

(No Model.)

J. E. BERTRAND.

THREAD TENSION DEVICE FOR SEWING MACHINES.

No. 432,012.

Patented July 15, 1890.

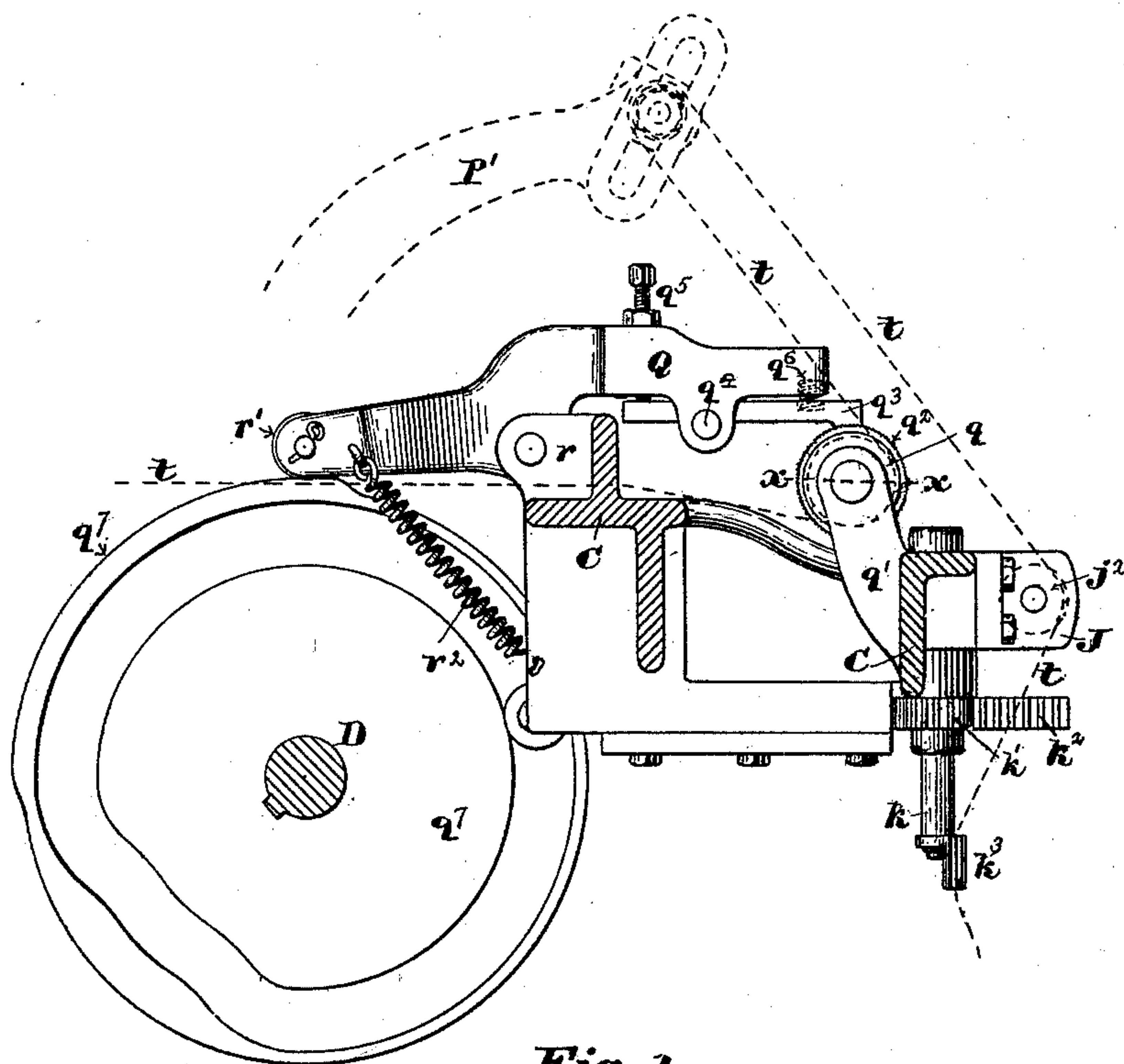


Fig. 1.

