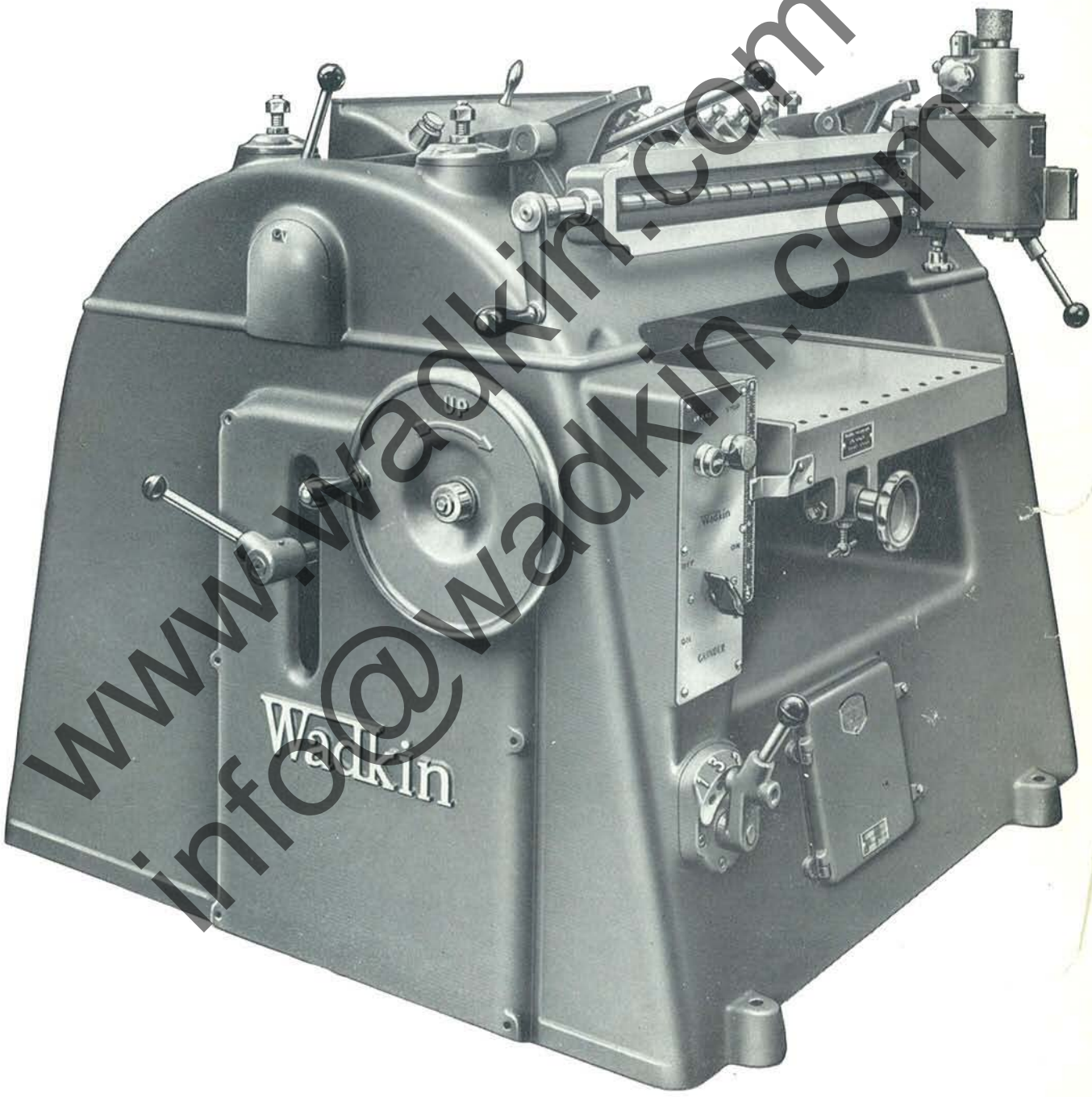
Wadkin

24" Panel Planing and Thicknessing Machine, R.K.



