

No. 827,652.

PATENTED JULY 31, 1906.

L. ONDERDONK.
TAKE-UP FOR SEWING MACHINES.

APPLICATION FILED JULY 8, 1904.

3 SHEETS—SHEET 1

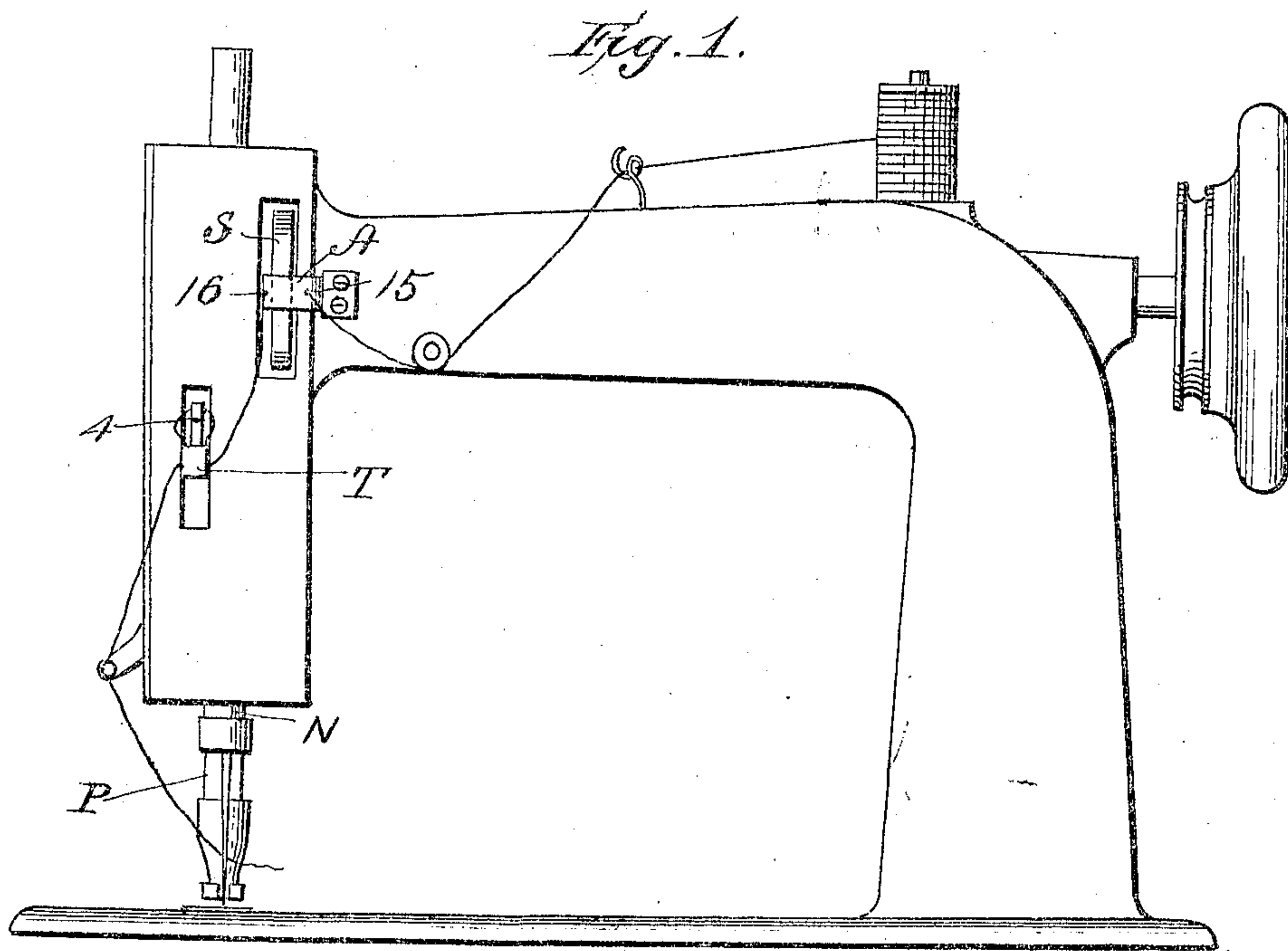


Fig. 3.

