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L. ONDERDONK.

TAKE-UP FOR SEWING MACHINES.

APPLICATION FILED JULY 8, 1904.

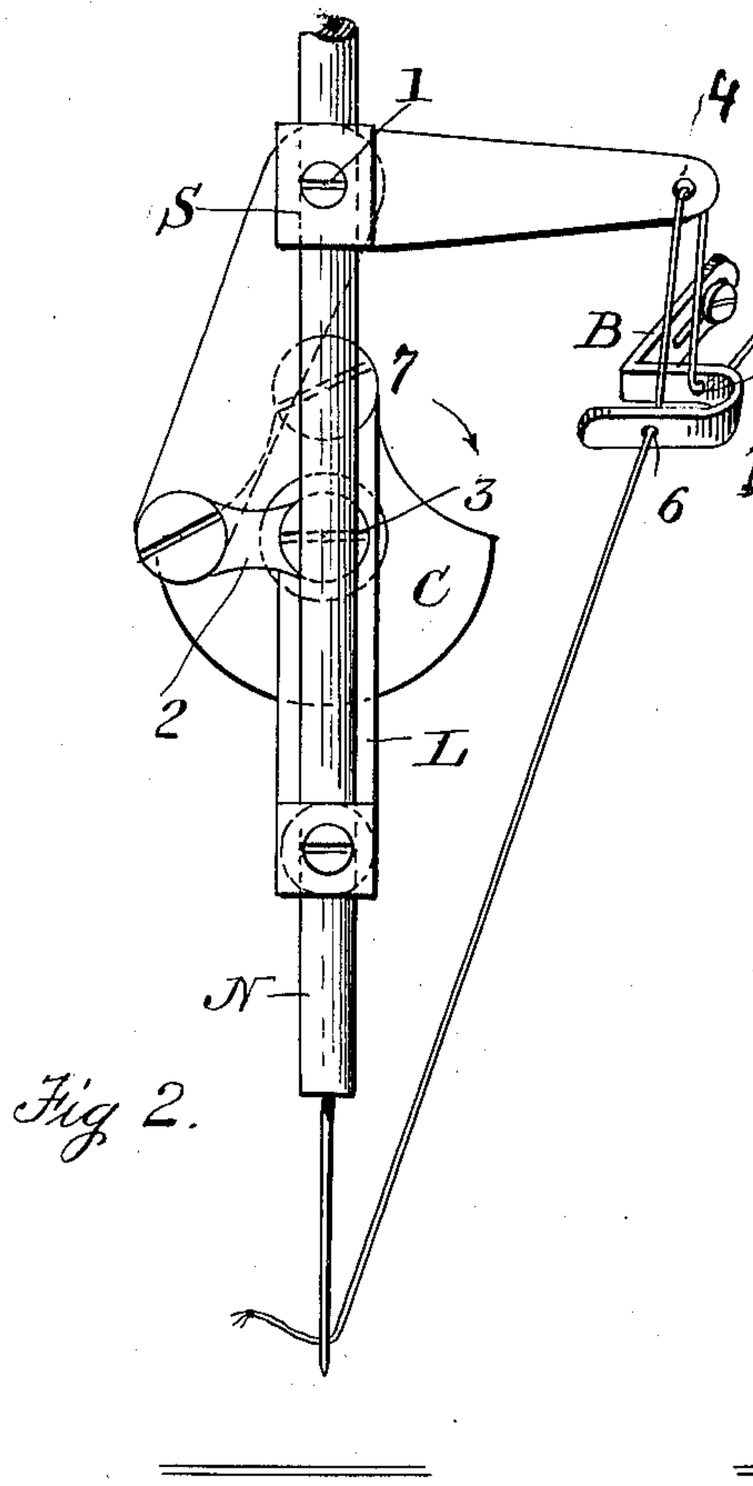

Fig 2.