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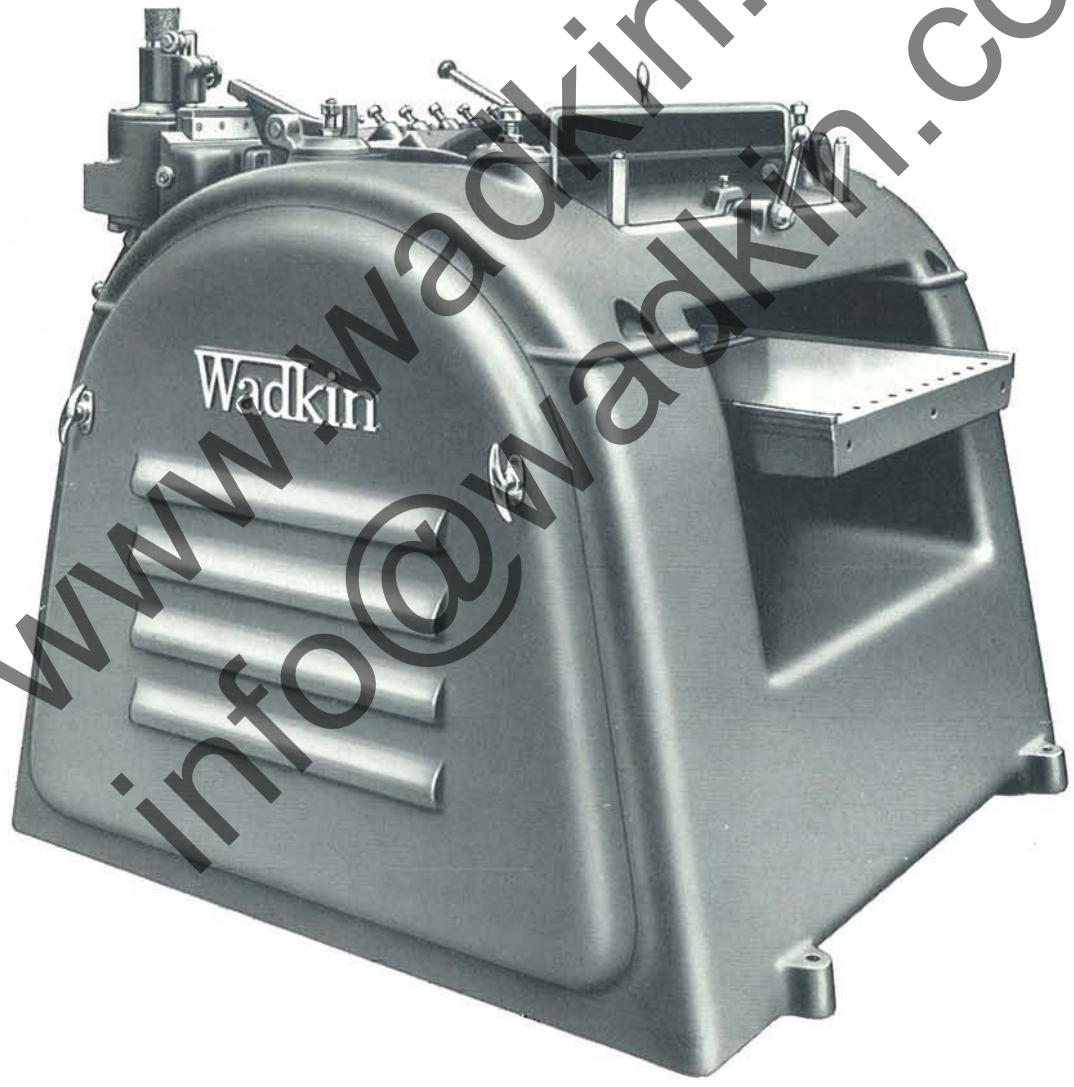
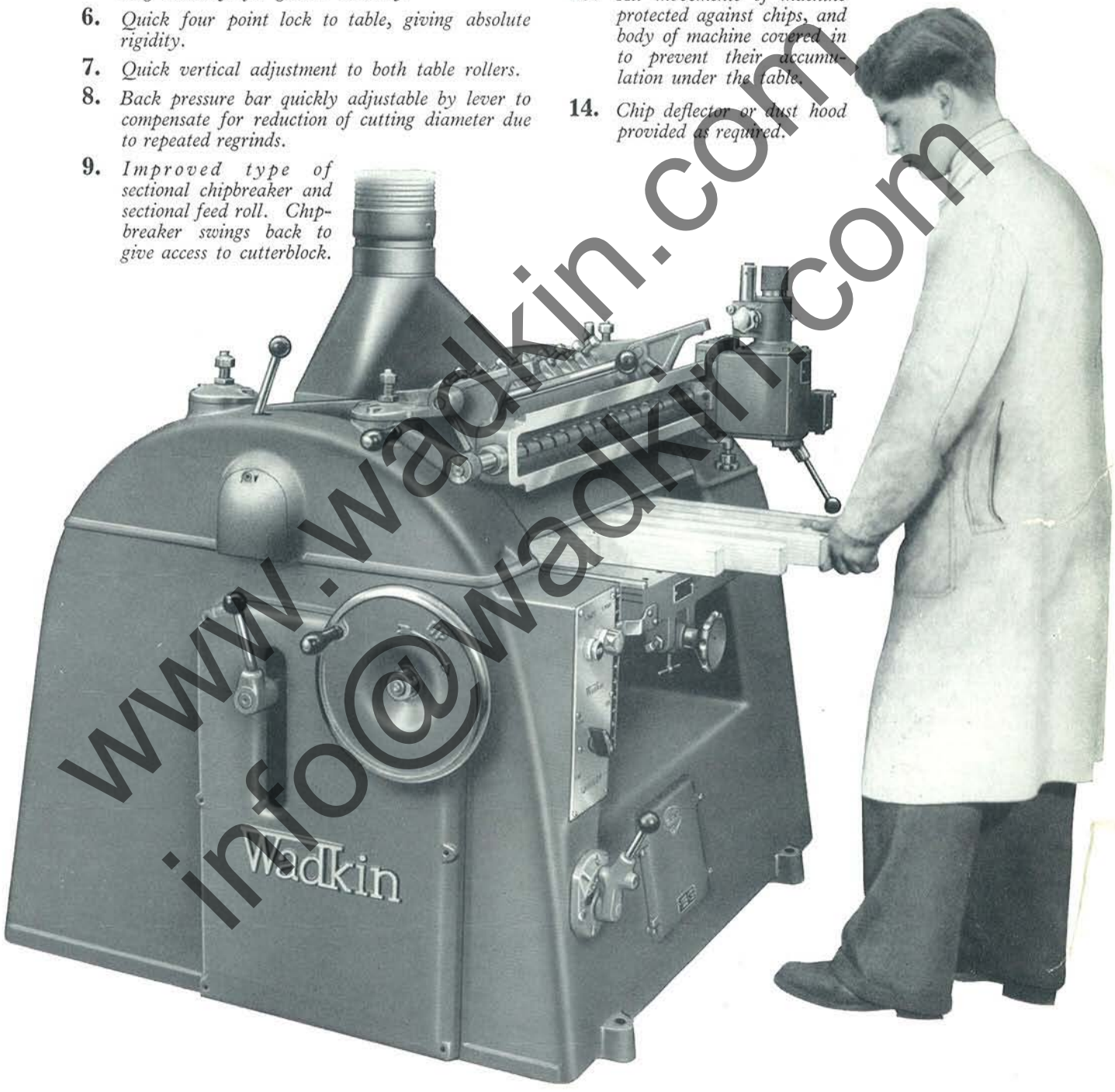
This is a thoroughly modern type of Panel Planing machine embodying many new labour-saving features, and designed throughout on the most robust lines to produce a superfine finish on hard or soft timbers. It is a high-speed machine with four-knife circular block running at 4,000 r.p.m., and with a maximum feed speed of 100 feet per minute. The machine is compact, the drives being built into the main frame without sacrificing accessibility. Maintenance is simplified by the clean, unbroken lines of the machine. All driving mechanism is enclosed, and the inside of the main frame is entirely covered in to prevent the accumulation of chips and dirt.

