O. E. ELWELL.

THREAD CONTROLLER FOR SEWING MACHINES.

APPLICATION FILED FEB. 11, 1905.

1,105,413. **Patented July 28, 1914.**

Fig. 1.

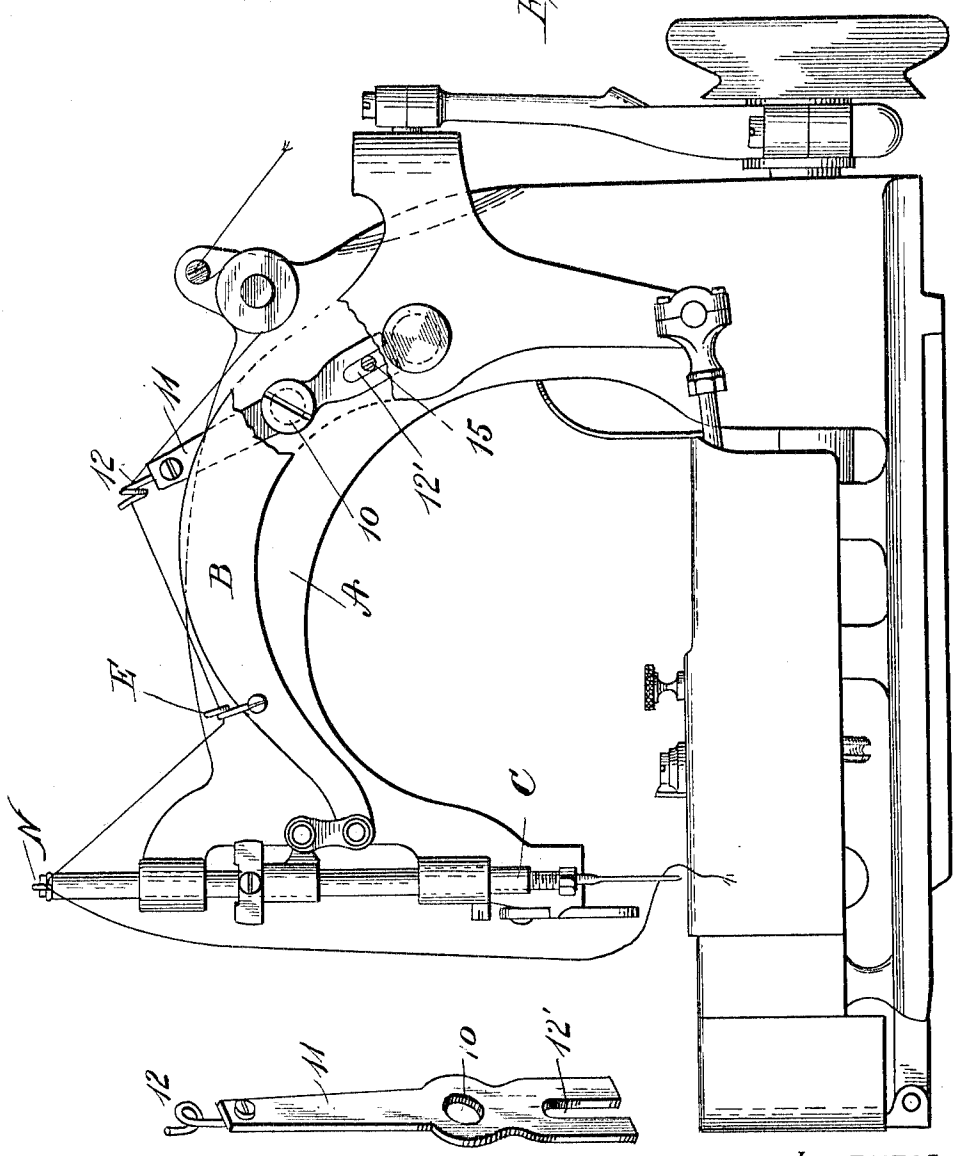


Fig. 2.

WITNESSES:

Franck L. Orrand.

Albert Copsius

INVENTOR:

Oliver E. Elwell.

By C. D. Shurtleff

Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

OLIVER E. ELWELL, OF HORNELL, NEW YORK, ASSIGNOR TO THE UNION SPECIAL MACHINE COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION.

THREAD-CONTROLLER FOR SEWING-MACHINES.

1,105,413. Specification of Letters Patent. **Patented July 28, 1914.**

Application filed February 11, 1905. Serial No. 245,207.

