

R. L. LYONS.
 THREAD CUTTING DEVICE FOR SEWING MACHINES.
 APPLICATION FILED DEC. 23, 1907.

1,021,156.

Patented Mar. 26, 1912.

2 SHEETS—SHEET 1.

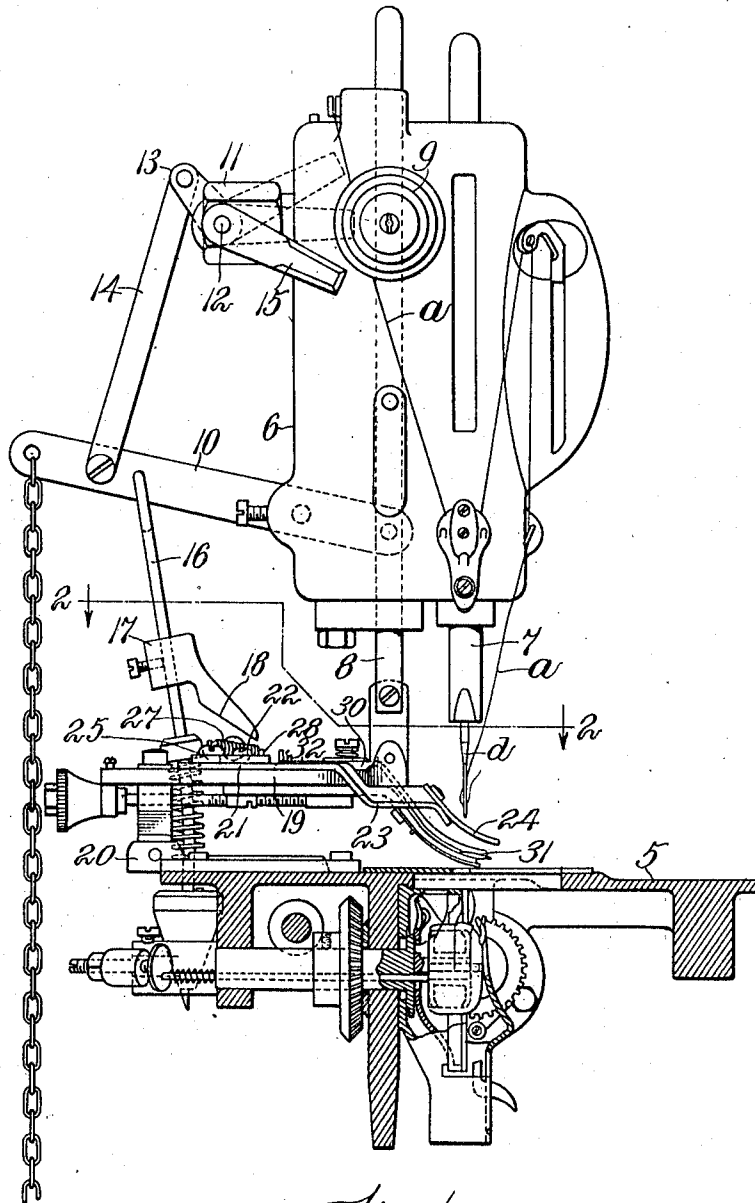


Fig. 1.

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2 SHEETS—SHEET 2.

Fig. 2.

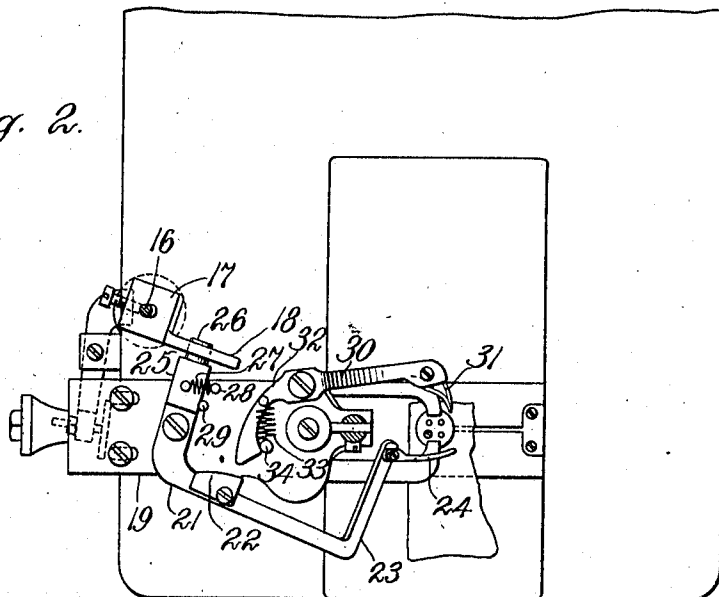


Fig. 3.

