

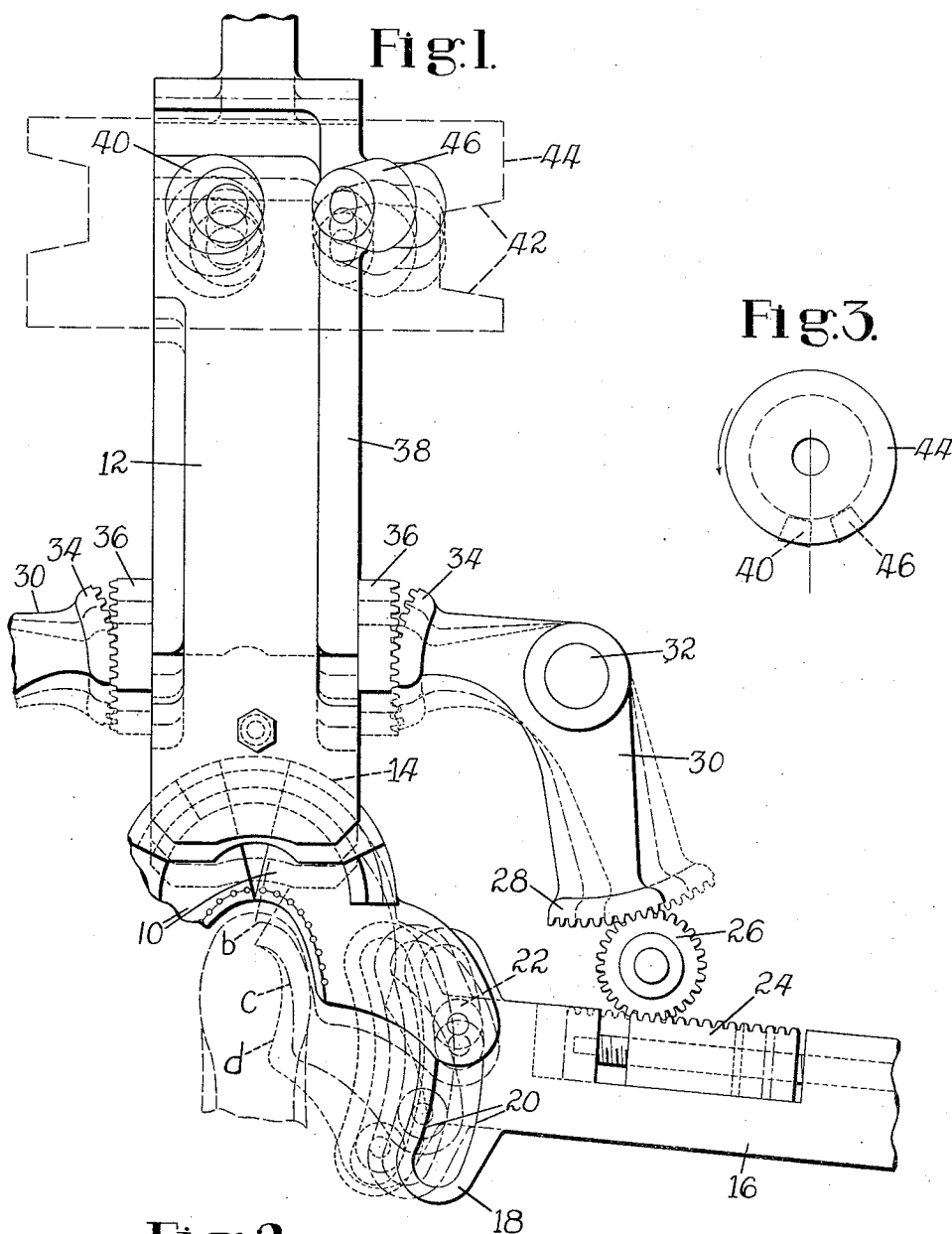
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LASTING MACHINE

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UNITED STATES PATENT OFFICE

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LASTING MACHINE

Application filed September 10, 1931, Serial No. 562,083, and in Great Britain October 3, 1930.

