

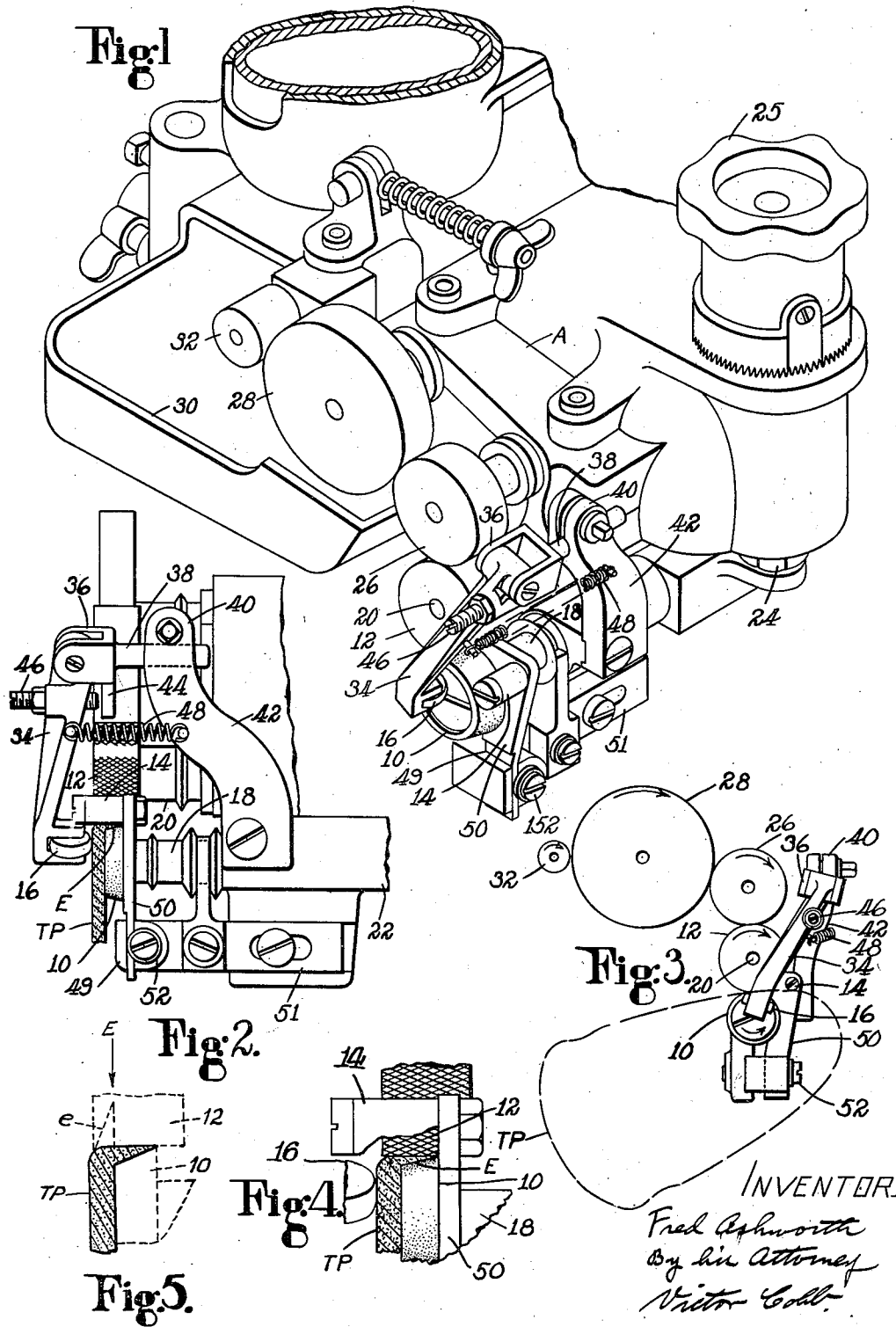
Dec. 16, 1941.

F. ASHWORTH

2,265,990

MOCCASIN TOE PIECE CEMENTING MACHINE

Filed Dec. 14, 1939



UNITED STATES PATENT OFFICE

2,265,990

MOCCASIN TOE PIECE CEMENTING
MACHINE

Fred Ashworth, Wenham, Mass., assignor to
United Shoe Machinery Corporation, Borough
of Flemington, N. J., a corporation of New
Jersey

Application December 14, 1939, Serial No. 309,227

15 Claims. (Cl. 12—80)

This invention relates to the application of cement to shoe parts and is herein illustrated as embodied in a machine for coating the peripheral portion of an unattached moccasin toe piece.

