Nov. 3, 1953 A. R. RIDDERSTROM 2,657,405

RIB APPLYING MACHINE

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Fig. 2

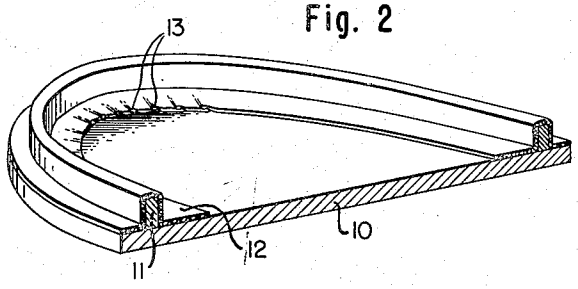
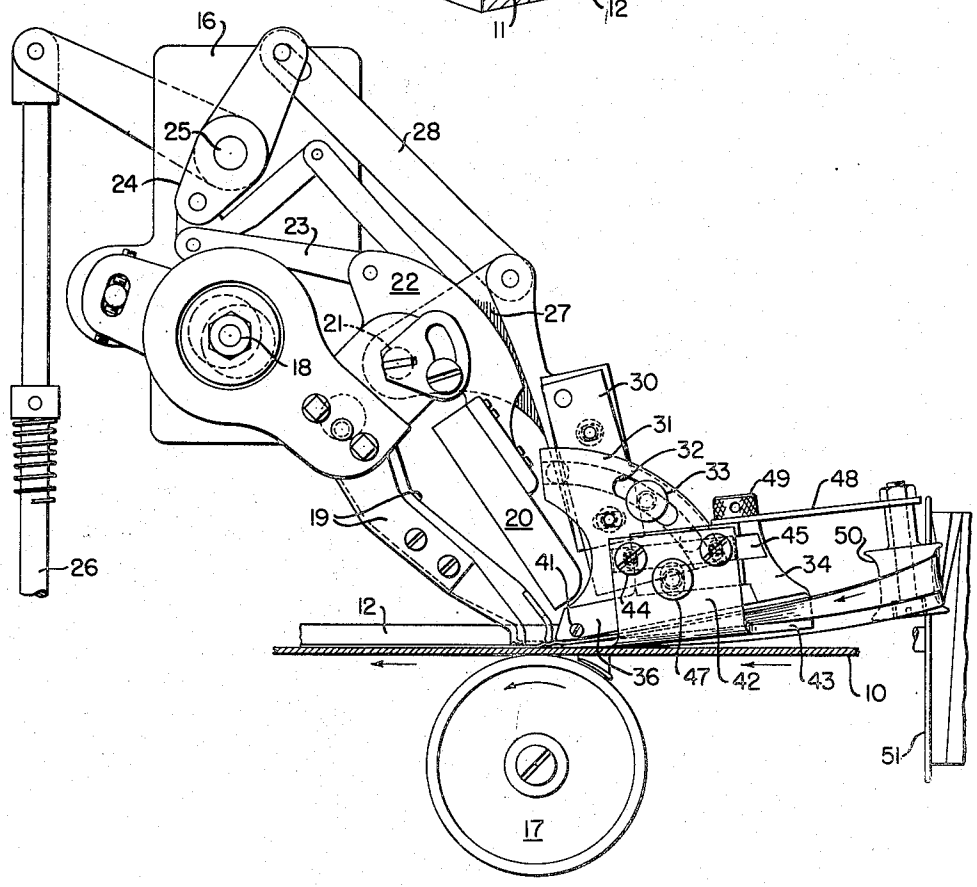


