

No. 671,050.

Patented Apr. 2, 1901.

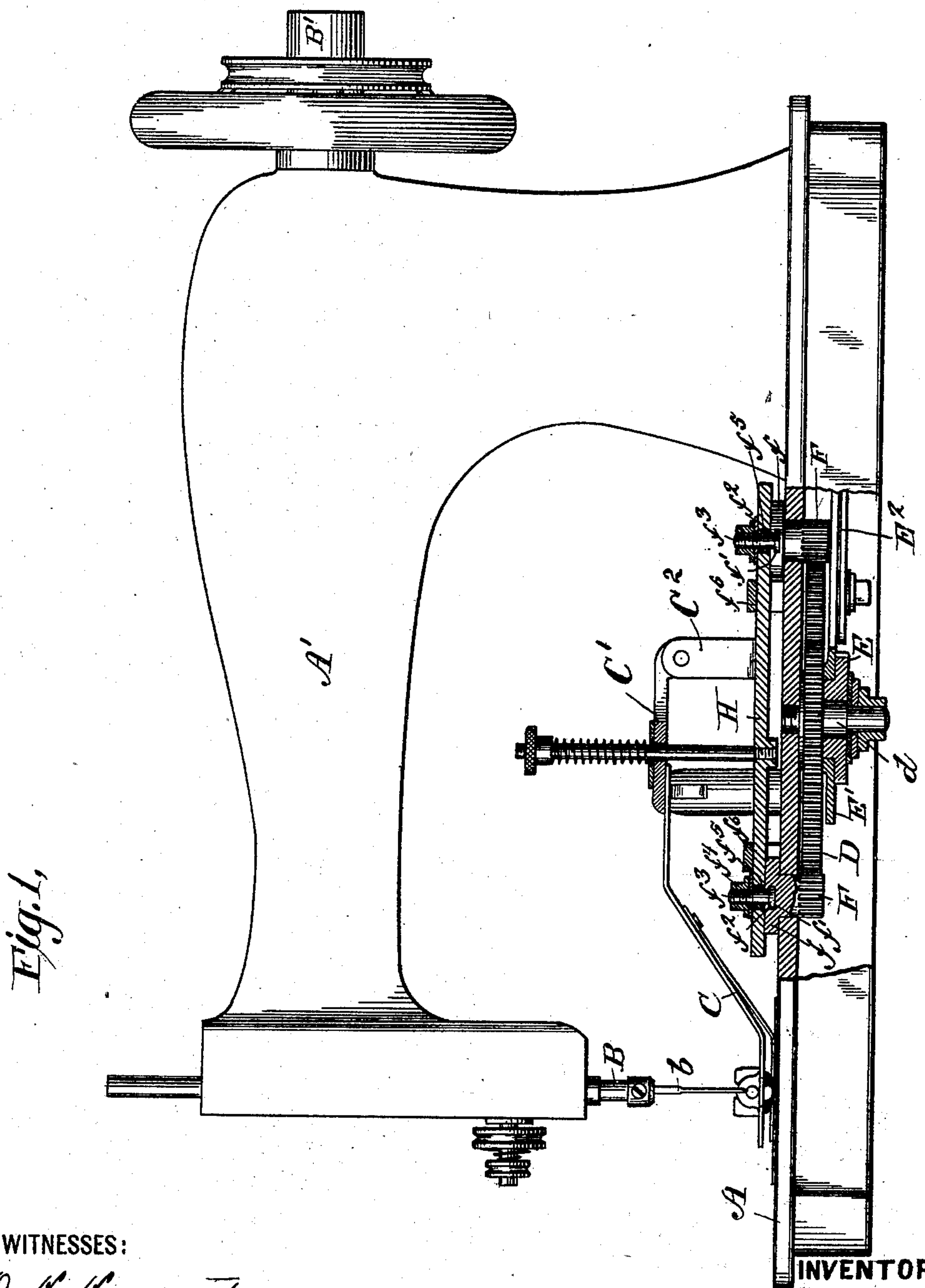
J. T. HOGAN.

MACHINE FOR SEWING BUTTONS TO FABRICS.

(No Model.)

(Application filed Feb. 20, 1900.)