In the moccasin type of shoe it is desirable to have a well defined ridge running around the toe and in practice this is accomplished by beveling the upper and the toe piece, turning the beveled portion of the toe piece outwardly to form a flange, and joining the beveled edges face to face by a heavy line of stitching. Since the beveled edges of the upper and toe piece are rather abrupt and narrow, it is desirable to join them with cement to facilitate the stitching operation and to eliminate gapping at the seams due to the relaxation of the stitching and leather after the shoe has been worn a while.

The object of the present invention is, therefore, to provide an improved machine for applying cement to the out-turned beveled flange of a moccasin toe piece without smearing the display surface, the illustrated machine being of the automatic type in that the work when placed in the machine is self-guiding and the design being such that it is rapid and efficient in operation.

In accordance with the aforesaid object, one feature of the present invention resides in the provision of coating feeding means for gripping the flanged portion of the toe piece and moving it lengthwise through the machine, the toe piece being guided to turn in its own plane so that the flange moves in a substantially linear path during part of its movement. This is effected by the combined action of the aforesaid feeding means and a member arranged to bear against the flanged portion of the toe piece, whereby one of the feeding means which is supplied with cement coats the entire peripheral flange of the toe piece.

During the feeding movement there is a tendency for the work to be moved laterally from the grip of the feeding means, and another feature of the invention will be found in means for preventing lateral movement of the toe piece with respect to its direction of feed during the application of cement to the peripheral flange thereof.

The various features of the invention will be apparent from the following description, in which:

Fig. 1 is a perspective view of a portion of a cementing machine embodying the present invention;

Fig. 2 is a side elevation showing the co-oper-

ating feed rolls and guides necessary to accomplish peripheral movement of the toe piece;

Fig. 3 shows a front elevation of the feed rolls and guide with the toe piece shown in dotted lines;

Fig. 4 is an enlarged fragmentary view of the feed rolls gripping the flanged portion of the toe piece; and

Fig. 5 is a fragment of the toe piece showing the beveled edge E before and after bending.

The toe piece TP (Fig. 5) is provided with a flange E the flesh surface of which is beveled at e. Preparatory to the application of cement to the beveled surface e (Fig. 5), the flange E is premolded so that it is bent back at substantially right angles to the body of the toe piece TP. Referring to Figs. 3 and 4, the bent back beveled flange E of the toe piece TP is shown presented to a pair of coating feed rolls 10 and 12 constructed and arranged to grip the grain and flesh sides respectively of the flange and to move it lengthwise, the piece being caused to turn in its own plane by the combined action of the rolls 10 and 12 and an abutment 14 arranged to bear against the flange and being held from lateral movement between the rolls by a guide roll 16.

The rolls 10 and 12 are mounted on a pair of shafts 18 and 20 which rotate in opposite directions so as to feed the work from right to left, as viewed in Fig. 3. The shafts 18 and 20 are mounted in the frame A of a machine of the type shown in Letters Patent of the United States No. 1,851,162, granted March 12, 1932, upon an application of J. W. Cosgrove, to which reference may be had for a description of those parts not herein more fully shown and described.

The lower shaft 18 upon which the roll 10 is mounted is journaled on an arm 22 pivoted on the frame A, the roll 10 being yieldably held by a spring (not shown) which urges the roll 10 against the work or to a limiting position short of the roll 12 determined by a stop screw 24, the position of the stop screw being adjustable by the hand wheel 25.

In the present instance the roll 10 is provided with a frusto-conical surface in order to hold the flange E of the toe piece in such a position that the beveled flesh side e of the flange will lie in a horizontal plane, thereby facilitating the application of cement to that surface.

The cement applying roll 12 has a knurled surface and is mounted in co-operative relation with the roll 10, and, in accordance with the disclosure of the aforesaid Patent No. 1,851,162,

it is supplied with a uniform coating of cement by a roll 26 which transfers cement from a pick-up roll 28 to the roll 12. The pick-up roll 28 dips in a cement pan 30 and is provided with an adjustable stripper or doctor roll 32 by which the quantity of cement transferred by the roll 28 to the roll 26 is governed.

In the present invention the grip afforded by the rolls 10 and 12 will not alone hold the toe piece sufficiently to provide a continuous feed as there is a tendency for the rolls to squeeze the toe piece laterally of the rolls and as a result the piece will run off of the rolls before the entire flange has been coated unless it is held and guided by hand. It is not satisfactory to guide the piece by hand, since that requires the close attention of the operator, and so the machine is provided with a roll 16 arranged to engage the body of the toe piece below the top of the roll 10, as shown in Fig. 2, and on the vertical diameter therethrough to hold the piece firmly against the end face of the roll 10. The roll 16 is rotatably mounted on an approximately vertical axis so that its surface rolls along the work in the direction of movement of the same, the axle of the roll being journaled in the lower end of an arm 34 which is pivotally suspended at its opposite end from a yoke 36. The yoke is provided with a spindle 38 which is adjustably held in a split clamp 40 formed at the end of a pedestal 42, the latter being secured at its other end to the pivoted arm 22. A tooth 44 (Fig. 2) depends from the yoke 36 and forms a stop for a limit pin 46 adjustably threaded through the arm 34 for preventing contact between the rolls 10 and 16 when there is no work in the machine. A tension spring 48, secured at its ends to the arm 34 and the pedestal 42, yieldably urges the roll 16 toward the end face of the roll 10.

