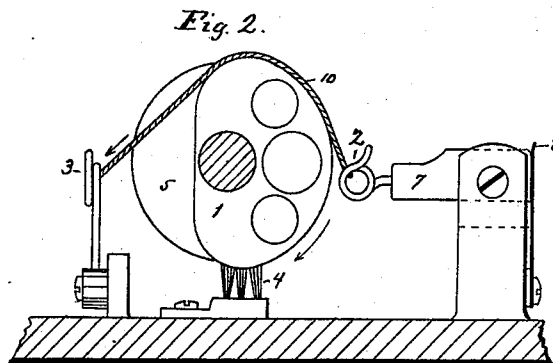
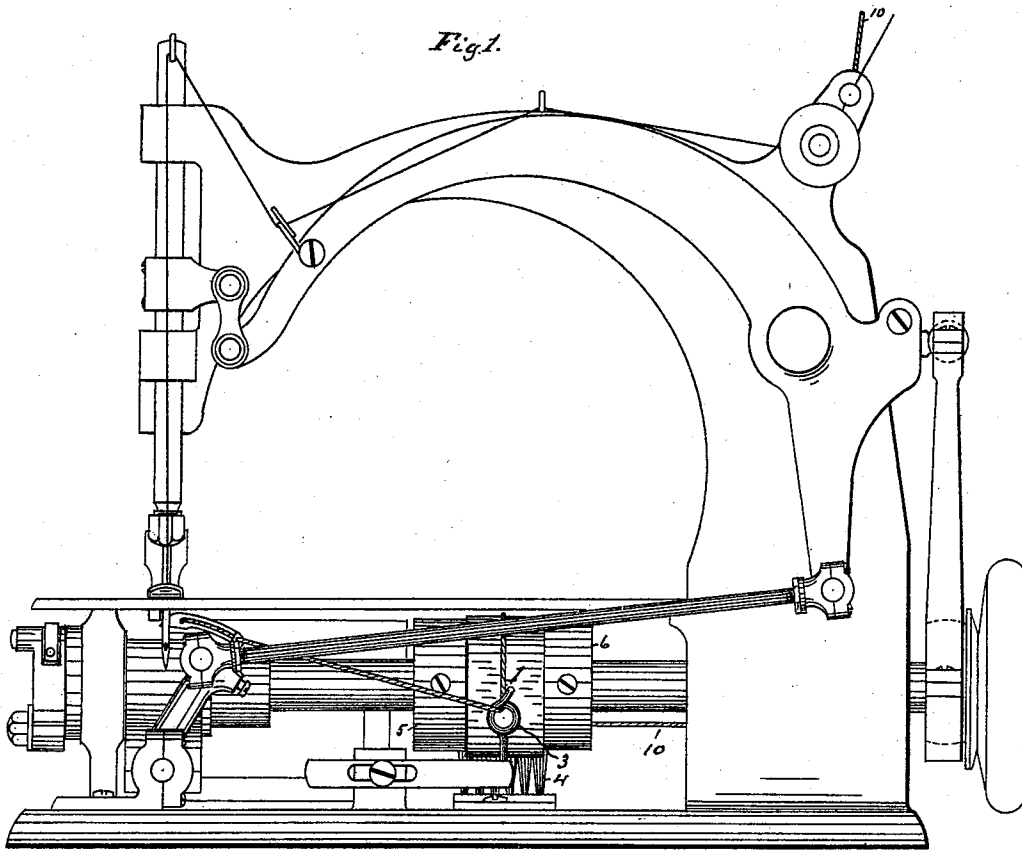


(No Model.)

J. M. MERROW.
TAKE-UP FOR SEWING MACHINES.

No. 570,135.

Patented Oct. 27, 1896.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOSEPH M. MERROW, OF MANSFIELD, CONNECTICUT.

TAKE-UP FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 570,135, dated October 27, 1896.

Application filed January 11, 1894. Serial No. 496,541. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH M. MERROW, of Merrow, in the town of Mansfield, county of Tolland, and State of Connecticut, have invented certain new and useful Improvements in Take-Ups for Sewing-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 figures of reference marked thereon.

This invention relates particularly to that class of sewing-machines which form a double chain-stitch, employing for the purpose a reciprocating eye-pointed needle for carrying a thread through the fabric, and a looper for carrying another thread, the two threads being enchaind or interlooped in the process of sewing. When a reciprocating looper is employed for carrying the second or under thread, it causes great variation in the tension, at times producing much slackness of the thread and otherwise interfering with its regular delivery in the stitches, and the purpose of my present invention is to provide a means for properly taking up and letting out the looper-thread at the proper times and in the proper quantity to produce perfect stitching, having the requisite degree of elasticity and presenting the desired appearance of the stitches. In addition to these qualities my take-up possesses the further advantage that it can be used to good effect at the highest speeds attainable with machines of this class. In the drawings, Figure 1 is a front elevation of a double-chain sewing-machine with the new take-up applied thereto. Fig. 2 is a detached view of the take-up.

