

(No Model.)

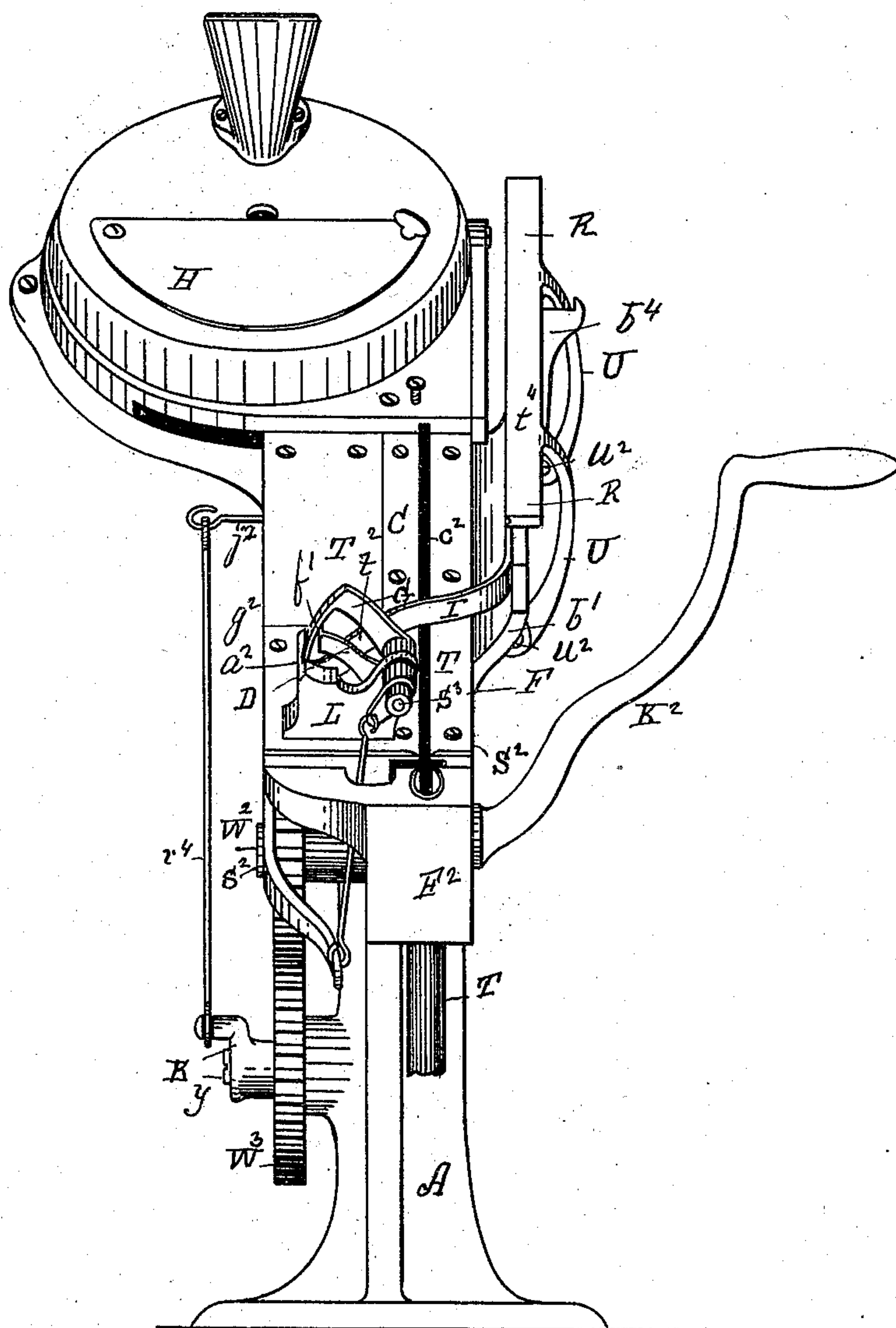
4 Sheets—Sheet 1.

A. W. HAM.

**TUBE LOADER FOR BUTTON SETTING MACHINES.**

No. 547,250.

Patented Oct. 1, 1895.



WITNESSES

William A. Severt

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(No Model.)