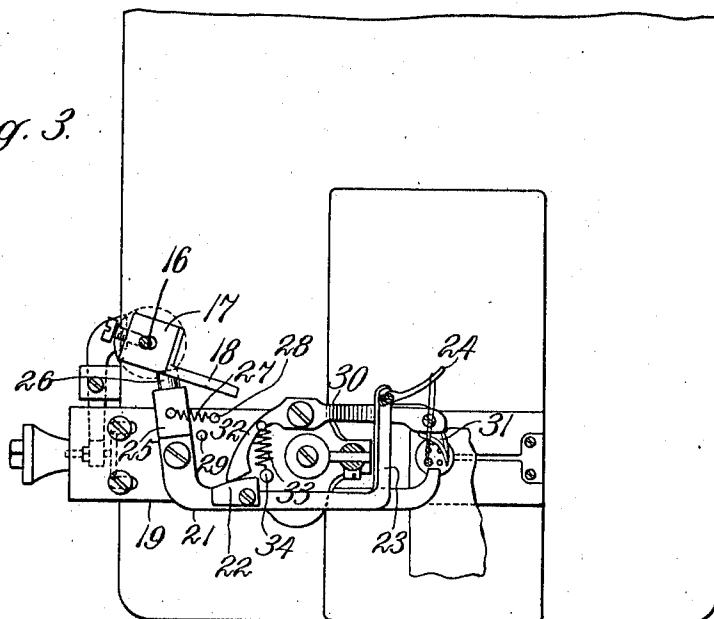
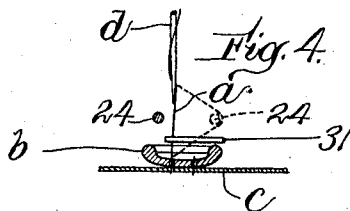


Fig. 4.



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UNITED STATES PATENT OFFICE.

ROBERT L. LYONS, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO HIMSELF, AND
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THREAD-CUTTING DEVICE FOR SEWING-MACHINES.

1,021,156.

Specification of Letters Patent.

Patented Mar. 26, 1912

Application filed December 23, 1907. Serial No. 407,617.

To all whom it may concern:

Be it known that I, ROBERT L. LYONS, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Thread-Cutting Devices for Sewing-Machines; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

This invention has reference to improvements in thread cutting devices for sewing machines and particularly to such devices designed to cut the needle thread.

One object of this invention is to so construct a needle thread cutting device that a normally retracted cutter may be automatically actuated by movement of the presser foot to position said cutter in the path in which the needle thread moves when the work is drawn from the presser foot.

Another object of the invention is to so construct a needle thread cutting device that the needle thread may be released from frictional resistance of the tension and drawn laterally between the work and the needle and the frictional contact of the tension may then be brought to act on the thread to resist its drawing out.

Other objects of the invention will appear from the following description of the mechanism.

The invention consists in the peculiar construction of the thread cutter and in the means for operating the same.

The invention also consists in the peculiar means for engaging the thread between the needle and the work and moving said thread laterally.

The invention also consists in the means for engaging the needle thread to draw the same laterally combined with means for releasing the tension and for subsequently permitting the tension to reengage said thread.

The invention also consists in such other novel features of construction and combination of parts as shall hereinafter be more fully described and pointed out in the claims.

Figure 1, represents an end view of portions of a sewing machine of ordinary construction illustrating this invention parts of the same being shown in section. Fig. 2, represents a cross sectional view taken on line 2—2, Fig. 1 looking downward with the

parts shown as in position when the presser foot is depressed. Fig. 3, represents a similar view with the parts positioned as when the presser foot is raised. Fig. 4, is a diagrammatic view showing approximately the relative positions of the lateral moving thread carrier and the thread cutter with respect to the needle and the work.

Similar numbers of reference designate corresponding parts throughout.

