

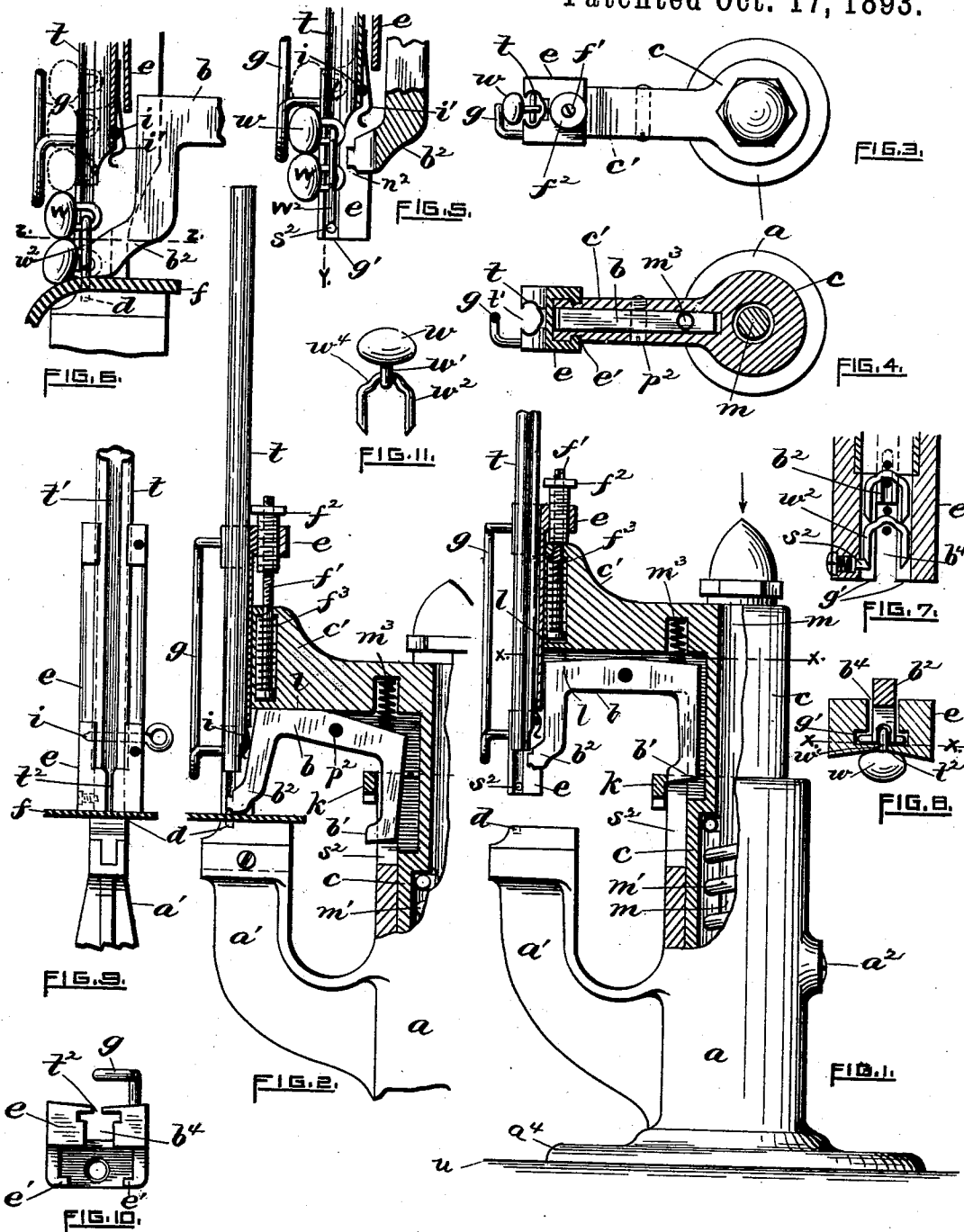
(No Model.)

2 Sheets—Sheet 1.

I. H. SISSON.
BUTTON ATTACHING MACHINE.

No. 507,083.

Patented Oct. 17, 1893.



WITNESSES.

Charles Hannigan.
H. E. Carpenter.