3 Sheets—Sheet 1.



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Fig. 2.

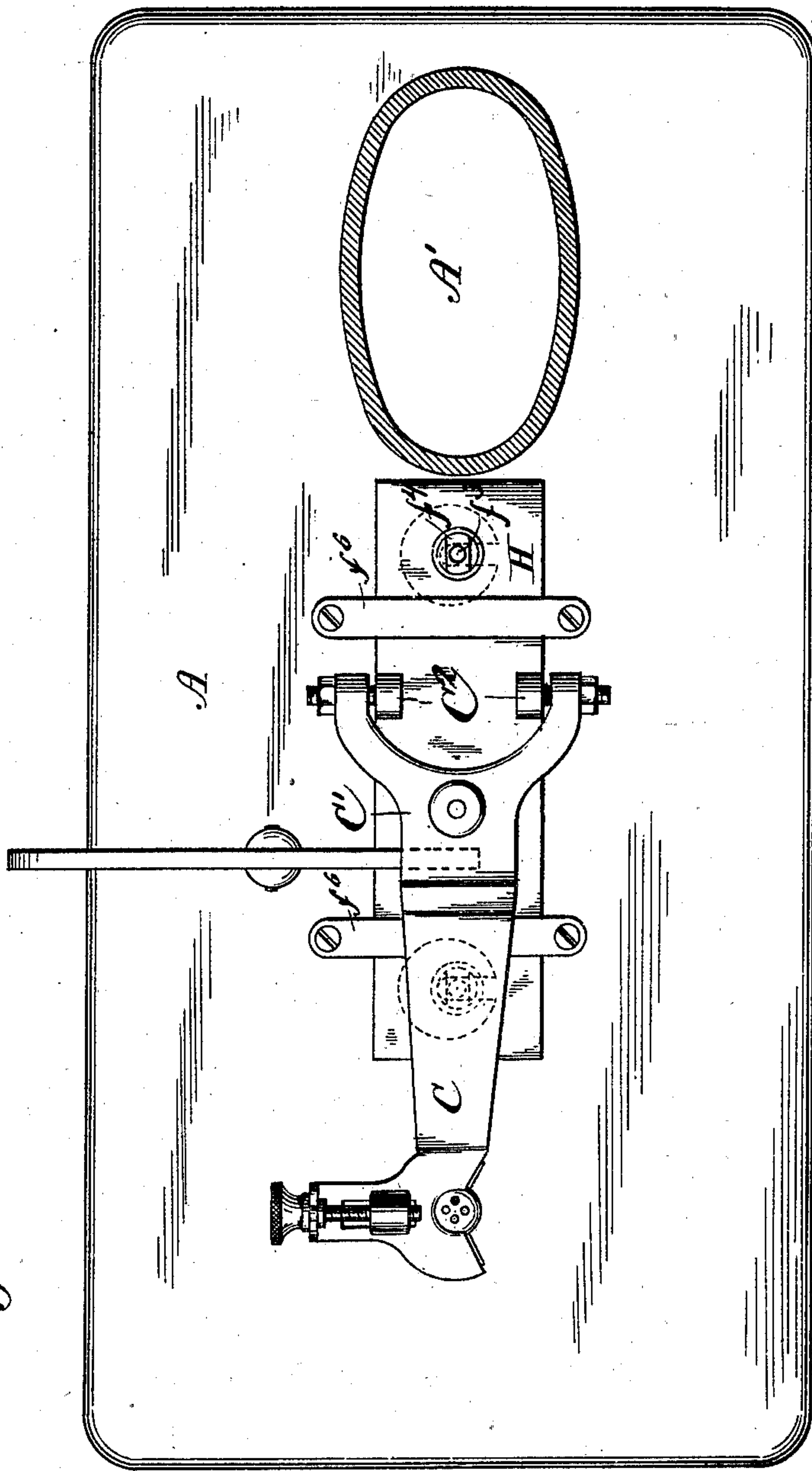


Fig. 4.

