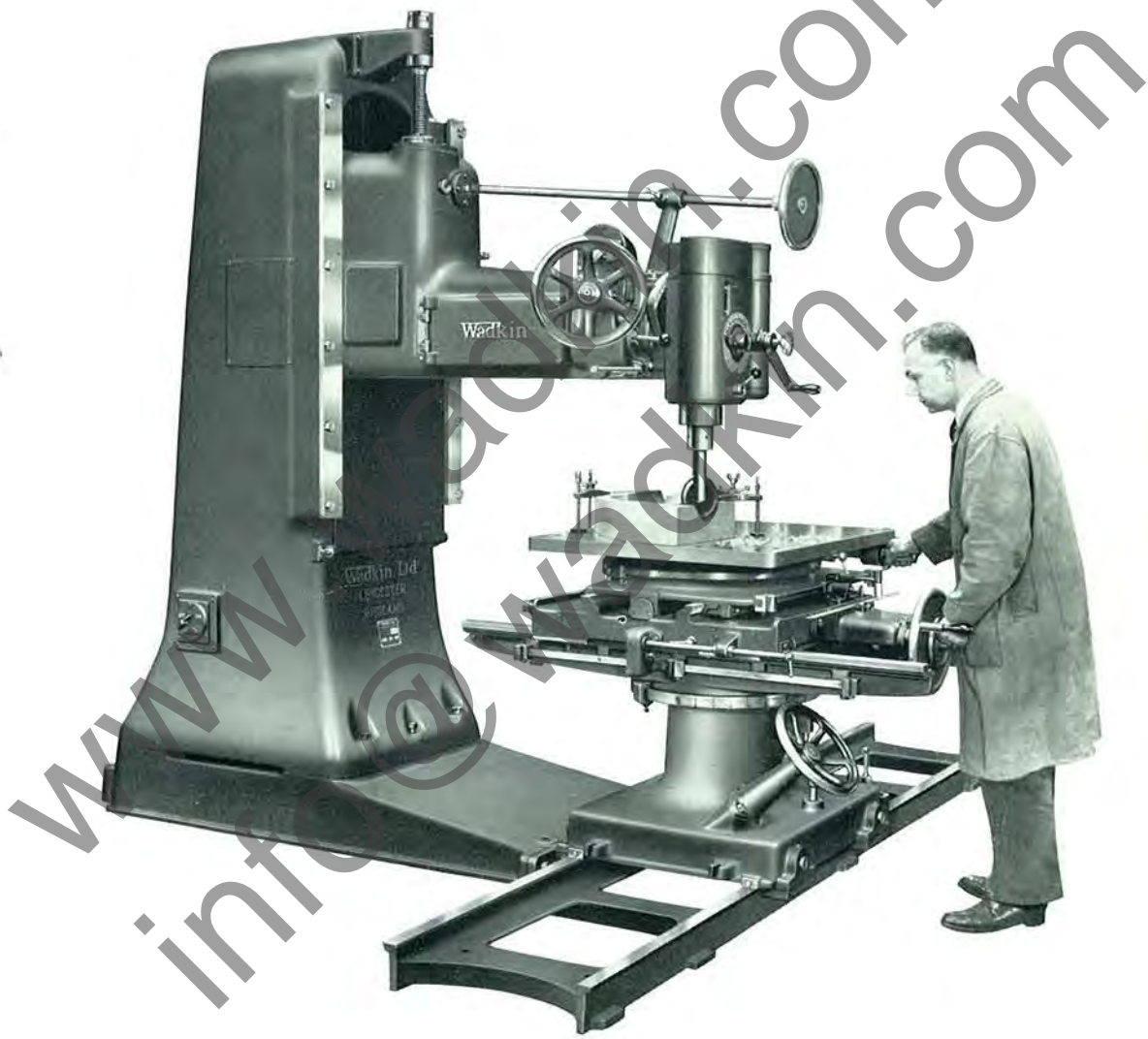




# Pattern Milling Machines

Types W.X. and W.Z.



