

No. 836,849.

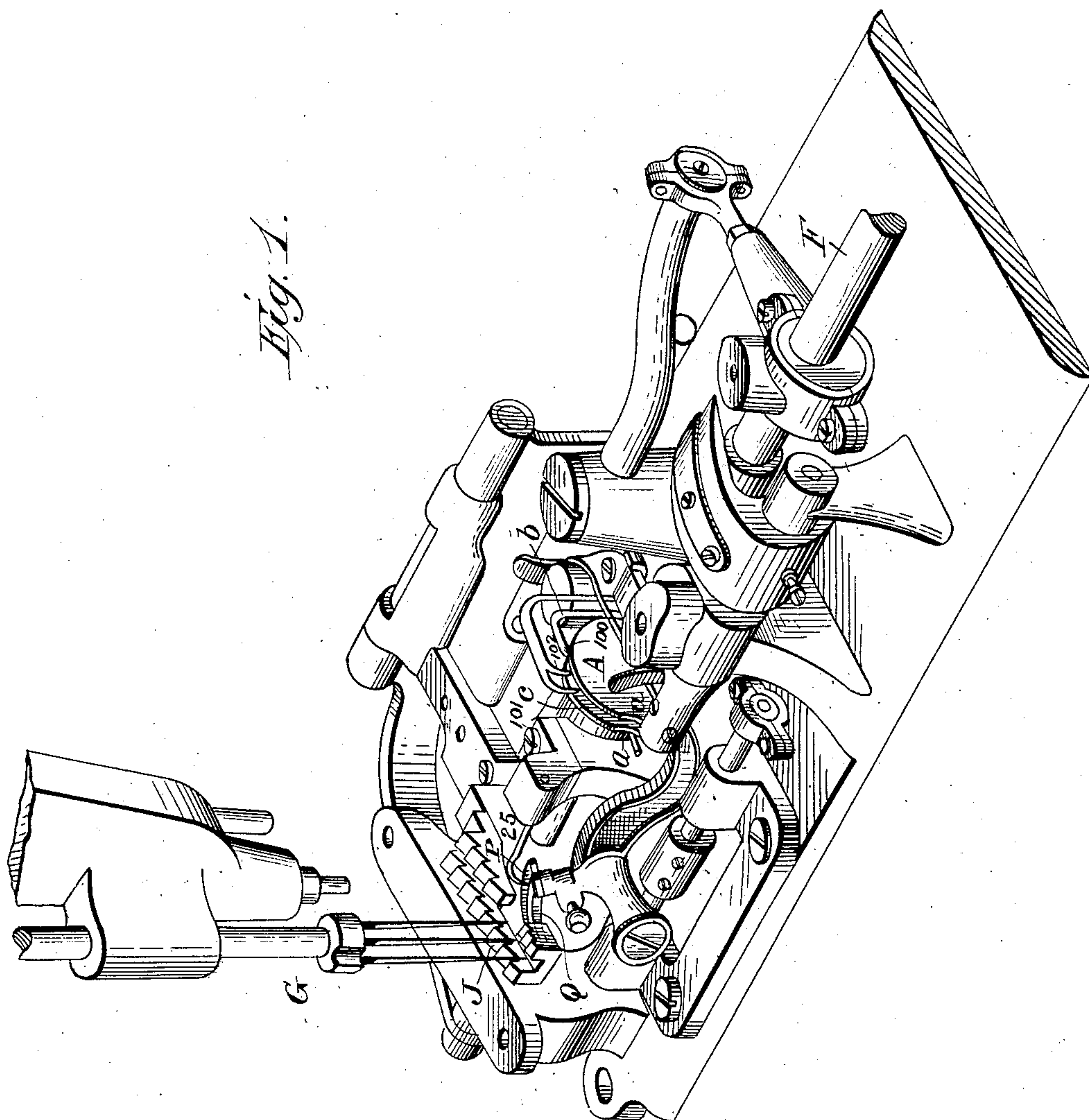
PATENTED NOV. 27, 1906.

R. G. WOODWARD.

TAKE-UP MECHANISM FOR SEWING MACHINES.

APPLICATION FILED APR. 17, 1902.

