

No. 728,211.

PATENTED MAY 19, 1903.

J. DIEHL.

SLACK THREAD TAKE-UP FOR SEWING MACHINES.

APPLICATION FILED AUG. 3, 1900.

NO MODEL.

Fig. 1.

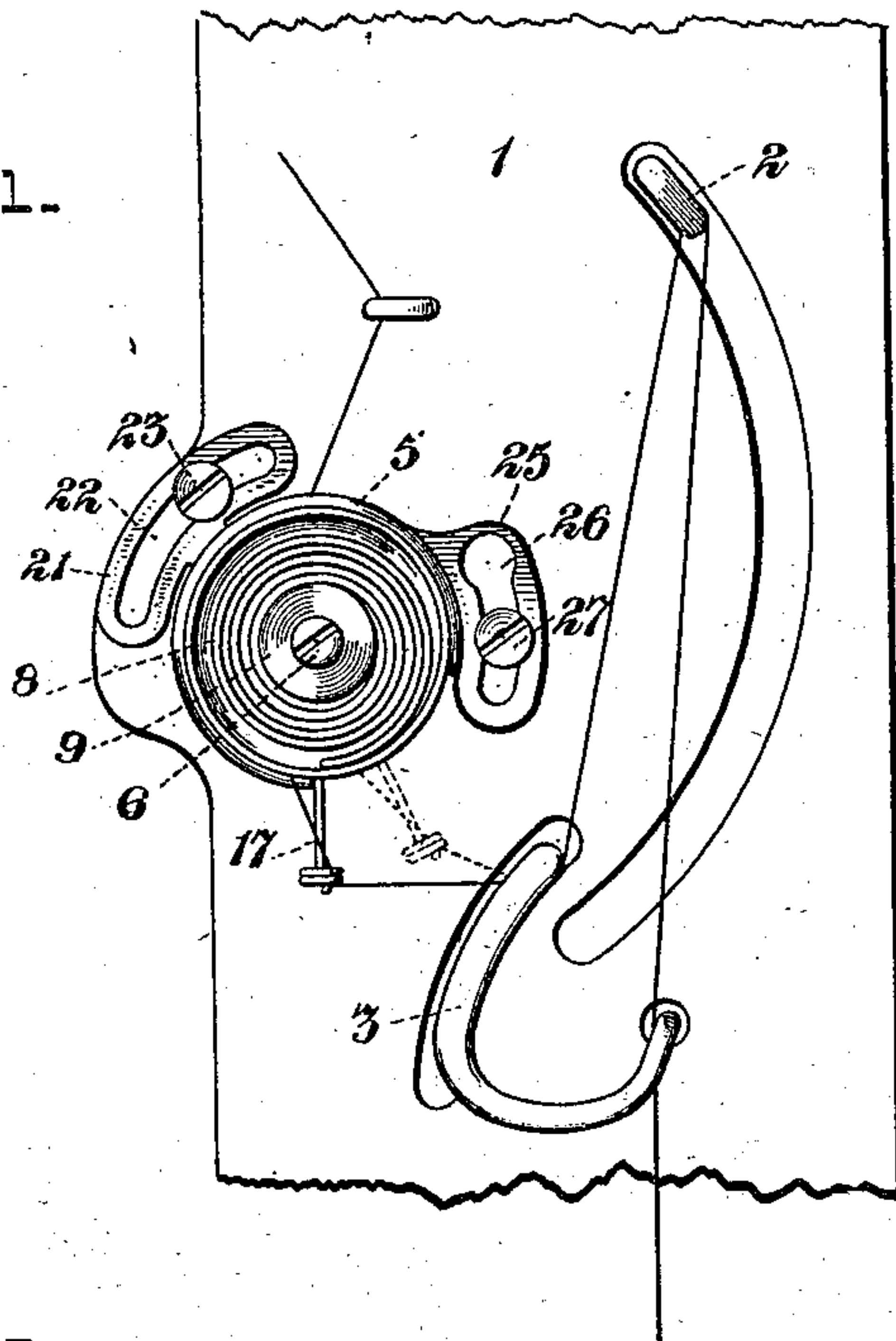


Fig. 2.