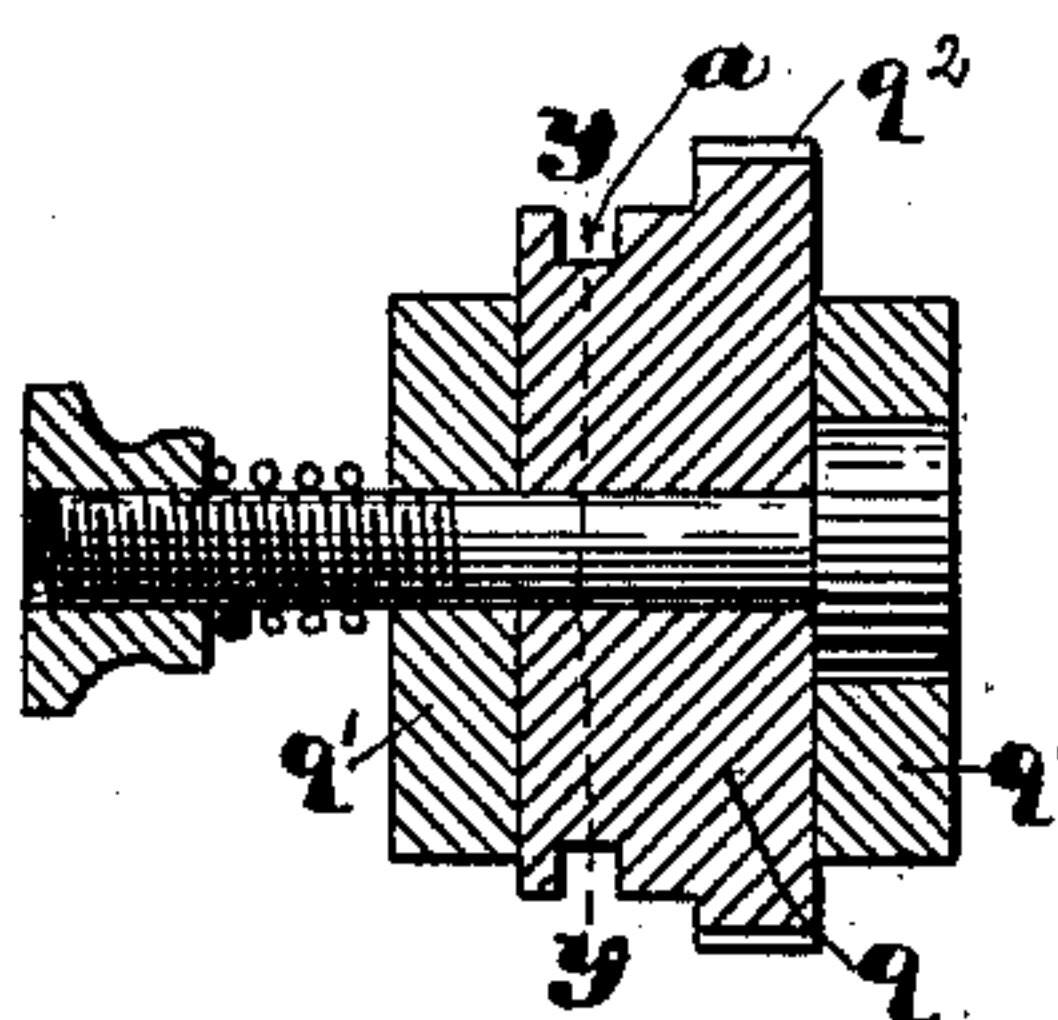


Fig. 2.

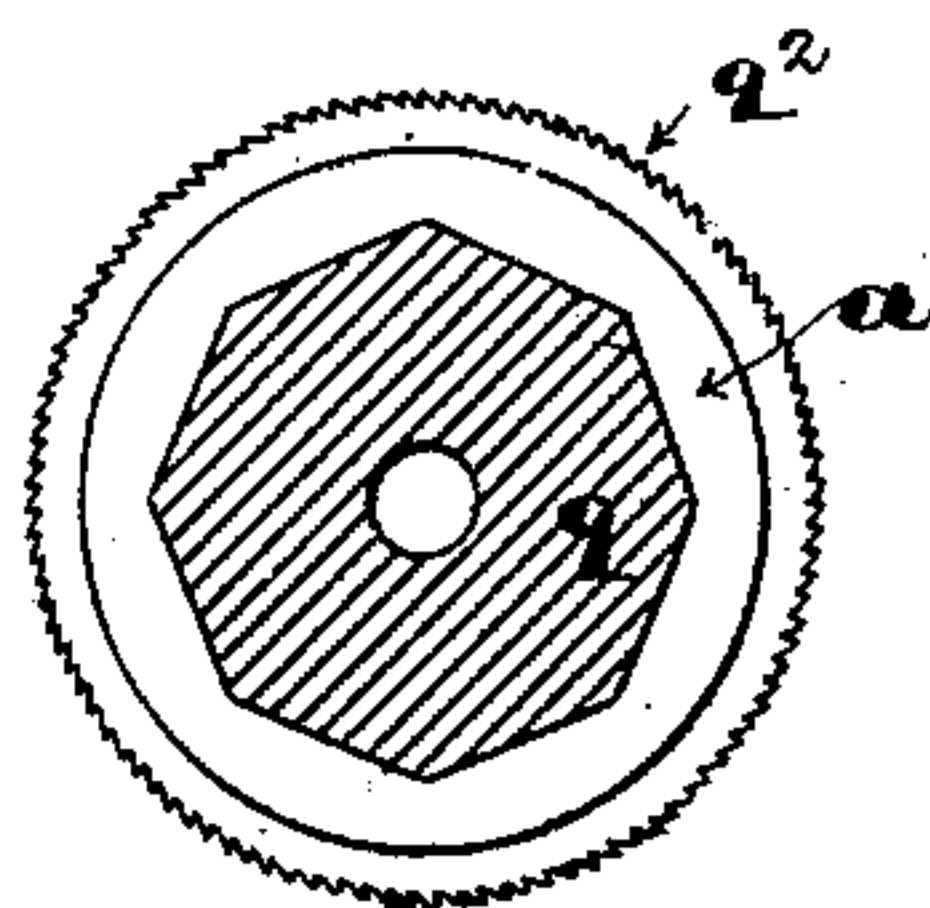


Fig. 3.

