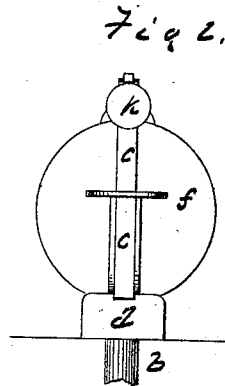
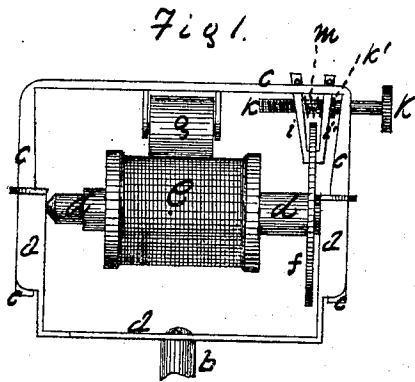


J. H. WILLIAMS.

Tension Mechanism for Sewing-Machines.

No. 129,195.

Patented July 16, 1872.



Witnesses.

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Hammond, Swerman

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UNITED STATES PATENT OFFICE.

JOHN H. WILLIAMS, OF MIDDLETOWN, CONNECTICUT.

IMPROVEMENT IN TENSION MECHANISMS FOR SEWING-MACHINES, &c.

Specification forming part of Letters Patent No. 129,195, dated July 16, 1872.

SPECIFICATION.

I, JOHN H. WILLIAMS, of Middletown, in the county of Middlesex and State of Connecticut, have invented a new and useful Tension Apparatus for Sewing-Machines, Printing-Machines, and the like, of which the following is a specification, reference being had to the accompanying drawing, in which—

Figure 1 is a side elevation of the device, bearing a spool of thread as if for use on a sewing-machine. Fig. 2 is an end elevation of Fig. 1.

The device is intended for producing a perfectly-adjustable tension on any material which is wound off from a roll or cylinder, a tension which, being once adjusted, will remain the same until all the material is wound off the roll or cylinder. It is readily applicable for producing what is known as the upper tension of a sewing-machine, for producing a proper and equable tension on cloths which are wound off a roll to be printed, &c., the size of the apparatus being adapted to the work required of it. I shall describe it as applied to the production of a tension for the upper thread in a sewing-machine.

The letter *a* indicates what may, perhaps, be not inaptly termed the base-frame, supported upon the post or pedestal *b*. The letter *c* indicates what may be termed the sliding frame, as it slides up and down in troughs made for its ends in the base-frame. The letter *d* indicates the spindle, roll, or cylinder upon which the spool *e* is placed. When made for a sewing-machine this spindle may be made slightly tapering or conical, so that the spool may be readily wedged upon it. It has bearings at its ends in the base-frame; and when used upon a sewing-machine it may have one or both ends pivot-pointed, and be set into place by making the base-frame with spring enough to allow the spindle to be sprung in. This is done, of course, before the sliding frame is put in place. On this spindle is the disk *f*. Just underneath the center of the length of the sliding frame is hung the roll *g*, resting down upon the spool, and being pressed down by the weight of the sliding frame, which rests upon it, it travels downward as the thread is wound off the spool, and the sliding frame moves down with it. The friction is attained by means of the fingers *i* *i'*, which are pivoted through slots in the slid-

ing frame at their upper end, so that their lower ends may be moved up to or away from the sides of the disk. These fingers are made to squeeze the disk with any desired pressure by means of the thumb-screw *k*, which has a screw-thread cut upon it fitting into a corresponding female thread in the finger *i*. It runs freely through the finger *i'*, but has a collar, *k'*, just outside of this finger, bearing against the side of the finger, so that, as the screw is turned to the right, the fingers are made to pinch the disk, and when the screw is turned to the left the fingers are made to loosen from the disk, the spiral compression-spring *m* pressing the fingers apart.

When the thread first commences to reel off the tension is adjusted by means of the screw *k*, as desired, and as the thread reels off and the spool becomes smaller the fingers follow down toward the center of the disk in exact accordance with the diminishing size of the spool, and thus keeps the tension exactly the same until all the thread is reeled off, which would obviously not be the case if the fingers remained stationary on the disk while the spool grew smaller.

From this description it is obvious that this apparatus can be applied in all places where lengths of material are wound off a roll or cylinder.

I claim as my invention—

1. In a tension-producing apparatus, the combination of the disk *f* and the pressure-fingers, moving, by means substantially as described, toward the center of the disk as the size of the roll *e* decreases, for the purpose set forth.
2. In a tension-producing apparatus, the combination of the parts, as specified and claimed in the last clause, with the sliding frame *c* and roll *e*, constructed and designed to operate substantially as described, for the purposes set forth.
3. The combination of the base-frame *a*, sliding frame *c* provided with the roll *g*, spindle *d* with the disk *f*, and the pressure-fingers *i* *i'*, regulated by the thumb-screw *k*, the whole operating substantially as described, for the purposes set forth.

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Witnesses:

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