

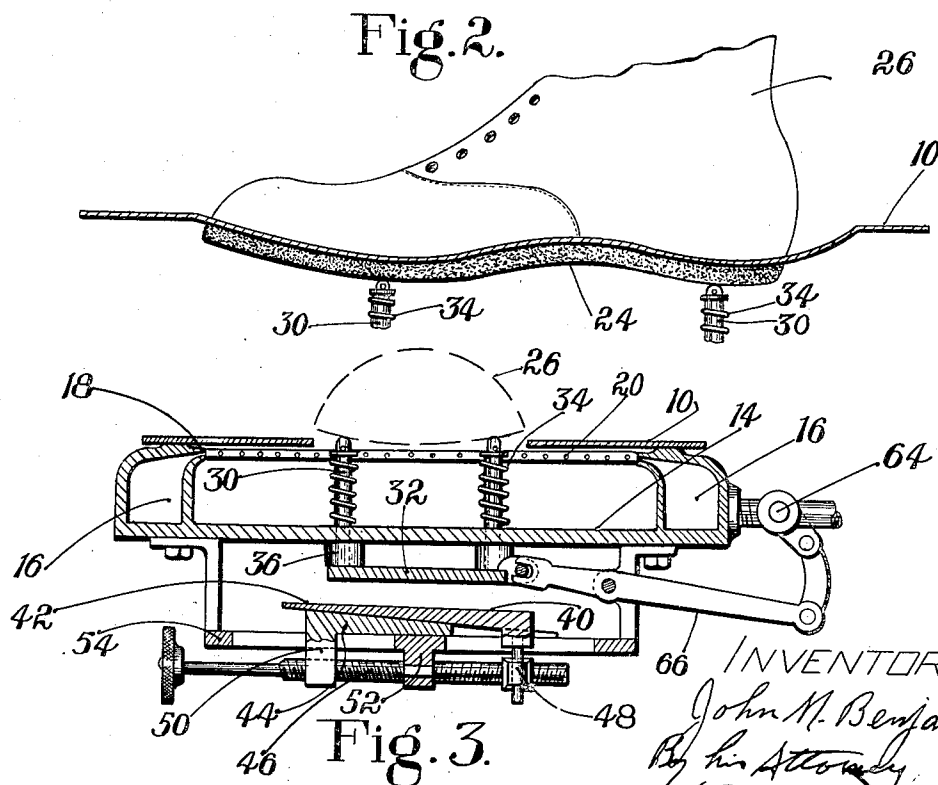
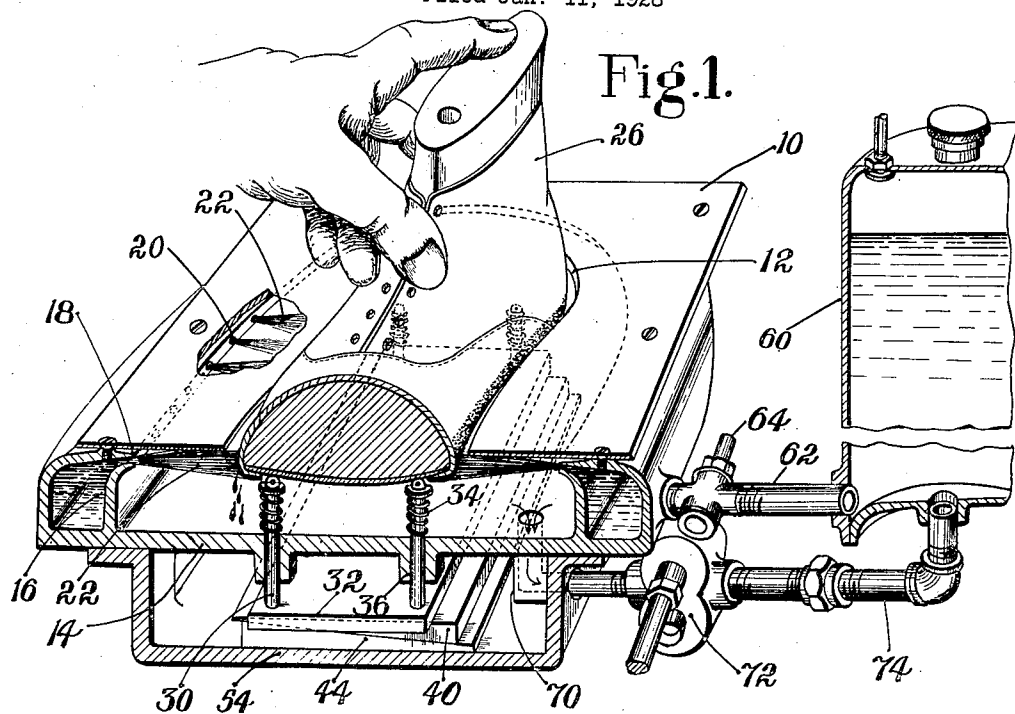
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FOXING CEMENTING

