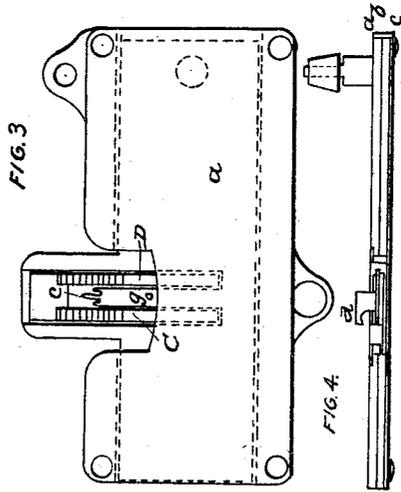
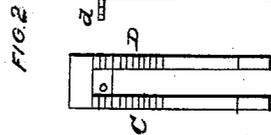
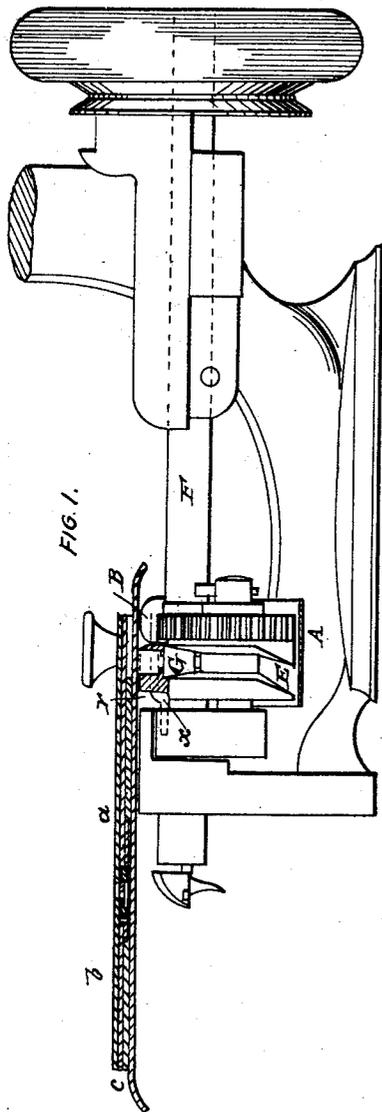


M. C. GRITZNER.

Sewing Machine for Working Buttonholes.

No. 76,323.

Patented April 7, 1868.



WITNESSES
Wm. W. D. D. D.
Chas. Page Jr.

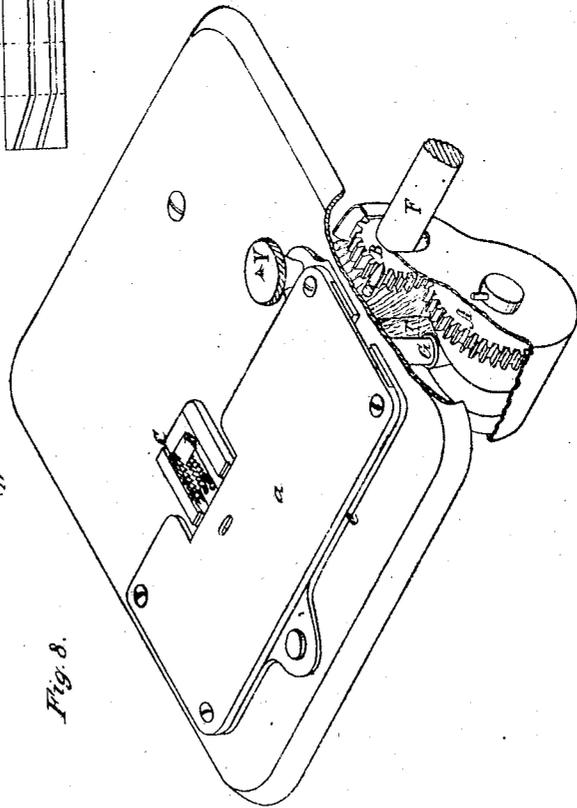
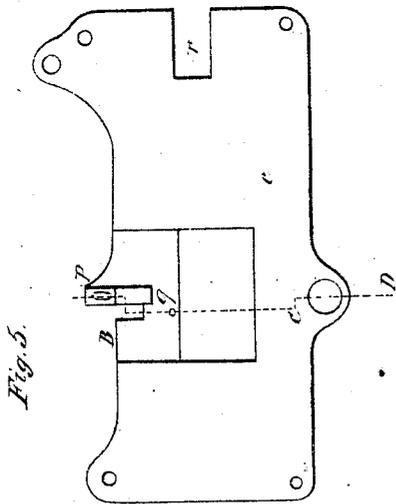
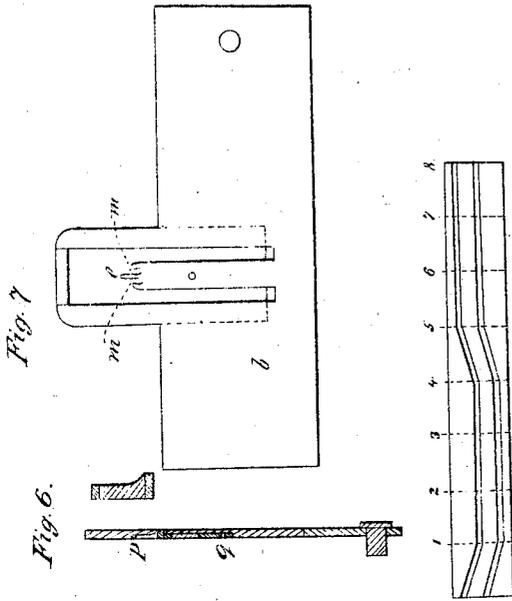
INVENTOR
 M. C. Gritzner
 by his attorney
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M. C. Gritzner.

