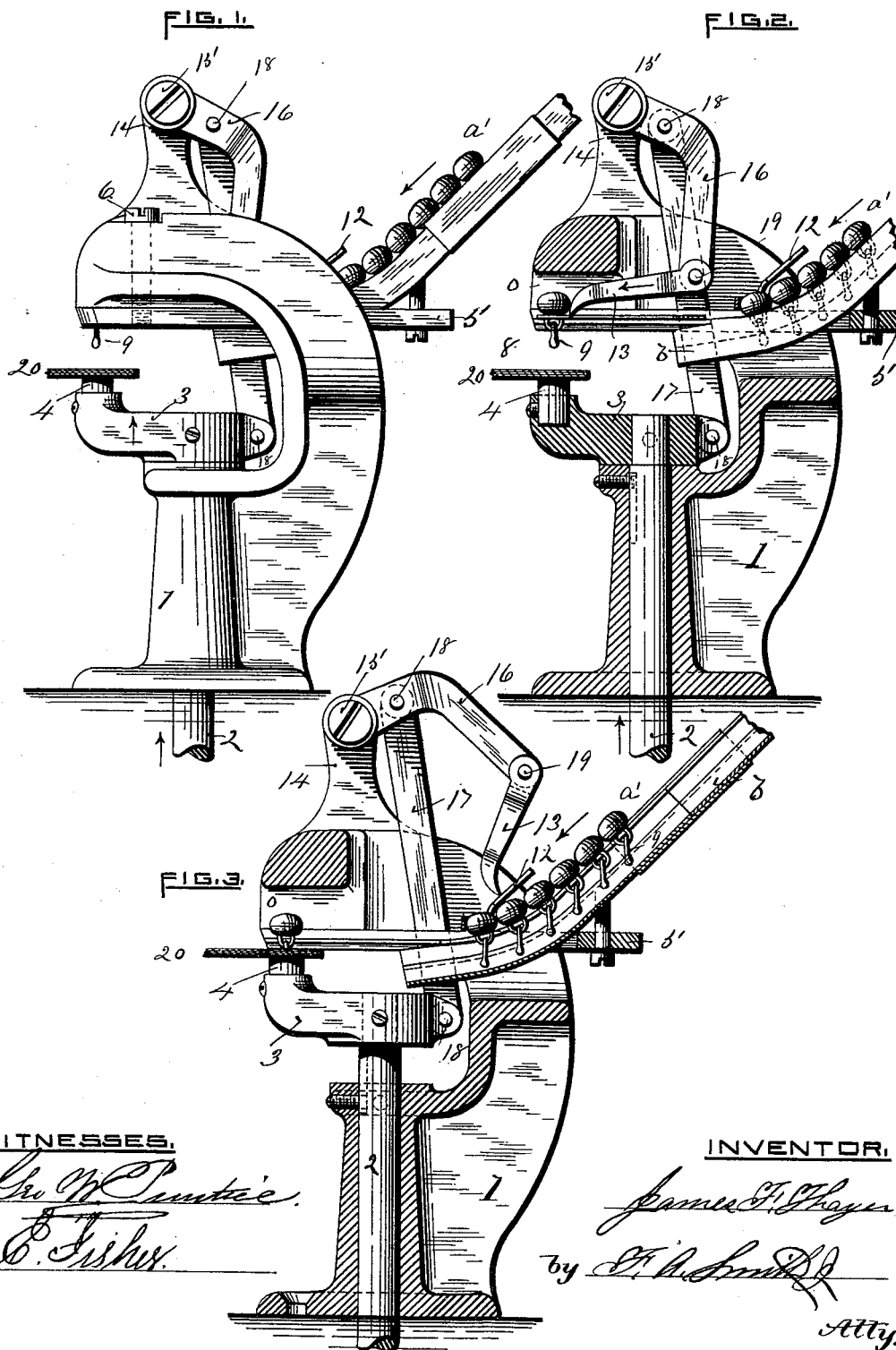


J. F. THAYER.

BUTTON ATTACHING MACHINE.

