAINS for timber feed are fitted with dog plates, correct tensioning being ensured by means of adjustable ball bearing jockey sprockets.



DETAILS INCLUDED IN THE PRICE

Motors and Starters. Eight Adaptor Sleeves for Grooving Saws up to $\frac{1}{2}$ " wide. Eight Solid Grooving Saws 10" diameter and any desired width up to $\frac{1}{2}$ " wide. Two Adaptor Sleeves for Grooving Saws up to 1" wide. Two Grooving Saws 10" diameter and any desired width up to 1" wide. Set of Spanners. Tin of Lubricant.

CODE WORD AND PRICE

Standard Machine "ZOAHJ" £

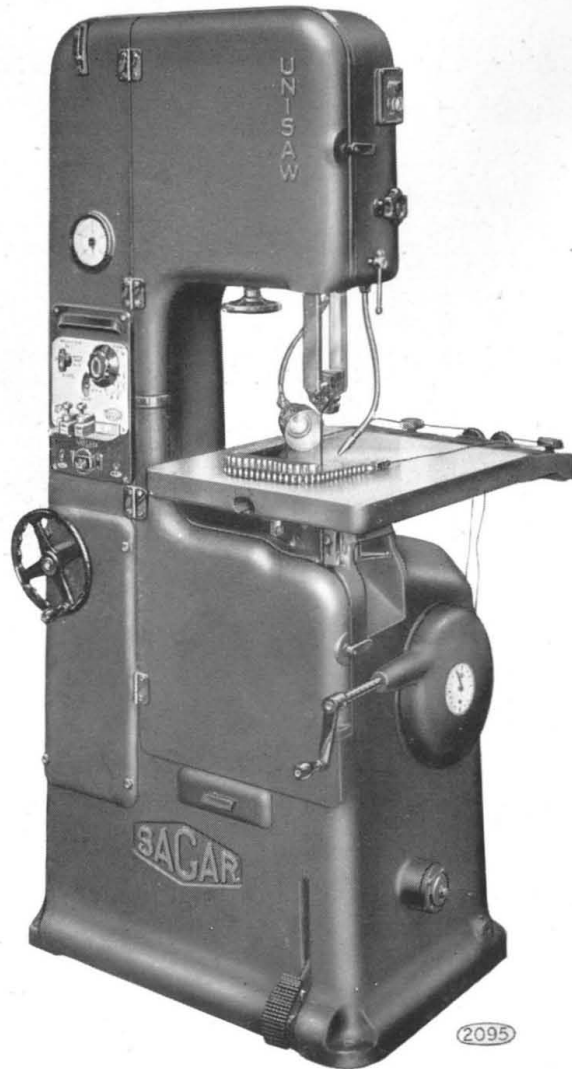
SPECIFICATION

Maximum length of board	32"
Minimum length of board	6"
Maximum width of board	16"
Maximum thickness of board	1 $\frac{1}{4}$ "
Rate of feed	40 boards per minute.
Horse power of each cutter spindle	3
Horse power of feed motor	2
Approximate floor space	5' 11" x 4' 11"
,, gross weight	40 cwts.
,, nett weight	35 cwts.
,, measurement	199 cu. ft.

THIS MACHINE is specially designed for the rapid production of either through or stop grooves for taking the partitions in beer, mineral water or any other divided cases or for any similar multiple grooving operations which are suitable for hopper feeding.



“THE UNISAW” METAL BAND-SAWING MACHINE (CH)



THE UNISAW represents the application of the narrow bandsaw technique for the removal of metal, embodied in a high grade machine tool. It has been specially evolved and designed for the purpose, embodying all the refinements and features necessary for this process.

It is ideal for the production of press tools, gauges, dies, and other parts of irregular shape, both for external and internal sawing. Waste material is practically eliminated, and final filing and polishing is usually all that is required.

The machine is made in two sizes :—

The 16-in. Machine has the conventional two wheels with consequent limitation from saw to body.

The 36-in. Machine is fitted with three wheels, allowing much greater distance between saw and body, and will therefore accommodate larger and heavier work, the body and table being heavier in general construction.

THE SAGAR Band-Saw Welder as described on page 127 is supplied as an integral part of the machine, and embodies an illumination lamp, grinder for dressing the welds and saw gauge for thickness of saw.

THE MACHINE is supplied with a canting table having 10° adjustment backwards, forwards, and to the left, and 45° adjustment to the right. All movements are provided with conveniently placed graduated angle scales, and powerful lock.



"THE UNISAW" METAL BAND-SAWING MACHINE (CH)

DETAILS INCLUDED IN THE PRICE

Motor and Starter. Air Compressor. Welding Unit. Transformer. Lighting Equipment. Power Feed Unit. Variable Speed Pulleys and Ropes. Tachometer.

CODE WORDS AND PRICES

No. 1 Machine suitable for 15-in. Material	.. ..	" ZODJO "	<i>L</i>
No. 2 Machine suitable for 36-in. Material	.. ..	" ZOFOK "	<i>L</i>
Screw feed attachment	.. ..	" ZODLY "	<i>L</i>
Angle cross-cutting attachment	.. ..	" ZODOJ "	<i>L</i>
Straight ripping fence	.. ..	" ZODUK "	<i>L</i>
Screw feed mitring attachment	.. ..	" ZODYL "	<i>L</i>
Magnifying attachment	.. ..	" ZOEBD "	<i>L</i>
Circular cutting attachment	.. ..	" ZOECF "	<i>L</i>
Electric etching pencil	.. ..	" ZOEJL "	<i>L</i>
Band Filing attachment	.. ..	" ZOELN "	<i>L</i>
Guide for $\frac{5}{8}$ -in. files	.. ..	" ZOEMP "	<i>L</i>
Guide for $\frac{1}{2}$ -in. files	.. ..	" ZOFUL "	<i>L</i>
Guide for $\frac{3}{8}$ -in. files	.. ..	" ZOERT "	<i>L</i>
Table supports for 36-in. machine	.. ..	" ZOGAH "	<i>L</i>
Allowance if power feed is not required	.. ..		<i>L</i>

A brief description of the attachments listed above is given on the following page.

SPECIFICATION	No. 1	No. 2
Maximum thickness of material	11"	11"
Size of table	20" x 24"	30" x 30"
Distance from saw to column	15 $\frac{1}{4}$ "	35 $\frac{1}{2}$ "
Height of table from floor	3' 7"	3' 7"
Variable speed range from	50 to 1,600 ft. per min.	50 to 1,600 ft. per min.
Diameter of saw pulleys	16"	16"
Approximate floor space	3' 2" x 2' 10"	6' 0" x 3' 4"
" gross weight	22 $\frac{1}{4}$ cwts.	26 cwts.
" nett weight	19 $\frac{3}{4}$ cwts.	23 cwts.
" measurement	80 cu. ft.	133 cu. ft.



Table tilted in two directions showing phosphor bronze insert and removable gap piece, work lamp, air pipe, and top saw guide.



“THE UNISAW” METAL BAND-SAWING MACHINE (CH)

ATTACHMENTS :—The following attachments, which serve a number of useful purposes, can be provided. The “ CODE WORDS AND PRICES ” for the attachments are listed on the previous page.

SCREW FEED ATTACHMENT is a simple unit mounted on the machine table to assist in small work.

STRAIGHT RIPPING FENCE, mounted on an adjustable bar on machine table is useful for straight cuts on deep or shallow work.

ANGULAR CROSS-CUTTING ATTACHMENT is mounted on a round bar on the front edge of the table, and may be used for straight or angular cross-cut work.

ANGULAR SCREW-OPERATED MITRE ATTACHMENT has been evolved for the accurate controlled slow cutting of either straight or angular work where a very fine finish is required.

CIRCULAR CUTTING ATTACHMENT, mounted on a guide bar, provides an accurate method of cutting circles or irregular shapes.

MAGNIFYING ATTACHMENT is a considerable help to an operator to follow marked-out lines.

ELECTRIC ETCHING PENCIL is useful for marking parts whilst the job is in progress.

BAND FILING ATTACHMENT which is referred to under separate leaflet, can be supplied.

TABLE SUPPORTS can be supplied for the 36-in. machine when dealing with heavy work.

