

(No Model.)

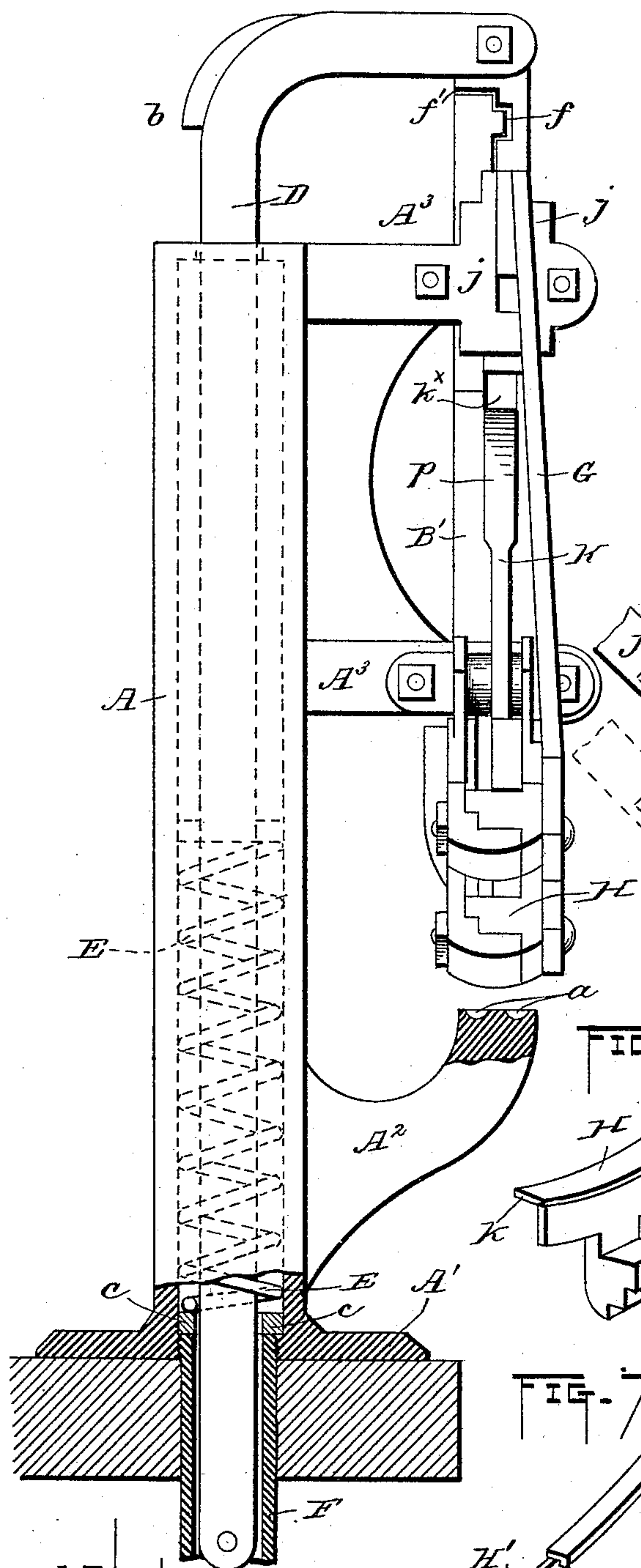
2 Sheets—Sheet 1.

W. G. SLATER.
BUTTON ATTACHING MACHINE.

No. 405,328.

