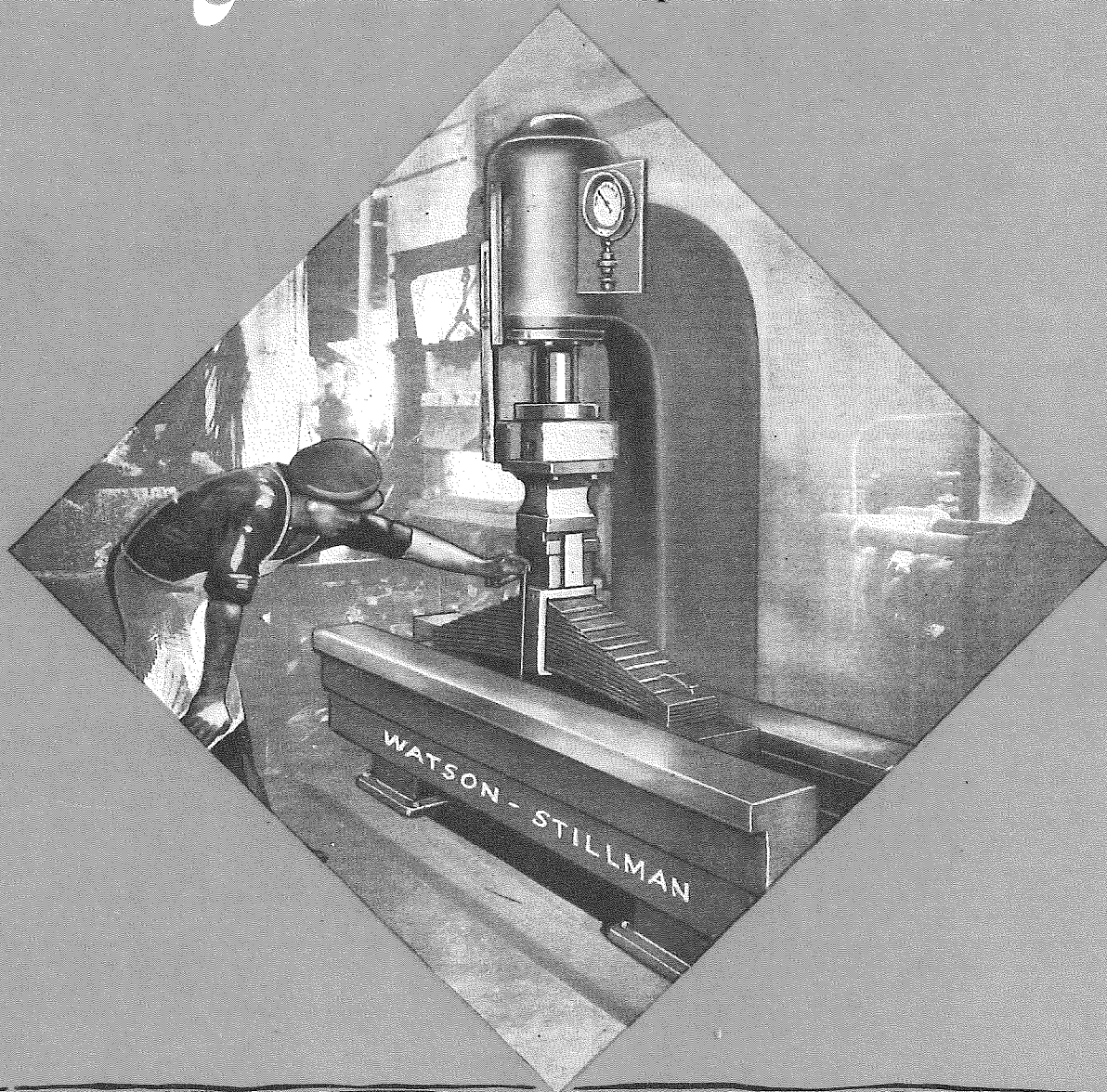


4300
BULLETIN
550-A

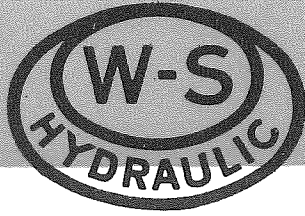
HYDRAULIC SPRING SHOP EQUIPMENT



FOR RAILROAD SHOPS

WATSON - STILLMAN

Hydraulic Machinery and Equipment



W - S HYDRAULIC

Watson-Stillman hydraulic presses for spring shop work are self-contained, quick-acting, oil-operated machines. They are the most efficient units available for spring stripping, spring banding, spring forming and spring testing operations.

