No. 876,482.

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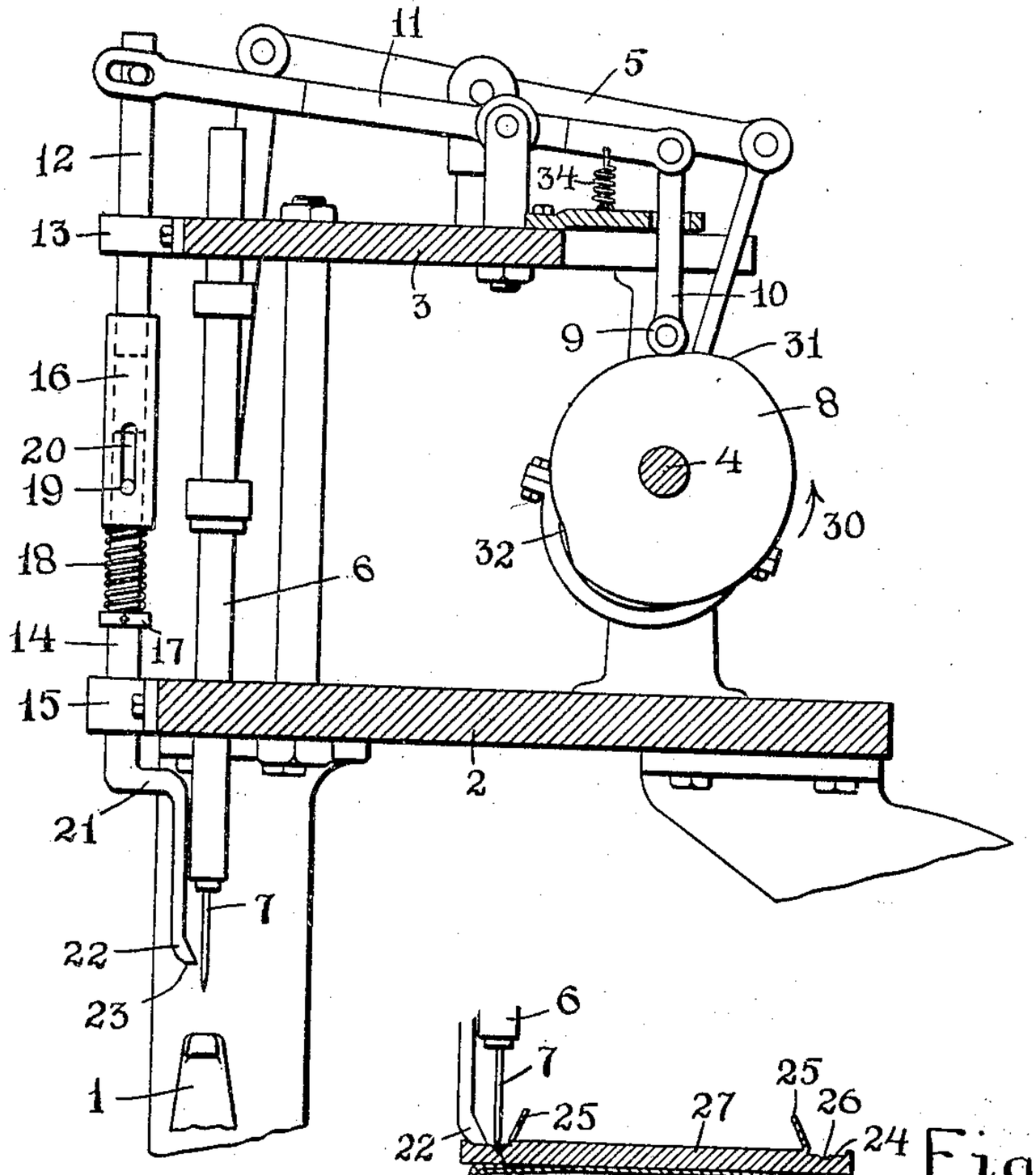
N. H. MURPHY & G. H. PUTNAM.

SEWING MACHINE FOR BOOTS AND SHOES.

APPLICATION FILED APR. 21, 1906.

Fig. 1.



