(No Model.) 3 Sheets—Sheet 1.

E. PRINGLE.

BUTTON SETTING MACHINE.

No. 338,776. Patented Mar. 30, 1886.

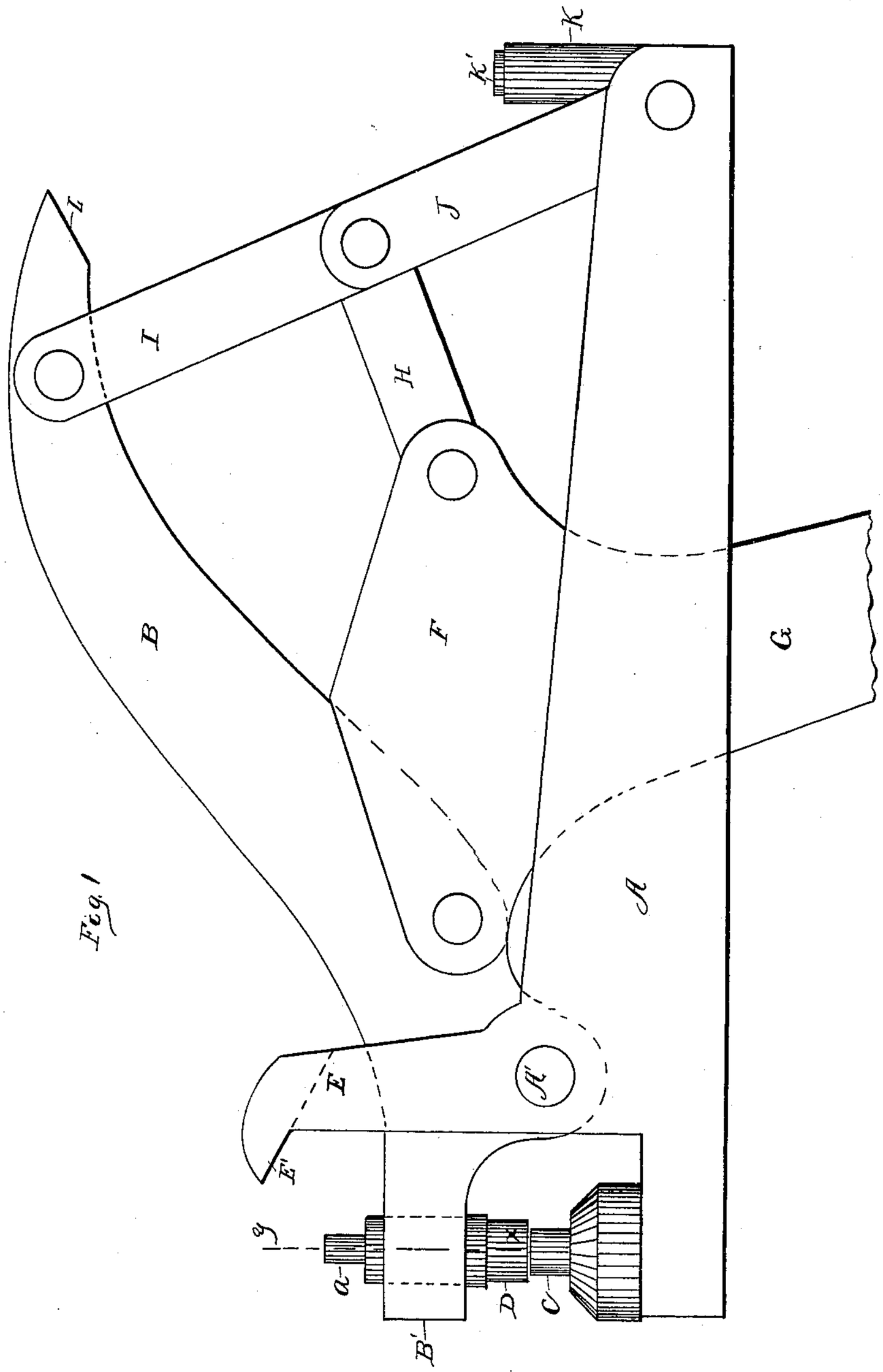

Fig. 1

WITNESS:

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(No Model.)