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# Wadkin

## Pattern Milling Machines

The production of Engineers' Patterns, Coreboxes, etc., by mechanical means was made possible for the first time by the development in 1897 of the Wadkin "Mechanical Woodworker". Since that time this machine, now called the Wadkin Pattern Miller, has become known in practically all the leading engineering shops throughout the world, and is to-day recognised as indispensable in any well equipped Pattern Shop.

The remarkable popularity achieved by the Wadkin Pattern Miller, provides the most convincing evidence we can offer, of its adaptability to the essential needs of the Pattern Maker, and of its possessing that flexibility, or combination of movement, that allow it to operate readily and con-

veniently upon either geometric or irregular patterns or coreboxes, with the infallible accuracy of mechanical control.

The machine described in the following pages, whilst retaining all the fundamental characteristics of the earlier type of machine, embodies many new and valuable features.

Its value is considerably enhanced when supplied as Type W.Z. with the heavy power-operated table as shown on page 6. Not only does this table permit heavier patterns in both wood and metal to be handled due to its greater rigidity, but the infinitely variable feed on the table movement permits heavier cuts to be taken faster and more accurately.

*The corebox illustrated below gives a good idea of the tremendous labour-saving possibilities of a Wadkin Pattern Miller. Each section of this corebox has been worked out of the solid, and all four machined in less time than a pattern maker would have taken to make any one of them.*



