

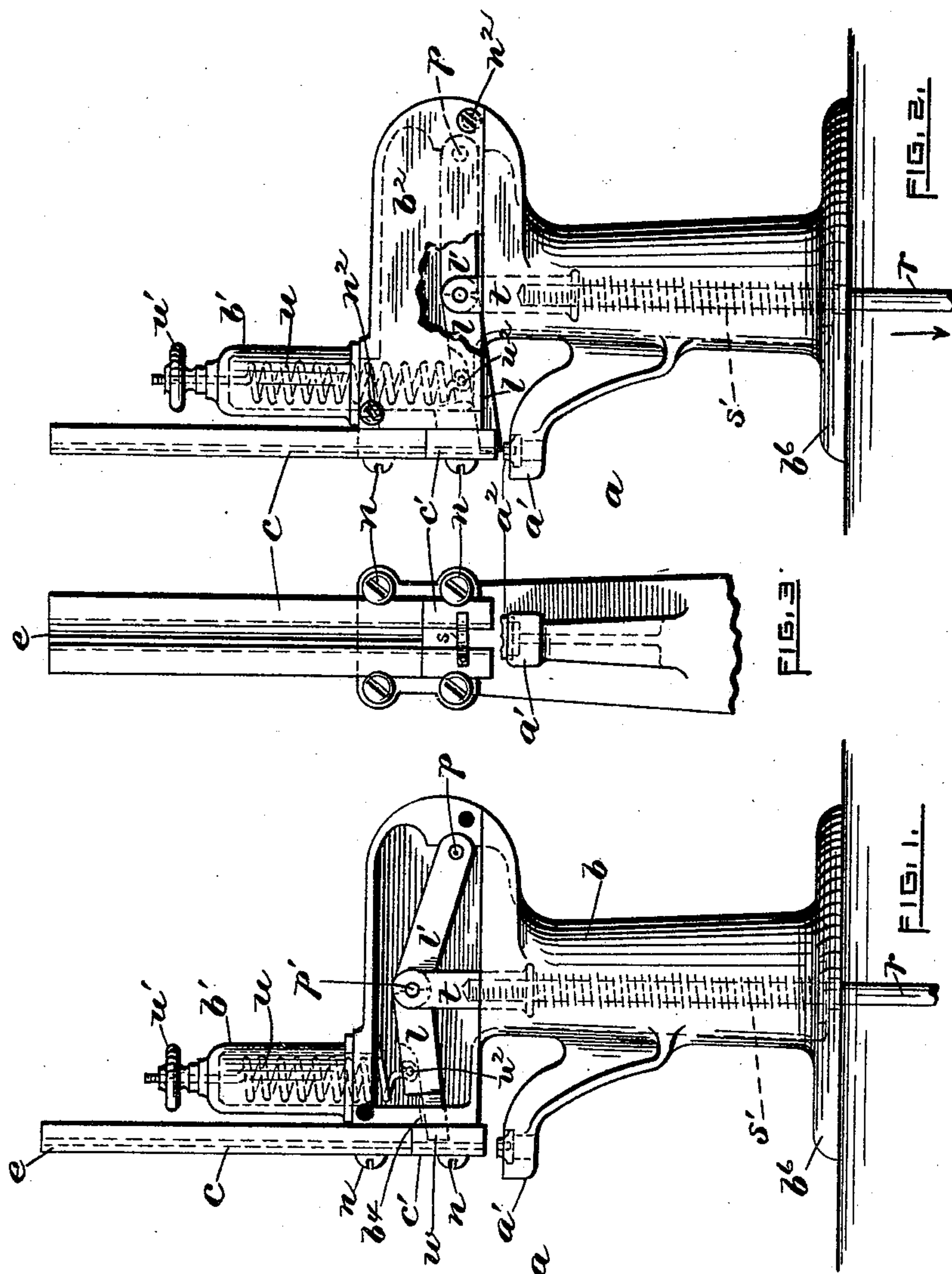
(No Model.)

2 Sheets—Sheet 1.

J. H. VINTON.
BUTTON SETTING MACHINE.

No. 459,481.

Patented Sept. 15, 1891.



WITNESSES.