This invention relates to lasting machines for use in the manufacture of shoes, and more particularly to end-lasting machines having wipers for embracing an end of an upper and for wiping its marginal portion inwardly over a sole or insole. It is a special object of the invention to effect improvements in machines for lasting the heel ends of shoes, and the invention is accordingly herein illustrated as applied to a machine of that kind, but it is to be understood that in its more general aspects it is likewise applicable to machines for lasting the toes of shoes.

In machines of the above-mentioned character the end-lasting wipers are operated by advancing them bodily lengthwise of the shoe and closing them toward each other laterally of the shoe. An object of the present invention is to improve, under some conditions of shoe manufacture, the results of the lasting operation performed by such wipers, especially at the sides of the shoe bottom at and near the forward ends of the wipers, and more particularly to avoid any undue displacement lengthwise of the shoe of the marginal portion of the upper materials in those locations. To this end the invention provides novel means for operating the wipers in such manner as to eliminate, at least for the most part, advancing movement of the wipers lengthwise of the shoe when operating on portions of the upper comparatively remote from the end face of the shoe, the construction shown being such that the wipers are advanced and closed simultaneously to wipe the margin of the upper inwardly around the rear portion of the heel seat while only beginning to wipe it inwardly at the forward end of the heel seat, and are then further closed without advancing movement to complete the overwiping operation. The forward end portions of the wipers accordingly perform most of their operation on the upper without any bodily advance of the wipers lengthwise of the shoe, so that there is no danger of objectionable forward displacement of portions of the upper materials, including the wings of the counter, near the shank portion of the shoe bottom. To operate the wipers in the above-described manner, the

machine herein shown is provided with members that are movable independently of each other to advance and to close the wipers respectively, these members, as illustrated, comprising slides which carry rolls engaged and operated by a single cam that moves the slides in such time relation to each other as to produce the desired results. The construction shown is further such that prior to the beginning of the simultaneous advancing and closing movements of the wipers over the shoe they receive advancing movement only, to bring them close to and, it may be, a little over the edge of the rear end of the heel seat.

The novel features of the invention will now be more particularly described by reference to the accompanying drawing and pointed out in the claims.

In the drawing,

Fig. 1 is a plan view of a portion of a heel-end-lasting machine in which the invention is embodied, illustrating different positions of the wipers and associated parts in the course of the operation of the machine;

Fig. 2 is a diagrammatic view illustrating the shape of the wiper-operating cam and its relation to the rolls that it engages; and

Fig. 3 is an end view of the cam member.

For purposes of illustration the invention is herein shown as applied to a machine of the type disclosed in Letters Patent No. 1,852,015, granted on April 5, 1932, upon an application of Jacob C. Jorgensen. As more fully disclosed therein, the machine comprises, for wiping the marginal portion of the heel end of an upper inwardly into lasted position over a sole or insole on a last, a pair of wipers curved to embrace the heel end of the upper and formed to extend forwardly at the sides of the heel seat at least as far as the beginning of the shank portion of the shoe bottom when the wipers are in fully advanced and closed positions. These wipers are supported on a member or slide 12 which is movable to advance them bodily lengthwise of the shoe, and by curved guiding connections 14 more fully disclosed in the above-mentioned Letters Patent they are mounted for swinging movements about an axis located near the rear end of the heel seat to close them inwardly to-

ward each other laterally of the shoe. For imparting the swinging or closing movements to the wipers there are provided slides 16, one for each wiper, mounted on the frame of the machine for movements laterally of the shoe, each slide having an end portion 18 provided with a slot 20 in which is mounted a roll 22 carried by the adjacent wiper. The slots 20 extend lengthwise of the shoe to permit advancing movement of the wipers relatively to the slides 16. Each of the slides 16 carries a rack bar 24 engaged by a pinion 26 which is engaged and operated by a curved rack 28 formed on one end of a bell-crank lever 30 pivoted at 32 on the frame of the machine, the other end of this lever having thereon a curved rack 34 engaged and operated by a rack bar 36. These various parts, as illustrated, are all substantially as disclosed in the above-mentioned Letters Patent.