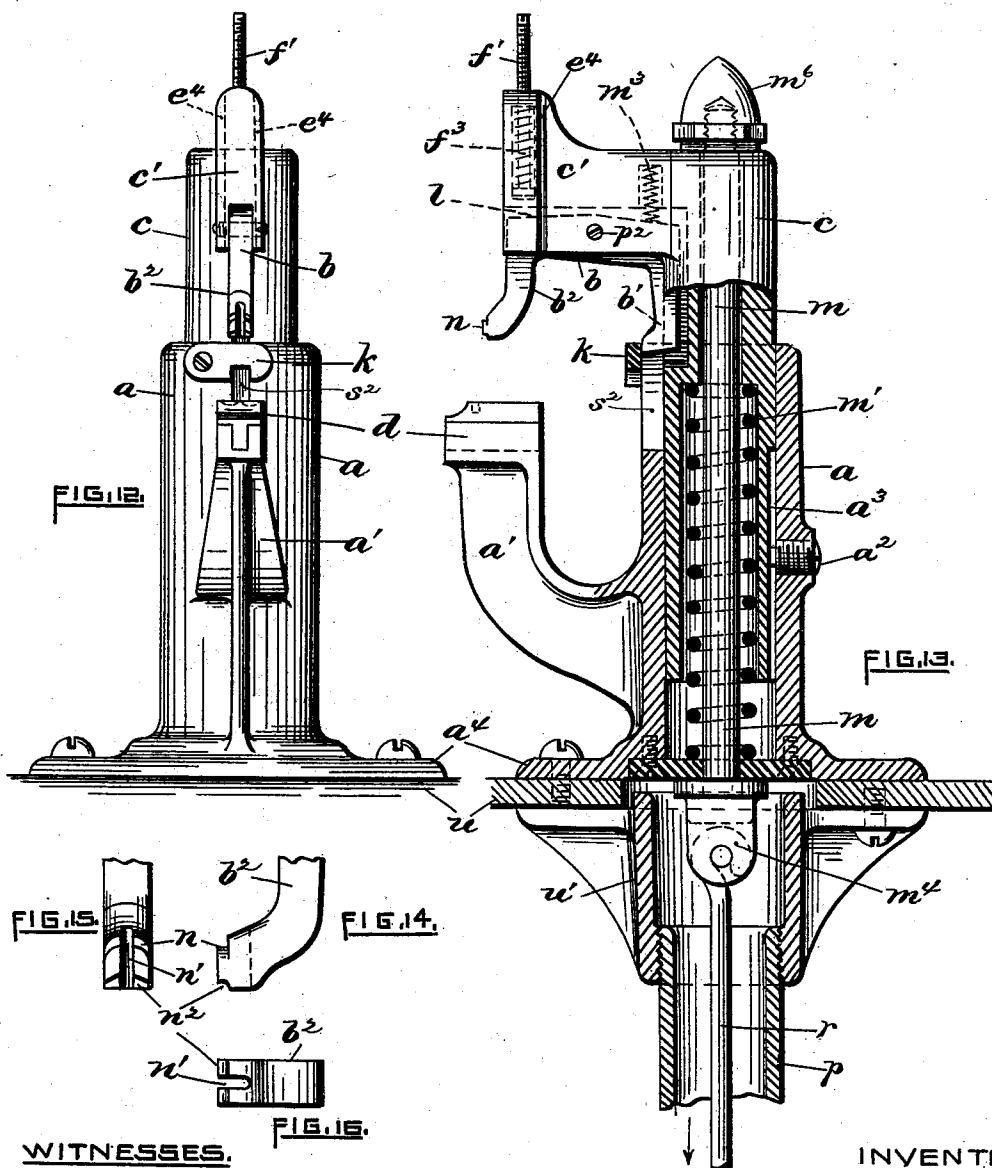
INVENTOR.

Isaac H. Sisson.
By Remington & Henshaw
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UNITED STATES PATENT OFFICE.

ISAAC H. SISSON, OF PROVIDENCE, RHODE ISLAND.

BUTTON-ATTACHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 507,083, dated October 17, 1893.

Application filed July 9, 1891. Serial No. 398,924. (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 Button-Attaching Machines; 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.

In a companion application for Letters Patent I have described and claimed certain novel improvements in button-setting machines of the vertical or standard type. My present invention also has relation to machines of this class.

My invention consists, essentially, of a stationary anvil or setting-die, an adjustably mounted yielding button-and-fastener magazine and holder, a plunger-carrying head having the magazine and holder mounted therein, the plunger or driver being pivoted to the head, and means for reciprocating the head in a vertical direction.