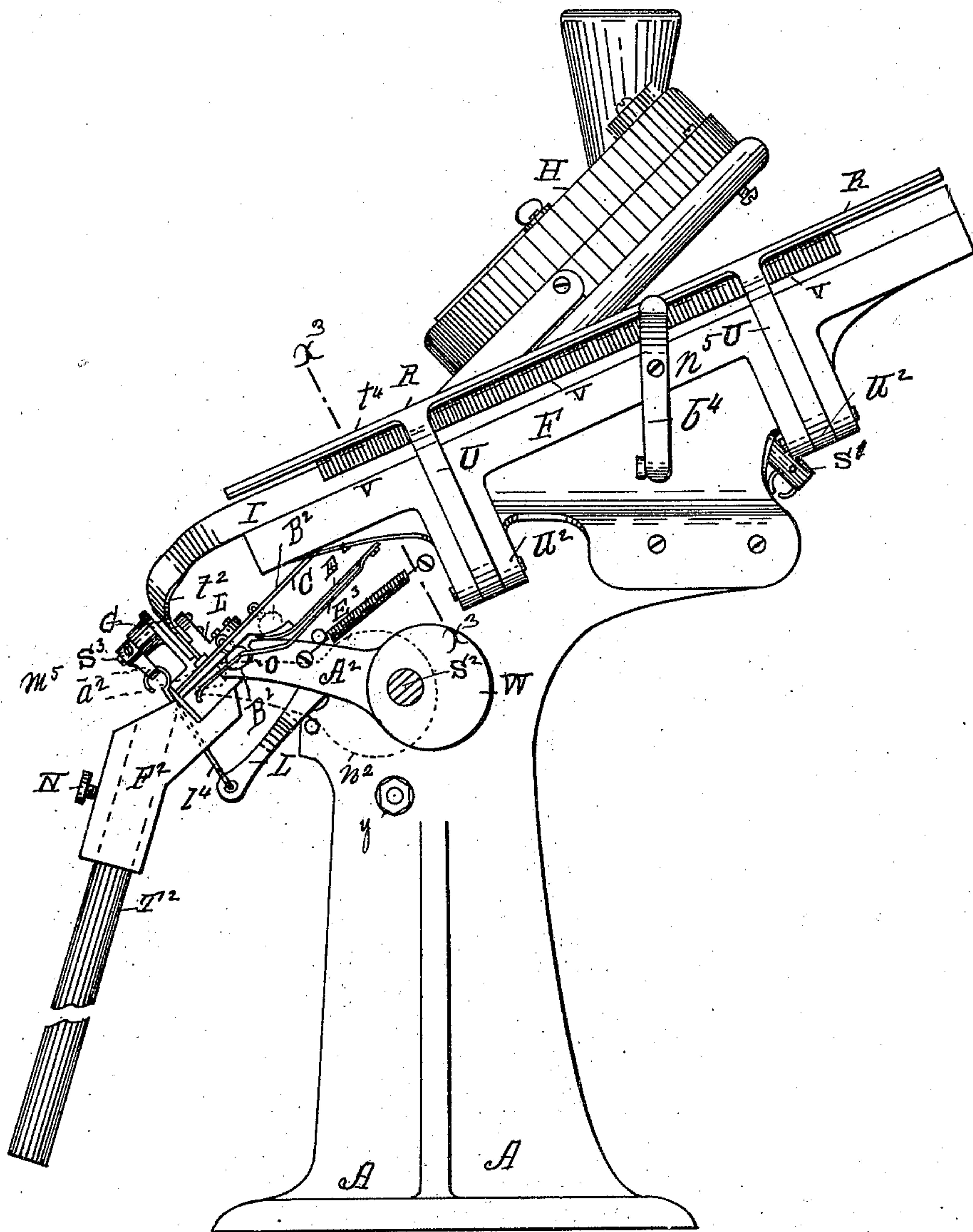
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A. W. HAM.

TUBE LOADER FOR BUTTON SETTING MACHINES.

No. 547,250.

Patented Oct. 1, 1895.



WITNESSES

William C. Swann

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INVENTOR

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(No Model.)

