

W. J. MARTIN.  
Feeding Mechanism for Button-Hole Sewing-Machine.

No. 203,173.

Patented April 30, 1878.

Fig. 1.

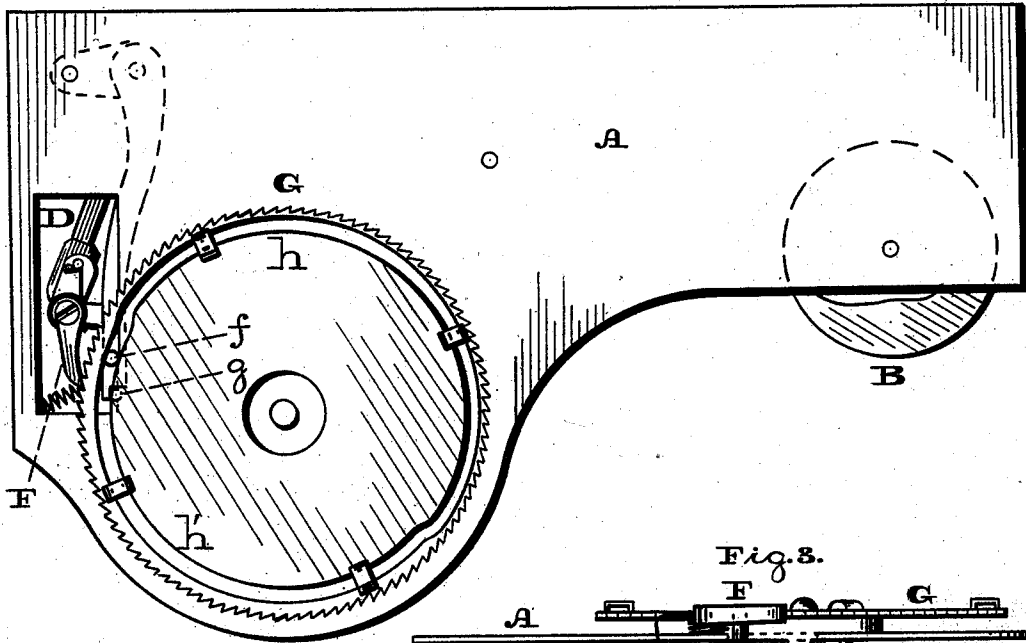
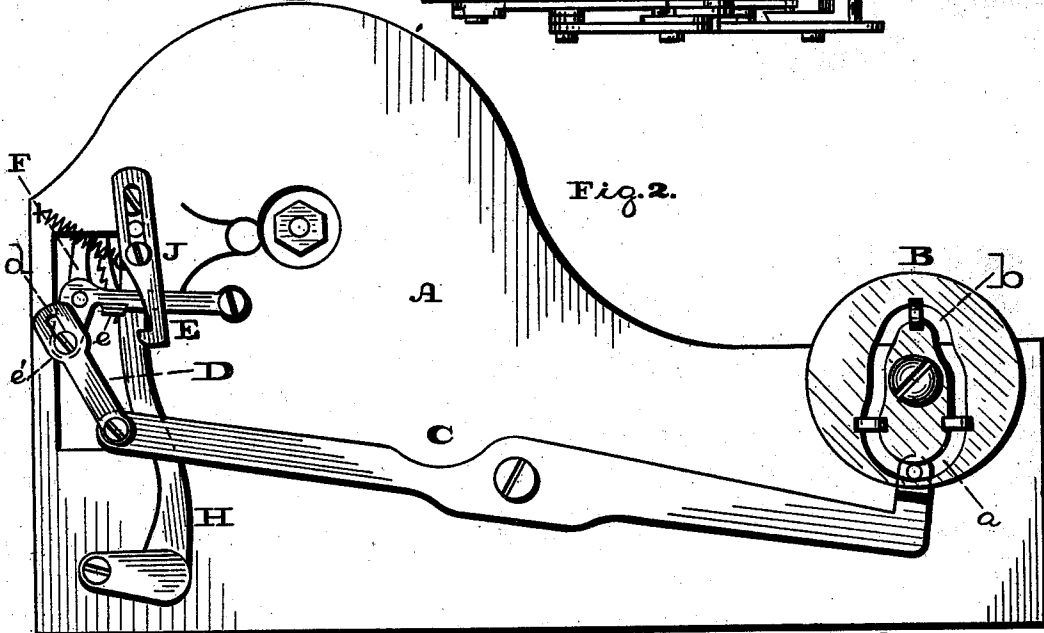


Fig. 3.



