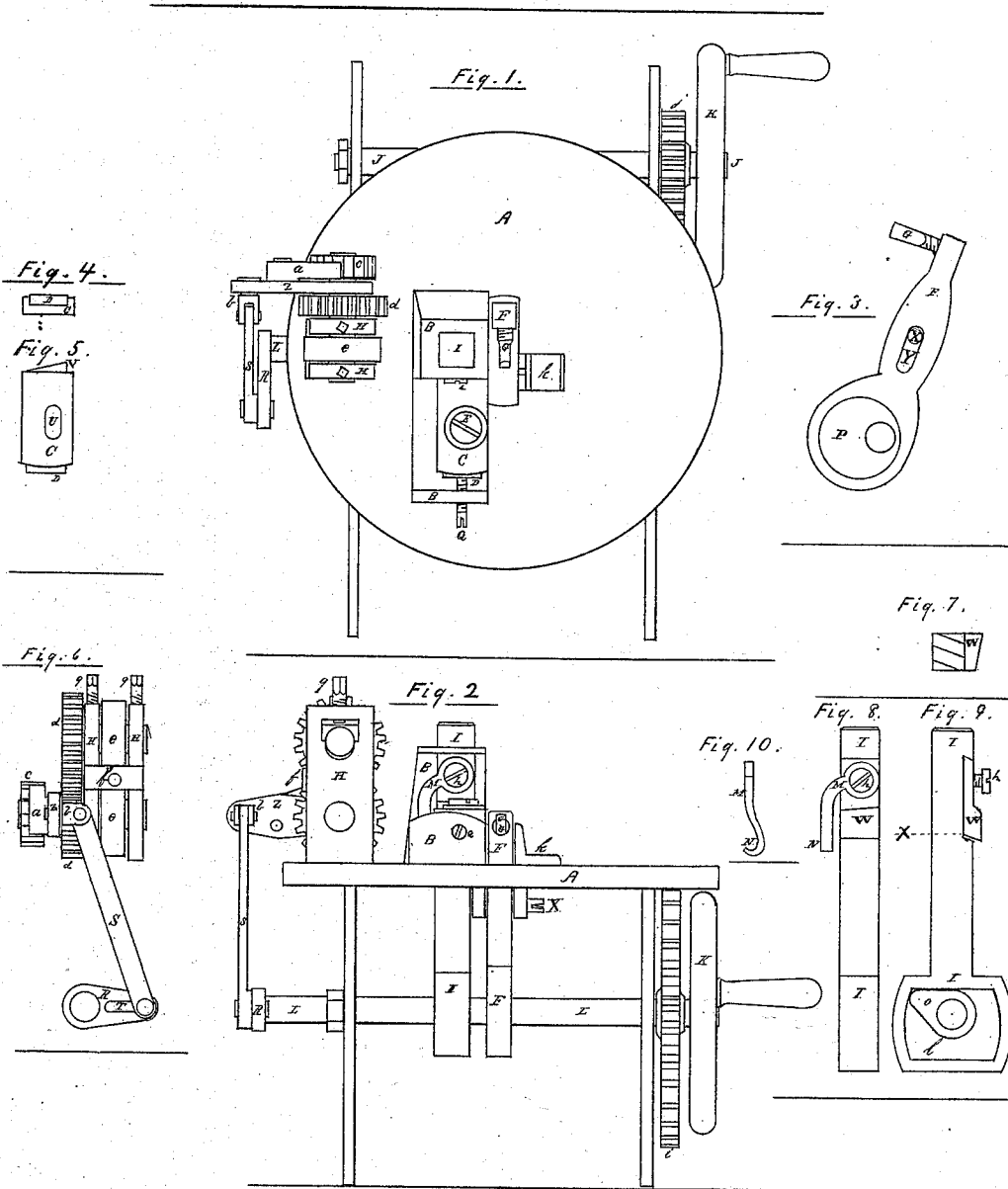


W. MALICK.

Machines for Making Staples.

No. 142,574.

Patented September 9, 1873.



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IMPROVEMENT IN MACHINES FOR MAKING STAPLES.

Specification forming part of Letters Patent No. **142,574**, dated September 9, 1873; application filed September 1, 1873.

To all whom it may concern:

Be it known that I, WESLEY MALICK, of Erie, in the county of Erie and State of Pennsylvania, have invented a new and Improved Machine for Making Staples; and I do hereby declare the following to be a full, clear, and exact description of my invention, reference being had to the accompanying drawings and to the letters of reference marked thereon, the same forming a part of this specification.

Figure 1 is a top or plan view of my machine. Fig. 2 is a direct side or elevation view of the same. Figs. 3, 4, 5, 6, 7, 8, 9, and 10 are views of detached parts of my invention.

The following is a description of the construction and operation of my invention:

A is a bed-plate sustained on a frame. Beneath the bed-plate are hung the shafts, pulleys, and gears of the machine. The different parts of the machine receive their motion from the shaft L, which is propelled by the pinion *j* on the shaft J. The working parts of my machine—viz., the feed, the cutter, and the bender—are above, and attached to the bed-plate A. These I will now describe in the above order.

