

UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN MACHINES FOR SLOTTING AND DRILLING CLOTHES-CLAMPS.

Specification forming part of Letters Patent No. **170,394**, dated November 23, 1875; application filed August 30, 1875.

To all whom it may concern:

Be it known that I, MILON PRATT, of Deep River, in the county of Middlesex and State of Connecticut, have invented an Improved Machine for Slotting and Drilling Clothes-Clamps, and for similar purposes; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, making part of this specification.

My invention relates to a machine which is intended more particularly for slotting and drilling the jaws of clothes pins or clamps, to prepare them for the reception and retention of coiled-wire springs and pivots, but which may be used for various other purposes where slotting and drilling are required.

The invention consists in a novel construction, arrangement, and combination of the work-carrying bed-plate and the boring or drilling mechanism, whereby the drill or boring-tool is moved up to the work. The invention consists, further, in a novel construction and arrangement of the work-carrier, whereby the work is presented to the slotting or grooving cutters and the drill.

In the accompanying drawing, Figure 1 is a top view of a machine constructed according to my invention. Fig. 2 is a side view of the same. Fig. 3 is a transverse vertical section taken in the line *xx* of Fig. 1. Figs. 4 and 5 are detail views of clothes-pin jaws slotted and drilled according to my invention.

A represents a table, resting upon the top of a frame-work, B, in which are journaled three shafts, C D E. The main shaft C is provided with a large pulley, *c*¹, and small pulley *c*². The shaft D is provided with a large pulley, *d*¹, and small pulley *d*², and the shaft E is provided with two large pulleys, *e*^x *e*¹, and a small pulley, *e*². The arrangement of the shafts and pulleys may be varied according to preference or convenience without affecting the nature of the invention. On the top of the table is journaled, in bearings *f* *f*, a shaft, F, carrying a pulley, G, around which passes a belt, *g*, from the pulley *c*² on the shaft C, by which means the shaft F is driven. On one end of the shaft F is a crank-wheel, H, which is connected by a pitman, *h*, with a

bed-plate, I, arranged to reciprocate in ways or guides in a seat on the top of the table A. The shaft D is driven by means of a belt, *d*^x, from the pulley *c*¹ to the pulley *d*², and in turn drives the shaft E by means of a belt, *f*^x, from the pulley *d*¹ to the pulley *e*². On the top of the table A, toward the end opposite the shaft F, is journaled, in bearings *j*, a shaft, J, provided with a pulley, *j*², around which passes a belt, *j*^x, from the pulley *e*¹ of the shaft E, by which means the shaft J is driven. On the end of the shaft J, toward the bed-plate I, is a saw, K. On the top of the reciprocating bed-plate I is journaled, in bearings *l*, a shaft, L, provided with a pulley, *l*², around which passes a belt, *l*^x, from the pulley *e*^x of the shaft E, by which means the shaft L is driven. On the inner end of the shaft L, or the end nearest the saw, is a drill or boring-tool, L², attached and held in any suitable manner. Near the outer portion of the shaft L is a grooved collar, *l*⁴, with which engages the forked upper end of an arm, *m*, on the inner end of a horizontal shaft, M, which works in bearings in the bed-plate I, parallel with the shaft L. To the outer end of the shaft M is pivoted one end of a lever, N, having its fulcrum on the outer edge of the bed-plate I, or a projection thereon. The other end of the lever N is formed into a lip, *n*, for engagement with a switch, consisting of an inclined or wedge-shaped tongue, P, pivoted in a lug or projection on the table A, and provided with a spring, *p*, which has a tendency to keep its point or free end closely pressed against the surface of the edge of the bed-plate.

On the upper side of the bed-plate is a carrier for the work, consisting of a block, R, provided with a clamping-hook, *r*, at one end, and a clamping-dog, S, at the other. The hook *r* is rigidly attached to the carrier; but the dog S is pivoted in a slot therein, and extends downward through a slot in the table A, and is provided with a spring, *s*, having a tendency to keep the upper end inclined forward toward the hook *r*. The carrier thus constructed is arranged in an oblique direction with relation to the line of travel of the reciprocating bed-plate I, for the purpose of form-

ing the slot in an oblique direction, as hereinafter explained, and is provided with a gage, r^x .