Fig. 2.



Witnesses:

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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN FEEDING MECHANISMS FOR BUTTON-HOLE SEWING-MACHINES.

Specification forming part of Letters Patent No. **203,173**, dated April 30, 1878; application filed  
November 12, 1877.

### *To all whom it may concern:*

Be it known that I, WILLIAM J. MARTIN, of the city and county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Button-Hole-Machine Feed, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a top view of the feed embodying my invention. Fig. 2 is a bottom view thereof. Fig. 3 is a side elevation thereof.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists of the combination of parts, as hereinafter set forth, whereby the feed-wheel has a positive motion, and its teeth are not liable to be broken when the feed reaches the eye of the button-hole, where the greatest friction on the wheel and consequent strain on the teeth is created, and the great friction of parts and loud noise of the thrust of the pawl on the teeth of the feed-wheel are prevented.

Referring to the drawings, A represents the table of the machine, and B an operating cam, in the slot or groove of which there plays one end of the lever C, said groove or slot being so constructed as to give an alternate long and short movement to said lever, as shown in Fig. 2.

D represents an arm, which is pivoted to the lever C, and has a slot, *d*, in which plays a pin or screw, *e'*, connected to an elbow-lever, E, which is pivoted to the table A, and formed with a lug, *e*, and carries a pawl, F, which engages with the teeth of a feed-wheel, G, properly mounted on the table A, said pawl being held in contact with the teeth of the wheel by a spring attached to its axis or otherwise suitably applied.

To the table A is pivoted a shipper, H, which carries a pin, *f*, projecting into the slot *h h'* of the feed-wheel, said shipper also engaging with a pin, *g*, of an adjustable latch, J, pivoted to the table.

The cam B rotates, and the arm D moves forward, carrying with it the pawl F. As the pin *f* of the shipper H projects into the part *h* of the slot of the feed-wheel, the lug *e* of the lever E is brought into contact with the head of the latch J, thus limiting the return motion of said lever E. As the slotted end of the arm D plays freely on the pin or screw *e'*, the cam B is thus prevented from effecting any

movement of the feed-wheel until the said cam again assumes position shown in Fig. 2, when a greater movement is imparted to the lever C and arm D, and consequently to the pawl F and feed-wheel, without, however, imparting a full throw to said pawl and feed-wheel, as the lever E is still limited in its movement by the engaging-latch J. This produces the short feed during the formation of the straight portion of the button-hole. The feed-wheel continues its rotation, and the pin *f* passes from the part *h* into the part *h'* of the slot of said wheel. This throws back the shipper H, and owing to its connection with the latch J, the latter is also thrown back. This moves the latch from the path of the lug *e*, and the lever E is returned by its spring, after each forward movement, as far as permitted by its connection with the arm D, so that the feed-wheel is moved to the full extent of the throw of the said arm, making the feed travel three stitches on the outer circle of the eye to one on the inner circle thereof.

It will be noticed that the pawl continually remains on the teeth of the feed-wheel. Consequently the noise of the thrust of the pawl against the teeth is obviated, and the pawl moves with ease and freedom, and without great friction. Moreover, the feed-wheel has a positive motion imparted to it, and there is less liability of breaking the teeth when the feed reaches the eye of the button-hole, where the greatest friction on the feed-wheel and consequent strain on the teeth is created.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The slotted arm D, lever C, and cam B, in combination with the elbow-lever E, pawl F, and feed-wheel G, substantially as and for the purpose set forth.

2. The elbow-lever E, with lug *e*, in combination with the shipper H, pins *f g*, and latch J, and with the feed-wheel G, having slot *h h'*, substantially as and for the purpose set forth.

3. The slotted arm D, lever C, and cam B, in combination with the elbow-lever E, latch J, shipper H, pawl F, and feed-wheel G, substantially as and for the purpose set forth.

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Witnesses:

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