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FOXING CEMENTING

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This invention relates to machines for and methods of applying cement. In its machine aspect, the invention is herein illustrated as embodied in a machine for applying cement to the foxing areas of tennis shoes and the novel method provided by the invention is set forth with special reference to that cement-applying operation, although in various respects the invention is not so limited.

Prior to the application of a rubber sole to a tennis shoe, it is customary to apply a stripe of cement around the lower margins of the sides and ends of the upper of the shoe to hold a thin strip of gum rubber known as the "foxing". The overlapping edge of the rubber sole is vulcanized to the foxing when it is applied to the shoe. Heretofore, the application of such a stripe of cement around the lower portion of the upper of a shoe has generally been effected manually, the application being made by means of a brush held in one of the operator's hands while, with the other hand, the shoe is turned to present its sides and ends to the brush.

It requires considerable skill to apply the cement with sufficient accuracy so that the upper edge of the cement stripe will define even approximately the desired line of demarcation between the foxing area and the portions of the shoe upper above the foxing area and this difficulty is accentuated by the fact that the pay of the operators depends upon the amount of work they turn out, so that the application of cement to the foxing areas is usually performed too rapidly for the best results. If the upper edge of the stripe of cement is not well located, either some of the cement will show above the edge of the strip of foxing, disfiguring the shoe and very likely resulting in making it a "second", or else, in places, the cement stripe will not extend high enough to hold the upper edge of the foxing strip securely.

With the foregoing in mind, an object of the invention is to facilitate the application of cement to the foxing area of a shoe with the desired accuracy and at the same time to make it practicable to perform this operation even more rapidly than heretofore. To this end, I have provided an improved method in

accordance with which the whole upper portion of a shoe is protected or shielded from the application of cement sprayed on the unprotected foxing area. Advantageously, the cement may be projected substantially simultaneously, as by spraying it, upon the whole of the exposed foxing area of the shoe. As herein illustrated and described, a shield mounted in a fixed relation to spraying apparatus is employed and, upon movement of the shoe relatively to the shield, the bottom portion of the shoe is projected through an opening in the shield to expose the foxing area to the application of cement.

Another object of the invention is to provide an improved machine for cementing the foxing areas of shoes, by means of which such cementing may be done accurately while increasing the production and lowering the cost of the cementing.

In accordance with a feature of the invention in its machine aspect, the illustrated machine is provided with a shield constructed and arranged to protect the portions of the upper of a shoe which are not to be coated and comprising a plate having a peripheral portion adapted to be brought into juxtaposition to the shoe upper to define the upper edge of the foxing area. The illustrated shield has an opening shaped to correspond to the peripheral shape of the bottom of a shoe through which opening a right-side-up shoe is inserted and projecting apparatus, illustrated as comprising spray openings, is provided surrounding this opening but below the shield so that cement may be applied simultaneously to all sides of a foxing area exposed beneath the shield.

Preferably, and as illustrated, the flow of cement is controlled by the opening and shutting of a valve effected by movement of a work support as a shoe inserted in the opening in the shield and placed on the support is pressed downwardly to expose the foxing area below the shield and raised after the cement has been applied, the depth of insertion being controlled by adjustment of the work support. Thus, it will be seen that it is only necessary for an operator to insert a lasted shoe through the opening in the

shield and push it into position to expose its foxing area below the shield, whereupon cement will be applied simultaneously to the foxing area all around the shoe and will be limited to this area by the shield.

Still other features of the invention will appear from a consideration of the following description, reference being had to the accompanying drawings, in which

Fig. 1 is a perspective view, partly in section, showing a shoe inserted in a machine embodying the invention and being coated with cement;

Fig. 2 is a side elevation of a shoe showing the relation of the edge of the shield thereto; and

Fig. 3 is a transverse section through the machine.

