

Nov. 10, 1942.

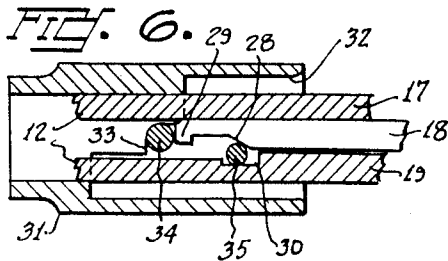
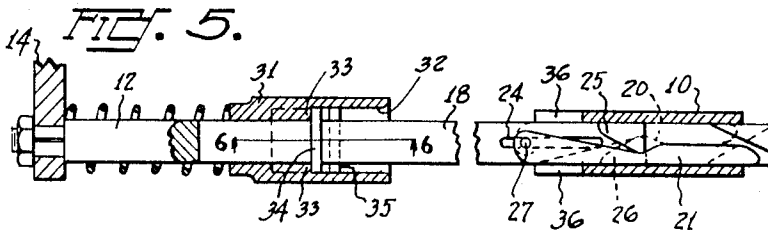
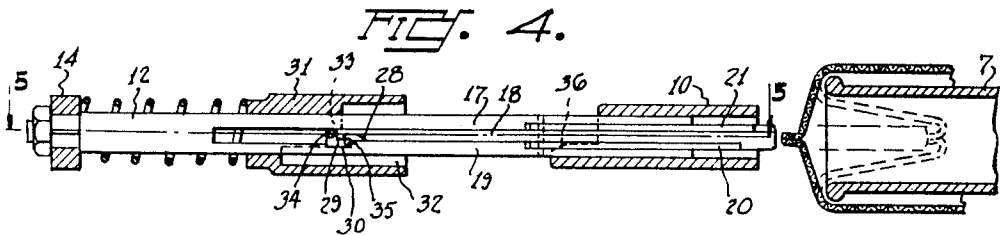
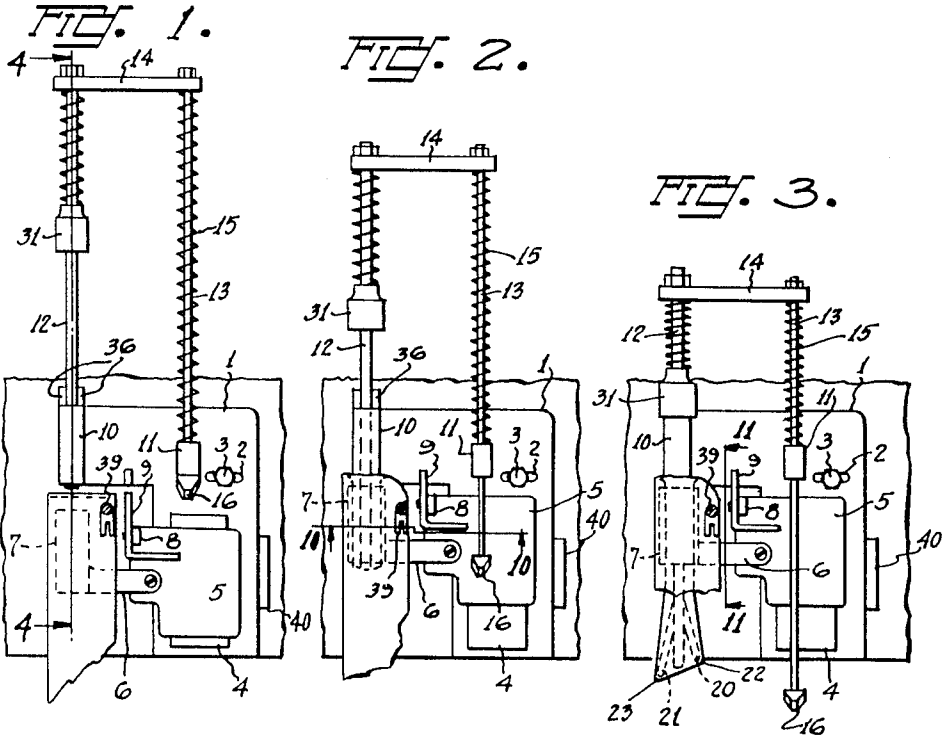
H. O. DAVIS

2,301,684

DEVICE FOR TURNING FABRIC INTO TUBULAR FORM

Filed May 5, 1939

2 Sheets-Sheet 1



INVENTOR  
HARRY O. DAVIS

BY *James Kinnard*  
ATTORNEY

Nov. 10, 1942.

