Nov. 3, 1959 V. A. SHERBROOK 2,911,214

MACHINE FOR MAKING SEWING RIBS FOR THE INSOLES OF FOOTWEAR

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FIG.1

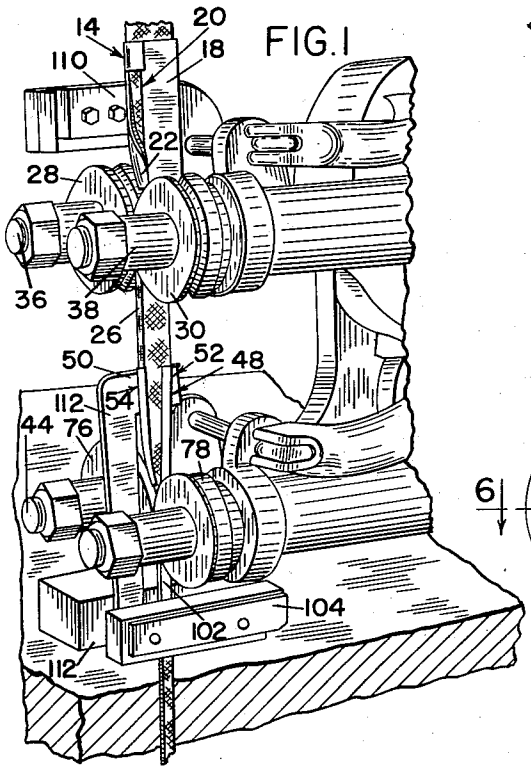


FIG.2

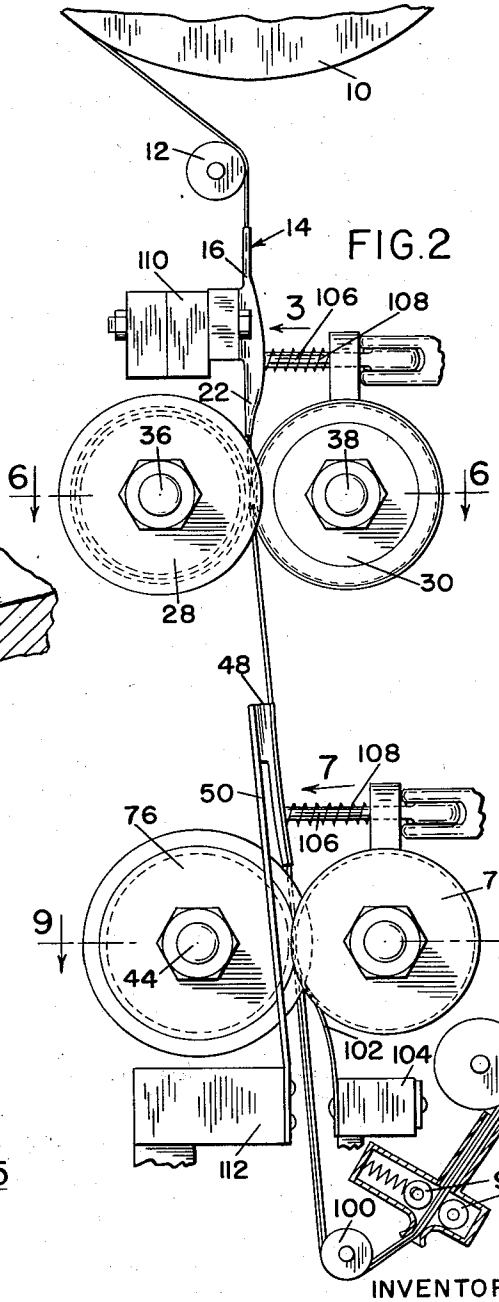
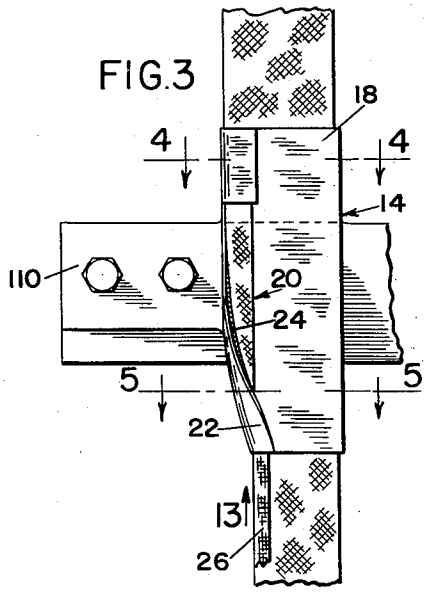