My novel method of applying cement may be carried out by means of the illustrated apparatus for coating the foxing areas of shoes in which apparatus protection for the portions of the shoe which are not to be coated is afforded by means of a shield 10 in the form of a relatively thin metal plate provided with an opening 12 which substantially corresponds in shape and size to the peripheral outline of the bottom of a shoe to be coated but is large enough to permit passage of the shoe bottom through it. It will be noted from an inspection of Fig. 2 that the shield 10 is curved heightwise to different levels with respect to the top of the shoe to correspond substantially to the heightwise curvature of the desired line of demarcation between the foxing area and the upper part of the shoe, the foxing area band exposed beneath said shield when the shoe is inserted through the opening 12 therein being substantially uniform in width throughout. It will be understood that, preferably, a plurality of such shields will be provided, the openings of which vary in size and shape in accordance with the sizes and shapes of different shoes to be treated, and that these shields will be interchanged at intervals, as the differences in the sizes and shapes of various shoes presented to the machine are sufficient to require it.

The shield 10 is suitably secured to the top edge of a receptacle 14 which is provided with an annular passage 16 surrounding the receptacle. This passage has an inwardly projecting lip 18 provided with a plurality of perforations 20 or spray openings through which cement may be projected in an even spray as at 22 and applied at the same time to the whole vertical extent of as well as to all parts of the foxing area 24 of a lasted shoe 26 presented thereto by the hand of the operator.

As the shoe, positioned right side up, is moved by the operator downwardly through the opening 12 of the shield, it contacts with a depressible work support comprising posts

30 which are secured to a common base plate 32 and are normally held in elevated position by means of springs 34 surrounding each post. The posts 30 are guided in openings in the bottom of the receptacle 14 and pass through bosses 36 surrounding said openings. The movement of the plate 32 is limited by means of an adjustable stop-plate 40 having a horizontal upper surface 42 and an inclined lower surface which is resiliently held in contacting relation with the inclined surface of a wedge-shaped stop member 44 underlying said plate. Adjustment of the position of the upper surface 42 of the stop-plate 40 is effected by means of a right and left screw 46 (Fig. 3) threaded in depending lugs 48 and 50 formed on the members 40 and 44. A reduced middle portion of the screw 46 is journaled in a lug 52 formed on the bottom of a casing 54 which is bolted to the under side of the receptacle 14. Inasmuch as the screw 46 cannot move laterally with respect to the lug 52, it will be seen that it is effective simultaneously to adjust stop members 40 and 44, thereby to adjust the position of the upper surface 42 to determine the extent to which the shoe supports 30 may be depressed and, therefore, the extent of downward movement of the shoe. By means of the adjustment of the stop plate 40 just described, it is possible to determine accurately the position of the upper edge of the foxing area 24 of the shoe relatively to the shield 10 in order that the foxing area may be exposed below the shield, it being only necessary for the operator to place a shoe within the opening 12 of the shield 10 and to push it down against the springs 34 of the work supports until the plate 32 joining said work supports contacts with the upper surface 42 of the stop plate 40.

A supply of cement to be applied to the shoe is contained within a tank 60 which communicates with the annular passage 16 of the receptacle 14 through a pipe 62. Pressure is applied to the contents of the tank by a pump 72 joined to the tank by a pipe 74. This pump is also arranged to draw off from the receptacle 14 through a pipe 70, and thereby recover, surplus cement delivered by the cementing apparatus. Preferably, and as illustrated, a valve 64 is inserted in the pipe 62 so that pressure may be applied to the passage 16 or interrupted. The arrangement is such that the pump 72 is driven continuously during the use of the machine so that the body of cement in the tank 60 is under pressure ready to be projected through the nozzle openings 20 of the lip 18 when the valve 64 is opened by the insertion of a shoe through the shield. The operation of the projecting apparatus is controlled by the insertion of a shoe moved through the opening in the shield to a point where it occupies a fixed relation to the shield and to this end the operation of the valve 64 is made de-

pendent upon the position of the work supports 30 which are normally elevated by the springs 34 but must be depressed in order to position a shoe in the machine. As shown in Fig. 3, the valve 64 is controlled from the depressible work supports by means of a lever 66 pivoted on the casing 54, the lever 66 having one end connected to one end of the plate 32 joining the work supports and its other end linked to the valve 64. Thus the machine is automatic in its operation, depression of the work support as the shoe is pressed downwardly to expose its foxing area below the shield being effective to turn on the supply of cement and to cause it to be projected simultaneously against all sides of the shoe to form a stripe or band of cement covering the foxing area. When the shoe is removed, the springs 34 lift the work supports and the control lever 66 shuts the valve 64.