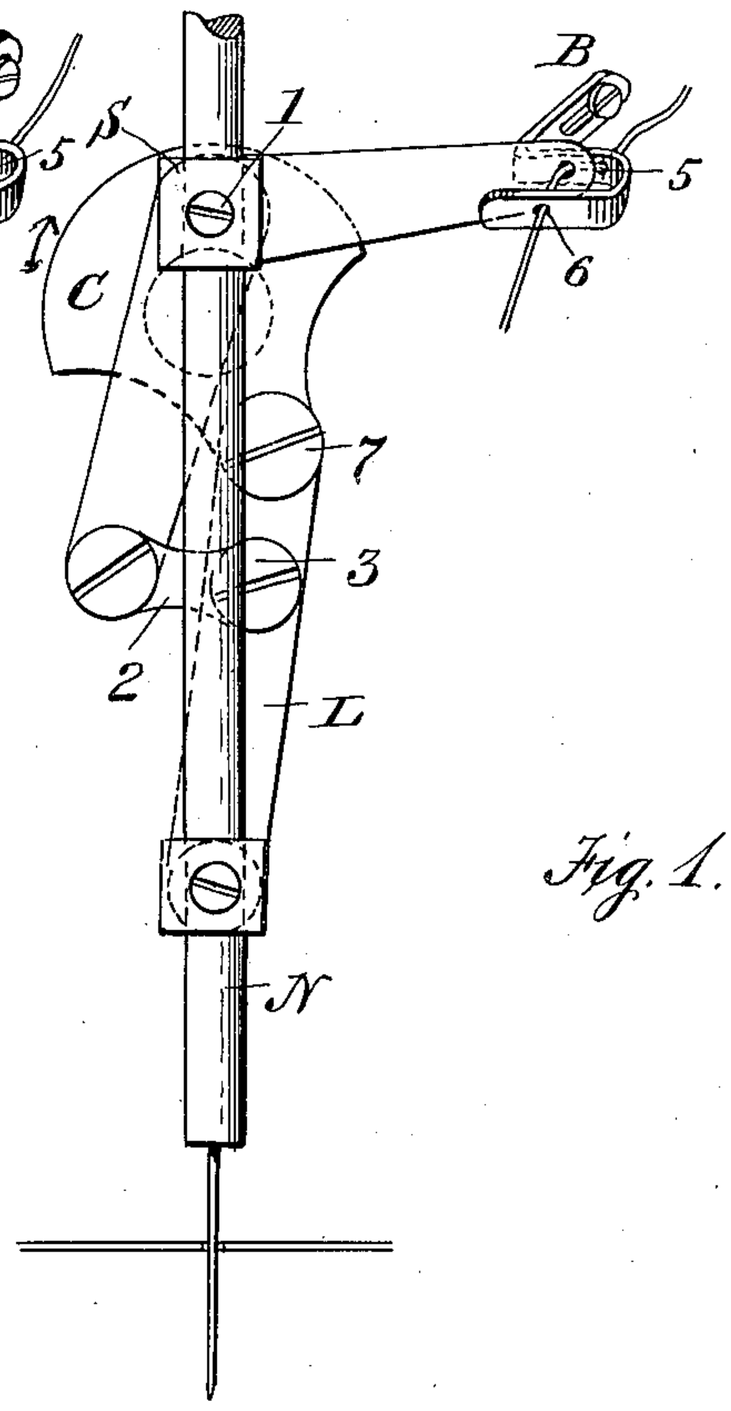

Fig. 1.

Witnesses
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UNITED STATES PATENT OFFICE.

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TAKE-UP FOR SEWING-MACHINES.

No. 827,654. Specification of Letters Patent. Patented July 31, 1906.

Application filed July 8, 1904. Serial No. 215,790.

To all whom it may concern:

Be it known that I, LANSING ONDERDONK, a citizen of the United States, residing at New York, in the county of New York, State of New York, have invented certain new and useful Improvements in Take-Ups for Sewing-Machines, of which the following is a description, reference being had to the accompanying drawings and to the letters and figures of reference marked thereon.

This invention relates to take-ups for sewing-machines, and has for its object to improve the manner in which the take-up operates to set the stitch, so that the feed will be given time to finish its movements as to length of stitch without having to overcome the resistance of the take-up when tightening the stitch, and, furthermore, to improve the manner in which the take-up controls the slack thread.

The invention consists in the arrangements and combination of parts hereinafter more fully described, and particularly pointed out in the claims.

In the drawings, Figure 1 is a front view of the essential parts of the take-up, showing its relation to the needle-bar and its operating mechanism, the needle being almost at its lowest point. Fig. 2 is a similar view showing the position of the parts when the needle is at its highest point.

The sewing-head is of the usual form and is provided with a rotary shaft carrying at its forward end the crank-piece C. The needle-bar N reciprocates in suitable bearings and is connected to the crank-piece C by a link L. These parts are of the ordinary form and will not be further described.