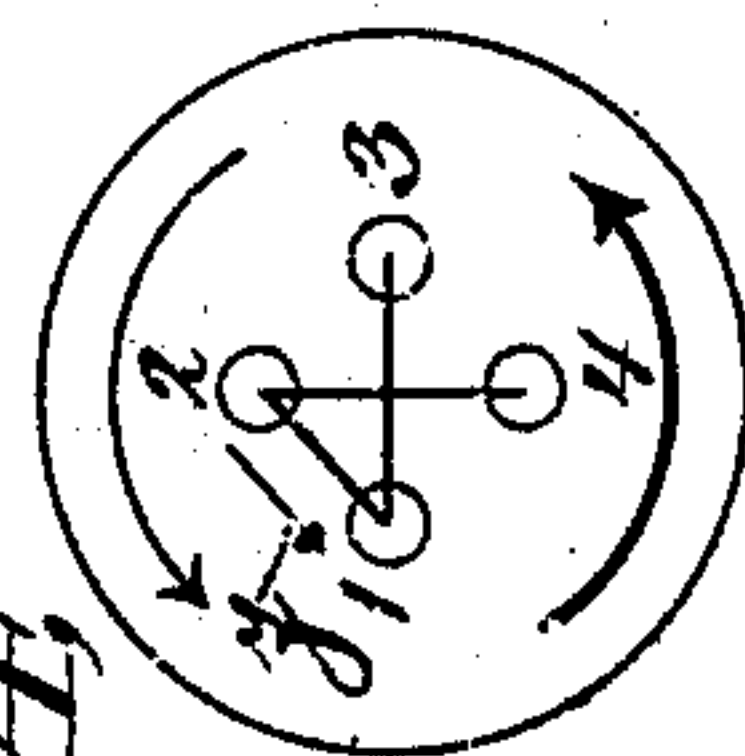


Fig. 5.

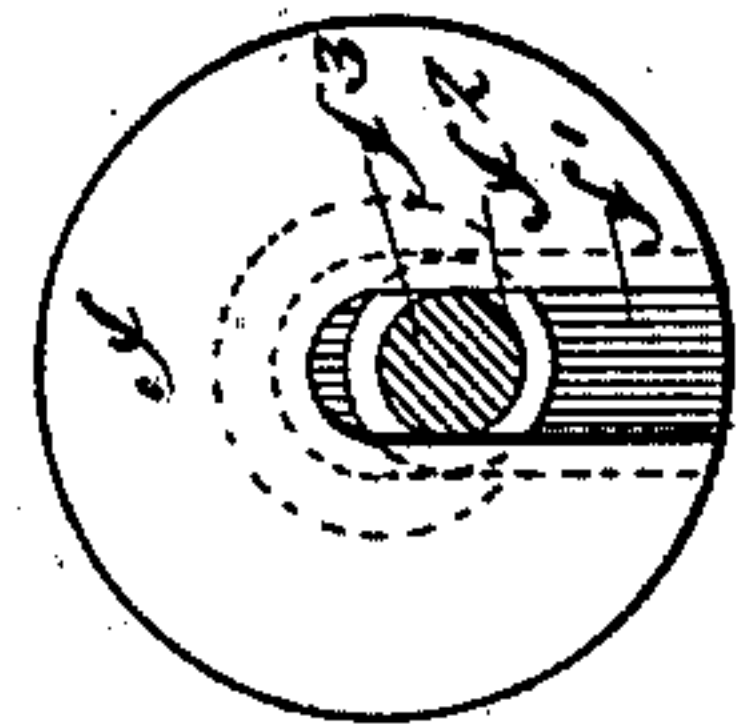
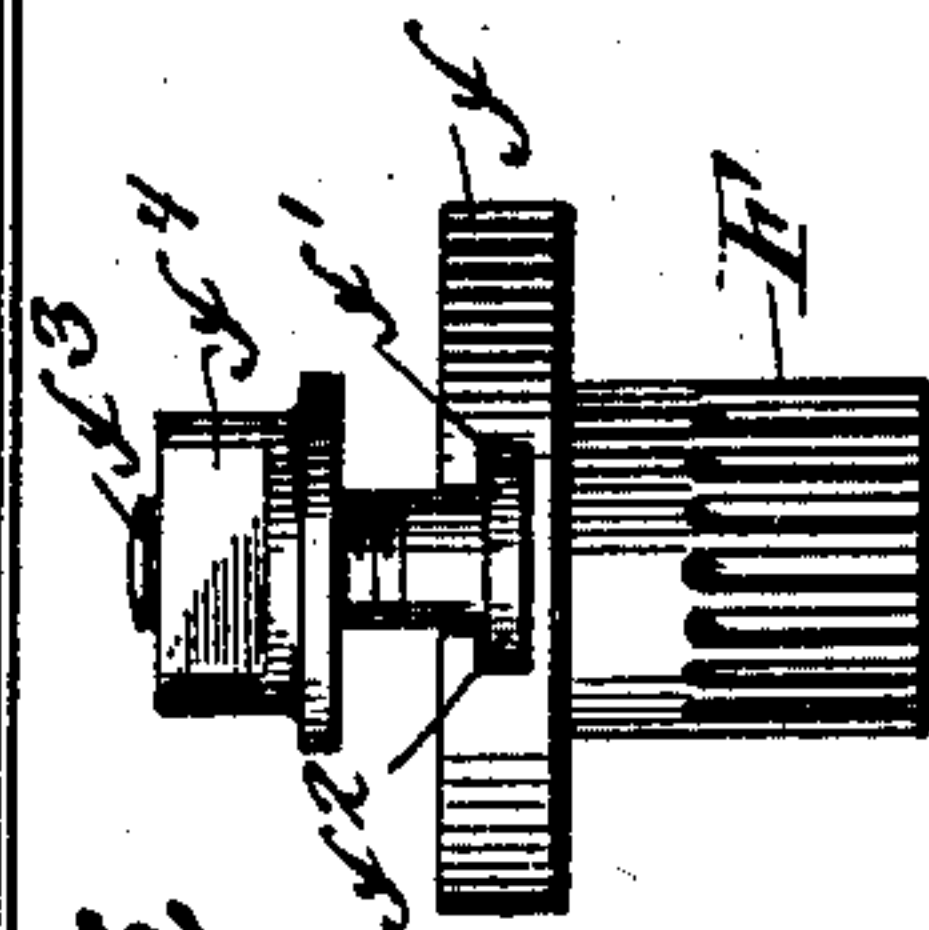


