

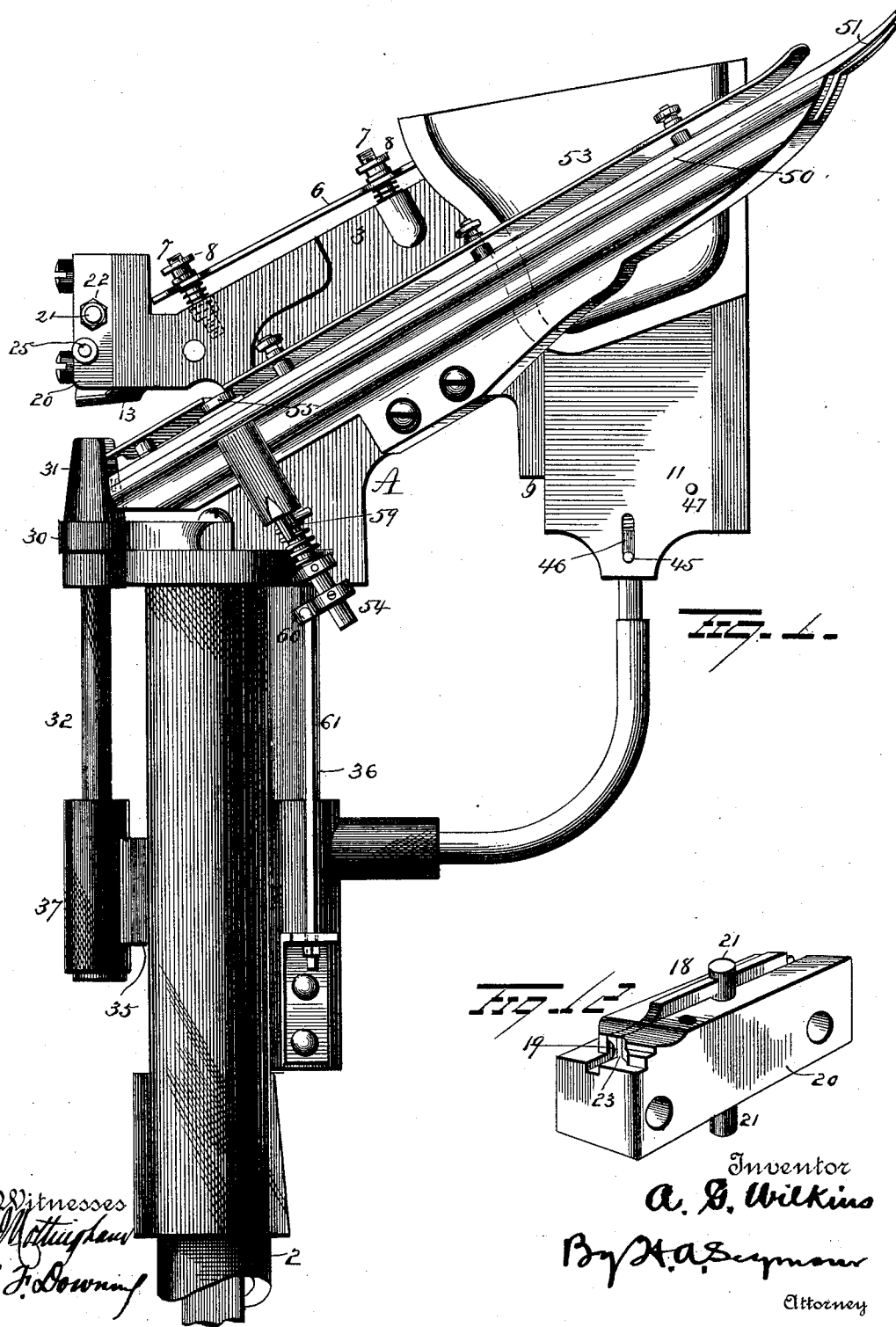
(No Model.)

4 Sheets—Sheet 1.

A. G. WILKINS.
BUTTON SETTING MACHINE.

No. 484,835.

Patented Oct. 25, 1892.