Section 10

LIGHT

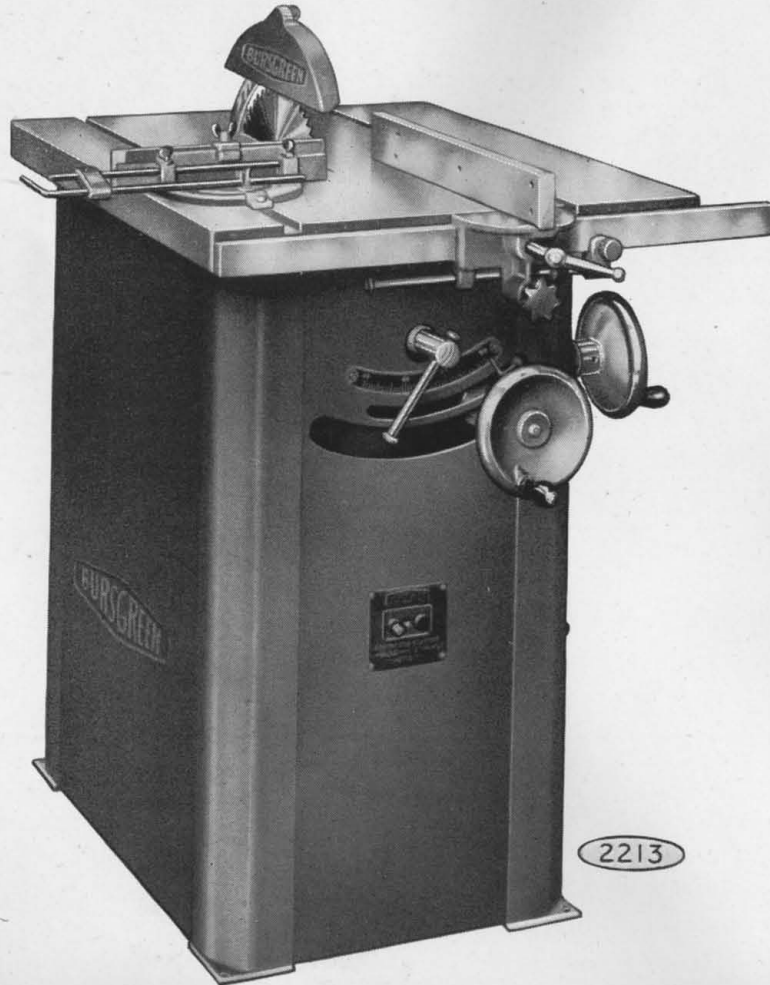


MACHINES





'BURSGREEN' 12" TILTING ARBOR SAW (MY)



CONSTRUCTION

THE BASE is a box section of rigid construction.

THE SPINDLE is ball bearing mounted, has rise and fall motion and cants to 45°, a graduated scale being provided to show angle of cant.

THE TABLE is surface ground and fitted with a gap plate for accessibility to the spindle when changing saws, etc.

THE RIPPING FENCE has quick adjustment by hand and fine adjustment by handwheel on either side of the saw.

THE MITRE FENCE is arranged to swivel up to 45° in each direction, and may be used on either side of the saw for crosscutting, mitring, angle and compound angle cutting, etc.

THE SAW GUARD is fully adjustable and can be immediately locked in any desired position according to position of saw.

THE RIVING KNIFE is mounted on the saw spindle housing and is adjustable to and from the saw, and automatically rises, falls and cants with the saw.

DETAILS INCLUDED IN THE PRICE

Motor and Starter. Mitre Fence. Ripping Fence. Saw Guard. Set of Spanners. Tin of Lubricant.

CODE WORD AND PRICE

Electrically Driven Machine "IBAF" £

SPECIFICATION

Size of saw	12"
Depth of cut	3½"
Saw will cant up to	45°
Size of table	24" wide × 30" long.
Distance from saw to front edge of table	10½"
Maximum distance from saw to ripping fence	13"
Capacity with mitre fence and gauge stop—straight	12" wide × 33" long.
Size of ripping fence	18" long × 2¼" deep.
Horse power	1½
Speed of saw spindle	3,700 r.p.m.
Approximate floor space	3' 0" × 2' 4"
" gross weight	4½ cwts.
" nett weight	3¾ cwts.
" measurement	31 cu. ft.



'BURSGREEN'

12" MOTORISED DIMENSION SAW BENCH (DD)

CONSTRUCTION

THE SAW SPINDLE is ball bearing mounted, has rise and fall motion and will cant to 45°, both movements having an efficient locking device.

THE TABLE comprises two sections, the main one being a rigid one-piece casting with machined tracks to carry the Front Sliding Table. The latter runs on ball bearings, a gap plate being provided for saw removal.

THE RIPPING FENCE has quick adjustment by hand and fine adjustment by handwheel and screw.

THE MITRING FENCE is arranged to swivel up to 45°, and may be mounted in two alternative positions on Sliding Table.

AN ADJUSTABLE LENGTH GAUGE, fitted to Mitring Fence, gives a maximum distance saw to gauge stop of 2' 9".

SAW GUARD AND RIVING KNIFE are fully adjustable.

DETAILS INCLUDED IN THE PRICE

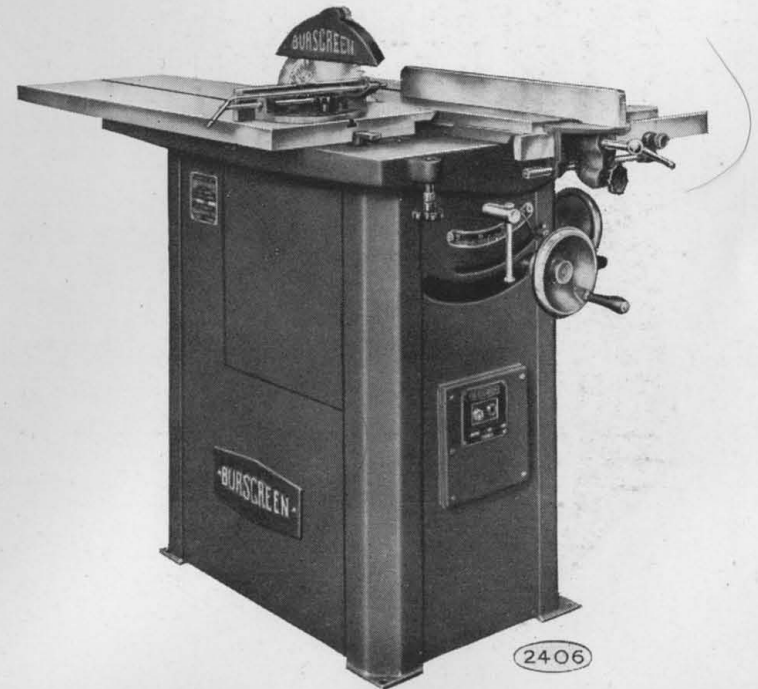
Ripping Fence. Mitring Fence. Saw Guard. Riving Knife. Motor and Starter. Set of Spanners. Tin of Lubricant.

CODE WORD AND PRICE

Electrically Driven Machine "IBSEM" £

SPECIFICATION

Size of saw	12"
Maximum depth of cut	3½"
Saw will cant to	45°
Size of main table	35" × 12½"
Size of sliding table	35" × 14"
Distance from cutting edge of saw to front edge of table when saw is in top position	15"
Maximum distance from saw to ripping fence	12½"
Maximum travel of sliding table	16"
Maximum board which can be cross-cut on sliding table	16" wide × 1" thick. or 13" wide × 3½" thick.
Size of ripping fence front plate	21" × 2½" deep.
Horse power of motor	1½
Speed of motor	3,000 r.p.m. syn.
Speed of saw spindle	3,700 r.p.m.
Approximate floor space	3' 4" × 2' 7"
„ gross weight	7 cwt.
„ nett weight	6 cwt.
„ measurement	27 cu. ft.





'BURSGREEN' 9" COMPOUND ANGLE SNIPPER SAW (MV)

CONSTRUCTION

THE MAIN FRAME is of rigid construction with a large base area.
 THE TABLE is provided with a circular centre plate which rotates either side of the centre line for straight angle cutting.
 THE SWINGING FRAME carries the driving motor at the rear, and is arranged with canting motion by quadrant for bevel cutting. Drive to the saw spindle is by vee ropes.
 THE SAW SPINDLE is mounted on ball bearings and swivelling motion is mounted on needle roller bearings.
 LOCKS which are conveniently placed are provided for the swivelling and canting motion.
 THE SAW always passes through the table at the same point.
 FENCES with both lateral and horizontal adjustments are provided on both sides of the saw.
 THE MACHINE can be offered either mounted on a base as shown, or arranged for bench mounting only, when a separate starter is provided mounted in a case.