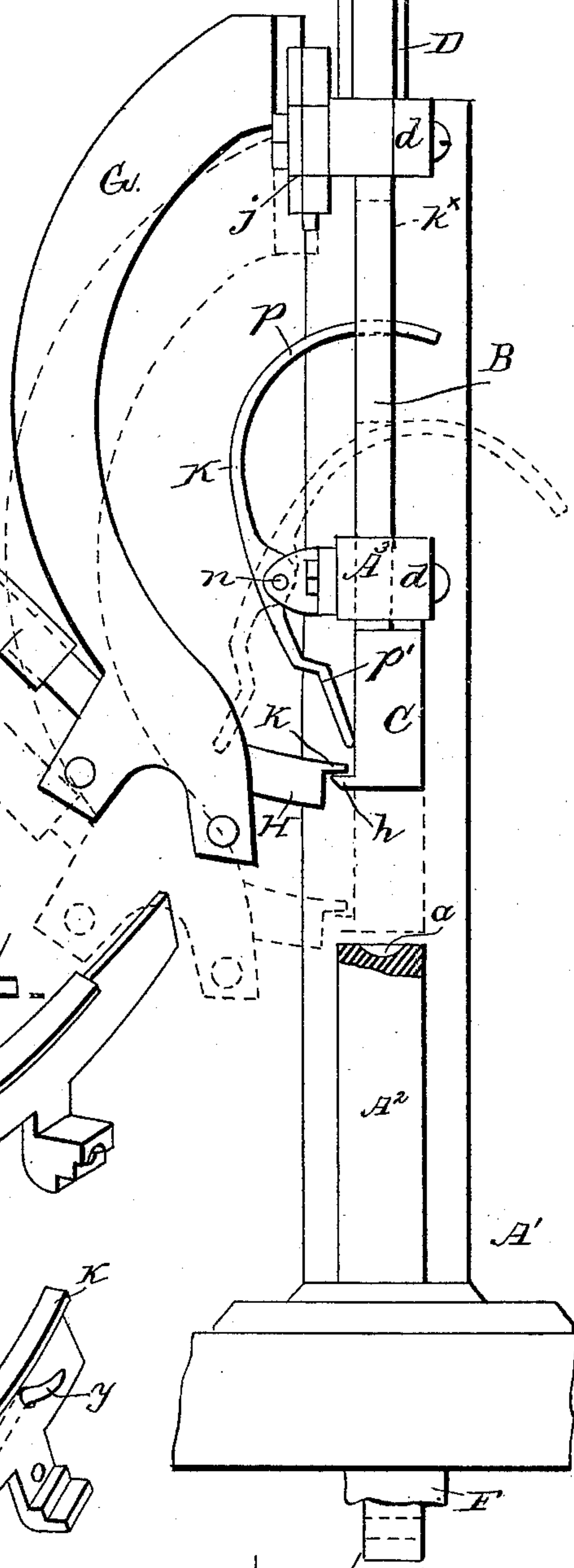
Patented June 18, 1889.

FIG. 2.



Witnesses.
E. B. Smith
John C. Edwards.

FIG. 1.



Inventor.

Warren G. Slater,
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Att'y.

