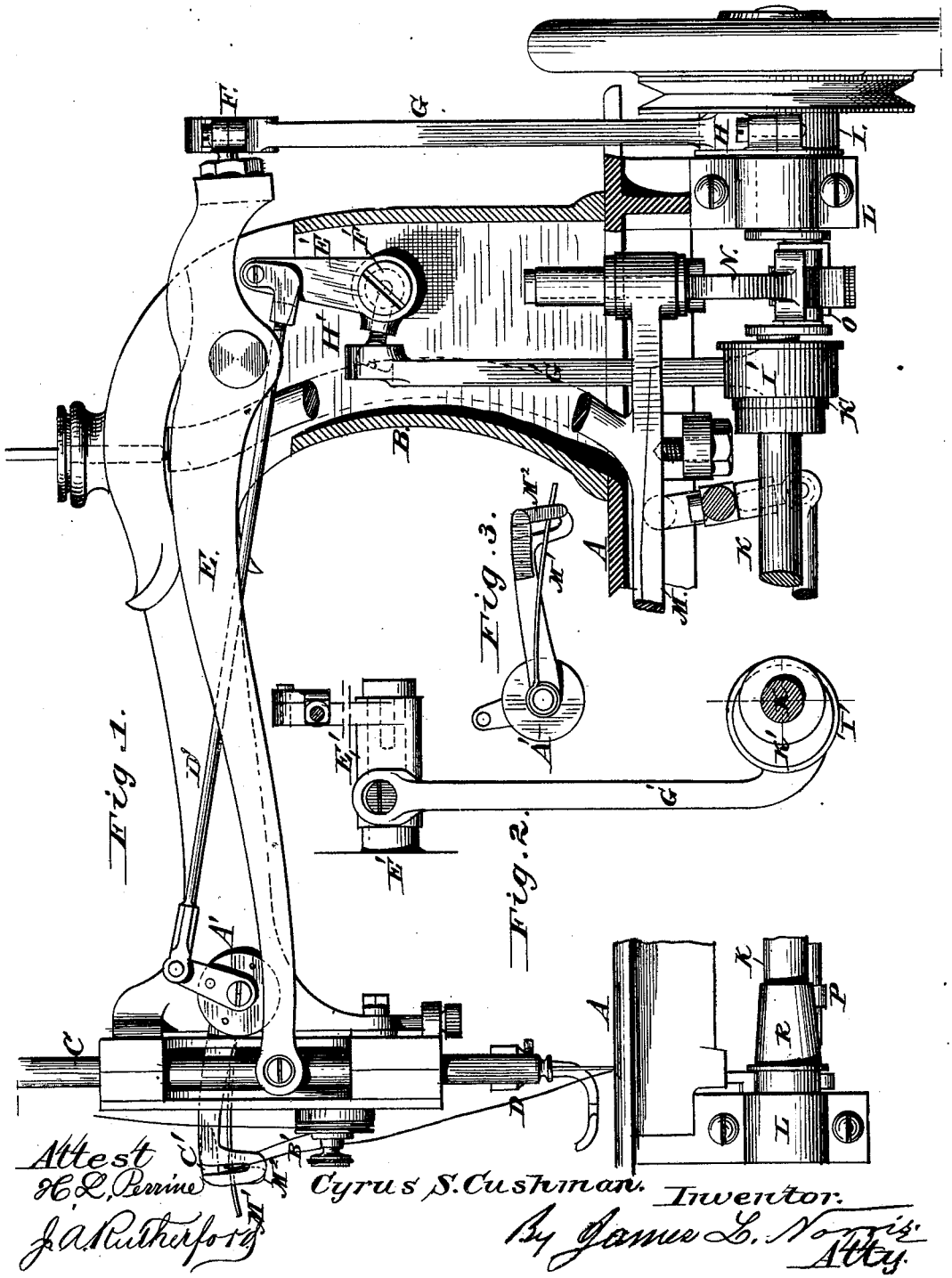
C. S. CUSHMAN.

Take-Up Mechanism for Sewing-Machines.

No. 197,107. Patented Nov. 13, 1877.



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UNITED STATES PATENT OFFICE.

CYRUS S. CUSHMAN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO NESBITT D. STOOPS, OF SAME PLACE.

IMPROVEMENT IN TAKE-UP MECHANISMS FOR SEWING-MACHINES.

Specification forming part of Letters Patent No. **197,107**, dated November 13, 1877; application filed October 18, 1877.

To all whom it may concern:

Be it known that I, CYRUS S. CUSHMAN, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a specification:

This invention relates to certain improvements in take-ups for sewing-machines; and it has for its object to provide simple and efficient mechanism for that purpose, which will operate with but little friction and noise, and by means of which a positive motion may be transmitted to the same.