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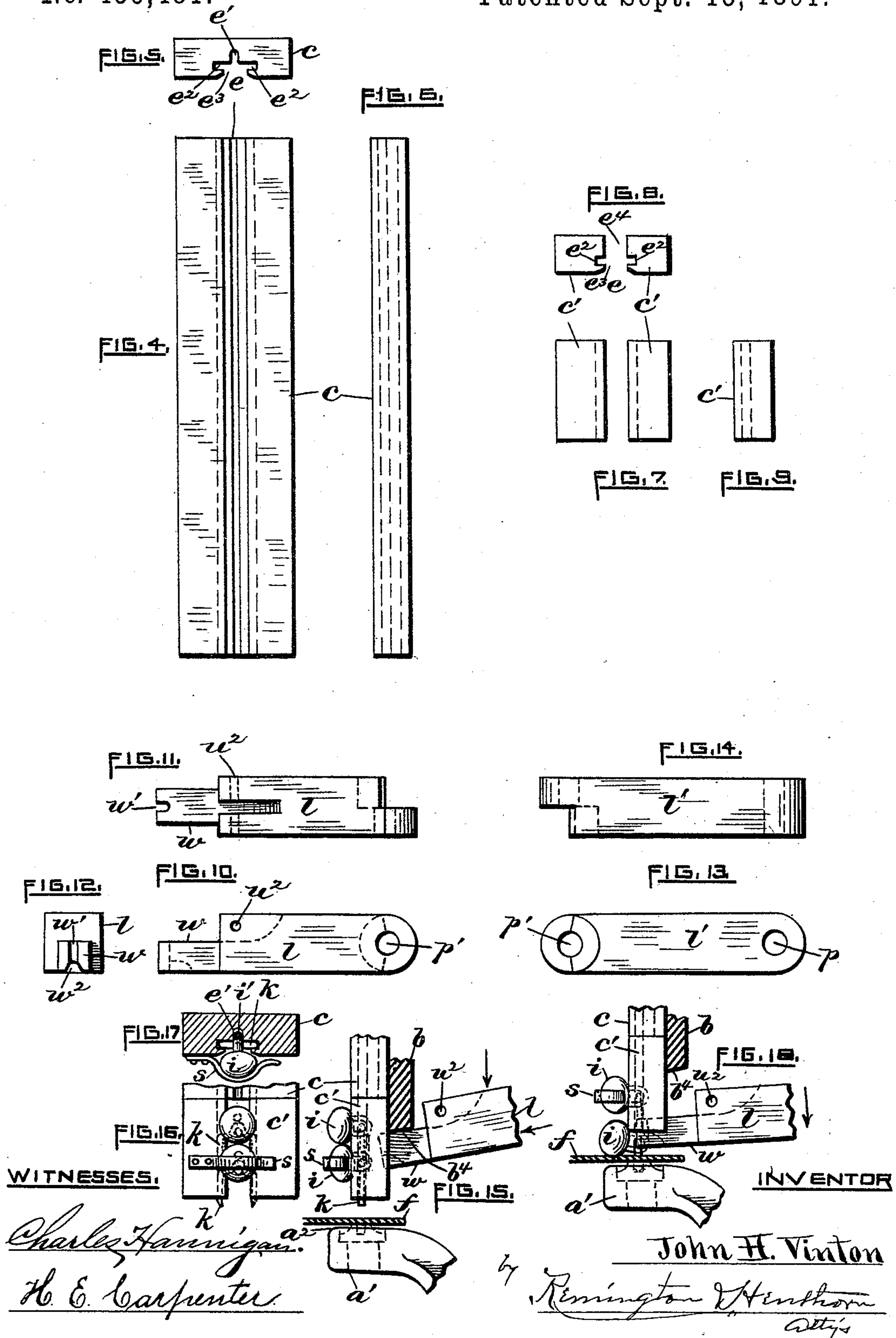
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UNITED STATES PATENT OFFICE.

JOHN H. VINTON, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE HEATON PENINSULAR BUTTON FASTENER COMPANY, OF PROVIDENCE, RHODE ISLAND.

BUTTON-SETTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 459,481, dated September 15, 1891.

Application filed December 6, 1890. Serial No. 373,802. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. VINTON, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Button-Setting 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 or figures of reference marked thereon, which form a part of this specification.

My invention relates to machines for attaching buttons to shoes, fabrics, &c., the machine being what may be termed "semi-portable"—that is, it is adapted to be secured to a table or bench and be operated by a foot-treadle or other power. The machine is also of the class which is provided with magazines or removable tubes containing a series of two-prong fasteners, each of which has a button connected therewith.

The invention resides more particularly in the novel form of the fastener-holder or button-chute and in the peculiar construction of the toggle-lever, which is adapted to intermittently withdraw a button and fastener from the bottom end of the holder and attach it to a shoe or other suitable material resting upon the anvil directly below the holder, all as will be more fully hereinafter set forth and claimed.