Their hydraulic power unit and circuit design provide smooth, shockless press operation and pulsationless pressure application with single lever control. Presses are powered by rotary oil pumps, providing rapid traverse speeds to and from the work.

The self-contained oil-operated design is far superior to the accumulator-operated type previously used for this purpose. The use of double-acting cylinders with high and low volume pumps provides fast traverse speeds eliminating weighted pull-backs and the need for external air supply. Cylinders are smooth bored and polished,

packed internally with metal piston rings fitted to differential rams. Cylinder packings are external under gland. Stuffing box is fitted with renewable bronze throat bushing. Valves are of the packless piston type.

When it is desired to operate press at less than maximum rated capacity, pressure can be regulated simply and steplessly by adjusting the pump pressure setting against the gauge at a saving in horsepower and electric power.

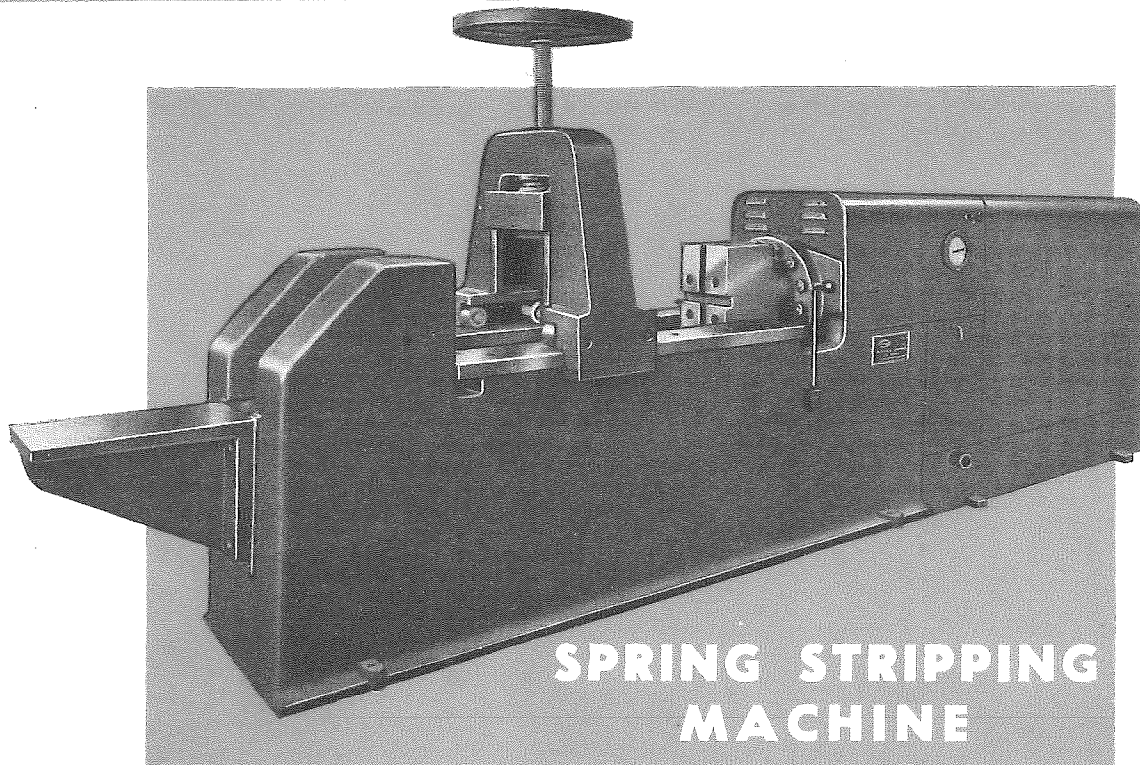
The simplicity of the design and construction of these presses reduces maintenance. There are no external hydraulic and air lines to maintain, no internal valve or cylinder packings requiring attention. The only soft packing used is in main cylinder stuffing box which is of self-sealing "V" type and requires infrequent attention. The oil used as operating medium lubricates all internal mechanisms.