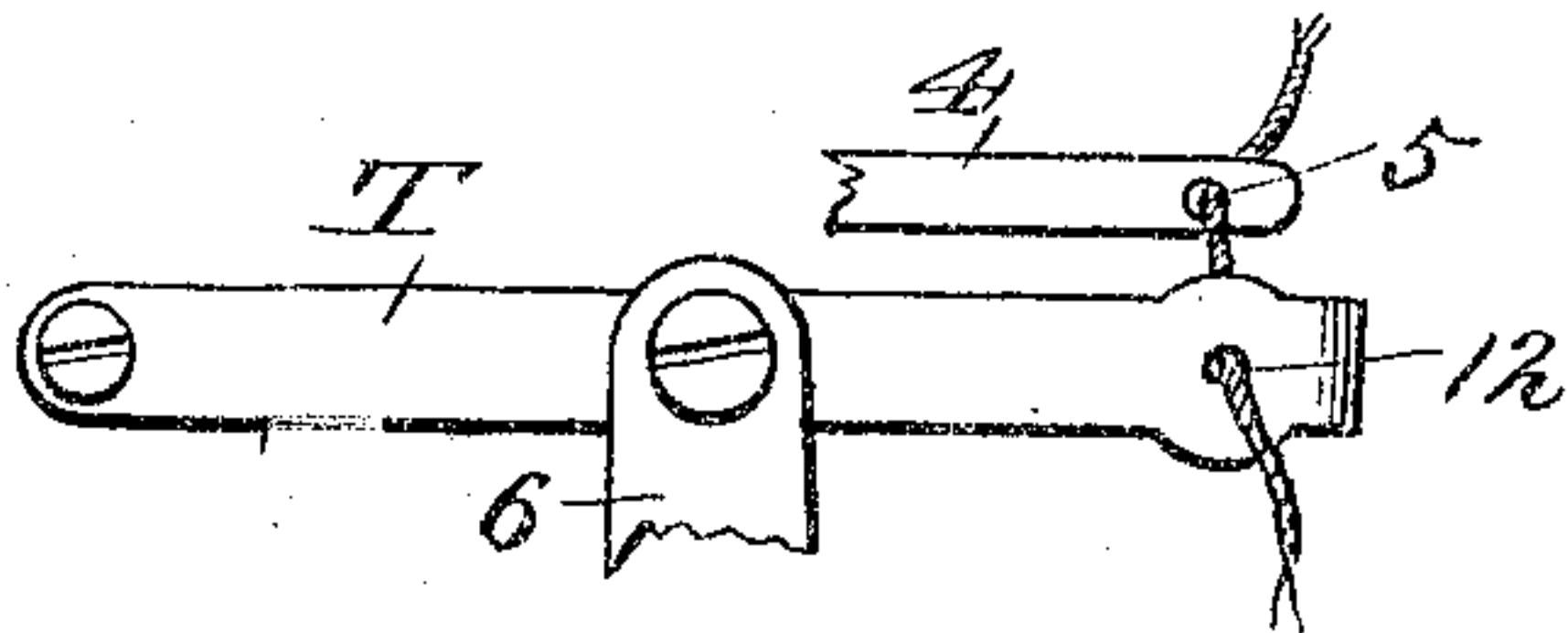


Fig. 4.