2 SHEETS—SHEET 1.



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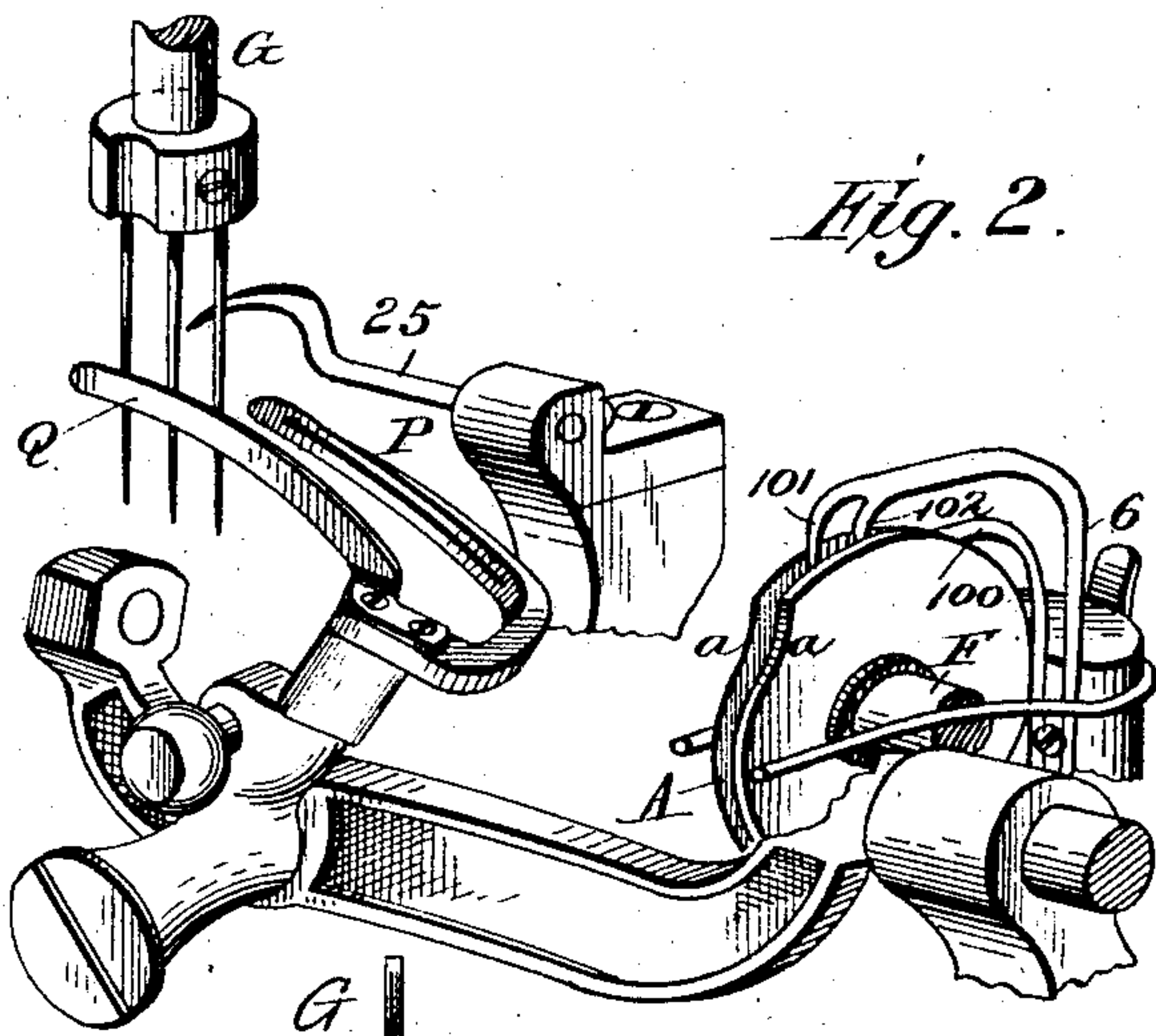


Fig. 2.

