(Model.)

# J. TRIPP.

## SEWING MACHINE TENSION DEVICE.

No. 282,410. Patented July 31, 1883.

*Fig 1.*

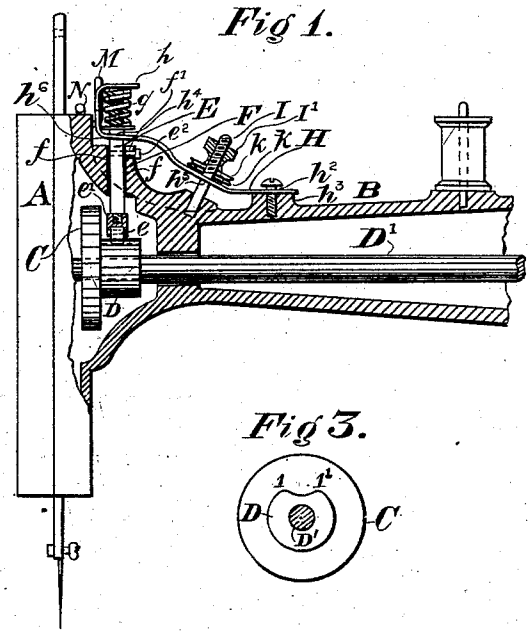
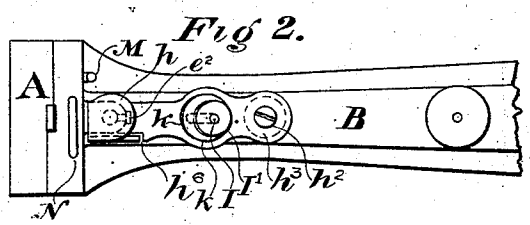



*Fig 3.*




*Fig 2.*

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# UNITED STATES PATENT OFFICE.

JAMES TRIPP, OF NEW YORK, N. Y., ASSIGNOR TO CHARLES T. BECKWITH AND ELLEN F. BECKWITH, BOTH OF OBERLIN, OHIO.

## SEWING-MACHINE-TENSION DEVICE.

SPECIFICATION forming part of Letters Patent No. 282,410, dated July 31, 1883.

Application filed October 7, 1882. (Model.)

*To all whom it may concern:*

Be it known that I, JAMES TRIPP, a citizen of the United States, residing at New York city, in the county and State of New York, have invented new and useful Improvements in Sewing-Machines, of which the following is a specification.

In a former application I have described a tension device in which the tension may be temporarily removed from the thread by the depression of a lever. The invention herein set forth is an improvement on that device. By this invention the tension on the thread is automatically regulated by a moving part of the machine, while at the same time the temporary removal of the tension may be easily effected.

This invention relates to improvements in the tension mechanism of sewing machines, whereby I am enabled to clamp the thread tightly in the tension-disks and hold the same in that position while the needle descends through the goods, the shuttle passes the loop, and the needle again rises out of the goods and nearly to the point of its highest stroke. According to my invention, during all the time that the needle is making its descent, and most of the time (say two-thirds) that it is making its upward motion, the thread is held tightly between the disks by means of a revolving cam or surface operating by means of suitable connecting means—a pivoted lever affixed to or carried by the arm of the machine and supporting the tension disks or plates. When the needle has ascended two-thirds (or thereabout) of its upward stroke and has passed out of the goods, a roller or bearing-surface actuating the lever controlling the lever by which pressure is brought to bear on the friction-disks is caused to drop into a recess or lower portion of a cam, thereby lowering the pivoted arm and reducing the pressure on the tension-disks and leaving simply a normal tension on the thread, just sufficient to allow of the proper tightening of the thread forming the stitch.

The object of my invention is to enable the operator to sew overall-goods, and coarse goods generally, in which uneven threads are employed, and also corset and similar thick or starched goods, on the same machine employed for sewing thin or fancy goods, without the necessity of the removal or displacement of any of the working parts of the machine, by which means, especially when sewing fine or fancy goods, what is commonly known as "puckering" is avoided by reason of the thread being rigidly held during the passage of the shuttle and released subsequently to the proper normal tension for the thinnest goods.

The accompanying drawings represent what I consider the best means of carrying out my invention.

Referring to the drawings, Figure 1 is a side view, partly in section, of the head and part of the arm of a sewing-machine with my improvements and various other details applied thereto. Fig. 2 is a plan view of the same. Fig. 3 is an end view of the tension-operating cam and the parts immediately connected therewith.

In each of the views similar letters of reference are employed to indicate corresponding parts wherever they occur.