3 Sheets—Sheet 2.

E. PRINGLE.

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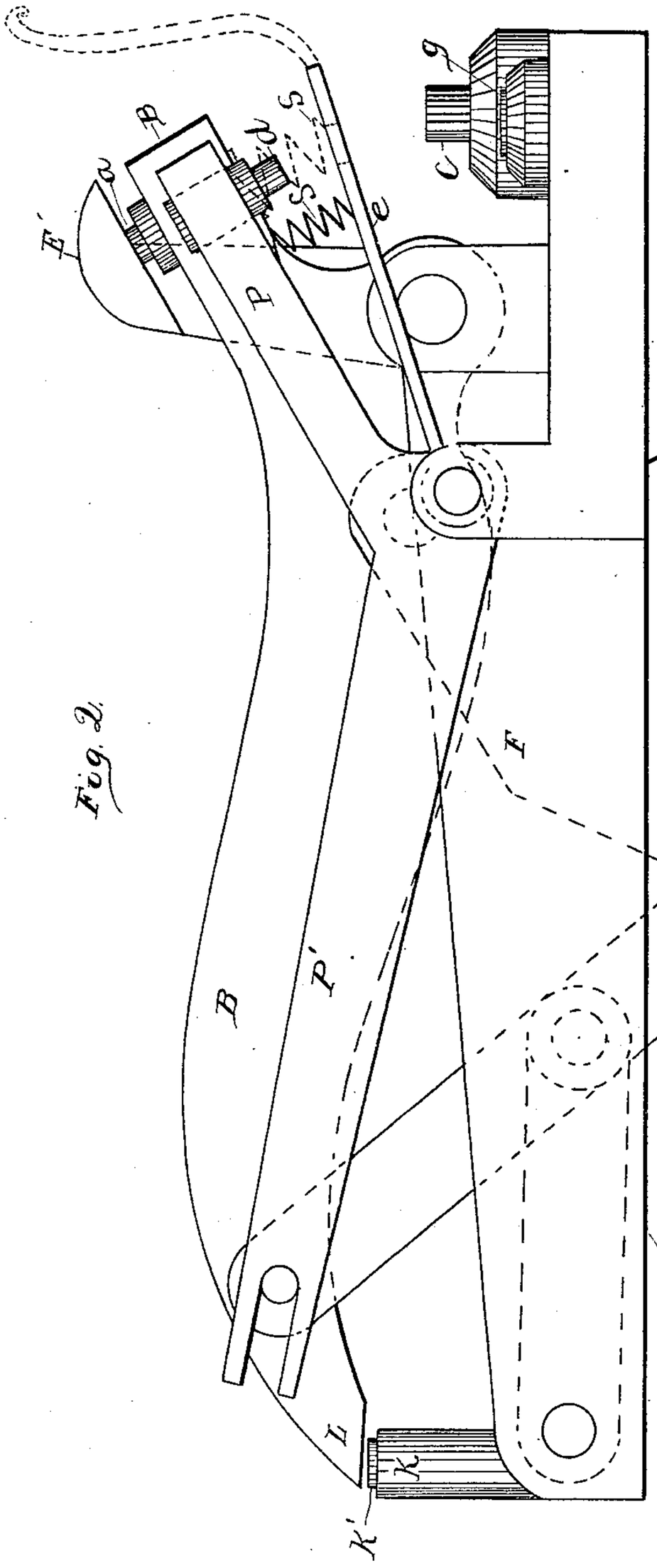

Fig. 2.

Fig. 3.

Fig. 4.

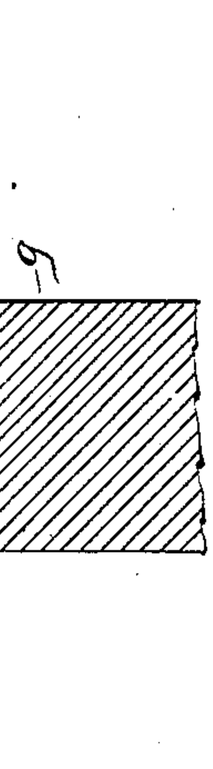

Fig. 11.

Fig. 5

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(No Model.) 3 Sheets—Sheet 3.

E. PRINGLE.

BUTTON SETTING MACHINE.