FIG.3



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FIG. 4

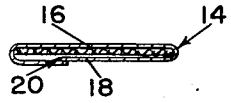


FIG. 5

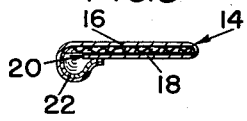


FIG. 6

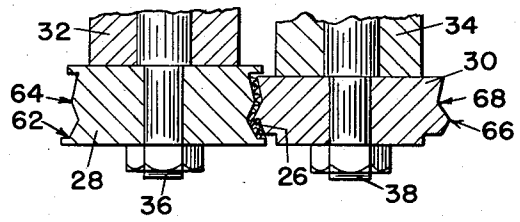


FIG. 13

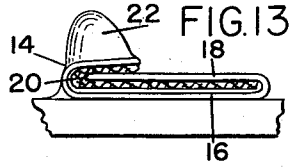


FIG. 7

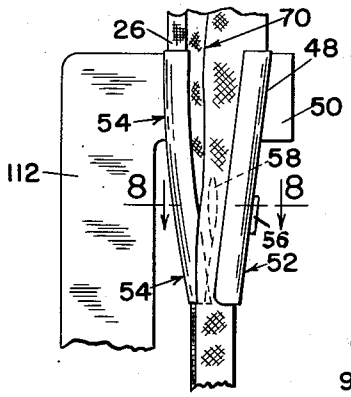


FIG. 10

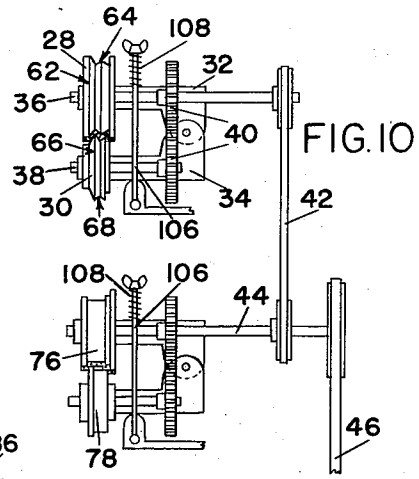


FIG. 11

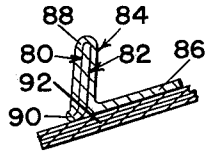


FIG. 8

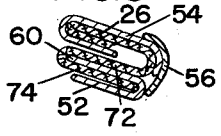


FIG. 12

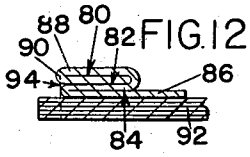


FIG. 14

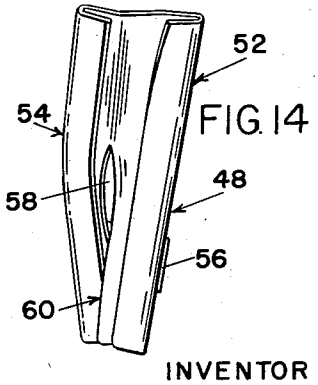
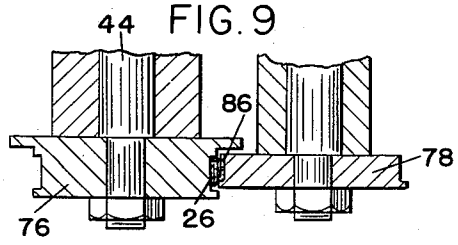


FIG. 9



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MACHINE FOR MAKING SEWING RIBS FOR THE INSOLES OF FOOTWEAR

Victor A. Sherbrook, Whitman, Mass.