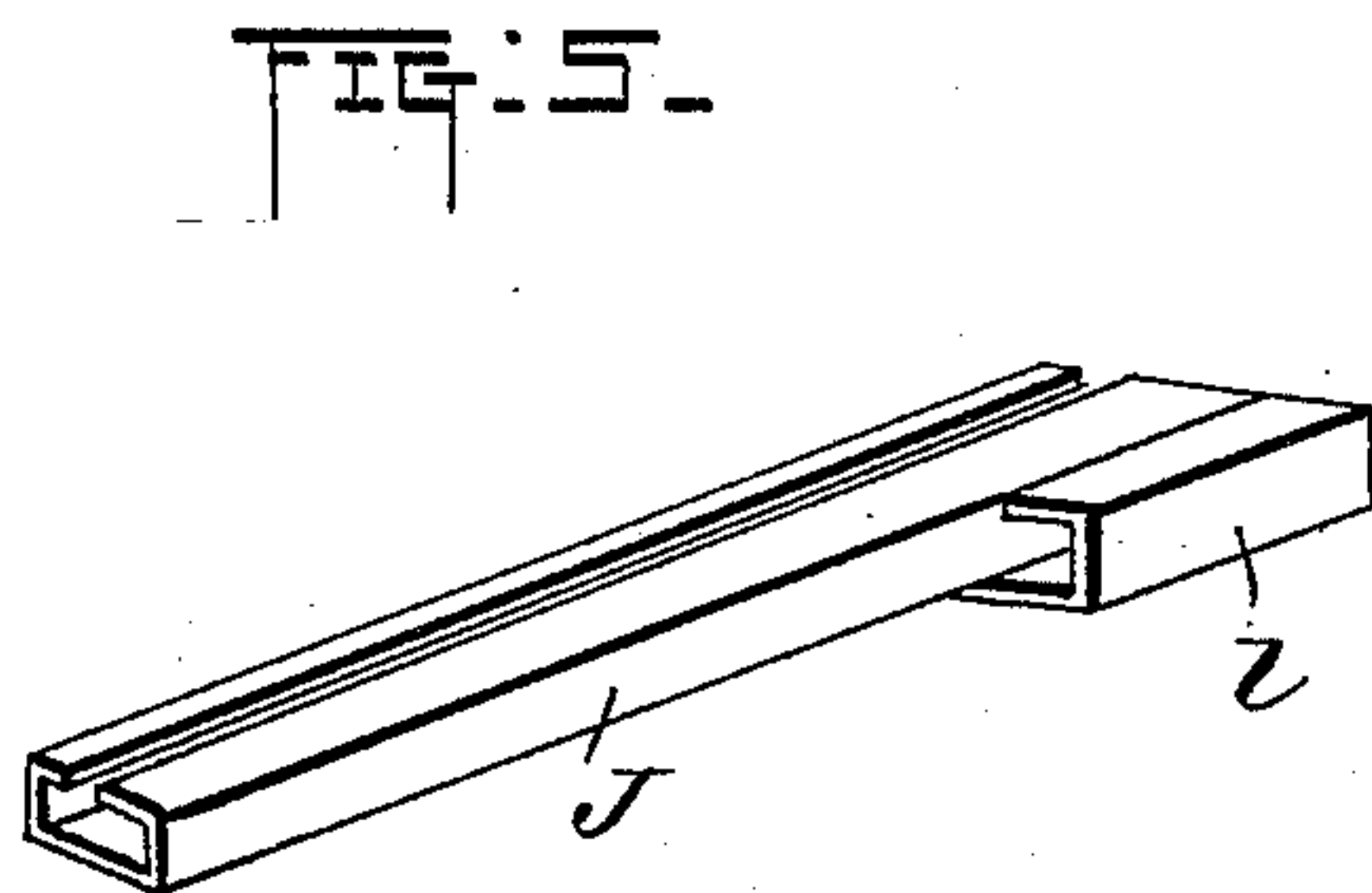
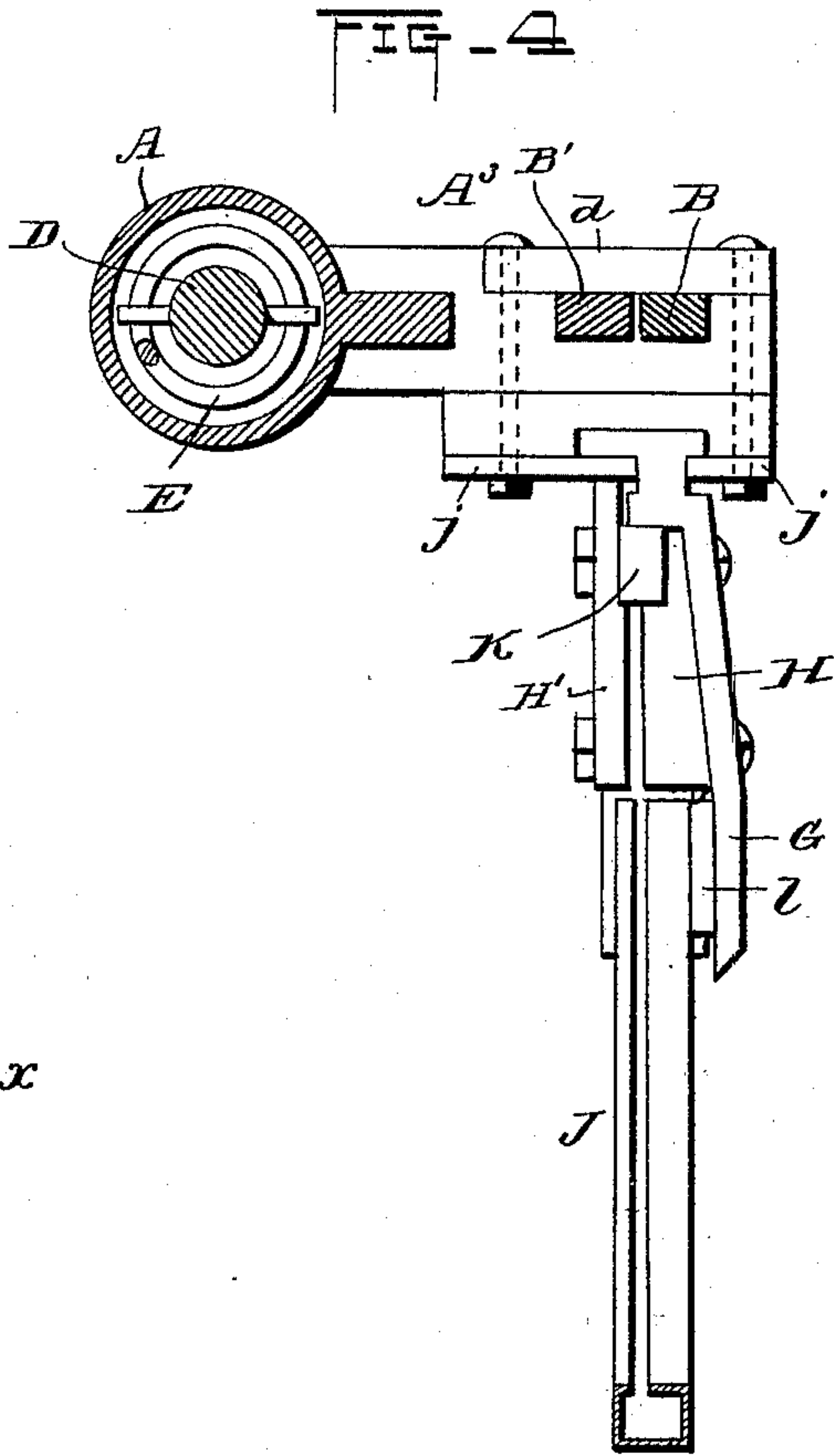
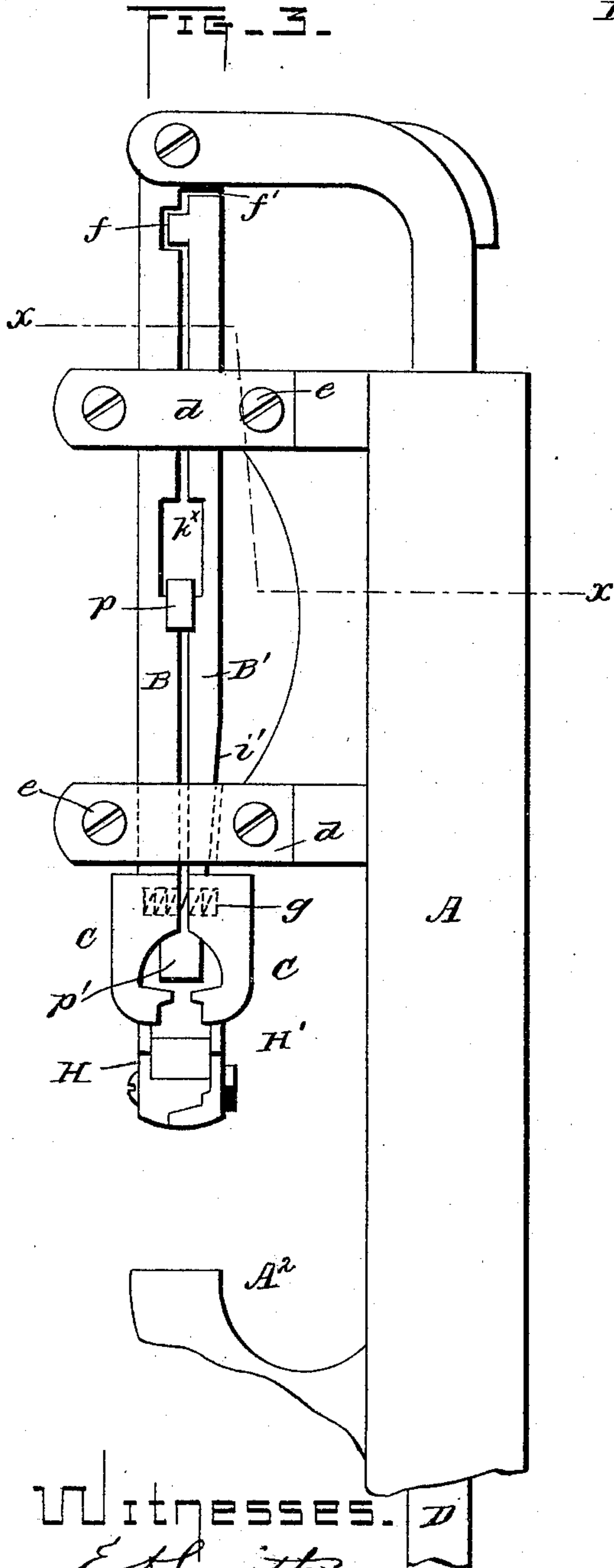
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UNITED STATES PATENT OFFICE.

