

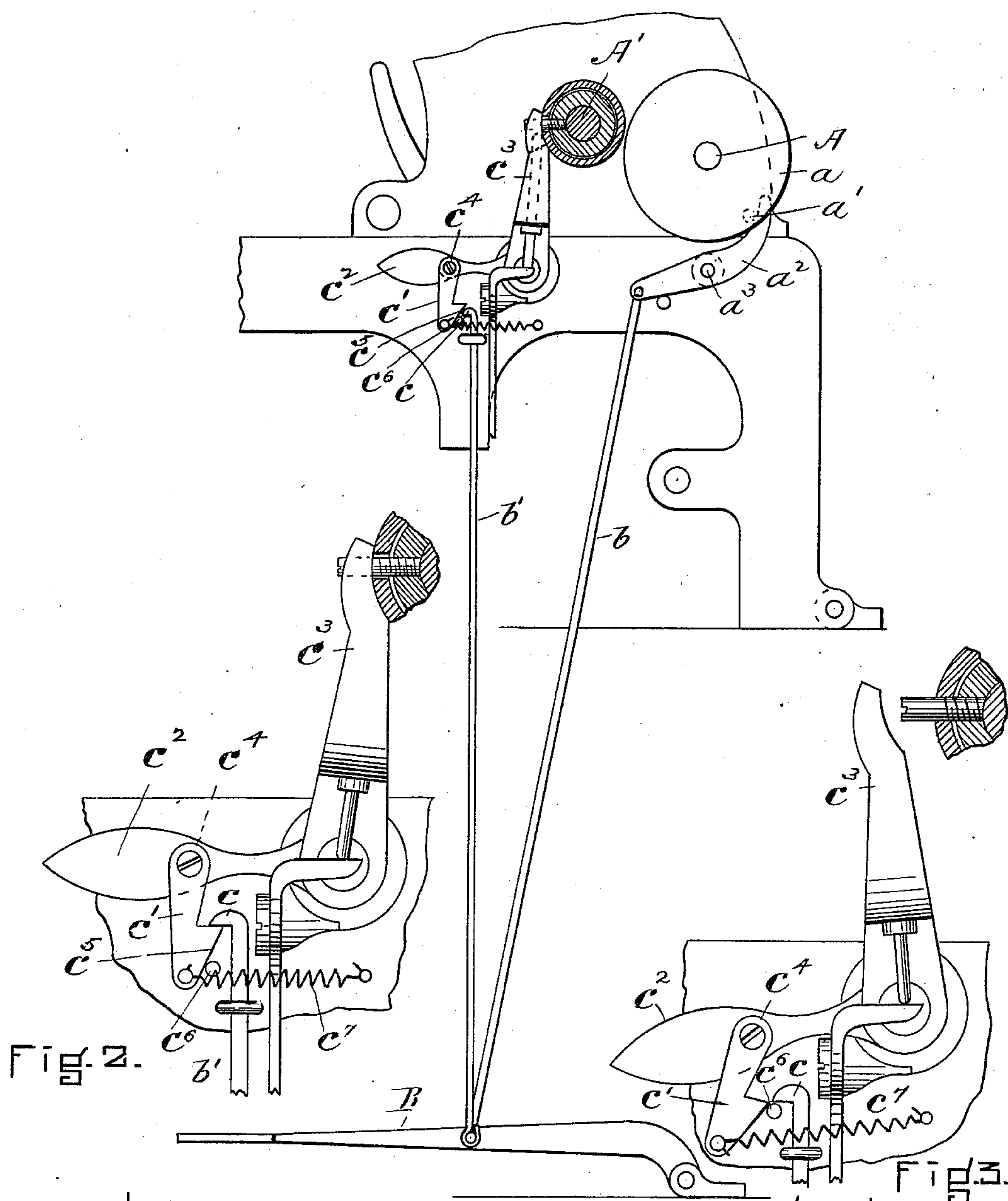
(No Model.)

2 Sheets—Sheet 1.

C. A. DAHL.  
BUTTONHOLE SEWING MACHINE.

No. 566,893.

Patented Sept. 1, 1896.



WITNESSES.

J. W. Dolan.  
James Cummings.

FIG. 1.

