

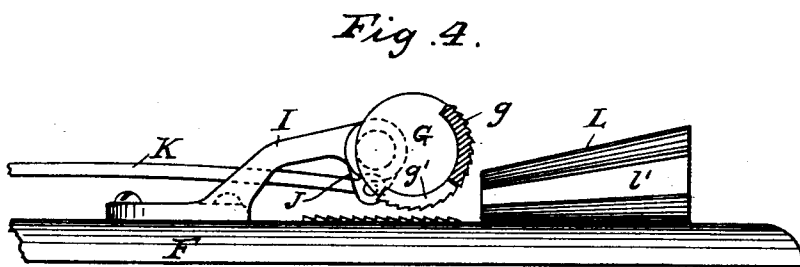
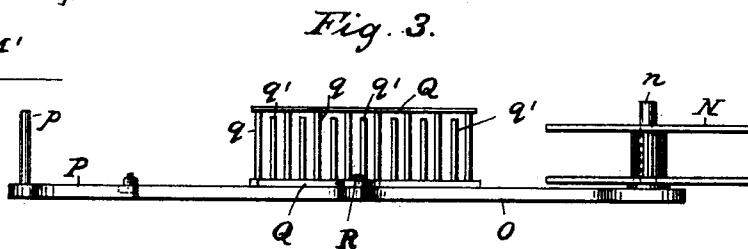
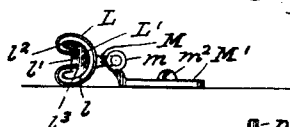
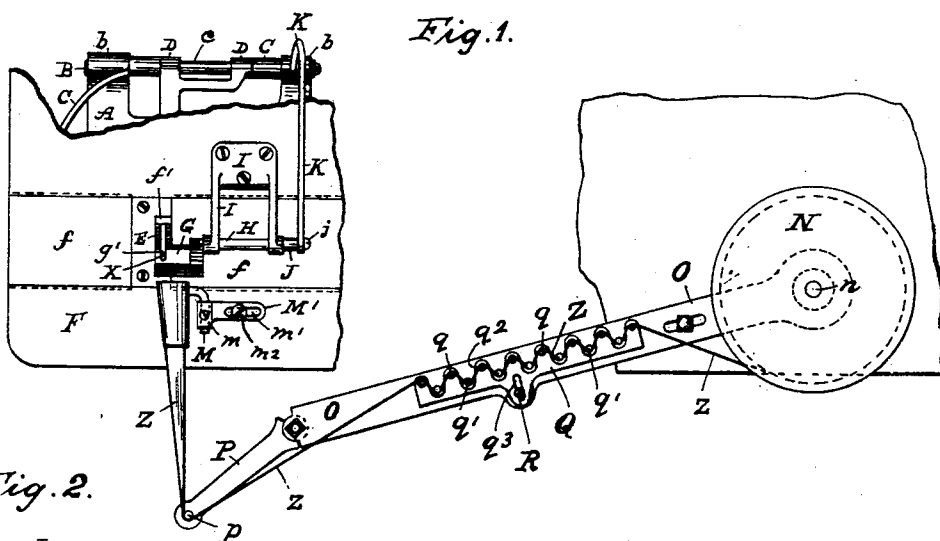
(No Model.)

F. W. COAN & W. S. EATON.

TENSION DEVICE FOR SEWING MACHINE BINDERS.

No. 587,707

Patented Aug. 10, 1897.



Witnesses

Emile H. Tardish
A Camrand

Inventors:

Fred W. Coan
Walter S. Eaton
By their Attorney *J. B. Thurston*

UNITED STATES PATENT OFFICE.

FRED W. COAN AND WALTER S. EATON, OF MANCHESTER, NEW HAMPSHIRE.

TENSION DEVICE FOR SEWING-MACHINE BINDERS.

SPECIFICATION forming part of Letters Patent No. 587,707, dated August 10, 1897.

Application filed August 8, 1896. Serial No. 602,125. (No model.)

To all whom it may concern:

Be it known that we, FRED W. COAN and WALTER S. EATON, citizens of the United States, residing at Manchester, in the county of Hillsborough and State of New Hampshire, have invented certain new and useful Improvements in Tension Devices for Sewing-Machine Binders; and we 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.

The invention relates to tension devices for machines adapted to secure bands and button-stays by sewing.

Bindings which are composed of selvaged material have been folded and sewed at one operation; but the mechanism employed to do such work will not serve our purpose, as the material used for trousers-bands or button-stays of knit underwear is raw-edged, and the edges must be turned under before being stitched to the goods, thus requiring three foldings of the button-stays, while a binding requires to be folded but once.

