May 13, 1924. 1,494,097

A. M. BLUMENSTIEL

STITCHING MACHINE

Filed Oct. 7, 1919 3 Sheets-Sheet 1

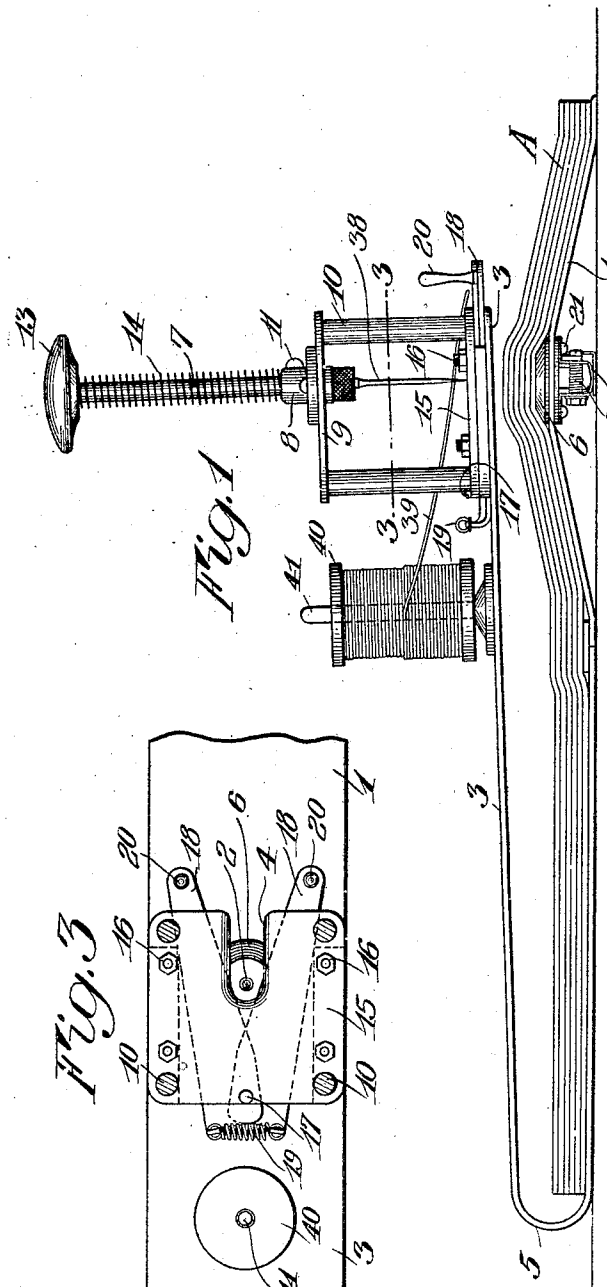


Fig. 1

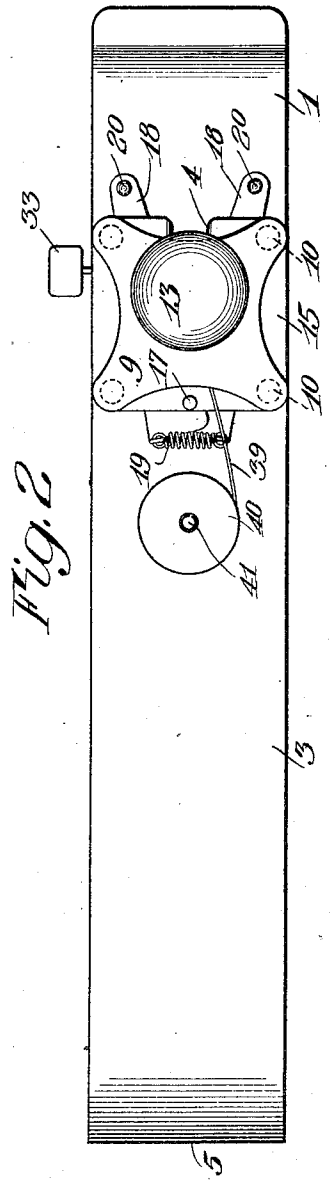


Fig. 2

Fig. 3

