

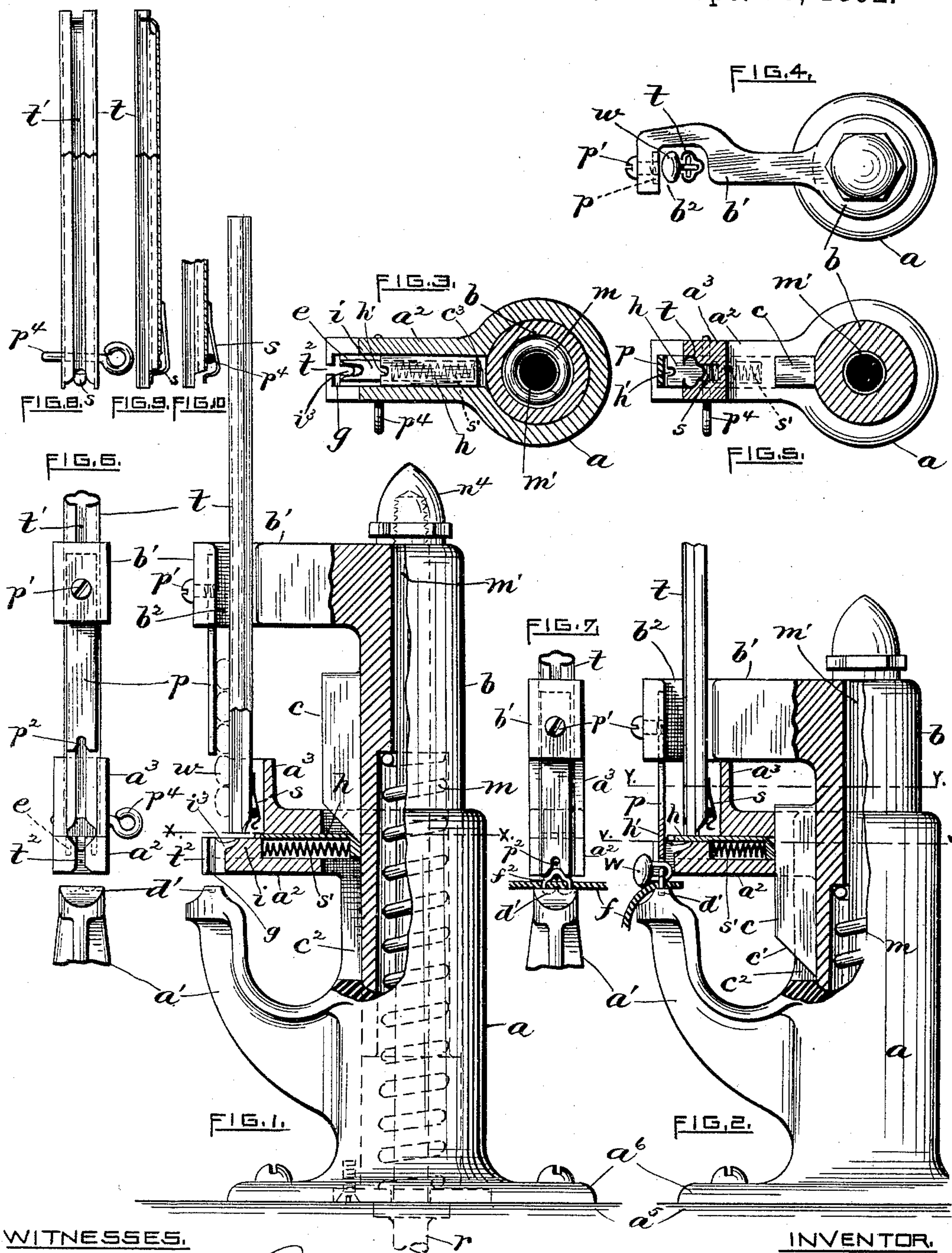
(No Model.)

2 Sheets—Sheet 1.

I. H. Sisson.  
BUTTON SETTING MACHINE.

No. 482,700.

Patented Sept. 13, 1892.



WITNESSES.

*Charles H. Loring*  
*H. E. Carpenter*

INVENTOR.