The forces applied to the beveled flange E of the toe piece by the rotating rolls 10 and 12 and by the roll 16 are such as to cause the toe piece to rotate about a horizontal axis rather than to travel more or less linearly around the peripheral edge of the toe piece. In order, therefore, to overcome this rotational tendency and to provide a substantially automatic traverse around the periphery of the piece, an abutment 14 is arranged to engage the toe piece at a point to one side of the bite of the rolls 10 and 12 and slightly above this point. The exact location of the abutment must be chosen carefully so that it will hold the side runs of the toe piece in a substantially horizontal plane (Fig. 3) during the traverse of that portion of the piece and yet will permit the whole piece to rotate about a horizontal axis as it traverses the toe piece from one side run to the other. The abutment 14 is mounted in the chosen position and extends transversely of the rolls 10 and 12. It is fixed to a vertical plate 50 the surface of which is parallel to and substantially in the plane of the inner lateral face of the roll 10. The lower portion of the plate occupies a slot 49 formed in the end of a plate 51 adjustably mounted on the pivoted arm 22 of the machine. The head of a screw 52 threaded into the plate 51 locks the plate 50 in the slot. The inner surface of the plate forms an edge gage for the edge of the turned-out flange E.

As indicated in Fig. 3, the work moves in the direction of the arrow, the rolls 10 and 12 constantly advancing the work from right to left in a substantially linear path while the abutment 14 contacts the peripheral flange of the work prior to its passage between the rolls 10 and 12

and holds it from counterclockwise rotation about a horizontal axis during the traverse of the straight runs and permits rotation of the toe piece at the curved run around the toe. The work is introduced at the beginning of a straight run, as indicated in Fig. 3, with the grain surface in contact with the periphery and the end face of the roll 10, the edge of the beveled flange abutting the surface of the plate 50. It is evident that the position of the grain surface, that is, facing away from the cementing roll, is such that the liability for the cement to gain access to this surface is minimized. The rotation of the rolls automatically traverses the piece without manipulation by the operator, thereby coating the toe piece rapidly and efficiently.

Having described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. In a machine for applying coating to a shoe part having a flanged portion, coating feeding means for gripping said flanged portion and moving the same lengthwise, means arranged to bear against the surface of the flanged portion of the shoe part to guide the flange during part of its movement in a substantially linear path, one of said feeding means being constructed and arranged to coat the said surface of the flanged portion, and means for supplying coating liquid to said coating means.

2. In a machine for applying coating to an upper having a flanged portion, coating feed rolls for gripping said flanged portion and moving the same lengthwise, means arranged to bear against the surface of the flanged portion in advance of the feed rolls to constrain the flange to follow a substantially linear path during part of its movement, one of said feed rolls being a roll for coating the said surface of the flanged portion, and means for supplying coating liquid to said coating roll.

3. In a machine for applying coating to a toe piece having a flanged portion, coating feed rolls for gripping said flanged portion and moving the same lengthwise, and an abutment disposed substantially opposite the bite of the feed rolls, said abutment having a surface parallel to the axes of the rolls, said surface being constructed and arranged to bear against the surface of the flanged portion to constrain the toe piece in its movement to follow a substantially linear path during part of its movement between said rolls.

4. In a machine for applying coating to a toe piece having a flanged portion, coating feed rolls arranged to grip the flanged portion and to move the same lengthwise, and an abutment disposed laterally of the ingoing side of the feed rolls, the work engaging surface of the abutment lying substantially in a common plane tangent to both of said rolls at their bite, said surface being parallel to the axes of said rolls and adapted to bear against the surface of the flanged portion to constrain the movement of the flange to a straight line.

5. In a machine for applying coating to a moccasin toe piece having a flange beveled on one face, opposed feed rolls for gripping said beveled flange and moving the same lengthwise, one of said rolls being frusto-conical and cooperating with the other roll to accommodate between them the beveled flange, and cylindrical means a portion of which is arranged to bear against the surface of the flanged portion of the toe piece to constrain the flange in its move-

ment to follow a substantially linear path during part of its movement, the axis of said cylindrical means and the rolls being parallel, one of said feed rolls being a roll for coating the beveled face of said flanged portion.

