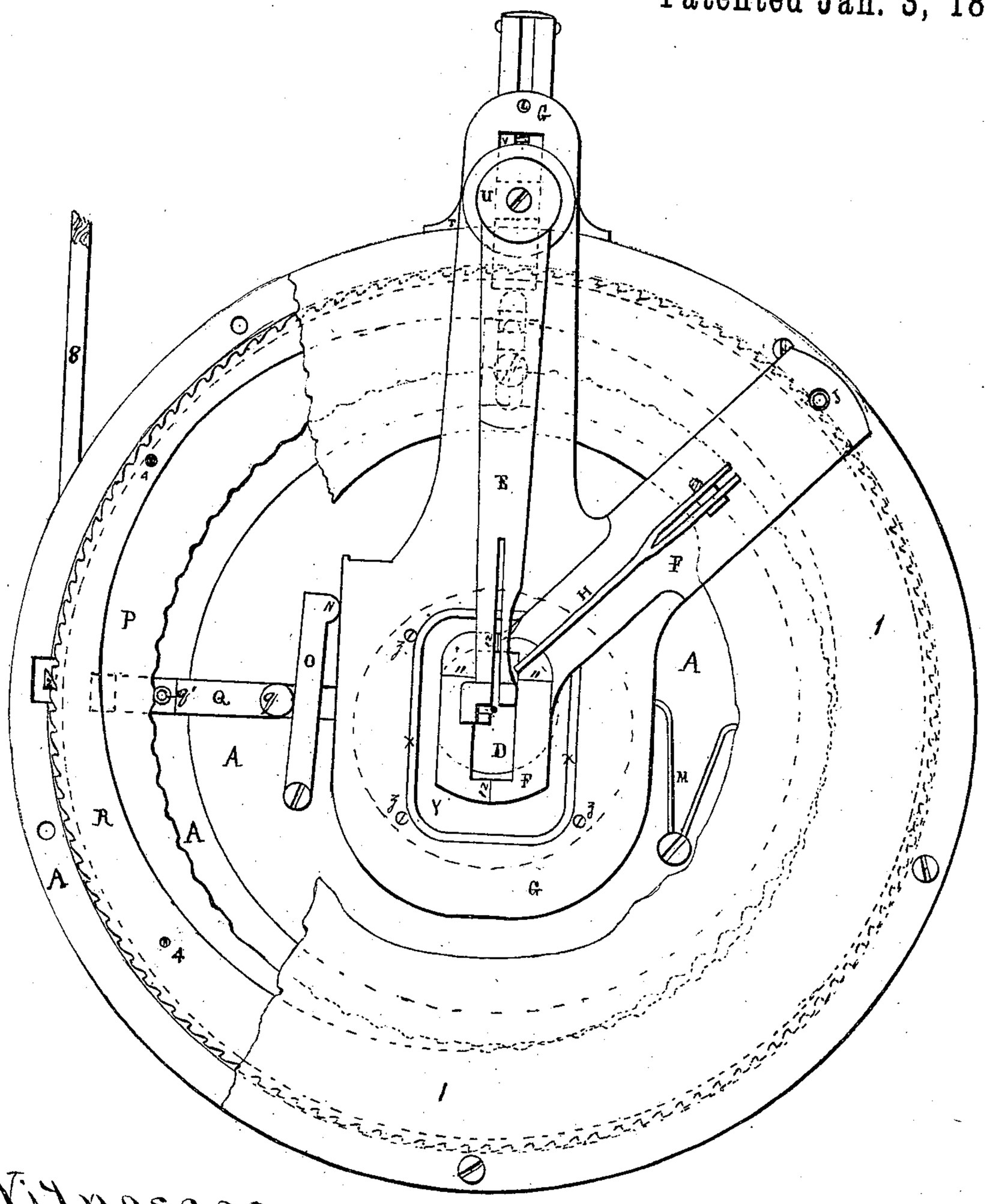
3 Sheets—Sheet 1.