*Isaac H. Sisson.*

*by Remington & Hurlston*  
*Attys.*

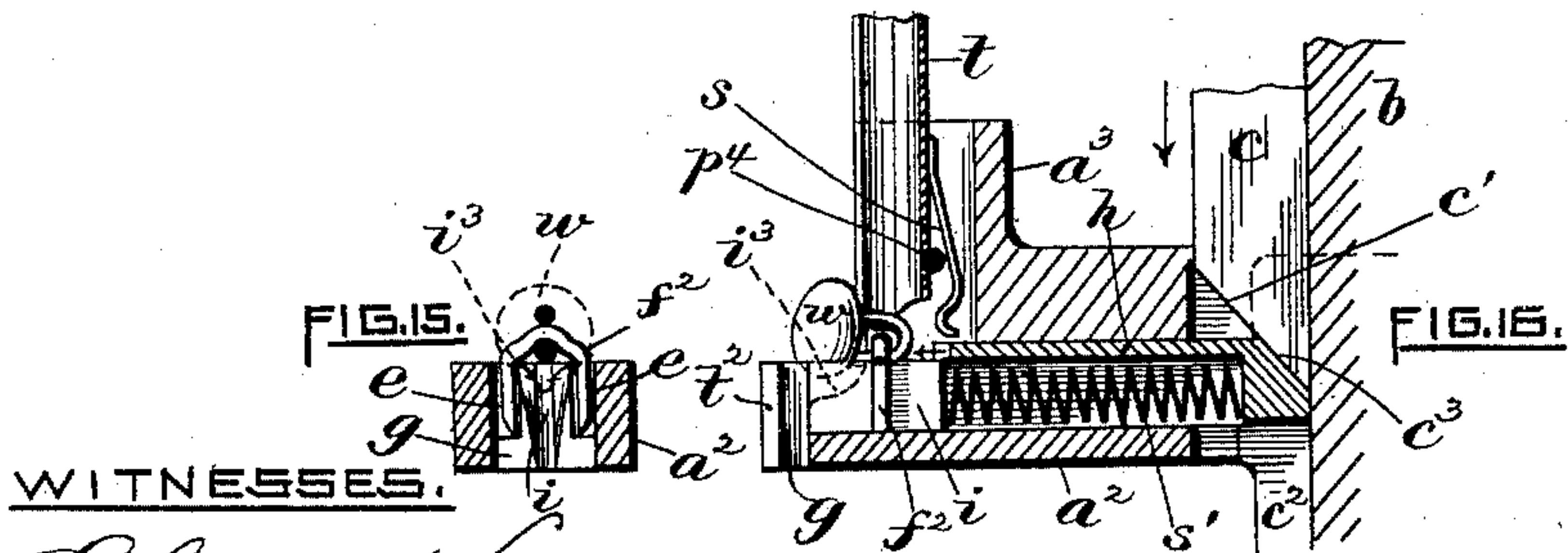
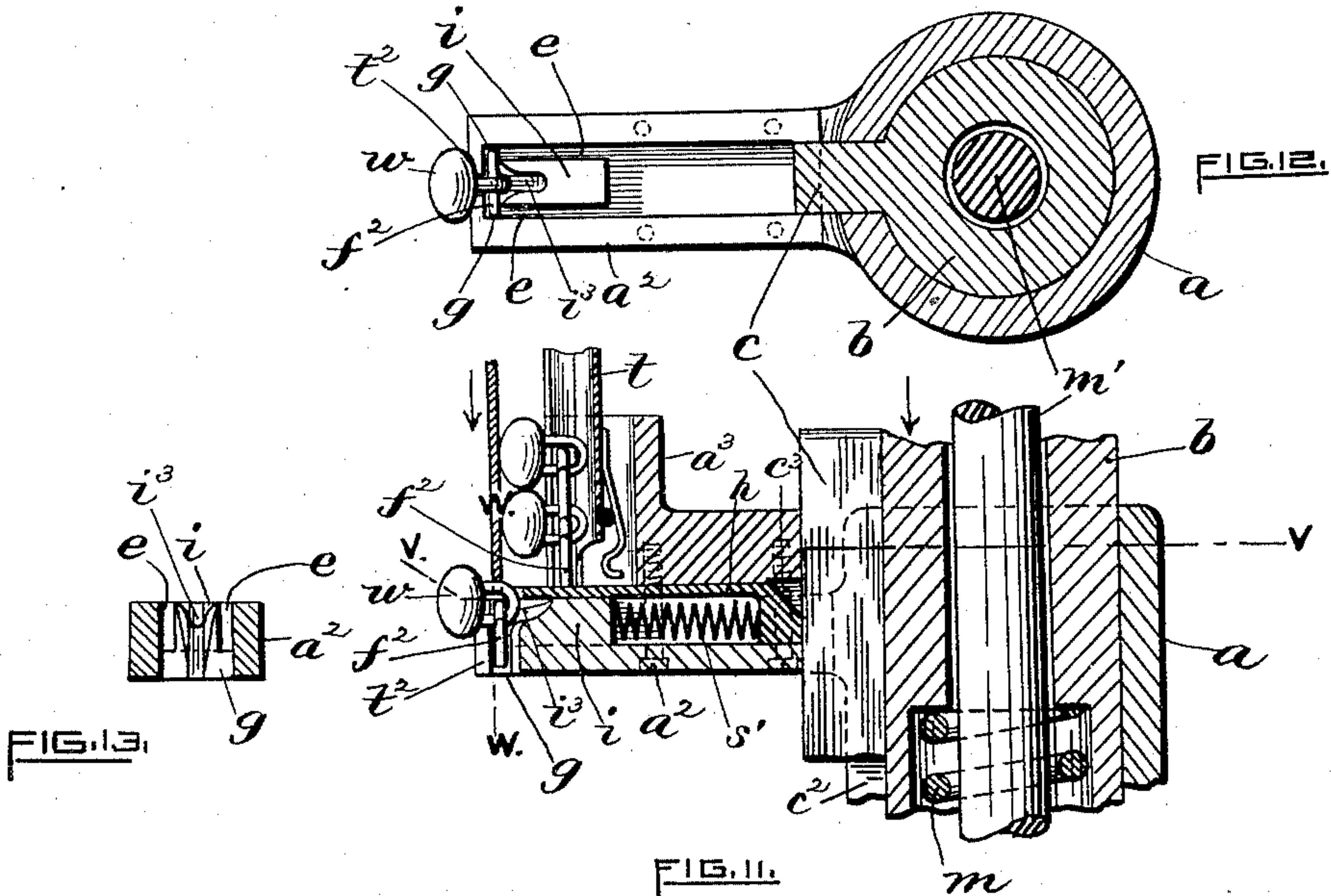