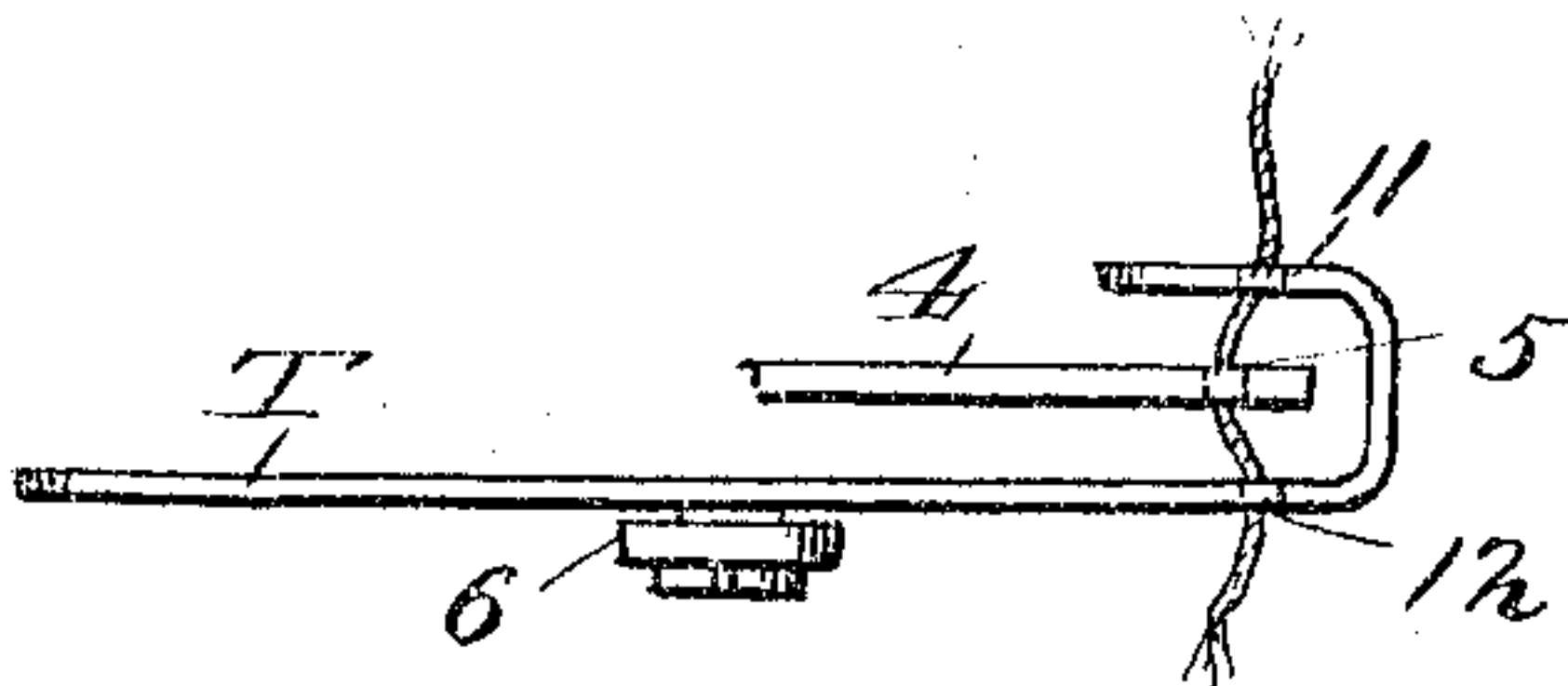
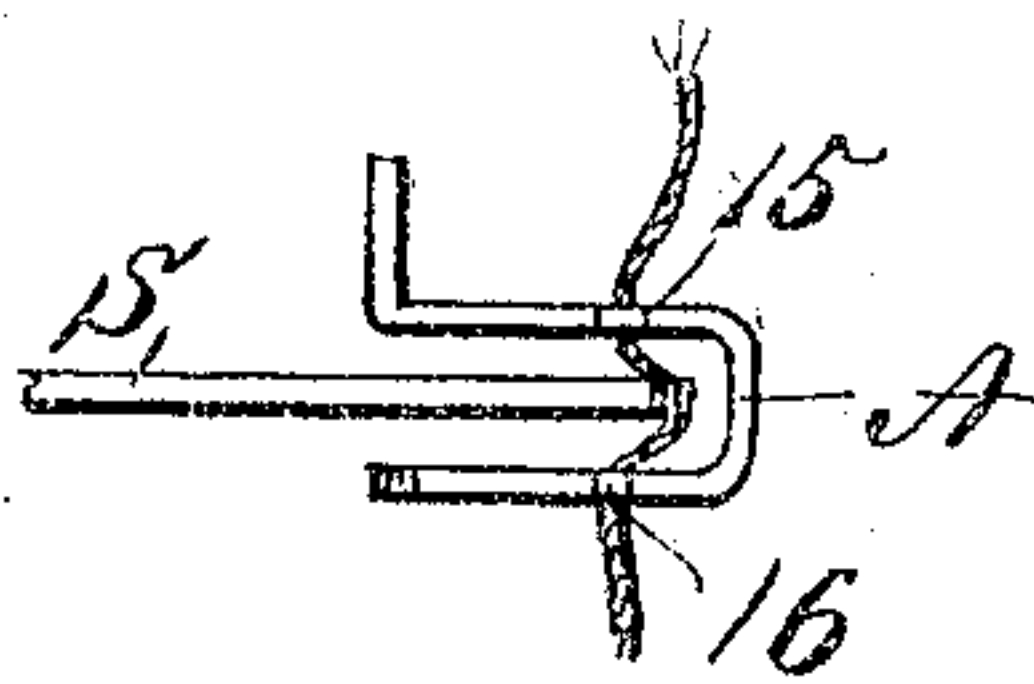