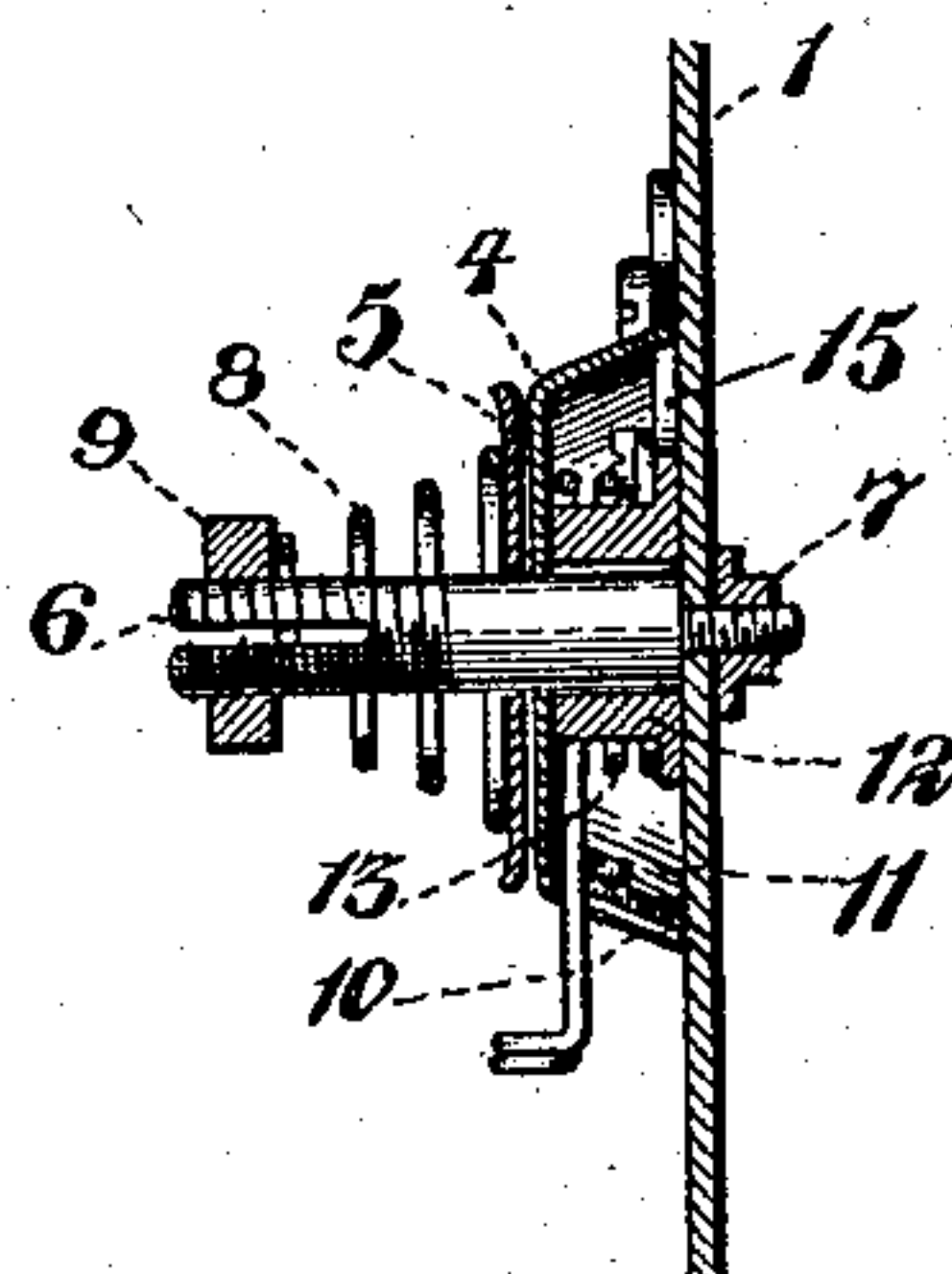


Fig. 4.