E. MOREAU.

SEWING MACHINE FOR WORKING BUTTONHOLES.

No. 110,669. Patented Jan. 3, 1871.



Witnesses

C. M. Smith

David T. Smith

Inventor

Eugene Moreau

assignor to himself James M. Huggett

and Samuel Hale

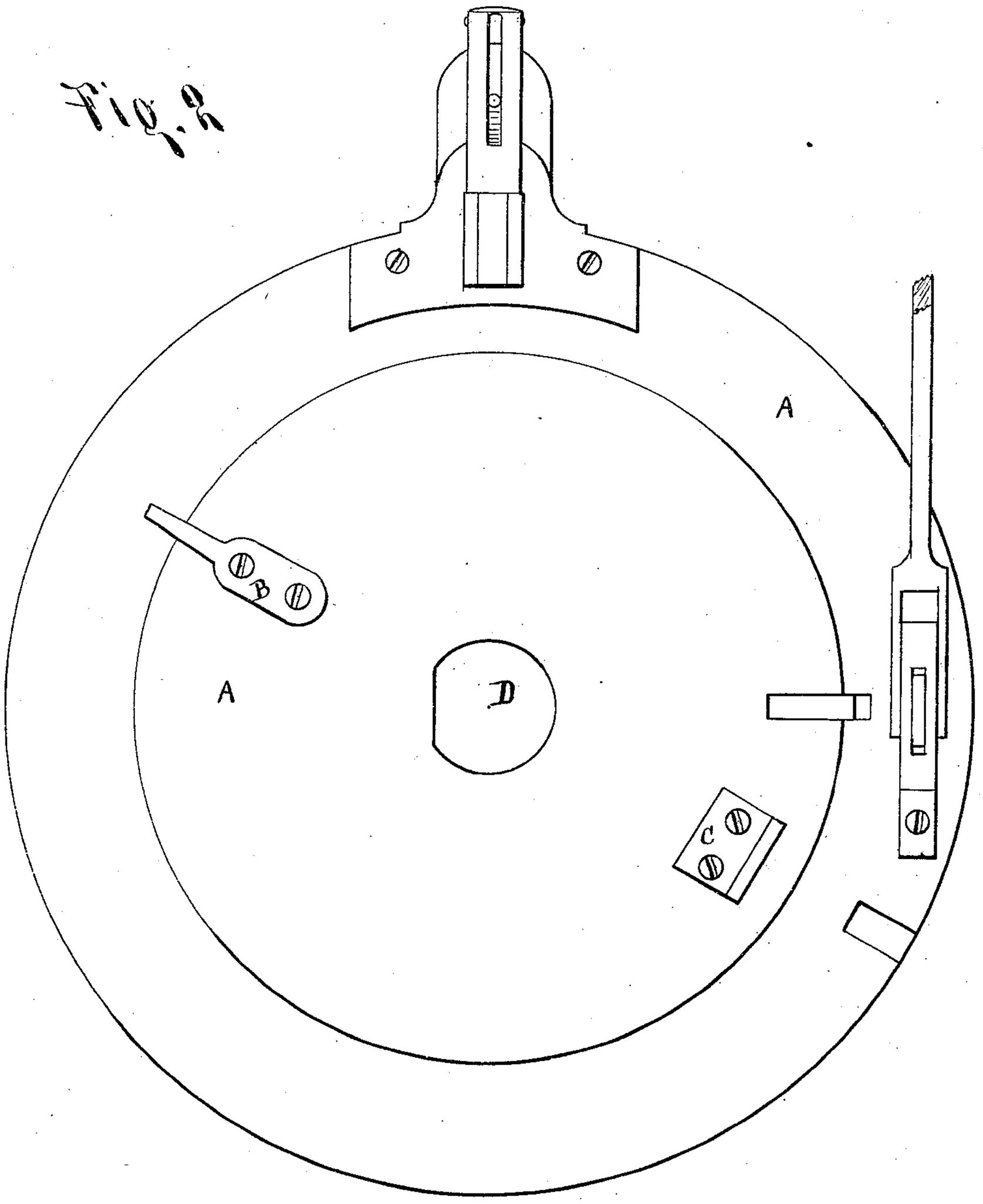
3 Sheets—Sheet 2.