No. 386,856.

Patented July 31, 1888.



WITNESSES.

Geo. W. Cuntze.
E. Fisher.

INVENTOR.

James F. Thayer
by *W. A. Smith*
Atty.

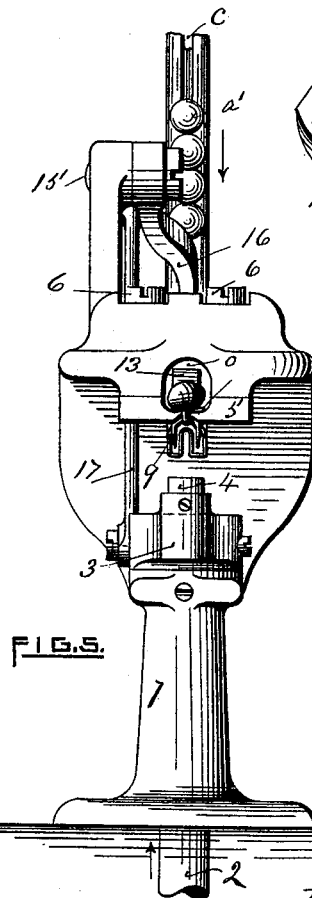
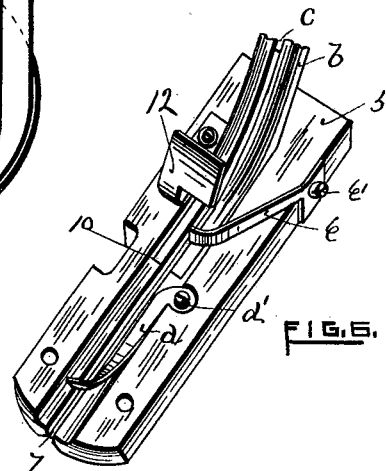
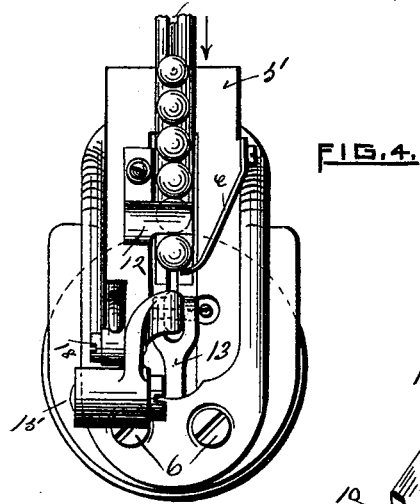
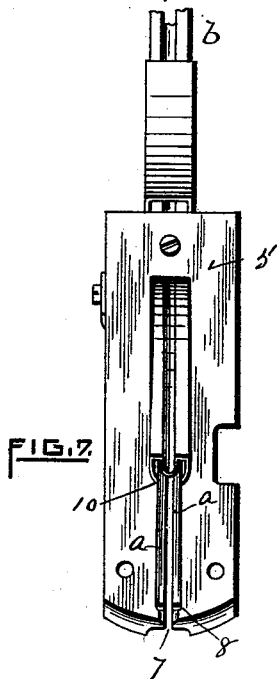
(No Model.)

2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

JAMES F. THAYER, OF PROVIDENCE, RHODE ISLAND.

BUTTON-ATTACHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 386,856, dated July 31, 1888.

Application filed April 13, 1888. Serial No. 270,535. (No model.)