Adjustably secured upon the needle-bar N is a sleeve S, which is held in place by a set-screw 1. Pivoted to this sleeve is a bell-crank lever one arm of which extends downwardly and is connected by a link 2 to the needle-bar-operating link L at a point 3 and the other arm of which is free and is provided with a thread-eye 4. Rigidly secured on the frame of the machine is the bracket B, which is provided with thread-eyes 5 and 6. The thread passes from the supply through suitable thread-guides to the thread-eye 5, thence through the eye 4 in the take-up arm, and thence through the eye 6, and on to the needle. In the operation of the machine the take-up arm vibrates between the thread-eyes 5 and 6.

The crank C moves in direction of the arrow in Fig. 2, and the operation of the take-up will be as follows: From the position shown in this figure the needle-bar begins to rise, carrying with it the bell-crank lever or take-up. The link L moving to the left will, however, cause the take-up to turn about its fulcrum 1, and as a resultant of these two movements the thread-eye 4 has a downward movement relative to the thread-eyes 5 and 6 and will draw up the slack in the needle-thread and cause the needle to throw out a comparatively small loop. The upward movement of the pivotal support of the take-up soon becomes greater than the down movement of the thread-eye 4, caused by the lateral movement of the link 2. After the crank-pin 7 passes the quarter-revolution the lateral movement of the link 2 will cause the thread-eye 4 to move faster than the needle-bar, quickly drawing the stitch tight. After the needle-bar begins to descend the take-up eye 4 has a still farther upward movement, setting the stitch after the needle-bar begins to descend. By this movement of parts, wherein the stitch is set after the needle begins to descend, it will be noted that the feed is given time to finish its movement as to the length of stitch without having to overcome the resistance of the take-up when tightening the stitch. After the stitch is set the take-up begins to slowly give up thread to the needle until the needle has entered or nearly reached the work, and thus the needle-thread is kept fairly taut, so it cannot get in the way of the needle—that is to say, it prevents the needle-thread from looping around the point of the needle before it enters the work and also keeps the needle-loop of the previous stitch taut against the under side of the looper while said looper is drawing back. After the point of the needle has entered the work and the crank-pin passed the third quarter-revolution the take-up releases the thread rapidly, so that there is little or no strain on the needle-thread in the eye of the needle, as is customary in chain-stitch machines, which depend on the needle drawing up the slack of the previous stitch.

By this arrangement and operation of parts I am able to do away with the slack-thread controller, thus simplifying the parts and producing a mechanism which is especially adapted for high-speed machines.

While I have shown and described an embodiment of my invention, I do not desire to be limited to the detail disclosed, as obviously many changes may be made without departing from the spirit of my invention.

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

1. The combination of a needle-bar, and means for operating the same, of a take-up carried by said needle-bar and having a thread-guide, thread-engaging means coöperating with said take-up, and means independent of the needle-bar for oscillating said take-up, said means giving said thread-guide an upward and stitch-tightening movement on the downward movement of the needle-bar; substantially as described.

2. The combination of a needle-bar, and means for operating the same, of a take-up carried by said needle-bar and having a thread-guide, means for operating said take-up whereby the same is given an upward movement, and a succeeding faster movement during the latter part of its upward stroke, said upward movement of the thread-guide continuing after the needle-bar begins to descend, and a thread-engaging means cooperating with said take-up; substantially as described.

3. The combination of a needle-bar, a rotating crank and a link connecting said crank and needle-bar, of a take-up carried by said needle-bar, and means connected to said link for giving said take-up a movement independent of the needle-bar, and thread-engaging means coöperating with the take-up; substantially as described.

4. The combination of a needle-bar, a rotating crank and a link connecting said crank and needle-bar, of a take-up lever pivoted on said needle-bar, a link connecting one end of said take-up lever to the first-named link, and thread-engaging means coöperating with the said take-up; substantially as described.

5. The combination of a needle-bar, a rotating crank and a link connecting said crank and needle-bar, of a bell-crank lever pivoted on said needle-bar, one arm of said bell-crank extending downward and a link connecting said arm to the first-named link, the other arm extending forwardly and having a thread-eye, and a bracket secured to the machine-arm and having thread-eyes between which the thread-eye on the bell-crank arm vibrates; substantially as described.

6. The combination, of a needle-bar, and means for operating the same, of a take-up carried by the needle-bar and thread-engaging means coöperating with said take-up means independent of the needle-bar for oscillating said take-up, said take-up having a slack-thread-controlling movement as the needle begins to ascend, a succeeding quick movement to draw the stitch tight, a stitch-setting movement while the needle is descending, and a relatively slow downward movement giving up thread to the needle; substantially as described.

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

LANSING ONDERDONK.

Witnesses:

C. D. CHURCHILL,

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