In the accompanying two sheets of drawings, Figure 1, Sheet 1, is a side elevation in partial section of the upper portion of my improved button-setting machine, buttons and fasteners being omitted and the head being in its extreme up-stroke. Fig. 2 is a similar view of the parts, the head being in its extreme lowest position. Fig. 3 is a plan view of the head. Fig. 4 is a horizontal sectional view, taken on line *xx* of Fig. 1. Fig. 5 is an enlarged side view, in partial section, of the lower portion of the button-and-fastener magazine, holder and plunger. Fig. 6 is a similar sectional view, the plunger being in the act of attaching a button to the fabric. Fig. 7 is a vertical transverse sectional view, taken through the lower portion of the tube and holder, on line *xx* of Fig. 8. Fig. 8 is a cross sectional view, taken on line *zz* of Fig. 6. Fig. 9 is a front elevation of the magazine and its holder. Fig. 10 is an inverted end view of the holder, enlarged. Fig. 11 shows a combined or threaded button and fastener preparatory to being attached to the

fabric or other suitable material. Fig. 12, Sheet 2, is a front elevation, the magazine and holder being omitted. Fig. 13 is a side view of the same, in partial longitudinal central section, and Figs. 14, 15 and 16 are views of the lower portion of the plunger or driver.

My invention resides in the upper or head portion of the machine. Machines of this class are usually arranged to be operated by a treadle-lever, its connection passing upwardly through a hollow standard; the latter being secured at its upper end to a frame or spider, which in turn is secured to the base or table of the machine. This feature, however, being common, I have deemed it unnecessary to represent said parts more in detail.

In the drawings *u* indicates the top of the base or table to the under side of which the frame or spider *u'* is secured.

p indicates the upper portion of a hollow spindle screwed into the frame *u'*. See Fig. 13.

To the top of the table *u* is secured an upright frame *a* provided with a bent arm or anvil *a'* and a base *a''*; the frame *a* is bored out centrally to freely receive a head *c*. The head itself is bored to receive a rod *m*, the latter being enlarged at its lower end *m''*, and having a pull-rod or treadle-connection *r* attached thereto. The upper end of the rod *m* is screw-threaded and provided with a nut *m''*; the lower portion of the head *c* is recessed or bored and is provided with a spring *m'*. By means of this arrangement the spring automatically returns the head and its attached parts to the normal or upper position (see Fig. 13) upon removing pressure from the rod or connection *r*. The head is prevented from axial movement by means of the slot *a''* into which the point of the screw *a''* is fitted. The head *c* is further provided with the lateral extension or arm *c'*. This arm is cut away or recessed along its under side to receive the plunger or driver *b*. The driver being pivoted at *p''* is really a lever having downwardly bent ends *b'*, *b''*. The arm *c'* is further recessed at a point between the centers of the fulcrum *p''* and the rod *m* to receive the spring *m''* arranged to engage the inner end or arm of the driver. The side of the upper portion of the frame *a* adjacent to the anvil is slotted longitudinally at *s''* to permit the end *b'* of

the driver to freely move up and down therein. A narrow bar or tie *k* extends across the face of the upper portion of the slot; the lower end of the arm *b'* is enlarged and in engagement with the rear face of the tie when the head is in its extreme vertical position, see Figs. 1 and 13, the spring *m*³ maintaining the parts in contact. The free end of the other portion, *b*², of the driver is provided with a vertical slot *n'* to freely receive the eye-shanks of buttons. This portion of the driver is further provided with the front projection *n* arranged to enter the space formed between the two lowest fasteners maintained in the magazine and holder, the under side *n*² of the driver being arranged to engage the crown or arch *w*⁴ of the two-prong metallic fastener *w*², so that upon carrying the driver downwardly to its limit it forces the prongs of the fastener through the fabric and clinches them thereunder by reason of their engagement with the die *d* retained in the anvil *a'*.

The opposite outer sides of the arm *c'* of the head *c* are grooved longitudinally, as at *e*⁴, to receive corresponding ribs or flanges *e'* of the magazine-holder *e*. Adjacent to these side grooves the arm is drilled to receive a screw *f'* and spring *f*³, the upper end of the holder being tapped out to receive the adjusting nut *f*², the latter in turn being tapped to receive the screw *f'*. By this it will be seen that the holder *e* is guided vertically, and at the same time being both yielding and adjustable.

To the front of the holder is secured a central longitudinally arranged guard *g*. This guard serves to prevent the button heads contained in the slotted magazine *t* from overlapping each other. When guards are not employed it occasionally happens that the buttons stick or become cramped in the tube thereby preventing them from dropping regularly. The lower portion of the holder *e* is cut away at the rear, as at *b*⁴, to permit the entrance of the front arm *b*² of the driver, see Figs. 7, 8, 10, &c.