To this end my invention consists in the combination, with the bell-crank take-up lever, of a bell-crank lever pivoted within the upright part of the standard which carries the upper works, one end of said lever being connected, by means of a rod, to the bell-crank lever, and the other with an eccentric on the driving-shaft of the machine by means of a downwardly-extending rod, having the eccentric strap at its lower end, as more fully hereinafter specified.

My invention further consists in the combition, with the take-up, of a supplementary take-up, consisting of a spring secured to the take-up lever, and working across the thread-slot in said take-up lever, whereby the thread is held tight until the eye of the needle reaches the fabric.

In the drawings, Figure 1 represents a side elevation of a sewing-machine, with parts broken away to show the take-up mechanism. Fig. 2 represents a detached view of the eccentric rod and bell-crank lever, by means of which the motion is imparted to the take-up; and Fig. 3 represents a detached view of the take-up lever.

The letter A represents the bed, and B the standard, which carries the upper works of the machine, the latter being provided with a vertically-reciprocating needle-bar, C, and a presser-foot bar, D, working in ways in the front of said standard, as usual.

The letter E represents the oscillating lever, which actuates the needle-bar, pivoted near the rear end of the standard, and connected, by a ball-and-socket joint, F, at its rear extremity, to a link, G, which is provided at its lower end with an eccentric strap, H, embracing an eccentric, I, on the driving-shaft, by means of which the proper motions are imparted to the needle-bar and its operating-lever.

The letter K represents the driving-shaft of the machine, journaled in hangers L, depending from the bed of the machine. M represents the shuttle-driving lever, which is operated by a link, N, connected to a crank, O, on the driving-shaft; and P the feed device, operated by means of an eccentric, R, on the driving-shaft.

The letter A′ represents the bell-crank take-up lever, pivoted to the front part of the standard which supports the upper works of the machine, and working through a slot in the front thereof. B′ represents the tension device, secured to the front of said standard. The long arm of the take-up lever is provided with a slot, C′, for the passage of the thread; and to the short or rear arm is connected one end of a link or rod, D′, extending backward to the rear of said standard, its other end being pivoted to the upper end of a bell-crank lever, E′, pivoted at F′ to the upright portion of the standard B, preferably within the same. The other end of said lever is connected to a downwardly-extending rod or link, G′, preferably by means of a ball-and-socket joint, H′. The lower end of said link is provided with an eccentric strap, I′, which embraces an eccentric, K′, on the driving-shaft of the machine, by means of which the take-up mechanism is operated.

In order to properly form the loop of the needle-thread for the passage of the shuttle, it is necessary that the thread should be held slightly taut between the take-up and the needle, for if left slack it is apt to twist and form into knots, causing breakage of the thread when such knots reach the eye of the needle. To obviate this the front end of the take-up lever is provided with a slot, C′, and has secured to it a spring, M^1, working across said slot, the front end of said spring being arranged to work in a guide, M^2, at the front end of the take-up lever.

The thread is passed through the slot C′

above the spring M^1, and rides over the upper edge of said spring during the operation of the take-up.

The spring serves to hold the thread with sufficient strain to prevent any twisting or knotting while the eye of the needle is above the fabric, but will give sufficiently to allow of the passage of the shuttle through the needle after the eye has passed through said fabric.

By means of my improvement I secure a take-up mechanism that gives a positive motion to the take-up, and which works lightly, with little friction or noise, thereby materially assisting in securing a light-running and noiseless machine.

I have described and illustrated my machine in connected with an improved sewing-machine forming the subject-matter of previous patents granted to me. My present invention, however, only relates to the take-up mechanism, which can be applied, with equal advantage, to any other sewing-machine; and therefore I do not limit myself to the take-up mechanism in connection with the particular machine described and shown.

What I claim, and desire to secure by Letters Patent, is—

1. In combination with the take-up lever, a bell-crank lever pivoted to the standard which supports the upper works, and an eccentric on the driving-shaft for operating said lever, the said lever being connected to the take-up lever by means of a rod or link, and to the eccentric by means of a depending rod or link and an eccentric strap, substantially as set forth.

2. In combination with the take-up lever, an auxiliary take-up, consisting of a spring secured to the take-up lever, and adapted to work across the thread-slot in the same, whereby the thread is held tight until the needle-eye reaches the fabric, substantially as and for the purposes set forth.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of the subscribing witnesses.

CYRUS S. CUSHMAN.

Witnesses:
JAMES L. NORRIS,
JAMES M. WRIGHT, Jr.