Witnesses:
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UNITED STATES PATENT OFFICE.

JOSEPH ELI BERTRAND, OF BOSTON, ASSIGNOR OF ONE-HALF TO MELLEN BRAY, OF NEWTON, MASSACHUSETTS.

THREAD-TENSION DEVICE FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 432,012, dated July 15, 1890.

Original application filed January 18, 1890, Serial No. 337,290. Divided and this application filed March 5, 1890. Serial No. 342,685. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH ELI BERTRAND, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Thread-Tension Devices for Sewing-Machines, of which the following, taken in connection with the accompanying drawings, is a specification.

My present invention relates to thread-tension devices for sewing-machines, and is a division of another application of mine filed January 18, 1890, Serial No. 337,290; and it consists in certain novel features of construction, arrangement, and combination of parts, which will be readily understood by reference to the description of the drawings and to the claims hereinafter given, and in which my invention is clearly pointed out.

Figure 1 of the drawings is a sectional elevation of so much of a sewing-machine as is necessary to illustrate my invention. Fig. 2 is a section through the tension-wheel and its supporting-ears on line $x x$ on Fig. 1, and showing its supporting-pin in elevation; and Fig. 3 is a sectional elevation of the tension-wheel and its ratchet, the cutting-plane being on line $y y$ on Fig. 2.

In the drawings, D is the cam-shaft mounted in suitable bearings in the end frames of the machine.

C is the tie-girt connecting the end frames. k is the thread-carrier rod.

J is a stand carrying a thread-guiding sheave j^2 . (Shown in dotted lines in Fig. 1.)

The rod k has mounted upon its lower end the thread-carrier k^3 , and also has secured thereon the pinion k' , with which the teeth of the rack-bar k^2 engage to impart to said rod and the thread-carrier an oscillating motion about the axis of the rod k .

The work-support, the needle and awl, and the stitch-forming and work-feeding mechanisms are omitted in the drawings, but are constructed and operate substantially as shown and described in my before-cited pending application.

The front portion of the slotted tie-girt C is provided with two upwardly-projecting ears $q' q'$, between which is mounted the tension-

wheel q , having a groove a to receive the thread, the bottom of which groove is composed of a series of flat surfaces, meeting each other at angles, as shown in Fig. 3. This tension-wheel has formed upon or secured to one side thereof a ratchet-wheel q^2 , with the teeth of which the teeth of the pawl q^3 engage to lock said tension-wheel against rotation when the loop is being drawn up. The pawl q^3 is pivoted at q^4 to the lever Q and extends beyond said pivot toward the rear and beneath the set-screw q^5 , set in said lever in position to act upon the tail of said pawl to adjust it against the tension of the spring q^6 , set between the front ends of said pawl and lever, as shown in Fig. 1.

As the take-up lever P' acts upon the thread between the tension-wheel q and the work, it follows that, in order to make the take-up effective, said tension-wheel must be locked against revolution while the loop is being drawn up, and that the thread shall not slip on the wheel, as would very likely be the case if the bottom of the groove in said tension-wheel were made smooth and concentric with its axis. This latter difficulty is entirely obviated by making the tension-wheel with a section when cut through its groove at right angles to its axis having a series of flat sides and angles, as shown in Fig. 3.

The locking of the tension-wheel against revolution at proper intervals is accomplished by means of the face-cam q^7 , mounted upon the shaft D and acting upon the roll r' , mounted upon a pin set in the rear end of the lever Q, so as to vibrate said lever about its pivotal connection to the ears $r r$ on the tie-girt C, thereby causing the toothed end of the pawl q^3 to engage with the teeth of the ratchet-wheel q^2 at the proper time to hold said wheel from revolving while the take-up lever is drawing up the loop and permit the spring r^2 to disengage said pawl from said ratchet-wheel at the proper time to permit the tension-wheel to revolve when the looper-finger is drawing out the loop above the work, as described in my before-cited pending application.

The thread indicated by the dotted lines $t t$

passes from the spool or bobbin, (not shown,) to and one or more times around the tension-wheel q , thence over the sheave carried by the take-up lever P' down past the sheave j^2 , 5 through an eye in the thread-carrier k^3 , and thence to the work, as shown.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The thread-tension wheel q , having a 10 thread-receiving groove, the bottom of which is polygonal or composed of a series of flat sides, meeting each other at angles.

2. The thread-tension wheel q , having a polygonal section between its flanges and pro-

vided at one end with a ratchet-wheel, in combination with the lever Q , the pawl q^3 , pivoted thereto, the set-screw q^5 , the spring q^6 , and the cam q^7 , all constructed and arranged to operate substantially as described. 15

In testimony whereof I have signed my 20 name to this specification, in the presence of two subscribing witnesses, on this 27th day of February, A. D. 1890.

JOSEPH ELI BERTRAND.

Witnesses:

N. C. LOMBARD,

WALTER E. LOMBARD.