

(No Model.)

M. H. RYDER.
SEWING MACHINE TENSION.

No. 298,315.

Patented May 6, 1884.

Fig. 1.

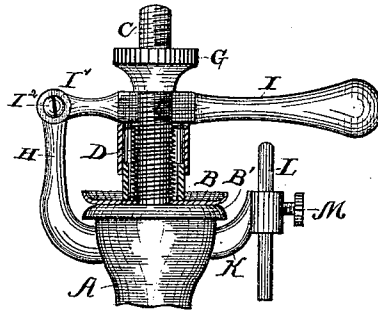


Fig. 6.

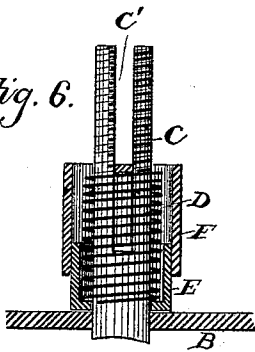


Fig. 2.

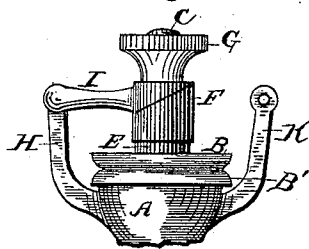


Fig. 5.

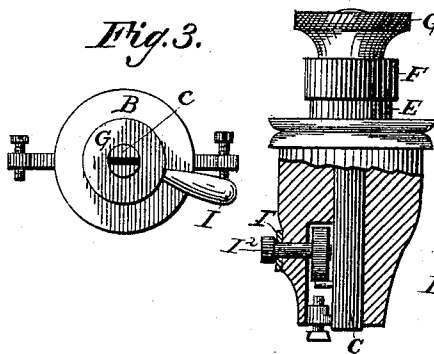
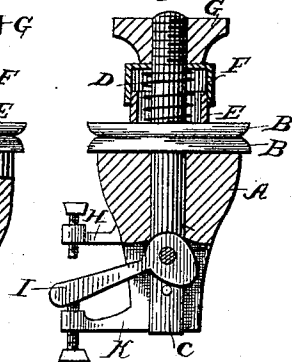


Fig. 4.



Witnesses:
C. W. Montmercy
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Inventor:
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by Crocker & Smith
attys

UNITED STATES PATENT OFFICE.

MARTIN H. RYDER, OF STAMFORD, CONNECTICUT, ASSIGNOR OF THREE-FOURTHS TO ELIZA A. WHITE, OF SAME PLACE, AND THE WILLCOX & GIBBS SEWING MACHINE COMPANY, OF NEW YORK, N. Y.

SEWING-MACHINE TENSION.

SPECIFICATION forming part of Letters Patent No. 298,315, dated May 6, 1884.

Application filed June 4, 1883. (No model.)

To all whom it may concern:

Be it known that I, MARTIN H. RYDER, a citizen of the United States, residing at Stamford, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Sewing-Machine Tensions; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to tensions for sewing-machines, and has for its object to provide a tension which may readily be adjusted to make two classes of stitches, and may be changed from one class of stitches to the other without stoppage of the machine.

With this end in view my invention consists in the construction and combination of elements, which will be hereinafter fully described, and then specifically designated by the claims.

For the purpose of enabling those skilled in the art to which my invention relates to understand and use my improved tension, I will proceed to describe the same, referring by letters to the accompanying drawings, forming part of this specification, in which—

Figure 1 is an elevation of my improved tension with the upper tension disk and both sleeves in section. Fig. 2 is an elevation of a modification of the construction shown in Fig. 1. Fig. 3 is a plan view of the modified form. Figs. 4 and 5 are views, partly in section, of another modification; and Fig. 6 is an enlarged detailed view, partly in section, of the construction shown in Fig. 1.

Similar letters indicate like parts in all the figures of the drawings.

A represents the base which supports the tension-plates.

B represents the upper plate and B' the lower plate.

C is the standard, which is ordinarily slotted, as shown in Fig. 6.

D is the tension-spring, which is coiled about the standard. The lower end of this spring bears against a shoulder at the bottom

of sleeve E, and the upper end bears against the cross-piece of sleeve F, which rests in slot C' of the standard.

G is the tension-nut working on the screw-threaded upper end of the standard.

All of the above parts are constructed precisely as in the ordinary tension of the Willcox & Gibbs straw-braid machine. H is an arm projecting upward from the base, to which I pivot a lever, I.