For purposes of this invention the two rack bars 36 are carried by a wiper-closing member or slide 38 which is operated independently of the wiper-advancing slide 12. The wiper-advancing slide 12 carries a roll 40 engaged and operated by a path cam 42 formed in a rotatable cam wheel 44 and arranged similarly to the wiper-operating cam shown in the above-mentioned Letters Patent. In the construction herein shown the wiper-closing slide 38 is provided with a roll 46 engaged and operated by the same cam 42 that operates the slide 12. This cam, as shown in Fig. 2, has an inclined portion *a* whereby operative movements are imparted to the wipers through the different rolls and slides. It will be observed that in the operative movement of the cam its inclined portion *a* first engages and acts on the roll 40 to impart advancing movement lengthwise of the shoe to the slide 12 and the wipers before it arrives in position to impart any movement to the slide 38. Thereafter, in the continued movement of the cam, its inclined portion operates on both rolls 40 and 46 to impart simultaneous advancing and closing movements to the wipers. In its further movement the inclined portion of the cam ceases to operate the slide 12 while continuing its operation of the slide 38, so that the wipers are closed inwardly toward each other without any advancing movement lengthwise of the shoe. With reference to the operations performed on the shoe, the construction is such that the wipers are first moved substantially half-way along their path of advance without any closing movements, thus bringing their wiping edges to the positions indicated by broken lines at *b* in Fig. 1 in which they may, as illustrated, slightly overlap the rear end of the heel seat. The wipers then receive simultaneous advancing and closing movements to wipe the margin of the upper inwardly around the rear portion of the heel seat while only beginning to wipe it inwardly

at the forward end of the heel seat near the shank portion of the shoe bottom, their positions at the end of these movements being illustrated at *c*. At this point they have received substantially half of their closing movements. After the wipers have arrived in these positions their closing movements are continued without any advancing movement to complete the overwiping operation at the sides of the heel seat, as illustrated at *d*. It will thus be seen that the wipers perform the greater portion of their operation on the upper at the forward end of the heel seat near the shank without any substantial bodily advancing movement lengthwise of the shoe. The portions of the upper materials, including the wings of the counter, which are operated upon by the forward end portions of the wipers are thus wiped inwardly over the heel seat widthwise of the shoe without danger, on any work, of objectionable forward displacement of the materials. This not only results in a well-lasted heel seat, but avoids the possibility of conditions such as might detract from the best results in the lasting of the shank portion of the shoe near the heel seat.

It will be evident from the foregoing description that the desired results are obtained without the necessity for any modification of the wipers themselves, which may be constructed as heretofore in heel-seat-lasting machines of the type disclosed in the Letters Patent referred to, or of other types, and that the changes necessary in such machines to accomplish the end in view are comparatively simple and readily effected. It will further be evident, as hereinbefore suggested, that in its more general aspects the invention is not limited to heel-seat-lasting machines, but is likewise applicable to machines for lasting the toe ends of shoes in which it may, under some conditions, be utilized with desirable results.

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

1. In a machine for lasting the heel ends of shoes, the combination with wipers formed to embrace an upper around the heel end of a shoe, of operating means for advancing said wipers bodily lengthwise of the shoe and for closing them toward each other laterally of the shoe, said operating means being so constructed as to impart to the wipers simultaneous advancing and closing movements to wipe the margin of the upper inwardly around the rear portion of the heel seat while only beginning to wipe it inwardly at the forward end of the heel seat and then to continue the closing of the wipers without any substantial advancing movement to complete the overwiping operation at the forward end of the heel seat.

2. In a machine for lasting the heel ends

of shoes, the combination with wipers formed to embrace an upper around the heel end of a shoe, of members arranged respectively to impart to said wipers advancing movement lengthwise of the shoe and closing movements toward each other laterally of the shoe, and cam means for operating said members in such relation to each other as to advance and close the wipers simultaneously to wipe the margin of the upper inwardly around the rear portion of the heel seat while only beginning to wipe it inwardly at the forward end of the heel seat and then to continue the closing of the wipers without any substantial advancing movement to complete the overwiping operation at the forward end of the heel seat.