As shown in the drawings in its preferred form, 5 indicates the bed plate of any well known sewing machine which has the head 6 furnished with the usual needle bar 7, the presser foot rod 8 slidably mounted in said head, and the usual disk tension device 9, mounted on said head, through which the needle thread *a* is led toward the needle. Pivottally mounted on the head 6 is the lever 10 which is connected with the presser foot rod 8 and is designed to slide said rod upward when the free end of said lever is depressed. At the upper part of the head 6 is the bracket 11 in which is mounted the rock shaft 12 having the arm 13, which is connected by the rod 14 with the lever 10, and the beveled edge blade 15 designed to swing between the disks of the tension device 9 to separate said disks and release the needle thread and thereafter to swing from between said disks and permit of their reaction against the said thread. Slidably mounted in a perforation of the bed plate 5 and connected with the lever 10 is the spring retracted rod 16 furnished with the block 17 which is adjustably secured on said rod and has the cam 18. The presser foot is, in this particular instance, the button clamp 19 which is pivottally connected with the rod 8 and also with the base 20 which is of the usual construction known in button sewing machines. Pivottally mounted on the button clamp 19 is the arm 21 having the cam 22 and the extension 23, having the adjustable thread engaging finger 24 while, rearwardly of its pivot, said arm 21 has the member 25 furnished with the bearing 26. A retracting spring 27 is connected with said member 25 and with the pin 28 fixed on the button clamp whereby the retractive strain of said spring tends constantly to draw said member 25 toward the stop pin 29 fixed on the button clamp which pin limits the movement of said member. On the button clamp 19 is also pivoted the cutter arm 30 having

at its forward end the cutting blade 31 and furnished at its rear portion with the member 32 adapted to be engaged by the cam 22 of the arm 21 and moved, by the movement of the latter, against the action of the spring 33 connected to the member 32 and to the pin 34 on the button clamp which pin acts as a stop for said member to limit its retractive movement.

After the completion of the group of stitches which secures the button *b* with the cloth *c* the needle *d* rises to the position shown in Figs. 1 and 4 and the needle thread *a* extends between the eye of the needle and the hole of the button through which the needle has last passed. To facilitate the withdrawal of the work from the machine the free end of the button clamp 19 is now preferably raised, by the depression of the free end of the lever 10, and the resultant upward movement of the rod 8 connected with the button clamp. As the lever 10 swings downward the blade 15, actuated through the movement of said lever, swings upward and enters between the leaves or disks of the tension device 9 thereby separating said disks and relieving the tension on the thread. Approximately as the tension is released the cam 18, of the rod 16, engages the bearing 26 of the member 25 and swings said member and its arm 21 against the action of the spring 27 and in a direction whereby the finger 24 swings between the needle and the work, from the position shown in full lines in Fig. 4 to the position indicated in dotted lines therein, and carries the loosened needle thread laterally as indicated in said figure. At or near this extreme limit of movement of the finger 24 the blade 15 swings from between the disks of the tension device 9 which are again permitted to exert tension on the thread. During the thread positioning movement of the arm 21 the cam 22 thereof engages the end portion of the member 32 of the cutter arm 30 and effects the swinging of the same to swing the cutting blade 31 to the position shown in Figs. 3 and 4; the work is now drawn from the button clamp and the tightened thread is drawn across the edge of the blade 31 and is cut.

When the free end of the lever 10 moves upward the several parts are retracted to the inoperative positions.

It is of course evident that the cutting blade may, in its forward movement, be

brought against the needle thread, to sever said thread before the work is drawn from the machine but I prefer to effect such cutting by drawing the thread against the edge of said cutter as the work is drawn from the machine. It is also evident that the means for moving the thread laterally may be omitted but I prefer to make use of this device or its equivalent as effecting a tendency to draw the thread toward the cutter as the work is drawn from the machine.

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

1. A thread cutting device for sewing machines comprising a button clamp pivotally mounted means for moving the same, a cutter arm pivotally mounted on said button clamp and having a blade, a thread engaging arm pivotally mounted on said button clamp and adapted to engage and move the cutter arm, and means for effecting the movement of said thread engaging arm.

2. A thread cutting device for sewing machines comprising a thread engaging arm and a thread cutter movably mounted to swing in opposite directions, means for swinging the same, a thread tension, and means for releasing said tension during the swinging of the thread engaging arm.

3. A thread cutter for sewing machines comprising a button clamp pivotally mounted means for effecting the movement thereof, a thread cutter arm pivoted on said button clamp and having a cutter, a thread engaging arm pivoted on the button clamp and designed to engage and move said cutter arm, and means for effecting the movement of the thread engaging arm during the upward movement of the button clamp.

4. A thread cutter for sewing machines comprising a button clamp pivotally mounted, means for moving the same, a thread engaging arm pivotally mounted on the button clamp, means actuated by the button clamp moving means for moving said arm, a tension device, and means connected with the button clamp moving means for releasing said tension during the movement of the thread engaging arm.

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Witnesses:

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