E. MOREAU.

Button-Hole Sewing-Machine.

No. 110,669. Patented Jan. 3, 1871.

Fig. 2.



Witnesses

Wm. M. Smith

David P. Smith

Inventor

Eugene Moreau

assignor to himself James W. Haggerty

and Samuel Hall

3 Sheets—Sheet 3.

E. MOREAU.

SEWING MACHINE FOR WORKING BUTTONHOLES.

No. 110,669. Patented Jan. 3, 1871.

Fig 4

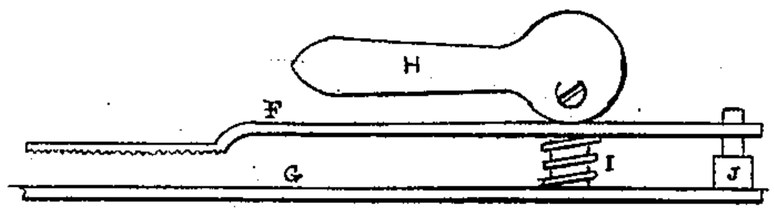


Fig.10

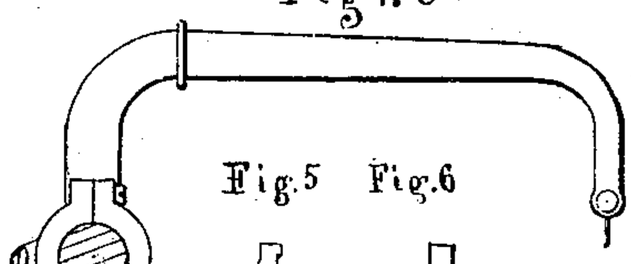


Fig.5 Fig.6

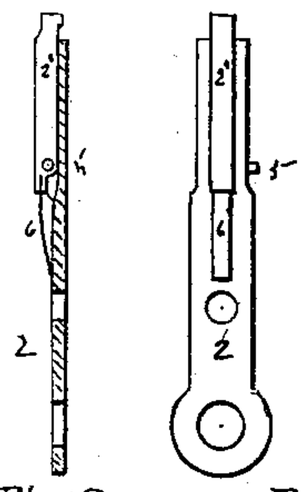
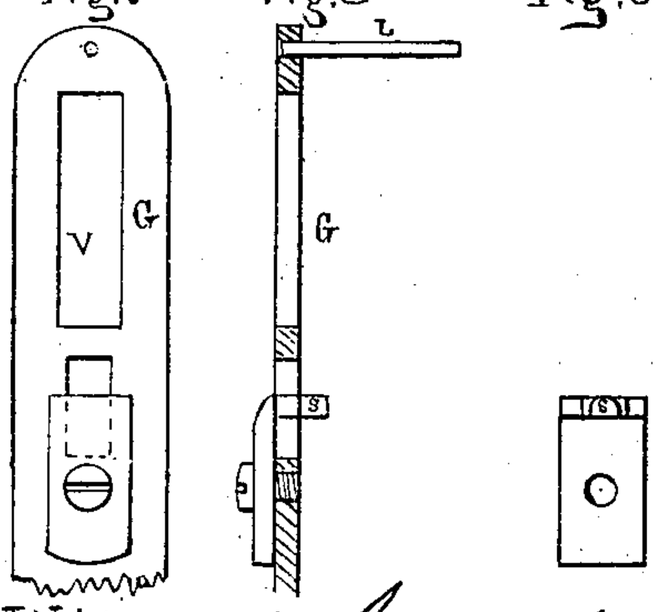