Fig. 1



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Fig. 3

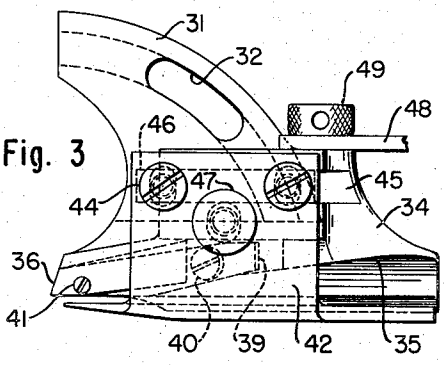


Fig. 4

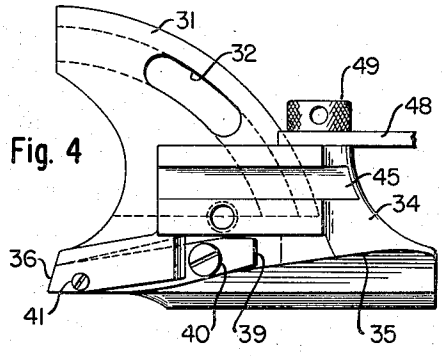


Fig. 5

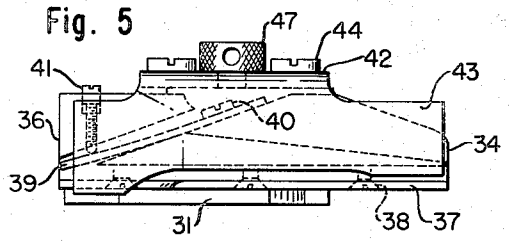


Fig. 6

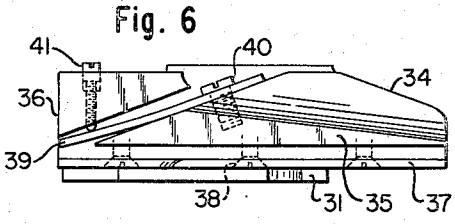
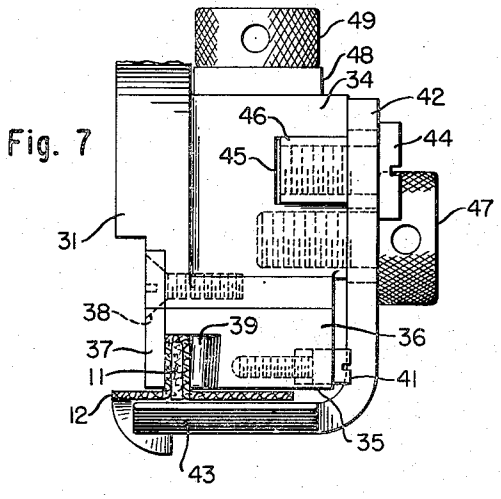


Fig. 7



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UNITED STATES PATENT OFFICE

2,657,405

RIB APPLYING MACHINE

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Application January 15, 1952, Serial No. 266,493

7 Claims. (Cl. 12—20)

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This invention comprises a new and improved machine for applying and adhesively attaching ribbed stripping to insoles, platform soles or the like.

In one aspect the invention comprises improvements in machines of the type shown in my prior Patent No. 2,142,332, January 3, 1939, although capable of more general use in any rib applying machine.

Whereas the machine of my prior patent is organized to form a sewing rib upon an insole from tape and core material delivered separately to the machine, the present invention provides for the rapid and accurate application to the work of ribbed stripping of the character described in my prior Patent No. 2,343,226, February 29, 1944, that is to say, ribbing pre-formed and comprising one or more strips of adhesive tape already secured to a continuous core and forming therewith ribbing that is presented to the work in cross section resembling approximately an inverted T.

The machine of the present invention is characterized by a guide foot having an elongated passage through which the preformed ribbing may be guided to the point of application and which terminates in a constrictive gate at the point of application. Such construction insures the free passage of the ribbing from a source of supply up to the point of application, and accurate engagement and positioning of the ribbing at the critical point so that it shall be accurately located upon the insole or other work with its rib at exactly the proper angle and without opportunity for displacement. The constrictive gate has also the important function of preventing pleats which may be formed in laying the ribbing in a curved path from working back into the guiding passage. On the contrary, it insures the formation of a series of pleats of uniform size and shape in position where they may be pressed flat by the feeding instrumentalities of the machine. If the pleats are permitted to work back into the guide passage, they not only become irregular in shape but tend to plug the passage and so distort or misplace the ribbing.

The guide foot presents an elongated passage of ample dimensions freely to receive the preformed ribbing and properly to direct it to the point of application even though the ribbing may come in somewhat curved condition from a coiled source of supply. It is not necessary to control the course of the ribbing with precision until it reaches the constrictive gate. Accordingly, the gate herein shown includes an upright rib-

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receiving channel opening into a transverse tape-receiving channel. In accordance with an important feature of the invention, means are provided for separately and independently adjusting the effective width of these two channels so that ribbing having adhesive tape of different thicknesses or having cores of different thicknesses may be handled with equal facility by the machine.