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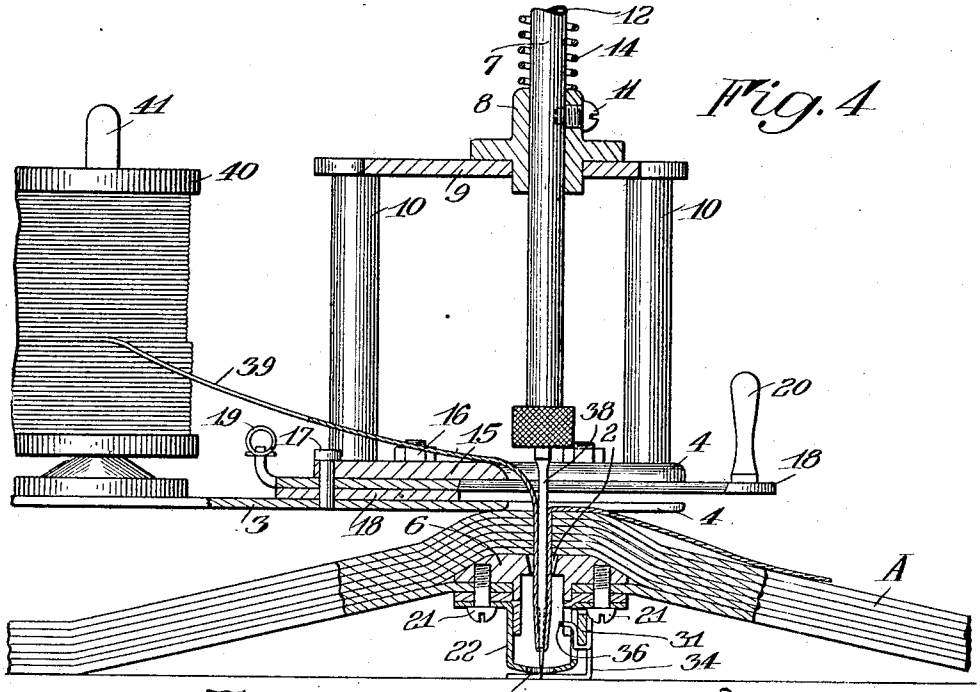


Fig. 4

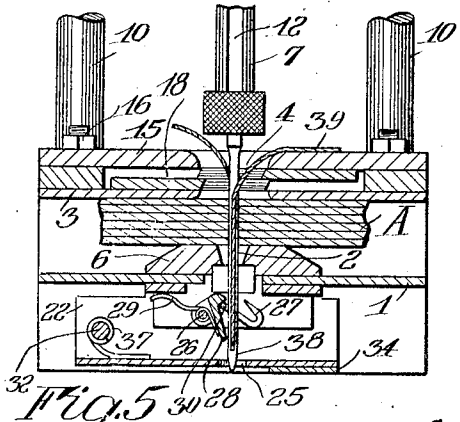


Fig. 5

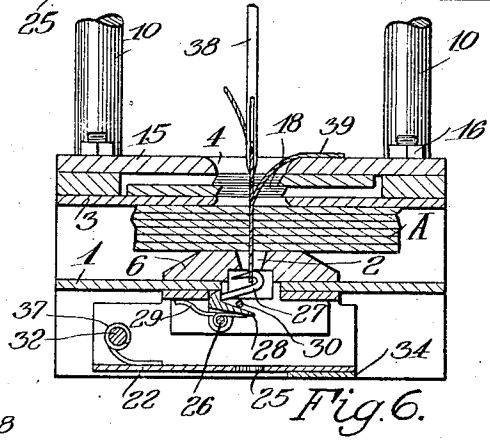


Fig. 6.