Fig.7 Fig.8 Fig.9

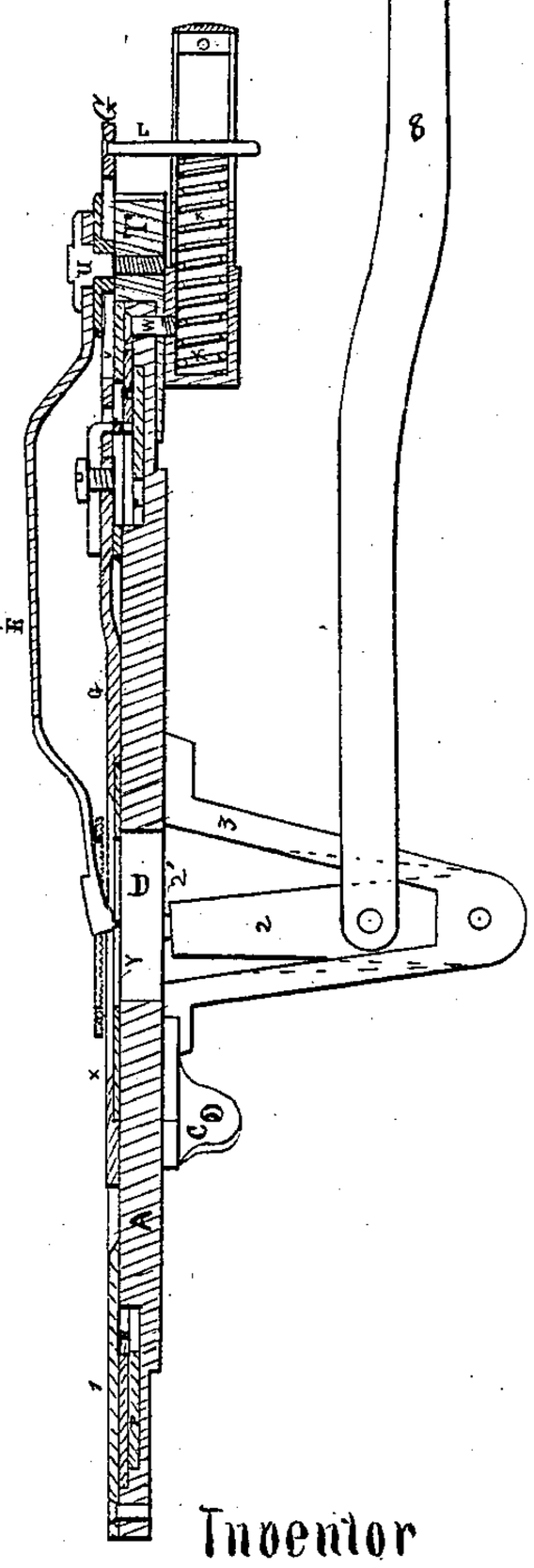


Witnesses

C. M. Smith

David P. Smith

Fig.3



Inventor

Eugene Moreau

assignor to himself James N Haggerty and Samuel Hill

United States Patent Office.

EUGÈNE MOREAU, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO HIMSELF, JAMES W. HAGGERTY, AND SAMUEL HILL.

Letters Patent No. 110,669, dated January 3, 1871.

IMPROVEMENT IN SEWING-MACHINES FOR WORKING BUTTON-HOLES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, EUGÈNE MOREAU, of the city and county of San Francisco, State of California, have invented certain new and useful Improvements in Attachments to Sewing-Machines for Making Button-Holes and Embroidery; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing and to the letters marked thereon.

This invention relates to that class of sewing-machines which is provided with a frame for holding the cloth, which is moved by proper mechanism in different directions while the needle is out of the cloth, for the purpose of embroidering or stitching button-holes; and consists in certain details of construction which will be fully described hereinafter.

In the drawing—

Figure 1, sheet 1, represents a plan view of the cloth-plate of the Florence sewing-machine, having my improvements applied thereto, a part of the covering-plate being broken away to expose the mechanism below.