Because of characteristics inherent in the shapes of shoes, it will be seen that the largest horizontal cross-section of a typical shoe, an example of which is shown in Fig. 1, comes at or near the bottom thereof and that the corresponding cross-section of the shoe at the upper edge of the foxing area is smaller than that of the bottom edge. Hence the opening 12 of the shield does not correspond exactly to the dimensions of the periphery of the shoe along the upper edge of the foxing area in view of the fact that the shoe is to be inserted through this opening from above. The direction of the spray is substantially parallel to the under side of the shield and hence is substantially normal to the surface of the foxing area. Accordingly, it will be seen that the shield and the cement applying means are relatively constructed and arranged so that any portion of the spray which is directed toward a point above the upper edge of the foxing area is deflected by the shield in a substantially horizontal direction. This makes it possible to apply a coating in which the upper edge of the cemented area is sharply defined. It should be noted that it is immaterial whether cement is applied to the bottom of the shoe during the operation of the coating of the foxing area because it is the practice to coat the whole bottom of the shoe after the foxing cementing operation has been completed.

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

1. The method of coating the foxing area of a shoe which consists in shielding at one time all of the upper of the shoe which lies above the foxing area from the application of cement, and, keeping the shielding relation constant, applying cement to a plurality of widely separated parts of the foxing area simultaneously while the shoe is so shielded.
2. The method of coating the foxing area

of a shoe which consists in holding the shoe upright, shielding from the application of cement that fractional part of the upper of the shoe which lies above the foxing area down to a foxing area different parts of the upper boundary of which lie at different levels and spraying cement upon the exposed foxing area while maintaining unchanged the fractional part protected.

3. The method of coating the foxing area of a shoe which consists in bringing into fixed shielding relation a shielding device and the upper of the shoe to protect the part of the upper lying above the foxing area from the application of cement and, while the shielding relation remains fixed, projecting a dispersed spray of cement to coat the whole of the foxing area.

4. The method of coating the foxing area of a shoe which consists in simultaneously shielding all parts of the upper of the shoe above the foxing area, and then applying cement upon the whole of the foxing area at one time while the shoe is so shielded.

5. The method of coating the foxing area of a shoe which consists in holding the shoe in upright position, moving the shoe heightwise of the shoe through the opening of an apertured shielding member to expose the foxing area beneath the shielding member, holding the shoe in fixed relation to said shielding member, and applying cement to a plurality of parts of the foxing area substantially simultaneously.

6. The method of coating the foxing area of a shoe which consists in shielding all of the various parts of the upper portion of an upright shoe above the foxing area at various levels with respect to the top of the shoe to prevent the application of cement thereto whereby a foxing area of substantially uniform width is exposed near the bottom of the shoe, maintaining this width during the coating operation, and applying cement to the foxing area upon opposite sides of the thus shielded shoe simultaneously.

7. In a foxing-cementing, a shield having a shoe-receiving opening corresponding in shape substantially to the peripheral outline of the bottom of a shoe, and cement-projecting means for spraying cement, said shield and said cement-projecting means being relatively constructed and arranged to cause the upper of a shoe to be protected from the application of cement above the foxing area of the shoe upon relative movement of the shoe and the shield heightwise of the shoe to expose the foxing area of the shoe to the action of the cement-projecting means.

8. In a foxing-cementing, a shield adapted to protect a portion of the upper of a lasted shoe from the application of cement and comprising a plate having a peripheral portion shaped to be positioned in close juxtaposition to the upper edge of the foxing area of the

shoe upon relative positioning movement of the shoe and the plate, means for holding said plate in fixed relation to a shoe, and means for applying to the foxing area a stripe of cement the width of which is defined by the periphery of said protecting plate.

9. In a foxing-cementing machine, a shield having an opening corresponding in shape substantially to the peripheral outline of the bottom of a shoe to receive a shoe with the shield and shoe relatively positioned to expose the foxing area of the shoe on one side of the shield and to protect the upper of the shoe on the other side of the shield from the application of cement, and means for spraying cement upon the exposed foxing area while the shoe and shield are so-positioned relatively to each other.

