

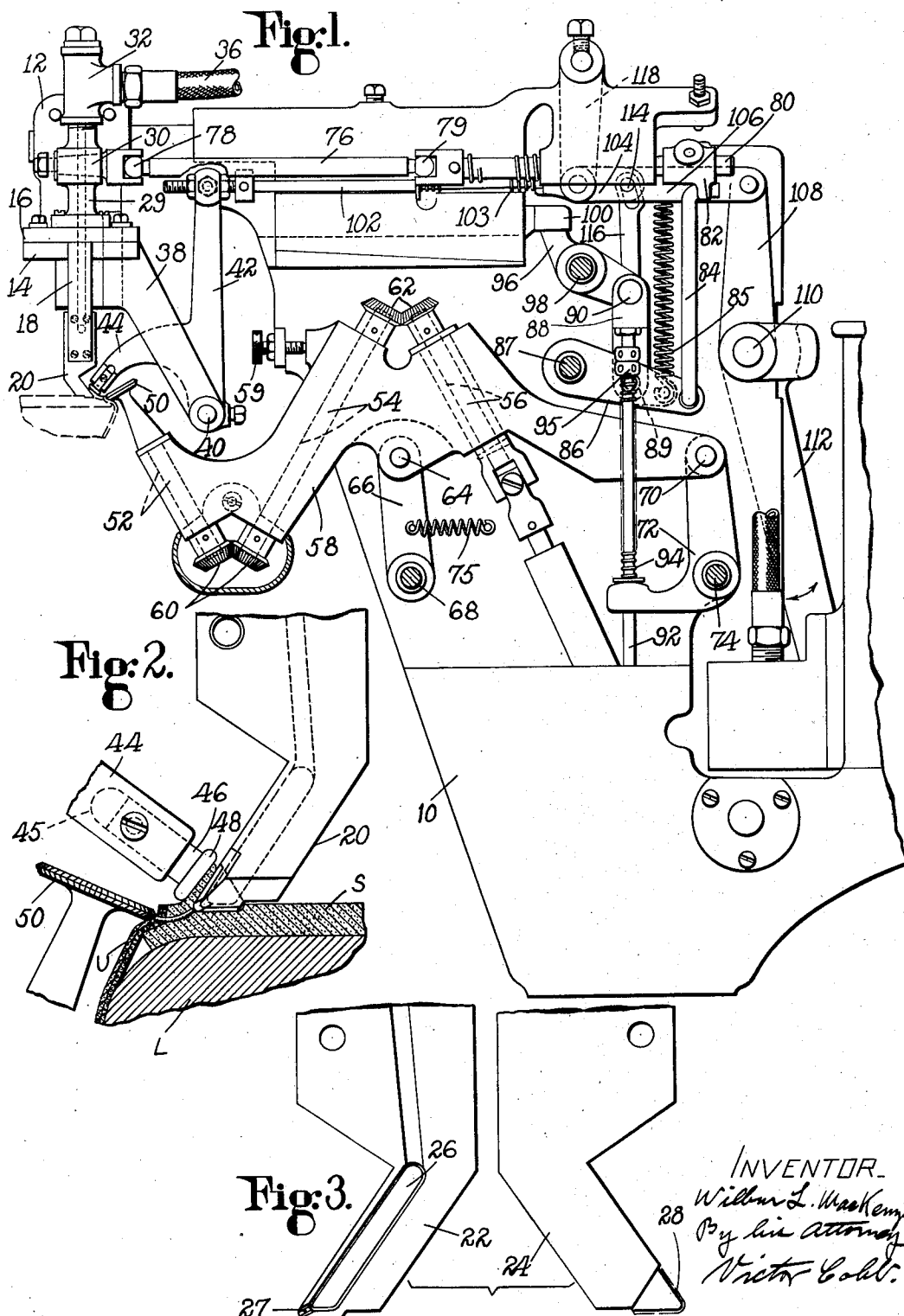
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TURN SHOE CEMENTING MACHINE

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TURN SHOE CEMENTING MACHINE

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This invention relates to machines for applying cement to work parts and is herein illustrated as embodied in a machine for cementing the adjacent faces of a channel provided in the sole of a turn shoe, which machine is of the type disclosed in United States Letters Patent 2,098,253, granted November 9, 1937, on an application filed in my name. It is to be understood, however, that the invention is not limited to machines of that particular character.