WARREN G. SLATER, OF FREMONT, MICHIGAN, ASSIGNOR TO THE PENINSULAR NOVELTY COMPANY, OF BOSTON, MASSACHUSETTS.

BUTTON-ATTACHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 405,328, dated June 18, 1889.

Application filed August 25, 1886. Serial No. 211,871. (No model.)

To all whom it may concern:

Be it known that I, WARREN G. SLATER, a citizen of the United States, residing at Fremont, in the county of Newaygo and State of Michigan, have invented certain new and useful Improvements in Button-Attaching Machines; and I do 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 the letters and figures of reference marked thereon, which form a part of this specification.

Figure 1 is a front elevation of my improved button-attaching machine, a section being taken through the anvil to show the two prong-clinching depressions in its surface. Fig. 2 is a side elevation of the right-hand side of the machine, the clinching and button-carrying jaws being represented fully raised. Fig. 3 is also a side view. Fig. 4 is a horizontal sectional view taken on line *x x*, Fig. 3. Fig. 5 is a perspective view of the feed tube or spout, and Figs. 6 and 7 are perspective views of the two halves of the removable button-guide detached from one another.

This invention relates to certain novel improvements on machines for fastening buttons to shoes, clothing, and other articles, which improvements will be fully understood from the following description, when taken in connection with the annexed drawings.

In the annexed drawings, A designates a tubular pedestal or the main frame of my improved machine, which is cast entire with a flanged base A', an anvil-extension A², having concavities *a a* in its upper horizontal surface, and guide-extensions A³ A³, which are vertically slotted to receive the shanks B B' of two gripping-jaws C C.

Inside of the pedestal A is a vertically-movable plunger-rod D, the upper end of which is curved forward and has suitably pivoted to it the upper end of the shank B of one of the gripping-jaws C. This upper portion of the plunger-rod D is provided with a stop-shoulder *b*, which contacts with the upper end of the pedestal A when the plunger-rod

with its jaws is at the terminus of its down-stroke.

Surrounding the lower part of the plunger-rod is a coiled spring E, which bears down upon a collar *c*, that rests upon the upper end of a tubular (gas-pipe) standard F, screwed into the lower end of the pedestal A, (shown in Fig. 2,) through which standard a rod is designed to pass that connects the lower end of the plunger-rod to a treadle. By depressing this treadle the plunger-rod with its jaws will be forced down for clinching the button-fasteners on the anvil A², and by releasing the treadle the spring E will throw up the plunger-rod and its jaws. The shanks of the jaws C C are vertically movable in the slots of the guide-extensions A³ A³, in which slots the said shanks are held by caps *d d*, confined by screws *e e*.

The jaw-shank B is pivoted to the curved overhanging end of the plunger-rod D, as above stated, but the shank B' is loosely attached by a lug and slot at *f* to the jaw-shank B, and the upper end of this shank affords an abutment *f'* for the upper end of the shank B', as clearly shown in Figs. 2 and 3 of the annexed drawings.

The two jaws C C are caused to spring apart during their ascending strokes by means of a spring *g*, arranged between the shanks B B', and during the descending strokes the said jaws are caused to approach each other by means of the inclined bearing *i* on the edge of one of said shanks acting against the end of the lower guide-slot, thereby firmly gripping and holding the buttons and their fasteners during the clinching of the latter upon the anvil A².

The gripping ends of the jaws C C (shown in Fig. 3) are rabbeted and especially adapted to receive the eye of a button and the arched attaching portion of a fastener. On the right-hand side of each jaw C is an offset *h*, for a purpose which I will presently explain.

G designates a curved rigid arm, which is free to slide up and down by means of guides *j j*. To the lower part of this curved arm I rigidly secure removable button-guides H, which are curved, as shown in Figs. 1, 6, and 7, and preferably made of two longitudinal parts

with a narrow space between them for receiving the eyes of the buttons and properly guiding the buttons, with their fasteners attached, from the feed-tube or magazine J, and delivering them one at a time between the gripping-jaws C C, when these jaws are in the raised position shown in Fig. 1. The curved guides H are inclined at such an angle that the buttons with their fasteners will slide down and be delivered to the jaws C C by their own gravity. The lower ends of these guides H are constructed with lipped extensions k , which lie in the path of the offsets h , so that the guides H with their arm are lifted a short distance by their offsets during the ascending strokes of the jaws C. The arm G, with its curved guides H and magazine J, is caused to rise by the offsets h striking the lipped extensions k during the upper part of the ascending stroke of the jaws C C, and the said arm is allowed to descend by its own gravity during the descent of these jaws. By these means the guides and magazine are jarred and the buttons caused to descend to the spring-stop y . (Shown in Fig. 7.) During the descent of the jaws C C the upper curved end of the dog K is struck by contact with the upper end of the slot k^x through the shanks B B' of said jaws and moved to the position indicated on Fig. 1 by dotted lines, in which position the pusher p' on the lower arm of the dog K is adjusted behind a button temporarily held back by the curved end of the spring y . During the ascent of the jaws C C and arm G the pusher of dog K is caused to release a button from the said spring y and leave it in a proper position between the jaws C C to be gripped thereby. It will be observed that the free end of the spring y passes freely through a hole made through one of the guides H, and is curved downward, so as to yield and allow the pusher p' to take the buttons one at a time.