DETAILS INCLUDED IN THE PRICE

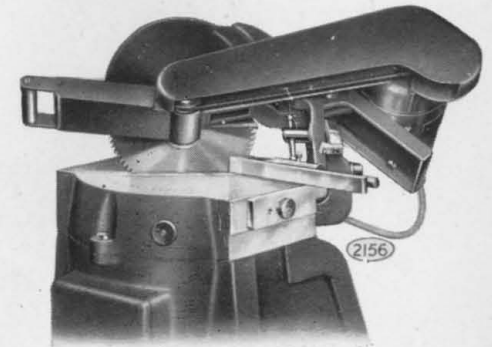
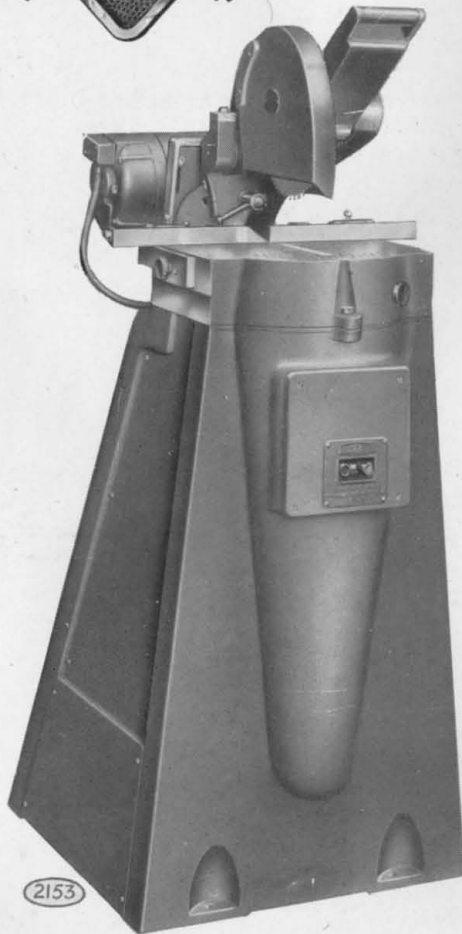
Motor and Starter. Saw. Set of Spanners. Tin of Lubricant.

CODE WORDS AND PRICES

Machine as illustrated mounted on a base	"IBBAB" £
Machine without a base for bench mounting	"IBBEC" £

SPECIFICATION

Diameter of saw	9"
Maximum cut—square	$\frac{1}{2}$ " thick \times 8" wide, or $2\frac{1}{2}$ " thick \times $4\frac{1}{2}$ " wide.
Maximum cut—mitre cutting 45°	$\frac{1}{2}$ " thick \times $5\frac{1}{2}$ " wide, or 2 " thick \times $4\frac{1}{4}$ " wide.
Maximum cut—bevel cutting, saw canted 45°	$\frac{1}{2}$ " thick \times $7\frac{1}{2}$ " wide, or $1\frac{1}{2}$ " thick \times 5" wide.
Floor space of base	22" \times 30"
Horse power	1
Approximate gross weight on base	4 $\frac{1}{2}$ cwts.
" nett weight on base	2 $\frac{3}{4}$ cwts.
" measurement on base	30 cu. ft.
" gross weight off base	2 cwts.
" nett weight off base	1 $\frac{1}{2}$ cwts.
" measurement off base	10 cu. ft.



Angle Bevel Cutting



BURSGREEN' UNIVERSAL OVERHEAD SAW (FW)

CONSTRUCTION

THE MACHINE has compound movements, with a rise and fall motion to the saw which can also be swivelled and canted for angular cross-cutting. A cutterblock may be used in place of the saw for trenching and cross-grooving, provision being made at the spindle end opposite to the saw for carrying boring bits.

THE MAIN FRAME mounts the pillar carrying the saw and motor.

DETAILS INCLUDED IN THE PRICE

Motor and Starter. Saw Guards. Set of Spanners. Tin of Lubricant.

CODE WORD AND PRICE

Machine complete with Electrical Gear .. "IBSRU" £

SPECIFICATION

Maximum size of saw	14"
Will straight cross-cut	3" deep × 18" wide.
Will groove up to	1½" deep × 1½" wide.
Rise and fall of pillar	6"
Pillar swivels in either direction	90°
Saw cants to	45°
Saw swivels in either direction	90°
Size of table	4' 0" long × 1' 6" wide.
Speed of saw spindle	3,000 r.p.m.
Horse power	2
Boring bits up to	1" diameter.
Approximate gross weight	8¼ cwts.
„ nett weight	6¾ cwts.
„ measurement	62 cu. ft.





'BURSGREEN' 16" BAND-SAWING MACHINES (MZ and MZF)

CONSTRUCTION

Fig. 1. CANTING TABLE MACHINE. This model has a fixed head, but the precision ground table will cant up to 45° , a suitable locking device and graduated degree scale being provided.

Fig. 2. CANTING HEAD MACHINE. The head can be canted to any desired position between the vertical and 45° by means of a conveniently situated handwheel and screw. A rigid locking device is incorporated for locking the head when the required angle has been obtained. A pointer and graduated scale indicates the exact angle of cant.

BALL BEARING SAW GUIDES are fitted both above and below the table. The upper one is adjustable vertically according to the thickness of timber being worked. THE SAW PULLEYS are dynamically balanced, ball bearing mounted, and are faced with rubber vulcanised to the rims. The top pulley can be canted, by means of a single handle, to track the position of the saw. A hinged door provides immediate access.

A CLEANING BRUSH is incorporated in order to keep the lower pulley free from saw dust.

SAW TENSIONING is regulated by means of a spring loaded compensating gear.

THE FENCE has quick adjustment by hand, and fine adjustment by handwheel across the table.

A DUST CHUTE is embodied in the main frame, the outlet being near the machine base.

THE MOTOR is of the squirrel cage protected type and is mounted integrally on the machine base, the drive being direct on to the lower saw pulley. Control is by push button operated direct-on-line contactor starter provided with no-volt and overload releases.

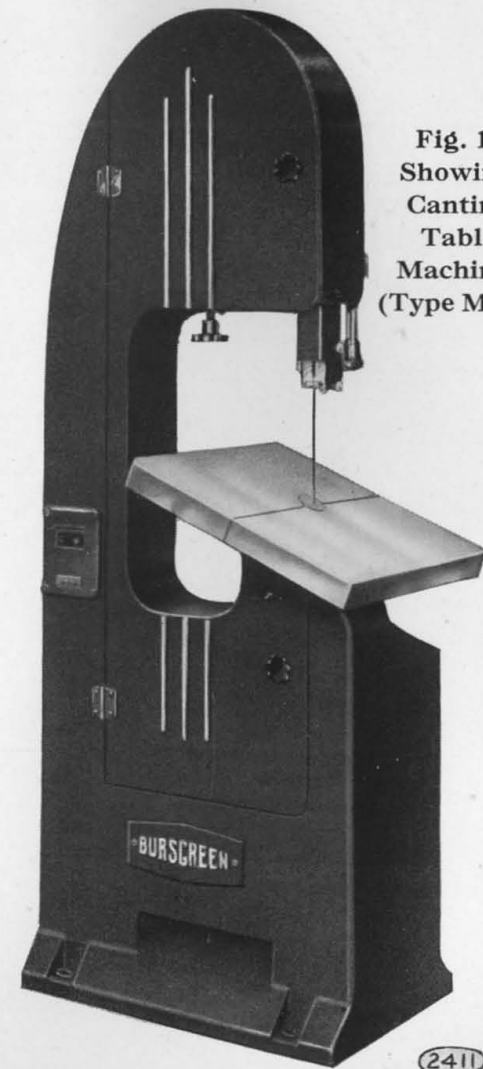


Fig. 1.
Showing
Canting
Table
Machine.
(Type MZF)



'BURSGREEN' 16" BAND-SAWING MACHINES (MZ and MZF)

Fig. 2.
Showing
Canting
Head
Machine.
(Type MZ)

DETAILS INCLUDED IN THE PRICE

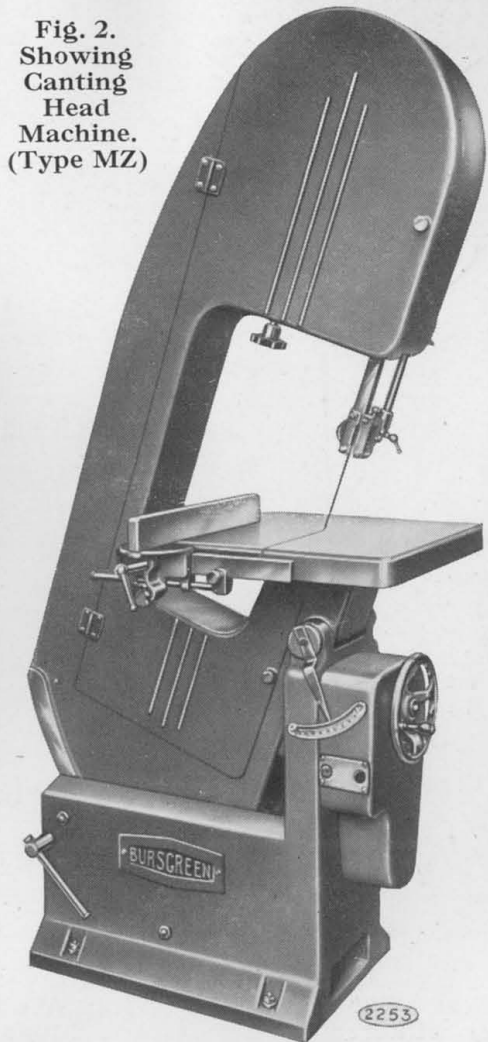
Motor and Starter. Tin of Lubricant.