Figure 2, sheet 2, is a plan view of the cloth-plate and frame from beneath.

Figure 3, sheet 3, is a side elevation of the arm and lever for operating the devices for moving the cloth-holder with the cloth-plate and holder in section.

Figure 4, sheet 3, is a partial view in elevation of the cloth-holder, showing the upper clamp with its eccentric-lever.

Figures 5 and 6, sheet 3, are views in detail of the lever and pawl for operating the cams which actuate the cloth-holder.

Figures 7 and 8, sheet 3, are partial views in detail of the cloth-holder, showing its adjusting-pin, *s*, and also the pin L which bears against the spring *k*.

Figure 9 represents a detached view of the pin *s* with its plate, by means of which it is secured to the cloth-holder; and

Figure 10 represents a side elevation of the needle-arm and strap, to the arm of which latter is connected the arm 8 for operating the pawl 2.

To enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe fully its construction and operation.

A represents the bed-plate, which is secured to the frame of the sewing-machine in any proper manner.

I preferably use, however, the usual construction, which is shown in fig. 2, sheet 2, consisting of lug B and socket C, in which latter is inserted a spring pin to hold it in place.

D is a central opening for receiving the bridge of the sewing-machine, the upper surface of which is flush with the upper surface of the bed-plate.

The upper surface of the bed-plate is recessed near its circumference, as shown in fig. 3, sheet 3, for the purpose of receiving the cam-plates or rings P R, which are covered, and held in position by the top-plate 1, provided with a central opening for the movement of the cloth-holder.

These cam-plates are rigidly secured together, one upon the other, and consequently can be formed of a single piece, if desired.

The plate P has a centrally-located circular opening, the edge of which is formed almost entirely of notches, as shown in fig. 1. Its outer edge is smooth.

The plate R has an eccentric inner circle, the edge of which is almost entirely smooth, being provided with notches at one point only. Its outer edge is provided with teeth, as clearly shown in fig. 1.

These plates or rings are actuated by means of a pawl, 2′, figs. 1, 3, 5, and 6.

This pawl works in a slot in the frame, and is pivoted in the slotted lever 2, and provided with a spring which keeps its face in contact with the teeth of ring R.

The lever 2 is pivoted in the hanger 3, fig. 3, and is actuated by the arm 8, which is itself operated by a pin, 10, fig. 10, on the strap-arm 7, attached to the shaft of the needle-arm.

The pin 10 works in a slot, 9, which is constructed in the arm 8, for the purpose of causing the latter to move only when the needle is out of the cloth.

The foregoing description relates to the construction of the cam-plates and the manner of operating them.

The means employed for communicating their movements to the cloth-holder will now be described.

Q represents a sliding plate, which moves in a suitable recess in the bed-plate, and is provided with pins, *q q′*, as shown in fig. 1.

The pin *q′* bears against the inner edge of the cam-plate P, and is operated thereby. It is preferably provided with a friction-roller.

The pin *q* bears against the lever O, which, in its turn, bears, by means of its projection N, against one side of the cloth-holder, and presses the latter against the spring M.

These devices cause the lateral movement of the cloth-holder as follows:

The revolutions of the cam-plate P press forward the sliding bar Q, by means of its projections, and the cloth-bar, in its turn, causes the holder to move to one side, the return movement being effected by the spring M, which forces the pin *q′* into the depressions of the cam-plate as the latter revolves.

The forward-and-backward movements of the cam or cloth-holder are caused by the action of the cam R on the pin *s* attached directly to the cloth-holder, in connection with the spring *k* acting on the pin L.

G represents the cloth-holder, which is provided with two arms, one having a pin, I, and the other two longitudinal slots.

In the first of these latter is secured the pin *s* attached to a plate made adjustable by means of a set-screw.

In the second is located the screw which secures the cam, and also the presser E to the lug T, fig. 3.

The screw is made with a broad head for holding the presser.