To all whom it may concern:

Be it known that I, JAMES F. THAYER, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Button-Fastener-Attaching Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My present invention relates to certain new and useful improvements in machines for attaching buttons to fabrics by means of staple-fasteners, and embodies in a machine a button and fastener holding member and a raceway, each having a longitudinal slot coincident with each other, the slot in said button-holding member being provided with a concavity or recess formed crosswise of said slot and corresponding in form to the configuration of the crown or arch of the staple-fastener designed to be used therein, a feeding-finger for carrying buttons and connected fasteners intermittently into position in said crosswise recess, a guard for governing the proper movement of said feeding finger, and a reciprocating clinching-die coupled to and arranged to operate said feeding-finger, the several parts combined and arranged to perform their individual functions, substantially as will be hereinafter more fully described.

Figure 1 represents a side elevation of my improved button-attaching machine. Fig. 2 represents the same in section through the center, the button and fastener raceway being in elevation, with button and fastener in position for clinching. Fig. 3 is a side sectional view through the center, showing the fastener-staple clinched in fabric and the feeding-finger on its extreme backward stroke. Fig. 4, Sheet 2, represents a plan view of Fig. 1. Fig. 5 is a front end elevation showing the fastener-staple in position to be clinched. Fig. 6 is a perspective view of the button-holding jaw. Fig. 7 is an inverted plan view of the same. Fig. 8 represents an end elevation of the raceway.

Again referring to the drawings, the main

or body portion 1 of my improved machine is designed to be rigidly secured to a bench and be operated by a treadle or other suitable power; or it may be mounted upon a table or stand in the usual manner. The lower portion is provided with a reciprocating rod, 2, which moves freely therein and is connected at the lower end with any suitable power, whereby said rod is moved up and down at will. The upper end of the rod 2 is provided with a die-holder, 3, adjustably secured thereto, said die-holder being provided at the outer end with the clinching-die 4, having in its upper surface proper concavities for bending and deflecting the legs of the staple-fastener, as shown in Figs. 1, 2, 3, and 4 of the drawings. The upper portion of the body portion 1 is provided with an opening, *a*, formed there-through from front to rear, beneath which the button-jaw 5 is located, being secured thereto by the screws 6. The front end of the button-jaw 5 is provided with a longitudinal slot, 7, having a recess or concavity, 8, formed crosswise therewith on the under side of the button-jaw, said recess being formed corresponding to the upper or crown portion of the staple-fastener to be used therein. On each side of the longitudinal slot 7, from the recess 8 rearward, the stock is cut away or grooved, as at *a a*, to the opening 10, forming a passage-way, through which the fastener-staple slides in its passage from the raceway *b* to the recess 8, as shown in Fig. 7.

The rear portion of the button-jaw 5 is provided with the raceway *b*, rigidly secured thereto, said raceway being provided with an opening therethrough and also provided with a longitudinal slot, *c*, formed coincident with the slot 7 of the button-jaw 5. The upper side of the button-jaw 5 is provided on the front end with a button-spring, *d*, secured thereto by means of the screw *d'*, said spring being located on one side of the longitudinal slot 7 and serves to keep the button and staple in position in the recess 8 ready for clinching. To the rear of the button-spring *d* is secured a spring-stop, *e*, said spring-stop being designed to limit the movement of the column of buttons and staples in their downward flow in the raceway *b*. Opposite the spring-stop *e* is located the guard 12, adjustably mounted with relation to said spring-stop, serving to arrest the

movement of the free end of the feeding-finger 13, hereinafter described, so that the latter will properly engage a button at each stroke of the reciprocating rod 2 of the machine, as shown in Fig. 6 of the drawings.

Projecting from the top of the body portion 1 is a lug, 14, to which is pivoted, as at 15, the lever 16, said lever being joined to and operated by the die-holder 3 by means of the connection 17, pivoted at 18 18. The free end of the said lever is provided with the feeding-finger 13, pivoted thereto at 19, said feeding-finger being adapted to move longitudinally on the button-jaw over the slot 7 and designed to carry the connected buttons and staples one by one from the spring-stop *e* to position in the recess 8.