Fig. 5.



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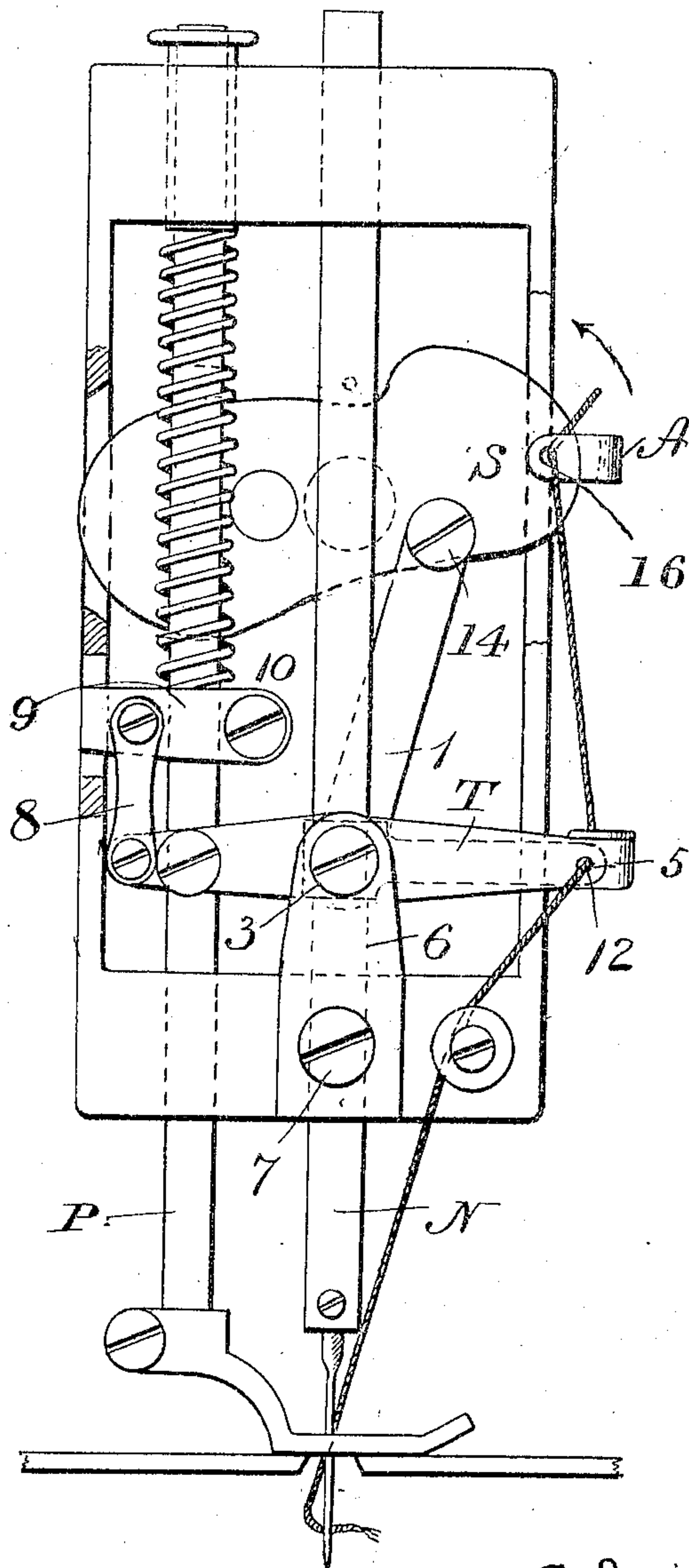
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3 SHEETS—SHEET 2.