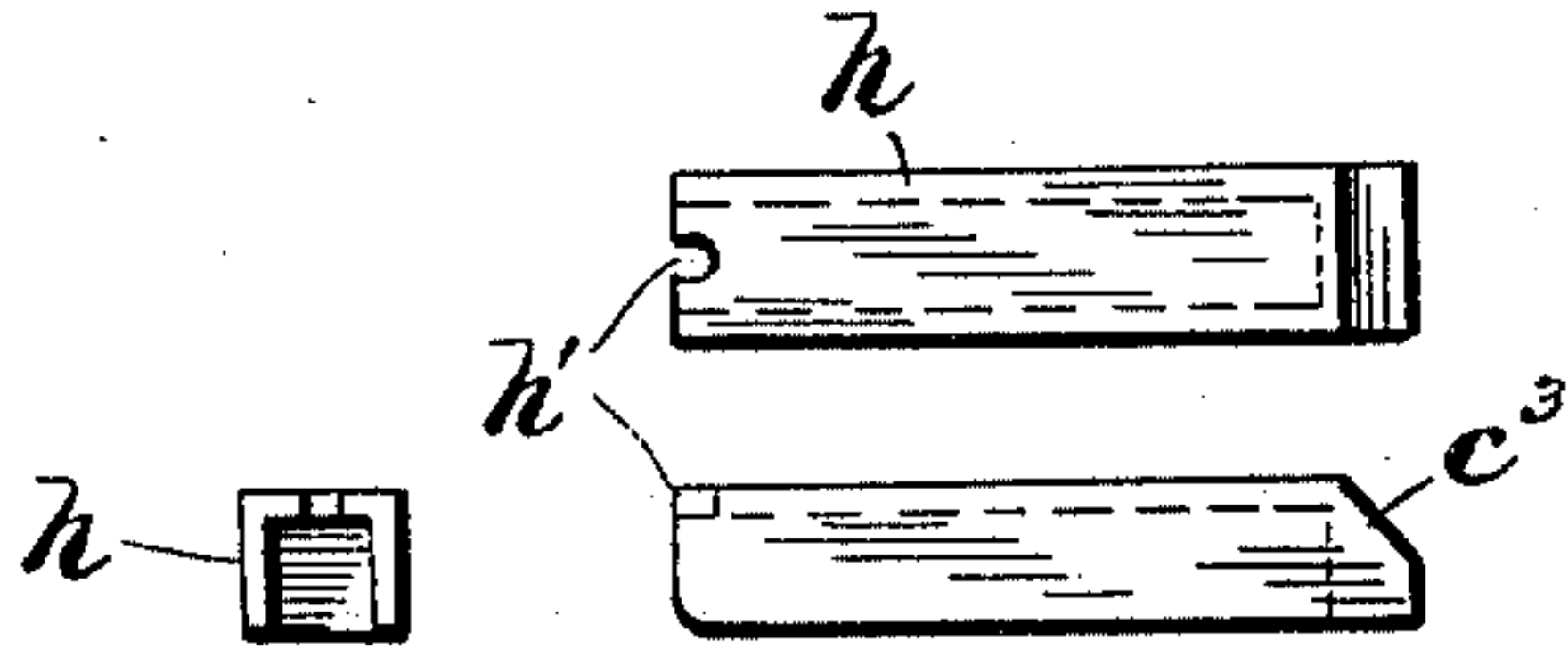
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2 Sheets—Sheet 2.