CODE WORDS AND PRICES

Canting Head Machine (MZ)	.. .. .	"IBBID"	£
Canting Table Machine (MZF)	.. .. .	"IBDIG"	£
Fence	.. .. .	"IBDOI"	£

SPECIFICATION

Diameter of saw pulleys	.. .. .	16"
Speed of saw	.. .. .	6,000 ft. per min.
Size of table	.. .. .	20" square.
Height of table from floor	.. .. .	3' 2"
Saw will cant to	.. .. .	45°
Table will cant to	.. .. .	45°
Maximum depth of cut	.. .. .	12"
Maximum depth of cut when saw is at 45°	.. .. .	8"
Distance from saw to body	.. .. .	15"
Length of saw	.. .. .	12' 0"
Horse power	.. .. .	1 $\frac{2}{3}$
Approximate floor space (Canting Head Machine)	.. 4' 8" × 2' 5" with fence, 4' 8" × 1' 11" without fence.	
" " " (Canting Table Machine)	.. 2' 9" × 2' 5" with fence, 2' 9" × 1' 11" without fence.	
" " " gross weight	.. .. .	10 cwts.
" " " nett weight	.. .. .	8 cwts.
" " " measurement	.. .. .	58 cu. ft.





'BURSGREEN' 6" HAND FEED PLANING MACHINE (FS)

CONSTRUCTION

THE MAIN FRAME is a heavy cored casting mounted on a fabricated steel pillar or base, the latter housing the motor, starter, and chute for the chippings.

THE TABLES, which are fitted with steel lips on each side of the cutter gap, are made of high grade cast iron. They are precision ground and mounted on links which provide rise and fall motion from conveniently placed handwheels and screws. Perfect side location is obtained by precision fitted slides, this method of table mounting obviating jamming, minimising wear and retaining initial accuracy indefinitely. Both tables will lower $\frac{7}{8}$ " providing ample clearance when attending to the cutters, their setting being shown on graduated scales. Rebates up to $\frac{1}{2}$ " deep can be cut.

THE CUTTERBLOCK, mounted on ball bearings and dynamically balanced, is of the circular safety type giving a shearing cut. It carries two cutters on a $3\frac{1}{2}$ " cutting circle.

THE FENCE which cants to 45° is of generous length, the two movements being provided with very convenient hand operated locking devices.

DETAILS INCLUDED IN THE PRICE

Motor and Starter. Vee Pulleys and Belt. Cutterguard. Belt guard. Set of Planing Cutters. Set of Spanners. Tin of Lubricant.

CODE WORDS AND PRICES

Machine type FS as described	"IBRUY" £
Machine type FS/A as described but without pillar for bench mounting, including motor and starter (no wiring), pulleys and vee belt. Customer to provide belt guard	"IBRYZ" £
Machine type FS/B without pillar and electrical equipment but including vee pulley on machine and vee pulley with $\frac{5}{8}$ " pilot bore and 60" vee belt	"IBSON" £

SPECIFICATION

(2414) Planing capacity in width	6"	Speed of cutterblock	6,000 r.p.m.	
Length of planing cutters	$6\frac{1}{8}$ "	Speed of motor	3,000 r.p.m: syn.	
Length of tables	3' 6"	H.P. of motor	$1\frac{1}{2}$	
Height of tables from floor	2' 9"	Approximate floor space	4' 0" × 1' 3"	
		Gross Weight	Nett Weight	Measurement
Machine type FS complete (approximate)	$2\frac{3}{4}$ cwts.	2 cwts.	12 cu. ft.	
Machine type FS/A (approximate)	2 cwts.	$1\frac{1}{2}$ cwts.	$4\frac{3}{4}$ cu. ft.	
Machine type FS/B (approximate)	$1\frac{3}{4}$ cwts.	$1\frac{1}{4}$ cwts.	4 cu. ft.	

Clean Cut Modern Design. Available for either Floor or Bench Mounting.



'BURSGREEN' ROLLER FEED PLANING AND THICKNESSING MACHINE (UO)

CONSTRUCTION

THE MAIN FRAME is of robust construction with a large base area housing the motor.

THE TABLE is a rigid deep section casting mounted in wide slides. Rise and fall motion is by conveniently placed handwheel and chain reduction gear through screws fitted with anti-friction ball thrust washers, working in centre of table slides. An index scale indicates thickness at which machine is planing. THE CUTTERBLOCK is of high quality steel, dynamically balanced and ball bearing mounted. It is of the two knife circular type arranged to give a shear cut. FEED is by two power driven feed rollers, the feed-in roller being grooved and the feed-out one plain. Drive to rollers is by roller chain, a jockey sprocket being incorporated for tensioning. The whole of the feed mechanism is completely guarded by easily removable covers.

A GEAR BOX provides two rates of feed. The gears are machine cut from high quality steel, and revolve continuously in oil. Control is by conveniently situated hand lever, and can be operated whilst machine is running.

DETAILS INCLUDED IN THE PRICE

Motor and Starter. Pair of H.S.S. Planing Cutters. Key for Cutterlock. Grease Gun. Tin of Lubricant.

CODE WORDS AND PRICES

No. 1 Machine—capacity 12" × 5" "IBBOE" £
 No. 2 Machine—capacity 18" × 5" "IBDAE" £



2410

SPECIFICATION	No. 1	No. 2
Capacity	12" × 5"	18" × 5"
Length of thicknessing table	2' 6"	2' 6"
Speed of cutterblock	5,000 r.p.m.	5,000 r.p.m.
Feeding speeds	20 and 40 ft. per min.	20 and 40 ft. per min.
Horse power	3	4
Approximate floor space ..	3' 5" × 3' 1"	3' 11" × 3' 1"
" gross weight	10½ cwts.	12 cwts.
" nett weight.. ..	9¼ cwts.	10½ cwts.
" measurement	45 cu. ft.	52 cu. ft.



'BURSGREEN' HAND AND ROLLER FEED SURFACE PLANING AND THICKNESSING MACHINE (UO/S)

CONSTRUCTION

THE MAIN FRAME is of robust construction with a large base area.

THE TOP TABLES, surface ground and fitted with steel lips to give a minimum gap space over the cutters, have rise and fall motion and cannot come in contact with the cutters if adjusted whilst the machine is running.

THE FENCE can be moved to any desired position on the table, and may be canted for chamfering, cornering, etc. Accuracy and finish is again maintained by surface grinding, and pressure springs are fitted for holding work down. There is no obstructing groove in the table, and all adjustments are made without the use of a spanner.

THE BOTTOM TABLE is a rigid deep section casting, mounted in wide slides and surface ground all over. Rise and fall motion is by means of conveniently placed handwheel and chain reduction gear through screws fitted with anti-friction ball thrust washers working in centre of table slides. Two anti-friction rollers, adjustable vertically by handwheel situated at feed-in end of machine, are fitted into the table, and a conveniently placed index scale indicates thickness at which machine is planing.

THE CUTTERBLOCK of the two knife circular type arranged to give a shear cut, is of high quality steel, dynamically balanced, ball bearing mounted and fully guarded.

THE FEED is by two power driven feed rollers, the feed-in roller in front of the cutterblock being grooved and the feed-out one plain. Drive to rollers is by roller chain, a jockey sprocket being incorporated for tensioning. The whole feed

mechanism is completely guarded by easily removable covers. Front and rear radial type pressure bars which project under the cutterblock are provided to hold thin sections of timber firmly to the table whilst being planed.

THE GEAR BOX provides two rates of feed: 20 and 40 feet per minute. The gears are machine cut from high quality steel and revolve continuously in oil. Control is by hand lever conveniently placed at feed-in end of machine, and can be operated whilst the machine is running.

THE MOTOR is of the squirrel cage protected type controlled by push button direct-on-line contactor starter provided with no volt and overload releases. The drive to cutterblock and gear box is by multiple vee ropes and grooved pulleys, provision for tensioning being incorporated.

DETAILS INCLUDED IN THE PRICE

Motor and Starter. One Pair H.S.S. Planing Cutters. Movable Canting Fence and Holding Down Springs. Safety Guard. Key for Cutterblock. Grease Gun. Tin of Lubricant.