In the manufacture of turn shoes, it is customary to provide a channel in the sole, the channel being cut in from one face of the sole toward the edge thereof. The channel serves the purpose of hiding one row of the stitches of the inseam uniting the marginal portion of the shoe upper with the sole. The channel flap, having its fixed end or edge nearer to the sole edge than its loose or free end, is raised before the sewing operation and then, after the stitches have been laid into the channel, is turned back into full engagement with the sole.

To my knowledge, it has been the general custom heretofore, merely to turn the channel flap back into engagement with the channel after the inseaming operation, no means being employed to secure the channel flap permanently in its stitch-covering position. As one of the reasons for that procedure may be mentioned the lack of suitable means for properly and adequately applying cement to the channel of a turn shoe differing, as explained, from most outsole channels in its position with respect to the periphery of the sole.

It is, therefore, an object of the invention to provide means for applying cement to the angularly-disposed faces of a channel provided in the sole of a turn shoe.

To that end, and in accordance with one feature of the invention, the illustrated machine is provided with a tapered nozzle and a cooperating oscillatory member for holding the channel flap in cement-receiving contact with one side of the nozzle. The flap-holding member is located at the side of the nozzle facing the machine, since the channel flap of a turn shoe presented to the machine is located at that side of the nozzle.

In accordance with another feature of the invention, there is provided in the illustrated machine a driven feed wheel which engages the upper of the turn shoe to be cemented substantially along the outer row of stitches uniting the upper with the sole. This feed wheel causes the shoe to be moved past the nozzle and is arranged

on the same side of the nozzle as the above-mentioned flap-holding member.

The above and other features of the invention will now be more particularly described with reference to the accompanying drawing and thereafter pointed out in the claims.

In the drawing:

Fig. 1 is a side view of a preferred embodiment of the invention showing a machine with its various moving parts in their operative positions;

Fig. 2 is a side view of the principal work-engaging instrumentalities of the machine illustrated in Fig. 1 and viewed in the opposite direction; and

Fig. 3 is a view of certain parts of a nozzle with which the machine illustrated in Fig. 1 is provided.

The invention is illustrated as embodied in a machine of the type described in United States Letters Patent 2,098,253 mentioned above and reference may be made to that patent for a description of the machine structure not fully shown herein. The machine as illustrated herein is especially adapted to apply cement to the bottom portion and inside face of a channel provided in a sole S (Fig. 2) of a turn shoe mounted on a last L. As is common, the marginal portion of the shoe upper U is received in a shoulder portion provided around the margin of the shank portion and forepart of the sole S and is held there by an inseam, the inner row of stitches of which is laid in the said channel provided in the sole S.

For the purpose of applying cement to the channel of the sole S, the illustrated machine is provided with cement-applying means, channel-flap-engaging means, and work-feeding means the construction and function of which will now be described. On a frame 10 (Fig. 1) is secured a carrier 12 supporting a nozzle for applying cement to the channel of the sole S. The lower portion of the carrier 12 is provided with spaced laterally-extending flanges 14 (Fig. 1) which support a T-shaped block 16 fitted in the space between the flanges. The block 16 is hollow and carries at its lower extremity a hollow nozzle stem 18 which is in communication with the hollow interior of the block 16. The nozzle stem 18 is downwardly inclined laterally of the machine and its lower end is cut off along a vertical plane. Secured to the lower end of the nozzle stem 18 is a nozzle 20 comprising two plates 22, 24 shaped as illustrated in Fig. 3. The nozzle plates 22, 24 when placed in juxtaposition and clamped together form the nozzle 20. The inner face of the