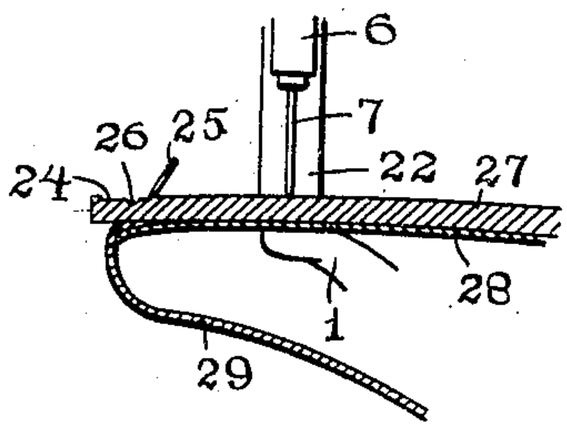


Fig. 4.

Fig. 2.

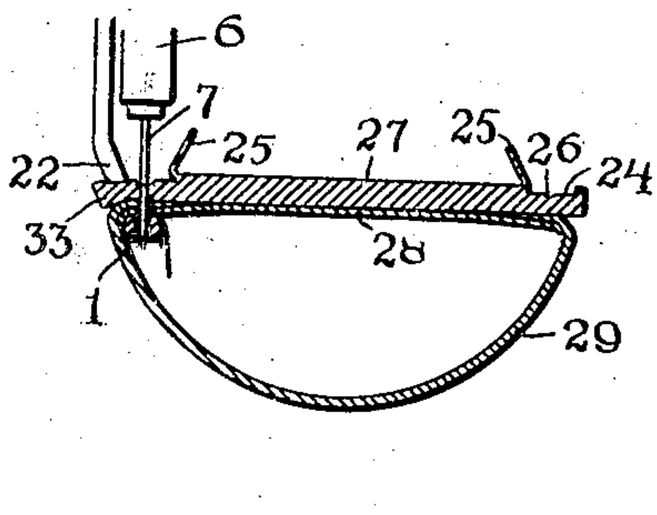


Fig. 3.

Witnesses

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UNITED STATES PATENT OFFICE.

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SEWING-MACHINE FOR BOOTS AND SHOES.

No. 876,482. Specification of Letters Patent. Patented Jan. 14, 1908.

Application filed April 21, 1906. Serial No. 313,085.

To all whom it may concern:

Be it known that we, NATHANIEL H. MURPHY, of Hopkinton, in the county of Middlesex and Commonwealth of Massachusetts, and GEORGE H. PUTNAM, of Westboro, in the county of Worcester and said Commonwealth, both citizens of the United States, have invented a new and useful Improvement in a Sewing-Machine for Boots and Shoes, of which the following is a specification, accompanied by drawings forming a part of the same, in which—

Figure 1 represents a side elevation of such parts of a sewing machine as are necessary to illustrate the nature and operation of our present improvement. Figs. 2 and 3 are sectional details illustrating the operation of our invention. Fig. 4 is a front view of a portion of a shoe showing the relative position of the needle and the device for depressing the edge of the outer sole, during the operation of forming a stitch.

Similar reference letters and figures refer to similar parts in the different views.

The outer sole of a boot or shoe sewed upon a Mackay sewing machine is apt to warp or curl causing the outer edge of the shoe to project beyond the outer surface of the sole, requiring that the sole be "leveled" by the application of a powerful pressure to its outer surface in order to bring the outer surface of the sole into a uniform plane to facilitate the buffing and finishing of the shoe.

Our present invention has for its object to obviate the warping or curling of the outer sole of a shoe when sewed upon a Mackay sewing machine. We accomplish this result by applying to the outer edge of the sole and outside the stitch channel during the operation of sewing and at a point opposite the needle, a pressure sufficient to slightly depress the edge of the sole and bending it downward over the side of the horn while the chain stitch made by the Mackay sewing machine is being formed.

We do not wish to confine ourselves to any specific mechanism by which pressure is applied to the edge of the sole, but in the present embodiment of our invention this is effected by means of a vertically reciprocating yielding pressure bar, the lower end of which is applied to the edge of the outer sole opposite the needle during the downward and upward movement of the needle through the outer sole.