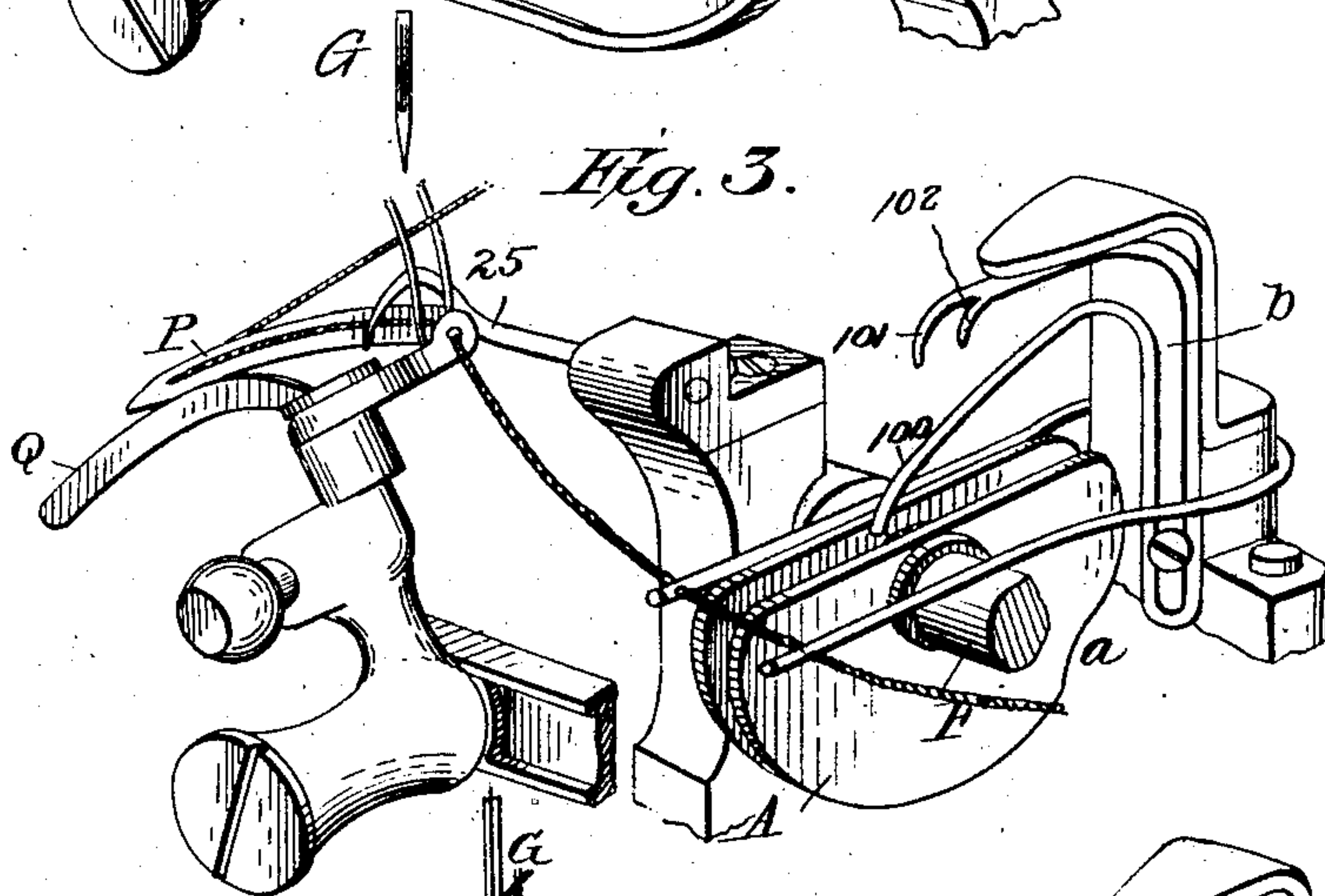


Fig. 3.