Sewing Machine.

No. 76323

Patented Apr. 7, 1868.



Witnesses.

Samuel D. Day
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Inventor.

M. C. Gritzner
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United States Patent Office.

M. C. GRITZNER, OF BRUCHSAL, GRAND DUCHY OF BADEN.

Letters Patent No. 76,323, dated April 7, 1868.

IMPROVEMENT IN SEWING-MACHINE FOR WORKING BUTTON-HOLES.

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

TO WHOM IT MAY CONCERN:

Be it known that I, M. C. GRITZNER, a citizen of the United States, temporarily residing at Bruchsal, in the Grand Duchy of Baden, have invented certain new and useful Improvements in Mechanism for Making Button-Holes and zigzag ornaments, sewing around edges, &c., said mechanism being applicable to various systems of one and two-thread sewing-machines without changing their character as ordinary sewing-machines, for which I applied for a patent in the Empire of France in the month of September, 1867, and which I desire to secure by Letters Patent in the United States of America; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings.

The object I have in view in this invention is to produce a mechanism possessing the character of an accessory to a sewing-machine, and applicable to various systems of sewing-machines, either as a permanent fixture or as a mechanism capable of being removed in an easy and simple manner by any person of common experience in the use of sewing-machines, said mechanism serving to make button-holes, zigzag ornaments, and similar work, or to sew around edges. The manner in which my object is realized can best be explained by reference to the accompanying sheets of drawings, in which—

Figure 1 represents a side elevation of a machine to which my improvements are applied, the cloth-plate and cloth-moving mechanism being represented in section.

Figure 2 represents a top and a side view of the feed-piece.

Figure 3 is a top view of the accessory mechanism detached.

Figure 4 is a side elevation of the same in an inverted position.

Figure 5 represents the sliding or reciprocating plate of the mechanism referred to.

Figure 6 is a section of the same on the line A B C D, fig. 5.

Figure 7 is a view of the bottom or under plate of the mechanism.

Figure 8 is a perspective view of so much of a sewing-machine as is needed to illustrate my invention, the box on the side being partly broken away to exhibit the arrangement of the gearing.