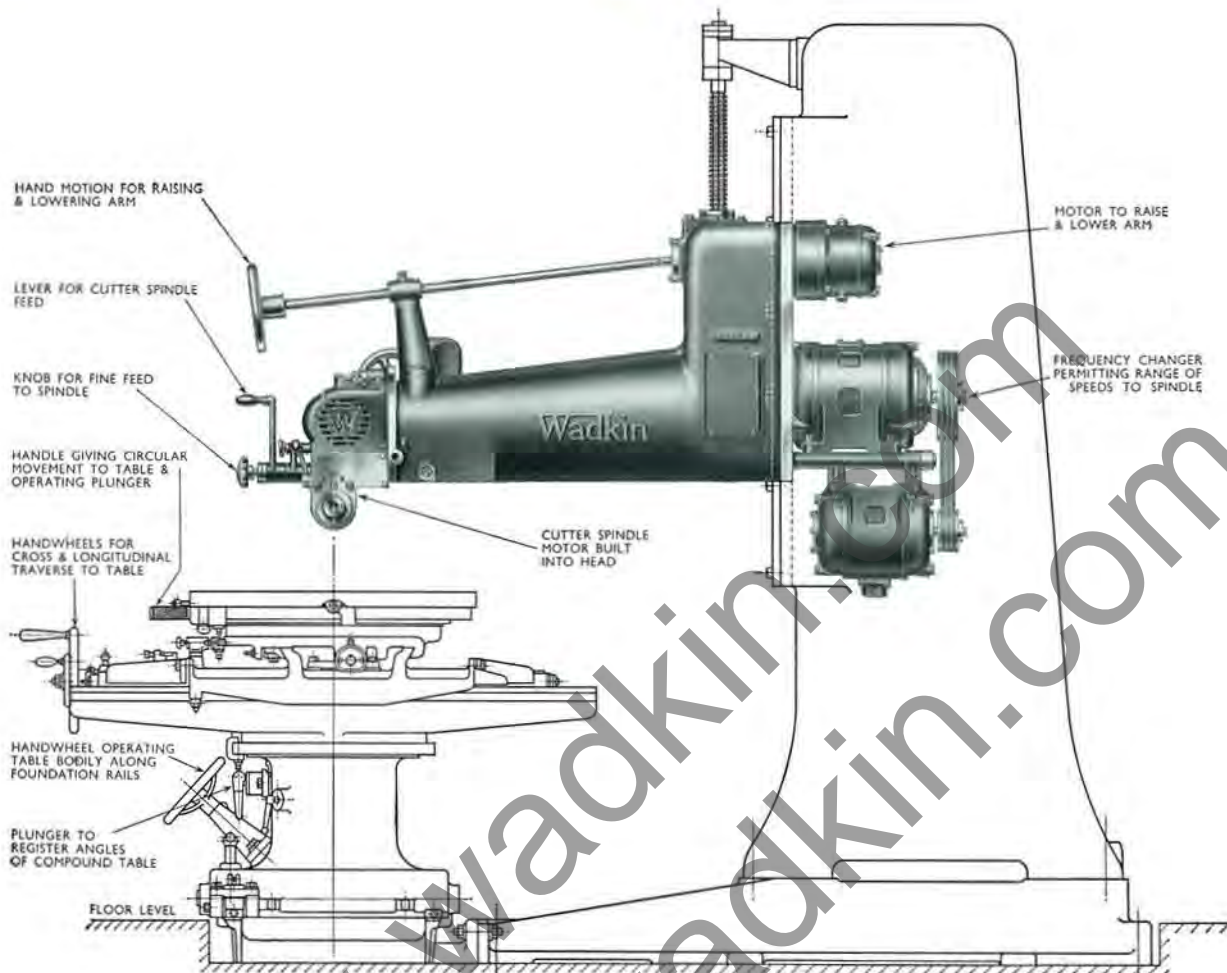




*Illustration above shows the machining of the inside of a core-box. This photograph demonstrates one of the big advantages of the latest model. The spindle is below the arm which enables it to enter a corebox with its axis parallel with the face of the job. The cutterhead can be carried close up to the spindle bearing and long bars and steadies are dispensed with.*

*Although primarily designed for wood, users find that the Wadkin Pattern Miller will successfully handle light milling and facing operations on non-ferrous metal patterns to the normal limits of accuracy in pattern work.*

*Illustration on left shows the machining of an axle housing corebox using Tungsten Carbide Tipped Cutter.*



### The Overhanging Arm

The overhanging arm carrying the spindle head is mounted on gibbed sliding ways on the main frame and can be raised and lowered either by power or hand feed. The power motion is obtained by a 1 h.p. motor built on the end of the arm driving on to the raising and lowering screw by gears. Hand motion is by handwheel placed immediately over the spindle head.

### The Spindle Head

The spindle head carried by the overhanging arm swivels to any position from  $50^\circ$  above the horizontal to  $20^\circ$  beyond the vertical. The principal angles are indexed and located by a spring plunger taper pin engaging with suitable

holes. Intermediate angles are secured by locking handle. The swivelling movement is by worm and wheel operated by handwheel. This mechanism incorporates a spring-loaded friction clutch to prevent damage to the plunger locating the head.

### The Cutter Spindle

The cutter spindle is mounted in ball bearings housed in a large diameter sleeve. A movement at right angles to the arm is provided by means of a rack cut in the sleeve. The pinion engaging the sleeve rack is controlled by hand lever on the front of the head for quick adjustment. A fine screw feed operating on the rack is also provided. Hand lever feed is provided with a