The object of our invention is to provide an efficient tension device for sewing-machines.

In the accompanying drawings, Figure 1 is a plan view representing a portion of a sewing-machine, including the work-plate, the band or button-stay passing from the spool containing it to our improved folder, and our improved feeding mechanism, which feeds both the knit fabric and its stay in their proper relative position under the needle of a sewing-machine. Fig. 2 is a detail view of our improved folder, showing its separate chambers, one for running the band or button-stay and the other for the edge of the article to which the stay is to be stitched. Fig. 3 is a plan of a spool, tension device, and connected arm.

In the drawings like reference-letters designate corresponding parts throughout the various views.

A is the base-plate of a sewing-machine, and *bb* are bearings carrying a shaft B, upon which is mounted a rocker-frame C, a function of which is to operate the ordinary feed-dog E, which is connected to the frame D.

F is the work-plate, and *ff* are slides which cover the usual openings in the said plate

through which the various working parts of the machine are reached, and *f'* is an opening through which the feed-dog rises.

G is our improved top feed, consisting of a segment of a cylinder, having at one end an eccentrically-projecting shaft H, mounted in a bracket or frame I, which is screwed to the plate F, said shaft H being provided with a crank J, to which is connected, by screw *j*, one end of a rod K, the opposite end of said rod reaching over the back of the work-plate F to a point underneath the same, where it is connected in any convenient manner to the rocker-frame C, by which the top feed G is given a rotary motion coinciding in direction with the forward-and-backward movement of the feed-dog E.

The top feed G has its outer surface serrated, as at *g*, and is provided in one of its edges with a slot *g'*, formed sufficiently long to receive and permit the vertical movement of the machine-needle X during the rotative operation of the top feed.

By causing the circumference of the top feed to be eccentric with the shaft by which it is carried it is readily adjusted high or low or run as close to the work as may be wished, and also the feed may be given a longer or shorter stroke than the under feed by properly setting the crank J upon the shaft H.

Our improved folder comprises a shell or case L, inclosing a die or form L', and the shell is provided with an arm M, secured to one end thereof and running parallel therewith, this arm being passed through a bearing *m*, formed upon one end of a plate M', which is provided with an elongated opening *m'* for the insertion of a fastening-screw *m''*, threaded to the work-plate.

The die or form L' is made tapering from end to end and is curved or rounded on one side, as at *l*, the opposite side being flat, as at *l'*, with the rounded portion extending beyond on each side in the form of flanges *l''*, and near each flange and in the flat portion *l'* is a groove *l'''* to receive either edge of the shell L, wherein they may be securely fastened by soldering.

The recess formed between the flanges *l''* affords opportunity for feeding the edge of the undergarment through the folder at the

same time with and in proper relation to the band or button-stay, so that both may be stitched at once evenly and without danger of fulling one upon the other.

- 5 The material Z, forming the stays or bands, after being cut the proper or required width is wound evenly upon a spool, such as represented at N, said spool being mounted on a spindle n, mounted near one end of a plate O, the opposite end of said plate being provided with a jointed arm P, carrying a spindle p, said spindle acting as a guide for the material Z, as shown. The jointed arm P provides a band-guide adapted for adjustment to vary
15 the direction of the band as it leaves the main part of the tension device and thereby to slightly vary the tension without the delay and inconvenience attending an adjustment of the main tension device.
- 20 Our adjustable tension device consists of a frame Q, adjustably secured to said plate O, and containing a series of bars q and a series of bars q', rigidly secured to the plate O, the last-named set of bars fitting between those
25 of the adjustable frame and within slots q², formed therein for this purpose, said frame being adjusted toward or away from the bars q' by means of an elongated opening q³, through which a set-screw R passes and is

threaded to the said plate O. To pass the material through the tension device, the adjustable frame Q, after first loosening the screw R, is drawn away from the rigid set of bars q' and the cloth placed between the latter and those of the frame Q. Then the frame
35 is moved toward the bars q' until the required tension is reached, when the set-screw R may be turned down, by which means a perfectly even tension of various degrees may be easily maintained.

40 Having described our improvements, what we claim is—

The combination of the sewing-machine, a band-holding spindle or roller, a tension device, and a band-guide consisting of a hinged
45 arm situated between the said tension device and the stitching mechanism, whereby the direction of the band can be changed and the tension varied without disturbing the main tension device, substantially as described.

50 In testimony whereof we affix our signatures in presence of two witnesses.

FRED W. COAN.
WALTER S. EATON.

Witnesses:

J. B. THURSTON,
HENRY E. BURNHAM.