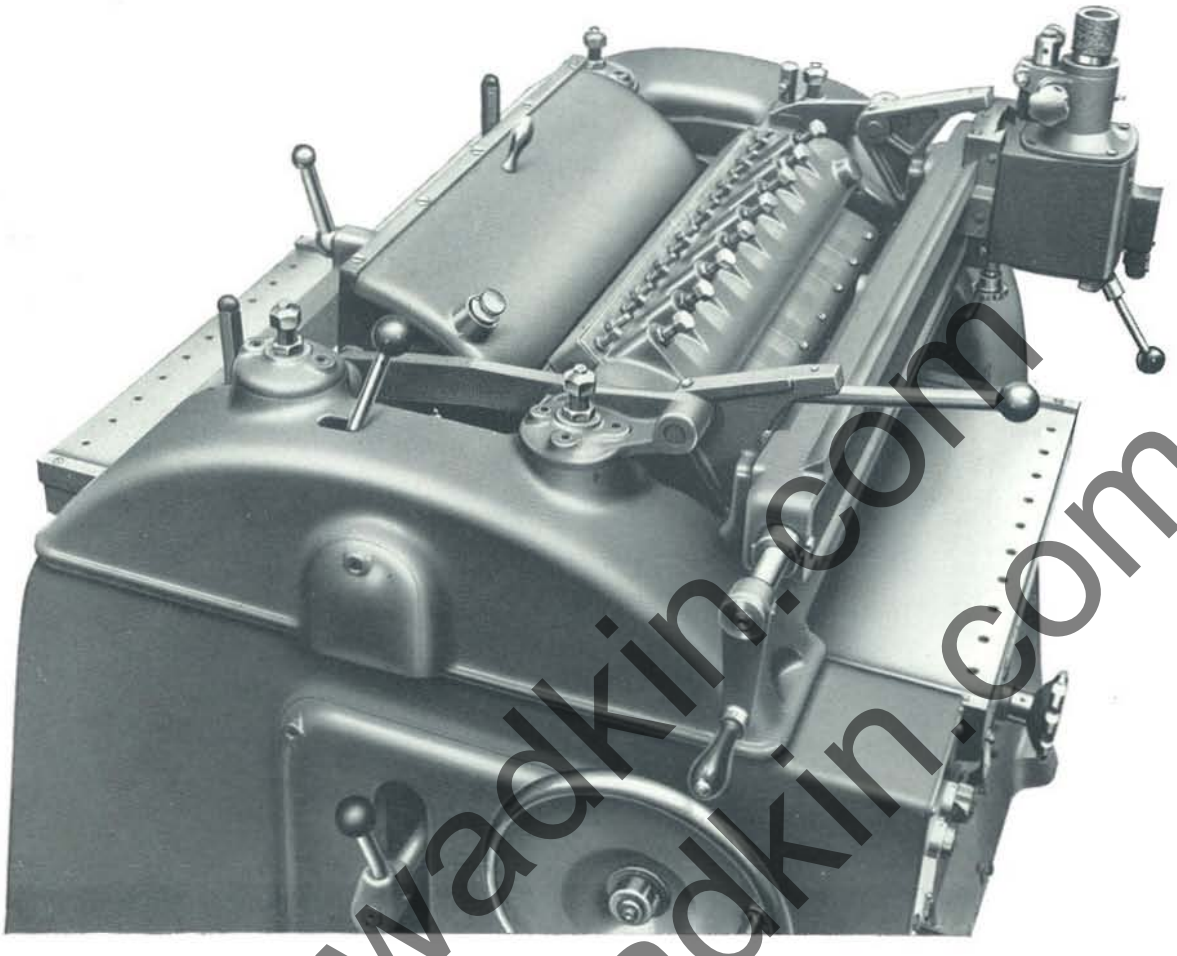
The machine is built with sectional chipbreaker and sectional feed roll, but solid chipbreaker and feed roll can be supplied if preferred. Either chip deflector, as shown below, or dust hood, as shown on page 3, can be provided as required.