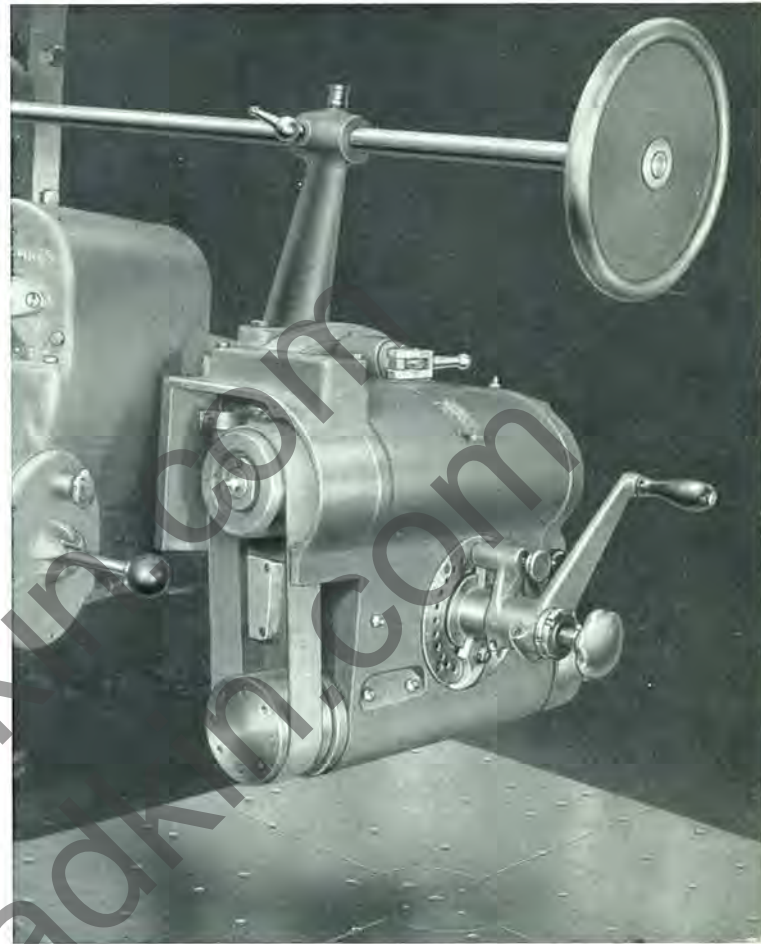
spring plunger to give definite depths of feed. Adjustable limit stops are also provided. The spindle is counterbalanced at every position by means of a weight mounted in the head, having rack teeth which engage with the opposite side of the pinion operating in the sleeve rack. The driving end of the spindle has six solid splines ensuring easy sliding motion with freedom from wear. The cutter spindle end is bored No. 5 Morse taper and fitted with set screw for securing the tool holders and cutters. The spindle is mounted on ball bearings. The bearing at the spindle nose is a double row double purpose type capable of taking both radial and thrust loads thus eliminating end play on the spindle. The driving end bearing is of the heavy duty double row type. The bearings are housed inside the sleeve and thus remain in the same position relative to the cutter at all positions of the spindle.

#### The Spindle Drive and Control

The drive to the cutter spindle is by short centre, flat stretchless belt driving from a four speed motor built into the headstock. The pulley on the spindle side of the drive is mounted in its own ball bearings thus preventing any belt pull on the spindle itself.



*All power movements of the machine are controlled from this 5-position station. Master stop button is embodied.*



*Shows drive to the cutter spindle. Cover has been removed for purpose of illustration.*

The motor provides six speeds of 4,200, 3,000, 2,100, 1,700, 1,500 and 850 r.p.m. The two speeds of 3,000 and 1,500 r.p.m. are obtained direct from the line. The remaining four speeds are obtained by means of a frequency changer mounted on the end of the arm. Motors for both the spindle and the rise and fall of the arm are controlled by a single lever handle on a control station on the head, which gives start, stop and reverse to the spindle, also rise and fall for the arm. Master stop button with lock-off feature is incorporated. A speed selector switch for varying the speed of the spindle is carried immediately above the spindle control.

The main contactor gear is housed inside the arm, and embodies full protective features.





### The Hand-operated Table

The work table has two motions at right angles, operated by screw and handwheel. The table also has a rotary movement for dealing with all kinds of circular and radius work. A hand lever is arranged with spring plunger taper pin giving all the principal angles.