On the top of the table A, near the portion of the bed-plate where the work-carrier is located, is a trough or hopper, T, provided with a feeding device, consisting of a lever, V, pivoted on or over the table A, and oscillated by means of a projection, g^x , on the pulley G acting on one end of the lever, and a spring, v^x , acting on the other end, so that as the projection g^x comes in contact with the one end of the lever the feeder v is moved in the direction of the carrier R, and as soon as the projection has passed the lever the feeder is retracted by the spring v^x .

The blanks to be worked are placed, one above another, in the trough or hopper T, and motion is imparted to the machine. As the parts reach the positions shown in Figs. 1 and 2, the feeder v , working in the bottom of the hopper, forces the lowermost blank out of the hopper and throws it upon the carrier R. As the bed-plate I begins its forward motion, the spring s throws the dog S forward, and causes it to clamp the blank firmly between itself and the hook r . The bed-plate then moves forward, so as to carry the blank under the saw K, which cuts a slot, groove, or mortise, w , in the blank W. (Shown in Fig. 4.) The object of the oblique direction of the slot is to provide for the ends of the wire which forms the spring when the clothes pin or clamp is completed, the shape of which spring is shown in dotted lines in Fig. 5, which represents a completed clothes-pin. By the time the reciprocating bed-plate I has completed its forward stroke, the cutting of the slot or groove by the saw K is finished. As the bed-plate begins its backward movement the lip n on the end of the lever N slides outward over the inclined or wedge-shaped surface of the switch P, so as to press inward the opposite end of the lever N, and, through the operation of the shaft M and forked arm m upon the grooved collar l^4 , to move the shaft L longitudinally in its bearings, and bring the drill or boring-tool L^2 in contact with the blank, and thus bore holes, w^x , through the same transversely to the slot or groove w , (see Figs. 4 and 5,) which holes are for the reception of pins for holding the parts in place in the completed clothes pin or clamp. When the bed-plate I completes its backward motion, and again arrives at the position shown in the drawing, the dog S strikes a set-screw, s^4 , or other suitable adjustable projection, so as to release the hold of the dog upon the work, and allow it to be

expelled from the carrier by any suitable means, while at the same time the feeder v on the lever V, actuated by the projection g^x on the pulley G, feeds another blank from the hopper T to the carrier R, and the operation is repeated, as before described.

Before the bed-plate has entirely completed its backward stroke the lip n has passed the switch P, and the lever has been retracted, and the boring-tool withdrawn from the work by means of a spring attached to the shaft M, so that during the forward movement of the bed-plate the lip n is held against the bed-plate, and passes between it and the switch P, which yields to allow it to pass, and immediately resumes its proper position.

The arrangement of parts may, if desired, be so modified as to cause the drill to suspend its rotary motion during the forward movement of the bed-plate; or it may be made to drill the work during said forward movement.

When the machine is used for other purposes than that above described the bed-plate may be arranged in other than an oblique direction.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a machine for slotting and drilling clothes-clamps, and for similar purposes, the combination, with a reciprocating bed-plate, which presents the work to the slotting device, of a drilling or boring shaft attached to said bed-plate, and having a rotary motion and a longitudinal motion, whereby, during the movement of the bed-plate, the drill or boring-tool is fed to the work, substantially as herein described.

2. The combination and arrangement of the reciprocating bed-plate I, the shaft L, provided with the grooved collar l^4 , and shaft M, provided with the forked arm m , said shafts being mounted on, and carried by, said bed-plate, the lever N, connected to the shaft M, and the switch P, attached to the table A, whereby the boring-tool is moved alternately toward and from the work during the movement of the bed-plate, substantially as herein described.

3. The combination of the table A, reciprocating bed-plate I, work-carrier R, clamping-dog S, spring s , and set-screw or projection s^x , for automatically clamping and releasing the work during the movement of the bed-plate, substantially as herein described.

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Witnesses:

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