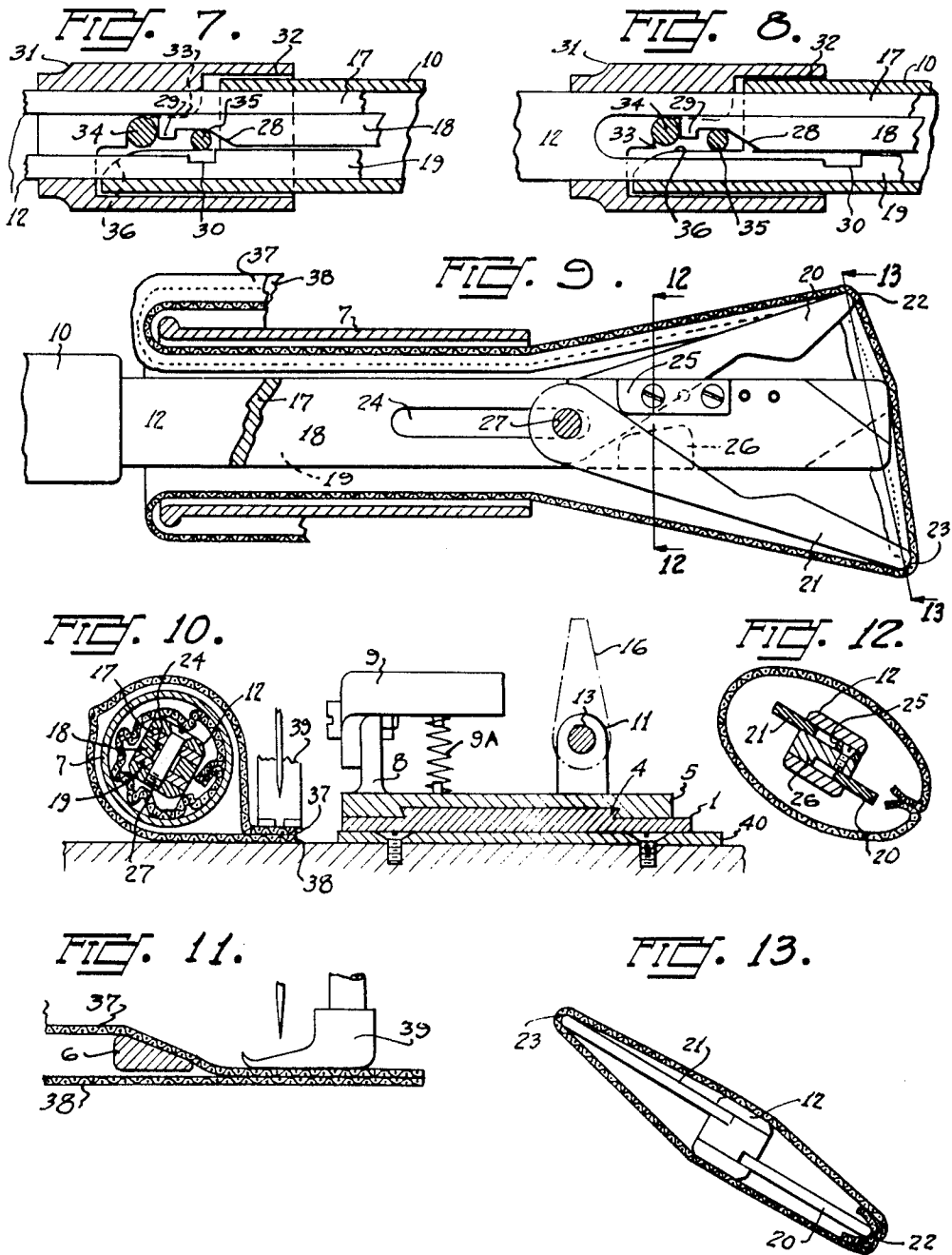
H. O. DAVIS

2,301,684

DEVICE FOR TURNING FABRIC INTO TUBULAR FORM

Filed May 5, 1939

2 Sheets-Sheet 2



INVENTOR  
HARRY O. DAVIS

BY *James S. Simon*  
ATTORNEY

# UNITED STATES PATENT OFFICE

2,301,684

## DEVICE FOR TURNING FABRIC INTO TUBULAR FORM

Harry O. Davis, Portland, Oreg.

