(No Model.)

G. WILLETT.

TENSION DEVICE FOR SEWING MACHINES.

No. 245,906. Patented Aug. 16, 1881.

Fig. 1.

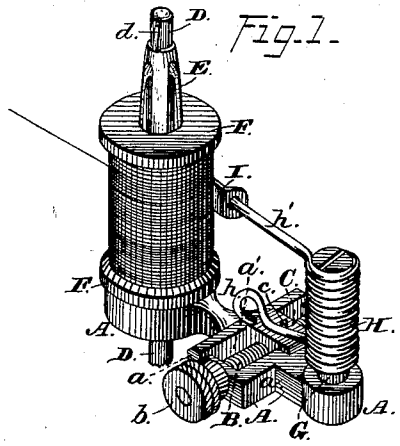


Fig. 2.

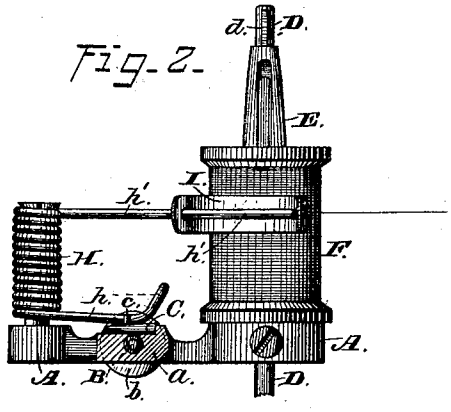
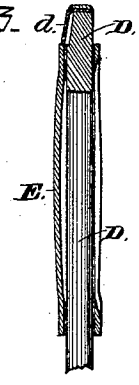


Fig. 3.



WITNESSES=

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UNITED STATES PATENT OFFICE.

GEORGE WILLETT, OF CHICAGO, ILLINOIS, ASSIGNOR TO HIMSELF AND JNO. H. ROLFE, OF SAME PLACE.

TENSION DEVICE FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 245,906, dated August 16, 1881.

Application filed May 8, 1880. (No model.)

To all whom it may concern:

Be it known that I, GEORGE WILLETT, of Chicago, in the county of Cook, and in the State of Illinois, 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, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of my improved device as arranged for use. Fig. 2 is a side elevation of the same; and Fig. 3 is a side elevation of the stud used for journaling the spool-holder, the upper portion of said stud being in section to show the spring-latch employed for locking said spool-holder in longitudinal position.

Letters of like name and kind refer to like parts in each of the figures.

The design of my invention is to enable a uniform tension of the upper thread of a sewing-machine to be produced, and to be easily and accurately adjusted; to which end it consists, principally, in the construction of the spring-arm and its combination with the supporting-frame, substantially as and for the purpose hereinafter shown.

It consists, further, in the means employed for regulating the pressure of the spring-arm upon the spool, substantially as and for the purpose hereinafter set forth.

It consists, further, in the means employed for locking the spool-holder in position upon its stud, substantially as and for the purpose hereinafter specified.

It consists, finally, in the device as a whole, its several parts being combined to operate in the manner and for the purpose substantially as hereinafter shown.

In the annexed drawings, A represents a metal bar, provided at one side of its longitudinal center with a lateral enlargement, *a*, within which is formed a slot, *a'*, that has vertical parallel side walls. Within the enlargement *a*, at the transverse center of the slot *a'*, is journaled a screw, B, that upon one projecting end is provided with a head, *b*, by means of which said screw may be revolved. Within said slot *a'*, around said screw B, is fitted a block, C, which has a threaded opening that corresponds to and embraces the threaded portion of said screw, and enables said block to be moved lengthwise of said slot by the rotation of said screw. A stud, *c*, projects upward from the upper side of said block, the object of which will be hereinafter explained.

Projecting upward from the largest end of the bar A is a stud, D, that has preferably a diameter of about one-eighth of an inch and a length above said bar of about two inches, and near its upper end is provided with a spring-latch, *d*, that extends downward and slightly outward, as shown in Fig. 3.

Upon the stud D is journaled a tube, E, which from points near its ends is slotted longitudinally, and such slotted portion swelled outward. The length of said tube is slightly less than the space between the upper face of the bar A and the lower end of the spring-latch *d*, so that when in place the latter engages with the upper end of said tube and prevents longitudinal motion of the same. Said tube is placed upon said stud by simply pressing it downward over said spring-latch; but before it can be removed said latch must be pressed downward upon or within the surface of said stud. The tube E is intended for holding an ordinary spool, F, which has an axial opening somewhat smaller than the expanded central portion of said holder, and when passed longitudinally over said holder compresses said central part, and is held firmly by the outward pressure of the same.

From the smallest end of the bar A a second stud, G, extends upward about one inch, and around the same is coiled spirally a wire, H, that at its lower end terminates in an arm, *h*, which extends horizontally over the block C and bears against the stud *c*, while at the upper end of said coiled portion said wire extends horizontally inward across the side of the spool F; and upon such arm *h'* is pivoted a flat spring, I, the ends of the latter being turned outward so as to form pivotal bearings upon said arm, as shown in Fig. 2. The lower arm, *h*, engages with the stud *c* upon the side opposite to the upper arm, *h'*, and the spiral portion of the wire or spring H being wound in the right direction, the backward movement of said block

by means of the screw B will cause said upper arm, h', through its spring I, to press upon the periphery of the spool F, the degree of such pressure being governed by the position of said block C within the slot a'. The bearing-spring I presents a broad smooth surface to the thread-wound periphery of the spool F, and causes an even pressure to be applied thereto, while in consequence of its pivotal connection with the arm h' said spring-bearing is enabled to adapt itself to the surface of said thread, its elasticity and mobility compensating for the comparative rigidity of said spring-arm.

As the spool-holder E has a fair bearing at each end upon the stud D, and as the spool F is held centrally upon said holder, it will be seen that said spool will revolve truly instead of eccentrically, as would otherwise be the case. The spring of the central portion of said holder is sufficient to enable it to accommodate any size of opening formed ordinarily in spools, so that without reference to size each spool will be perfectly centered.

Having thus fully set forth the nature and merits of my invention, what I claim as new is—

1. The tension-spring H, provided with a spirally-wound central portion and two radial arms, h and h', in combination with the supporting-stud G, and with means for moving the said arm h circumferentially, substantially as and for the purpose shown.

2. In combination with the frame A and with the tension-spring H, having the radial arm h, the block C, provided with a stud, c, that engages with said arm h, and the screw B, which passes through said block and enables the same to be moved laterally within or with reference to said frame, substantially as and for the purpose set forth.

3. In combination with the stud D and spool-holder E, the spring-latch d, secured to the upper end of said stud and engaging with the upper end of said spool-holder, substantially as and for the purpose specified.

4. The hereinbefore-described tension device, consisting of the bar A, having a transverse enlargement, a, and slot a', the screw D, journaled within said slot, the block or nut C, having the stud c, and placed within said slot in engagement with said screw, the studs D and G, projecting upward from the ends of said bar, the tension-spring H, coiled around said stud G and provided with the radial arms h and h', and the bearing-spring I, pivoted upon said arm h', all combined to operate substantially as and for the purpose shown.

In testimony that I claim the foregoing I have hereunto set my hand this 22d day of April, 1880.

GEORGE WILLETT.

Witnesses:
ERNEST PIERPONT,
A. WESTBERG.