

(No Model.)

H. R. TRACY.
LOOP TAKER FOR SEWING MACHINES.

No. 471,035.

Patented Mar. 15, 1892.

Fig. 1.

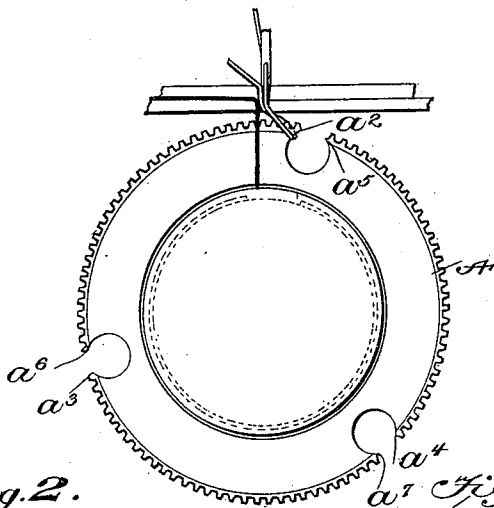


Fig. 2.

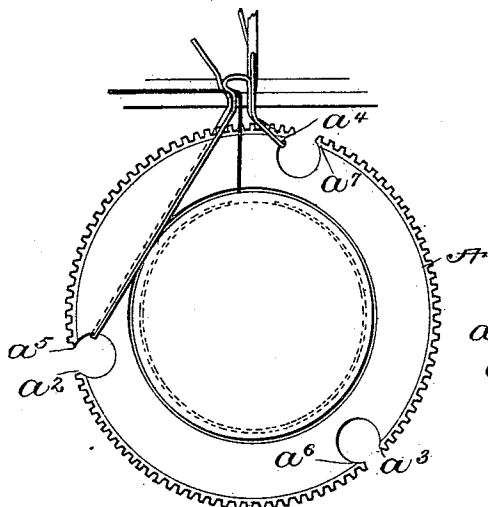
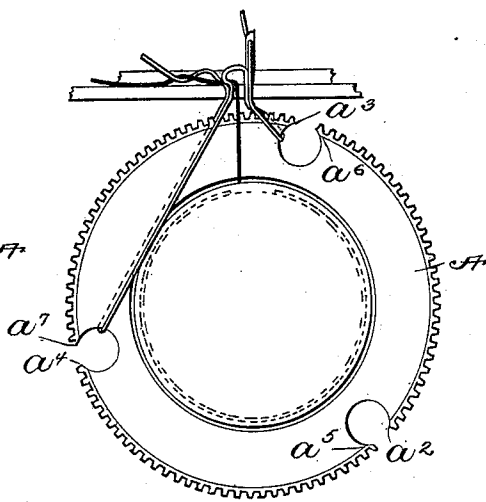


Fig. 3.



Witnesses

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HARRIET RUTH TRACY, OF NEW BRIGHTON, NEW YORK.

LOOP-TAKER FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 471,035, dated March 15, 1892.

Original application filed December 8, 1891, Serial No. 414,414. Divided and this application filed December 15, 1891. Serial No. 415,178. (No model.)

To all whom it may concern:

Be it known that I, HARRIET RUTH TRACY, a citizen of the United States, residing at New Brighton, in the county of Richmond and State of New York, have invented certain new and useful Improvements in Revolvable Loop-Takers for Chain or Lock Stitch Sewing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to sewing-machines, and particularly to that class of machines in which a loop of the needle-thread is engaged by a loop-taker and carried around the latter to form a loop to inclose the lower thread to form a lock-stitch or to be entered by a succeeding loop and form a chain-stitch.

The object of the present invention is to produce a loop-taker of the kind referred to by which the material of a preceding loop of the needle-thread is taken up by the loop-taker without necessitating the stopping of the machine at any point and without requiring the addition of a separate take-up device.

With these objects in view the invention consists in a revolvable loop-taker arranged adjacent to a reciprocating needle carrying a thread, the loop-taker being provided on its periphery with three opposing hooks, by which the succeeding loops of the needle-thread are engaged and the thread of each preceding loop is taken up; and the present application is a division out of an application filed December 8, 1891, Serial No. 414,414, which application is itself a substitution for a previous one embodying the same invention.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a view in side elevation of a loop-taker constructed in accordance with my invention, showing a work-plate, a piece of cloth upon which sewing is to be done, a needle arranged adjacent to the loop in proper operative position, the parts being shown in the position assumed after the first loop of the needle-thread is engaged by one of the hooks of the loop-taker. Fig. 2 is a view corresponding to Fig. 1, the loop shown in Fig. 1 having been carried approximately two-thirds

around the loop-taker, a second loop of the needle-thread being shown as engaged by the loop-taker, the needle having been drawn up through the cloth and the cloth fed to form a second loop; and Fig. 3 is a view corresponding to the previous figures, showing a completed stitch, the second about to be drawn up into the cloth, and the third loop shown as just engaged by the loop-taker.

