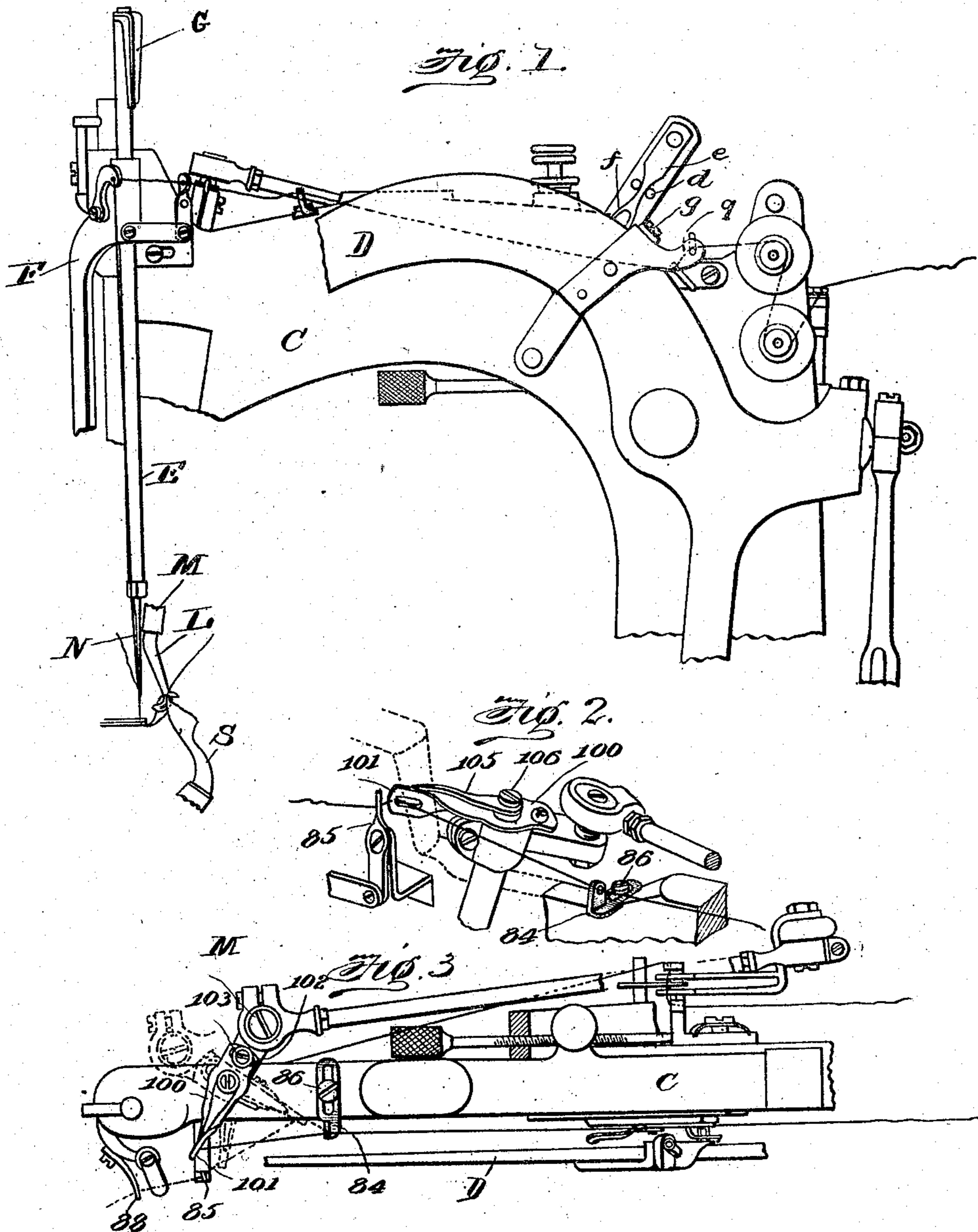


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 DEVICE FOR CONTROLLING THE NEEDLE LOOP ON OVERSEAMING SEWING MACHINES.
 APPLICATION FILED JULY 23, 1902.

899,479.

Patented Sept. 22, 1908.



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UNITED STATES PATENT OFFICE.

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DEVICE FOR CONTROLLING THE NEEDLE-LOOP ON OVERSEAMING SEWING-MACHINES.

No. 899,479.

Specification of Letters Patent.

Patented Sept. 22, 1908.

Application filed July 23, 1902. Serial No. 116,623.