The magazine or tube *t* is provided with a longitudinal front slot *t'* communicating with the slot *t*² formed in the lower portion of the holder *e*. As drawn the tube is made of sheet metal bent to shape and arranged to receive two-prong metallic fasteners *w*² and the connected eye-shanks *w'* of button *w*, as clearly represented. The upper and lower portions of the holder are adapted to receive the tube *t*, a pin *i* passing transversely through the parts serving to hold the tube in position. The back of the tube at its lower end contiguous to the pin-hole is provided with the bent spring-stop *i'* arranged to prevent the buttons and fasteners from falling out. Upon inserting the pin *i*, however, the latter presses the stop rearwardly, see Figs. 5, 6, &c., thereby permitting the column of buttons and fasteners to freely pass downwardly to the setting mechanism, or until arrested by the spring-stop *s*² located in the lower end of the

fastener grooves *g'* of the holder, see Figs. 5 and 7.

Assuming the head *c* and its several connected parts to be in the extreme vertical normal position, represented in Figs. 1, 5 and 7, the operation of the machine in attaching buttons, would be substantially as follows:— Now upon forcing the spring-resisted head *c* downwardly the enlarged end *b'* of the driver passes the tie *k*, the spring *m*³ immediately vibrating the driver *b* upon its pivot, thereby causing the upper portion *l* of the driver to engage the corresponding surface of the arm *c'*; such movement at the same time causing the lower end of the arm *b*² to vibrate toward the front of the holder and between the eyes of the two lower buttons. At the same time such downward movement will have brought the lower end of the spring resisted holder *e* into engagement with the fabric *f* resting upon the die *d*, when now a further movement of the head brings the under side *n*² of the driver into engagement with the arch of the lowest fastener; the final movement causing the driver to force the prongs of the fastener past the yielding stop *s*² and through the fabric *f* and clinching them thereunder against the face of the die; the position of the parts then being substantially as indicated in Figs. 2 and 6. During the latter part of the operation just described the holder *e* and its magazine remain practically stationary while the head *c* is still descending, thereby compressing the holder-spring *f*³. It will be seen also that by reason of the rigid engagement of the contiguous surfaces *l* of the arm *c'* and the driver the upward thrust or pressure due to clinching of the prongs is borne directly by the head itself, the two parts for the time being practically as one. I would further state that as the driver forces the bottom fastener downwardly a second fastener follows in unison until arrested by the stop *s*², the arrangement of the fasteners being such that they practically rest one upon the other, see Figs. 5, 6 and 7. After the button has been thus attached, upon withdrawing pressure from the pull-rod *r*, the spring *m'* carries the head, &c., upwardly and rearwardly again to their limit, as in Fig. 1; the spring *f*³ at the same time carrying the holder and magazine downwardly to their limit. During such upward movement of the head the arm *b'* will by reason of its engagement with the tie *k* cause the driver to resume its former or substantially horizontal position, as represented in Fig. 1, thus completing the operation.

I claim as my invention—

1. In a button setting machine, an anvil, a movable head having a yielding holder adapted to receive and guide a fastener and its connected button, and slotted in its rear wall to permit entrance of a driver, combined with a staple driver pivoted to the movable head and moving with it to drive the fastener and button from the holder and having a recipro-

cating movement toward and from the slotted holder so as to enter said holder from the rear and engage the crown of the fastener held therein, substantially as described.

5 2. In a button-setting machine, a vertically movable head having a driver *b* pivoted thereto, a spring arranged to vibrate the driver outwardly or away from the axis of the head so as to engage a button and fastener, and at
10 the same time having the upper front portion of the driver bearing against the head, and a stationary bar arranged to engage with and return the spring-resisted driver to its normal position during the upward movement of
15 the head, substantially as described.

3. In a button-setting machine, the combination with a stationary anvil or setting die

and a driver-carrying head adapted to vertical movement, the driver carried by said head having a reciprocating movement toward and
20 from the slotted holder to enter the latter and engage the fastener therein as specified, of an adjustably mounted yielding slotted holder attached to said head, a button and fastener carrying tube or magazine removably
25 secured to the holder and a movable stop located in the lower portion of the holder, substantially as described.

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

ISAAC H. SISSON.

Witnesses:

CHARLES HANNIGAN,
GEO. H. REMINGTON.