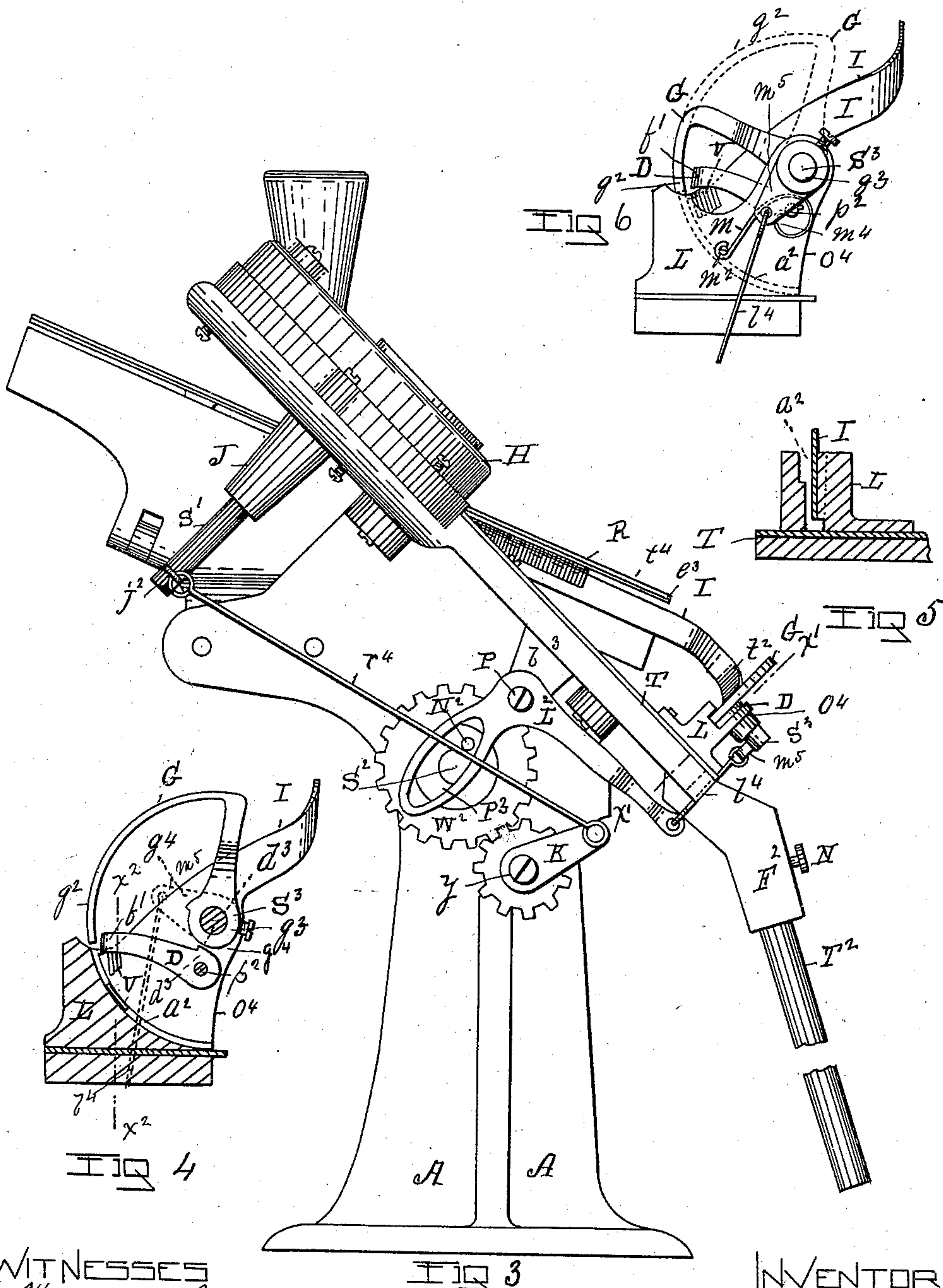
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A. W. HAM.

TUBE LOADER FOR BUTTON SETTING MACHINES.

No. 547,250.

Patented Oct. 1, 1895.



WITNESSES

*William A. Lunt*

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*att'y*



(No Model.)