3. In a machine for lasting the heel ends of shoes, the combination with wipers formed to embrace an upper around the heel end of a shoe, of operating means for advancing said wipers bodily lengthwise of the shoe and for closing them toward each other laterally of the shoe, said operating means being constructed to impart to the wipers automatically first advancing movement without any substantial closing movements to bring them into position to operate upon the upper, then simultaneous advancing and closing movements to wipe the margin of the upper inwardly around the rear portion of the heel seat while only partially wiping it inwardly at the forward end of the heel seat, and then closing movements alone to complete the overwiping operation at the forward end of the heel seat.

4. In a lasting machine, the combination with a pair of end-lasting wipers formed to embrace an upper around an end of a shoe, of operating means for advancing said wipers bodily lengthwise of the shoe and for closing them toward each other laterally of the shoe, said operating means being so constructed as to impart to the wipers advancing movement in wiping engagement with the margin of the upper while simultaneously closing them to positions in which their forward end portions are only beginning to wipe the margin of the upper inwardly, and then to continue the closing movements of the wipers to complete the overwiping operation without any substantial further advancing movement.

5. In a lasting machine, the combination with a pair of end-lasting wipers formed to embrace an upper around an end of a shoe, of members arranged respectively to impart to said wipers advancing movement lengthwise of the shoe and closing movements toward each other laterally of the shoe, and cam means for operating said members in such relation to each other as to advance the wipers lengthwise of the shoe in wiping engagement with the margin of the upper while simultaneously closing them to posi-

tions in which their forward end portions are only beginning to wipe the margin of the upper inwardly, and then to continue the closing movements of the wipers to complete the overwiping operation without any substantial further advancing movement.

6. In a lasting machine, the combination with end-lasting wipers movable bodily to advance them lengthwise of a shoe and mounted also for closing movements toward each other laterally of the shoe, of a member for advancing the wipers, another member for closing them toward each other, and means for operating said members each independently of the other to impart to the wipers simultaneous advancing and closing movements over the shoe and then to continue their closing movements without any substantial advancing movement.

7. In a lasting machine, the combination with end-lasting wipers movable bodily to advance them lengthwise of a shoe and mounted also for closing movements toward each other laterally of the shoe, of a member for advancing the wipers, another member for closing them toward each other, and cam means for automatically operating said members each independently of the other to impart to the wipers simultaneous advancing and closing movements over the shoe and then to continue their closing movements without any substantial advancing movement.

8. In a lasting machine, the combination with end-lasting wipers movable bodily to advance them lengthwise of a shoe and mounted also for closing movements toward each other laterally of the shoe, of a member for advancing the wipers, another member for closing them toward each other, and a cam arranged to act separately on each of said members and constructed to impart to the wipers simultaneous advancing and closing movements over the shoe followed by closing movements only.

9. In a lasting machine, the combination with end-lasting wipers movable bodily to advance them lengthwise of a shoe and mounted also for closing movements toward each other laterally of the shoe, of a member for advancing the wipers, another member for closing them toward each other, each of said members having a roll thereon, and cam means engaging said rolls and constructed to impart to the wipers simultaneous advancing and closing movements over the shoe and then to continue their closing movements without any substantial advancing movement.

10. In a lasting machine, the combination with end-lasting wipers movable bodily to advance them lengthwise of a shoe and mounted also for closing movements toward each other laterally of the shoe, of a pair of slides movable respectively to advance and

to close the wipers, and means for operating said slides in such relation to each other as to impart to the wipers simultaneous advancing and closing movements over the shoe
 5 followed by closing movements without any substantial advancing movement.

11. In a lasting machine, the combination with end-lasting wipers movable bodily to advance them lengthwise of a shoe and
 10 mounted also for closing movements toward each other laterally of the shoe, of a pair of slides movable respectively to advance and to close the wipers, and cam means constructed to move both the slides simultaneously to
 15 advance and close the wipers over the shoe and thereafter to continue the movement of the wiper-closing slide while maintaining the other slide substantially stationary.

12. In a lasting machine, the combination
 20 with end-lasting wipers movable bodily to advance them lengthwise of a shoe and mounted also for closing movements toward each other laterally of the shoe, of a pair of slides movable respectively to advance and
 25 to close the wipers, each of said slides having a roll thereon, and a single cam arranged to engage both the rolls and constructed to move both the slides simultaneously to advance and close the wipers over the shoe and
 30 thereafter to continue the movement of the wiper-closing slide while maintaining the other slide substantially stationary.