First, the feed: This part of my invention is shown on the left of Figs. 1 and 2 and in Fig. 6, and it consists of two rollers, *e e*, set in the frame-work H H, geared together by the pinions *d d*, and adjusted by the screws *g g*. This device is actuated by a pawl, *a*, on a ratchet-wheel, *c*. The pawl receives its motion from the slotted crank R on the shaft L, through the pitman S, which is connected by a double joint, *b*, with a rocking bar, Z, on which is the pawl *a*. The length of feed is regulated by adjusting the pitman S in the slot T of the crank R. The course of the wire or rod is regulated and established by being passed through the guide-bar *f*. This bar also serves to straighten the wire as it is passing into the machine, and also prevents kinks from going in between the rollers. The wire or rod, after passing the feed, comes to the next part of my invention.

Second, the cutter: This part is established on a bed-piece, B, which rests on the bed-plate A, and is shown in the drawings in Figs. 1 and 2, and in detail in Figs. 4, 5, 7, 8, 9, and

10, and consists of the following parts: The plunger I, movable knife W, and rod-carrier M N being the movable parts, and the stationary or bed knife D and guide-cap C being the fixed parts. The movable parts are shown in Figs. 7, 8, 9, and 10 in detail, and the fixed parts in Figs. 4 and 5. The bed piece B is a heavy piece of cast-iron, and is so constructed as to receive and hold firmly these parts of my device. That part of it which receives the plunger I is much deeper than that on which rests the fixed parts of the cutting device. This raised portion acts as a guide to the plunger I, which passes up through it. The plunger I has a yoke, *l*, which fits around the shaft L, on which, at that point, is a cam, which operates the plunger both up and down as the shaft revolves. This is shown most fully in Fig. 9. The movable knife is attached to this plunger in a dovetail notch, and is secured by a set-screw, *h*. This arrangement is seen in Figs. 7, 8, 9, Fig. 7 being a cross-section on the line *x*. The knife W is, therefore, removable, and can easily be reground. The bed-knife D is a bar of steel, and is bedded in a groove in the bed-piece B, and is secured in place by the set-screw E, which passes through a slot in the steel-bar. This knife is adjusted by a set-screw, Q. Over this knife fits a guide-cap, C, which is also secured by the set-screw E. The office of this cap is to keep the rod in position for the knives, and as its securing set-screw passes through a slot, U, (see Fig. 5,) it is adjusted to various-sized wire. The knives W and D are so beveled as to give a scarfing cut to the rod. M is a plate secured to the plunger I by the set-screw *h*, and down the left side of the knife W, and terminates in a hook, N, just below the knife. This is a rod-carrier, for the rod, as it passes to the knives, goes through the hook N, and it carries it along with the knife in its up-and-down movement. The object of this is to keep the wire always in place, and the object of the cap-guide C is to prevent the rod from bilging or flying from place when being cut. The rod passes to the knives from the feed while the knife W is on its upward stroke, and hence the carrier M N is of vast importance, in that it keeps the coming rod close

by the moving knife. Having thus fully described my invention thus far, I come to the last portion of the same, which is—

Third, the bender: By this part of my device the pointed cut blank is bent into the proper U or staple form. This part consists of the bending-plunger F, with its finger G, the side of the bed-piece B, and the jaw K. This portion is shown in Figs. 1 and 2, and in detail in Fig. 3. The bending-plunger F is actuated by an eccentric on the shaft L. To give the proper motion to this plunger—that is, to have it move in a direct vertical line when doing its work, and to fall back from that line when its work is finished, and return to its work on another vertical line—the plunger has a slot, Y, and a pivot therein, X. The object of this is as follows: The rod, when being cut, stretches from the bed-piece B to the jaw K, to be bent between them by the finger G in its downward movement. Therefore, as the downward strokes of the bending-plunger and cutting-plunger are not simultaneous, but the opposite, the bending-plunger is returning to its work while the cutter is performing its work; hence, the finger G must be drawn back from the line of its downward stroke when on its upward course, or it will disturb the blank which is being cut for it to bend. G is a finger screwed into the top of the plunger F, and the passage of it between the jaws will bend in staple form any blank awaiting it. The jaws are, on the one hand, the side of the bed-piece B, and on the other the jaw K.

The feed is so timed that the rod is fed in when the cutter is up. The rod is cut while the bending-plunger is coming up to its work, in the manner described, and immediately on the blank being cut it is carried down between the jaws by the finger G, and thus bent into a perfect staple, and while the bender is thus at work the feed has supplied another length to the knives.

One essential virtue of my invention is that it does its work without extended movements—that is, the working parts move over a very short space to do their work. The advantage of this is that the machine can be run at a greater speed with less wear and tear.

Having thus fully described my invention, I will state what I claim as new, and wish to secure by Letters Patent, which is as follows:

1. The rod-carrier M N, when attached to the movable knife W, as shown and described.

2. The combination of the plunger I, movable knife W, rod-carrier M N, with the bed-knife D, and guide-cap C, as shown, and for the purposes named.

3. The combination of the bending-plunger F, eccentric P, pin X, and slot Y, and finger-pin G, with the jaw K and bed-piece B, as shown, and for the purposes mentioned.

WESLEY MALICK.

Witnesses:

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