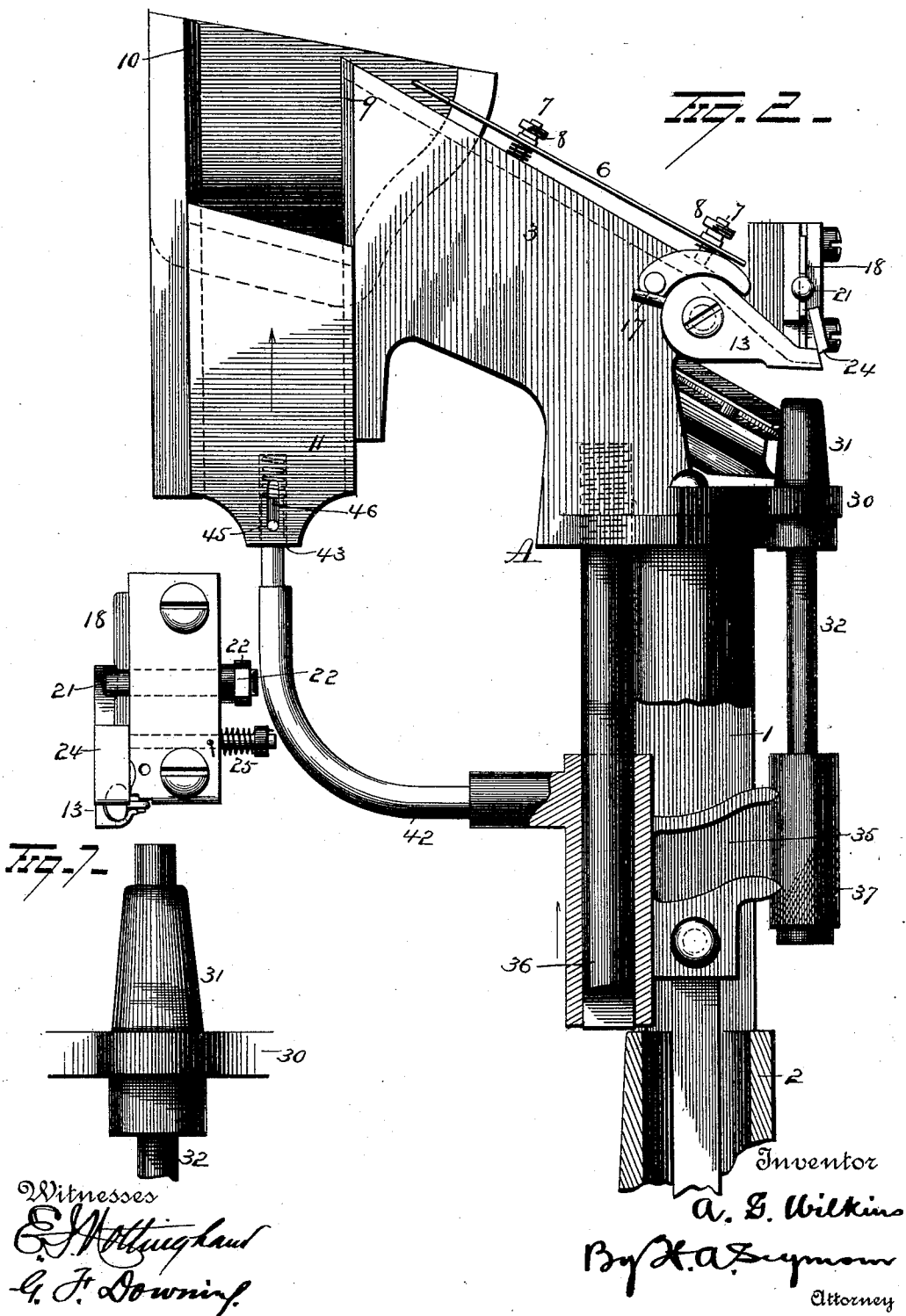
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