13. In a lasting machine, the combination with end-lasting wipers, of a member supporting said wipers and on which they are
 35 mounted for swinging movements toward each other laterally of a shoe, another member for imparting to the wipers their swinging movements, and automatic means for
 40 operating said members each independently of the other to advance the wipers lengthwise of the shoe while swinging them inwardly over the shoe bottom and then to continue their swinging movements without any sub-
 45 stantial advancing movement.

14. In a lasting machine, the combination with end-lasting wipers, of a slide for supporting and advancing said wipers length-
 50 wise of a shoe and on which they are mounted for closing movements toward each other laterally of the shoe, another slide connected to both wipers for imparting to them their closing movements, and cam means for oper-
 55 ating both the slides simultaneously to advance and close the wipers over the shoe and for thereafter continuing the movement of the wiper-closing slide while maintaining the other slide substantially stationary.

15. In a lasting machine, the combination
 60 with end-lasting wipers curved to extend around an end of a shoe, said wipers being movable bodily to advance them lengthwise of the shoe and mounted also for closing movements toward each other laterally of the
 65 shoe, of operating means for imparting to

said wipers first advancing movement without any substantial closing movements, then simultaneous advancing and closing move-
 70 ments, and thereafter closing movements without any substantial advancing move-
 ment.

16. In a lasting machine, the combination with end-lasting wipers curved to extend around an end of a shoe, said wipers being
 75 movable bodily to advance them lengthwise of the shoe and mounted also for closing movements toward each other laterally of the shoe, of automatic cam means for advancing said wipers without any substantial closing
 80 movements, for then closing them while continuing their advancing movement, and for thereafter continuing their closing movements after their advancing movement has substantially ceased.

17. In a lasting machine, the combination
 85 with end-lasting wipers curved to extend around an end of a shoe, said wipers being movable bodily to advance them lengthwise of the shoe and mounted also for closing
 90 movements toward each other laterally of the shoe, of a member for advancing the wipers, another member for closing them toward each other, and means for operating said members each independently of the other to advance
 95 the wipers without any substantial closing movements, then to close them while continuing their advancing movement, and thereafter to continue their closing movements without any substantial advancing move-
 100 ment.

18. In a lasting machine, the combination with end-lasting wipers curved to extend around an end of a shoe, of a slide for sup-
 105 porting and advancing said wipers lengthwise of the shoe and on which they are mounted for closing movements toward each other laterally of the shoe, another slide for im-
 110 parting to the wipers their closing movements, and automatic means for operating first the wiper advancing slide alone, then both slides simultaneously, and thereafter the wiper-closing slide alone.

19. In a lasting machine, the combination with end-lasting wipers curved to extend around an end of a shoe, of a slide for sup-
 115 porting and advancing said wipers lengthwise of the shoe and on which they are mounted for closing movements toward each other laterally of the shoe, another slide for im-
 120 parting to the wipers their closing movements, each of said slides having a roll thereon, and a cam arranged to engage both the rolls and so formed as to operate first the wiper-advancing slide alone, then both slides
 125 simultaneously, and thereafter the wiper-closing slide alone.

20. In a lasting machine, the combination with end-lasting wipers movable bodily to advance them lengthwise of a shoe and
 130 mounted also for closing movements toward

each other laterally of the shoe, of a member for advancing the wipers, another member for closing the wipers, and a single cam arranged to act separately on each of said members.

21. In a lasting machine, the combination with end-lasting wipers movable bodily to advance them lengthwise of a shoe and mounted also for closing movements toward each other laterally of the shoe, of a pair of slides movable respectively to advance and to close the wipers, and a single cam arranged to operate both slides and to move them relatively to each other.

22. In a lasting machine, the combination with end-lasting wipers, of a slide for supporting and moving said wipers lengthwise of a shoe and on which they are mounted for swinging movements toward each other laterally of the shoe, another slide for imparting to both wipers their swinging movements, a roll on each of said slides, and a single cam for engaging said rolls to operate the slides.

In testimony whereof I have signed my name to this specification.

FRED RICKS.

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