Fig. 2.



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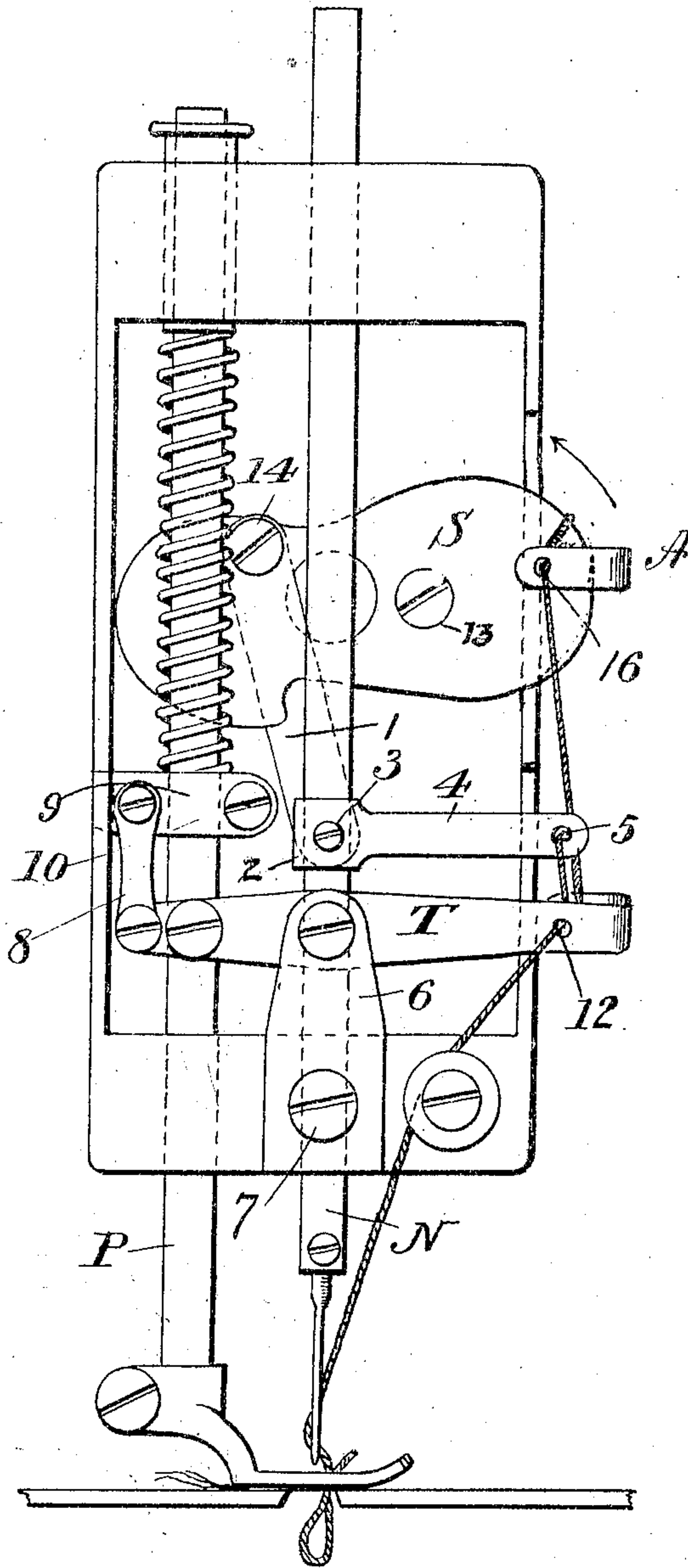
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3 SHEETS—SHEET 3.

