J. E. WHEELER & F. W. COY.

TENSION REGULATORS FOR SEWING-MACHINES.

No. 181,808. Patented Sept. 5, 1876.

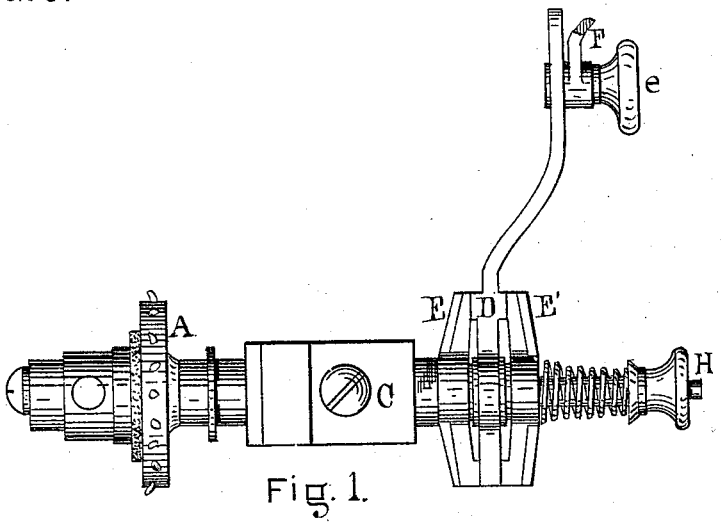

Fig. 1.

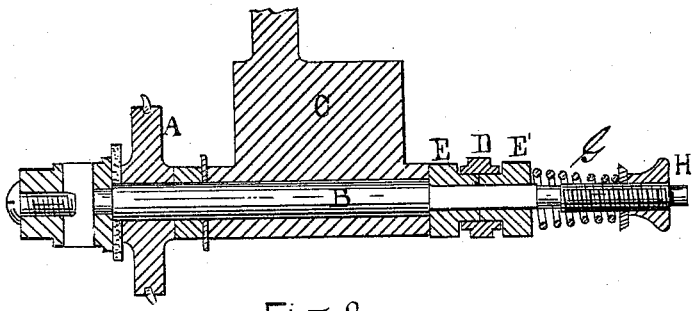

Fig. 2.

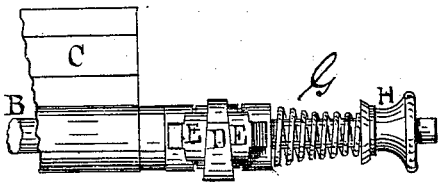

Fig 3

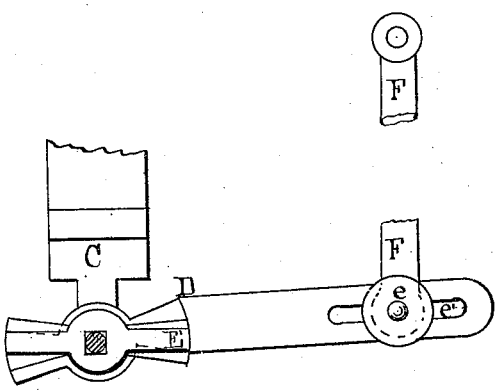

Fig. 4.

WITNESSES

Fred F. Raymond.

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INVENTORS

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UNITED STATES PATENT OFFICE.

JOHN E. WHEELER, OF LYNN, AND FREDERICK W. COY, OF BOSTON, MASSACHUSETTS; SAID COY ASSIGNOR TO SAID WHEELER.

IMPROVEMENT IN TENSION-REGULATORS FOR SEWING-MACHINES.

Specification forming part of Letters Patent No. **181,808**, dated September 5, 1876; application filed June 29, 1876.

To all whom it may concern:

Be it known that we, JOHN E. WHEELER, of Lynn, in the county of Essex and State of Massachusetts, and FREDERICK W. COY, of Boston, in the county of Suffolk, in said State, have invented an Improvement in Wax-Thread Sewing-Machines, of which the following is a specification:

This invention has for its object the following-described means of regulating the restraint upon the tension-spool by the thickness of the work, whereby the spool is caused to deliver thread in greater or less quantities, as the thickness of the work increases or diminishes.

We will explain our invention with the aid of the accompanying drawing, forming a part of this specification, in which Figure 1 is a plan; Fig. 2, a cross vertical section, and Figs. 3 and 4 details.

The tension-spool A, around which it is customary to wind the thread once, revolves on the shaft B, which plays in the bracket C. A wedge-shaped adjusting-block, D, provided with the arm D′, and adjustable by means of slot *e′* and set-screw *e* upon the link F, that connects it with the presser-bar, rides loosely upon the shaft B, and comes in contact with the opposing inclined blocks E and E′. The block E′ bears against the spring G, which surrounds the shaft and abuts against the nut H.

Although this arrangement can be successfully worked by a presser-bar having a uniform lift from the work-plate, yet it is intended more especially to be operated by a presser-bar having a uniform lift from the work, which, when the work is of varying thicknesses, must necessarily be variable in relation to the work-plate. For this purpose it is admirably adapted to be used with the improvement in wax-thread sewing-machines patented to said John E. Wheeler and to Lyman L. Barber, February 22, 1876, which is an invention for automatically controlling the lift of the presser-bar, so that it always lifts a certain specified distance from the work, regardless of difference in thickness.

The bracket C is bolted to the frame of the machine immediately behind the presser-bar, so that the lever or arm operating the adjusting-block may be attached to the presser-bar either directly or by means of the slotted link F, the rise and fall of the presser-bar causing the arm or lever to operate the adjusting-block.

The operation is as follows: As the presser-bar rises and falls it operates, through the medium of link F, the wedge-shaped adjuster D, which, contacting with the opposing wedge-shaped blocks E and E′, with different degrees of force, dependent upon the lift of the presser-bar, causes the spring to be compressed against the nut with a greater or less intensity, thereby communicating to the spool, by means of the shaft B, a restraining or releasing power, governed by the length of thread necessary to be delivered from the spool in forming the stitch before the rising of the needle releases the thread and it becomes taut in the formation of the loop.

Having thus fully described our invention, we claim and desire to secure by Letters Patent of the United States—

1. The combination, substantially as described, of the tension-spool, the inclined blocks E E′, and the wedge-block D, the latter being automatically operated by the presser-foot, as set forth.

2. The combination, substantially as described, of the tension-spool, the shaft B, the bracket C, blocks E D E′, spring G, and nut H, as and for the purpose set forth.

JOHN E. WHEELER.
FREDERICK W. COY.

Witnesses:
FREE. F. RAYMOND,
B. S. PARKER.