plate 22 is provided with a groove 26 and when the nozzle 20 is mounted in its place in the machine, the upper end of the groove 26 is in communication with the hollow interior or conduit of the nozzle stem 18. The two plates 22, 24 are secured with their inner faces engaging each other to the lower end of the nozzle stem 18 by means of screws which simultaneously serve to clamp the nozzle plates 22, 24 securely together. At the lower end of the groove 26, which in the clamped-together condition of the nozzle plates 22, 24 forms a passage for the cement through the nozzle 20, is provided a smaller groove 27 (Fig. 3) through which the cement is extruded out of the tapered lower end or tip of the nozzle. The side edges of the tip portion of the plate 24 are cut back and the tip portion itself is reduced in thickness, thereby providing lateral outlet passages 28 for the cement so that the cement is uniformly applied to the inner face of the flap portion as well as the bottom face of the channel provided in the sole S.

At its upper end the block 16 is in communication with a conduit 29 provided at its lower end with a flange firmly secured to the top face of the block 16. The conduit 29 through which cement is pumped under pressure into the nozzle stem 18 in a manner described in the aforesaid United States Letters Patent is provided with a shut-off valve 30 which is controlled by mechanism to be described later. The upper end of the conduit 29 is threaded in a T-fitting 32 one end of which is closed by a slug for which a pressure gage may be substituted as shown in the Letters Patent mentioned above, and the other end of which is in communication with a flexible tube 36 through which the cement is pumped under pressure.

To support the flap portion of the channel during the cement-applying operation, and particularly to hold the flap portion which has a wavy and irregular shape against the cement-applying nozzle so that a uniform coat of cement may be applied, the machine is provided with special flap-supporting means. The lower end of the above-mentioned carrier 12 is provided with a rearwardly- and downwardly-extending bracket 38 carrying at its lower extremity a pivot pin 40 for a lever 42. The lever 42 is provided with a forwardly-extending downwardly-curved arm 44 having a groove 45 in its forward end extending longitudinally of the arm 44 in which is adjustably secured the stem portion 46 of a flap-supporting member 48. As will be described, the machine is provided with means for imparting oscillatory movements to the lever 42 such that the flap-engaging member 48 has an oscillatory or vibrating movement into and out of contact with the channel flap to work the flap into cement-receiving position against the nozzle.

For the purpose of feeding the work presented to the machine there is provided a feed wheel 50 (Figs. 1 and 2) the periphery of which is conically shaped in cross-section and engages the marginal portion of the shoe upper U along the in seam. The feed wheel 50 is positively driven by driving means. The feed wheel 50 and its stem portion are secured to the upper end of an inclined shaft 52 rotatably mounted in a supporting member 58 and driven by means of angularly-disposed shafts 54 and 56 mounted in suitable bearings in the supporting member 58. Driving connection between the shafts 52 and 54 is established by means of intermeshing gears 60 provided at the lower extremities of these shafts and driving connection between the shafts

54 and 56 is established by means of intermeshing gears 62 provided at the upper extremities of these said shafts. The support 58 for the shafts 52, 54, 56 is movable forwardly, to a limit defined by a stop screw 59, and rearwardly of the machine in a substantially horizontal plane. For that purpose there is pivotally secured to its mid-portion at 64 an upwardly-extending arm 66 fulcrumed on a fixed pin 68 in the frame 10. The rearward extremity of the support 58 is pivotally secured at 70 to the upwardly-extending arm of a bell crank lever 72 rotatably mounted on a fixed pin 74. As will be seen, the arm 66 and the upwardly-extending arm of the bell crank 72 are substantially equal in length and constitute a parallel linkage for restricting the movement of the supporting member 58 in a substantially horizontal direction. A spring 75 between the frame and the arm 66 draws the member 58 into the frame and away from the work when the machine is idle.