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WITNESSES.

INVENTOR.

*Charles F. Hannigan*  
*H. E. Carpenter*

*Isaac H. Sisson.*

*by Remington & Henthorn*  
*Attys.*



# UNITED STATES PATENT OFFICE.

ISAAC H. SISSON, OF PROVIDENCE, RHODE ISLAND.

## BUTTON-SETTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 482,700, dated September 13, 1892.

Application filed July 9, 1891. Serial No. 398,925. (No model.)

*To all whom it may concern:*

Be it known that I, ISAAC H. SISSON, 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 Machines for Setting Buttons; and I do hereby 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 letters of reference marked thereon, which form a part of this specification.

My present invention relates to button-setting machines arranged to be operated by a treadle or in any other suitable manner; and it consists, essentially, of a stationary frame provided with an anvil-carrying and setting die, a magazine-carrying arm or holder extending horizontally from the frame and in close proximity to the setting-die, a spring-resisted pusher mounted in said arm, and a vertically-mounted spring-resisted plunger-carrying head arranged to reciprocate up and down in said frame, provided with means for forcing the pusher endwise, thereby placing the combined button and metallic fastener in a position to be attached to the fabric upon the descent of the plunger, all as will be more fully hereinafter set forth and claimed.

In the accompanying two sheets of drawings, Figure 1, Sheet 1, is a side elevation in partial central longitudinal section showing the upper portion of a button-setting machine provided with my improvements, the parts being in the extreme vertical normal position. Fig. 2 is a similar view showing the position and relation of the parts as in securing a button to the fabric. Fig. 3 is a horizontal sectional view taken on the line *x x* of Fig. 1. Fig. 4 is a plan view. Fig. 5 is a horizontal sectional view taken on line *y y* of Fig. 2. Fig. 6 is a front elevation of the plunger, setting-die, and holder and its co-related parts, corresponding to Fig. 1. Fig. 7 is a similar view of the plunger, &c., corresponding to Fig. 2. Fig. 8 is a front view of the magazine or button and fastener carrying tube. Fig. 9 is a longitudinal sectional view of the tube. Fig. 10 is a similar view of the lower portion of the tube, showing a pin introduced between

the tube and lower spring-stop. Fig. 11, Sheet 2, is an enlarged vertical sectional view taken through the lower portion of the tube, pusher, &c., showing a button and fastener in position to be operated upon by the descending plunger. Fig. 12 is a horizontal sectional view taken on line *v v* of Figs. 2 and 11, the pusher being removed. Fig. 13 is a vertical transverse sectional view taken on line *w w* of Fig. 11. Fig. 14 represents different views of the pusher, detached. Fig. 15 is a sectional view similar to Fig. 13, but showing the fastener in position preparatory to being engaged by the pusher, and Fig. 16 is an enlarged longitudinal sectional view of the pusher, &c., the position of the parts corresponding substantially to those represented by Fig. 1.