Features

1. *Massive, compact design for vibrationless running.*
2. *Four-knife circular cutterblock running at 4,500 r.p.m. for good finish at fast rates of feed.*
3. *Hand brake fitted to the cutterblock.*
4. *Six rates of feed from 20 to 100 feet per minute.*
5. *Extra heavy precision ground table, mounted on long slideways for greater stability.*
6. *Quick four point lock to table, giving absolute rigidity.*
7. *Quick vertical adjustment to both table rollers.*
8. *Back pressure bar quickly adjustable by lever to compensate for reduction of cutting diameter due to repeated regrinds.*
9. *Improved type of sectional chipbreaker and sectional feed roll. Chipbreaker swings back to give access to cutterblock.*
10. *Pivoting point of chipbreaker in front of in-feed roll, thus preventing all possibility of jamming of timber under the pressures.*
11. *Combined knife grinder, cutter setting and jointing device self-contained with machine.*
12. *Totally enclosed drives to cutterblock and feed.*
13. *All movements of machine protected against chips, and body of machine covered in to prevent their accumulation under the table.*
14. *Chip deflector or dust hood provided as required.*



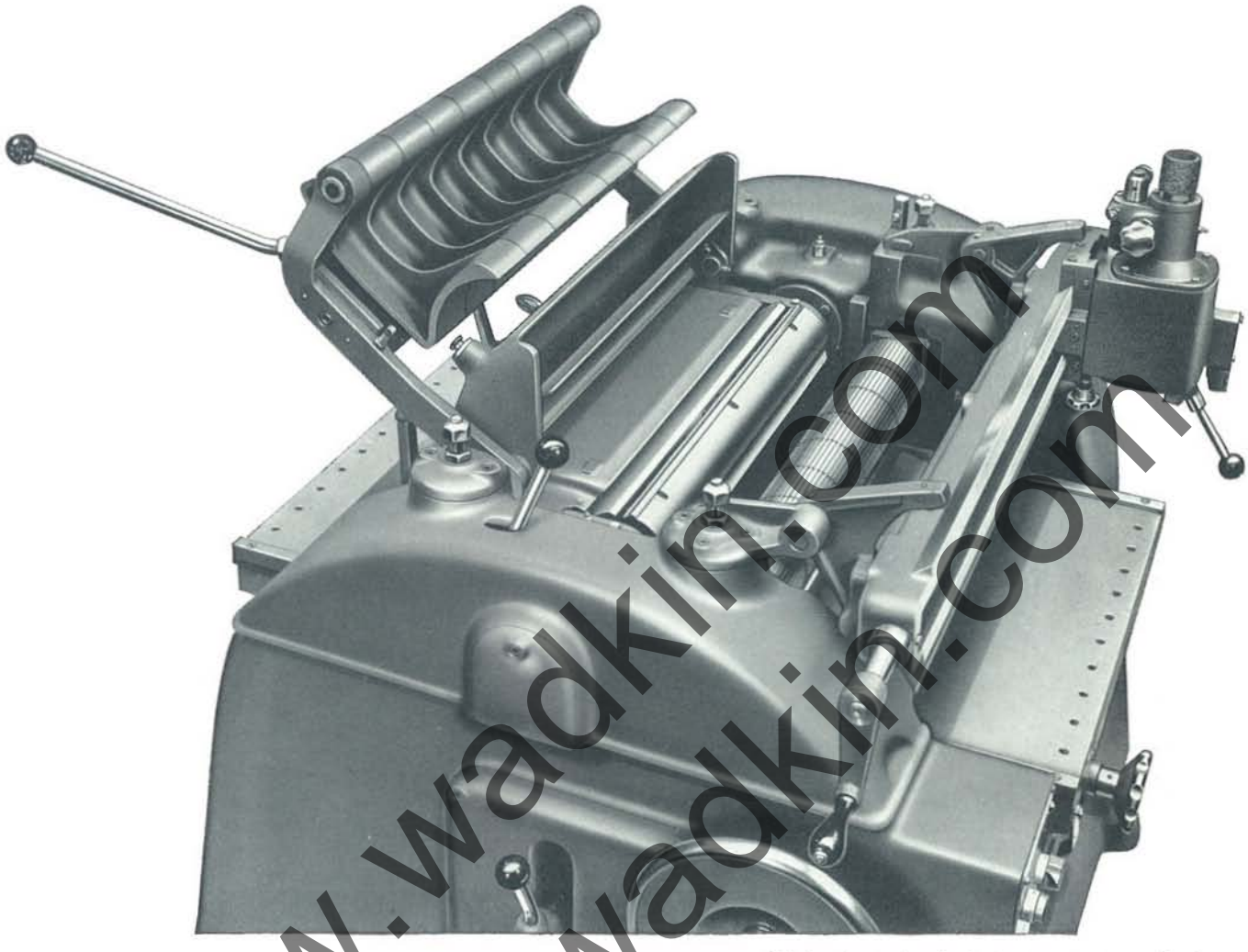


The Table

The table is a casting of hard close-grained metal, precision ground on the face. A feature of the design is the depth of the table and the length of the table slides, which make the table rigid under heavy cuts and eliminate vibration. It is raised and lowered 9″ by means of screws operated by chain and conveniently placed handwheel. Anti-friction ball thrust washers take the weight of the table and permit quick and easy rise and fall motion. All mechanism is protected from harmful dust and chips. Scale registers exact thickness being planed. A four-point lock is fitted to the table, controlled by a hand lever.

Table rollers are arranged with a small vertical adjustment, operated by a handwheel. This enables the rollers to be quickly set in relation to the table surface to suit the condition of the timber. The rollers are mounted on ball bearings, and extend the full width of the table.

Power feed rollers are of steel and are 4″ diameter to ensure a powerful and steady control of the timber. The in-feed roller is normally sectional and is fluted. The feeding out roller is smooth. To special order infeed roller may be a plain or solid type. The sections of the infeed roller are 3″ wide and made of forged steel. Each section is controlled by 12 coil springs which allow for a $\frac{3}{16}$″ variation in the thickness of the material. The feed roller pressures are controlled by adjustable springs, totally enclosed, yet easily adjustable on the top feed covers.