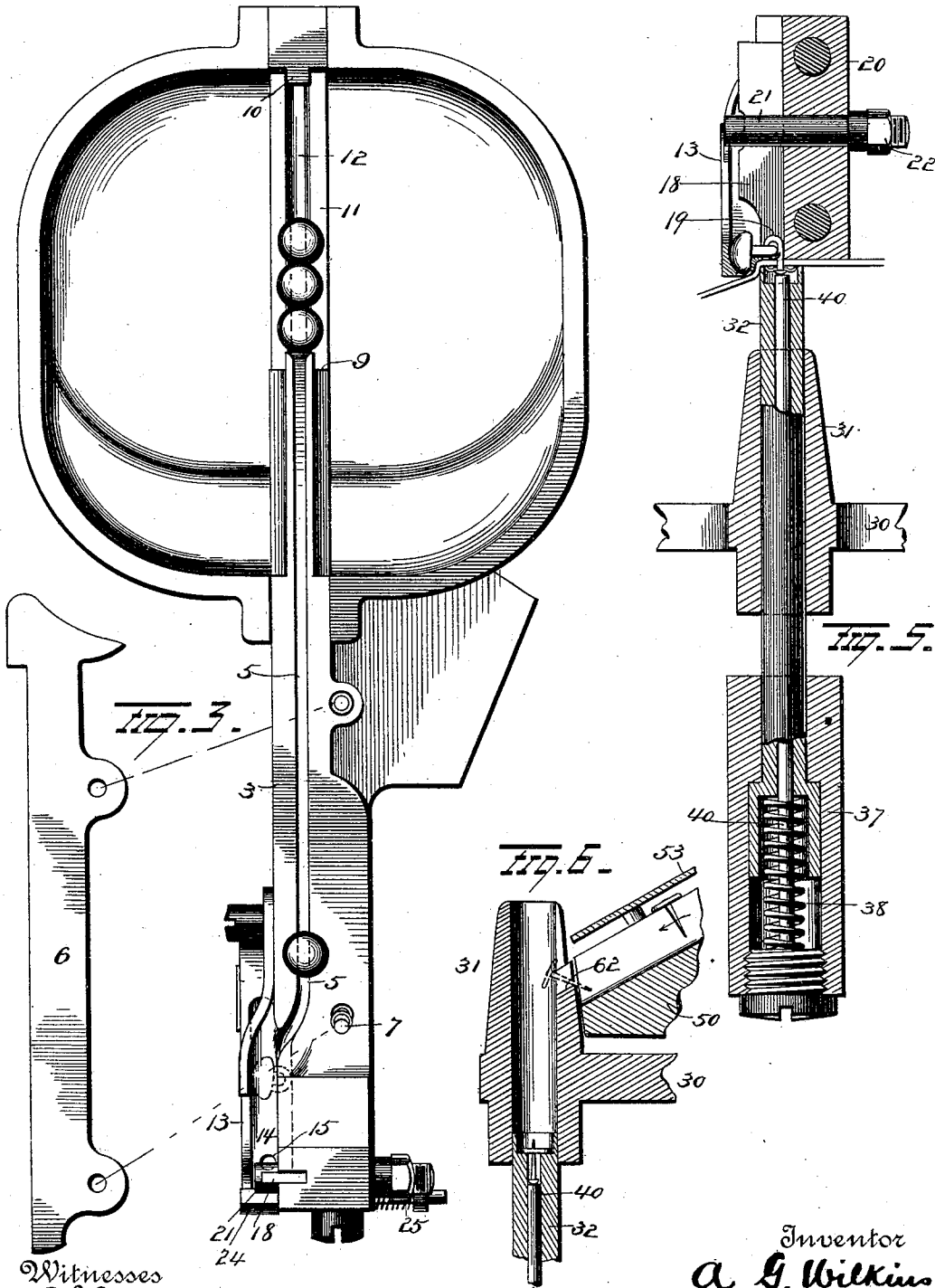
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