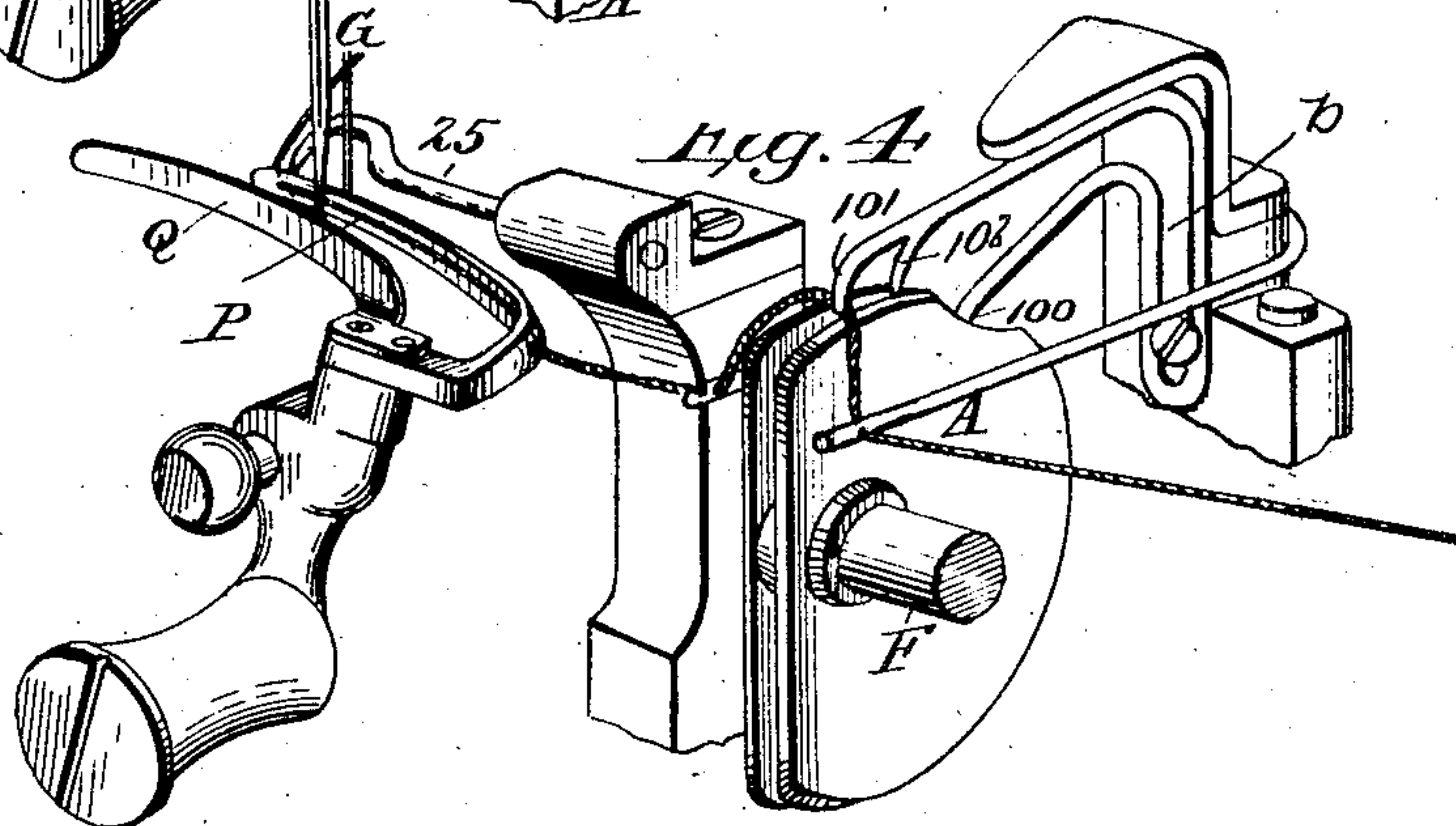


Fig. 4.

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UNITED STATES PATENT OFFICE.

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TAKE-UP MECHANISM FOR SEWING-MACHINES.

No. 836,849.

Specification of Letters Patent.

Patented Nov. 27, 1906.

Original application filed February 25, 1898, Serial No. 671,283. Divided and this application filed April 17, 1902. Serial No. 103,322.

To all whom it may concern:

Be it known that I, RUSSEL G. WOODWARD, a citizen of the United States, residing at Waukegan, in the county of Lake, State of Illinois, have invented certain new and useful Improvements in Take-Up Mechanisms 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.

The present application is a division of my application for patent upon an improvement in sewing-machines, filed February 25, 1898, Serial No. 671,283, patented July 12, 1904, No. 765,120.

The present invention relates to an improvement in sewing-machines, particularly of the double-chain-stitch type, in which an under-thread-carrying device coöperates with a vertically-reciprocating thread-carrying needle to form the stitches, and the present division relates especially to a take-up mechanism, which I have devised, primarily, for use upon the machine which forms the subject-matter of the above-entitled application, but it will be understood that it may be applicable to other machines.

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

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a portion of a sewing-machine embodying my invention, the bed-plate being removed. Figs. 2, 3, and 4 are detail views of the take-up mechanism, showing the relative positions of needle, looper, take-up, and spreader in respective positions, as follows: first, when the needle is just starting to throw out its loop; second, when the needle is at its extreme raised position, and, third, when the looper has passed into the needle-loop.

In the drawings, F represents the main or driving shaft; G, the needle-bar; J, the feed-dog; P, the looper; Q, the looper-guard finger, and 25 the loop-detainer, the parts being all constructed and operating in the manner set forth in the aforesaid application.

The loop-detainer 25 has four motions—a bodily-forward motion, an oscillating movement at right-angles thereto, a bodily move-

ment the reverse of the first movement, and finally an oscillating movement the reverse of the second movement, the movements being so timed with respect to the movements of the looper that the loops of needle-thread entered by the looper will be held back on said looper or forced back thereon by the detainer until such time as the needle-points in their next descent have passed below the point of the looper and all danger of the needles cutting their own thread avoided.