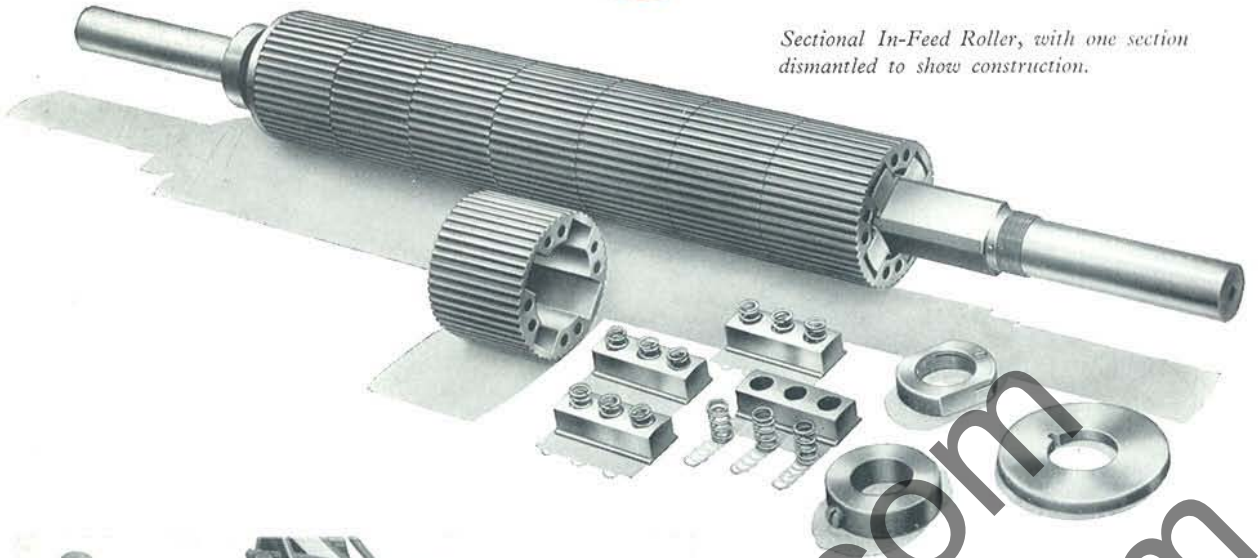
Chipbreaker swings back for access to cutterblock.

The Cutterblock

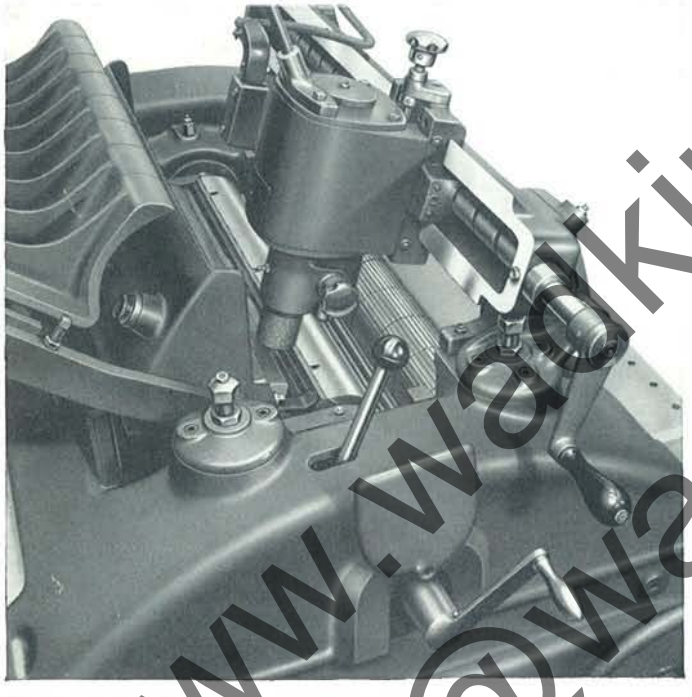
The cutterblock is of the four-knife safety circular type. It is made from a special quality steel of high tensile strength and is mounted in extra heavy ball bearings enclosed in dust-proof housings. The knives are held in the block by tapered clamps and a unique feature of the block is the provision of screw adjustment for setting the knives.

The chipbreaker in front of the cutterblock is of the sectional type and consists of malleable iron shoes 3" wide, independently spring-loaded. A refinement of the design is that an initial lift is given to the chipbreaker from a pivoting point *in front* of the cutterblock. This not only keeps the gap between the shoes and the cutterblock close, an essential for good work, but it gives a light easy lift useful when planing thin boards, because only the shoes of the chipbreaker unit are lifted. A further important point is that due to the fact that the initial lift is radially in the same direction as the feed, it completely eliminates any possibility of timber jamming under the chipbreaker.