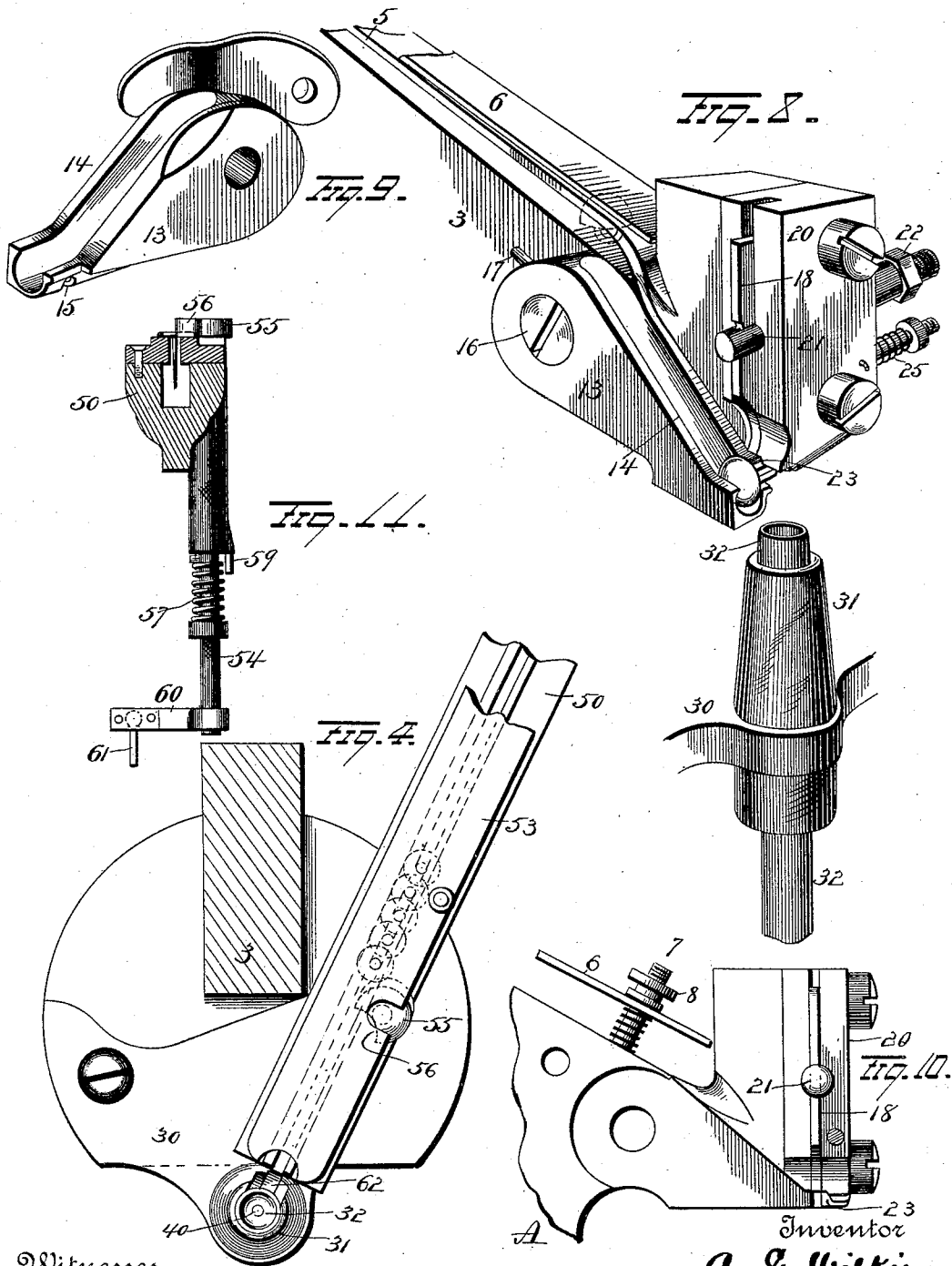
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UNITED STATES PATENT OFFICE.