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Fig. 6.

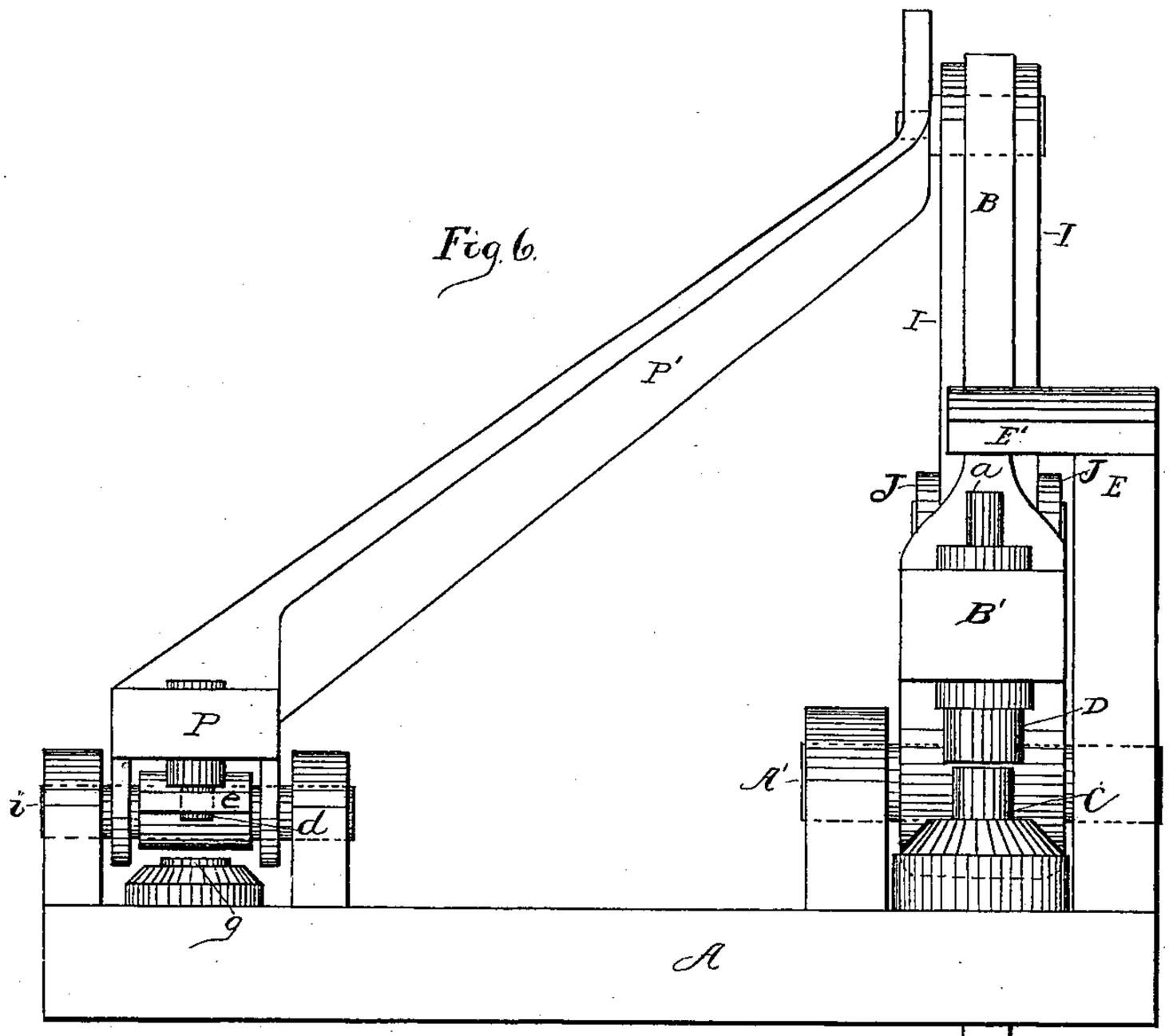


Fig. 7.

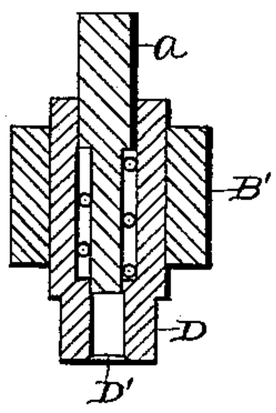


Fig. 8.