These and other features of the invention will be best understood and appreciated from the following description of a preferred embodiment thereof, selected for purposes of illustration and shown in the accompanying drawings, in which:

Fig. 1 is a view in elevation showing the improved guide foot as embodied in the machine of my prior Patent No. 2,142,332 above identified,

Fig. 2 is a fragmentary view on an enlarged scale showing the ribbing applied to the toe portion of an insole,

Figs. 3 and 4 are views of the guide foot in elevation, the shoe plate being removed in Fig. 4,

Figs. 5 and 6 are corresponding bottom plan views of the guide foot, and

Fig. 7 is an end view of the guide foot on an enlarged scale.

In Fig. 2 is illustrated one example of the work performed by the rib applying machine of this invention. In this instance a sewing rib is applied to a flat welt insole 10. The rib comprises an upright core 11 which is enclosed in an adhesive tape 12. The tape is turned laterally in both directions from the base of the core and presents an out-turned portion which is flush with the marginal edge of the sole 10 and a somewhat wider in-turned portion which lies inside the core 11. In cross section the preformed ribbing as presented to the sole has approximately the cross sectional shape of an inverted T. The tape is adhesively coated and adheres to the core 11 and to the surface of the sole 10 which has been previously coated with cement. In rounding the toe portion of the sole pleats 13 are formed in the in-turned portion of the adhesive tape. It is desirable that these should be uniform in shape and spacing and adapted to be pressed flat as the rib is applied to the work.

In Fig. 1 sufficient portions of the machine of my prior Patent No. 2,142,332 are shown for a complete understanding of the present invention. In the frame 16 is journaled a freely rotatable supporting roll 17 and a shaft 18 on which is formed a pair of eccentrics arranged to operate a pair of feed feet 19. These move alternately in a tape feeding and pressing motion as illus-

trated and described in detail in my prior Patent No. 1,794,204. Cut-off mechanism 20 is arranged to swing bodily about a shaft 21 projecting from the machine frame and supporting a rocker member 22 to which the cut-off mechanism is attached. The rocker member 22 is connected through a link 23 to another rocker member 24 arranged to oscillate about a shaft 25 also journaled in the frame of the machine. A treadle rod 26 controls the position of the rocker 24 and the cutting mechanism. A bracket 27 is also pivotally supported on the shaft 21 and connected through a link 28 to the rocker 24. The parts of the machine described up to this point are or may be identical to the corresponding parts of the machine described in my Patent No. 2,142,332 to which reference may be had for further details of construction.

The novel guide foot of the present invention is mounted upon the bracket 27 through the medium of an intermediate plate 30 which is adjustably secured to the bracket by screws passing through transversely elongated slots as shown in dotted lines in Fig. 1. The guide foot itself comprises a segmental member 31 having an arcuate slot 32 through which passes a clamping screw 33 threaded into a segmental extension, indicated in dotted lines, of the intermediate plate 30. The segmental member has also a curved tongue and slot connection with the plate 30 and is angularly adjustable about an axis corresponding to the point of application of the ribbing as it leaves the guide foot and first makes contact with the sole.

The segmental member is formed with an outwardly projecting housing 34 and the lower face 35 of this housing, as shown in Figs. 3 and 4, forms the upper face of an elongated guide passage which runs longitudinally through the whole length of the segmental member. At its forward end the housing extends forwardly, or to the left as shown in Figs. 3 and 4, in a projection 36 in which is formed the top wall of the constrictive gate in which the elongated passage terminates. The back of this passage is formed by a back plate 37 secured to the housing 34 by screws 38. Cooperating with the back plate 37 to form the other or front wall of the constrictive gate is a flexible plate 39 which is secured by a screw 40 to the housing 34 and extends forwardly into flush relation with the forward end of the projection 36. The plate 39 is biased away from the back plate 37 and is adjustably positioned by a screw 41 threaded into the projection 36. Accordingly, by turning the screw 41 in one direction or another, the upright rib-receiving channel of the gate may be adjusted for width to accommodate rib stripping of different weights or thickness.