To all whom it may concern:

Be it known that I, RUSSEL G. WOODWARD, a citizen of the United States, residing at Waukegan, in the county of Lake, State of Illinois, have invented certain new and useful Improvements in Devices for Controlling the Needle-Loop on Overseaming Sewing-Machines, of which the following is a description, reference being had to the accompanying drawing and to the letters and figures of reference marked thereon.

My invention relates to an improvement in sewing machines for overseaming fabrics, and embodying a spreader, a needle, and a looper, of the type known as the Union Special interlock machine, which are illustrated in patent of Lansing Onderdonk and myself, granted November 27, 1906, Number 837,106, and in an application filed by myself on February 18th, 1902, Serial No. 94,599.

In practice, it has been found that the different kinds of threads used in the needle form different sizes of loops. This variation is quite frequently the cause of skipped stitches. A small needle loop is better than a large one, as the spreader engages the loop to carry it up into the path of the looper, instead of passing into it.

It is the object of the present invention to provide for this variation, and I construct the right hand eyelet which coöperates with the traveling eyelet on the looper support, so that it can be adjusted backward and forward parallel with the line of feed; thus varying the relation between the outer end of the swinging thread-carrying arm and the eyelet, so that as the needle begins to ascend to throw out the loop, a greater or less amount of the slack thread is taken up, thus varying the size of the loop. Moving the eyelet towards the front of the machine reduces the size of the loop, and towards the rear of the machine increases it.

The invention, therefore, consists in a machine of the character described, having a needle, a looper, and a spreader, of a controller for the needle loop, including a movable arm projecting into the path of two eyelets, and arranged as it passes in one direction beyond the line joining the two eyelets to pull off thread, and as it passes in the other direction beyond the line joining the two eyelets, to pull up the thread from the needle;

the eyelet which is adjacent to it when its latter action is taking place, being adjustable toward and from the front of the machine, thereby varying the amount of thread drawn up from the needle, and consequently the size of the needle loop.

Furthermore, the invention consists in the matters hereinafter described, and referred to in the appended claims.

The invention is illustrated in the accompanying drawings, in which

Figure 1 is a front view of a Union Special single interlock machine, with the bed plate and most of the mechanism broken away, leaving only sufficient of the mechanism to enable one to get a clear understanding of my invention; Fig. 2 is a detail perspective view showing my improved mechanism for controlling the needle loop. Fig. 3 is a top plan view partly in section, of the parts of my machine shown in Fig. 1.

It is not necessary to refer herein, except in a general way, to the various elements of the machine, other than those which form the features of the present invention. It will be sufficient to refer for a more detailed description of those parts not herein specifically described and claimed, to the patent and application above mentioned.

The shape of the machine is that of the well known Union Special type, C being the goose-neck, D the needle lever, E the needle bar, F the needle bar carrier.

N is the needle, L the looper, and S the spreader or looping hook, the parts being so constructed and operating that the loop thrown out by the needle below the work plate is seized by the spreader or looping hook S, and carried above the work plate to a point where the looper L in its oscillatory movement passes into it, and carries its own thread into position to be engaged by the needle in its next descent. The looper L is attached to an oscillating shaft M, and has, suitably connected with its upper end, so as to oscillate with it, an arm 100, having an eyelet 101, in its outer end. This movable arm is adjustably secured at its rear end through the slot 102 and screw 103, to an oscillating head, to which the looper supporting shaft is attached. A pointer 105, secured at its rear end by screw 106, serves to indicate to the operator the amount of adjustment of the movable arm 100.

The movable arm 100 projects forward towards the front of the machine into the space between the pivoted eyelet 85, which has a link connection with the needle bar carrier, but which for the purposes of the invention may be considered stationary, and the eyelet 84, which, as herein shown, projects upwardly from a slotted plate, and is adjustably secured by a screw 86 to the goose neck of the machine, the goose neck being milled out to afford a seat for this adjustable eyelet 84. Another stationary eyelet 88, is provided on the upper needle bar lug.

The other parts of the apparatus shown are substantially the same as illustrated in my application No. 94,599, above referred to, and the operation is as follows: Assuming the needle bar at lowest position, and about to ascend so that the needle may throw out a loop, the intermittent nipping device *d, e, f*, has been closed by the downward swing of the forward end of the needle lever through the projection *g*, thus no thread is being drawn from the spools, and that portion of the thread which extends between the needle bar lug eyelet and the left hand eyelet on the goose neck, is engaged by the friction clamp, or so-called thread pick up *G*, the action of which is the same as set forth in case, Serial No. 94,599 and need not be herein more particularly described. As the needle bar rises the pick up device lightly holds the thread and pulls it through the eye of the needle and straightens out the kink which might be formed in throwing out the loop, and causes the loop to be properly positioned to be engaged by the point of the spreader, but releases it practically as soon as this engagement of spreader and needle loop takes place. The action of the supplemental pull off *g* between the nipping device and the tension, is the same as referred to in the aforesaid application. These features form no part of the present invention, which relates entirely to the coöperation of the movable arm 100 with the eyelets 85 and 84.