The following pages of this bulletin contain complete descriptions, specifications and illustrations of

- SPRING STRIPPING MACHINES
- SPRING FORMING PRESSES
- SPRING BANDING PRESSES
- SPRING TESTING MACHINES

This equipment has been developed and built by an organization that has been intimately associated with railroad shop practices for nearly a century.

SPRING SHOP EQUIPMENT



This self-contained machine removes bands from spring assemblies without heating either the band or leaves and without damaging them. The operation is performed cold and considerable saving is effected compared with average spring stripping methods.

A convenient single lever valve enables the operator to control the stripping and the return of the ram.

Double-acting ram in the cylinder is bolted to the crosshead which has horizontal and vertical slots to accommodate thrust bar. Roller plates on crosshead take bearing on bed and are designed to prevent upward deflection of the spring.

Operation is as follows. One end of thrust bar is placed in slot and other end bears against the

end of the upper or short spring leaf. At the same time the crosshead bears against the end of the longest leaf. Stroke of bar is then sufficient to clear the band from the largest spring at one setting.

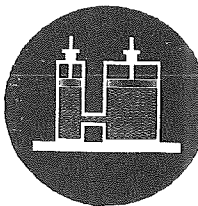
End of thrust bar is beveled to prevent riding over end of leaf or becoming wedged between the leaves. It is held in place by a roller clamp mounted in the vertical yoke attached to frame. Clamping pressure is adjusted by hand screw of coarse pitch. Yoke is movable horizontally to compensate for varying lengths of spring.

The power equipment includes motor-driven rotary oil pump, enclosed within the machine housing, together with the control equipment. Pressure gauge is mounted on outside of housing adjacent to operator's station.

S P E C I F I C A T I O N S

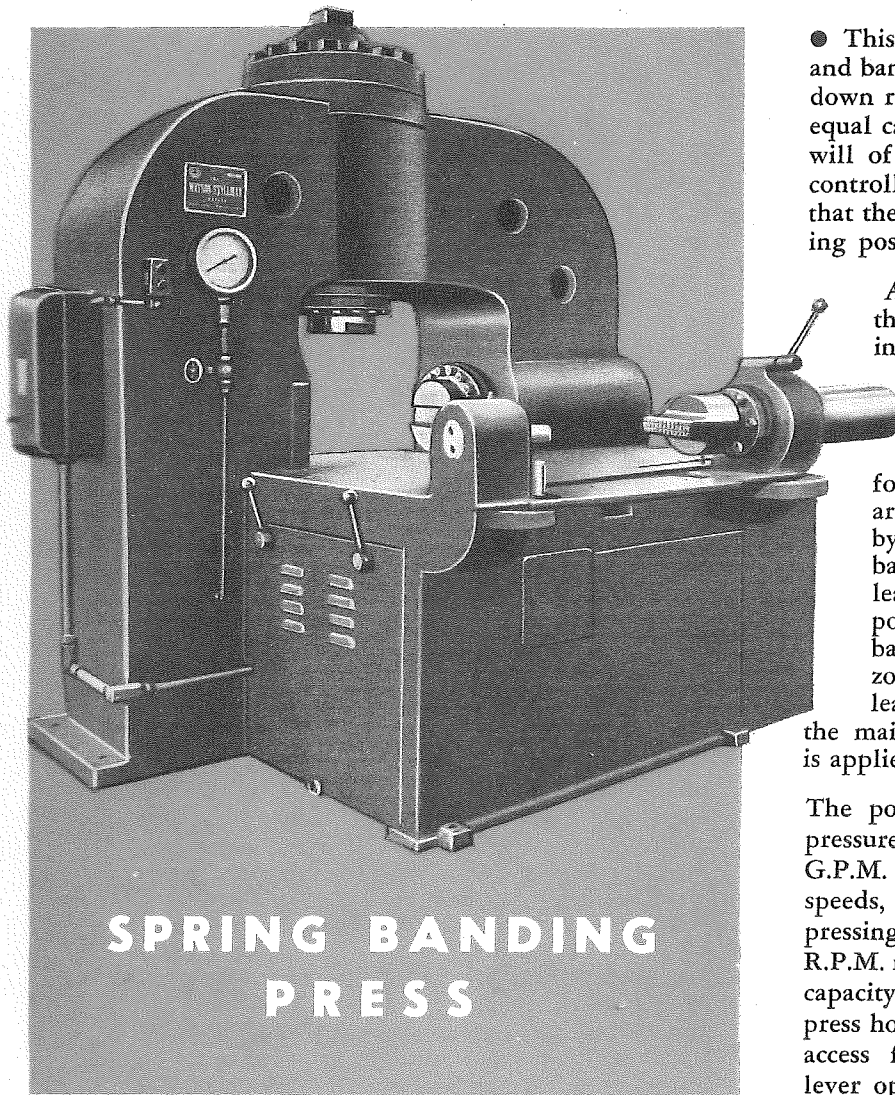
Machine No. 8972
 Capacity 100 Tons
 Diameter of Ram 10"
 Stroke of Ram 30"
 Operating Pressure, lb. per sq. in... 2550
 SPEEDS: Advance 106 in. per min.
 Press 16.5 in. per min.
 Return 114 in. per min.
 Motor: 7½ H.P. 1200 R.P.M.