6. In a machine for applying coating to a moccasin toe piece having a flange, a coating roll arranged to engage one face of the flange, a frusto-conical roll arranged to engage the opposite face of the flange, said rolls co-operating to grip said flange and move the same lengthwise, and means rotatable about an axis substantially normal to the axis of the frusto-conical roll, said rotatable means having a surface opposite the end face of the frusto-conical roll to press the toe piece against said end face of the frusto-conical roll to prevent outward lateral movement of the flange between the feed rolls.

7. In a machine for applying coating to a moccasin toe piece having a flange, a coating roll arranged to engage one face of the flange, a frusto-conical roll arranged to engage the opposite face of the flange, said rolls co-operating to grip said flange and move the same lengthwise, said frusto-conical roll having an end face over which the toe piece lies, and a yieldable guide roll disposed opposite the end face of the frusto-conical roll to hold the toe piece in contact therewith.

8. In a machine for applying coating to a moccasin toe piece having a flange, a coating roll arranged to engage one face of the flange, a frusto-conical roll arranged to engage the opposite face of the flange, said rolls co-operating to grip the flange and move the same lengthwise, a guide roll, an arm for supporting the guide roll opposite the end face of the frusto-conical roll, and means for yieldably urging the guide roll toward said end face.

9. In a machine for applying coating to a moccasin toe piece having a flange, a coating roll arranged to engage one face of the flange, a frusto-conical roll arranged to engage the opposite face of the flange, said rolls co-operating to grip the flange and move the same lengthwise, a guide roll, a spindle for supporting the guide roll opposite the end face of the frusto-conical roll, and means for adjusting said spindle transversely of the rolls so as to move the guide roll to and from the end face of the frusto-conical roll.

10. In a machine for applying coating to a moccasin toe piece having a flange, a coating roll arranged to engage one face of the flange, a frusto-conical roll arranged to engage the opposite face of the flange, said rolls co-operating to grip the flange and move the same lengthwise, a guide roll, a spindle for supporting the guide roll opposite the end face of the frusto-conical roll, and means for adjusting said spindle about its own axis.

11. In a machine for applying coating to a moccasin toe piece having a flanged portion, opposed feeding means constructed and arranged to grip said flanged portion and to move the same lengthwise, means arranged to bear against

the surface of the flanged portion to hold that portion of the flange entering the feed rolls substantially tangential to both of said rolls at their bite, and a guide roll arranged to bear against the body portion of the toe piece to prevent outward lateral movement of the toe piece with respect to its direction of feed, one of said opposed feeding means being a device for coating the flanged portion of the toe piece.

12. In a machine for applying coating to a moccasin toe piece having a flanged portion, opposed feeding rolls constructed and arranged to grip said flanged portion and to move the same lengthwise, an abutment having a surface lying in a plane substantially tangential to the rolls at their bite, a guide roll for preventing lateral movement of the toe piece relative to said feed rolls, said guide roll having a surface lying in a plane parallel to the end face of one of the feeding rolls, said guide roll being urged toward said end face, and means to prevent contact between said guide roll and said end face.

13. In a machine for applying coating to a moccasin toe piece having a beveled flange, opposed feed rolls for gripping said flange and moving the same lengthwise, an abutment having a surface arranged to bear against the surface of the flange of the toe piece, said surface lying in a plane substantially tangential to the rolls at their bite, and means having a surface parallel to the rear end face of one of the rolls arranged to engage the apex of the beveled flange to guide the toe piece in a plane parallel to said surface.

14. In a machine for applying coating to a moccasin toe piece having a flange beveled on one face, a coating roll arranged to engage the beveled face of the flange, a frusto-conical roll arranged to engage the opposite face of the flange, said rolls co-operating to grip said beveled flange and move the same lengthwise, an abutment having a surface arranged to bear against the flange of the toe piece, said surface lying in a plane substantially tangential to the rolls at their bite, and means for supporting the last-named means, said supporting means having a surface parallel to the rear end face of the frusto-conical roll arranged to engage the apex of the beveled flange to maintain the toe piece in a plane parallel to said surface.

15. In a machine for applying coating to a moccasin toe piece having a flange beveled on the flesh side, a frusto-conical roll arranged to support the grain side of the flange, an applying roll arranged to engage the flesh side of the flange, means to rotate said rolls and to feed the toe piece lengthwise, an abutment having a surface arranged to bear against the flange of the toe piece, said surface being substantially tangential to the plane tangent to said rolls at their bite, and a yieldable guide roll the axis of which lies in a plane parallel to the front end face of the frusto-conical roll, said guide roll being adjustable to and from said face and laterally thereof.

FRED ASHWORTH.