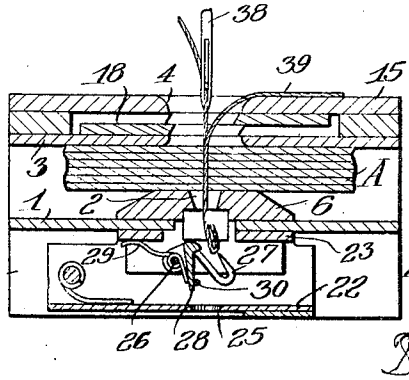


Fig. 7

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STITCHING MACHINE

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Fig. 8

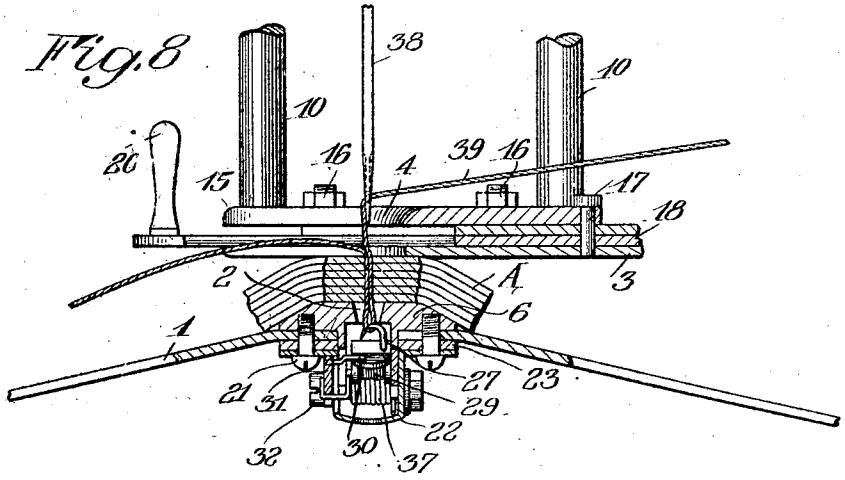


Fig. 9

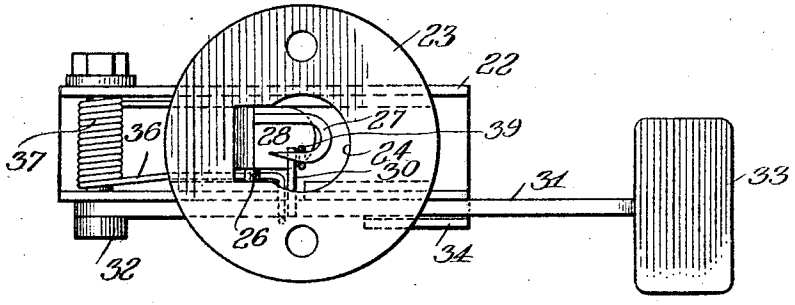
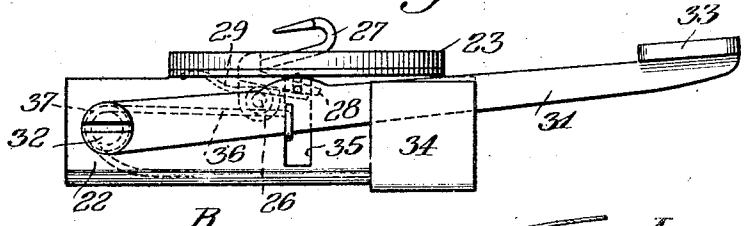


Fig. 10



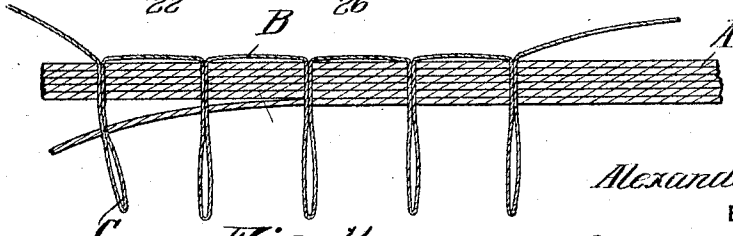


Fig. 11

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UNITED STATES PATENT OFFICE.

ALEXANDER M. BLUMENSTIEL, OF ROCHESTER, NEW YORK.

STITCHING MACHINE.

Application filed October 7, 1919. Serial No. 329,043.

To all whom it may concern:

Be it known that I, ALEXANDER M. BLUMENSTIEL, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Stitching Machines; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the reference numerals marked thereon.