In the drawings, A represents the loop-taker, which is designed to be mounted adjacent to the reciprocating needle of a sewing-machine and to receive a rotary motion through any suitable mechanism.

In the present illustration I have shown the loop-taker provided with peripheral gear-teeth *a*, with which is to mesh one or more driving-wheels arranged in close proximity to the loop-taker.

Of course I do not wish to be understood as limiting myself to this manner of imparting motion to the loop-taker, as any means whereby rotary motion may be imparted to the loop-taker and at the same time the loops of the needle-thread be permitted to pass freely around the loop-taker may be employed—as, for instance, the means employed in Patent No. 413,212, granted me on October 22, 1889.

In the periphery of the loop-taker A are formed three indentations situated at an equal distance apart, forming hooks *a*² *a*³ *a*⁴, which are designed to engage the loop of the needle-thread as the same is brought down through the cloth and the work-plate of the machine.

In the embodiment of the invention here illustrated I have shown the indentations in the periphery of the loop-taker as so formed as to produce hooks on each side of the opening, the uses of the hooks *a*⁵ *a*⁶ *a*⁷ being to retain the loops of the needle-thread engaged by the hooks *a*² *a*³ *a*⁴ until the same are carried around the loop-taker to inclose a lower or shuttle thread and then brought to a position approximately beneath the needle, or when a chain-stitch is to be formed, to carry the loops around until a succeeding loop of the needle-thread is passed through them to form a chain-stitch. In order that each succeeding loop of needle-thread formed may take up the material of each preceding loop, the loop-taker is so arranged with reference

to the needle that the loop-taker performs two-thirds of a revolution between each descent of the needle. This arrangement is found to be of great value in that it allows ample time for the taking of each loop before a succeeding loop is taken. With proper timing there may be other uneven number of indentations.

In the operation of the machine, where a lock-stitch is to be formed, the lower thread is drawn up through the opening in the work-plate, and it is there held between the work-plate and the cloth to be operated upon, and the machine is then started. The first loop is engaged by the hook a^2 and carried around the shuttle, the indentation in the plate forming the hook being of a form to retain the thread free from the periphery of the loop-taker, thereby preventing entanglement of any driving mechanism which may be arranged to engage the periphery of the loop-taker. After the first loop of the needle-thread is engaged by the hook a^2 the loop-taker continues to revolve, carrying the hook a^3 through the loop of the needle-thread being formed by drawing the first loop around the loop-taker, the needle being raised at the time the hook a^3 first passes beneath it. As the hook a^4 approaches a position beneath the needle the latter begins to descend, and after the hook a^4 has passed through the loop carried by the hook a^2 the needle moves into position to present the thread carried by it to the hook a^4 . The second loop is drawn down from the cloth, which previous to the descent of the needle has been advanced a step. The material of the second loop is drawn up through the cloth and down through the second hole made by the needle, thereby taking up the material of

the first loop, drawing it up into the cloth, and inclosing the lower thread, if the latter is used. From this point onward the operation of the loop-taker continues, each of the hooks in their revolution alternately engaging the needle-thread and passing through the loop formed by the previous hook, so that the order of engagement of the hooks is first a^2 , then a^4 , then a^3 , and then a^2 again, &c.

While I have shown the invention as applied to the formation of a lock-stitch, I do not wish, of course, to be understood as limiting myself in this respect, the advantages of the invention being equally valuable for use in forming either a lock or a chain stitch. When a chain-stitch is to be formed, the motion of the loop-taker is so timed relative to the motion of the reciprocating needle that the particular loops which are to engage the needle-thread perform this engagement before passing through previously-formed loops.

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

The combination, with a reciprocating eye-pointed needle carrying a thread, of a revolvable loop-taker arranged adjacent to the needle, the loop-taker being provided on its periphery with three opposing hooks by which the succeeding loops of the needle-thread are engaged and the thread of each preceding loop taken up, substantially as described.

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

HARRIET RUTH TRACY.

Witnesses:

R. G. DYRENFORTH,
E. H. PARRY.