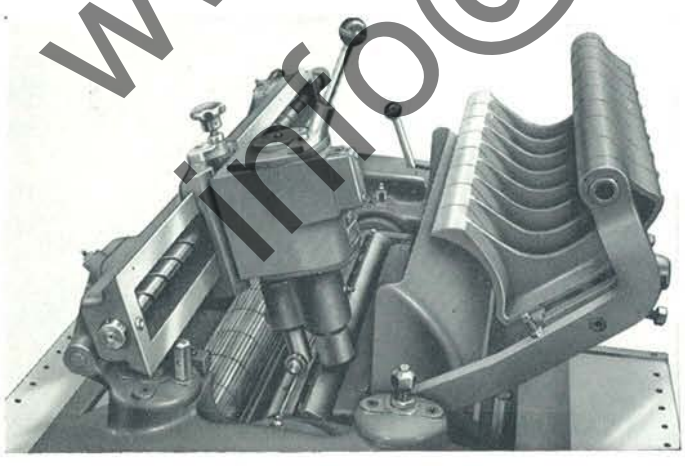
As shown by the illustration above the chipbreaker can be swung back, giving easy access to the cutterblock.



Sectional In-Feed Roller, with one section dismantled to show construction.



Grinding fixture in use.



Jointing.

Built-in Grinder, Setter and Jointer

One of the most useful features of the machine is the provision made for regrinding the four planer knives without removing them from the block and for jointing them. The ease and convenience with which this can be done, encourages the operator to keep his knives sharp with the result that a consistently high standard of planing is obtained from the machine. It is quite practical to grind the knives six or eight times without resetting them.

A unique feature of the machine is the eccentric pressure rear bar adjusting lever which enables the rear pressure bar to be set quickly to compensate for reduced cutting circle after regrinds.

The standard of accuracy obtained by grinding the knives in the block is far better than the usual knife setting operation, and we recommend that new knives be ground immediately after they are set up in the block. The high standard of accuracy is reflected in the fact that only a very slight heel is produced when the jointer is used which is a most important factor in ensuring good finish at high feed speeds.

The grinding unit is permanently mounted on a slide attached to the machine and is swung clear when not in use. In addition to the grinding spindle it incorporates a jointing stone and setting wheel. There is nothing to attach or detach and the entire unit is simple, efficient and accurate.

The grinding unit is powered by a $\frac{1}{2}$ h.p. motor running 2,800 r.p.m., carrying a 2″ diameter cup wheel on a $\frac{1}{2}$″ diameter arbor. Each knife is located in relation to the grinding wheel by a finger device built into the

machine. This makes contact with the back of the knife, and ensures a clearance or back angle being ground of 30°. Adjustment is provided to obtain different back angles. The grinding is accomplished by travelling the grinding wheel along the knife, by means of a rapid feed screw and handle.

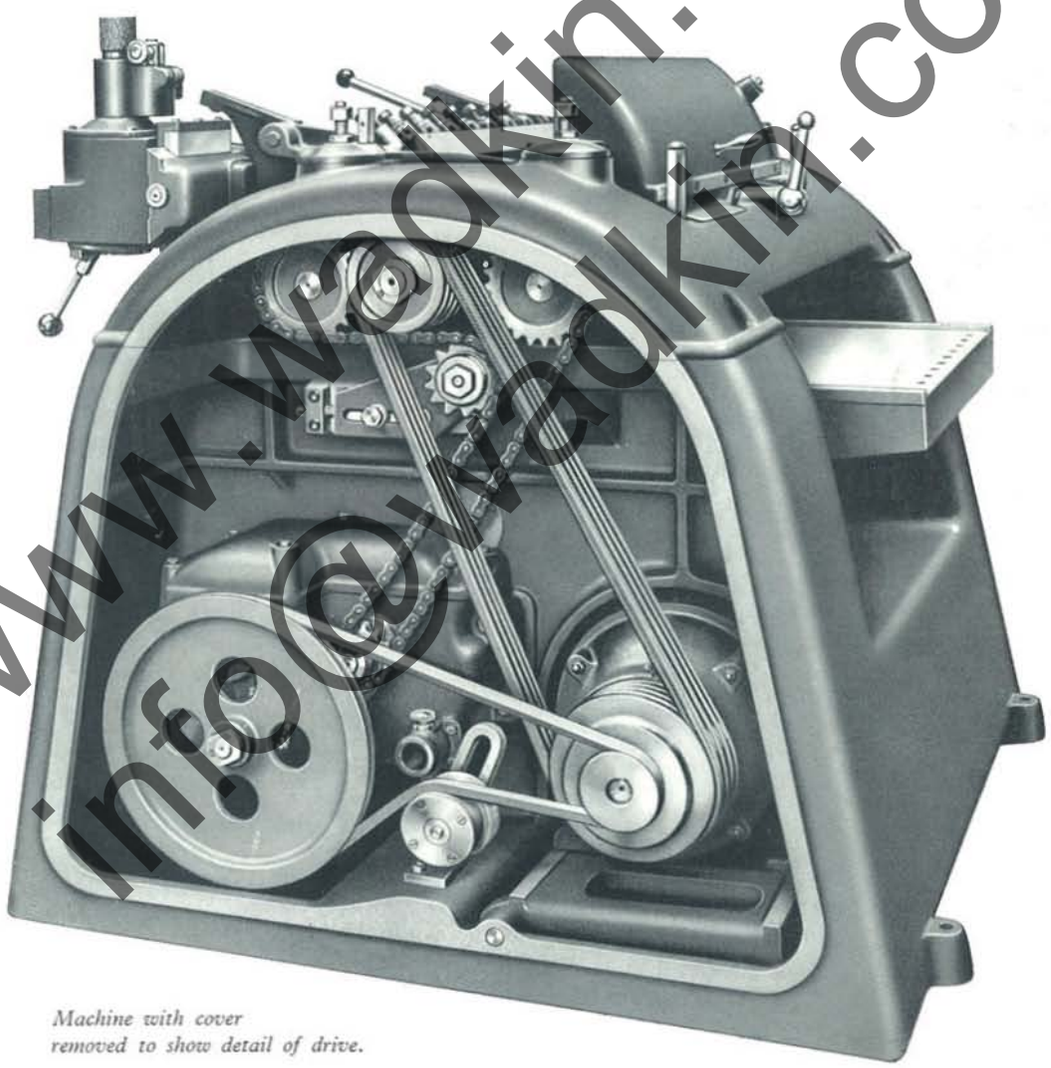
Each knife is brought into position by means of a detachable handle which fits on a squared shank on the end of the cutterblock spindle.