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Chas. A. Dahl  
by his Attys  
Clark & Hayward

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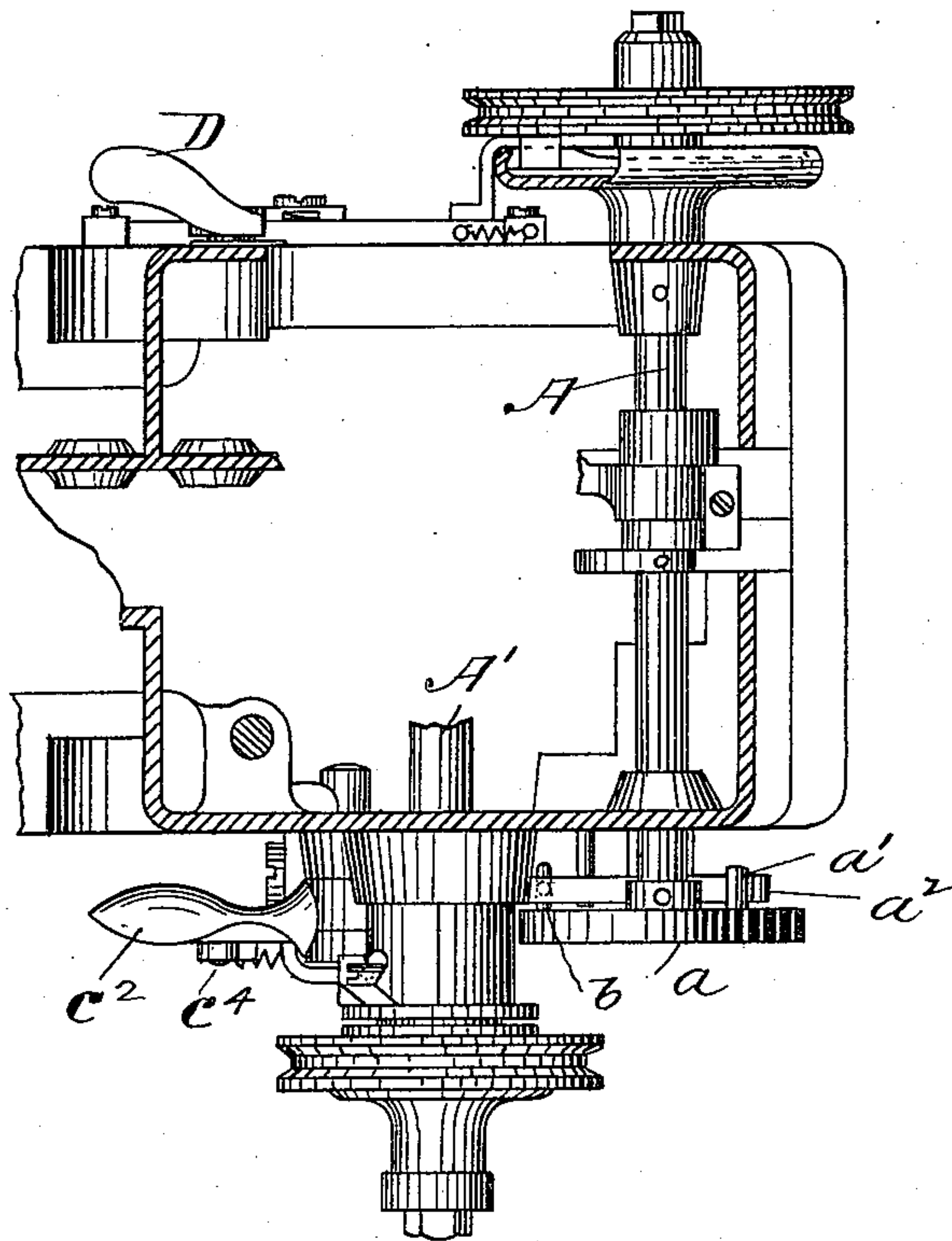


Fig. 4.

WITNESSES.

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*James Cummings*

INVENTOR.

*Chas. A. Dahl*  
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*Clarke & Raymond*



# UNITED STATES PATENT OFFICE.

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BUTTONHOLE MACHINE COMPANY, OF KITTERY, MAINE, AND BOSTON,  
MASSACHUSETTS.

