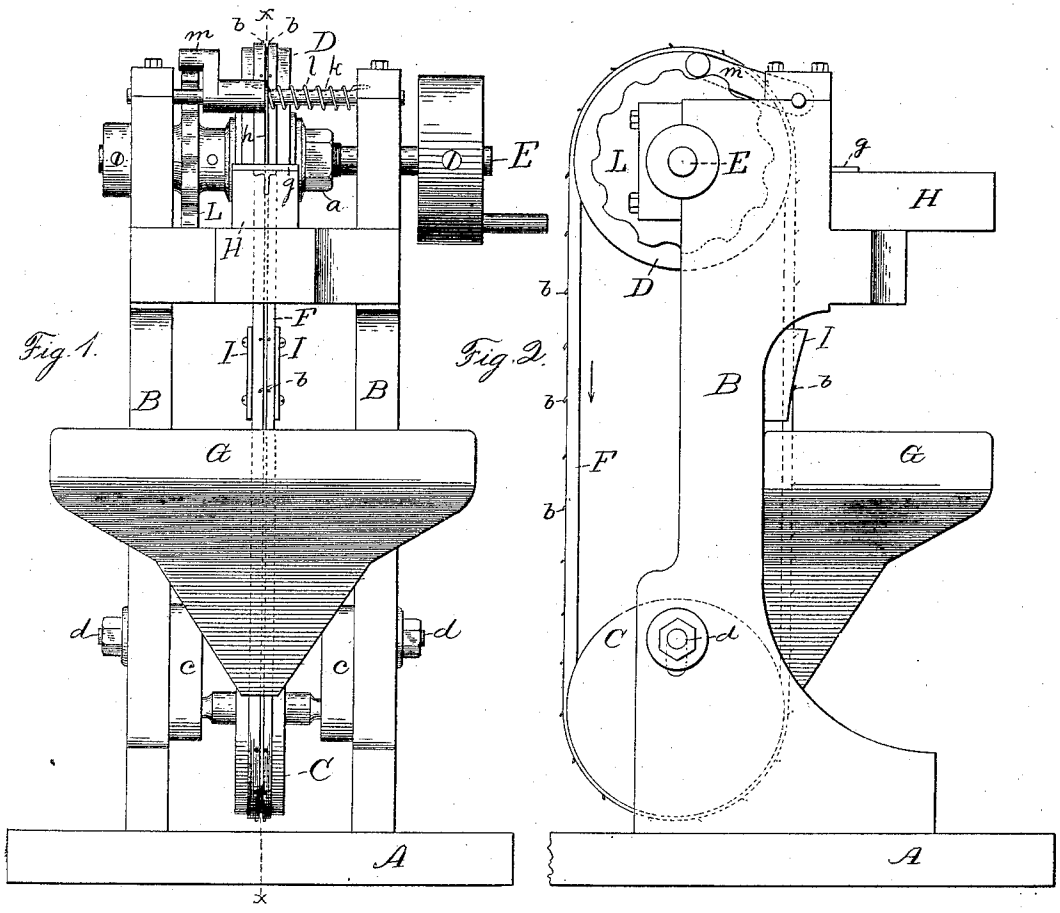
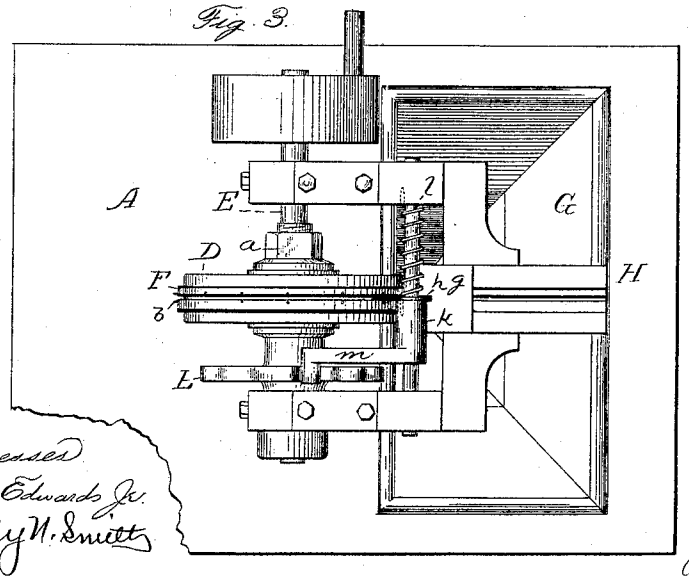
(No Model.) 2 Sheets—Sheet 1.

F. H. RICHARDS.

MACHINE FOR FEEDING BUTTON FASTENERS.

No. 320,503. Patented June 23, 1885.





Witnesses:
John Edwards Jr.
Eddy N. Smith

Inventor.
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(No Model.) 2 Sheets—Sheet 2.

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Fig. 4.