Fig. 6.



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UNITED STATES PATENT OFFICE.

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TAKE-UP FOR SEWING-MACHINES.

N. 827,652.

Specification of Letters Patent.

Patented July 31, 1906.

Application filed July 8, 1904. Serial No. 315,788.

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 a take-up for the needle-thread of a sewing-machine and to the parts which cooperate therewith in controlling the slack thread. In high-speed machines it is found necessary to keep under positive control the slack in the needle-thread caused by idle movements of the take-up; and it is also necessary that the slack produced shall not be in excess of that needed in the operation of the moving parts and that the thread shall be pulled from the supply in accordance with the thickness of the material operated upon.

The invention consists in the matters hereinafter described, and referred to in the appended claims.

While I have shown in the drawings and have described an improved stitch-controller which is connected to the presser-bar and controlled thereby, said controller is not herein claimed, except in combination, broadly. I have, however, in a companion application filed of even date herewith and bearing serial number 215,789 claimed said controller.

In the drawings, Figure 1 represents a side elevation of a sewing-machine head embodying my invention. Fig. 2 represents a front end elevation of the arm, showing the front plate removed and parts broken away to more clearly expose the essential parts of my invention. Fig. 3 is a broken detail of the stitch-controller and take-up, the parts being in side elevation. Fig. 4 is a plan view of the parts shown in Fig. 3, and Fig. 5 is a broken plan of the slack-thread controller and its cooperating thread-guide. Fig. 6 is a view similar to Fig. 1, representing the position of the parts when the needle is opposite to the position shown in Fig. 2.

The construction of the sewing-machine head is of the usual form, carrying in the forward

end thereof the needle-bar N and the presser-bar P, which may be of any suitable construction. The needle-bar N is vibrated by a rotating shaft through a link 1 in a manner hereinafter more fully described. Rigidly carried by the needle-bar N is a sleeve which is adjustably secured in place on the needle-bar by a set-screw 3. Projecting from the sleeve 2 is the take-up arm 4, which has a suitable thread-eye 5 in its outer end.

Rigidly secured to the frame of the machine-head is a bracket 6. Said bracket may be cast with the head or formed separately and secured thereto by a screw 7, as shown in Fig. 2. Pivoted to the upper end of the bracket 6 is the stitch-controller T. This stitch-controller is pivoted intermediate its ends to the bracket and at its rear end is connected to a link 8, which in turn is pivoted to a split collar 9, carried by the presser-bar P. Said collar 9 is adjustably secured to the presser-bar by a screw 10 in the well-known way. The opposite end of the stitch-controller extends substantially parallel with the take-up arm and a little beyond the same where said controller-arm is bent back upon itself, but spaced from the main portion of the arm, so that the take-up can vibrate in the space between these parts.

The free end of the stitch-controller T is provided with a thread-eye 11. Directly opposite the thread-eye 11 is a corresponding eye 12 in the main portion of the controller-arm T.

The operation of the parts thus far described will be obvious. When the needle-bar is on its downstroke, the take-up arm is giving up slack to the needle. As soon as the arm passes the controller T said arm will begin to draw the thread up. The movement of the take-up arm below the controller is not so extensive as the movement above. On the return or upward movement of the take-up arm slack will be given up until the arm passes the controller T. This slack-giving movement may be termed the "idle" movement of the take-up. As the take-up continues to rise the thread will be drawn tight and the stitch set, and the continued movement of the take-up arm pulls thread through the tension for the next stitch. The downward movement of the take-up gives up the thread

producing slack, and thus the take-up has a second idle movement. It will be noted that the controller is connected to the presser-bar and that the forward end descends as the presser-bar rises, and vice versa. Any increase in the thickness of the material operated upon will lift the presser-bar, causing the thread-eyes 11 and 12 to move downward, and the take-up arm will then travel over a greater distance above the controller, and consequently pull off more thread from the supply. Thus it will be seen that the amount of thread supplied is regulated by the thickness of the work.

