(No Model.)

E. MURPHY.

THREAD CONTROLLING DEVICE FOR SEWING MACHINES.

No. 324,580. Patented Aug. 18, 1885.

Fig. 1.

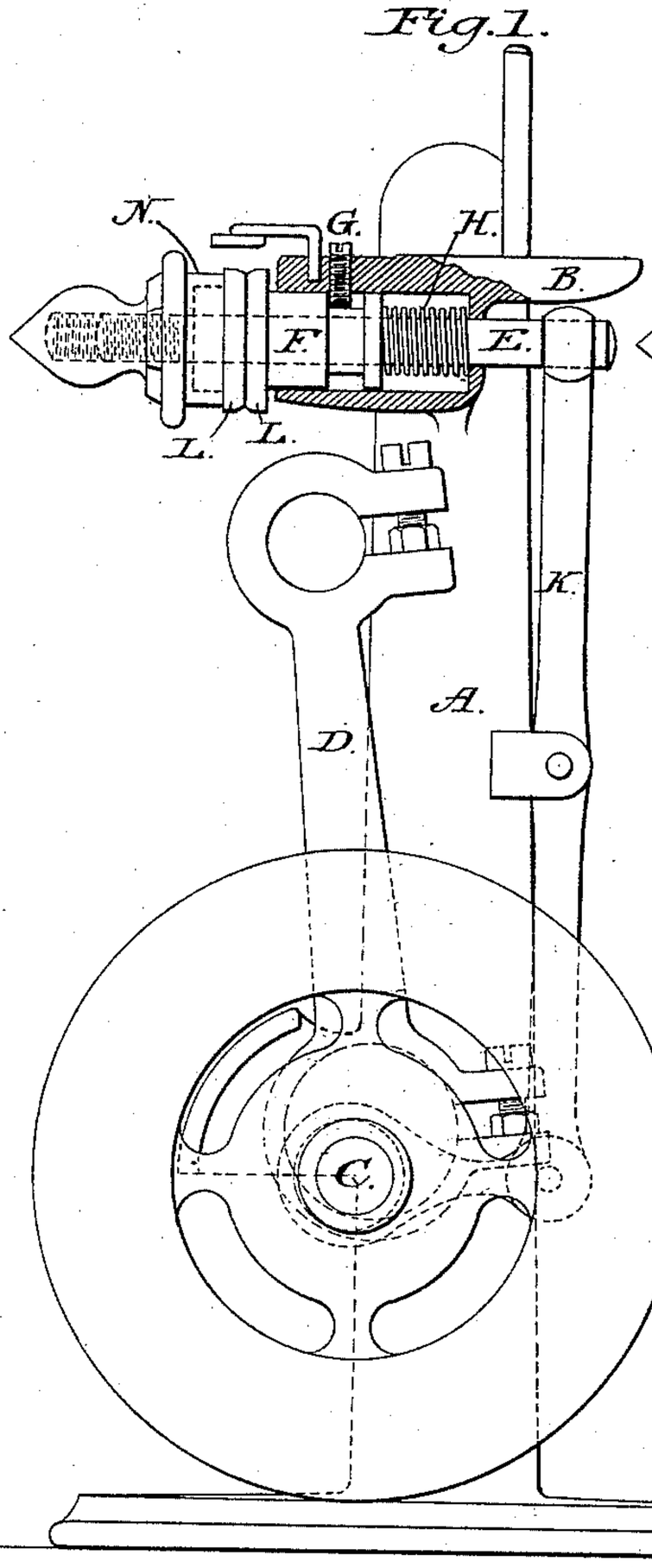
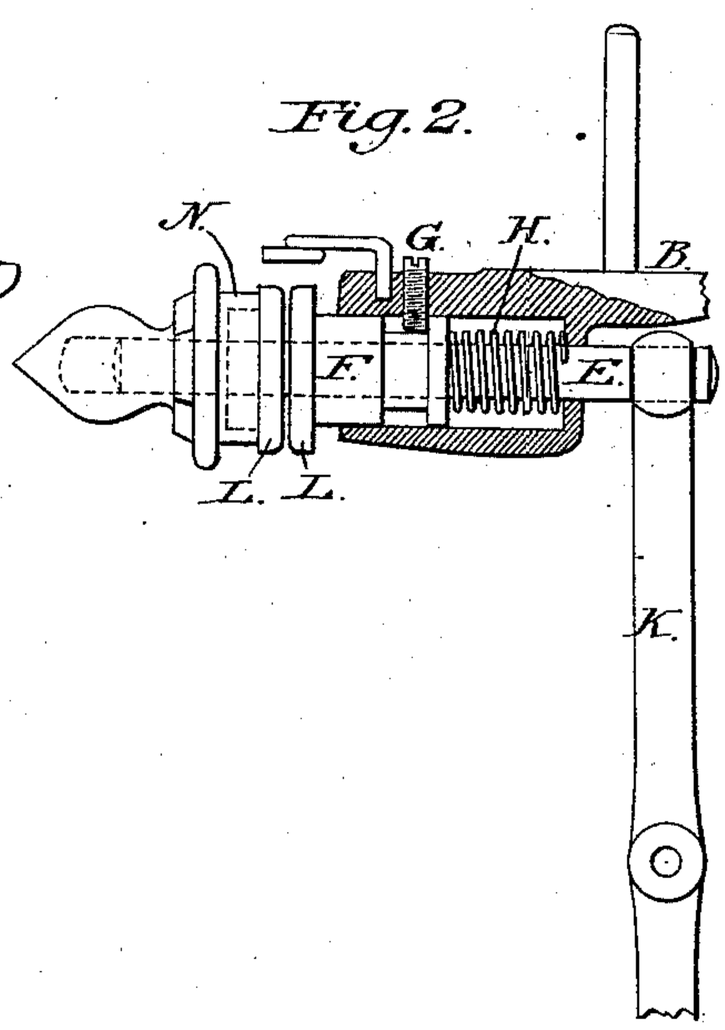


Fig. 2.