ALEXANDER G. WILKINS, OF MEADVILLE, PENNSYLVANIA, ASSIGNOR TO
THE WILKINS SHOE BUTTON FASTENER COMPANY, OF SAME PLACE.

BUTTON-SETTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 484,835, dated October 25, 1892.

Application filed October 14, 1891. Serial No. 408,690. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER G. WILKINS, of Meadville, in the county of Crawford and State of Pennsylvania, have invented certain
5 new and useful Improvements in Button-Fastening 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 pertains to
10 make and use the same.

My invention relates to an improvement in button-fastening machines.

The object of the same is to provide novel mechanism for fastening buttons to the stock;
15 and it consists in certain novel features of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is
20 a side elevation of my improved button-machine. Fig. 2 is a similar view of the opposite side, partly in section. Fig. 3 is a plan view of the button-hopper and button-chute. Fig. 4 is a plan view of the fastener-chute.
25 Fig. 5 is a detached view illustrating the clinching mechanism. Fig. 6 is a detached view of the fastener-chute and ferrule. Fig. 7 is a base view of the anvil. Figs. 8, 9, 10, 11, and 12 are detached views of parts of my
30 machine.

A represents a casting, which constitutes the head of the machine. This head is divided through the longitudinal center to form an opening 1. This head is mounted at its
35 lower end on a hollow standard 2.

The various parts of the machine requiring attention are arranged about the head and will now be described. The upper end of the head preferably terminates in an inclining
40 arm 3, and to the outer end of this arm the button-hopper is secured. The upper edge of the inclining arm 3 has a narrow groove 5 formed therein. This groove constitutes a chute for the buttons, the groove receiving
45 the eyes of the buttons and guiding them in their descent to the fastening mechanism. A guard-plate 6 is placed over this chute to prevent the buttons from leaving the chute. This guard-plate is conveniently held
50 on threaded pins 7 7, and spiral springs surrounding these pins and interposed between

the chute and the guard-plate hold the latter yieldingly elevated, and nuts 8 8 are employed for lowering the plate to the desired height to accommodate the size of buttons
55 fed. So to raise the plate for larger buttons it is simply necessary to unscrew the nuts, the tension of the springs raising the guard-plate. The upper end of the chute may, if desired, project some distance into
60 the hopper, as shown. The outer edge of this arm 3 is formed in the shape of a track 9, and a corresponding track 10 is formed on the opposite side of the hopper. Between these tracks a gate 11 is adapted to
65 reciprocate. The upper edge of this gate is inclined to correspond with the inclining arm 3 and is likewise provided with a groove 12. This gate is adapted to drop far enough
70 into the bottom of the hopper to pick up the buttons. The eyes of the buttons are naturally caught in the groove 12, and when this gate is raised far enough to be flush with the upper edge of the arm 3 the buttons slide
75 down the chute to the fastening mechanism. At the lower end the button-chute twists around the side of the head, so as to throw the button onto its side. At this point the
80 button drops into a clamping-lever 13. This lever is of peculiar shape, and will be described somewhat in detail. The upper edge of this lever slopes perhaps a trifle more than the chute, except at its extreme outer or free
85 end it may be horizontal, or approximately so, to form a pocket. In its upper edge this lever is provided with a U-shaped groove 14 or a groove corresponding with the shape of the
90 button-head. The outer edge is much higher than the inner edge and forms a guard to prevent the buttons from running over, while the inner edge is just high enough to receive the
95 eye flatwise, so that as far as possible the button is held in its proper position all the way down the lever. At the extreme lower end of the latter a slot or recess 15 is formed to receive the lower edge of the button-head while
100 the button is being clamped in place. Thus when one button is set and removed another takes its place by its own gravity and the push of the other behind it, and when the front button is clamped tight the others are free. This clamping-lever is supported by the

pin 16, and it is provided with a pin 17, adapted to strike a lug on the arm 3 to limit its downward drop. This clamping-lever is adapted to co-operate with other parts, which will now be described. First the die 18 will be described. This consists of a thin plate of steel or other hard metal having an arch-shaped recess 19 in its lower end. The die is preferably held in the die-holder 20 by means of a slotted post 21. This post straddles the die and is held tight by a nut 22, screwed thereon. The lower end of the die-holder is beveled in such a manner, as shown at 23, to always throw the eye of the button into the exact position to receive the fastener. A detent 24, pivoted at the outer end of the die-holder, holds the button back, it being held yieldingly in place by a spring 25, so that when the button is fastened on the stock the latter may be removed from the machine by simply pulling it out, the detent yielding to allow this and quickly closing to prevent the rest of the buttons from dropping out.