To all whom it may concern:

Be it known that I, OLIVER E. ELWELL, a citizen of the United States, residing at Hornell, in the county of Steuben, State of New York, have invented certain new and useful Improvements in Thread-Controllers for 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.

This invention relates to thread controllers for sewing machines, and has for its principal object to provide means for more effectively controlling the movement of the thread than is possible in existing machines.

In the well known Union Special machines, thread controllers are so arranged that variation in the height of the presser bar due to variation in the thickness of the material being sewed, will result in slacking the thread to a greater or less extent, in accordance with the quantity of thread necessary in the formation of the stitch and while this is of great value in machines for different classes of work, it does not meet all the requirements of an ideal controller.

In carrying out the present invention, provision is made for moving the controller from the needle operating means and the devices so arranged that each time the needle moves in one direction, the controller will move in the opposite direction. The advantages gained from this construction will be clearly pointed out in the following description.

In the accompanying drawings:—Figure 1 is an elevation of a machine having a thread controller constructed in accordance with the invention. Fig. 2 is a detail view of the controller detached.

Similar reference numerals indicate corresponding parts in the several figures of the drawings.

The machine shown is of a type in common use and includes a gooseneck A, a needle lever B and a needle bar C. The needle lever B is provided with a thread guide E, and the needle bar C is provided with a thread guide N. These guides are of the usual construction, and the thread on its way to the needle is led through said guides. As the needle bar is reciprocated, said guides operate to take up the thread to set the stitch in the usual manner. On the gooseneck is placed a stud 10 forming a pivot for a thread controlling lever 11, which carries at its upper end a thread receiving eye 12 arranged between the usual tension devices and the thread guides on the needle lever and needle bar. The lower end of the lever 11 is provided with a slot 12′ into which enters a pin 15 carried by the needle lever at a point near the center of movement of the latter.

The connection between the needle lever and the thread controller is such that when the needle lever moves in one direction, the thread controller moves in the opposite direction. Taking as an example, the ordinary machine, on downward movement of the needle bar, the slack thread below the point of the needle may slip to the wrong side of the path of movement of the needle and the lack of tension on the thread results in indeterminate operation of the looper. With the present device, as soon as the needle starts its downward movement, the thread controller moves up and the slack thread between the eye in the point of the needle and the work is taken up. This causes the needle thread, under the work, to lie close against the under side of the looper as the latter moves back, thus holding the needle thread taut when the looper is moving backward. Inasmuch as the movement of the thread is opposite the direction of movement of the needle, that is, the thread is drawn up as the needle goes down, the needle thread loop will be perfectly formed and in correct position for engagement by the looper, as will be readily understood by those skilled in the art.

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

1. A sewing machine including in combination a needle, means for operating the same, including a needle lever, means for taking up the needle thread, a slack thread controller, independent of the needle lever, and operated thereby, said slack thread controller being so constructed as to take up the slack in the needle thread during substantially the entire downward movement of the needle.

2. A sewing machine, including in combination a needle, means for operating the same, including a needle lever, means for taking up the needle thread, a slack thread controller, comprising a thread arm, having a

thread eye, said thread arm being connected to and moved by said needle lever, and constructed so as to take up the needle thread during substantially the entire downward movement of the needle.

3. A sewing machine including in combination, a needle bar, a thread guide carried thereby, a needle lever, a thread guide carried thereby and a slack thread controller with means for operating it in reverse direction to the movements of the other two thread guides.

4. A sewing machine including in combination, a needle bar, a thread guide carried thereby, a needle lever, a thread guide carried thereby, and a slack thread controller with an operative connection between the same and the needle lever for operating it in a reverse direction to the movements of the other two thread guides.

5. A sewing machine including in combination a needle bar, a thread guide carried by the upper end thereof, a needle lever, a thread guided thereby, a stationary thread guide, a slack thread controller having a thread guide engaging the needle thread between the stationary thread guide and the eye on the needle bar, and means for moving said slack thread controller so that the eye thereof travels in the direction reverse to the direction of the movement of the eye on the needle lever, whereby said slack thread controller and the eye on the needle lever are moved in opposite directions, while the needle is moving downwardly, so that a pull on the needle thread is exerted during substantially the entire downward movement of the needle.

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

OLIVER E. ELWELL.

Witnesses:

MILO M. ACKER,

M. W. WALDORF.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."