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UNITED STATES PATENT OFFICE.

EDWARD MURPHY, OF NEW YORK, N. Y.

THREAD-CONTROLLING DEVICE FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 324,580, dated August 18, 1885.

Application filed April 22, 1885. (No model.)

To all whom it may concern:

Be it known that I, EDWARD MURPHY, of the city, county, and State of New York, have invented a new and useful Improvement in Thread-Controlling Devices for Sewing-Machines; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

My invention relates to an improvement upon the thread-controlling device for sewing-machines for which Letters Patent were granted to me April 14, 1885, No. 315,956, wherein the tension-disks are mounted loosely upon the projecting end of a rod reciprocating horizontally through an aperture in the frame of the machine, under the spool stand, and whose movement alternately draws the disks toward the frame against an interposed spring to close them tightly together and then releases them. In this device the spring-pressure upon the disks and thread is constant, increasing, however, as the disks are drawn inward to clamp the thread tightly, but which when the disks are released nevertheless still exerts a tension thereon.

The object of my invention is to obtain a complete automatic release of the thread from all pressure in alternation with an elastic clamping pressure thereon sufficient to bind and hold it firmly at the proper moment in the working of the machine; and it consists in the combination, with the reciprocating rod, of a loose collar interposed between the inner disk and the spring within a recess in the frame, through which the rod is led, and which is circumferentially grooved to receive the end of a fixed pin, which serves to limit the outward movement of the spring-actuated collar, and thereby relieve the disks from its pressure as they move away from it.

In the accompanying drawings, Figure 1 is a rear elevation, partly in section, of a sewing-machine fitted with my improved thread-controlling device; and Fig. 2, a sectional view of the thread-controlling device detached, showing the disks released from spring-pressure.

A represents the frame of the sewing-machine, and B the spool-stand formed upon it; C, the main shaft, and D the eccentric-rod, coupling it, as usual, with the needle-arm. E is a rod led through a horizontal cylindrical recess in the frame under the spool-stand, and F a collar fitted to play loosely thereon within the recess. This collar is fitted to move freely in the opening, and serves as a support for the forward end of the rod led through it. The rear end of the rod is extended through an opening in the inner end of the recess, and pivoted to the upper end of a vertical lever, K, pivoted centrally to the frame and hinged at its lower end to an arm projecting radially from an annular strap or band (see dotted lines, Fig. 1) encircling an eccentric fitted upon the main shaft inside of the eccentric which operates the needle-arm.

A spring, H, is interposed between the inner end of the collar F and the inner end of the recess, so as to exert a constant outward pressure upon the collar. The collar is confined and its outward movement under the influence of the spring arrested by means of a screw or pin, G, inserted through the frame, so that its inner end shall enter a groove, *m*, encircling the collar, and whose width limits the extent of its play upon the rod E. The pin or screw G is so placed with reference to the collar as that the latter is permitted to move out and project beyond the face of the frame, as shown in Fig. 2, before it is arrested. The rod E extends out through the collar F far enough to receive the clamping disks or washers L L, mounted to play loosely thereon, and which are confined, in the usual manner, by means of a nut, N, recessed on its inner face, and screwing upon the outer end of the rod.

When the upper end of the vertical oscillating lever K is thrown outward by the movement of its eccentric, the nut N is thereby drawn inward against the clamping-disks to force them together against the end of the collar F. The collar is thus forced inward against the spring H, whose whole power is thereby brought to bear upon the disks to close them together, so as to give them a firm hold upon the thread which may be led between them.

The inward movement of the rod E, and consequently the grip of the clamping-disks upon the thread, is timed to occur at the mo-

ment when in the operation of the machine it is necessary that the thread should be held fast. As the rod moves outward the movement of the collar F is arrested by the engagement of the screw G with the groove in the collar, so that as the rod continues its movement the disks are relieved entirely of the pressure of the collar, and left so loose that the thread is free to run between them without any tension whatever upon it.

My invention thus provides a simple means for holding the thread fast at the proper instant, and thereafter letting it entirely loose and free.

I claim as my invention—

The combination, with the horizontal reciprocating rod working transversely through the frame of a sewing-machine, of a collar formed with a circumferential groove and fitted loosely upon the rod to play thereon within a recess in the frame through which the rod passes, a pin projecting from the frame into said groove, a spring within the recess forcing the collar outwardly, and two thread-clamping disks mounted loosely upon the rod outside of the collar and confined thereon by an outer nut, all substantially in the manner and for the purpose herein set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDWARD MURPHY.

Witnesses:
P. ELBERT NOSTRAND,
A. B. MOORE.