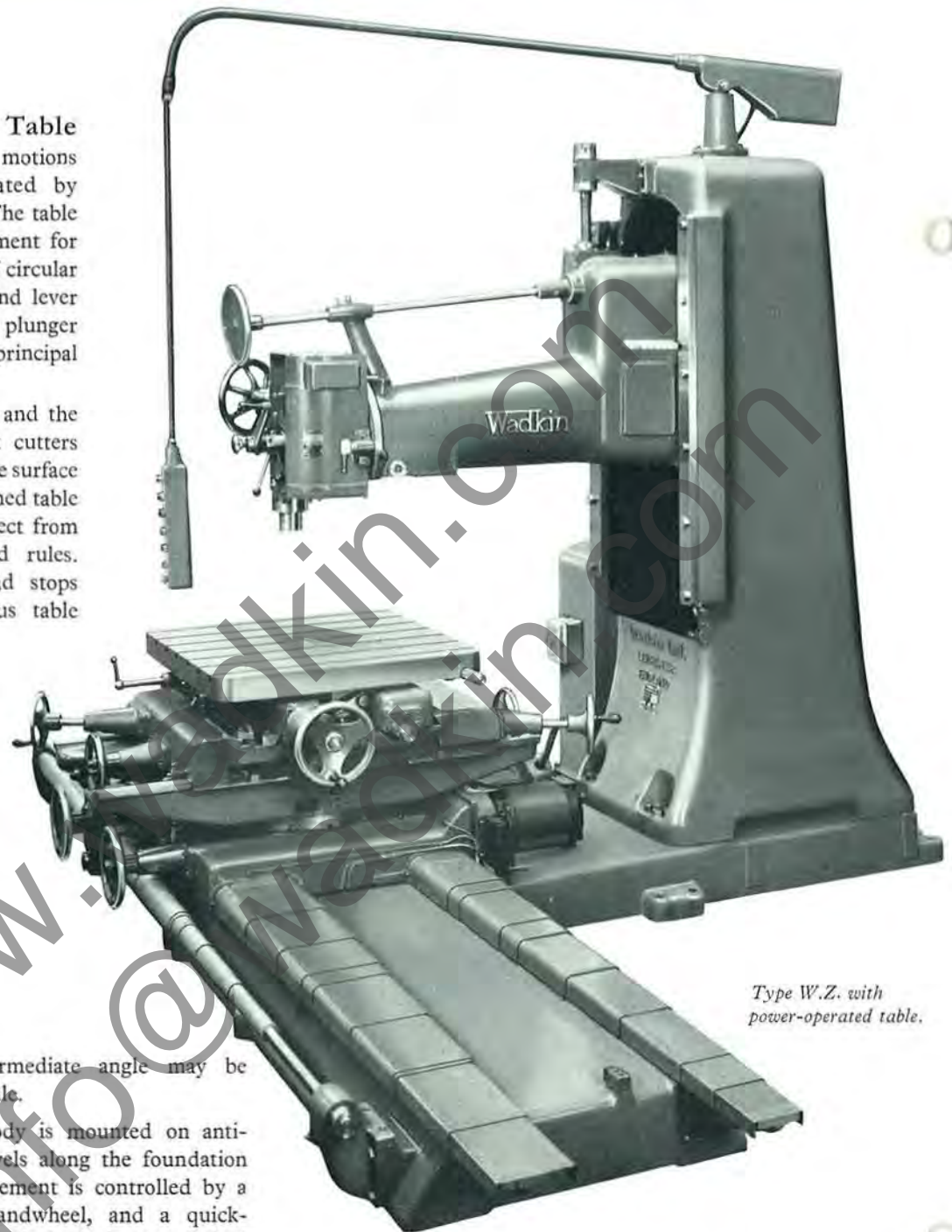
The table is graduated and the centre recessed so that cutters may be lowered below the surface of the table. The combined table motions can be read direct from contraction or standard rules. Suitable spring or dead stops are fitted to the various table movements.

The table body frame upon which the compound slides are mounted is provided with a secondary rotary motion. This enables the work table and slides to be turned to any desired angle, and frequently dispenses with re-setting the work. The principal angles are located by a spring plunger and any intermediate angle may be secured by locking handle.

The complete table body is mounted on anti-friction rollers and travels along the foundation frame rails. This movement is controlled by a conveniently placed handwheel, and a quick-acting lever locks the table body in any desired position.