It will be noted that the tip of the nozzle 20 and, more particularly, the top face of the nozzle tip against which the channel flap is held, is inclined toward the right in Fig. 1 or inwardly of the machine, whereas the top of the feed wheel 50 is inclined in the opposite direction, namely toward the left in Fig. 1 or outwardly of the machine. The flap-engaging member 48 is arranged to oscillate over the top of the feed wheel to press the flap against the top face of the nozzle tip. Moreover, since the rigidly-mounted nozzle to which the shoe is presented by the operator points inwardly of the machine, the feed wheel 50 which engages the shoe upper U near its point of attachment to the sole S, serves, as it is moved outwardly of the machine, to press the sole S against the nozzle, thereby to seat, if necessary, the nozzle in the sole channel.

The above-mentioned shut-off valve 30 which controls the amount of cement applied to the work is operated by means of a horizontal rod 76, one extremity of the rod being connected by means of a ball joint 78 to the valve stem and the other extremity thereof being connected by means of a ball joint 79 to a horizontal rod 80 provided at its rearward extremity with a laterally-extending arm 82. The free end of the arm 82 is pivotally secured to the upper end of a link 84 the lower end of which is secured to one end of an arm 86 rotatably mounted on a fixed pin 87. A spring 85 tends to swing the arm 86 into its inoperative elevated position and maintain the valve closed. The arm 86 may be operated by means of a treadle (not shown) and for that purpose it carries about midway between its ends a pin 89 engaging a slot provided in a plate extending downwardly from a block 88, substantially as shown in the Letters Patent above referred to. Secured to the block 88 is the upper end of a treadle rod 92 surrounded by a spring 94, the upper end of which abuts against a nut 95 on the rod 92. The lower end of the spring 94 is seated on the horizontal arm of the bell crank 74 which surrounds the treadle rod 92, the spring 94 serving to transmit the movements of the rod 92 to the bell-crank 72. Pivotally secured at 90 to the block 88 is a two-armed lever 96 rotatably mounted on a fixed pin 98. The lever 96 upon depression of the treadle is swung in a clockwise direction, as viewed in Fig. 1, until its left-hand arm engages with a fixed stop 100, thereby determining the extent of downward movement of the treadle rod 92 and the movement of the feed wheel 50, controlled by the

movement of the treadle rod 92, into shoe-engaging position.

For the purpose of imparting oscillatory motions to the flap-supporting member 48, the upper end of the lever 42 is pivotally connected to the forward end of a horizontal bar 102 the rearward end of which is connected, as in a machine of the above-mentioned United States Letters Patent, to a toggle 104, 106, a spring 103 surrounding the rod 102 tending to move the rod 102 toward the right of Fig. 1 for the purpose of moving the flap-supporting member 48 into its inoperative position. The rearward end of the toggle member 106 is pivotally secured to a substantially vertical lever 108 fixed on a shaft 110 mounted in suitable bearings in the machine frame. Also secured to the shaft 110 is a downwardly-extending lever 112 to which oscillatory movements are imparted by a cam means (not shown) identical to that for imparting oscillatory motions to the corresponding member of the machine disclosed in the said United States Letters Patent.

For the purpose of breaking or straightening the toggle 104, 106 so that either oscillatory motions of the arm 108 are imparted to the lever 42 and to the flap-engaging member 48 or, in the broken position of the toggle, the lever 108 is swung idly, there is provided a link 116, in the slotted upper end of which is received the fulcrum stud 114 connecting the two toggle members 104, 106. The lower end of the link 116 is pivotally secured at 90 to the block 88 controlled by the treadle rod 92.

The toggle member 104 is supported by an arm 118, the lower end of which is pivotally secured to the said toggle member and the upper end of which swings on a fixed fulcrum stud.