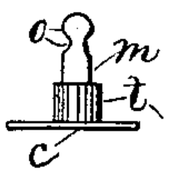


Fig. 9.

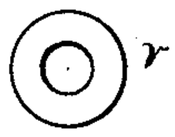
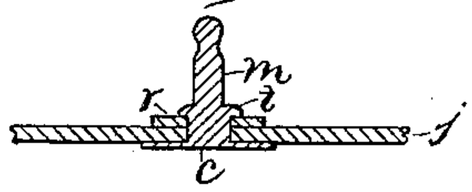


Fig. 10.



WITNESSES:

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UNITED STATES PATENT OFFICE.

EUGENE PRINGLE, OF GLOVERSVILLE, NEW YORK.

BUTTON-SETTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 338,776, dated March 30, 1886.

Application filed March 7, 1885. Serial No. 158,012. (No model.)

To all whom it may concern:

Be it known that I, EUGENE PRINGLE, a resident of Gloversville, in the county of Fulton and State of New York, have invented certain new and useful Improvements in Button-Setting Machines; and I do hereby declare that the following is a full, clear, and exact description of the invention, that 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 of reference marked thereon, which form a part of this specification.

Similar letters refer to similar parts in the several figures therein.

My invention relates to improvements in button-setting machines adapted to attach buttons to garments, and especially sectional buttons, wherein one section provided with a post or stud is attached to one fly of a garment-opening, and the other section provided with a hollow rivet or tube adapted to receive said post is attached to the other garment-fly.

Figure 1 of the drawings is a side elevation of one side of my improved machine with jaws closed. Fig. 2 is a side elevation showing the side opposite to that shown in Fig. 1, with the jaws open. Fig. 3 is a plan view of the face of anvil *g*. Fig. 4 is a central vertical section of same. Fig. 5 is a central vertical section of the anvil and a button-section, fabric, and washer resting thereon in position to be set. (Enlarged scale.) Fig. 6 is a front elevation of the machine. Fig. 7 is a vertical section of the upper jaw and perforated swage and plunger. Fig. 8 is a side elevation of the post-section of a button. Fig. 9 is a plan view of a washer. Fig. 10 is a vertical central section of the post-section of a button attached to the fabric. Fig. 11 is a view in elevation of the slotted tube.

A is the bed-plate or frame of the machine, which supports the anvil C. The upper member, B′, is fulcrumed upon the frame by pivot A′, and provided with lever B. The ends of lever B and frame A are connected by a toggle-joint formed of links I and J. The knee of this joint is connected with lever B by another toggle-joint, made up of the links H and F. The link F is provided with a swinging lever, G, integral therewith, or securely fixed thereto. The lever G is provided with a convenient foot-rest, G′, at its lower end, for operating the same, and through the compound toggle-joint thus formed the lever B and fulcrumed member B′. By swinging the lever G backward and forward the connecting parts are changed from the position shown in Fig. 1 to that shown in Fig. 2 and back again, from which it will readily appear that great power is obtained without a very extended sweep of lever G, and that gravity, acting through lever G and the connecting parts secured to lever B at two separate points, will restore the parts to the position shown in Fig. 2 after they are released from constraint in position shown in Fig. 1.

K is an upright supporting the stop K′, which may be made of rubber or other elastic material to receive the projecting end L of lever B.

The member B′ is provided with the swage D, having an opening, D′, therein, adapted to receive the rounded end of post *m* of a button-section, such as shown in Fig. 8. The post is provided with a projecting step, *t*, extending up a short distance from the upper side of the base *c*, adapted to be swaged down upon a thin washer, *v*′, placed thereon after the post has been inserted through the fabric to which the same is to be attached, which is the object to be accomplished by the perforated swage D. After the post has been inserted in the fabric and the washer adjusted thereon, the head of the post is inserted in the perforation D′ and the swage forced down toward the anvil C by means of the lever G until the base of the button-section striking the anvil forces the projecting step *t* against the swage, which upsets the edges upon the washer *v* and secures the section upon the fabric, as shown in Fig. 10.