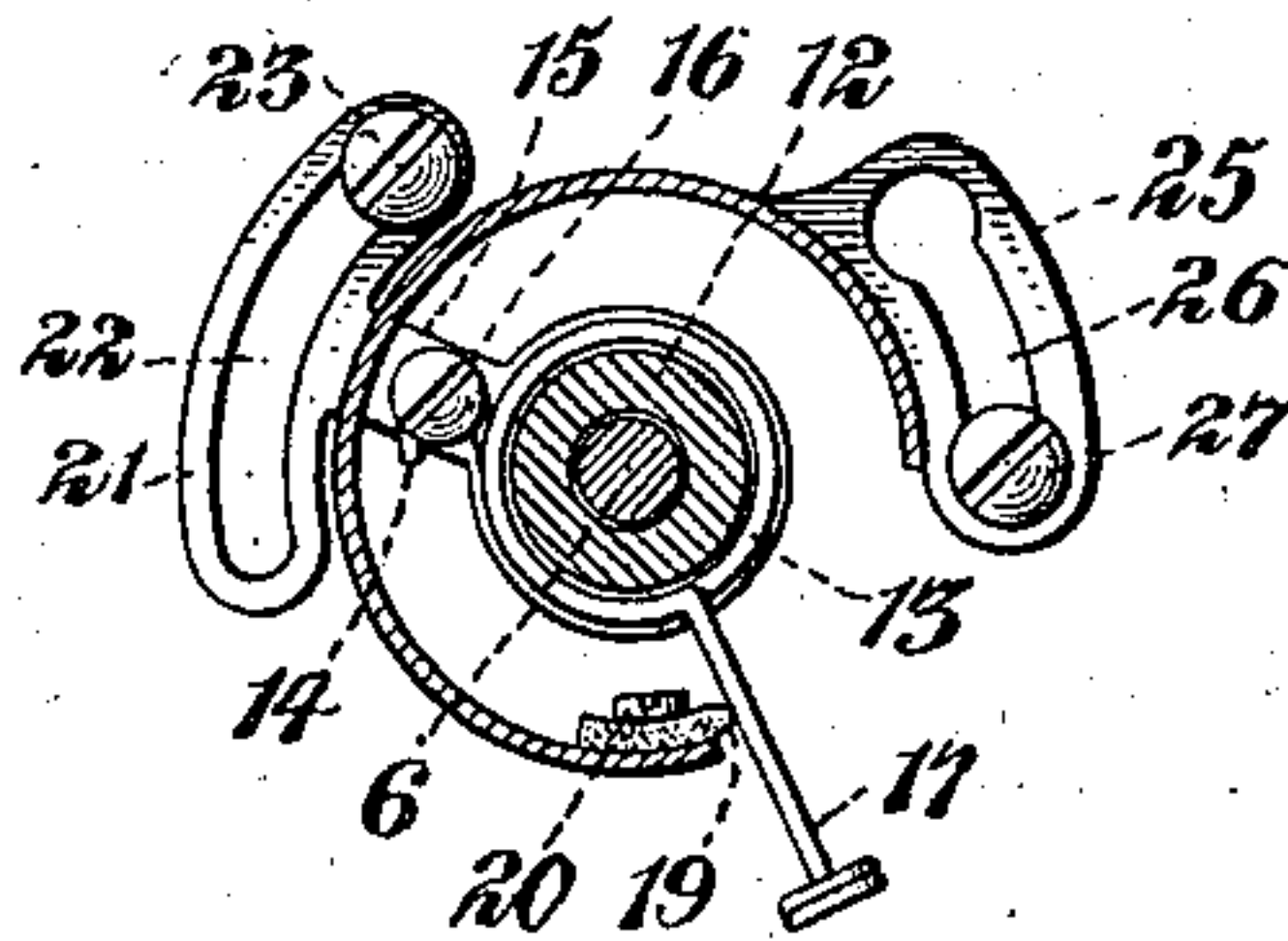