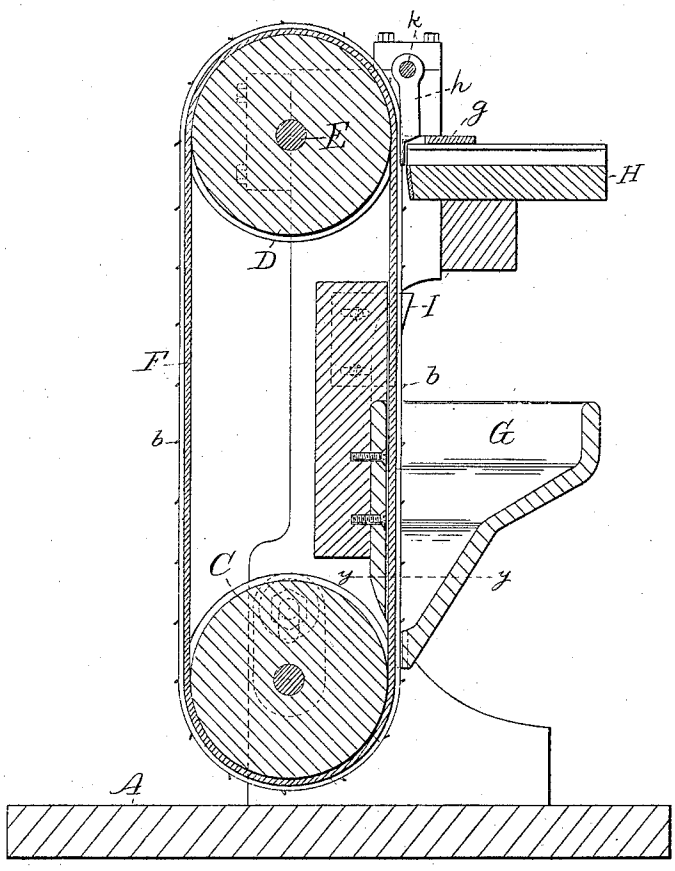


Fig. 5.

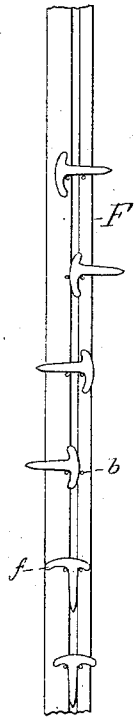


Fig. 7.

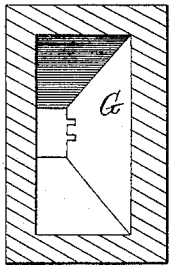


Fig. 8.



Fig. 6.

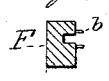
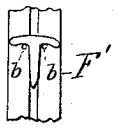


Fig. 9.



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UNITED STATES PATENT OFFICE.

FRANCIS HENRY RICHARDS, OF SPRINGFIELD, MASS., ASSIGNOR TO THE AMERICAN BUTTON FASTENER COMPANY, OF NEW BRITAIN, CONN.

MACHINE FOR FEEDING BUTTON-FASTENERS.

SPECIFICATION forming part of Letters Patent No. 320,503, dated June 23, 1885.

Application filed November 28, 1884 (No model.)

To all whom it may concern:

Be it known that I, FRANCIS HENRY RICHARDS, a citizen of the United States, residing at Springfield, in the county of Hampden and State of Connecticut, have invented certain new and useful Improvements in Machines for Feeding Button-Fasteners, of which the following is a specification.

My invention relates to feeding mechanism for feeding button-fasteners, tacks, or analogous articles. As illustrated in the drawings, the mechanism is adapted for feeding thin flat fasteners, which are in side view substantially of a T-shaped form.

In the accompanying drawings, Figure 1 is a front elevation of my feeding mechanism. Fig. 2 is a side elevation. Fig. 3 is a plan view. Fig. 4 is a vertical section on line *x x* of Fig. 1. Fig. 5 is a front elevation of the feeding-belt, with a diagram of various possible positions of the fasteners thereon. Fig. 6 is a transverse section of the feeding-belt. Fig. 7 is a horizontal section of the hopper on line *y y* of Fig. 4. Fig. 8 is a plan view of the stop or cap-plate; and Fig. 9 is a front elevation of a portion of the feeding-belt, slightly modified, for feeding a slightly-modified form of fastener. Said figure also shows a diagram of said fastener.

A designates the base or bed from which rises the frame B. At the lower end of the frame there is a grooved pulley, C, and at the upper end is a similar pulley, D. Said pulley is loosely mounted upon the shaft, but is held thereon with sufficient friction between shoulders under pressure of the nut *a* to cause said pulley to revolve with the shaft E, upon which it is mounted, except when its motion is arrested, as hereinafter described. Running over these pulleys C D, there is a grooved belt, F, carrying feeding-pins *b*, and running in the direction of the arrow, Fig. 2. In order to avoid crowding the drawings, the reference-letter *b* is placed only upon a portion of these pins.

The tension of the belt F is regulated by means of the yokes *c*, Fig. 1, and the nuts and bolts *d*, said bolts passing through slots in the frame, as indicated by the broken lines in Figs. 2 and 4.

A hopper, G, is secured to the frame of the machine, with the belt F running up through a hole made for that purpose at the bottom of the hopper.