Application May 5, 1939, Serial No. 271,931

1 Claim. (Cl. 112—63)

My invention relates to attachments for factory sewing machines, and more particularly to an apparatus and method for turning belts. The principal object of my invention is to facilitate the eversion of seamed tubings, such as belts heretofore turned after the complete fabrication, or stitching up of an end and the longitudinal seam adjoining the two edges of a single piece of fabric.

Other objects and advantages of my invention will be apparent in the following discourse, wherein the significance of the reference characters in the accompanying drawings is explained.

In the drawings:

Figure 1 represents a top view of the complete apparatus in operative position upon a sewing machine.

Figure 2 represents the same subject matter as is shown in Figure 1 in one phase of operation.

Figure 3 represents the same subject matter as is shown in Figure 1 in the final phase of operation.

Figure 4 represents partly in longitudinal section, and partly in elevation, showing one of the members engaging the belt to be turned.

Figure 5 is a section taken through the line 5—5 of Figure 4.

Figure 6 is a section taken on the line 6—6 of Figure 5 and illustrates a particular adjustment to the part shown.

Figure 7 shows another adjustment of the parts, as shown in Figure 6.

Figure 8 shows the same parts in a third adjustment.

Figure 9 represents an enlarged horizontal section of a fragment of the apparatus in operative relationship to the material in work.

Figure 10 is a transverse section taken on the line 10—10 of Figure 2 partly showing the disposition of the material in work, as acted upon by the device.

Figure 11 is a longitudinal section taken on the line 11—11 of Figure 3.

Figure 12 is a transverse section taken on the line 12—12 of Figure 9.

Figure 13 is a transverse section taken on the line 13—13 of Figure 9.

The essence of this invention consists of means cooperating with a stationary tube adjustably secured to the sewing machine and operated by manual effort to effect the eversion of tubular fabrications simultaneously with the stitching thereof, wherein the same is employed as a gage to insure uniformity of width of said tubular fabrication.

Referring now more particularly to the drawings:

A plate 1 formed with a transverse slot 2 is laterally adjustable upon an attaching plate 40 and secured in position by means of the screw 3. Integral with the plate 1 is a trapezoidal slide-way 4 upon which a sliding frame 5 is mounted. Extending laterally from this frame 5 and in rigid relationship thereto is a bracket 6 supporting at its extremity a metal tube 7 over which the stitched belt is placed, and through which the end thereof is forced to effect the eversion. The sliding frame 5 is further formed with a vertical extension 8 upon which a latch 9, engagable with a lug on the forward edge of the L-shape plate 1, is pivoted to allow of securing the frame 5 in its rearmost position at which it is shown in Figure 2, a spring 9A urging the latch 9 to the engaged position.

At the rear of plate 1 are two boxes 10 and 11 in which two rods 12 and 13 are slidably mounted respectively. The rearmost termini of these rods 12 and 13 are secured together in rigid relationship by the yoke 14. A compression spring 15 urges this assembly rearward. The forward end of the rod 13 is fitted with a convenient finger grip 16 by means of which the assembly is drawn forward by the sewing-machine operator to effect the eversion of a belt, for example, and the proper distension of its corners. The rod 12 is of composite structure made up of three principal members 17, 18, and 19 in laterally contacting and slidable relationship which serve to transmit the necessary force required to actuate two fingers 20 and 21, the ends of which engage the corners 22 and 23 respectively, of the belt. The middle member 18 is formed at its forward portion with a longitudinal slot 24 and two cams 25 and 26 disposed upon opposite sides respectively. The outer members of this assembly 17 and 19 operate together and at their forward extremity receive the pivot 27 upon which are mounted the said two fingers 20 and 21. These fingers 20 and 21 are so formed and disposed upon opposite sides of the middle member 18 as to provide for the lateral extension thereof when the pivot 27 is moved longitudinally with reference to this middle member 18, by engagement of said fingers 20 and 21 with the two cams 25 and 26 respectively as particularly shown in Figure 9. The rearward end of this middle member 18 is formed with an inclined surface 28 and a hook 29. The outside member 19 is formed with a transverse recess 30 and at its rearward terminus is rigidly joined with the similar member 17 and the yoke 14. A sleeve

31 is slidably mounted upon the rod 12 as shown in Figure 1 and is formed interiorly with an annular recess 32 and internally disposed lugs 33 to engage opposite ends of the pin 34 in such manner as will provide that the medial portion of the latter shall be apposed with the end of the longitudinal member 18, as shown in Figures 5, 6, 7, and 8. A second pin, or roller 35 is normally disposed transversely in the recess 30 of the member 19.

