

(No Model.)

J. THOMSON.

TENSION DEVICE FOR SEWING MACHINES.

No. 292,964.

Patented Feb. 5, 1884.

Fig. 1.

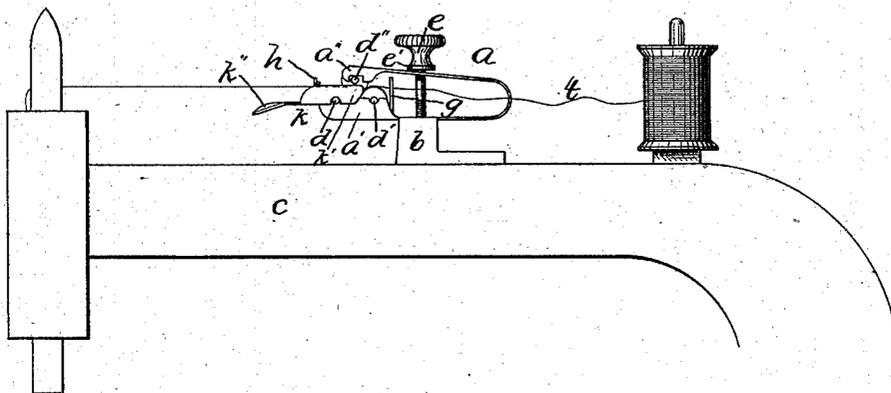


Fig. 2.

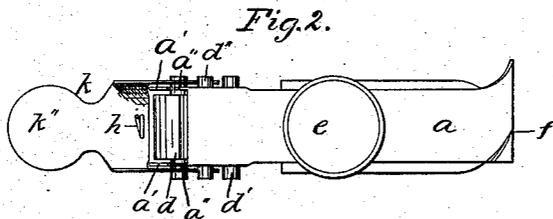


Fig. 3.

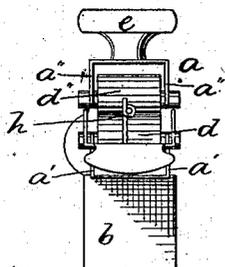
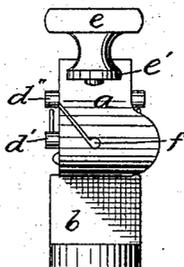


Fig. 4.



Witnesses;

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UNITED STATES PATENT OFFICE.

JOHN THOMSON, OF HARTFORD, CONNECTICUT.

TENSION DEVICE FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 292,964, dated February 5, 1884.

Application filed November 1, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN THOMSON, of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Tension Devices for Sewing-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, whereby a person skilled in the art can make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Like letters in the figures indicate the same parts.

15 Figure 1 is a side view of my device as applied to the arm of a sewing-machine. Fig. 2 is a detail top view of my device on enlarged scale. Fig. 3 is a detail front end view of same. Fig. 4 is a detail rear end view of same.

20 My invention relates to the class of devices used on sewing-machines and the like for the purpose of regulating the tension of the thread used in sewing, in which such tension is determined by compressing the thread with various degrees of pressure between the operating parts.

It consists, mainly, of the rolls arranged upon and pressed toward each other by means of a spring, with the thread-guides and means of adjustment of parts, as more fully hereinafter described.

30 In the accompanying drawings, the letter *a* denotes a roller-frame, preferably of thin metal of spring temper and of U shape; *b*, a standard, to which the frame is fastened by one of its arms, the standard being adapted to be secured, as by screws, to the upper side of the arms *c* of a sewing-machine of ordinary construction. The lower arm of the frame has the upturned flanges *a'*, with bearings for the trunnions of the rolls *d d'*, which are arranged transversely of the path of the thread as it feeds to the needle. The upper arm bears the downward-turned flanges *a''*, with bearings for the roll *d''*, which is so arranged as to set upon and between the lower rolls, which are nearly in contact with each other, the series of rolls being in what may be called "pyramidal" shape when viewed from their ends. About centrally of the frame the adjusting-screw *e* has a threaded socket in the standard and turns freely in the upper arm of the frame,

with the upper side of which the shoulder *e'* is in contact. By means of this screw acting upon the yielding arm of the frame, the pressure between the upper and lower rolls can be adjusted. 55

This device is attached to the arm of the sewing-machine between the head and the spool-support, and the thread *t* from the spool is led through the thread-guide *f* in the bend of the frame, the guide *g*, back of the rolls, between the upper and lower rolls, and then through the guide *h* to the needle-head and needle. 65

In addition to the tension device already described, and operating in connection with it, a lever, *k*, is pivoted on the trunnions of the front roll, with arms *k'* taking under the trunnions of the upper roll. By pressing upon the finger-pad *k''* on the outer end of the lever, the upper roll, *d''*, is lifted out of contact with the lower rolls, and the thread *t* is then free to move without pressure from the rolls. This lever bears the thread-guide *h*. The rolls are preferably turned from rods of steel, and the periphery of each one carefully finished, as well as the trunnions, which are seated in open bearings in the frame. In the form of my invention herein shown and described the frame and lever are made of thin metal, that is readily struck out of sheets by dies, and then bent to the desired shape; but I do not limit myself to this particular method of construction or special arrangement of the rolls and spring. 85

I claim as my invention—

1. In combination, the standard *b*, the U-shaped frame *a*, of spring metal, having in the bend the thread-guide *f* and in bearings between its free ends the rolls *d d' d''*, the tension-adjusting screw *e*, and the thread-guides *g* and *h*, located on opposite sides of the tension-rolls, all substantially as described. 90

2. In a tension device, the combination of the U-shaped spring-frame *a*, bearing between its free ends the tension-rolls *d d' d''* and in its bend the thread-guide *f*, with the lever *k*, having its fulcrum on the trunnions of one of the rolls and an arm bearing against the trunnions of the opposite roll, whereby the upper and lower rolls may be held out of contact, and the adjusting-screw *e*, all substantially as described. 100

3. In combination, the bent spring-frame *a*,

with the thread-guide *f* in the bend, the tension-rolls *d d'*, supported in bearings on the free ends of the frame, the adjusting-screw *e*, the thread-guide *g*, secured back of the rolls, and the lever *k*, bearing the thread-guide *h* in front of the rolls, all substantially as described.

4. In combination with the spring-compressed tension-rolls *d d'*, arranged as shown, the lever *k*, having its fulcrum on the extend-

ed shaft of one of the nests of rolls, and an arm bearing against the shaft of the opposite roll, whereby the upper and lower rolls may be held out of contact, all substantially as described.

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Witnesses:

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