

(No Model.)

J. CUMMING.

TENSION MECHANISM FOR SEWING MACHINES.

No. 381,912.

Patented May 1, 1888.

Fig. 1.

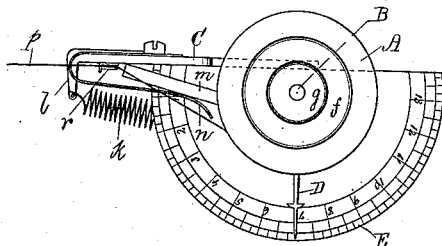


Fig. 2.

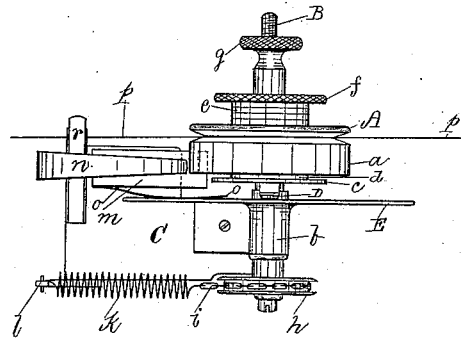


Fig. 3.

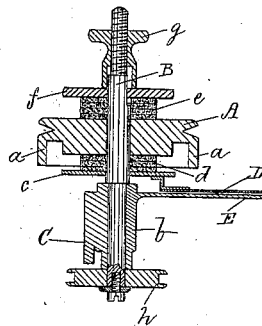
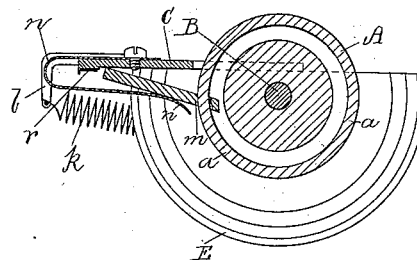


Fig. 4.



Witnesses.

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# UNITED STATES PATENT OFFICE.

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## TENSION MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 381,912, dated May 1, 1888.

Application filed May 10, 1887. Serial No. 237,715. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES CUMMING, of Boston, in the county of Suffolk, of the Commonwealth of Massachusetts, have invented a new and useful Improvement in Tension Mechanisms for Sewing-Machines; and I do hereby declare the same to be described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a top view, Fig. 2 a front elevation, and Fig. 3 a transverse and vertical section, of the mechanism of my invention, the nature of which is defined in the claim hereinafter presented. Fig. 4 is a horizontal section of the tension-wheel and its brake.

The invention is for the purpose of enabling a person to regulate the tension on the thread, or to impart to such thread such a degree of tension as he may desire.

In the drawings, A is a circumferentially-grooved tension-wheel, which revolves on an upright spindle, B, and has a flange, *a*, projecting downward from it (the said wheel) and going entirely around it. The spindle is supported by and turns in a bearing, *b*, extending from a bracket, C, and said spindle has fixed upon it a disk, *c*, from which an index pointer or hand, D, extends radially over a semicircular dial or plate, E, projecting from the bracket and divided into equal parts on its upper surface and numbered as represented. Between the disk *c* and the wheel are one or more washers, *d*, which are arranged on the spindle concentrically therewith. Above the wheel and resting on it is another set of washers, *e*, and on them is a disk, *f*, above which and screwed on the spindle is a nut, *g*. On the spindle at its lower end there is fixed a grooved wheel, *h*, to whose periphery one end of a chain, *i*, is fastened, the other end of such chain being attached to the front end of a spiral spring, *k*, such spring at its rear end being fastened to an arm, *l*, projecting from the bracket. A friction-brake or clutch, *m*, grasps the flange of the wheel, and is pressed inwardly by a spring, *n*, and upwardly by another spring, *o*, arranged as represented. Such brake at its rear end rests against the bracket.

The thread shown at *p* goes between a spring, *r*, and the bracket, the spring serving to press the thread against the bracket with a slight degree of friction. The thread is led from such spring to the groove of the wheel, and is wound one or more times around the wheel and in such groove.

On screwing down the nut the wheel will be held with friction by and between the two sets of washers, the lower washers being in turn pressed firmly against the disk *c*, which is fast on the spindle, so that while the thread is being drawn along and revolves the wheel the latter will turn the spindle against the holding force of the spring until the friction between the washers and the disk is overcome by the elastic power of the spiral spring, which will be measured by the extent of movement of the index pointer upon the graduated plate or dial. The brake or clutch is to prevent rearward movement of the tension-wheel under the strain of the spring.

From this it will be seen that when an operative of the sewing-machine may desire to have a certain amount of tension on the thread used on the machine he has only to screw the nut either up or down until the index, by the friction of the wheel in revolving, becomes turned to the number or degree on the dial indicative of such amount of tension.

I claim—

In a thread-tension mechanism, the combination, substantially as described, of the grooved and flanged tension-wheel A, the friction brake or clutch *m*, the bracket C, the dial E, fixed to such bracket, the spindle B, provided with the screw and nut, and the grooved wheel *h* and revoluble in a bearing, *b*, projecting from the bracket, the disk *c*, fixed on the spindle and provided with the index-pointer or hand D, the washers *d e* and disk *f*, applied to the spindle, and the spiral spring *k*, applied to the bracket, and grooved wheel *h*, all being arranged and to operate essentially and for use as set forth.

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Witnesses:

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R. B. TORREY.