Pump: Delivery 36 G.P.M., L.P.
 5.6 G.P.M., H.P.
 Center Line of Ram to Floor 2'-6"
 Opening between Jaws 7"
 Maximum Opening
 Abutment to Ram 3'-6"
 Height 5'-3"
 Floor Space 14'-2" x 2'-6"
 Weight (Approx.) 10,000 lb.





W-S HYDRAULIC



SPRING BANDING PRESS

● This is a combination machine for assembling and banding springs. It has both a vertical moving down ram and a horizontal clamping ram each of equal capacity from 25 to 100 tons, variable at the will of the operator. Each ram is independently controlled by a separate valve and hand lever so that the banding may be completed without changing position of spring.

An assembling table is a component part of this press with an auxiliary ram for preliminary squeeze while slipping the band over the assembled leaves. This table eliminates excess handling of spring parts, thereby permitting faster work and better quality due to the band being formed while metal is still hot. Loose leaves are assembled on table and clamped together by ten-ton cylinder. The ram heads turn on ball-bearing spindles so that the clamped leaf assembly is easily rotated 90° to upright position to slip on the band. The partially banded spring is then swung back into horizontal position, the clamping cylinder released, and assembly is slid into place under the main rams where the final banding pressure is applied.

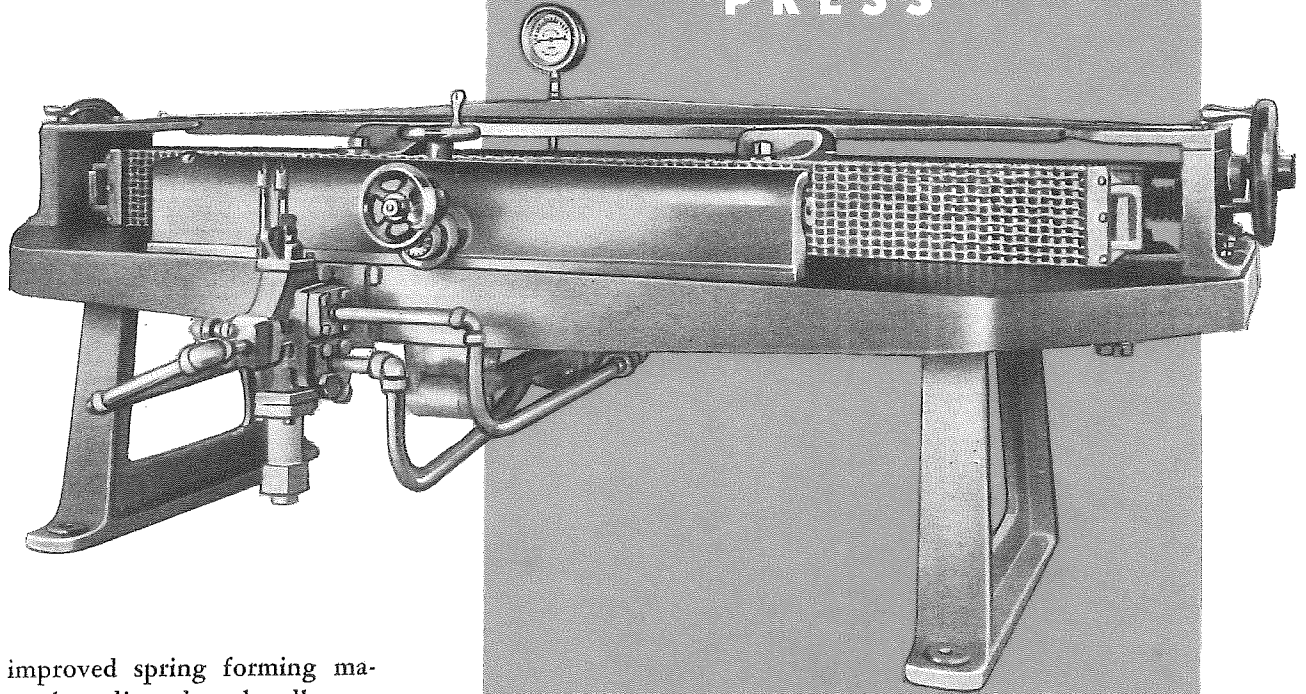
The power is furnished by a combination dual pressure radial piston oil pump supplying 40 G.P.M. at low pressure for fast advance and return speeds, and 9.5 G.P.M. at high pressure for final pressing. The pump is driven by a 10 H.P., 1200 R.P.M. motor mounted on an oil tank of 35 gallons capacity. The power unit is installed within the press housing with removable covers affording easy access for maintenance and adjustment. Hand lever operated four-way valves control the movement of the rams. Pressure adjustment screw on pump permits stepless variation of the capacity of the main rams from 25 to 100 tons.

