

A. H. HOOK.
Sewing Machine.

No. 31,351.

Patented Feb. 5, 1861.

Fig. 2

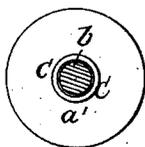


Fig. 1.

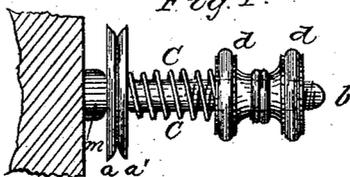


Fig. 3



Fig. 4

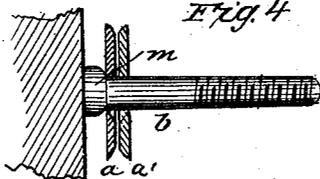


Fig. 5

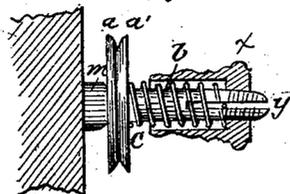
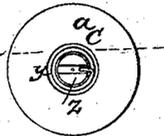


Fig. 6.



Witnesses
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ALBERT H. HOOK, OF NEW YORK, N. Y., ASSIGNOR TO GROVER & BAKER SEWING MACHINE COMPANY, OF NEW YORK CITY.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 31,351, dated February 5, 1861.

To all whom it may concern:

Be it known that I, ALBERT H. HOOK, of the city, county, and State of New York, have invented a new and useful Improvement in the Tension Apparatus of Sewing-Machines; and I do hereby declare that the following is a full and exact description thereof, reference being had to the annexed drawings and the letters of reference marked thereon.

In these drawings, Figure 1 represents a side view of the apparatus; Fig. 2, front view, the nuts being removed; Fig. 3, a perspective view of one of the washers; Fig. 4, a side view of the center-pin with the washers shown in section; Fig. 5, a side view of a modified arrangement, the adjusting-nut shown in section; Fig. 6, a front view of the same, the nut being removed.

My improved tension apparatus consists of a pair of disks or washers, *a a'*, each having a round hole in its center through which a pin, *b*, loosely passes. This center-pin *b* is fastened to some convenient part of the sewing-machine and serves to sustain the disks *a a'*, and also a spiral spring, *c*, and terminates in a screw which receives two nuts, *d d'*. By these nuts I am enabled to compress the spring *c* to any required degree, and thereby cause a pressure upon the disks *a a'*, which are prevented from receding by a shoulder, *m*, on the center-pin *b*. One nut might be sufficient; but I prefer two, one acting as a jam-nut for the other to prevent its accidental slipping. The thread which is to receive the tension in coming from the spool is guided in between the washers *a a'*, then takes a turn around the center-pin, and finally passes out of the washers on its way to the needle, as clearly shown in red lines in the drawings. The tension on the thread therefore is the result of a three-fold friction—viz., a friction caused by the washers at the entrance of the thread between them, then a friction on the center-pin, and finally another friction between the washers on leaving them. This friction on the thread can be adjusted by the nuts *d d'*.

In order to prevent the riding and jamming

of the thread in passing around the center-pin, I round off the edges of the center hole in said washer, forming a cavity in the center, as shown in Fig. 1, which leaves the thread free in traveling around said center-pin. I also round off the outer edge of the washers to facilitate the passage of knots, &c. The tension so obtained is an elastic one, the thread passes through smoothly, and there is no necessity for any weight or friction on the spool, or for any eyes or nippers between the apparatus and the spools.

A modification of this plan is shown in Figs. 5 and 6. The center-pin in this case is made with a slit or groove, *y*, which extends back from its front end as far as nut *d* requires to travel, and the front end of the spiral spring *c* is made with a short turn inward, as shown at Fig. 6 at *z*, and projects into the groove or slit *y*. This prevents the spring *c* and nut *x* from turning accidentally, which would be fatal to the accurate adjustment of the tension on the thread. The nut *d* may be made with an extension in the shape of an ornamental tube to cover and protect the spiral spring *c*, as shown in Fig. 5.

Various modifications may be devised. The pressure against the washers may be obtained by different means. The washers instead of being round, may be made of any suitable shape, and therefore I do not wish to confine myself to the precise arrangement, as shown and described here; but

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination of two washers, concave at the center and rounded off at the outer edge, with a center-pin and any suitable means to give these washers a pressure, causing the thread to be pinched between said washers, arranged, substantially as and for the purpose specified.

ALBERT H. HOOK.

Witnesses:

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