My improved button-setting machine, like others of this class, is arranged to be operated by a treadle-lever connected with a vertically-extending rod or link *r*, its upper portion *m'* passing longitudinally through a driving-head *b*, a nut *n*<sup>4</sup> at the top holding the parts together.

*a* indicates an upright frame bored out to receive the lower portion of the head *b*. The frame is provided with a flange *a*<sup>6</sup>, thereby adapting it to be secured to the table *a*<sup>5</sup>, as is common. The lower portion of the head *b* is counterbored to receive the spring *m*, the latter serving when in use to automatically return the head to its extreme vertical position, as represented in Fig. 1. The head is provided at its upper end with a laterally-extending arm *b'*, to the outer or free end of which is secured a downwardly-extending steel plunger *p*. The arm is provided with a vertically-arranged exterior groove or recess *b*<sup>3</sup>, through which the tube or magazine *t* freely extends.

The stationary frame *a* is provided with a laterally-projecting anvil *a'*, its upper face being adapted to receive a setting or prong-clinching die *d'*. The frame *a* is further provided with an arm *a*<sup>2</sup>, substantially U-shaped in cross-section, the outer end of which is in proximity to the face of the setting-die. The vertical face of this arm is grooved, as at *t*<sup>2</sup>, to serve as a guide or holder to receive and guide the eye-shanks of buttons during the setting operation. It is also provided with vertical side grooves *g* (see Figs. 1, 3, and 11,



&c.) to receive and guide the fasteners after the latter have been placed therein by the action of the pusher, soon to be described. The front portion of the arm  $a^2$  is provided with the centrally-arranged block or table  $i$ , having a recess  $v^3$  formed in its outer end. The block is somewhat narrower than the recessed portion of the arm, thereby forming at each side a longitudinal groove  $e$ . (See Figs. 12 and 13.) The form of the table  $i$  transversely is such as to readily receive the fasteners  $f^2$ . (See Figs. 15 and 16.)

$h$  indicates the pusher, having a closed end, the latter being beveled, as at  $c^3$ , or otherwise adapted to engage a wedge or cam shaped end  $c'$  of a key or spline  $c$ , formed longitudinally of the head  $b$ . The pusher is substantially square or U-shaped in cross-section and open along its lower face. The pusher is fitted to the longitudinal recess formed in the arm  $a^2$  and is adapted to freely slide over the block  $i$ . The outer end of the top of the pusher is notched, as at  $h'$ , to receive the rear end portion of the button-eye. By means of the inclosed spring  $s'$  bearing against the adjacent end of the block  $i$  and pusher the latter is automatically maintained in contact with the face of the spline  $c$ , before referred to. The arm  $a^2$  is really composed of two parts secured together, the lower portion, before described, being provided with the pusher, &c. The upper portion of the arm is somewhat shorter than the lower, its free end extending upwardly, as at  $a^3$ . This portion of the arm is adapted to receive the magazine  $t$ , the pin  $p^4$ , passing transversely through the parts, serving to hold the magazine or tube in place. When thus mounted, the lower end of the tube lies adjacent to the upper face of the pusher. (See Figs. 1, 2, and 11.)

It will be seen, referring to Figs. 1, 4, 11, &c., that the lateral distance between the adjacent faces of the tube and plunger  $p$  is substantially equal to the thickness of the button-heads  $w$ . By this arrangement the plunger itself serves as a guard to prevent the buttons from overlapping one another, as frequently happens when machines of this class are unprovided with analogous guards.

The tubes or magazines  $t$  are of ordinary construction—that is, they are adapted to receive a string of combined buttons and two-prong fasteners, spring-stops at each end of the tube preventing the buttons from dropping out.

In placing a filled tube into the machine its lower end is inserted into the vertically-grooved portion  $a^3$  of the frame  $a$  and is secured in place by the pin  $p^4$ . This pin also serves to force the lower spring-stop  $s$  rearwardly, (see Figs. 11, 16, &c.) thereby permitting the buttons and fasteners to freely pass out at the mouth of the tube.