The opening D′ is provided with a slight enlargement around its mouth, as shown in Fig. 7, which serves to control the movement of the edges of the step while being upset by the swage and give them a uniform and smooth appearance. It also serves to present a ring projecting down below the working-edge of the swage to push the washer down below the upset edges of the step while they are being upset. As the post *m* is forced with great pressure into the opening D′, it frequently adheres very firmly to the swage, and I have provided

the plunger *a*, adapted to slide vertically within the opening in the swage and strike at its upper end the stop E′ on the upright E when the member B recedes from the anvil, thereby forcing the plunger into the swage and driving the post therefrom and releasing it.

I do not regard the stop E′ as a necessary element, because the plunger *a* may be operated by a hammer in the hands of the operator.

To set the other section of the button, I provide another fulcrumed lever consisting of the member P, fulcrumed at *i*, and provided with the operating-lever P′, which connects with lever B, as shown in Fig. 6, and with the setting punch or hammer *d*, operating in conjunction with the anvil *g*, which rests upon the bed-plate or frame of the machine. The section of the button set by this part of the machine is the button-head, and is shown in vertical section in Fig. 5, and is composed of a chambered spring-inclosing shell provided with a centrally-projecting post-receiving tube, *u*. The tube is slotted transversely at one side, as shown in Fig. 11, to receive the spring-locking catch *v*. (Shown in Fig. 5.) This catch serves to engage with the groove *o* in the post (shown in Fig. 8) to hold the two button-sections together when in use. This slot in the tube lessens its power of resisting the force of compression necessarily applied at the ends of the tube in setting the button-head upon the fabric, and I provide the support *n*, projecting centrally from the anvil *g*, as shown, the utility of which will be readily seen upon examination of the method of attaching the head to the fabric. The head is placed upon the anvil *g*, bottom side up, and the fabric upon the head so that the tube *u* projects up through the same, as shown in Fig. 5. The washer *r*′, with a central aperture just fitting the tube, is then laid upon the fabric so that the tube projects up through the washer also, as shown in Fig. 5. The lever G is then put in motion, causing the member P of lever P′ to descend toward the interposed button-head and carry before it the plate *e*, pivoted upon *i* and actuated and controlled by the spring S, (shown in dotted lines in Fig. 2,) coiled around the setting-punch *d* until the plate strikes the washer and forces it down firmly against the fabric, arresting the movement of the plate. The member P continues to advance against the yielding spring, thus forcing the punch *d* through an aperture in the plate to contact with the projecting end of the tube, which it upsets and bends over upon the surface of the washer, as shown by dotted lines in Fig. 5, thereby firmly securing the head to the fabric. Meanwhile the catch *v*, resting in the slot of the tube and upon the support *n*, has held up that side of the tube-wall and enabled it to withstand the force of compression employed in upsetting the tube upon the washer. The plate *e* also served to hold the washer tightly upon the fabric until the tube was upset thereon and rises again to the position shown in Fig. 2. Spring S need not necessarily surround punch *d*, but may occupy any convenient position between the plate and member P, and may be wholly a controlling-spring, the plate being held down by the hand of the operator through the handle shown by dotted lines in Fig. 2.

My invention is equally applicable to any device in which the swage and punch or anvils are given a reciprocating motion, whether they travel in fulcrumed levers or sliding plungers.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a button-machine, the combination, with the frame A and lever B, of the links H I J F and the lever G, carrying foot-rest G′, as and for the purpose described.

2. The combination, with the anvil C, of a perforated swage, D, provided with an opening, D′, slightly enlarged at the mouth thereof, whereby a step, *t*, on a post, *m*, may be swaged, as described.

3. The combination, with the perforated swage D, of the spring-plunger *a* and the stop E′ on an upright, E, of frame A, as and for the purpose specified.

4. The combination, with lever B and anvil *g*, of the lever P P′, carrying punch *d*, as shown and described.

5. In button-setting machines, the combination, with the anvil *g*, having concave top and central projection, *n*, and punch *d*, of the spring S and hinged plate *e*, the latter holed to receive punch, as shown and described.

In testimony whereof I have hereunto set my hand this 27th day of February, 1885.

EUGENE PRINGLE.

Witnesses:
GEO. A. MOSHER,
W. H. HOLLISTER, Jr.