Fig. 6.



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Fig. 3.

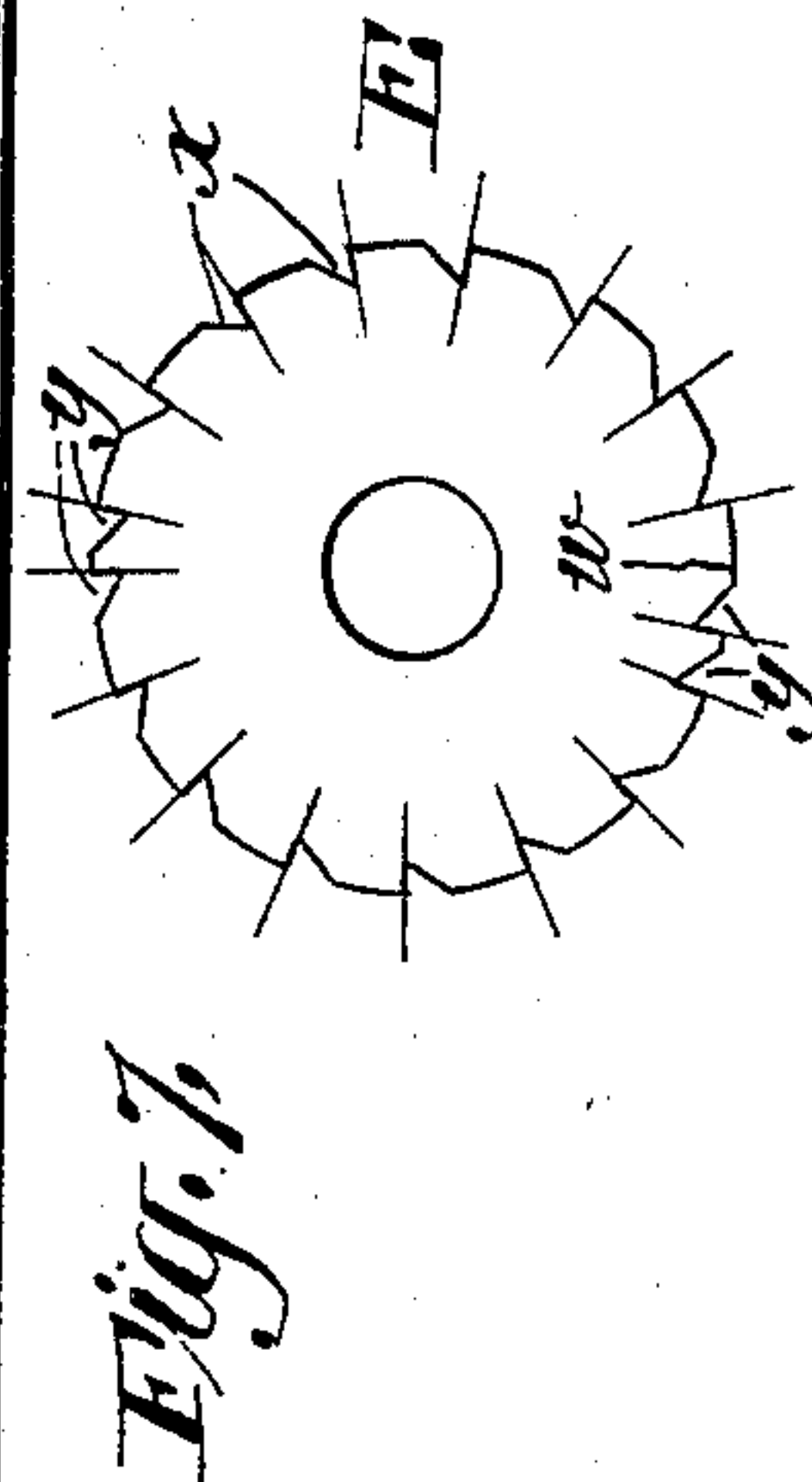
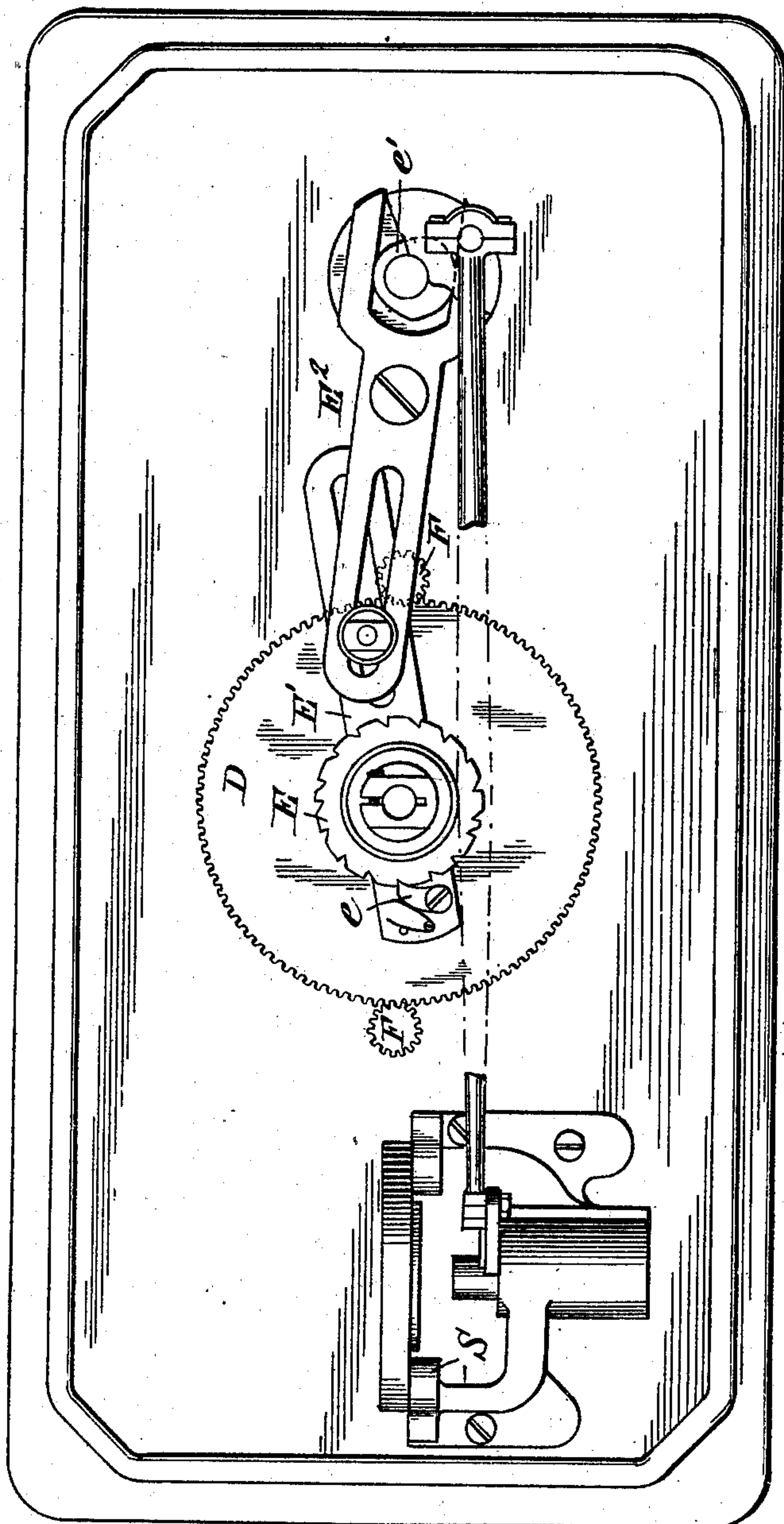