SPECIFICATIONS

Machine No.	8939	Motor	10 H.P.
Capacity—Vertical and Horizontal Main Rams	25 to 100 Tons (Variable)	Speeds—	
Capacity—Auxiliary Ram	10 Tons	Main Rams—Advance	106" per min.
Diameter Main Rams	10½"	Press	25" per min.
Stroke—Main Rams	6"	Return	96" per min.
Auxiliary Ram	14"	Auxiliary Ram—Press	138" per min.
Operating Pressure	2300 lb. sq. in.	Return	290" per min.
Opening Between Ram Heads		Height	7'-0"
Auxiliary Cylinder	18"	Floor Space	5'-7" x 7'-4"
Vert. Ram to Bottom platen	15"	Weight (Approx.)	15,000 lb.
Horz. Ram to Abutment	24"		

SPRING SHOP EQUIPMENT

SPRING FORMING PRESS



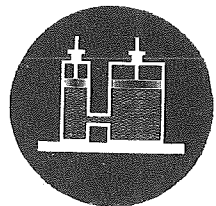
This improved spring forming machine may be adjusted to handle any size or curvature of flat spring leaves required in the ordinary course of railroad shop practice. It is efficiently designed for fast, accurate forming in one operation of springs to any desired camber and radius. Either hydraulic or pneumatic pressure is applied to cross-head as required.

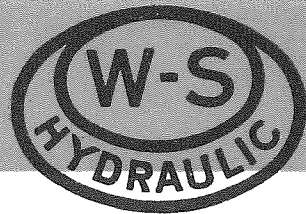
The resistance required to form the curvature of spring leaves is obtained by a flexible band of steel chain links securely held at the ends by a double set of springs. Two supporting blocks back of this flexible chain are moved in or out by means of a screw and hand wheel (right and left hand) for adjusting the length of the chain.

Method of operation is to place together on the table both the hot leaf which is to be formed and the cold leaf which is to fit against it in the completed spring assembly. Then pressure is applied by operator by means of a conveniently located valve which operates the cylinder.