In the accompanying two sheets of drawings, illustrating my improvement, Figure 1, Sheet 1, is a side elevation, in reduced scale, of the button-attaching machine, one side being removed and the treadle omitted, the working or toggle lever being in its normal position. Fig. 2 is a similar view showing the lever in its lowest position, corresponding to setting the fastener into the leather. Fig. 3 is a partial front view. In all the foregoing figures the buttons and fasteners are omitted. Fig. 4, Sheet 2, is a front elevation, enlarged, of the channeled strip or removable fastener-holder. Fig. 5 is an end view, and Fig. 6 is a side view, of the same. Figs. 7, 8, and 9 are respectively front, plan, and side views of the fixed holder portion adjustably

secured to the front of the head of the machine, the check-spring being omitted. Figs. 10, 11, and 12 are side, plan, and end views of the forward arm of the operating-lever. Figs. 13 and 14 are side and plan views of the other or pivoted arm of said lever. Fig. 15 is a partial side elevation showing the relation of the parts preparatory to withdrawing a button and fastener from the holder. Fig. 16 is a front view of the same. Fig. 17 is a horizontal sectional view of the holder or magazine, showing the fastener and button therein, the latter being supported by a light spring attached to the fixed holder; and Fig. 18 is a side view similar to Fig. 15, showing the button withdrawn from the holder and spring and attached to the fabric.

A more detailed description of my improved button-setting machine and the manner of its operation are as follows:

The machine as a whole is indicated by *a*, and the upper or head portion or frame by *b*. The latter is hollow and is provided with an enlarged base-flange *b*⁶, adapted to rest upon or be secured to a table or other suitable surface. The front side of the frame is provided with an anvil or horn *a*¹, in which is mounted the clinching-die *a*², Fig. 3, &c. The face of the die is provided with two concave depressions, which serve to deflect the two points and prongs of the fastener and also cause them to be bent upwardly into the leather or fabric, substantially as common. Just above the anvil is adjustably secured, by screws *n*, to the head or front of the frame a button-guide *c*¹, formed of two longitudinally-grooved pieces. (See Figs. 7, 8, &c.) The face *e*³ is cut away to freely receive the back of the buttons *i*, the side grooves *e*² being to receive the fasteners. (See also dotted lines, Figs. 15, 16, &c.) At a proper distance from the lower end of the guide *c*¹ is secured in front a light spring *s*, preferably concavo-convex in cross-section, which bears against and arrests and at the same time centralizes the lowest button of the holder, thereby holding in check the column of buttons and fasteners during the setting operation.

The magazine portion proper *c* consists of a longitudinally-grooved piece, which in use rests upon and coincides with the guide *c*¹,

screws n serving to clasp it in position. (See Figs. 1, 2, 3, &c.) It will be seen, referring to Figs. 5 and 17, that the rear or central groove e' acts as a lateral guide to the buttons i by reason of the engagement therewith of the button eyes or shanks i' . The front portion e^3 of the piece c is removed to freely receive the button, and the side grooves e^2 receive the fasteners, the latter resting one upon the other, as indicated in Fig. 16, the spring keeping the column of buttons, &c., in check, as before stated.

The other novel feature of my invention resides in the manner of withdrawing a button and its fastener from the holder and attaching them to the fabric f lying upon the die and anvil. This is accomplished as follows: The upper portion of the frame b is hollow, one side b^2 thereof being removable and secured in place by screws n^2 , Sheet 1 of the drawings. Within the hollow frame is pivoted at p a compound or toggle-jointed operating-lever l , jointed together at p' at or near the center, the joint-pin also passing through a head t , secured to the upper end of the vertical operating-rod r . The latter extends downwardly and may be connected with and operated by a foot-treadle or other suitable means, as common. Intermediate of said head and the base b^6 the rod passes through a spiral spring s' , which acts to return the lever, &c., to the normal position (represented by Fig. 1) upon removing pressure from the rod r . The rear portion l' of the lever, Fig. 13, &c., is pivoted at p to the frame b , the other or forward portion or link, Figs. 10, 11, 12, &c., at the same time extending into the space e^4 , formed at the rear of the fasteners k , resting in the holder c' . The link l , where it enters the said holder, is reduced at w , its extreme end being grooved vertically, as at w' , to receive a portion of the button-eye, and also being grooved or recessed at w^2 , on the under side, for the same purpose. Over the forward portion of the link l is arranged a hollow casing b' , having a comparatively stiff spring u mounted therein, the tension of which may be controlled by a top nut u' . The other end of the spring is attached at w^2 to the link l . This spring serves to keep the end w of the link practically in contact with the point b^4 of the frame at the back of the holder c' until the downward movement of the rod r forces the link or lever endwise between the eyes of the two lowest buttons and upon the shoulders of the fastener, the lever then being nearly straight, after which the continued downward movement of the rod forces the lowest button of the column from the spring s and carries it, together with its fastener, downwardly, the points of the fastener k at the same time being forced through the fabric f and clinched thereunder. (See Fig. 18.) Fig. 2 also shows the relation of the parts, the button and fastener being omitted. It will be seen that when the button passes from the spring s the next succeeding one is arrested and held in position