Between the presser and the holder *a* a washer is interposed, which is provided with a projecting face which extends downward between the sides of the slot and rests upon the lug below.

By means of this construction the arm of the cloth-holder, and also the presser, are securely held from displacement by means of the screw, while the former is permitted to move freely longitudinally when actuated by the cam-plate.

To the extreme end of the arm of the cloth-holder is attached a pin, L, which extends downward through the slotted bar K below, in which is located the spring *k*.

This box is pivoted at its forward end to the frame, in order that it may swing freely to adjust itself to the lateral movements of the cloth-holder.

The upper clamp F is provided at its rear end with an orifice, which is placed over the shouldered pin J, and near its center with a second orifice, through which projects the pin I, on the top of which an eccentric-lever, H, is pivoted, a spring being interposed on the standard between the clamp and lower plate.

The front end of the clamp is provided with a central slot, and has its face formed into teeth, as shown.

The front end of the carrier G is provided with a central opening, having beveled edges, in which is secured, in a suitable recess, a thin plate, *y*, provided also with a central opening.

This plate is provided with a concave upper surface, for the purpose of bringing the cloth close down to the bridge of the sewing-machine.

The front end of the presser E is divided, and provided with rounded faces of unequal length.

It is also so located as to press firmly upon the cloth about the needle, it being designed to hold it when the needle is making its upward movement.

The operation of my machine is as follows:

The cloth is firmly held in the holder by means of the upper clamp.

The holder itself is moved in different directions by the cam-rings P R, which actuate the intermediate operating mechanism before described.

The movement of the cloth in different directions causes, of course, the needle to stitch the cloth at different points corresponding to the movements of the holder.

The cams shown are especially adapted for stitching button-holes. They are, therefore, so constructed as to give the holder an extended reciprocating movement laterally, in connection with a very slight backward movement for the purpose of stitching one side of the button-hole, and an extended movement forward and back, and a very slight movement laterally, for the purpose of stitching the end of the button-hole, and a repetition of the first operation (excepting that the holder moves forward) for stitching the other side of the button-hole.

To explain more in detail: The cam-ring P, with its projections and depressions, causes the bar Q to have a reciprocating movement which is communicated to the cloth-holder.

If no other movement was communicated to the latter it would simply move from side to side, to a greater or lesser distance, according to the depth of the notches, and a series of stitches would be made, during the operation of the machine, in the same place.

To give the holder the forward-and-back movement necessary to stitch the entire hole is the office of the cam-ring R.

This, being provided with a central ring eccentric to the needle, causes the pin, against which its round edges press, to move from the needle and permits it to be pulled toward the needle through the action of the spring *k*, according to the relation the edge bears to the pin.

The cam-ring P, therefore, it will be understood by its connections, causes the holder to make the proper movements laterally, while the cam-ring R causes the proper movements in a direction at right angles thereto.

At the top or bottom of the button-hole, where it is necessary to change the direction of the stitch, the cam-ring R is provided with notches, and the ring P is smooth, or nearly so, but so formed, by changing the curve of its edge, to cause the holder to move slightly from one side to the other.

By locating the cams one above the other, and by arranging the pins correspondingly, greater compactness is secured, with freedom of action upon the part of each, without interference with the other.

The main advantages of the construction described are compactness and simplicity.

Having thus fully described my invention,

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

1. The cams P R, provided with notched and smooth edges, as described, located in different planes, in combination with pins in corresponding planes, all for operating the cloth-holder, as described.

2. The cams P R, in combination with the sliding bar Q provided with its pin, lever O with projection N, spring M, and cloth-holding frame F G with its pin *s*, pin I, and spring *k*.

3. The pawl 2′ with its spring, in combination with the lever 2 and hanger 3, as described.

4. The pivoted box K with its spring, in combination with the plate A and pin L, as described.

In testimony whereof I have hereunto set my hand and seal.

EUGENE MOREAU.

Witnesses:

C. W. M. SMITH,

H. S. TIBBEY.