CODE WORD AND PRICE

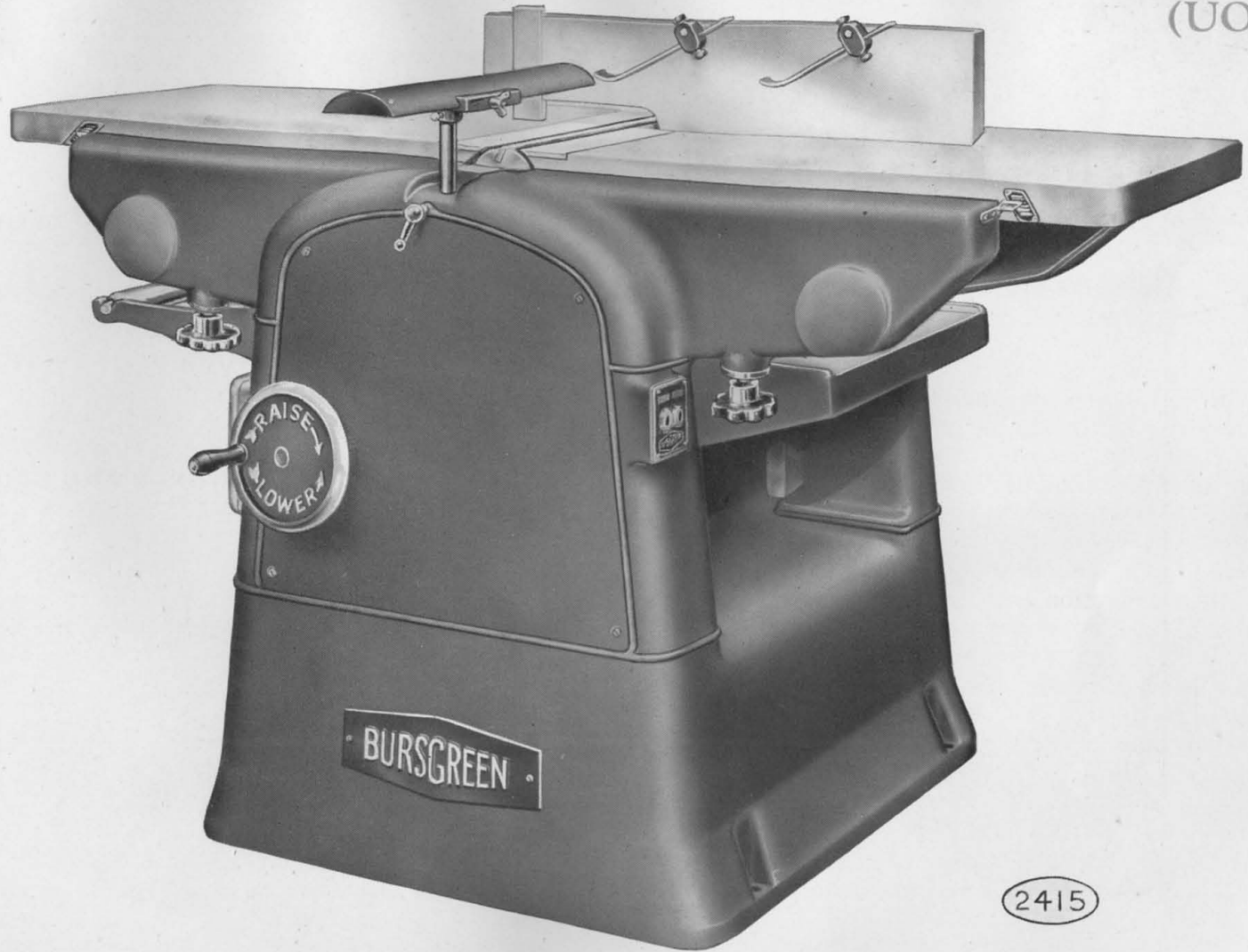
Machine with capacity 18" x 9" .. "IBPYR" £

SPECIFICATION

Capacity	18" x 9"
Speed of cutterblock	5,000 r.p.m.
Rates of feed	20 and 40 f.p.m.
Horse power	4
Speed of motor	1,500 r.p.m.
Approximate floor space	46" x 37"
" gross weight	18½ cwts.
" nett weight	17 cwts.
" measurement	90 cu. ft.



'BURSGREEN' HAND AND ROLLER FEED
SURFACE PLANING AND THICKNESSING MACHINE
(UO/S)



2415



'BURSGREEN' VERTICAL SPINDLE MOULDER (RS)



CONSTRUCTION

THE TABLE is rigid in construction, precision ground, and fitted with two loose rings in the spindle recess to suit varying sizes of cutterheads.

THE SPINDLE is ball bearing mounted, dynamically balanced, has rise and fall motion actuated by handwheel and screw, and is provided with a suitable locking device.

THE TOP PIECE is detachable and mounted in a conical seating with self-centring adjustment. Precision ground cutter collars and spacing collars are supplied.

THE FENCES are of the combined horse shoe type, adjustable together, and independently by fine screw adjustment. The front plates are detachable, and adjustable to and from spindle.

THE MOTOR is mounted on a swinging base plate within machine frame, the drive to spindle being by special endless flat belt. A spring loaded belt tensioning device is incorporated.

DETAILS INCLUDED IN THE PRICE

Motor and Starter. Solid Loose Top Piece 1" dia. Pair of Grooved Cutter Collars, 2½" dia. Four Spacing Collars. Fences. Set of Spanners. Tin of Lubricant.

CODE WORDS AND PRICES

Electrically Driven Machine	"IBBUF" £
Loose Slotted (French) Top Piece, 1¼" dia. with ¼" slot	"IBBYG" £
Combined Pressure and Safety Guard—Shaw's	
Pattern	"IBCA" £
Safety Guard	"IBCEK" £
"Whitehill" type Cutterhead 4" dia. × ¼" thick ..	"IBCIL" £
Square Cutterblock, 2½" square × 3" long, complete	
with bolts	"IBCUC" £
Circular Cutterblock, 3½" dia. × 2" long	"IBDUK" £
Ring Fence	"IBDYL" £
Ball Bearing Cutter Collars	"IBEBA" £

SPECIFICATION

Size of table	24" square.	Horse power	1½
Speeds of spindle	4,500 and 7,000 r.p.m.	Approx. floor, space	2' 8" × 2' 0"
Rise and fall of spindle	2½"	gross weight	5¾ cwts.
Fences	11" long × 4" deep.	nett weight ..	4½ cwts.
		measurement	23 cu. ft.



'BURSGREEN' DOUBLE VERTICAL SPINDLE MOULDER (RS2)



CONSTRUCTION

THE MACHINE is very similar in construction to the Vertical Spindle Moulder (RS).
THE SPINDLES, at 18" centres, are both provided with rise and fall motion actuated by handwheel.

DETAILS INCLUDED IN THE PRICE

Two Motors and Starters. Two Solid Loose Top Pieces 1" diameter. Two Pairs of Grooved Cutter Collars 2½" diameter. Eight Spacing Collars. Two Fences. Set of Spanners. Tin of Lubricant.

CODE WORDS AND PRICES

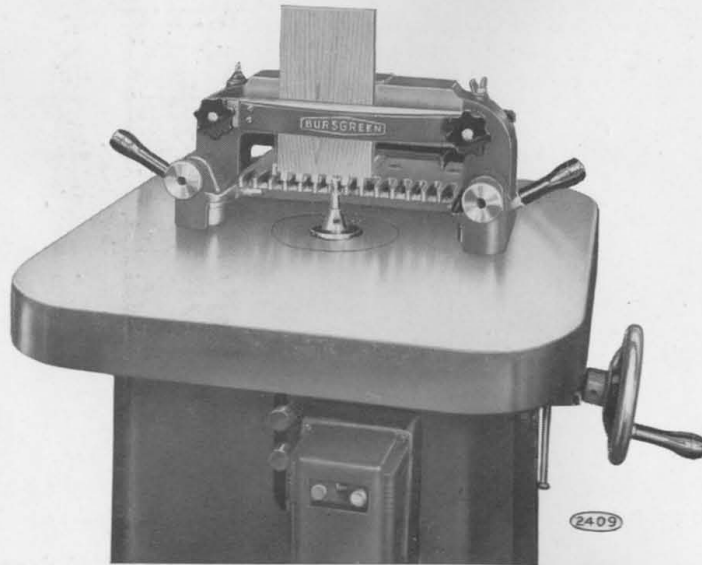
Electrically Driven Machine	"IBELC" £
Loose Slotted (French) Top Piece, 11½" dia. with ¼" slot	"IBBUF" £
Combined Pressure and Safety Guard—Shaw's Pattern	"IBBYG" £
Safety Guard	"IBCEK" £
"Whitehill" type Cutterhead, 4" dia. × 1⅝" thick	"IBCIL" £
Square Cutterblock, 2½" sq. × 3" long, complete with bolts	"IBCUC" £
Circular Cutterblock, 3½" dia. × 2" long	"IBDUK" £
Ring Fence	"IBDYL" £
Ball Bearing Cutter Collars	"IBEBA" £

SPECIFICATION

Size of table	42" × 24"
Speeds of spindles	4,500 and 7,000 r.p.m.
Centre of spindles	18"
Rise and fall of spindles	2½"
Fences	11" long × 4" deep.
Horse power	1½
Speed of motors	3,000 r.p.m. syn.
Approximate floor space	4' 5" × 2' 4"
„ gross weight	5¾ cwts.
„ nett weight	4½ cwts.
„ measurement	23 cu. ft.



'BURSGREEN' DOVETAILING ATTACHMENT (DDA) FOR VERTICAL SPINDLE MOULDING MACHINES



THE ATTACHMENT which holds the wood to be dovetailed is mounted on ball bearing castors, and moves freely over the table. It is suitable for taking material of different thicknesses, being fitted with graduated gauges for this purpose. The dovetails (pin and mortise) are completed at one operation.