Similar letters of reference in the several figures indicate the same parts.

In illustrating the new take-up it has been shown applied in connection with a well-known style of sewing-machine, the construction and operation of which is well understood and does not require explanation further than the statement that the looper travels in an orbit around the needle, passing forward on one side to enter the loop of the needle-thread and swinging laterally so as to return on the opposite side of the needle, as is common in machines of this class.

The new take-up proper consists, essentially, of a rotary cam or deflector 1 and two thread-guides 2 3, arranged on opposite sides of the cam in the plane of the latter's movement.

The looper-thread 10 after passing through the usual tension devices is conducted through suitable guides, conveniently arranged for the purpose, to the rear thread-guide 2, thence across the face of the cam or deflector 1 in a plane transverse to its axis to the front guide 3, from which it proceeds to the looper. The cam or deflector is in form and dimensions suited to the movements of the looper, and as the latter reciprocates the cam will operate to alternately take up and let out the looper-thread by increasing or diminishing the length of thread extending between the two thread-guides, and in this way, by a proper modification in the form of the cam, the character of the stitch can be determined and modified. By carrying the looper-thread across the face of the cam in a plane transverse to its axis the feeding or withdrawal of the thread from the spool or other source of supply is not interfered with, as there are no very sharp bends on the surface of the cam. Moreover, by carrying the thread across the face of the cam in a direction opposite to the movement of the latter, as indicated by the arrows in Fig. 2, so that the motion of the surface of the take-up is opposed to that of the thread in contact with it, a certain degree of tension is placed upon the looper-thread, sufficient in some cases to obviate the necessity for the use of other tension devices, although the latter can be employed when desired.

It will also be observed that as the surface of the take-up cam moves in a direction opposed to the feed of the thread it will operate to automatically draw back the thread lying between the looper and cam rather than to draw the thread from the spool, this result being due to the tension and frictional contact of the thread with the face of the take-up cam in addition to the increasing radius of the latter.

When, as sometimes occurs, the looper-thread is broken, there is a possibility that it may be wound around the take-up cam,

though such accidents are rare. To provide against this contingency, a brush 4, preferably of bristles, felt, or other suitable material, is placed in position to bear against the face of the cam in order that it may catch the thread and retain it, thereby preventing it from being wound around the cam or any adjacent rotating parts.

As the machine is designed to be run at high rates of speed, a counterbalance should be provided for the cam 1, and this may be done either by securing counterbalance-weights 5 6, one or more, to the shaft. The counterbalance may be separately applied to the shaft or it may be formed integral with the take-up cam. As a substitute for the counterbalance 5 6 for ordinary speeds the take-up cam may be balanced by forming the larger or projection portion lighter, as by forming holes therein, as indicated in Fig. 2.

In practice it is preferred to make the irregular surface of the looper-thread take-up cam parallel to the axis of rotation, instead of at an angle or at various angles, partly on account of the cost of production and partly because of its more satisfactory action for most purposes.

For greater convenience of adjustment and manipulation the rear thread-guide support 7 is pivotally attached to the frame or a standard and held in position by a spring 8, which engages a flat portion of the support to hold it in position and enables the thread-guide to be turned up for threading.

The front thread-guide, with its support, is adjustable horizontally and vertically, so that the amount of take-up and frictional tension may be adjusted and varied.

Having thus described my invention, what I claim as new is—

1. In a take-up such as described, the combination with the rotating take-up cam and the thread-guides, of the brush contacting with the surface of the cam, substantially as and for the purpose specified.

2. In a sewing-machine, such as described, and in combination with the looper, a take-up comprising the two fixed thread-guides 2 and 3 and the rotating take-up cam 1, the latter interposed between the said thread-guides with its periphery intersecting a vertical plane passing through said guides, and its axis substantially at right angles to the path traversed by the thread in passing from one thread-guide over the surface of the cam to the opposite thread-guide, one of said thread-guides (3) being adjustably secured to its support to regulate the take-up action of the cam, and the surface of the cam, with which the thread contacts, moving in a direction the reverse of the feed of the thread, that is to say, from the guide nearest the looper toward the guide more remote from the looper; substantially as described.

3. In combination with the needle and looper, the cam 1, the rear thread-guide 2 pivotally supported and held in adjusted or working position by a spring, and the fixed front guide 3 movably connected to its support so as to vary the length of the looper-thread extending between guides 2 and 3 over cam 1; substantially as described.

JOSEPH M. MERROW.

Witnesses:

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