I' is a friction-washer, the function of which will be presently explained. This lever rests in slot C' in the standard, and its opposite end acts as a handle. Tension-nut G acts as a stop to limit the upward movement of this lever, the lower surface of which rests on the edges and cross-piece of sleeve F.

K is another arm projecting outward from the base diametrically opposite to arm H. A pin, L, slides vertically in an enlargement of this arm, and is held in any desired position by a set-screw, M. This pin acts as a stop to limit the downward movement of the handle end of lever I.

The operation is as follows, my invention being applicable to any kind of stitching in which two tensions are required, and upon any class of machine; but it will be found of especial value in the manufacture of hats and bonnets from straw braid and other material in strands. In making hats and bonnets the stitching usually begins at the tip—that is to say, at the center of the crown—the tip being turned continually round and round and braid stitched to the outer edge. While the tip is under the presser-foot the stitches are necessarily very short, and unless the tension is quite tight the strands will not be well drawn together, the thread hanging loosely between them. As soon, however, as the tip is passed the stitches become much longer and the tension must be quickly loosened. With any tension now in use, however, it is impossible to effect these two adjustments with any regularity and certainty and without stopping, or nearly stopping, the machine. In fact, careful tentative adjustment is required twice in the manufacture of each hat. This difficulty

is wholly obviated in my improved tension. Having once determined the two adjustments, no further changes are required until the machine is put upon another class of work.

5 The changes from loose to tight, and vice versa, may be instantly effected without any stoppage of the machine simply by touching the lever or hitting it a slight blow. It now will be apparent, from an inspection of the

10 drawings, that when lever I is depressed it compresses spring D, which bears against the shoulder or sleeve E, which in turn rests upon the upper tension-disk, and thereby tightens the tension. The proper adjustment for the

15 desired loose tension is effected by turning nut G. The adjustment for the desired tight tension is effected by raising or lowering pin L, against which the lever rests when depressed.

20 I² is the screw which attaches the lever to arm H. The head of this screw bears against the tension-washer I', which acts to hold the lever in whichever position it may be placed. Suppose the tip to be under the needle, the lever

25 is to be raised against nut G; but as soon as the stitching passes beyond the tip, lever I is forced down to tighten the tension. This may be done gradually until the limit is reached, or the lever may be forced down to

30 pin L at a single movement. This of course depends upon the class of braid or other material being stitched.

In the modification illustrated in Figs. 2 and 3 arm K is made substantially like arm H, and

35 both are provided with horizontal set-screws the points of which project toward the front. Sleeve F is provided with an incline on its upper edge. Lever I, in this instance, turns on the standard, and is provided with an inclined lower surface corresponding with the

40 incline of sleeve F, and acting, when turned toward right in this instance, to force down sleeve F, and thereby tighten the tension.

In the modification shown in Figs. 4 and 5

45 the arms are on the base—one above the other—and both are provided with set-screws, which limit the movement of the lever, which in this instance works in a vertical plane. The lever is provided with a cam, which acts on a pin

50 or projection on the standard to draw the standard and upper sleeve down against the

force of the spring, and thereby tighten the tension. A friction-washer, I', is used as in the form illustrated in Fig. 1, which holds the lever in any position in which it may be placed. 55

It is of course obvious that numerous equivalent mechanisms may be devised which will accomplish the same result that I do. So far as I am aware, however, no other person has ever devised a tension mechanism which is capable of two adjustments, and which may be readily changed from one to the other by a single movement, and without stoppage of the machine. 60

Having thus fully described my invention, 65 what I claim as new, and desire to secure by Letters Patent, is—

1. In a tension device for sewing-machines, means for holding the thread, and a lever to tighten the tension, in combination with adjustable stops, which limit the movement of the lever in both directions, and means for holding the lever by friction in whatever position it may be placed, whereby the tension may be instantly and accurately changed from one class of stitches to another without stoppage of the machine. 70 75

2. The combination, in a tension device, with plates for gripping the thread, and a spring acting thereon, of means for compressing said spring, and adjustable stops which limit the movement of the compressing device in both directions, for the purpose set forth. 80

3. The combination, with means for holding the thread and a spring for controlling the same, of a lever acting to compress the spring, adjustable stops which limit the movement of said lever, and a friction device for holding said lever in any position, whereby the tension may be adjusted to make two classes of stitches, and the adjustment may be accurately changed from one class to the other without stoppage of the machine. 85 90

4. Arm H and lever I, in combination with disks B B', spring D, nut G, and pin L, as described, and for the purpose set forth. 95

In testimony whereof I affix my signature in presence of two witnesses.

MARTIN H. RYDER.

Witnesses:

JAMES WALLACE,
A. M. WOOSTER.