The Prices are for the Dovetailing Attachment complete with one $\frac{3}{4}$ in. pitch dovetail cutter, loose brass sleeve to go round the cutter, one $\frac{3}{4}$ in. pitch plate and adaptor for machine spindle.

CODE WORD AND PRICE

Machine, maximum width of board 10 in. . . . "IBRAS" £

SPECIFICATION

Approximate gross weight	78 lbs.
„ nett weight	53 lbs.
„ measurement	3 cu. ft.



'BURSGREEN' MOULDING AND PLANING CUTTER GRINDER (ES)

This Machine is suitable for grinding thin planing cutters from 9" minimum length and up 1½" wide, and also for shaping and grinding moulding cutters, etc.

CONSTRUCTION

THE SPINDLE is ball bearing mounted in dust proof housings. It mounts two grinding wheels and fully adjustable tool rests are provided for grinding straight and shaped machine cutters and hand tools. Suitable locking arrangements are incorporated.

A THIN PLANING CUTTER ATTACHMENT as illustrated is supplied. This consists of a slide with spring loaded pressure rollers above and on the front pressing on the cutter which is moved past the grinding wheel by hand. A taper wedge operated by screw provides adjustment for the cutter being ground to and from grinding wheel.

A BORING TABLE AND CHUCK can be supplied if required. It is mounted on the machine table and the boring table has rise and fall motion. A ½" capacity self-centring chuck is provided.

THE MOTOR is mounted on the main frame, with vee rope drive to machine spindle.

DETAILS INCLUDED IN THE PRICE

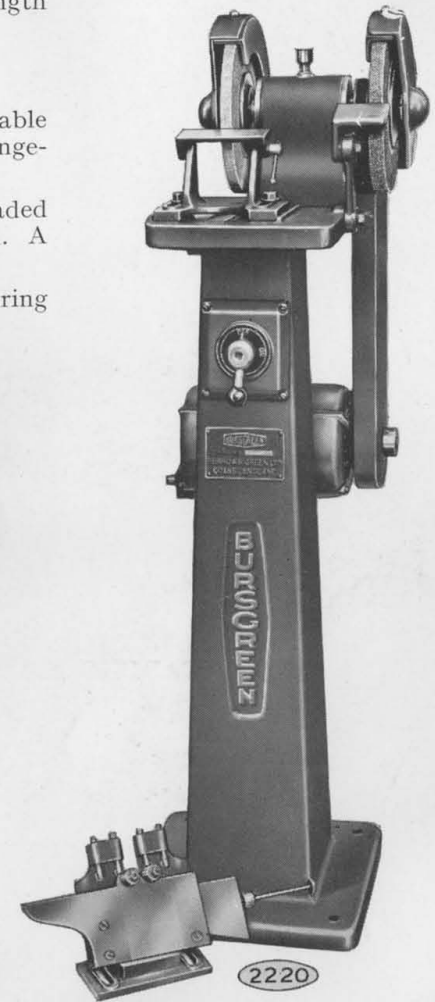
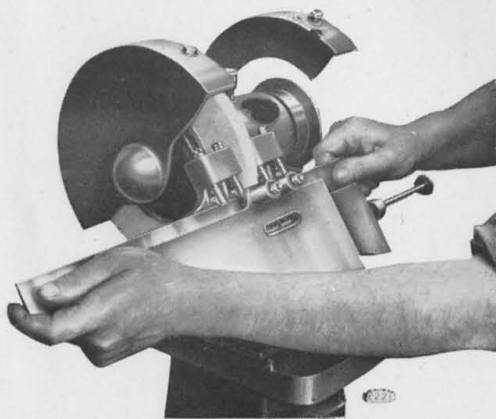
Motor. Control Switch. Patent Thin Cutter Attachment. Two Canting Rests. Belt Guards.

CODE WORDS AND PRICES

Electrically Driven Machine	"IBCLA" £
Machine without Thin Planing Cutter Attachment	"IBCOB" £
Boring Table and Chuck	"IBCYD" £

SPECIFICATION

Diameter of grinding wheels	8"
Speed of grinding spindle	2,800 r.p.m.
Horse power	1
Speed of motor	3,000 r.p.m. syn.
Approximate floor space	1' 4" × 1' 4"
„ gross weight	2 cwts.
„ nett weight	1½ cwts.
„ measurement	11 cu. ft.



Section II





ACCESSORIES

OUR Small Tools Department supplies all Tools and Accessories required in connection with the use of Woodworking Machinery. The details of all Equipment will be found in our general catalogue of Small Tools and Accessories.

In the following pages we illustrate and describe certain accessories peculiarly adaptable in the construction of machines themselves, and which form working parts of the machines.

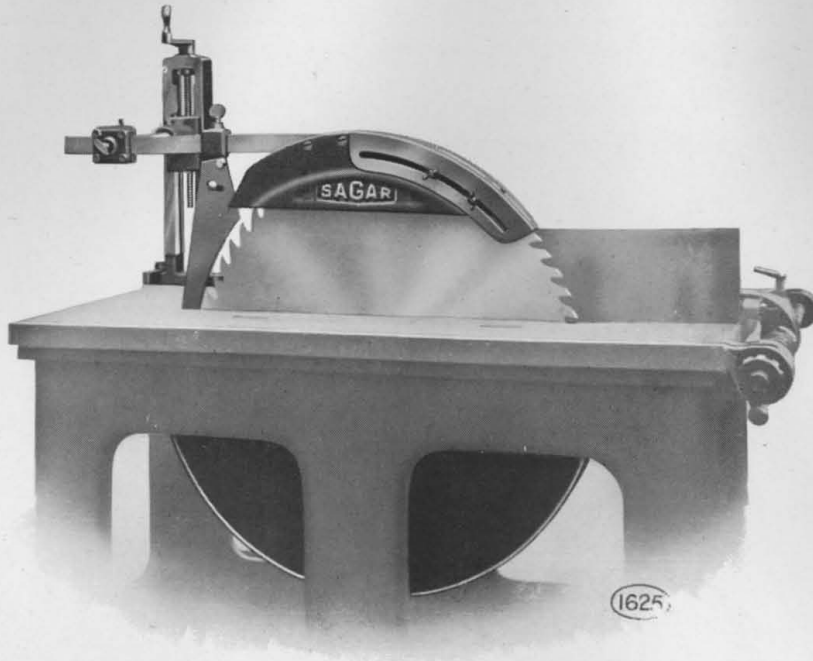
We would gladly send on request a copy of our separate Small Tools Catalogue giving details of all Tools and Equipment, comprising all types of Circular and Band-Saws, Special Duty Saws, Carbide-tipped Saws, etc.

In connection with Rotary Planing Machines, the range covers High-speed Steel Thin and Slotted Planing and Moulding Cutters, Special Cutter Equipment, Milled-to-pattern and Profile Relieved Multi-knife Heads, etc.

Full range of Router Cutters and Routing Equipment, Mortise Chain Gear and Hollow Chisels, Sand Paper, and all other ancillary Equipment required for the tooling-up of Woodworking Machinery, is illustrated in this Catalogue.



SAFETY GUARDS FOR CIRCULAR SAW BENCHES



THE OVERTABLE SAFETY GUARD shown in illustration, is not suitable for saw benches with radial-arm feeding mechanism. We make special guards similar in principle to the standard pattern, but constructed to suit these machines.

THE OVERTABLE GUARD consists of a strong cast iron standard fixed to the back of the saw table with vertical adjustment to accommodate different sizes of saw.

A RIVING KNIFE is provided to suit size of saw.

No.	Suitable for saws up to	Price	Code Word
0	12" diameter.	£	YOYMZ
1	18" "	£	YIBAC
2	26" "	£	YIBCA
3	32" "	£	YIBDE
4	38" "	£	YIBED
5	42" "	£	YIBGO
6	48" "	£	YUCEP

GUARDS suitable for our standard radial-arm roller-feed saw bench are as follows :—

No.	Suitable for saws up to	Price	Code Word
2	26" diameter.	£	YOFEM
3	32" "	£	YOFLA
4	38" "	£	YOFME
5	42" "	£	YOFOP
6	48" "	£	YUCOR

THE UNDERTABLE GUARDS are shown in the illustration and consist of two plates of sheet metal, one on each side of the saw.