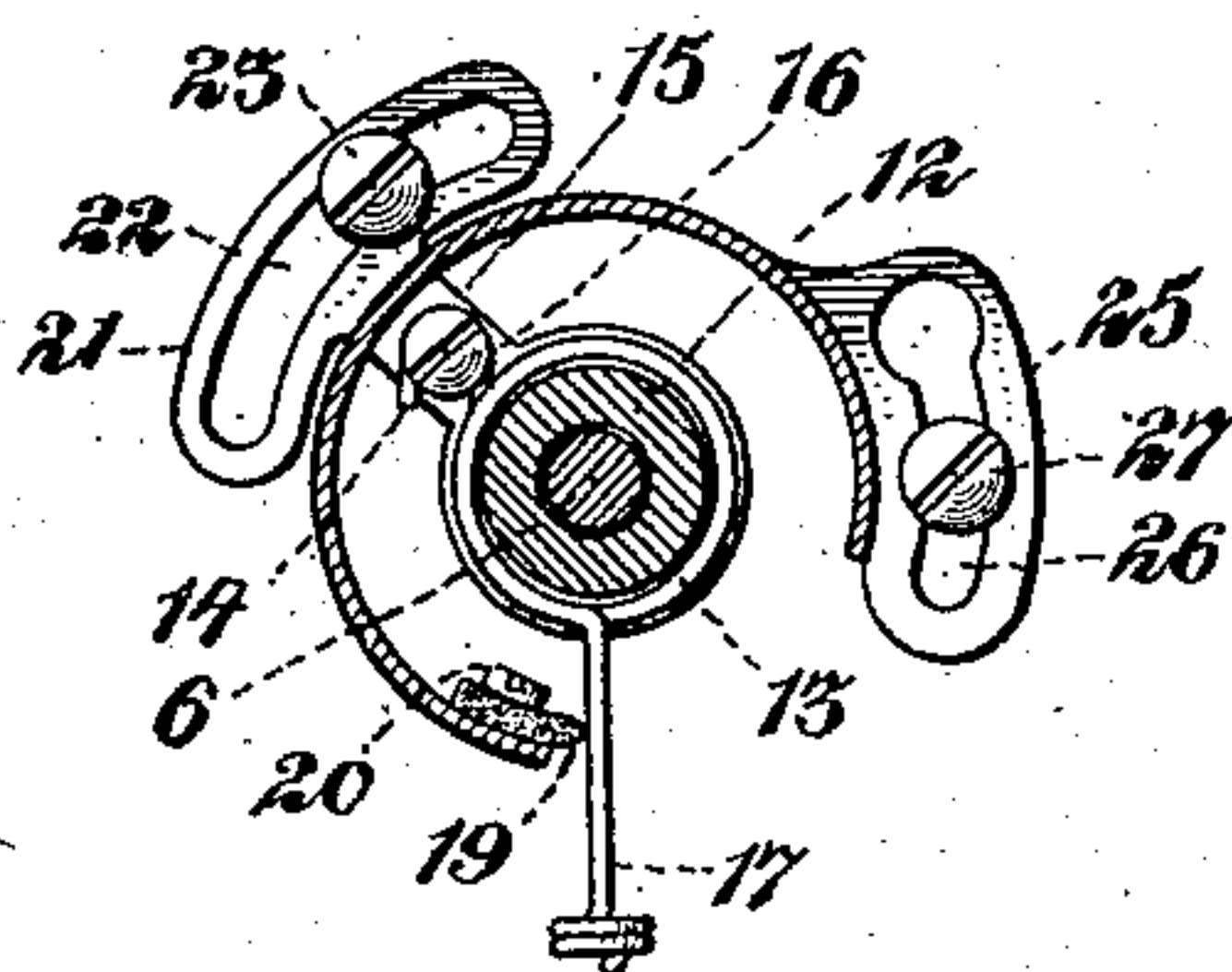