The operation of the machine in attaching buttons is as follows: The raceway *b* is first filled with buttons and connected staples, as shown in the drawings, the lowest button resting against the spring-stop *e*. The rod 2 is then raised, which causes the lever 16 to carry the feeding finger 13 to the extreme position against the guard 12, its free end being past the lowest button in the raceway, as shown in Fig. 3. The rod 2 is then moved downward, which causes the several parts to return to their normal condition, the lower free end of the feeding-finger 13 dropping meanwhile back of the lowest button in the raceway and carrying said button and connected staple from the spring-stop *e* forward through the slot 7 and grooves *a a* until the crown or arch of the staple rests in the recess 8 of the button-jaw. The button-spring *d* now engages the under side of the button and forces said button upward, and thereby retains the staple in said recess in position for attachment to fabric. (Fully shown in Fig. 2 of the drawings.) The fabric 20 is then placed over the die 4, and, the rod 2 being again raised, the fastener staple is securely clinched to said fabric by contact with said die 4 in the usual manner, the feeding-finger meanwhile again resting against the guard 12, ready to drop behind the lowest button in the raceway, as previously described. These operations are carried on as long as the raceway contains buttons and staples, a button and fastener-staple being secured at each stroke of the rod 2, the return movement of said rod placing a connected button and staple in position in the recess 8 for clinching.

The fabric is removed from the machine after the button has been secured thereto by pulling said fabric downward and outward. This disengages the crown or arch of the staple from the recess 8, when the button and staple are easily removed from the button-holding jaw.

The form of the raceway in cross-section is shown in Fig. 8, being approximately the shape of the fastener 9. (Shown in Fig. 5.)

I am thus enabled to produce a machine for attaching buttons in which the fastener, staple, and button are accurately retained in

proper position with relation to the clinching-die—a result essential to the successful operation of a machine of this character—while the guard prevents the feeding-finger from taking more than one button and staple at a stroke. The general construction of the machine is simple and it is cheaply made, and the parts are not liable to get out of repair. The recess and raceway may be altered in shape to conform to the configuration of the fastener desired to be used therein.

Having described my invention, I claim—

1. In a button-attaching machine, a button and fastener holding jaw having a longitudinal slot therethrough, provided at or near the outer end with a crosscut recess or concavity on its under side at right angles to the slot, and adapted to receive and retain the crown or arch of a staple-fastener in position for clinching, substantially as herein set forth.

2. In a button attaching machine, the combination, with a slotted button-jaw, a feeding-finger, and mechanism, substantially as described, for actuating the same, of a slotted raceway communicating with the slot of said button-jaw, a spring-stop for limiting the free movement of the buttons in said raceway, and an adjustable guard, as 12, for limiting the rearward movement of the free end of the feeding-finger, substantially as herein specified.

3. In a button-attaching machine, the combination, with a vibrating feeding-finger and a slotted button and fastener holding jaw provided with a raceway having a slot coincident with the slot in said button-jaw, of an adjustable guard, as 12, located across and above the slot in said raceway in such a position as to limit the rearward movement of the free end of said feeding-finger, substantially as and for purpose set forth.

4. In a button-attaching machine, the combination, substantially as herein described, of a slotted button-jaw provided with a crosscut-recess to receive the crown or arch of a staple-fastener, a raceway attached to the button-jaw, having a longitudinal slot therethrough coincident with the slot in said button-jaw, a spring-stop for limiting the free movement of a column of buttons located across the slot in said raceway, a lifting-spring at one side of the slot in said button-jaw, a feeding-finger, and mechanism, substantially as described, for actuating the same, an adjustable guard over and across the slot in said raceway for limiting the rearward movement of the free end of the feeding-finger, and a clinching-die to clinch the prongs of a staple-fastener, combined and arranged for use substantially as and for the purpose set forth.

In testimony whereof I affix my signature in the presence of two witnesses.

JAMES F. THAYER.

Witnesses:

F. A. SMITH, Jr.,
CHARLES GREENE.