No.	Suitable for saws up to	Price	Code Word
2	26" diameter.	£	YUBSY
3	32" "	£	YUBUR
4	38" "	£	YUBYS
5	42" "	£	YUCAN
6	48" "	£	YUCNA



SAFETY GUARDS FOR PLANING MACHINES

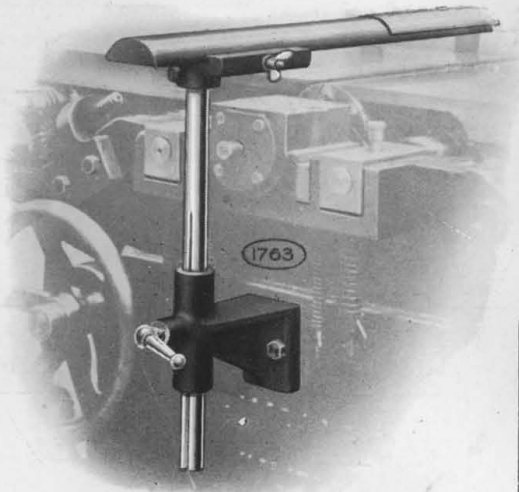
Class A. The guard is counterbalanced by a weight, allowing adjustments to be made easily and quickly, and preventing the guard from dropping downward when not locked.

Class C. This guard, which is carried by the Rebating Table, is specially suitable for Hand Planing Machines.

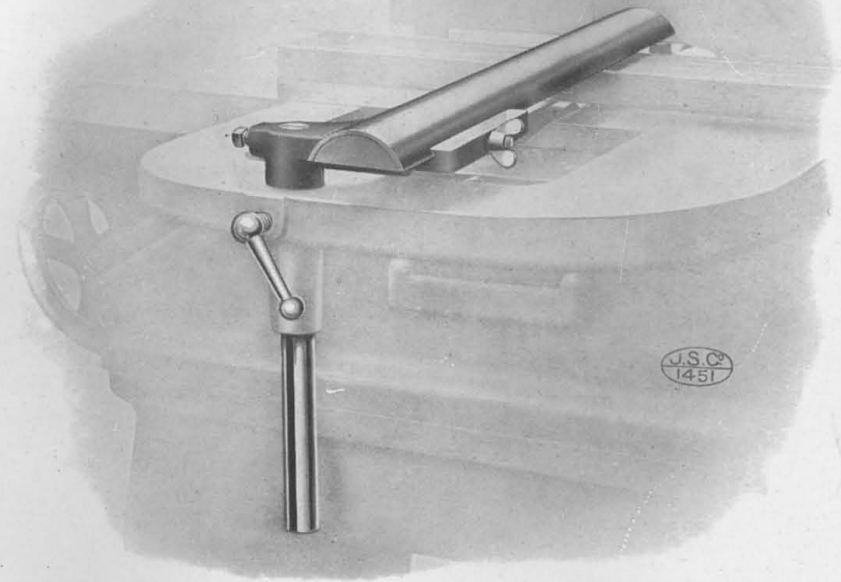


Class A Guard

Class B. This is similar in construction to Class A, but is not fitted with the counterbalance arrangement.



Class B Guard

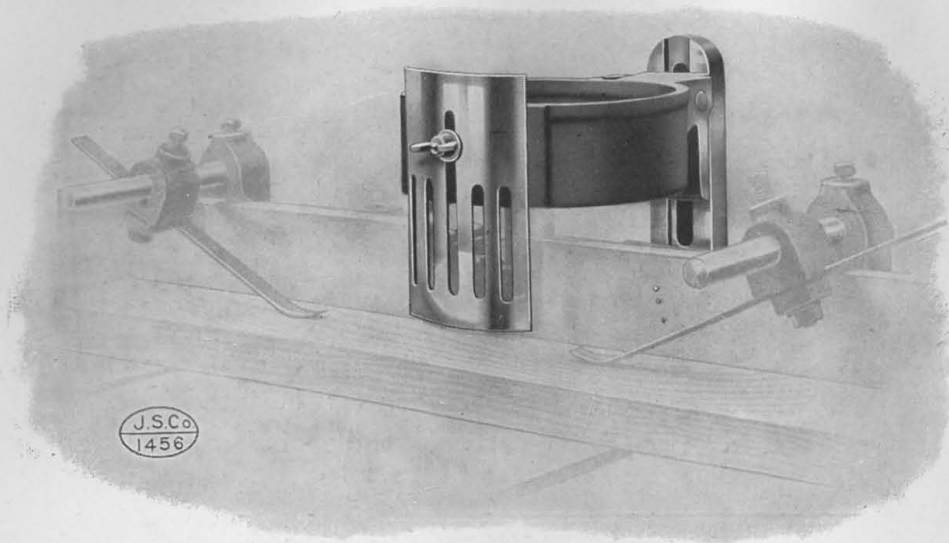


Class C Guard

No.	Size of machine suitable for	Price Class A	Code Word	Price Class B	Code Word	Price Class C	Code Word
1	12" wide	£	YEZOZ	£	YIAGH	£	YIANP
2	15"	£	YEZUB	£	YIAHJ	£	YIARS
3	20"	£	YEZVA	£	YIAJK	£	YIAST
4	24"	£	YEZWE	£	YIALM	£	YIAWY
5	30"	£	YEZZO	£	YIAMN	£	YIAZB



SAFETY GUARD



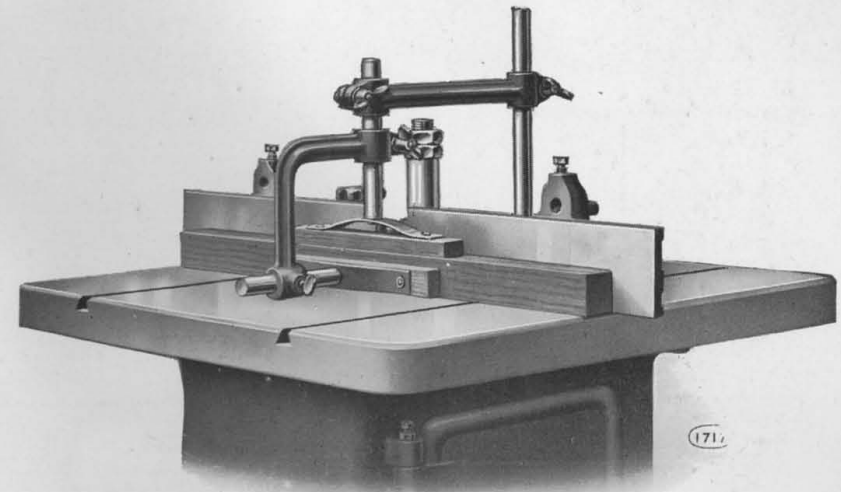
This is a simple but very effective appliance for preventing accidents to operators of this class of machine.

It consists of a ring casting with gun-metal front guard plate. Provision is made for adjustments to suit all classes of work.

The guard, which instantly swings out of the way to give access to the cutters, is suitable for almost any vertical spindle moulding machine without alteration.

Code Word "YAFOZ" Price £

COMBINED PRESSURE SPRINGS AND SAFETY GUARD



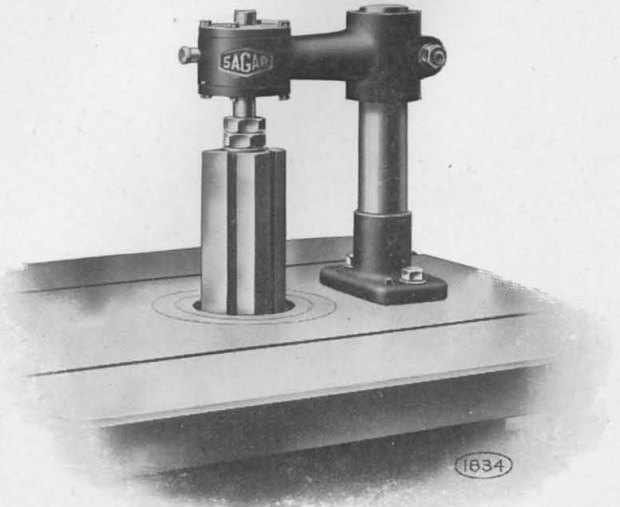
Shaw's Pattern

For use with vertical spindle moulding machines and planing machines.

Code Word "ZOLYS" Price £



OUTER BEARING



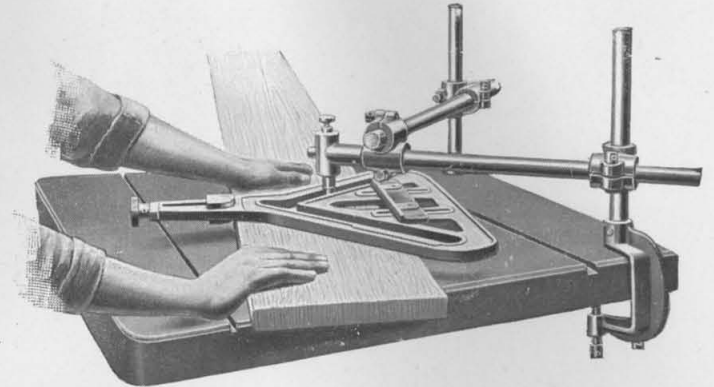
The ball bearing outer bearing, illustrated above, is useful where a large cutterblock has to be used. It is mounted on the table in a suitable position, and is adjustable for blocks up to 8" long.