Application May 31, 1957, Serial No. 662,659

3 Claims. (Cl. 270—94)

This invention relates to a machine for longitudinally folding an elongated continuously moving tape to provide, when cut into appropriate lengths, sewing ribs for insoles each of which comprises a narrow elongated tape longitudinally folded a plurality of times along spaced parallel lines forming a plurality of parallel layers, one of which is adapted to be secured to the insole of a shoe and the other of which is adapted to be held more or less erect to provide the sewing rib for the insole.

The machine of the present invention comprises means for feeding a flat tape longitudinally, said flat tape being previously supplied with adhesive at one side only thereof, means comprising a first fixture initially folding over a narrow edge portion of the tape so that two adhesively supplied surfaces meet, while leaving the major portion of the tape flat, there being subsequent pressing means to finish the cementing of the narrow folded-over edge portion; said pressing means comprising a pair of rollers, the tape passing through the nip thereof and the contour of the rollers being such as to pre-crease the previously flat unfolded portion of the tape, preparatory to a final folding operation by means of a second fixture which not only again folds over the folded edge portion onto an adhesive portion of the tape, but also reversely folds the opposite edge portion of the previously flat unfolded major portion of the tape, resulting in a narrow tape having two edge-connected uncemented parts, one part being thin and supplied with adhesive at the exposed side thereof, and the other being thicker and without exposed adhesive, means for pressing the same to finish the cementing of the several layers of the thicker fold, and reeling means for reeling the folded tape preparatory to use in applying to insoles for footwear.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings, in which

Fig. 1 is a perspective view illustrating the machine;

Fig. 2 is a side elevational view on an enlarged scale of the operating parts of the machine;

Fig. 3 is a front elevational view on an enlarged scale, looking in the direction of arrow 3 in Fig. 2;

Figs. 4 and 5 are sectional views, taken on the respective lines of Fig. 3;

Fig. 6 is a section on line 6—6 of Fig. 2;

Fig. 7 is an elevational view, looking in the direction of arrow 7 in Fig. 2 on an enlarged scale;

Fig. 8 is an enlarged section on line 8—8 of Fig. 7;

Fig. 9 is a section on line 9—9 of Fig. 2;

Fig. 10 is a diagrammatic view illustrating the action of the rolls;

Figs. 11 and 12 are sectional views illustrating the application of the folded tape sewing rib to an insole of a shoe;

Fig. 13 is an enlarged elevational view, looking in the direction of arrow 13 in Fig. 3; and

Fig. 14 is a perspective view on an enlarged scale similar to Fig. 7 but with the tape not shown.

In carrying out the present invention, an elongated generally flat tape of canvas or some similar appropriate material is provided in substantially continuous quantity as on a reel 10. This tape is provided with adhesive at one side surface thereof only. The tape is fed as illustrated in the drawings over an idle roll 12 and through a fixture generally indicated at 14. This fixture is illustrated in Figs. 2 and 13 and comprises in general a substantially flat plate 16 over which the adhesive free side of the tape passes, plate 16 being provided with an elongated flange 18 overlying the same in closely adjacent but spaced relationship. Flange 18 terminates at its edge 20 (see Fig. 3) and a narrower flange 22 is turned up and over the supporting plate 16 as perhaps best shown in Fig. 5, so that the canvas strip is automatically guided to be rolled or turned over on its edge as at 24, leaving the fixture 14 with a narrow portion 26 folded over upon the still flat, major portion of the tape. The adjacent surfaces of the tape and the folded edge part are cemented and pressed together by the rollers 28 and 30.

The tape in folded form passes between the nip of the pair of rollers 28 and 30 which are pivotally mounted on swinging supports 32 and 34 (see Fig. 10). Each roller is provided with its own shaft 36, 38 and these shafts are connected together by gears 40 which may be driven as for instance from shaft 36 by a belt 42 from another shaft 44 in turn driven by a belt 46 from a source of power not shown. Shaft 44 drives another pair of rollers to be described hereinafter.