Fig. 7.

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UNITED STATES PATENT OFFICE.

JAMES T. HOGAN, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO THE
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MACHINE FOR SEWING BUTTONS TO FABRICS.

SPECIFICATION forming part of Letters Patent No. 671,050, dated April 2, 1901.

Application filed February 20, 1900. Serial No. 5,873. (No model.)

To all whom it may concern:

Be it known that I, JAMES T. HOGAN, a citizen of the United States, residing in Jersey City, county of Hudson, and State of New Jersey, have invented certain new and useful Improvements in Machines for Sewing Buttons to Fabrics, of which the following is a specification.

My invention relates to machines for sewing buttons to fabrics.

I will describe a machine embodying my invention and then point out the novel features thereof in the claims.

In the accompanying drawings, Figure 1 is a side elevation, partly in vertical section, of a machine for sewing buttons to fabrics embodying my invention. Fig. 2 is a plan view of the parts above the bed-plate of the machine shown in Fig. 1. Fig. 3 is a plan view of some of the parts beneath the bed-plate. Figs. 4, 5, 6, and 7 are detail views of several of the parts comprised in the machine.

Similar characters of reference designate corresponding parts in all of the views.

This machine is adapted to sew buttons to fabrics by means of two sets of stitches crossing each other, as illustrated in Fig. 4. The button to be sewed in this manner has, of course, four holes 1, 2, 3, and 4. The machine may also have the capacity of sewing a button having but two holes by a single set of stitches.

A designates the bed-plate, and A' the head, of a machine of any ordinary construction.

B designates the needle-bar, to which is attached the needle *b*. The needle-bar is given a vertical reciprocating movement by means of a crank operated by the main driving-shaft B' in a well-known manner. In the present example of my improvement the needle and needle-bar have a vertical movement only, the desired alternate to-and-fro movements necessary to effect the sewing of a button being imparted to the button-holder.

C represents the button holder or clamp, which may be of any desired construction. It is connected with a lever C', which is hinged to standards C², and the standards are fixed to a plate H, to be hereinafter referred to.

D represents a driving gear-wheel loosely mounted on a stud *d*, which is carried by the

bed-plate A. Rigidly connected with the gear-wheel D is a ratchet feed-wheel E, to be hereinafter more particularly referred to. The ratchet-wheel E is moved by means of a pawl *e*, carried by a pawl-lever E', which pawl-lever is oscillated on a hub of the ratchet-wheel. The pawl-lever E' is adjustably connected with a lever E², pivotally mounted on the bed-plate, and the lever E² is oscillated by means of a cam *e'*, which obtains its motion from the main driving-shaft in the usual way. S represents a shuttle mechanism which is operated in the usual way.