The axis of the pivot 27 is inclined from the vertical to provide for the projection of the fingers 20 and 21 in an oblique direction as illustrated in Figure 12, so that the seam and hence the corners of the belt will be engaged as desired.

The rearward end of the box 10 is formed with a cam surface 36 designed to engage the roller 35 in that position of the device shown in Figure 3.

Figure 11 illustrates how the bracket 6 extends between the unstitched edges 37 and 38 of the belt just forward of the presser foot 39 of the sewing machine under which the belt edges are joined by the usual manner of stitching.

The operation of the device is as follows:

The frame 5 is moved to the forward position as shown in Figure 1. A suitable width of cloth is folded with its longitudinal edges together and the end is stitched up in the usual manner. Then, the longitudinal seam is begun and the cloth is disposed around the tube 7 at the same time to accurately gage the width. As the seam is carried ahead the sliding frame 5 is pushed rearwardly to dispose the tube 7 carried thereby to the position shown in Figure 3 whereat the latch 9 secures the same. The stitching is then carried forward and at the proper juncture, the finger grip is pulled forward thrusting the rod 12 through the tube 7 and carrying the belt end with it. This action is illustrated by the Figures 1, 2 and 3. In Figure 3 the fingers 20 and 21 are shown extended into the corners of the belt.

As the motion of the sleeve 31 is arrested by the box 10 the cam surface 36 of the latter engages the roller 35 and lifts the same out of engagement with the transverse recess 30 in the longitudinal member 19. Continued forward motion of the rod 12 will be transmitted positively from this point only to the outside members 17 and 19 while the middle member 18 will be held stationary by the engagement of the hook 29 with the pin 35. Continued motion of the rod 12, as the stitching proceeds, results in the relative movement of the outside members 17 and 19 as referred to the middle member 18, so that

finally these parts are related as shown in Figures 8 and 9.

It is to be observed that the comparatively slight resistance offered to the motion of the middle member 18 as provided by its engagement with the belt end suffices to engage the roller 35 upon the incline 28 of the longitudinal member 18 so as to lock the three members 17, 18 and 19 together. Further and continued forward movement of the rod 12 will thus result in extending the belt longitudinally without unnecessary lateral extension of the fingers 20 and 21, beyond that suitable for the material in process.

With the closed end of the belt thus projected forwardly as shown in Figure 3 and the frame 5 pushed back to the rearward locked position, the operator may now grasp the end of the belt between the, as yet, unstitched edges with one hand and while pulling the finished end through the tube may stitch continuously until the belt is complete. The belt is thus stitched and turned right-side out in a single operation.

It will be readily apparent that the device may be easily adjusted for use with belts of different widths by adjustment longitudinally of the cam member 25, and adjustment laterally of the plate 1 by means of the slot 2 and screw 3 to dispose the tube 7 at such position with reference to the sewing machine needle as will properly gage the distance between the folded edge of the belt and the line of stitching.

While I have shown a particular form of embodiment of my invention, I am aware that many minor changes therein will readily suggest themselves to others skilled in the art without departing from the spirit and scope of my invention. Having thus described the invention what I claim as new and desire to protect by Letters Patent, is:

I claim:

An everter comprising in conjunction with a sewing machine, an annular device slidably supported adjacent the stitching mechanism of the sewing machine and laterally adjustable with reference thereto at selected distances from and parallel to the direction of the sewing machine feed, manually controlled reciprocatory means adapted for movement through said annular device, stop means slidable upon said reciprocatory means, extensible fingers pivotally mounted upon the intermediate portion of said reciprocatory means, and link means engaging said stop and finger means respectively to actuate the latter.

HARRY O. DAVIS.