The mechanism above referred to is represented as applied to a sewing-machine, fig. 1, of the one-thread system, working with a needle and a hook, *n*. The cloth-moving mechanism is placed on the cloth-plate of the sewing-machine and is attached to it by means of a screw-nut, V. It consists of three plates, *a b c*, one of which, *b*, slides between the other two. Within this plate is placed a feed-piece, C D, in such manner that, while it follows the lateral motions of the plate *b*, it is at liberty to move forward or backward, as well as upward and downward, as will be presently explained. The object of this feed-piece is to impart to the cloth the necessary forward motion for making stitches of a certain length, and at the same time to aid the lateral motion of the cloth imparted to the latter by the tongue hereinafter described. On the shaft F of the machine (which is combined with the rest of the machine so as to cause the needle to complete one ascent and one descent during one revolution of the shaft) there is a gear-wheel, B, which takes into a second gear-wheel, A, to which latter there is attached a grooved cam, E. The diameter and number of cogs of the gear A are exactly double those of the pinion B in order that the shaft F shall make two revolutions to one of the wheel A. Figure 7 bis represents the surface of the cam when stretched out in a plane. The lateral motion of the plate *b* is obtained by means of a friction-roller, G, pivoted to said plate and taking into the groove of the cam E. The feed-piece C D has a small projection, *d*, on its under side that enters a slot cut in the regular feed-dog of the machine, and the regular movement of the feed-dog imparts in this way motion to the feed-piece C D. By this means the length of stitch can be regulated at will and in the ordinary manner. The central portion of the plate *b* terminates in a tongue, *e*, of slender shape, which moves alternately to the right and left of the needle, and aids in imparting to the cloth the necessary lateral vibratory motion for the production of the zigzag button-hole stitch. The stitches are formed around said tongue and slip therefrom as the cloth gradually advances. This is an entirely original feature of my invention, and serves principally two purposes, besides aiding the lateral motion, as described: First, it serves to produce a very great regularity in the lateral dimension of the zigzag stitching; and, secondly, this tongue, in combination with the two prongs *m m*, one of which lies on each side

of the tongue, as shown in fig. 7, serves to support the cloth, and to prevent it from being dragged down by the action of the needle while penetrating the cloth. The needle, of course, stitches alternately in the two slots formed between the tongue and the said two prongs *m m*.

The plate *c* is made thicker around the hole *P*, through which the needle operates, and this thicker surface is made to incline forward, as represented in fig. 6. The incline thus formed serves to throw forward each loop (while being dragged to the right or left) sufficiently to prevent the needle from becoming entangled with the loop already completed. By this simple means it is practicable to produce stitching so close that the threads actually touch each other without danger of breaking the thread. The hole *q* in the plate *c* serves for introducing a thread, cord, or tape into the under seam, such as is required along the edge of the fabric to strengthen the button-hole. A cord can also be introduced into the upper seam by simply placing it alongside the needle. Both operations are performed automatically. A sponge, *r*, is attached by a pin, *x*, to the under surface of the plate of the sewing-machine, as shown in figs. 1 and 8, in such manner as to project into the cam-groove, and (the sponge being well saturated with oil) keep the groove lubricated for a much longer period than by lubricating it in the ordinary manner.

Having now described my invention, and the manner in which the same is or may be carried into effect, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with the needle of a sewing-machine, of ordinary or suitable construction, of a laterally reciprocating tongue-plate, substantially as specified, and mechanism for imparting said movement to the tongue under the arrangement described, so that the said tongue will be placed close to and alternately to the right and left of the needle, during each two successive stitches the needle makes, and so impart a zigzag motion to the cloth to be sewed, substantially as shown and specified.

2. The laterally reciprocating plate, having two slots, one on each side of the tongue, through which the needle alternately stitches, the metal around said slots serving as a firm support to the cloth, and preventing the latter from being dragged down when penetrated by the needle.

3. The mechanism herein described for moving the material for button-hole sewing, &c., combined with gearing and a cam, or its equivalent, substantially as specified, applied to a sewing-machine in such manner that the said mechanism, when engaged with said gearing and cam, will move laterally in one direction while the needle makes one stitch, and in the opposite direction during the next succeeding stitch, as shown and set forth.

4. The combination of the laterally reciprocating tongue or plate with a feed-piece adapted to engage with the ordinary feed-dog of a sewing-machine, and so arranged that the said feed-piece, while moving laterally with the reciprocating tongue, shall have an independent forward and backward and up-and-down movement for the purpose of effecting the feed of the cloth, as set forth.

5. The combination and arrangement of the plates *a b* and the plate *c*, with its appurtenances, the whole constituting a device or mechanism for button-hole sewing, &c., capable of being applied either temporarily or permanently to any suitable sewing-machine, in the manner herein shown and described.

M. C. GRITZNER. [L. s.]

Witnesses:

F. GRITZNER,
O. NIPTAL.