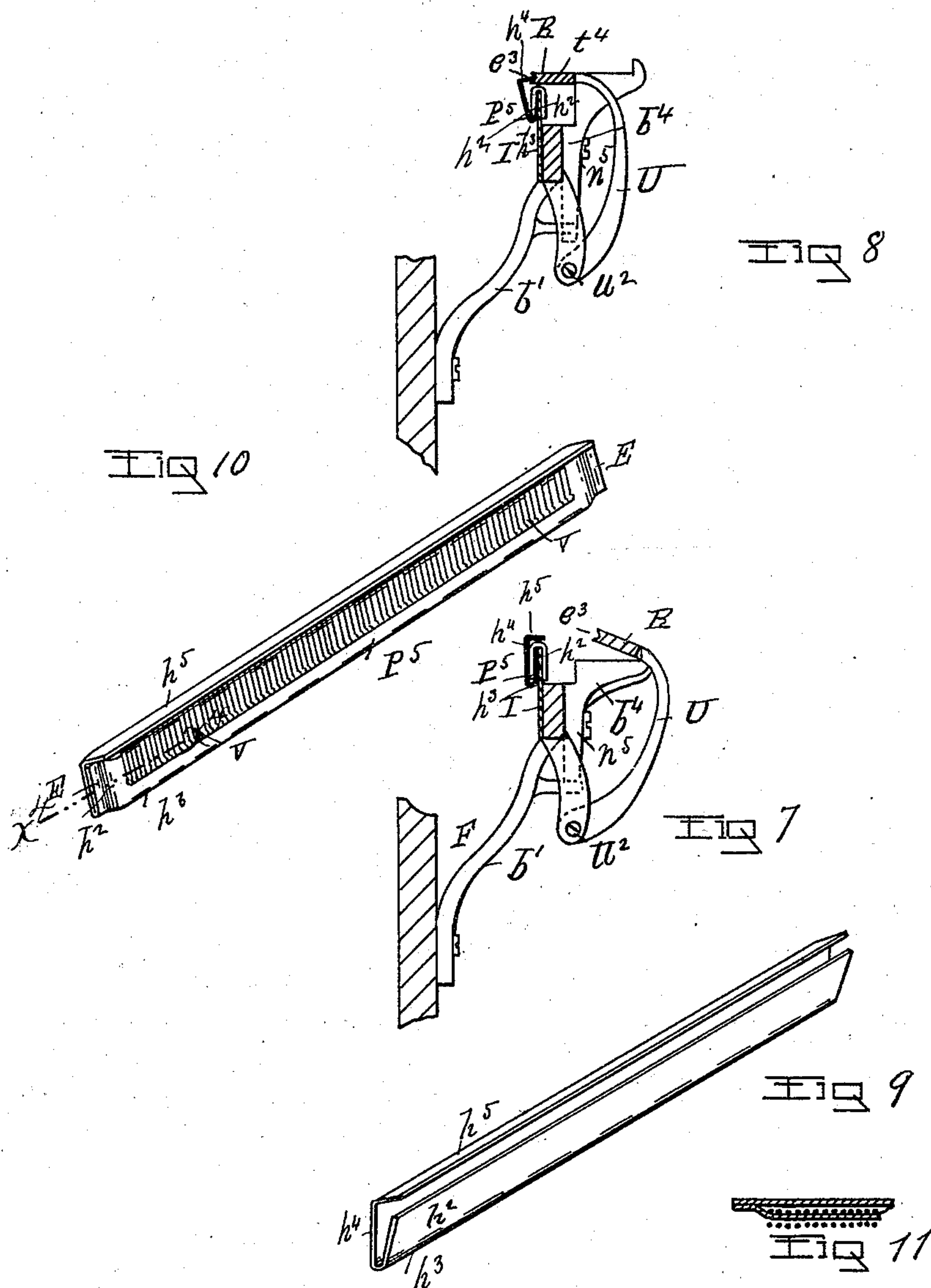
4 Sheets—Sheet 4.

A. W. HAM.

TUBE LOADER FOR BUTTON SETTING MACHINES.

No. 547,250.

Patented Oct. 1, 1895.



WITNESSES

*William A. Sweet*

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INVENTOR

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# UNITED STATES PATENT OFFICE.

ALBERT W. HAM, OF LANSINGBURG, ASSIGNOR TO THE TROJAN BUTTON FASTENER COMPANY, INCORPORATED, OF TROY, NEW YORK,

## TUBE-LOADER FOR BUTTON-SETTING MACHINES.

SPECIFICATION forming part of Letters Patent No. 547,250, dated October 1, 1895.

Application filed November 26, 1894. Serial No. 529,943. (No model.)

*To all whom it may concern:*

Be it known that I, ALBERT W. HAM, of the village of Lansingburg, county of Rensselaer, and State of New York, have invented new and useful Improvements in Tube-Loaders for Button-Setting Machines, of which the following is a specification.