The tape in folded form proceeds downwardly and as shown in Figs. 7 and 8 proceeds through a second fixture which is generally indicated by the reference numeral 48. This fixture comprises a connected pair of generally U-shaped tape guiding members mounted on a supporting plate or the like 50. As shown in Figs. 8 and 14, these members are both substantially U-shaped and are indicated generally at 52 and 54 and are connected by a strap 56. The U-shaped guide members 52 and 54 are located substantially facing oppositely to each other in spaced relation and may be conveniently formed by folding over the edges of a flat sheet of material and then slitting the same at 58 as shown in Fig. 14. Then the edge forming the U-shaped member 52 is bent slightly inwardly and superimposed with relation to the edge which forms the U-shaped member 54. The cut at 58 forms a guiding edge member 60 which is one of the legs of the U-shaped member 52.

The roller 28 in cooperation with roller 30 are provided with a special form periphery which includes an annular indentation 62 with an annular crown 64 on roller 28 and corresponding crown 66 and indentation 68 on roller 30, so that the tape will appear as shown between these two rollers as in Figs. 6 and 10. This construction forms a pre-creasing effect at 70. When the tape approaches the open end of the second fixture, it slides easily into the two U-shaped members which at the upper end of the fixture are substantially parallel and in line with each other.

However, as the tape proceeds, it is easily folded as indicated in Fig. 8, aided by the pre-creasing effect, and the pre-folded edge 26 is received in the U-shaped member 54 while the U-shaped member 52 causes a superimposed fold 72 and a reverse fold 74. This occasions the resulting tape which appears as in Fig. 12, after it has gone through the pressure rolls 76 and 78, which are provided with mating peripheral edges tending to press the adhesive faces of the tape together.

The tape as shown in Figs. 11 and 12 is formed of four layers which are cemented at surfaces 80 and 82 but not at 84, and this results in a tape which essentially comprises two longitudinal parts, i.e. a thin part 86 and a

thicker part 88 having an extended edge fold 90. The under side of layer 86 is provided with adhesive by which it is cemented to the insole 92 and then when stitching 94 is passed through the extending edge 90 and the insole, the thicker layer 88 is caused to pivot upwardly as shown in Fig. 11 in position for use as a sewing rib for the insole.

The roll of folded tape 96 is mounted upon the appropriate machine for application to the insole and may be cut where desired by the operator when sufficient sewing rib has been applied to the insole as called for by the manufacturer of the shoe.

The present machine causes the folded tape to be reeled onto a roll 96 to which it is guided by means of presser rolls 98 after passing over an idle roll 10. A doctor blade 102 mounted on a bracket 104 is provided for scraping roll 78 to free the same of any adhesive that might cling thereto. The rollers 76 and 78 are mounted in the same manner as rollers 28 and 30 and are driven from the shaft 44 which directly drives roller 76. The respective rollers may be adjustably mounted for different degrees of pressure by means such as rods 106 provided with adjustable springs 108 for resiliently urging the rollers in sets toward each other.

The individual fixtures 14 and 48 may be mounted in any convenient way as on brackets 110, 112 or the like, in turn mounted on the machine base, and it is believed that the operation of the machine will be clear from the above whereby a flat tape is substantially continuously passed through the apparatus to provide the folded sewing rib of Fig. 12 for use on an insole as above described.

Having thus described my invention and the advantages thereof, I do not wish to be limited to the details herein

disclosed, otherwise than as set forth in the claims, but what I claim is:

1. A machine for making plural folded sewing ribs from substantially continuous tape having a side surface thereof supplied with an adhesive comprising means to travel the tape endwise and spool the same in folded condition, a fixture comprising a flat tape supporting plate and a curved edge flange thereon having an exit end superposed relative to the plate to fold over an edge portion of the tape, presser means at the exit end of the fixture to press the folded over edge portion to the remainder of the tape and secure the same thereto by means of the adhesive, and a second fixture including a tape supporting plate, an edge flange thereon guiding the folded over edge into close proximity to the next adjacent longitudinal portion of the tape, and an opposite edge flange on the second fixture guiding the unfolded edge of the tape into a reverse fold superimposed on the other folds.

2. The machine of claim 1 including tape pressing means located at the exit end of the second fixture.

3. The machine of claim 1 wherein said presser means includes mating irregular contours on the pressing means to pre-crease the tape along subsequent fold lines.

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