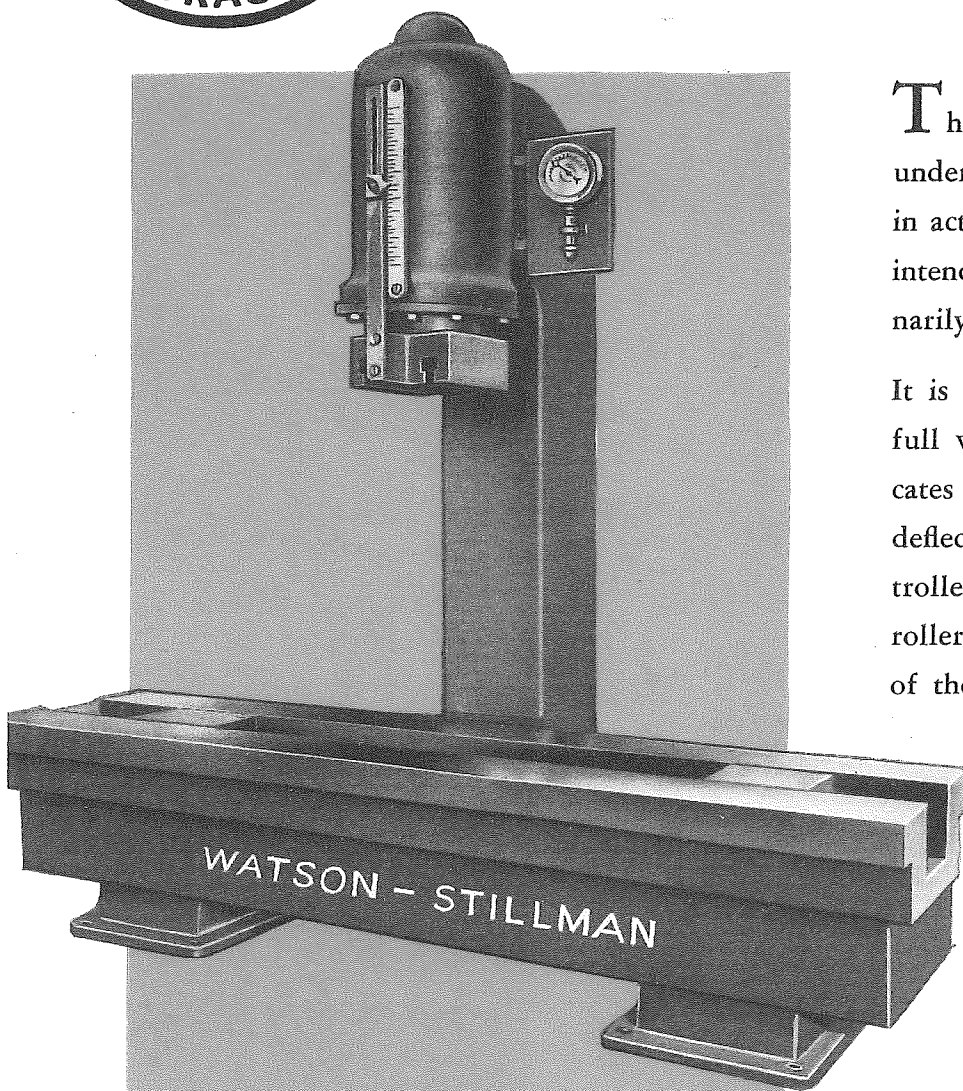
S P E C I F I C A T I O N S

Machine No.	9546	Maximum Stroke	10 3/4"
Capacity	5/8"x7"x96"	Maximum Camber	8 1/2"
Area Table	35"x132"	Weight (Approx.)	3,600 lb.





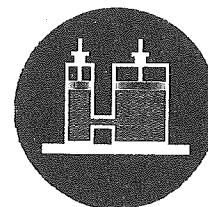
SPRING SHOP EQUIPMENT



SPRING TESTING MACHINE

This machine is used for testing springs under the same conditions as encountered in actual service. It is a shop tool and not intended to replace testing machines ordinarily used by testing departments.

It is designed to weight the spring up to full working load. Hydraulic gauge indicates weight on the spring; ram scale shows deflection of spring. Machine is fully controlled by valves. Table face has adjustable, roller-bearing blocks to receive the ends of the spring.



S P E C I F I C A T I O N S

Machine No.	9547	Operating Pressure, lb. per sq. in.	1300
Capacity	50 Tons	Speeds—Pressing	20" per min.
Diameter of Ram	10"x8"	Return	55" per min.
Stroke of Ram	6"	Motor	3 H.P.
Ram to Table	30"	Height—Overall	7'-6"
Table Dimensions	7'-0"x22"	Height—Table From Floor	19"
Width Spring Supports	7"	Floor Space	7'-0"x3'-6"
		Weight (Approx.)	6,200 lb.