My invention relates to improvements upon tube-loading machines; and it consists in devices which are constructed and arranged to thread fasteners into the eyes of buttons and to deliver them into a longitudinally-slotted tube, which latter is adapted to be attached to button-setting machines; and my invention and improvements more particularly relate to that machine of this class which is shown and described in an application for Letters Patent made by me and filed in the United States Patent Office on October 25, 1893, Serial No. 489,080, although the improvements herein shown may be applied to other machines of this class.

As heretofore constructed machines of the kind described in the before-named application have been provided with a fastener-hopper from which, by means of a reciprocating blade moving therein, fasteners were transferred from the hopper to a slideway, on which they would descend by gravity to the point where they were threaded into the eyes of buttons; and one of the objects of my improvements and invention is to adapt this and other tube-loading machines to utilize a button-fastener package which is adapted to contain fasteners and to deliver them to a slideway, and thus dispense with the fastener-hopper and the mechanism connected with it, to thus simplify the operation of the machines by reducing the number of their working parts and cheapen their production. The button-fastener package before named herein is that shown and described in an application for Letters Patent made and filed by me in the United States Patent Office November 26, 1894, and is known as Serial No. 529,944.

My invention also relates to certain improvements in the mechanism whereby the fasteners are threaded into the eyes of buttons before being deposited in a slotted tube.

Accompanying this specification, to form a

part of it, there are four plates of drawings containing eleven figures illustrating my invention, with the same designation of parts by letter-reference used in all of them.

Of the illustrations, Figure 1 is a front elevation of the machine. Fig. 2 is an elevation of that side of the machine on which the fastener-slide is placed and with the crank-shaft of the machine shown in cross-section. Fig. 3 is an elevation of that side of the machine which is opposite to that shown at Fig. 2. Fig. 4 is a section taken on the line  $x'x'$  of Fig. 3. Fig. 5 is a section taken on the line  $x^2x^2$  of Fig. 4. Fig. 6 is a side view of the threading-finger and the threading-chute in which it moves. Fig. 7 is a section taken on the line  $x^3x^3$  of Fig. 2, showing a fastener-package and fasteners as applied to the fastener-slideway of the machine and before the latter has been operated to open the package-top to release the package-case. Fig. 8 shows the same parts that are illustrated at Fig. 7, but with the top of the case shown as bent from off the fastener, so that the case, having deposited the fasteners on the slideway, may become detached. Fig. 9 is a perspective of the fastener-case before being filled with fasteners and before its free side and top have been bent inwardly to detain them. Fig. 10 is a perspective of the completed package; and Fig. 11 is a section of the package, taken on the line  $x^4x^4$  of Fig. 10.

The several parts of the apparatus thus illustrated are designated by letter-reference, and the function of the parts is described as follows:

The letter A designates the standard on which the mechanism is supported; F, its upwardly and rearwardly inclined frame, made with the table part T.

The letter C designates a button-chute made with the slot  $c^2$  formed in the table part, and this button-chute is constructed and arranged to receive buttons from a button-hopper H, with which this chute connects, said buttons being delivered into the chute C, with their shanks, in which the eyes are formed, projecting upwardly in the slot  $c^2$  and arranged sidewise therein, as shown at Fig. 2. This hopper has interior brushes, which form



no part of my invention herein other than as a part of the machine to which my improvements are connected and applied. These brushes, which are not shown, are radially arranged within the hopper upon the shaft S', which latter journals in the hopper bottom at J, and it is operated to be reciprocatingly rotated by means of the arm  $j^2$  on the lower end of the shaft S', the rod  $r^4$ , and the crank K on the shaft  $y$ .

The letter I designates the fastener-slideway, which is of a blade form, vertically placed edgewise, so that the fastener-prongs will straddle its upper edge and will slide down thereon by the action of gravity. This slideway is secured to the frame F by brackets  $b' b'$ , projected from the latter and below where thus connected this slideway is made to turn inwardly and downwardly at  $t^2$ , as shown at Figs. 3, 4, 5, and 6, and at its lower end edge terminating in the upper side of the downwardly-curved threading-chute  $a^2$ , formed in the block L on the table T, as shown at Figs. 4 and 6, so that a fastener passing from off the lower end of the slideway will when released enter the fastener-threading chute  $a^2$  with the fastener-prongs pointing downwardly therein toward the button-chute C.