I will now describe the means for controlling the slack thread during the idle movements of the take-up. In the arm of the machine is the usual rotary shaft. Rigidly secured to the end of this shaft is the slack-thread controller S. Said controller is secured to the shaft by the screw 13. The controller carries a crank-pin 14, which is eccentrically disposed relative to the rotating shaft, and a link 1 connects said crank-pin 14 with the needle-bar N for operating the same. Fixed to the head of the machine is a thread-guiding arm A, which is bent at its free end to embrace the path of movement of the thread-controller and has two thread-eyes 15 and 16, through which the thread is led from the tension to the stitch-controller and take-up. Said slack-thread controller is formed with two oppositely-disposed cam-shaped thread-engaging surfaces. One of these surfaces engages the thread, between the thread-eyes 15 and 16, taking up the slack given up by the take-up in one of its idle movements, and the other engages the thread, taking up the slack during the other idle movement of the take-up. It will thus be apparent that the thread is under constant control, the slack-thread controller controlling the slack in the needle-thread between the tension and the stitch in the goods while the same is not under the control of the take-up. The thread being under positive control, the machine is especially adapted for high-speed work.

While I have described the preferred form of the invention, I do not wish to be limited to the details described and shown in the drawings, as many modifications will suggest themselves to one skilled in the art to which it appertains 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 take-up, thread-guides cooperating therewith, means for reciprocating said take-up across a line passing through said guides, whereby said take-up has two thread-drawing and two idle movements during each reciprocation thereof, and a slack-thread controller having separate

means for positively and independently controlling the thread during each of the idle movements of the take-up; substantially as described.

2. The combination of a take-up, a stitch-controller connected to the presser-foot and having thread-guides cooperating with the take-up, means for reciprocating said take-up across a line passing through said guides, whereby said take-up has two thread-drawing and two idle movements during each reciprocation thereof, and positively-operated means for controlling the slack in the thread during the idle movements of the take-up; substantially as described.

3. The combination of a take-up, a stitch-controller connected to the presser-foot and having thread-guides cooperating with the take-up, means for reciprocating said take-up across a line passing through said guides, whereby said take-up has two thread-drawing and two idle movements during each reciprocation thereof, a slack-thread controller having separate means for positively and independently controlling the thread during each of the idle movements of the take-up; substantially as described.

4. The combination of a take-up, a stitch-controller connected to the presser-foot and having thread-guides cooperating with the take-up, means for reciprocating said take-up across a line passing through said guides, whereby said take-up has two thread-drawing and two idle movements during each reciprocation thereof, a rotary slack-thread controller having separate and oppositely-disposed portions for controlling the slack thread, and stationary thread-eyes cooperating with said controller; substantially as described.

5. The combination with a rotary shaft, of a slack-thread controller carried thereby, a needle-bar, a crank-pin carried by said controller, a link connecting said crank-pin and needle-bar, and a stationary thread-guide cooperating with said controller; substantially as described.

6. The combination with a rotary shaft, of a slack-thread controller secured to the end of said shaft, a needle-bar, a crank-pin carried by said controller, a link connecting said crank-pin and needle-bar, and a stationary thread-guide cooperating with said controller; substantially as described.

7. The combination with a rotary shaft, of a slack-thread controller secured to the end of said shaft, a needle-bar, a crank-pin carried by said controller, a link connecting said crank-pin and needle-bar, a take-up carried by the needle-bar, and thread-guides cooperating with said take-up; substantially as described.

8. The combination with a rotary shaft, of a slack-thread controller secured to the end

of said shaft, a needle-bar, a crank-pin carried by said controller, a link connecting said crank-pin and needle-bar, a take-up carried by the needle-bar, a stitch-controller connected to the presser-bar and having thread-eyes coöperating with said take-up; substantially as described.

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

LANSING ONDERDONK.

Witnesses:

W. L. SWIFT,
J. H. HOWELL.