The upper ends of the guides H are provided with extensions adapted to receive the sheathed end l of the feed-tube or magazine J and to hold the same in an inclined position, which tube is rectangular in cross-section and constructed with a longitudinal channel through its upper wall adapted to receive the necks of the buttons with fastenings attached and to guide the same properly to the slot or channel of the curved guides H. The tube J is removable from the curved guides, and, like these guides, it receives the buttons on top of it. Consequently I am able to use large or small buttons and feed various sizes with equal facility to the gripping-jaws C C.

In combination with the above mechanism I employ a pivoted feeding-dog for positively delivering the buttons with their fasteners attached, one at a time, to the gripping-jaws C C.

K designates my improved feeding-dog, which is pivoted at n to the right-hand side of the lower guide extension A^3 and constructed with a curved extension p on its up-

per end, which passes through a slot in the jaw-shanks. On the lower curved portion of this dog K is a broad tapered button-pusher p' , which is designed to separate the last button from the row between the guides H and move it between the jaws C C in proper position.

The operation of the machine is as follows: The tube J is charged with buttons having fasteners attached to them and secured to the curved guides H. The buttons will by their own gravity fill these guides and be arrested by the spring y on the guides H. When the treadle is released, the spring E will throw up the jaws C C to the position shown in Fig. 1, carrying with them the guides H H, their tube J, and curved arm G. As this movement takes place, the slot in the shanks operates upon the upper end of the dog K and causes its lower end to separate one button from the row and properly deliver it to the jaws C C. The material to which the button is to be attached is adjusted upon the anvil beneath the said jaws and the latter forcibly brought down, carrying with them the button and its fastener and firmly clinching the spurs of the latter in the said material. The same operation is repeated.

Having described my invention, I claim—

1. In a button-fastening machine, the combination, with the hollow pedestal provided with an anvil and guide-extensions, of the spring-actuated plunger-rod having a curved and shouldered upper extension, the two jaw-shanks bearing jaws C C and adapted to be opened and closed, as described, the jaw-shank B, pivoted to the said upper extension of the plunger-rod, and the jaw-shank B', attached to shank B by a lug and slot, both shanks being guided, substantially as described, and the vibrating dog having a pusher p' , as specified.

2. The combination, with the anvil and its frame, of the gripping-jaws, vertically movable, the curved guides arranged in the relation shown to said jaws, and the vertically-movable arm to which said guides are secured, and the curved dog K, provided with a button-pusher, substantially as described.

3. The combination, with the vertically-movable gripping-jaws having lifting-offsets on their sides, of the curved guides H, having lipped extensions on their lower ends and applied to a vertically-movable arm, and the curved dog K, provided with a pusher and actuated substantially as described.

4. The combination, with the vertically-movable spring-actuated gripping-jaws, of the vertically-movable arm G, the guides secured rigidly to this arm, the tube or magazine removably attached to it, and the vibrating dog K, provided with a pusher p' , substantially as described.

5. The curved guides H, formed of two longitudinal parts rigidly secured to the vertically-movable arm G, in combination with the vertically-movable jaws, a vibrating dog

provided with a pusher, and a clinching-anvil, substantially as described.

6. The combination of the vibrating button-placing dog with the vertically-movable gripping-jaws, slotted as described, and the vertically-movable button-guide curved and inclined, substantially as described.

7. The combination of the gripping-jaws provided with the slot, as shown, with a button-placing dog formed, as described, an inclined curved and vertically-movable guide H, and a clinching-anvil, substantially as described.

8. The button-machine herein described, consisting of a tubular pedestal, a spring-actuated plunger-rod having depending from

and pivoted to its upper end one of the shanks of a pair of button-grippers, spring-actuated as described, a vertically-movable arm bearing guides H, and having removably attached to it a tube or magazine, a pivoted dog of curved form, having a transferrer p' , adapted for placing the buttons between said gripping-jaws, and an anvil on which the fasteners are clinched, substantially as described.

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

WARREN G. SLATER.

Witnesses:

A. F. TIBBITTS,

A. O. WHITE.