My present invention relates to sewing machines and it has for its object to provide a simple, cheap and convenient machine for forming stitches in one or more plies of material for the purpose of temporarily marking its as, for instance, in garment making where it is desired to provide means for locating the proper positions of buttons, buttonholes and pockets. A further object of the invention is to provide a hand operated machine immediately available without adjustment for stitching a single piece of cloth or many plies of cloth of considerable thickness placed one upon the other, which latter is done when placing the same markings upon a number of pieces of cloth simultaneously. To these and other ends the invention resides in certain improvements and combinations of parts all as will be hereinafter more fully described, the novel features being pointed out in the claims at the end of the specification.

In the drawings:

Figure 1 is a side view of a stitching machine constructed in accordance with and illustrating one embodiment of my invention;

Figure 2 is a top view thereof;

Figure 3 is a fragmentary section taken on the line 3—3 of Figure 1, showing a top view of the presser foot;

Figure 4 is an enlarged fragmentary sectional view showing the stitch forming stroke of the needle;

Figure 5 is a similar view but in a relatively transverse plane;

Figure 6 is a view similar to Figure 5 showing a later position of the stitch forming devices;

Figure 7 is a similar sectional detail showing the manner in which the stitch retaining hook is released;

Figure 8 is an enlarged detail section through the needle aperture showing the completion of the stitch;

Figure 9 is a top view of the hook and its releasing mechanism in detail;

Figure 10 is a side view thereof, and

Figure 11 is a section through the workpiece illustrating the nature of the stitch.

Similar reference numerals throughout the several views indicate the same parts.

Referring first to Figure 11, A indicates a pile of cloth in each piece of which a marking is desired at the same point and B indicates the staple stitch that my present machine produces to mark the cloth in a manner similar to basting. The stitch embodies an under loop C and in the case of locating the position of a button or buttonhole, only one stitch and one loop C would be formed, but in the case of a pocket or an outline, a number of stitches would formed, as shown. The loops C project considerably from the under side and after the stitch has been made, the individual plies or pieces are separated from each other as shown at the left of the figure and the thread severed between each adjacent two, leaving a fragment thereof projecting from each piece. These fragments are easily pulled out when no longer required.

Referring now to Figures 1, 2 and 3, the cloth plate or bed 1 having the needle opening 2 therein and the presser foot 3 having the needle opening 4 therein are formed at opposite ends or by the opposite ends of a spring yoke 5 which may consist of a strip or ribbon of steel. The cloth plate is raised, as shown, in the vicinity of the needle opening which latter is carried by a bushing 6 set into the strip. The needle bar 7 reciprocates in alinement with the needle openings in a guide 8 provided on a table 9 supported by columns 10 on the presser foot 3. The guide includes a feather 11 running in a groove 12 in the bar to prevent it from rotating and to hold the needle eye faced in the proper direction. A knob or head 13 at the upper end of the needle is grasped by the hand to manually reciprocate the bar and operate the needle and a spring 14 coiled about the bar and interposed between the guide 8 and the head 13 returns the bar and needle after its down stroke to the normal position of Figure 1.

A base plate 15 of the table 9 that carries the columns 10 is secured to the presser foot 3 by bolts 16 but spaced therefrom by spacing members 17. The needle opening 4 of the presser foot is continued through this

plate 15 and pivoted at 17 to operate between the plate and presser foot and to move across the needle opening 4 are a pair of shearing blades 18 connected together at their rear ends by a spring 19 that normally holds them open or separated. They may be actuated to shear a thread passing through the needle openings 2 and 4 by means of forwardly arranged finger pieces 20.

Secured to the under side of the plate 1 by screws 21 passing also into the bushing 6 to hold it in place is a channel bracket 22 provided with a supporting disc 23 having a central opening 24 (Figure 9) to admit the needle and the bottom of the channel being also perforated at 25 for the same purpose. Spanning the channel, which runs transversely of the machine is a pivot 26 upon which swings an offset hook 27. The hook member includes a cam plate 28 engaged on its under side by a spring 29 that has a normal tendency to hold the hook raised in the position of Figures 4, 6, 8, 9 and 10. When so raised, the path of the needle runs through the eye of the hook and the descending needle is adapted to engage the cam plate 28 and deflect the hook downwardly against the tension of the spring 29, as shown in Figure 5. The hook may also be depressed to this position independently of the needle and as shown in Figure 7, by a dog 30 that also engages the cam plate 28 and which extends laterally from a lever 31 pivoted at 32 to the bracket 22 and having a finger portion 33 projecting at one side of the machine. The lever is arranged exteriorly of the channel of the bracket, being provided with a guide plate 34 and there is a slot cut at 35 in the side of the bracket to admit the dog 30 and also the arm 36 of a spring 37 coiled about the pivot 32 within the bracket channel and adapted to hold the lever 31 normally raised as in Figure 10, to permit the described normal raised position of the hook 27.