As the clinching mechanism operates in connection with the die and clamping-lever, it will now be described. A plate 30 is secured on top of the head A, and projecting upwardly from this plate is a ferrule 31, into which the fasteners are fed. Fitted inside of this ferrule is a hollow rod 32. The upper end of this rod is countersunk and adapted to catch the disk and pin. A reciprocating cross-head 35 is loosely mounted to slide on the stationary guide-rod 36, depending from the head A, and this cross-head is provided with a sleeve 37, in which the hollow rod 32 is cushioned by means of a steel spring 38, the object of this construction being to allow the hollow rod to remain stationary and lock the clamping-lever 13 as soon as it reaches the latter, while the anvil 40, which is secured to the lower end of the sleeve and operates in the hollow rod, continues to ascend to clinch the fastener-pin between it and the die. Thus it will be seen that the button after dropping in place is clamped fast by the hollow rod 32 coming in contact with the clamping-lever 13.

This holds the button to be fastened to the stock fast in position, so that the pin strikes the outer edge of the button-eye on its way to the die, and hence upon reaching the die is always deflected or clinched in the right direction, so that the pin will enter the eye and curl up to hold the button fast. After this is done the anvil and hollow rod descend and the stock is placed in position to receive the next button.

The same reciprocating cross-head 35, which operates the hollow rod and anvil, is connected with and reciprocates the gate 11 through the medium of an arm 42 or equivalent means. This arm is connected with the gate by means of a slip or yielding joint 43, so as to allow the gate to remain in its extreme elevated position a moment while the cross-head is still moving, in order to allow time for the buttons pumped up, so to speak,

by the gate, owing to their light weight, to gravitate to the chute. This joint may be variously constructed, and a simple one is that shown, in which the upper end of the arm passes loosely into an opening in the lower end of the gate, with a spiral spring interposed between its inner end and the inner end of the opening. To hold the two together, a pin 45 extends transversely through the end of the arm, protruding through elongated slots 46 46. The gate ascends until the stop 47 strikes the lower end of the hopper, when it stops and remains until the cross-head reaches the extreme of its upward stroke and descends to the point where the gate stopped.

In addition to the feed for the buttons there is provided an automatic feed for the fasteners. This consists of an inclining chute 50, the lower end of which terminates at the ferrule and the opposite end at the outer edge of the machine, where it terminates in a claw 51, adapted to skin the fasteners from the fastener-holder. The chute itself consists of a deep grooved incline, over which is secured a slotted plate. The fasteners slide down through this slot and are prevented from crowding upon each other or dropping out by a guard-plate 53, secured over the chute. Near the lower end of this chute an automatic cut-off is located. This consists of a stem 54, upon the upper end of which a disk 55 is secured. This disk is provided with a notch 56, which when the disk is in its normal position is thrown around to receive the fastener-disk next above it. A spring 57 on the stem of this cut-off is so connected that it normally throws the disk into this position. To limit the rock of the stem, a stop 59 is provided. An arm 60 projects laterally from the lower end of the stem, and the outer end of this arm is loosely connected by a rod 61 to the cross-head. At the point where the fastener enters the ferrule the latter is provided with a shoulder 62, which reaches just high enough to stop the lower end of the fasteners in order to turn it over or upside down when it enters the ferrule.

In the operation of the machine the treadle (not shown) is rocked in the usual manner. The motion is communicated by means of a pitman to the cross-head. When the cross-head rises, it carries the hollow rod and finally the anvil; also, the gate is elevated to pump buttons into the chute. As the cross-head is lowered it operates the cut-off to supply another fastener to the fastening mechanism.