The bottom of the elongated passage is formed by a side plate 42 having a laterally extending shoe portion 43 as best shown in Fig. 7. The side plate is secured to the housing 34 through the medium of a horizontal key 46 fitting in a keyway 45 in the side of the housing. The side plate is secured to the key 46 by screws 44 which pass through vertical slots in the plate and thus afford provision for vertical adjustment of the plate and for varying the width of the tape-receiving channel of the constrictive gate. This will be apparent from an inspection of Fig. 7. The side plate is connected directly to the housing 34 by a clamping screw 47 and is also vertically slotted to receive this screw while permitting the vertical adjustment already described.

An arm 48 is secured to the top of the housing 43 by a clamping screw 49 and from this arm depends a guide roll 50 by which the pre-formed tape led from a reel 51 is directed to the outer end of the elongated passage in the guide foot. It will be apparent that this passage is of ample dimensions to receive the rib stripping and permit its free movement up to the point of the constrictive gate. At this point the out-turned portions of the adhesive tape 12 are engaged and accurately controlled as well as the upstanding portion of the ribbing formed by the core 11 and the enclosing tape.

It will be seen that the elongated passage in the guide foot directs the ribbing and delivers it to the face of the work at an acute angle, and that this angle may be adjusted about the line of application by the arcuate connection between the segmental member and the plate 30. The feed feet 19, which are forked to straddle the rib, engage the ribbing immediately as it emerges from the constrictive gate and, when the work is swung in rounding the toe of the sole, pleats 13 are formed in the tape at the gate but, on account of the close fit at this point, the pleats cannot work back into the guide passage.

It will also be noted that when the treadle rod 26 is depressed, the cut-off mechanism 20 is lowered into operative position and the guide foot is simultaneously swung upwardly out of the way and to an inoperative position. In this latter movement the guide roll 50 is also lifted and this takes place without disturbing the lead of the ribbing from the reel 51.

Having thus disclosed my invention and described in detail an illustrative embodiment thereof, I claim as new and desire to secure by Letters Patent:

1. In a rib applying machine having a work-supporting roll; guide mechanism comprising a guide foot mounted in the machine for bodily movement to and from an operative position adjacent to the roll, said guide foot including in its structure a segmental body having a longitudinal passage therein terminating in a rib constricting gate with a channel having the cross sectional shape of an inverted T, the segmental body having provision for angular adjustment about the lower edge of the gate.

2. In a rib applying machine having a work-supporting roll and movable work-feeding feet operating on the work so supported; a guide foot for ribbed stripping which has the cross sectional shape of an inverted T, the guide foot having an elongated passage therein freely to receive the stripping and terminating in a constrictive gate located closely adjacent to the work-feeding path of the feed feet and preventing pleats formed in the stripping from moving into the elongated passage of the guide foot.

3. In a machine as described in claim 2, a guide foot in which the constrictive gate has a transverse tape-receiving channel and an upright rib-receiving channel, and means for adjusting the width of the said rib-receiving channel independently of the said tape-receiving channel.

4. In a machine as described in claim 2, a guide foot in which the constrictive gate has a transverse tape-receiving channel and an upright rib-receiving channel, and means for adjusting the width of the tape-receiving channel without changing the width of the rib-receiving channel.

5. Guide mechanism for ribbed stripping comprising upper and lower members forming a longitudinal passage, upright walls at one end of

the passage forming a delivery gate presenting a channel with angled branches, and means for independently adjusting the width of either branch.

6. A guide foot for a rib-applying machine, comprising a body having a segmental attaching portion and a projecting housing presenting an elongated passage for preformed ribbed stripping, a side plate adjustably secured to said body and having an inturned shoe portion forming the bottom of the said elongated passage, a back plate secured to said body and forming one upright wall of a constricted gate at the delivery end of the passage, a flexible plate in said housing forming the other upright wall of the constricted gate, an adjusting means for said flexible plate whereby the effective width of the gate may be varied to accommodate stripping of different thicknesses.

7. A guide foot for delivering a preformed ribbing that has the approximate cross section of an inverted T, the foot comprising a body having a longitudinal passage terminated at its exit end in a constricted gate, and a circular tongue for adjustably supporting the guide foot for angular movement about the gate as an axis, an adjustable side plate having a laterally extending shoe portion forming the bottom of the gate, and an adjustable plate disposed at right angles thereto forming one side wall of the gate.

ANDREW R. RIDDERSTROM.

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836,198	Moffatt	Nov. 20, 1906
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