A quantity of fasteners are placed promiscuously in the hopper G, and motion is imparted to the main shaft E, thereby imparting a motion to the belt F, and carrying it up through the hopper. The fasteners will be caught by means of the feeding-pins *b* on the belt F, and carried upward. The fastener *f*, Fig. 5, is in a correct position to be fed to the receiver H. The pins *b* are arranged in pairs a little to one side of the middle of the belt, so that when the fasteners are caught by the pins in the position shown at *f*, Fig. 5, the ends of the head or cross-piece of the fastener are about flush with the edges of the belt F, the width of the belt being made to conform substantially to the length of the fastener-head. The prong of the fastener projects from the head at a little one side of the middle, and hence the necessity of setting the feeding-pins in like position upon the belt F. If the fasteners are caught upon the feeding-pins in any of the other positions represented in Fig. 5, some portion thereof will project over the edge or edges of the belt, as shown. The belt in its upward movement passes between two knock-offs, I I, whose front edges project at an incline, as shown in Figs. 2 and 4. Whenever any of the fasteners which are caught in the wrong position for feeding are carried upward by the belt, the projecting portion of said fasteners is acted upon by the inclined knock-offs, so as to push the fasteners forward off from the feeding-pins, and cause said fasteners to fall back into the hopper. The fasteners which are in the right position, as shown at *f*, Fig. 5, will pass on between the knock-offs I I without contact with their inclined edges, and then upward until they strike the under side of the cap or stop-plate *g* on the top of the receiver H. This stopping of the fastener will also stop the movement of the pulley D and belt F, while the shaft E continues its movement.

A thin driver, *h*, is secured to the rock-shaft *k*, with its lower end lying within the groove of the belt F at a point directly opposite the

receiver H. This rock-shaft is provided with a spring, *l*, which is so connected thereto as to have a constant tendency to force the driver forward into the mouth of the receiver. A crank, *m*, is secured to the rock-shaft *k*, with its end lying against the edge of the notched wheel or disk L. As soon as the shaft E moves on far enough after the belt is stopped to bring one of the notches in the wheel L under the end of the crank *m*, thereby permitting it to drop, the spring *l* rocks said shaft, thereby carrying the driver *h* forward and pushing the fastener off the feeding-pins into the mouth of the receiver H. As soon as the fastener is thus removed from the pins, the belt is free to start again. The next fastener brought up to the driver is stopped in like manner and forced into the mouth of the receiver, and so on indefinitely as long as may be desired. The receiver H is recessed or grooved with substantially a T-shaped groove, as shown most clearly in Fig. 1.

Instead of having the pulley D frictionally secured to its shaft E, so as to slip as described, the same effect may be produced, and the machine operate in the same way, by having the belt drawn just tight enough over the pulleys C D so that it will ordinarily be carried by the pulley D, but will slip on said pulley and allow the belt to stop whenever a fastener is arrested by the plate *g*. The edge of this plate *g* is provided with two small notches to allow the feeding-pins to pass, and with a deeper central notch to allow a free movement of the driver *h*, as shown in the detached plan view of said plate in Fig. 8. The bottom of the hopper is also provided with notches, as shown in Fig. 7, to allow the feeding-pins to pass up through it.

The fasteners fed into the receiver H may be fed into suitable holders for use upon other machines, or the fasteners may be taken directly from the receiver into another machine for further operating with or upon the fasteners.

In case it is desired to feed fasteners whose prong is in the middle of its head, it is only necessary to arrange the feeding-pins *b*, and the groove in the middle of the belt F', as shown in Fig. 9, and correspondingly change the position of the notches through which the feeding-pins pass, and also the groove through the receiver H.

I claim as my invention—

1. In a feeding mechanism, the combination of the belt or carrier having feeding-pins thereon, a frictional driving mechanism for carrying said belt, a stop for arresting its motion, and a driver for unloading the feeding-pins when the belt is stopped, substantially as described, and for the purpose specified.

2. In a feeding mechanism, the combination of the feeding-belt having a groove in its face and feeding-pins or projections, with a driver adapted to lie within said groove and unload the pins at the proper time, substantially as described, and for the purpose specified.

3. The combination of the feeding-belt bearing holding-pins, a frictional driving mechanism for carrying said belt, the receiver H, the stop plate *g*, the notched wheel or disk L, rigidly secured to the main shaft, and the driver located at the mouth of the receiver and operatively connected with said wheel or disk, substantially as described, and for the purpose specified.

4. In a feeding mechanism, the feeding-belt provided with feeding-pins or projections and made of a width corresponding to the length of a given member of the article to be fed, with the knock-offs I I, between which the belt passes, substantially as described, and for the purpose specified.

5. The combination of the feeding-belt having pins or projections, mechanism for operating said belt, the hopper through which said belt passes, the knock-offs for discharging improperly-fed fasteners, the receiver H, the driver *h* at the mouth of said receiver, and mechanism for operating said driver, substantially as described, and for the purpose specified.

FRANCIS HENRY RICHARDS.

Witnesses:
H. W. FAULKNER,
F. H. CAMP.