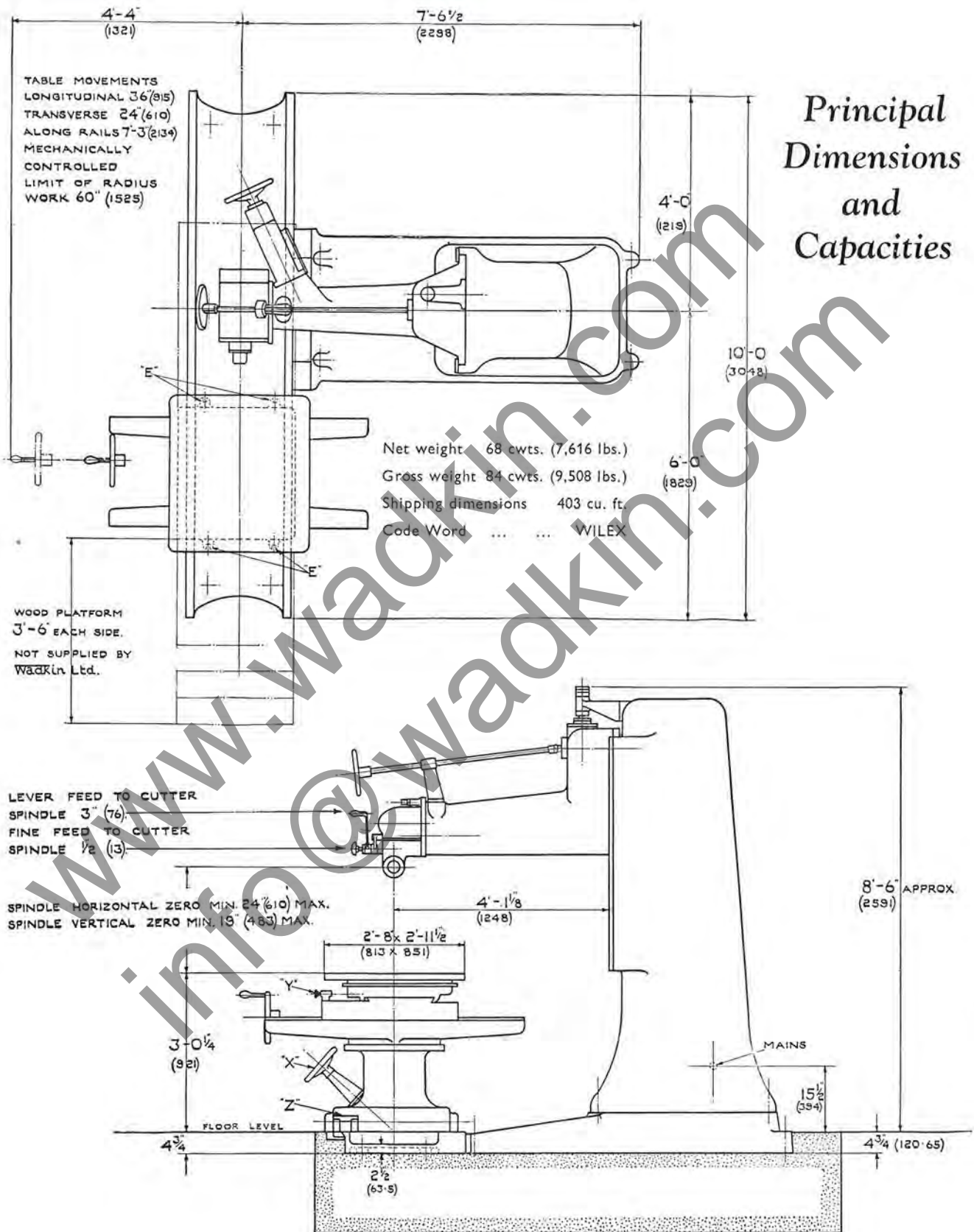
### The Power-operated Table

The power-operated table is traversed along the 10' 10½" bed at feed speeds between 3 and 90 inches per minute, infinitely variable and controlled by a Ward Leonard Set. The table unit rotates on a saddle under power at ½ to 4 r.p.m. infinitely



*Type W.Z. with power-operated table.*

variable. In addition, the top table rotates either by hand or power. The cross traverse is hand operated. Individual handwheels are provided to all power movements for fine setting. Plungers are fitted to rotary slideways to locate principal angles. Dead stops are fitted to longitudinal and cross slides. Table top measures 36" x 36" and has seven tee slots and a loose centre piece for locating work.







## Tool and Cutter Equipment

The illustration below shows the complete equipment of tools, cutter holders, etc., that is included in the price of the Pattern Miller, W.X. and W.Z.

To enable the tool and cutter equipment used with the Wadkin Pattern Miller to be properly cared for the specially designed tool cupboard shown below

is supplied. This cupboard is sent with all machines delivered for use in the British Isles. It is not supplied with export machines owing to possible damage in transit and the fact that it is not economical to ship a wooden cabinet of this size. A set of detail drawings would be supplied on request to enable customer to make the cupboard.