It is evident that slight changes might be resorted to in the form and arrangement of the several parts described without departing from the spirit and scope of my invention, and hence I do not wish to limit myself to the exact construction herein set forth; but,

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

1. In a button-machine, the combination, with a frame having a button-chute therein,

of a clamping-lever pivoted to the frame at the lower end of the chute, said clamping-lever having a groove formed in its upper edge adapted to receive the head of a button and
 5 guide it to its lower end and an inclining upper edge formed on the lever adjacent to the groove and parallel therewith, upon which the eye of the button slides, said groove having a pocket formed at its lower end, substantially
 10 as set forth.

2. In a button-machine, the combination, with a frame having a button-chute formed therein, said chute straight throughout the greater portion of its length and twisted at the lower end, so as to throw the button descending in the chute upon its side, and a
 15 die-holder, of a clamping-lever pivoted to the frame and provided with a grooved upper edge adapted to receive the head of a button and provided with an inclining edge adjacent to the groove, the upper end of this inclining edge beginning at the point where the groove terminates and the lower end terminating in a clamping portion adapted to hold the button-eye between it and the die-holder, substantially
 20 as set forth.

3. In a button-machine, the combination, with a button-chute, of a clamping-lever pivoted in proximity to the chute and adapted to receive buttons therefrom, the chute and clamping-lever being constructed to turn the buttons to approximately the position desired for attachment to the stock, said lever having a pocket formed at its lower end, a die,
 30 and means adapted to strike the lever to force the button-shank against the die, substantially as set forth.

4. The combination, with a clamping-lever and means for holding the latter in position, of a die-holder beveled on its lower end to throw the eye of the button into position, a die, and means for forcing the staples against the die, whereby they are clinched, substantially
 40 as set forth.

5. The combination, with a frame having a die-holder thereon, a die, and a pivoted clamping-lever adapted to receive and clamp a button in position with its eye beneath the die, of a detent pivoted at the outer end of the clamping-lever for preventing the button or buttons in the lever from dropping out of the latter, substantially as set forth.
 50

6. The combination, with a frame having a button-chute, a die-holder, die, and a clamping-lever leading from the chute to the die and forming a continuation of the former, of a hollow rod located in position to yieldingly engage the clamping-lever, whereby a button contained therein and being operated upon is
 55

forced into position to receive the pin by 60 which the button is fastened to the stock, and means for driving the fastener, substantially as set forth.

7. The combination, with a die and die-holder, the latter having a beveled lower end 65 constructed to throw the eye of a button into position, of a button-chute, a clamping-lever forming a continuation of the chute and leading from the chute to the die, an anvil located in position to force the pin or staple against 70 the outer edge of the button, whereby it is deflected against the die preparatory to its being turned by the latter into the eye of the button, and means for operating the anvil, substantially as set forth. 75

8. The combination, with a button-chute, a button-hopper located at the upper end of the chute, a die, and a clamping-lever, of a reciprocating cross-head, a spring-cushioned hollow rod carried by the cross-head, adapted to 80 engage and hold the clamping-lever in position, and an anvil connected with the cross-head and passing loosely through the hollow rod, substantially as set forth.

9. The combination, with a die and clamping-lever, of a reciprocating cross-head, a spring-cushioned hollow tube connected with the cross-head, said tube having a recessed upper end adapted to receive a fastener and disk, and an anvil fitted to the hollow rod and 90 adapted to operate therein, substantially as set forth.

10. The combination, with a die-holder having a groove therein, of a die located in the groove, a slotted post through which the die 95 passes, and means for drawing the post endwise, whereby the die is held securely in place, substantially as set forth.

11. The combination, with a button-hopper and a gate or plunger constructed to reciprocate in the hopper, of a reciprocating cross-head and a stem extending from the latter and having a yielding-joint connection with the gate or plunger, substantially as set forth. 100

12. The combination, with a chute, of a stop 105 comprising a notched disk, a stem, a spring for throwing the stop into its normal position, stop-pins, a laterally-projecting arm on the stem, a reciprocating cross-head, and a loose connection extending from the arm to the 110 cross-head, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

ALEXANDER G. WILKINS.

Witnesses:

GEO. F. DOWNING,
 C. S. DRURY.