## BUTTONHOLE-SEWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 566,893, dated September 1, 1896.

Application filed March 10, 1892. Serial No. 424,403. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES A. DAHL, a subject of Oscar II, King of Sweden and Norway, residing in the city of Lynn, in the county of Essex and State of Massachusetts, have made a new and useful Improvement in Mechanism for Operating Buttonhole-Stitching Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

The invention is illustrated as applied to the machine described in Letters Patent of the United States No. 450,950, dated April 21, 1891, and granted to J. H. Reed and myself. In said machine there are two independent organisms mounted on a common frame. The first is the buttonhole-slitting organization. This embraces an independent shaft, power to run it, mechanism to stop it, and actuating cams or devices upon the shaft which connect, first, with the clamps and clamp-plates to draw them from their stitching position to the cutting position; second, with buttonhole-cutter to actuate it to slit the buttonhole after the clamps and clamp-plates have been so fed; third, with a spreader to actuate it to spread the clamps and clamp-plates and fabric held thereby after the forming of the buttonhole-slit, and, fourth, with the shipper of the second or stitching organization whereby it is moved to cause an automatic engagement of the two members of its clutch at the end of the rotation of the independent shaft, the clamps, clamp-plates, and material being returned to stitching position by springs. The second organization is the stitching. It receives its power independently of the first and has a separate stop-motion mechanism, and it acts in conjunction with the clamp-plates and clamps when held in stitching position to stitch the sides and eye and the bar of a buttonhole.

My present invention relates to means for starting the stitching mechanism, which are controlled in part by the buttonhole-slitting mechanism; that is, in the patent referred to the two organisms are represented and described as started by the single impulse of a starting-lever, the buttonhole-cutting devices

being first actuated, and they in turn causing the automatic actuation of the stitching devices. In the present invention each organism is started by a separate hand impulse, the first of which causes the actuation of the slitting mechanism, and the second of which causes the actuation of the stitching devices, and without which the stitching devices would remain inoperative after the action of the cutting mechanism.

There are various ways by which my invention may be incorporated into the machine, and while I do not confine myself to the specific devices herein shown and described I consider that they are as good as any I have conceived.

Referring to the drawings, Figure 1 is a view, principally in side elevation, of a sufficient part of a buttonhole-stitching machine of the character specified to illustrate the application of the invention. Fig. 2 is a detail view, enlarged, of the parts constituting the trip, showing them in one position. Fig. 3 is a view of the same parts, representing them in another position; and Fig. 4 is a view, principally in plan, of parts of the machine with which the devices are connected.

In the drawings, A represents the independent shaft of the buttonhole-slitting organism, and A' the main shaft of the stitching organism. Upon the independent shaft A there is mounted a disk *a*, which carries a pin *a'*, by which motion is communicated to the bent lever *a*<sup>2</sup>, pivoted at *a*<sup>3</sup> and connected with the treadle B by a long rod or link *b*. The object of these devices is to cause the treadle B to be lifted at about the completion of the revolution of the shaft A, or after the buttonhole has been slit and the clamps and clamp-plates returned to stitching position. The lifting of the treadle B at that time causes a latch *c*, at the upper end of a push-rod *b'*, also connected with the treadle B, to engage a catch *c'* on the arm *c*<sup>2</sup>, extending from the shipper *c*<sup>3</sup>. (See Fig. 1.) When the latch and catch are so engaged, the depression of the treadle B causes the shipper *c*<sup>3</sup> to be withdrawn from the section of the clutch, which it releases, and thereby permits the instantaneous engagement of the two mem-



bers of the clutch and the operation of the stitching devices. During the downward movement of the treadle, however, and after the shipper has been moved to cause the starting of the machine, the latch becomes disengaged from the catch and cannot again engage it until it is lifted by the action of the independent shaft A. This result is reached by forming the catch  $c'$  in the shape of a hook, connecting it to the arm  $c^2$  by the pivot  $c^4$ , so that it hangs downward from it, and providing it with a curved surface  $c^5$ , which, coming in contact with a pin  $c^6$  as it is moved downward while in engagement with the latch  $c$ , causes it to be moved horizontally sufficiently to disengage it from the latch, while the latch continues its downward movement. The position of the parts then is as shown in Fig. 3. To restore the catch  $c'$  to a position to permit it to be engaged by the latch, it is necessary that the shipper shall have been returned to its original or stopping position in relation to the clutch of the shaft A' and that also the catch be returned to its original position, and this is accomplished by the spring  $c^7$ . (See Fig. 2.)