F F represent pinions suitably journaled in the bed-plate A. These pinions mesh with the gear-wheel D and are rotated thereby. Fixed to each pinion is a disk *f*, which, as shown, is preferably located on top of the base-plate A. Each disk is provided, preferably, with a dovetail recess *f'*, and held in each recess is the head *f*² of a screw or bolt *f*³. The screws *f*³ are passed through openings in the plate H, and nuts *f*⁴ are provided to retain the screws in the openings and the heads *f*² in the recesses *f'*. Bushings *f*⁵ are provided in the openings in the plate, and the nuts *f*⁴ preferably bear on the bushings. The purpose of this is to permit the plate turning on the bushings when it is moved by the disks *f*. Straps *f*⁶ are provided to prevent any vertical movement of the plate H and parts connected thereto relatively to the bed-plate A. The advantage of the recesses *f'* in the disks is to permit the heads of the screws *f*³ to be adjusted therein according to the throw it is desired to give the plate H. This adjustment enables buttons having different distances between diametrical openings to be sewed onto fabrics by this machine.

The ratchet feed-wheel E is provided with a number of teeth of one size and also with teeth of a size smaller than the first-mentioned teeth. The proportions of these teeth should be as follows: The larger teeth are of such size as to cause the button to be fed from a position in which the needle *b* would pass through the opening 1 in the button to a position to cause the needle to pass through the opening 3 in the button. The same is true when the needle is to be passed through the openings 2 and 4 of the button. The smaller

teeth, of which there are two, are of such size as to cause the button to be fed, for example, from the hole 1 to the hole 2. These teeth occur in the ratchet-wheel E when the sewing-
 5 stitches are changed from one pair of openings to the other pair of openings. Therefore the driving-gear D and the pinions F F should be of such relative sizes or the ratio of teeth between the gear and pinions should
 10 be such that for each feed of one of the larger teeth on the ratchet-wheel E the pinions F F will be rotated sufficiently to cause the plate H and button-holder C to move in an arc or circular direction or path to bring first one
 15 buttonhole under the needle and then the diametrically opposite buttonhole, and for each feed of one of the smaller teeth on the ratchet-wheel E the pinions will be rotated sufficiently to move the plate H and button-
 20 holder C to such position to cause the needle to pass first through one of the four holes 1 2 3 4—for example, the hole 2—and then to a position to cause the needle to pass through an adjacent hole in an angular direction—for
 25 example, the hole 1. It will therefore be understood that by the use of the phrases “circular path” or “circular direction” or either of them I mean the arc or arcs described by the button-holder in its movements from one
 30 position to another to permit the needle to pass through diametrically opposite button-holes in laying a stitch or stitches.

With the arrangement of parts as shown and described the plate H and button-holder
 35 C will in the laying of a stitch between two diametrically opposite holes move or travel in an arc or circular path of one hundred and eighty degrees, and for the laying of two stitches between the same diametrically op-
 40 posite holes the plate H and button-holder C will move or travel in a circle—that is, two arcs of one hundred and eighty degrees each. For laying the short stitch between two ad-
 45 jacent holes in an angular direction (1 and 2, 2 and 3, 3 and 4, or 4 and 1) the plate H and button-holder C will move or travel in an arc of ninety degrees, or one-quarter of a circle.

The operation of the machine is as follows: The button holder or clamp is stopped in such
 50 position as that upon the first descent of the needle it will pass through one of the openings in the button—for example, the opening 1. As the pawl *e* engages each large tooth *x* of the ratchet-wheel E the gear D is rotated,
 55 and through the gear D each pinion F is given a half-rotation, together with the disks *f* and plate H, connected therewith by the screws *f*³. The path of movement of the button-holder during this operation, which is indi-
 60 cated by a light arrow in Fig. 4, will bring the opening 3 of the button in such position as to permit the needle to pass through it. The pawl *e* engaging the next large tooth *x* on the ratchet-wheel E causes the pinions F and
 65 parts connected therewith to have another half-revolution. The button-holder will then