The operation of my improved button-setting machine may be described substantially as follows, assuming, first, however, that the

several parts are in the extreme normal position represented by Figs. 1 and 16, the button and fastener resting upon and being supported by the table  $i$ , as clearly shown in the last-mentioned figure: Now upon forcing the plunger-carrying head  $b$  downwardly through the medium of the pull-rod  $r$  the wedge-shaped cam or projection  $c$  immediately acts to force the pusher  $h$  into engagement with the button and fastener and forces them from beneath the tube  $t$  and along the face of the block  $i$  and from the latter into the grooves  $g$  and  $t^2$ , formed in the holder or outer end of the arm  $a^2$ , the relation of the parts then being substantially as indicated in Fig. 11. At the instant that the fastener is forced laterally from the tube the ends of the prongs of the next-succeeding fastener drop onto the face of the traveling pusher, thereby arresting and supporting the column of buttons and fasteners. The continued downward movement of the head simultaneously carries the prongs past the end of the narrow stationary block or table  $i$ , as before stated, and brings the recessed end  $p^2$  of the plunger into engagement with the arch or head of the button-fastener, the final movement causing the plunger to force the fastener-prongs through the fabric  $f$  and clinch them thereunder against the setting-die. (See Figs. 2 and 7.) Upon releasing the rod  $r$  the head and its plunger are automatically returned to the normal position by means of the spring  $m$ . (See Fig. 1.) During such upward movement the rear face of the plunger acts to slightly agitate the buttons, thereby preventing the latter from becoming "stalled" in the tube or runway, it being remembered that in this case the latter is stationary. Just prior to the termination of the return stroke the spring  $s'$  acts to force the pusher rearwardly, its rate of movement being controlled by the wedge portion  $c'$ . While this rearward movement of the parts is being effected the outer end of the pusher passes within the tube and past the lower fastener, thereby permitting the latter to freely drop into the side grooves  $e$  and rest upon the table  $i$ . (See Fig. 16.) By reason of the engagement of the spline or projection  $c$  of the movable head with the vertical slot  $c^2$ , formed in the frame  $a$ , the head is truly guided and at the same time prevented from axial or angular movement, thereby insuring a proper engagement of the descending plunger with the fastener.

I claim as my invention—

1. In a button-setting machine, the combination, with the following stationary or fixed elements—viz., a die-carrying anvil, a button and fastener holding tube or magazine, and a holder interposed between the adjacent faces of said anvil and tube—of a suitably-mounted spring-resisted driving-head, a plunger or driver secured thereto, a yielding pusher mounted between the tube and holder, means for forcing the pusher in an endwise direc-



tion, and mechanism for intermittently operating the driver-head, substantially as described.

2. In a button-setting machine, the combination, with a spring-resisted head, a setting-plunger attached thereto, a stationary anvil, and a holder and runway, of a yielding pusher actuated and controlled by the movement of said head and having the outer or free end of the pusher arranged to engage a combined button and pronged fastener and force them laterally from the mouth of the runway into the said holder preparatory to being attached to the material *f* by the driver, substantially as described.

3. In a button-setting machine provided with a stationary anvil and holder and a chute or runway, the combination therewith of a suitably mounted and actuated head, a setting-plunger attached thereto, and a pusher actuated by said head arranged to convey a button and fastener from the runway to the holder, substantially as described.

4. In a button-setting machine, the combi-

nation, with a stationary die, holder, and tube or magazine, of a movable driver, as *p*, mounted in front of the tube to form a guide for the column of buttons mounted therein, a yielding pusher mounted to travel back and forth past the lower end of the tube or runway, and a vertically-moving head having the driver secured thereto and also arranged to actuate and control the pusher, substantially as described.

5. In a button-setting machine, a suitable upsetting die or anvil, a substantially vertical button-chute for containing buttons and attached fasteners, and a reciprocating setting-plunger the rear face of which is immediately adjacent to the string of buttons in the chute, as and for the purpose set forth.

In testimony whereof I have affixed my signature in presence of two witnesses.

ISAAC H. SISSON.

Witnesses:

CHARLES HANNIGAN,  
GEO. H. REMINGTON.