As the needle bar reaches its highest point, and begins to descend, the looper meanwhile having passed into the needle loop on the spreader, the main pull off or movable arm 100 acts by the swinging of said arm past the eyelet 85 to pull off thread from the spools, until it reaches the limit of its swing to the left, at which time the nipper springs have closed. In the opposite movement of the movable arm, when said arm has passed back of the line joining the eyelets 84 and 85, and the needles are ascending to throw out the loop, said arm acts to take up the slack in the needle thread, and it is in this connection that the present invention is of great value. It is desirable that the spreader should not pass into the needle loop, but simply engage it to carry it up into the path of the needle, and for this reason, it is desirable that the

needle should throw out a small rather than a large loop, and means should be provided for varying the size of this loop, in accordance with the different kinds and sizes of thread used. By providing the eyelet 84 with a forward and backward eyelet adjustment parallel with the feed, it will be readily seen that the movable arm 100, may be made to take up greater or less quantity of slack in the needle thread, according as the eyelet is adjusted toward the front or toward the back of the machine. That is, by regulating the distance that the movable arm moves out of the vertical plane through a line connecting the eyelets 84, 85, in its backward movement the amount of thread taken up by said arm, will be varied.

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

1. In a sewing machine, in combination with a needle adapted in its receding movement to throw out a loop, a loop taking device adapted to engage the needle loop, and adjustable means acting upon the needle thread during the receding movement of the needle for pulling the needle thread through the eye of the needle and regulating the size of the loop as it is thrown out thereby; substantially as described.
2. In an overseaming sewing machine, stitch-forming mechanism including a needle adapted in its receding movement to throw out a loop, a thread-carrying looper and a spreader adapted to engage the needle loop, and carry it into position to be entered by the looper, and adjustable means acting upon the needle thread during the receding movement of the needle for pulling the needle thread through the eye of the needle and regulating the size of the loop as it is thrown out by the needle; substantially as described.
3. In a sewing machine, in combination with a needle adapted to throw out a loop, and a loop-taking device, means for regulating the size of the loop acting upon the needle thread before the loop-taking device engages the loop, said means for regulating the size of the loop being provided with an adjustable member; substantially as described.
4. In a sewing machine, in combination with a needle adapted to throw out a loop, and a loop-taking device, a movable member, an eyelet coöperating therewith, whereby said movable member in passing back of said eyelet takes up the slack in the needle thread, said eyelet being adjustable back and forth, whereby the relative distance of the movable arm from the eyelet is changed, and the size of the needle loop regulated; substantially as described.

5. In a machine of the character described, having stitch forming mechanism including a thread carrying needle, a looper, and a spreader adapted to engage the needle loop

and carry it into position to be engaged by the looper, of means acting upon the needle thread for varying the size of the loop thrown out by said needle before the spreader engages the same; substantially as described.

6. A machine of the character described, having stitch-forming mechanism including a needle, a looper, and a spreader, of a controller for the needle loop including a movable arm, eyelets upon either side of said arm into the line of which said movable arm projects, one of said eyelets being adjustable back and forth to vary the amount of needle thread taken up by the movable arm; substantially as described.

7. In a machine of the character described, the combination with a needle, a looper, and a spreader, a movable arm acting upon the needle thread, eyelets upon either side thereof into the path of which the movable arm projects, said movable arm acting when moving in one direction to pull off thread, and acting in the other direction to take up

slack in the needle thread, and means for adjusting the eyelet which is adjacent to it when the latter action is taking place, thereby varying the size of the needle loop; substantially as described.

8. In a sewing machine, a needle thread controlling device including a stationary eyelet, an adjustable eyelet, a swinging eyelet located between said stationary eyelet and said adjustable eyelet, and moving from a position adjacent one of said eyelets to a position adjacent the other of said eyelets, means for adjusting the position of the adjustable eyelet towards and from the stationary eyelet, whereby the amount of thread taken up by the swinging eyelet, may be varied.

In testimony whereof I affix my signature in presence of two witnesses.

RUSSEL G. WOODWARD.

Witnesses:

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EMMA KERN.