The operation of the device is as follows: The operator, after clamping the work upon the clamp-plate, moves the lever D and starts the shaft A, thus closing the clamps, transferring the clamps, clamp-plates, and material to the cutter, cutting the buttonhole and engaging the treadle with the starting mechanism of the buttonhole-stitching devices. The machine then stops, and the buttonhole-stitching devices are not started until the treadle B is depressed. This can be very quickly done, if desired, by placing the foot upon the treadle at the time that the starting-lever D of the cutting organization is moved, as by so doing the treadle B may be immediately depressed after it has been lifted to engage the starting devices of the stitching mechanism, and but very little time will intervene between the stopping of the one mechanism and the starting of the other. It will be seen, also, that the stitching devices having been started by the treadle cannot be again influenced by the treadle until the machine has come to rest and also until the treadle has been lifted to engage the starting mechanism, so that it becomes entirely safe for the operator to place his foot upon the treadle at all times, as he cannot start the stitching devices by so doing until he has caused the cutter-shaft to make a revolution. In other words, the treadle controlling the stitching mechanism is normally inoperative and is moved into an operative position only by actuating the independent shaft, and having then been moved to start the stitching devices it cannot again be employed for that purpose until the stitching-machine has come to rest and the cutter-shaft has been again actuated, unless, of course, the treadle is lifted by hand; but this would be an act which

would only be necessary for certain purposes and would be with the full knowledge of the operator. Of course a lever may be used in lieu of the treadle; that is, instead of starting the stitching-machine by foot it may be started by hand.

I would say that while I prefer that the treadle B be controlled as to the time of its engagement with the starting mechanism of the stitching-machine, yet it may be used with the starting mechanism of the stitching devices alone, in which case, however, it is desirable to employ a lifting-spring for lifting the treadle and the rod  $b$  after the foot has been removed from the treadle in order that the treadle-latch may engage with the starting-mechanism catch.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The combination in a machine of the characters specified of buttonhole-stitching devices, starting mechanism therefor, a clutch for controlling the starting mechanism, a lever for actuating the clutch, a latch carried by the lever, a pin and a treadle held in engagement with the said latch during a portion of its downward movement, and then automatically disengaged therefrom, whereby the treadle cannot again actuate the starting mechanism until it has been returned to its original position, as and for the purposes described.

2. In a machine of the character specified, the combination of buttonhole-cutting devices, buttonhole-stitching devices, starting mechanism therefor, a treadle for actuating said starting mechanism and means connected with the cutting mechanism for lifting the treadle into operative relation with the said starting mechanism, as and for the purposes described.

3. The combination in a buttonhole-machine of the treadle B, means for lifting it, the push-rod  $b'$ , the catch  $c$ , the latch  $c'$ , the pin  $c^6$ , the lever  $c^3$ , having the arm  $c^2$ , the spring  $c^7$  and the shipper of the shaft A', substantially as described.

4. The combination in a buttonhole-machine of the buttonhole-cutting mechanism, the buttonhole-stitching mechanism, means for controlling the starting of said stitching mechanism connected with a treadle, a rod, a lever and pin for lifting said treadle and bringing it into operative relation with the said starting mechanism, as and for the purposes described.

5. The combination in apparatus of the character specified of the buttonhole-cutting mechanism having the shaft A, the buttonhole-stitching mechanism having the shaft A', the clutch and shipper of the shaft A', and actuating-treadle B, the push-rod  $b'$  having the catch  $c$  and the pivoted latch  $c'$  with the push-rod  $b'$  and the lever  $a^2$  pivoted at  $a^3$  connecting the treadle with the buttonhole-



cutting mechanism and with the clutch of the stitching mechanism, whereby during the rotation of the shaft A, the treadle mechanism is operated to engage the shipper of the shaft  
5 A' and is then released, and provision thus obtained for the immediate starting of the shaft A' upon the stopping of the shaft A by

a starting movement of the treadle, as and for the purposes specified.

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Witnesses:

F. F. RAYMOND, 2d,  
J. M. DOLAN.