The letter D designates a detaining or holding finger, which at  $p^2$  is journaled onto the shaft S<sup>3</sup>, and the latter is journaled in the block L, and at its finger end  $f'$  this detaining-finger is adapted to rest on the slideway I at its lower end, and the letter  $m$  designates a spring which at one of its ends  $m^2$  connects with the block L, and it is therefrom extended to make a torsional coil, with its other end connected to the detaining-finger at  $m^4$ , and the function of this spring as thus applied is to depress the end  $f'$ , so that it will engage with the lowermost fastener and hold it while the threading-finger G is moving downwardly in the threading-chute  $a^2$  to thread a fastener into the eye of a button in the button-chute. This threading-finger G, at its inner end  $g^3$ , is keyed onto, so as to be reciprocatingly moved in, the threading-chute  $a^2$  by the reciprocation of the shaft S<sup>3</sup>, and this threading-finger has a finger proper (designated at  $g^2$ ) which is made with an arc form and having the same curve as the threading-chute  $a^2$ . At its inner end  $g^3$  its hub is made with a tappet notch or jog  $g^4$  and so arranged that when the threading-finger is descending in the chute  $a^2$  to thread a fastener into the eye of a button this tappet notch or jog  $g^2$  will engage with another tappet notch or jog  $d^3$ , formed on the hub of the detaining-finger against the force of the spring  $m$ , and by the force of such engagement force upwardly the outer end  $f'$  of the detaining-finger, so as to allow the descent of another fastener while the one within the threading-chute is being operated upon, and when the threading-finger has completed its reciprocation the spring  $m$  operates the detaining-finger to descend at its outer end to

detain the fasteners until again operated by the jogged connection it makes with the hub of the threading-finger.

The buttons B<sup>2</sup>, on descending through the chute C, are arrested in their descent by the slotted spring E<sup>2</sup>.

The letter W designates a wheel which is eccentrically arranged on the shaft S<sup>2</sup>, and this wheel is provided with an offset-arm A<sup>2</sup>, which is of a sheet or blade form and which has on its outer end a concavity O, adapted to receive the rounded head of a button as pendent in the slot  $c^2$ , and by the eccentric movement of the wheel W, operating the arm A<sup>2</sup>, it will enter the slot in the spring E<sup>2</sup> and move the button with which it engages past the latter spring and to carry it under the influence of the slotted spring E<sup>3</sup>, where the eye of the button will be opposite to and horizontally in line with the lower end of the threading-chute  $a^2$ , when by the action of the threading-finger before described a fastener will be threaded into the eye of the button, and where another button coming into position as acted upon by the arm A<sup>2</sup> will crowd the one into which a fastener had been threaded into the chute of the button-tube T<sup>2</sup>, wherein the slot formed in the latter connects with the chute  $c^2$  of the button-chute C. This button-tube T<sup>2</sup> is adapted to connect with the foot F<sup>2</sup> of the machine by means of a socket (not shown) and by a set-screw N. The dotted line  $n^2$  of Fig. 2 shows the position of the arm A<sup>2</sup> after having moved a button into position to have a fastener threaded into its shank-eye.

The letter W<sup>2</sup> designates a gear-wheel arranged on the shaft S<sup>3</sup>, the latter receiving power from the crank K<sup>2</sup> on the opposite end of said shaft. This gear-wheel W<sup>2</sup> meshes into the gear-wheel W<sup>3</sup>, the latter having a pintle-shaft  $y$ . The wheel W<sup>3</sup> is provided with a crank-arm K, connecting-rod  $r^4$ , and the arm  $j^2$  on the shaft S' of the button-hopper, by which the shaft of the latter and its brushes arranged within the hopper are operated to be reciprocatingly rotated.

The letter L<sup>2</sup> designates a cam-arm which is pivoted at P to a lug  $l^3$ , which is downwardly projected from the frame F, and the letter P<sup>3</sup> designates a cam-opening made in said cam-arm, and N<sup>2</sup> a cam-pin projected from the outer face of the wheel W<sup>2</sup>, so as to be within and run in contact with the edge of the cam-opening P<sup>3</sup>, whereby, as said wheel W<sup>2</sup> is rotated, the arm L<sup>2</sup> is caused to oscillate and by means of the link  $l^4$ , connecting it with an arm  $m^5$  on the shaft S<sup>3</sup>, to operate the threading-finger G on said shaft to move upwardly and downwardly in the threading-chute  $a^2$ .