The operation of the machine is as follows: The eye of the needle 38 opens forwardly and rearwardly so that when threaded with thread 39 from a spool 40 on a spool holder 41 secured to the presser foot arm 3, the plane of the loop is from front to rear of the machine while it will be remembered that the hook 27 swings transversely of the machine. The cloth A is placed upon the cloth plate as shown in Figure 1 and the needle bar is depressed by a downward blow or pressure on the knob 13. The spring 14 that holds the needle bar raised is superior to the spring of the yoke 5 so that this act first carries the presser foot 3 down upon the work and thereafter the needle continues downwardly to carry a loop of thread through the cloth. The point of the needle engages the cam plate 28 of the hook 27 and deflects the latter, as shown in Figure 5. When the needle rises again, however, releasing this pressure, the hook 27 returns under the influence of its spring 29 and engages the loop of the thread that is on the needle, as shown in Figure 6, detaining it while the needle rises and until the needle descends again. Assuming that but one stitch is to be formed as in marking a button position, sufficient thread is drawn forward in the initial threading of the needle to leave the loose end projecting a safe distance from the upper side and after the needle has returned to its normal position of Figure 8 and while the hook 27 is still holding the stitch, the work piece may be moved, to further extend the loop of the stitch as when a number of plies of cloth are being worked on and must be separated and the thread cut between them to leave a mark on each as described in connection with Figure 11, this requiring a considerable length of thread. The lever 31 is now depressed by means of the finger portion 33 at the side which releases the hook 27 from the thread, as shown in Figure 7. It remains only to operate the shears or severing devices 18 by pinching together the finger pieces 20 and this cuts the thread just below the needle freeing the work though leaving the needle still threaded. If a number of successive stitches are to be taken as in Figure 11, the cloth is moved between each stitch before operating the lever 31 to release the hook and the severing operation is, of course, not conducted until after the final stitch is made.

I claim as my invention:

1. In a stitching machine, the combination with a cloth plate, of a presser foot movable toward and from the same and a needle bar carried by the presser foot and movable with and slidable independently of the latter to and from the cloth plate.

2. In a stitching machine, the combination with a cloth plate, of a swinging presser foot, movable vertically toward and from the same, and a needle bar carried by the presser foot movable therewith, and slidable thereon to and from the cloth plate.

3. In a stitching machine, the combination with a cloth plate of a resiliently mounted presser foot movable toward and from the same and normally raised in spaced relation to the same, a needle a bar slidably mounted on the presser foot and hand operated means for actuating the needle bar relatively to the latter and operating to first move the presser foot toward the cloth plate.

4. In a stitching machine, the combination with a cloth plate and a resiliently mounted presser foot movable toward and from the same but normally raised in spaced relation to the plate, of a needle bar slidably mounted on the presser foot and a spring for normally holding it raised, the tension

of such spring being such that the presser foot is depressed against its resiliency before the needle bar moves independently thereof when the latter is actuated.

5. In a stitching machine, the combination with a cloth plate and a presser foot normally spaced therefrom movable toward and from the same, of a relatively movable needle bar and a fixed spool holder carried by the presser foot.

6. In a stitching machine, the combination with a cloth plate and a resilient presser foot movable toward and from the same, of a raised table on the presser foot and a needle bar carried by and guided in the table to move relatively to the presser foot.

7. In a stitching machine, the combination with a cloth plate and a swinging presser foot movable vertically toward and from the same, of a raised table on the presser foot, a needle bar supported by and guided in the table to operate a needle through the presser foot and cloth plate, and a thread cutter arranged between the table and the presser foot.

ALEXANDER M. BLUMENSTIEL.