Fig. 3.



Witnesses:

Geo. W. Taylor.
M. L. Forrest.

By his Attorney.

Inventor
Jacob Diehl.
Chas. F. Dane

UNITED STATES PATENT OFFICE.

JACOB DIEHL, OF CLEVELAND, OHIO, ASSIGNOR TO THE STANDARD SEWING MACHINE COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

SLACK-THREAD TAKE-UP FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 728,211, dated May 19, 1903.

Application filed August 3, 1900. Serial No. 25,728. (No model.)

To all whom it may concern:

Be it known that I, JACOB DIEHL, a citizen of the United States, and a resident of Cleveland, Cuyahoga county, State of Ohio, have
 5 invented certain new and useful Improvements in Slack-Thread Take-Ups for Sewing-Machines, of which the following is a specification, reference being had to the accompanying drawings, forming part thereof.

10 In the ordinary sewing-machine as usually constructed provision is made whereby a certain determined amount of thread is drawn from the spool or other thread-supply by the
 15 main take-up which is sufficient for the proper formation of a stitch in very thick work, and in the event of thinner work being operated upon the slack produced by the difference between the amount drawn from the spool
 20 and the amount required for the stitch is taken up and controlled by a spring or so-called "intermediate" take-up operating between the tension and the main take-up. The throw of this intermediate spring take-up is regulated so as to take up and control
 25 the slack thread produced when very thin work is being operated upon, and as thicker work is operated upon, such intermediate take-up being in the form of a spring, will readily yield and give off the required amount
 30 necessary for the stitch in the increased thickness of work. It is desirable, however, that the tension or elasticity of such spring take-up should be capable of adjustment, whereby the same may be caused to act more
 35 or less rapidly, according to the speed of the machine, and also for the purpose of acting with greater or less strain upon the thread, according to the character of the work, as it will be understood that according to the
 40 strain or degree of elasticity with which such take-up acts on the thread the stitch may be made more or less loose. A further desirable adjustment to the spring take-up is one regulating its throw, as if thick work is being
 45 operated upon but very little throw of the take-up is necessary, and by limiting the extent of such throw all unnecessary strain upon the thread is avoided, while if thinner work is to be operated upon the throw of the
 50 take-up may be regulated accordingly. To provide for such adjustments to the slack-

thread take-up in a cheap, simple, and effective manner has been the object of this invention, which object I secure by means of the novel construction and combination of parts
 55 hereinafter set forth in detail, and pointed out in the claims.

Referring to the accompanying drawings, in which I have shown only so much of a sewing-machine as is necessary to illustrate
 60 my invention, Figure 1 is a front end view of a portion of a sewing-machine arm provided with my improved slack-thread take-up and its adjusting devices. Fig. 2 is a vertical
 65 sectional view through a portion of the slack-thread take-up and its adjusting devices. Figs. 3 and 4 are detail views, with certain of the parts in section, illustrating different adjustments of the take-up.

In said drawings, 1 indicates the face-plate
 70 of a sewing-machine, 2 the main take-up, and 3 a thread-controller, all as more fully illustrated and described in another application of mine now pending, bearing Serial No. 19,571.
 75

Located upon the face-plate 1 is a disk tension device consisting of an inner disk 4 and an outer disk 5, both being centrally mounted upon a pin or stud 6, which is attached to
 80 the face-plate 1 by means of a nut 7 engaging with a threaded extension of said pin at the rear side of the face-plate, as shown in Fig. 2. A coiled spring 8 and an adjusting-nut 9 serve to hold the outer disk 5 in adjustable yielding
 85 contact with the inner disk in the usual and ordinary manner. In accordance with my present invention the inner tension-disk 4 is formed with a laterally-projecting peripheral flange 10, which engages with the
 90 face-plate 1 and forms an inclosed chamber 11 between the latter and the disk, as most clearly shown in Fig. 2. A sleeve 12 is loosely supported upon the pin 6 at a point within the said chamber 11 and has supported thereon a coiled spring 13, one end of which (indicated at 14) is secured in connection with an
 95 arm 15 of the sleeve 12 by means of a screw 16 and at its opposite end (indicated at 17) is bent radially outward to project through an opening in the flange 10 of the tension-disk 4
 100 and form the spring take-up arm for acting upon the needle-thread, the end of said arm

being bent to form an eye, through which the thread is passed, as shown.