The letter O<sup>4</sup> designates an arm which is offset from the block L, in which the shaft S<sup>3</sup> journals.

The letter R designates a fastener-package-opening bar which has a flat top  $t^4$ , made with a guttered or recessed edge  $e^3$ , and this bar is



secured to the upper ends of arms U U, the lower ends of which are journaled or hinged at  $u^2$  to the side of the frame F, on which connection the bar R can swing up and down between the slideway I and the stop-bar  $b^4$ , the latter being pivoted at  $n^5$  to the side of the frame F, and the function of this stop-bar is, when swung down at its upper end, to allow the placing of the fastener-package upon the slideway I and when swung upwardly to prevent the bar R from swinging from over the fasteners downwardly.

The fastener-package  $P^5$  is made of thin sheet metal, which is bent into form integrally, one side  $h^2$  being that which the fasteners straddle,  $h^3$  the bottom, and  $h^4$  the other side from which the top  $h^5$  is bent so as to overlap the upper edge of the package-case  $h^2$ . When the fasteners are placed within the package-case, they straddle the top edge of the case side  $h^2$ , and the ends of the latter (indicated at E E) are bent inwardly to retain the fasteners thereat, and the top is bent down so as to be over the upper edge of the package side  $h^2$ . When it is desired to load up the slideway I with fasteners, a package is passed on over the slideway I, with the edge of the latter passing up between the outer side of the package side  $h^2$  and the prongs on that side of the latter, with the parts appearing as shown at Fig. 7. When this has been done, the bar R is moved inwardly with pressure so that its guttered edge  $e^3$  will engage with the free edge of the package-top, so as to bend the latter outwardly and from off the fasteners, with the parts appearing as shown at Fig. 8, in which condition the package-case can be detached, leaving the fasteners astride of the slideway I.

The package herein illustrated is made the subject of another application for Letters Patent, bearing even date herewith, and is only shown to illustrate the manner in which the tube-loading mechanism herein shown is adapted to use it.

The manner of operating the button-hopper to deliver buttons to the button-chute C with their eyes uppermost therein and the manner of constructing the arm  $A^2$  and its connected mechanism to move the buttons progressively in the button-chute are the same as those shown and described in my older application, Serial No. 489,080, and, considered separately, are disclaimed herein, and are only parts of my invention where they co-operate with my improved features of construction and in combination therewith.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In the tube-loader mechanism of a button-setting machine, a slideway inclined downward to allow the descent by gravity of the fasteners astride of it, in combination with a fastener-package-opening bar arranged near the upper end of the said slideway and movable from and toward the same, in order that in the former position it may allow the package to be placed on the slideway and afterward in taking the latter position it may open the package to release the fasteners substantially as set forth.

2. In a tube-loading mechanism, the combination with a slide-way on which the fasteners descend by gravity, of a bar made with a guttered edge, said bar having a hinged connection whereby it may be moved inwardly to engage with, and open a fastener package which has been entered upon said slide-way, substantially in the manner as and for the purposes set forth.

3. In a tube-loading mechanism the combination with a slide-way on which the fasteners are moved to a point where they are inserted in the eyes of buttons, of a package opening bar having a hinged connection whereby it may be operated to engage with and open a fastener package containing fasteners astride of said slide-way, and a stop-bar pivoted to the frame whereby said package opening-bar may be locked in over the fasteners or allowed to swing away down for the attachment of a package, substantially in the manner as and for the purposes set forth.

4. In a tube-loading mechanism, the combination with the button chute C, having the button-slot  $c^2$ , of the fastener threading chute  $a^2$ ; the fastener slide-way I, the curved fastener threading finger G, arranged on the shaft  $S^3$ , and at its journal end provided with the notch  $g^4$ ; and the detaining finger D, arranged to turn on the shaft  $S^3$ , and at its journal end provided with the spring  $m$ , and notch  $d^3$ , constructed and arranged to be operated substantially in the manner as and for the purposes set forth.

Signed at Troy, New York, this 21st day of November, 1894, and in the presence of the two witnesses whose names are hereto written.

ALBERT W. HAM.

Witnesses:

W. E. HAGAN,

CHARLES S. BRINTNALL.