centrally by the said spring until the return of the operating-lever in its downward movement withdraws it from the holder, as before described, the operation being intermittently repeated in unison with the reciprocating movement of the rod r . Upon removing the downward pressure from the rod the force of the spiral spring s' immediately acts to return the operating-lever upwardly to its normal position, Fig. 1. In thus moving upward the end w of the portion l is first carried rearwardly away from the button and fastener, thereby leaving undisturbed the button and fastener immediately above it, the spring u , practically, at the same time drawing the free end of the lever upward against the stop b^4 . (See Fig. 1.)

In setting the fastener it will be observed that the entire lever vibrates on the fixed fulcrum p , the opposite end w of the lever being maintained in contact with the bottom b^4 of the frame by means of the upwardly-pulling spring u . Now upon applying sufficient downward pressure to the rod r , pivoted to the center or knuckle-joint p' , the angularly-separated contiguous ends of the parts l and l' , also jointed thereto, gradually approach each other, opposed by the tension of the spring u , until they engage or abut each other, the lever then being nearly straight, but still in contact with the said surface b^4 , the end w meanwhile being advanced between the eyes of the two lowest buttons and in engagement with the bottom fastener. The continued downward movement of the operating-rod causes the entire lever to vibrate on the pivot p , thereby at the same time forcing the button from the spring s and carrying it and the fastener in the same direction, the final movement forcing the prongs of the fastener through the material f and clinching them thereunder.

I would state that in practice a series of the holders c are kept ready filled or charged with buttons and fasteners to be substituted for the empty holders as fast as the latter are removed from the machine.

I claim as my invention—

1. In a button-attaching machine, the combination, with a setting die or anvil, a lower guide open at its back, and a removable button chute or magazine communicating with the guide, of a pivoted double-jointed spring-connected working-lever having its free end extending into said guide and adapted to engage a button shank and fastener, and an operating-rod jointed to said lever, substantially as described, and for the purpose hereinbefore set forth.

2. The combination, in a button-attaching machine provided with a setting-die, of a pivoted double-jointed spring-resisted lever having an end arranged to engage a button and fastener, a stationary holder having a bent spring, as s , arranged to engage the face of a button to centralize it, and also serving as a check, a removable magazine provided with a central groove or guide to receive the button-eyes, and an operating-rod jointed to

the said lever, substantially as hereinbefore described.

3. In a button-attaching machine provided with a setting-die, a combined fixed holder and guide for the buttons and fasteners and a removable holder or magazine, the combination therewith of a pivoted operating-lever stop-jointed at its center and having the free or front end arranged to engage a button eye and fastener retained in said fixed holder, a restraining-spring, as *u*, attached to the free or outer arm of the lever, a bent combined centralizing and check spring, as *s*, arranged in front of said fixed holder, and a working-rod, as *r*, connected with and adapted to actuate the said operating-lever, substantially as set forth.

4. In a machine provided with mechanism for intermittently feeding combined buttons and fasteners and attaching them to fabric or other suitable material, the combination of a transversely-separated stationary holder, as *c*, provided with side grooves arranged to receive two-prong metallic fasteners, a bent centralizing spring *s*, attached to the holder,

arranged to engage the face or front of a button to hold the column in check while the previously-withdrawn button and fastener are being secured to the fabric, and a removable holder or magazine provided with side grooves communicating with the stationary holder.

5. In a button-attaching machine, the combination, with a stationary button and fastener holder composed of two laterally-separated pieces having a vertical groove in each of the adjacent lateral faces to receive two-prong fasteners, of a bent spring or yielding stop, as *s*, having its inner face adapted to frictionally engage the front of the button to properly centralize and adjust it preparatory to being withdrawn from the holder and attached to the fabric, substantially as hereinbefore described.

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

JOHN H. VINTON.

Witnesses:

F. A. SMITH, Jr.,
E. MARTIN.