be moved in the direction indicated by the heavy arrow in Fig. 4. This movement brings the button in such a position that the needle
 70 will again pass through the opening 1. These movements of the plate H and button holder or clamp are continued until one of the two small teeth *y* is to be engaged by the pawl *e*. At the time that the tooth *y* is to be engaged
 75 the pawl *e* will be resting on one of the large teeth *x* at about a position indicated by *w*. When the pawl is moved to engage the tooth *y*, the gear D will be rotated only enough to have the pinions move a quarter-revolution.
 80 The movement given the plate H and button-holder is indicated by the arrow *z* in Fig. 4. This movement brings the button in such position that the needle will pass through the opening 2. The tooth on the ratchet-wheel
 85 E next engaged by the pawl *e* after the tooth *y* will be a large tooth *x*. The amount of movement then given the gear-wheel D will cause the pinions and parts carried thereby to have a half-revolution and move the button-
 90 holder to bring the button in such position that the needle will pass through the opening 4. The succeeding movements of the button-holder with reference to the openings 2 and 4 are as above described. After a num-
 95 ber of stitches are made through these openings the machine is stopped and another button inserted in the button holder or clamp.

What I claim as my invention is—

1. In a button-sewing machine, the combination of a sewing mechanism comprising a
 100 reciprocating needle, a button holder or clamp and means for vibrating said button holder or clamp relatively to the needle in two circular paths, the starting-point of one circular
 105 path being in advance of the other circular path, and said starting-points differing from each other by a quantity other than one-half a complete rotation.
2. In a button-sewing machine, the combination of a sewing mechanism comprising a
 110 reciprocating needle, a button holder or clamp, and means for causing said button-holder to be vibrated in a circular path to sew one set of stitches, and then shifted automatically
 115 during the sewing operation so that a second set of stitches may be sewed by a second vibration in a circular path so that the two sets of stitches will cross each other.
3. In a button-sewing machine, the combination of a sewing mechanism comprising a re-
 120 ciprocating needle, a button holder or clamp, means for causing said holder or clamp to be vibrated relatively to said needle in a circular direction, and a ratchet-wheel and its
 125 operating-pawl for operating said means, said ratchet-wheel having teeth of different sizes whereby a different amount of circular vibration will be given the button holder or clamp.
4. In a button-sewing machine, the combination with a sewing mechanism comprising
 130 a reciprocating needle, a button holder or clamp, and means for vibrating said button

holder or clamp relatively to the needle in two circular paths, said means comprising two disks each having a crank connection with the button holder or clamp, and a ratchet feed-wheel for rotating said disks.

5 5. In combination with a button holder or clamp of a button-sewing machine, a ratchet feed-wheel, and its operating-pawl, a driving gear-wheel operated from said ratchet-wheel, 10 a plurality of pinions in mesh with said wheel, a disk carried by each pinion and having a recess, a bolt or screw in each recess, which bolt or screw passes through the holder or clamp and a nut for each bolt or screw.

15 6. In combination with a button holder or clamp of a button-sewing machine, a ratchet feed-wheel, pinions operated from said ratchet-wheel and an adjustable connection between each pinion and the holder or clamp.

20 7. In a button-sewing machine, the combination with sewing mechanism comprising a reciprocating needle, a button holder or clamp, and means for producing a vibratory movement of said button holder or clamp in 25 two circular paths, said means comprising a ratchet feed-wheel, a driving-gear operated from said ratchet-wheel, pinions in engagement with said driving-gear and pins carried

by said gear and having a connection with the button holder or clamp.

30 8. In a button-sewing machine, the combination of sewing mechanism, a button holder or clamp and mechanism for vibrating said button holder or clamp relatively to the needle in a plurality of circular paths, said mechanism including means to shift the starting- 35 point of one of said paths to a point substantially ninety degrees from the starting-point of the first-named path.

9. In a button-sewing machine, the combination of sewing mechanism, a button holder 40 or clamp, a ratchet feed-wheel having two sets of teeth of different sizes and mechanism actuated by the teeth of one set to produce a relative vibratory movement between the 45 button-holder and needle in circular paths for the sewing of stitches, and by the teeth of the other set to determine the starting-point of the said paths.

In testimony whereof I have signed my 50 name to this specification in the presence of two subscribing witnesses.

JAMES T. HOGAN.

Witnesses:

GEO. E. CRUSE,

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