CODE WORD AND PRICE

Outer bearing complete with 1 $\frac{1}{4}$ " diameter loose top piece, but without cutterblock.

"ZEMUJ" £

STAIR HOUSING APPLIANCE



This is a simple attachment which can be fitted in a few minutes to any ordinary vertical spindle moulder, rendering that machine capable of performing successfully all the work which usually calls for an overhead trenching machine.

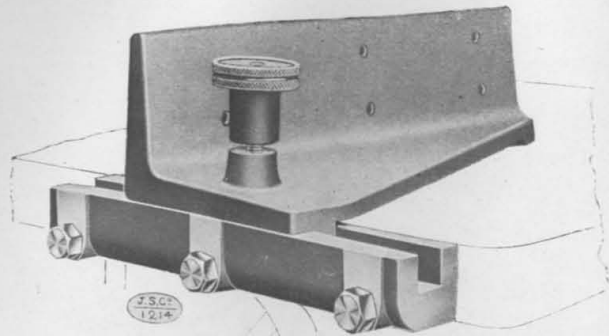
The template is adjustable for different types of stair, and covers a range of 5" to 9 $\frac{1}{2}$ " rise and 7" to 12" tread.

CODE WORD AND PRICES

Complete apparatus including $\frac{7}{8}$ " cutter ..	"ZOMAN"	£
Adaptor to suit any make of spindle and to carry $\frac{5}{8}$ " shank cutters		£
Extra cutters for working $\frac{3}{4}$ " wide		£
" " " " $\frac{7}{8}$ " "		£
" " " " 1" "		£
" " " " 1 $\frac{1}{4}$ " "		£

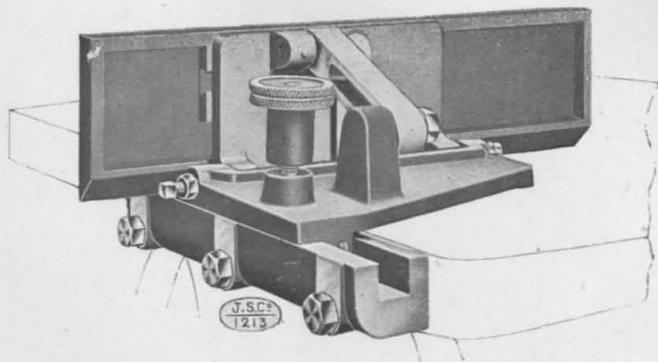


BAND-SAW FENCES



Plain Fence, for straight cutting, tenoning, half-checking, etc.

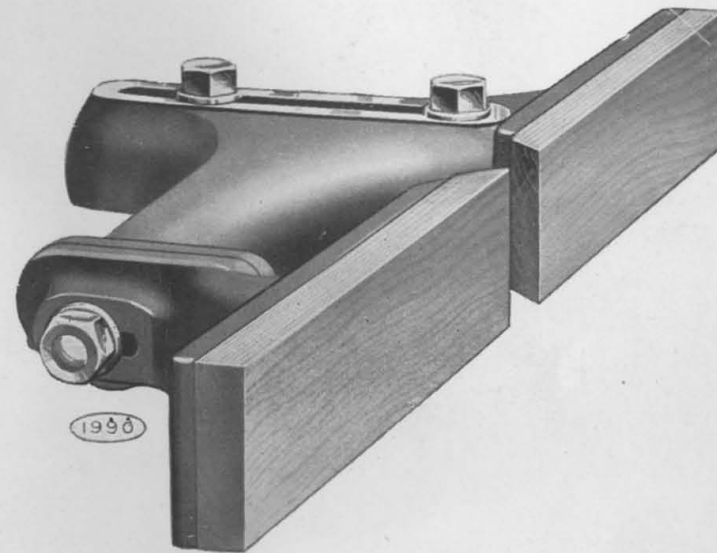
Code Word "WYOVZ" Price £



Canting Fence, for all kinds of bevel cutting, straight cutting, etc.

Code Word "WYOWB" Price £

ROUTER FENCE



Adjustable Straight Router Fence provided with easily renewable wooden front plates.

Code Word "ZIJAF" Price £



LOW VOLTAGE SPOT LIGHTING



The Unit which conveys light directly to the point of operation, is capable of transforming 400 or 230 volts down to 50 volts—entirely preventing any possibility of shock to the operator. It is suitable for fixing to any machine. It also facilitates quick setting up of cutters, etc., on machines. Each Unit consists of a Double-pole Switch and Fuses contained in a cast iron case with a transformer suitable for low voltage lighting and is also equipped with an earth secondary winding.

Code Word "ZIRNA" Price £

ADJUSTABLE ROLLER STANDARD (VW)

The illustration represents a very useful appliance for use where timber is fed to a machine or delivered from it, and it can also be moved about to various machines.

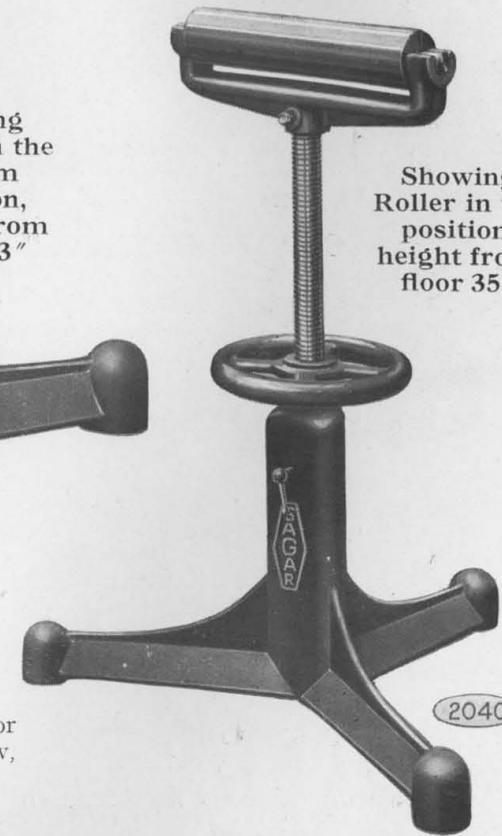


Showing Roller in the bottom position, height from floor 23"

2039

The Roller can be adjusted for height by handwheel and screw, and locked in position.

Code Word "ZIRPE" Price £



Showing Roller in top position, height from floor 35"

2040



DUST COLLECTING UNITS



2234

"DWARF" TYPE (LD)

This small unit is readily movable and is suitable for grinding machines and small sanders. It is fitted with a $\frac{1}{3}$ rd horse-power motor-driven fan, drawing 200 cubic feet of air per minute through a 2" inlet. Dust separation takes place in two stages, heavy particles being retained in an expansion chamber, whilst fine dirt is averted by a special filter bag. Both stages of separation are on the suction side of fan, and 2" outlet spigot on exhaust side of fan may be connected to atmosphere if required by factory inspector.

DETAILS INCLUDED IN THE PRICE

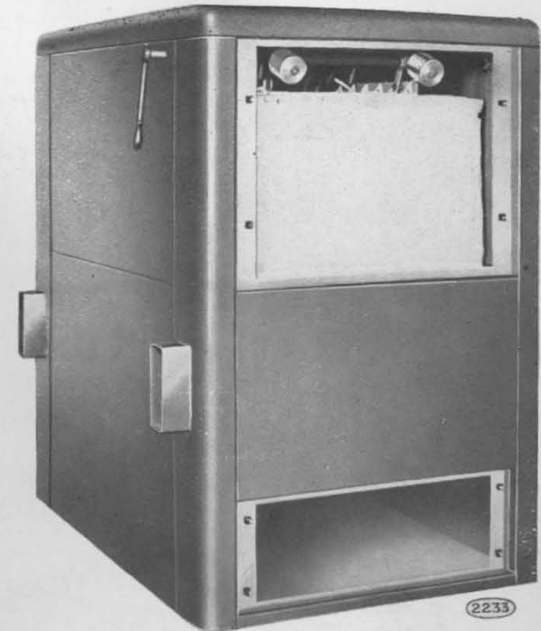
Motor and Triple Pole Switch and Fuses.
Filter Bag.

Code Word "ZISYV" Price £

Connecting Piping from
Unit to Machine—
standard position .. £

"STREAMLINE" TYPE (WP)

Inspection cover removed to show Filter Screens and screen shaking mechanism with operating handle at side. Cover is held by spring clips—no bolts or screws.



2233

Cleaning-out door, which is also held by spring clips, has been removed to show dust chamber.

Four sizes of units are available.

Size	Capacity cu. ft./min.	Speed of fan	Horse power	Code Word	Price
No. 1	400	2,800 r.p.m.	$\frac{1}{3}$	ZOGNY	£
No. 2	600	"	1	ZOGOL	£
No. 3	800	"	2	ZOGUM	£
No. 4	1,000	"	3	ZOMYT	£

Special units may be supplied without motor driven fan for use with Overhead Belt Sanders.



CATALOGUE No. 1954