Downfeed to the grinding wheel is by fine screw and handwheel.

The Drive

The drive is by one motor, housed inside the main frame when standard alternating current supply is available. The drive to the cutterblock is by endless vee belts. The drive to the feed mechanism is obtained by a two-speed cone built on to the motor pulley, and a vee belt driving a corresponding two-speed pulley on a gearbox, incorporating a reduction gear. This drive gives six rates of feed, from 20 to 100 feet per minute. All the change gears run in oil and are of special nickel chrome steel heat-treated to 100 tons per square inch in tensile to give long life. The bearings in the gearbox are ball bearing self-oiling, thus the only attention which the gearbox requires is the maintaining of the oil level to the sight indicator provided.

The drive to the feed rollers is by heavy bushed roller chain, giving a steady and positive drive. As the feed motion is taken from the cutterblock motor, it is impossible to run the feed mechanism when the cutterblock is stopped. The feed can be stopped while the cutterblock is running. An important feature of the drive is that it is totally enclosed in the side frame, ensuring safety in operation and full protection from chips and dust.



Machine with cover removed to show detail of drive.

For single-phase and direct current, the motor is mounted on slide rails at the side of the machine. The drive from the motor is by vee belts.

Control Gear

For three-phase alternating current the standard control gear is of the automatic contactor type, operated by push buttons. The contactor gear embodies full protective features and is built into a dust-tight recess in the main frame. The gear is carried on the hinged door of the recess for convenient wiring and inspection. The stop button has large mushroom head for quick operation and embodies a special lock-out feature to prevent the motor being started inadvertently.

Belt Drive

The machine may be arranged for belt drive. A small countershaft is mounted on the main frame, having fast and loose pulleys and suitable striking gear.

Principal Dimensions and Capacities

Planing and thicknessing capacity	24" × 9" (610 × 229 mm.)
Length of table	45" (1156 mm.)
Rates of feed in feet per minute on 50 and 60 cycles	25, 40, 45, 60, 72, 100
Rates of feed in metres per minute on 50 and 60 cycles	7·6, 12·2, 13·7, 18·3, 22·0, 30·5
Speed of cutterblock in r.p.m. on 50 or 60 cycles	4,000
Diameter of cutting circle	5" (127 mm.)
Diameter of power feed rolls	4" (101 mm.)
Horse power of motor	15
Floor space	54" × 50" (1370 × 1270 mm.)
Net weight, electric driven	33 cwt. (3700 lb.) (1680 kg.)
Gross weight, electric driven	$37\frac{3}{4}$ cwt. (4230 lb.) (1920 kg.)
Shipping dimensions in cubic feet	96 (2·72 cu.met.)

Details included with the machine

Motor and control gear for electric driven machines.
Built-in countershaft and striking gear for belt driven machine.
One set of four high-speed steel knives.
Setting and jointing unit.
Chip deflector or alternatively exhaust hood.
One set of spanners.
Lubricating pump and tin of special ball bearing lubricant.

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