The take-up arm 17 is adjusted so as to have a normal tendency to bear against the end wall of the opening or cut-away portion in the flange 10 in which it operates, the said end wall being formed, as herein shown, by means of a piece of leather or similar material, (indicated at 19,) against which the arm may strike without creating undue noise, the said leather being secured to the inner wall of the flange 10 by means of a screw 20. As a means for adjusting the tension or elasticity of the take-up arm 17, whereby it may be caused to produce more or less strain upon the thread, according to the character of the work, and also act more or less rapidly, according to the speed of the machine, the arm 15 of the sleeve 12 is extended through an opening (not shown in the drawings) in the flange of the disk 4 and provided at a point beyond the periphery of the latter with a transversely-arranged head or extension 21, which latter is provided with an elongated slot 22 therein, arranged in the arc of a circle described from the center of the pin 6, through which a set-screw 23 extends, with its threaded end screwed into the face-plate 1 and its head spanning the slot and engaging with the face side of the said extension 21, as shown. By loosening the set-screw 23 the arm 15, to which the still end of the spring is connected, may be moved so as to wind the coil more or less tightly upon the sleeve 12, and thereby regulate the tension or elasticity of the same for the purpose set forth. After being properly adjusted the take-up will be secured in such adjustment by again tightening the set-screw 23.

In order to provide for regulating the throw of the take-up arm 17, whereby it may be caused to control more or less slack thread, the inner tension-disk 4 is adjustable, so that the position of the leather bearing 19, carried thereby, which limits the throw of the take-up arm in one direction, may be changed so as to permit a greater or less throw of said take-up, as indicated in Figs. 3 and 4. As a simple and desirable means for adjusting the position of the disk 4 the latter is provided with an extension 25, projecting beyond its outer periphery, which is provided with an elongated slot 26 therein, through which a set-screw 27 is passed, with its threaded end connecting with the face-plate and its enlarged head spanning the slot 26 and engaging with the face side of the extension 25, as shown. By the means described the take-up arm 17 may be adjusted readily and accurately without interfering with any of the other parts.

Having thus set forth my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a sewing-machine, the combination, with a supporting-pin, of a cup-shaped disk located thereon, a sleeve loosely mounted upon said pin at a point within the cup-shaped disk and provided with an arm projecting beyond the periphery of the latter, means engaging with said arm to hold the same in stationary adjusted position, a coiled spring supported upon said sleeve and having one end connected therewith and its opposite end bent radially outward to form a slack-thread-take-up arm, a stop on said disk for limiting the throw of the take-up arm in one direction, and means for adjusting the position of the disk, for the purpose set forth.

2. In a sewing-machine, the combination, with the arm thereof, of a pin connected with said arm, a disk supported upon said pin with a space between the same and the arm forming a chamber, a sleeve loosely mounted upon said pin at a point within the said chamber and provided with an arm projecting beyond the periphery of said disk, a set-screw engaging with said arm, a coiled spring supported upon said sleeve and having one end connected therewith and its opposite end bent radially outward to form a slack-thread-take-up arm, a stop on said disk for limiting the throw of the take-up arm in one direction, and means for adjusting the position of the disk, for the purpose set forth.

3. In a sewing-machine, the combination, with the arm thereof, of a pin connected with said arm, a disk tension device supported on said pin, the inner disk of which is cup-shaped and provides a chamber between the same and the arm, a sleeve loosely mounted upon said pin at a point within the said chamber and provided with an arm projecting outside of the latter having an elongated slot therein, a set-screw engaging with said arm through the slot therein, a coiled spring supported upon said sleeve and having one end connected therewith and its opposite end bent radially outward through an opening in the wall of said disk to form a slack-thread-take-up arm, the said tension-disk being provided with a stop for limiting the throw of the take-up arm in one direction and also being provided with a peripheral extension having an elongated slot therein, and a set-screw engaging with said extension through the slot therein, for the purpose set forth.

JACOB DIEHL.

In presence of—

CHAS. C. EMMONS,
W. C. WALKER.