A represents the head, and B the arm, of a sewing-machine. Within the head A, and by preference at the rear of the cam or plate C, operating the needle-bar, I form a cam D, the periphery of which is cylindrical for the greater portion of its circumference, while between the points 1 1 it is hollowed out for the purpose of operating a roller or projection, *e*, formed on or affixed to a sliding rod, E. The cam D is mounted on the main or driving shaft D′.

In the drawings I have shown the roller *e*, pivoted in a bearing-piece, *e′*, which is screwed onto the end of the sliding rod E. The rod E is supported in a groove, *f f*, formed in a projection, F, by preference cast with the head A. In the rear of the rod E is a small stud or projection, $e^2$, which works in a slot or groove, *f′*, in the front of the main groove *f*, the object of the projection $e^2$ and groove *f′* being to prevent the accidental turning of the rod E, and the consequent displacement of the roller *e*. At its upper end the rod E passes outside of the head A, and is provided with a spiral or other suitable spring, *g*, which is adapted to bear against the under side of a

thumb or finger piece, $h$, formed on the end of a rigid curved bar, H, which at $h^2$ is pivoted loosely to a stud or projection, $h^3$, formed on or affixed to the exterior of the arm B. The curved bar H is formed with a hole, $h^4$, for the passage of the rod E therethrough, as shown in Fig. 1.

I is a stud or pin of the ordinary character supported in the upper side of the arm B, and which passes up through a hole or aperture, $h^5$, in the bar H.

$k$ $k$ are a pair of tension-disks, the lower one of which rests on the upper surface of the curved bar H, which are retained in position on the stud or pin I, in the ordinary manner, by a thumb or binding screw, I′. The thread is drawn off from a spool supported in the ordinary or other suitable manner. It is then conducted around the stud M, carried by the head A, and thence around and between the tension-disks $k$ $k$ to a slot or groove, $h^6$, formed in the curved bar H. It is then conducted under the bent or hooked bar N to the eye or loop in the upper end of the needle-bar.

The operation of the device is as follows: The shaft D′, and consequently the cam D, being caused to revolve in the ordinary manner, the cylindrical portion $d$ of the cam D bearing against the roller $e$ during all the time the needle-bar and needle are making their descent, and most of the time (by preference about two-thirds) that they are making their upward motion, the curved bar H will cause the tension-disks $k$ $k$ to hold the thread tightly between them until the cam D, in its revolution, has brought its cut-away portion $d'$ under the roller $e$, when that roller will immediately descend into the cut-away portion $d'$, and by means of the rod E draw down the bar H so as to reduce the pressure on the tension-disks $k$ $k$, so as to leave simply a normal tension on the thread, just sufficient to allow of the proper tightening of the thread. If at any time the operator wishes to temporarily remove the extraordinary or normal, or both the extraordinary or normal, tension on the thread, or when he or she wishes to place a new thread between the tension-disks $k$ $k$, it is simply necessary to press down on the thumb-piece $h$, when, as will readily be seen, the curved bar H will be depressed and the pressure removed from the tension-disks $k$ $k$.

It will be evident that the disks $k$ $k$ will be held together with sufficient force or rigidity that no thread can be drawn through them during a considerable portion of the revolution of the cam D; but immediately the cut-away portion of the cam D is presented to the rod E the pressure is lessened and the spring G is allowed to come into play, so as to lessen the pressure on the bar H, and consequently on the disks $k$ $k$.

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

1. The combination of the tension-disks of a sewing-machine, a sliding rod, a revolving cam operated by the main shaft, and adapted to periodically raise and sustain a pivoted bar, by means of said rod, in position to cause tension on the disks, and a spring interposed between said rod and bar, and adapted to render the pressure upon the disks a yielding one, substantially as and for the purpose described.

2. The combination, with the shaft D′, cam D, rod E, and spring $g$, of the plate H and tension-disks $k$ $k$, substantially as and for the purpose described.

3. In the tension mechanism of a sewing-machine, the combination, with the plate H, of a bar or rod, E, held in position by means of a projection, $e^2$, and a slot or groove, $f'$, substantially as described.

4. The combination, with the plate H, having a groove or slot, $h^6$, for the passage of the thread, and a thumb-piece, $h$, of the spring $g$ and disks $k$ $k$, substantially as and for the purpose set forth.

In witness whereof I have hereunto set my hand this 29th day of September, 1882.

JAMES TRIPP.

Witnesses:

C. M. DISSOSWAY,

MAX BAYERSDORFER.