In the operation of the machine the work is presented by the operator to the machine in such a position, that the outer row of stitches of the in seam is engaged by the feed wheel 50, and that the tip portion of the nozzle 20 extends into the channel of the sole as illustrated in Fig. 2, and that the flap-supporting member 48 is located adjacent to the flap portion of the channel. Upon depression of the treadle and downward movement of the treadle rod 92, the spring 94 surrounding the treadle rod 92 presses against the forwardly-extending horizontal arm of the bell crank lever 72 which controls the movement of the support 58 for the feeding wheel 50, with the result that the feed wheel presses the work away from the machine and seats the nozzle in the channel. The arm 86 which is held in its inoperative uppermost position by the spring 85 is swung downwardly, after the machine parts have moved through the lost motion 89, to open the valve 30 and permit cement to be extruded through the nozzle 20 into the channel of the sole S of the turn shoe. Moreover, through the downward movement of the treadle rod 92 and the block 88 the link 116 is moved downwardly with the result that the toggle 104, 106 is straightened, the flap-supporting member 48 is moved into operative position and the oscillatory motions of the continuously operated lever 108 are transmitted, through the straightened toggle 104, 106 and the rod 102, to the lever 42 and the flap-supporting member 48. By reason of the vibratory movement of the flap-supporting member 48, the flap, even if it should have an extremely wavy and irregular shape, is intermittently pressed against the cement-applying nozzle so that a uniform coat of cement may be applied to

the inner face of the channel flap as well as the channel bottom.

Upon release of the treadle, the treadle rod 92 is moved upwardly by the spring 85. The valve 30 is immediately closed by the upward movement of the arm 86 under the influence of its spring 85. The toggle 104, 106 is broken by the upward movement of the link 116 so that the lever 108 no longer imparts oscillatory motions to the lever 42, the flap supporting member 48 being moved rearwardly into inoperative position by means of the spring 103 surrounding the rod 102. The machine is now ready for the presentation of a new shoe to be operated upon.

Having thus 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 cementing the angularly-disposed faces of a channel provided in the sole of a turn shoe, a stationary tapered nozzle pointing inwardly of the machine and a shoe-engaging member movable outwardly of the machine so as to press the shoe against the nozzle.

2. In a machine for cementing the angularly-disposed faces of a channel provided in the sole of a turn shoe, a tapered extruding nozzle pointing inwardly of the machine, a shoe-engaging member movable outwardly of the machine so as to press the shoe against the nozzle, and a member for holding the channel flap in cement-receiving contact with the nozzle.

3. In a machine for cementing the angularly-disposed faces of a channel provided in the sole of a turn shoe, a rigidly-mounted tapered nozzle pointing inwardly of the machine, a shoe-engaging and feeding member movable outwardly of the machine, and an oscillating member for holding the channel flap in cement-receiving contact with the nozzle.

4. In a machine for cementing the angularly-disposed faces of a channel provided in the sole of a turn shoe, a nozzle for engaging the said channel, a driven feed wheel on one side of the nozzle engaging the lasted upper of the said turn shoe, and a channel-flap-supporting member located at the same side of the nozzle as the feed wheel for holding the channel flap against the nozzle.

5. In a machine for cementing the angularly-disposed faces of a channel provided in the sole of a turn shoe, a nozzle for engaging the said channel, a driven feed member engaging the lasted upper of the said turn shoe to feed the said shoe past the nozzle, and an oscillatory member located between the said nozzle and the said feed member for holding the channel flap against the nozzle.

6. In a machine for cementing the angularly-disposed faces of a channel provided in the sole of a turn shoe, a rigidly-mounted nozzle engaging within said channel, and a feed member engaging the upper of said shoe near its point of attachment to the said sole, whereby the sole is pressed against the nozzle.

7. In a machine for cementing the angularly-disposed faces of a channel provided in the sole of a turn shoe, a rigidly-mounted nozzle engaging within said channel, a feed member engaging the upper of said shoe near its point of attachment to the said sole to press the sole against the nozzle, and a channel-flap-engaging member for holding the channel flap against the nozzle.

8. In a machine for cementing the angularly-disposed faces of a channel provided in the sole

of a turn shoe, a rigidly-mounted nozzle engaging within said channel, a movable feed member engaging the upper of said shoe near its point of attachment to said sole to press the sole against the nozzle, and an oscillating channel-flap-engaging member for holding the channel flap against the nozzle.

9. In a machine for cementing the angularly-

disposed faces of a channel provided in the sole of a turn shoe, a nozzle having the top face of its tip portion inclined in one direction, a feed wheel inclined in the opposite direction, and a flap-engaging member arranged over the top of the feed wheel to press the channel flap against the said top of the nozzle.

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