In general, the take-up mechanism which forms the subject-matter of this application is of the Union Special type, but in details of construction varies.

The take-up cam or disk A resembles generally the take-up cam shown in Patent No. 299,568, but in its face has a cut-out portion *a* for the purpose hereinafter referred to. The thread guiding and detaining wire *b*, which enters the slot *c*, milled into the take-up disk or cam, has three prongs 100, 101, and 102. The one, 100, which engages the bottom of the groove in the take-up cam is the same as in the patent referred to, but the prong which extends over the top has the two fingers or prongs 101 102.

R represents arms between which the take-up cam A rotates, and each having near its outer ends a guide-eye for the thread.

In the travel of the looper-thread through the machine to be finally deposited into the seam it passes in the usual way across the face of the take-up and is acted upon by it in the customary manner, the face of the cam engaging the thread between the guide-eyes and carrying it up. In the movement of the take-up cam or disk the lower prong forces the thread upon the outer periphery of the take-up and is next acted upon by the prong at the top of the thread guiding and detaining wire and nearest to the back of the machine. This takes up the slack in the lower thread while the looper is on its backward travel and holds the thread until said prong, which is the shorter one, reaches the cut-out portion *a* of the take-up cam or disk, when the thread is released, and then the longer or front prong of the thread guiding and detaining wire retains the thread and takes all the slack out of it when the eye of the looper has reached a point just past the

left-hand needle and insures that the traveling loop-detainer will pass underneath the lower thread. In other words, the action of the take-up parts is as usual, except that the thread guiding and detaining wire has two prongs acting upon the thread when it is upon the outer periphery of the take-up. The back one of said two prongs is the same as the regular prong shown in patent above referred to, and the front prong when the looper is going ahead acts as a check on the lower thread and straightens it out so the finger or loop-detainer can pass under the lower thread, which at that time is between the goods and front eye of the looper. This checking action of the thread takes place while the looper is going forward. The other prong alone cannot produce this result, as it is too far back when compared with the action of the take-up. Unless the thread is straightened out to let the finger under the thread imperfect work will result.

The operation of the take-up is shown in Figs. 2, 3, and 4. In Fig. 2 the needles are shown as just beginning to rise, the looper just commencing its forward movement, and the lower thread has been directed by the wire 100 up onto the periphery of the take-up cam or disk A and is held back of the prong 102. In Fig. 3 the needles are at the extreme of their upward movement, the looper is forward, and the take-up cam or disk is not acting on the looper-thread at all. In Fig. 4 the looper is just passing into the needle-loops, the prong 102 has reached the cut-out portion *a* of the take-up cam or disk, and the thread has slipped beneath said prong and is held by prong 101, it being held thereby until the end of the cam is reached.

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

1. A take-up mechanism for sewing-machines, comprising thread-guides, a take-up cam, with means for rotating it, a guiding-arm and a retaining-arm, means whereby two fingers on the latter may successively detain the thread upon the take-up during its rotation; substantially as described.

2. A take-up mechanism for sewing-machines, including stationary thread-guides a

take-up cam or disk rotating between the thread-guides and having a cut-away portion in its periphery, and a thread guiding and detaining wire having two prongs, one of which has its point above the outer periphery of said cut-out portion to allow the thread to slip beyond said point as the latter enters the recess, while the point of the second prong extends below the periphery of said cut-out portion; substantially as described.

3. A take-up mechanism for sewing-machines, including stationary thread-guides a take-up cam or disk rotating between the thread-guides and having a groove, and having a cut-away portion in its periphery, of a thread guiding and detaining wire bearing constantly in said groove, and having two prongs, one of which has its point above the outer periphery of said cut-out portion, to allow the thread to slip beyond said point as the latter enters upon the recess, while the point of the second prong extends below the periphery of said cut-out portion; substantially as described.

4. A take-up mechanism for sewing-machines, comprising a take-up cam or disk, stationary thread-guides between which said take-up cam or disk rotates a thread guiding and detaining wire, and a series of fingers successively engaging and releasing the thread as the cam or disk moves; substantially as described.

5. In a sewing-machine having suitable stitch-forming mechanism including a needle and a looper, stationary thread-guides, a rotary take-up member engaging the thread between the guides, a thread guiding and detaining member upon which the thread is carried in the movement of the take-up member, and a series of fingers successively catching and holding the thread as the cast-off member raises it upon the face of the take-up member; substantially as described.

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

RUSSEL G. WOODWARD.

Witnesses:

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