Referring to the accompanying drawings, Fig. 1 shows a fragmentary portion of the upper part or head of a Mackay sewing machine in which 1 denotes the horn above which is a base plate 2, and supported above the plate 2 is a parallel plate 3 forming a portion of the framework for the operative parts of the machine. Journaled in suitable bearings in the framework is a cam shaft 4 carrying a cam, not shown, by which the walking beam 5 is actuated to impart an up and down movement of the needle bar 6, carrying at its lower end a needle 7. Carried upon the cam shaft 4 is a cam 8 having a peripheral cam face upon which rides a cam roll 9 carried upon the lower end of a link 10 pivotally connected to one end of a rocking lever 11. The opposite end of the lever 11 is operatively connected with a vertically sliding plunger 12 having a movement in a bearing 13, supported by the framework of the machine, and having a telescopic connection with a pressure bar 14 sliding in a bearing 15 attached to the base plate 2. The pressure bar 14 slides within a sleeve 16 attached to the lower end of the plunger 12 and between the lower end of the sleeve 16 and a collar 17 attached to the pressure bar, I insert a spiral spring 18. The pressure bar 14 is held from rotating within a sleeve 16 by means of a stud 19 sliding in a slot 20 formed in the sleeve 16.

The pressure bar 14 is bent at 21 to bring its foot 22 in proximity to the needle 7. The reciprocating movement of the foot 22 is so timed that as the needle enters the outer sole the foot 22 will be brought against the outer sole opposite the needle and between its edge and the stitch channel. The lower surface 23 of the foot is preferably so shaped as to fit within the recess 24 formed in the outer sole by raising the flap 25. Within the recess 24 is formed the usual stitch channel 26 for the sewed seam.

In Figs. 2, 3 and 4 I have shown the relative position of the foot 22 and needle 7 during the operation of forming a stitch. In these figures 27 denotes the outer sole, 28 the inner sole, and 29 the upper. During the operation of sewing the cam 8 revolves in the direction of the arrow 30, Fig. 1, and as the cam roll 9 rides upon the raised surface of the cam between the points 31 and 32 the foot 22 is brought into contact with the edge of the outer sole, approximately at the time

the needle 7 enters the channel 26, and the pressure upon the sole is increased sufficiently to slightly depress the edge of the outer sole, as shown at 33, Fig. 3, while the needle is completing its downward movement and during the operation of its upward movement, causing the thread to be drawn through the outer sole and into a channel 26, while a strain is being applied to the leather by the depression of the outer edge of the sole.

We have found by experiment that boots and shoes sewed upon a Mackay sewing machine in which a strain was applied to the outer sole by the depression of its edge opposite the needle, while the stitch was being formed, entirely obviates the curling or warping of the outer sole after the sewing is completed. As the needle approaches the end of its upward stroke the cam roll 9 approaches the point 32 on the periphery of the cam 8, causing the pressure bar to be quickly lifted by the action of a spiral spring 34, Fig. 1, which connects the framework of the machine with the rocking lever 11; causing the pressure bar to be retracted to the position shown in Fig. 1. The employment of a pressure bar having a yielding telescopic joint and actuated by a cam, such as cam 8, carried upon the cam shaft 4, is not a necessary embodiment of our invention, but this method of applying the pressure by means of a vertically reciprocating pressure bar and actuating the same by a cam placed upon the cam shaft 4, is a convenient means of accomplishing the depression of the outer edge of the sole during the operation of sewing upon an existing Mackay sewing machine, requiring but little change in the structure of the machine.

What we claim as our invention and desire to secure by Letters Patent is:—

1. In a boot and shoe sewing machine, the combination of a horn for supporting the sole in the plane of the stitch channel and a reciprocating bar for depressing the edge of the sole outside the stitch channel, whereby a bending strain is imparted to the sole over the edge of the horn.

2. In a boot and shoe sewing machine, the combination with a supporting horn and a reciprocating needle, of means in contact with the sole to be stitched at a point outside of that portion supported by said horn, for bending said sole over the edge of said horn while said needle is passing through said sole.

3. In a machine of the class described, the combination with a reciprocating needle and a horn for supporting the shoe, of means for depressing the outer edge of the sole over the edge of the horn during the passage of the needle through the sole, whereby a bending strain is imparted to the sole in the plane of the stitch channel.

Dated this sixteenth day of April, 1906.

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Witnesses:
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