10. In a foxing-cementing machine, means for applying a stripe of cement to the foxing area of a shoe, a shield having a shoe receiving opening corresponding in outline to the shape of the bottom of the shoe, and means for determining the position of a shoe relatively to the opening in said shield to locate portions of the upper of the shoe respectively on opposite sides of the shield, said positioning means and said shield being constructed and arranged to determine the position upon the shoe of the upper edge of the stripe of cement and to protect the portion of the upper above the foxing area from the application of cement.

11. In a foxing-cementing machine, a shield having a shoe receiving opening corresponding in shape substantially to the peripheral outline of the bottom of a shoe and constructed and arranged to expose on the upper of a shoe positioned in said opening a foxing area having a substantially uniform width while shielding the remaining portions of the upper, and means for delivering cement to a plurality of parts of the exposed foxing area simultaneously.

12. In a foxing-cementing machine, a shield having a shoe receiving opening corresponding in outline to the shape of the peripheral outline of the bottom of a shoe, said shield being curved heightwise of a shoe positioned in said opening, means for determining the relative position of the shield and the shoe when the shoe is positioned in said opening to expose around the lower margin of the upper a foxing area the extent of which heightwise of the shoe is substantially uniform around the shoe, and means for projecting a spray of cement upon the exposed foxing area.

13. In a foxing-cementing machine, a shield having an opening corresponding in outline substantially to the peripheral shape of the bottom of a shoe, means for applying cement to the foxing area of a shoe positioned in said opening with its foxing area exposed on one side of the shield, and means operative by move-

ment of the shoe through the opening in the shield for controlling the application of cement by said applying means.

14. In a foxing-cementing machine, a shield having a shoe receiving opening corresponding in outline substantially to the peripheral shape of the bottom of a shoe, projecting apparatus around the opening in the shield and constructed and arranged to throw a coating of cement substantially simultaneously against the whole of the foxing area of a shoe inserted in said opening, and means controlled by movement of the shoe relatively to the shield for controlling the operation of the projecting apparatus.

15. In a foxing-cementing machine, a substantially horizontal shield having an opening corresponding in outline to the peripheral shape of the bottom of a shoe, a support beneath said opening and constructed and arranged to determine the relative position of a shoe and the shield when the shoe is inserted through the opening with its bottom resting upon the work support, means for applying a coating of cement to the foxing area of said shoe, and means for adjustably determining the relative positions of the support and the shield thereby to control the width of the stripe of cement applied to said foxing area.

16. In a foxing-cementing machine, a shield adapted to surround the upper of a shoe with an edge in juxtaposition to the upper edge of the foxing area of the shoe, a work support associated with said shield and adapted to engage the bottom of a shoe positioned with the said edge of its foxing area in juxtaposition to said edge of the shield, means for applying cement to the foxing area of the shoe while so positioned, and means interconnecting said support and said applying means and constructed and arranged to cause a pressure of the shoe against the work support to control the action of the applying means.

17. In a foxing-cementing machine, a substantially horizontal shield having a shoe receiving opening corresponding in outline to the peripheral shape of the bottom of a shoe in which shield a shoe may be positioned to protect the part of the shoe upper above the shield from the application of cement while exposing the foxing area band, a depressible work support beneath said opening, adjustable means for determining the extent of the depression of the work support thereby to determine the width of the band of cement applied to the exposed foxing area of the shoe, and a cement projecting apparatus beneath the shield to throw a coating of cement on the exposed area of the shoe.

18. In a foxing-cementing machine, a shield having a shoe receiving opening corresponding in outline to the peripheral shape of the bottom of a shoe, in which shield a shoe may be positioned to protect the part of the shoe upper above the shield from the application

of cement while exposing the foxing area band, means for applying cement to the exposed foxing area, a work support adjacent to said opening, and means for controlling said cement applying means by pressure of the shoe against said work support.

19. In a foxing-cementing machine, a substantially horizontal shield having an opening corresponding in outline to the peripheral shape of the bottom of a shoe, in which shield a shoe may be positioned to protect the part of the shoe upper above the shield from the application of cement while exposing the foxing area band, a depressible work support beneath said opening, adjustable means for determining the extent of the depression of the work support thereby to determine the width of the band of cement applied to the exposed foxing area of the shoe, and a projecting apparatus beneath the shield to throw a coating of cement on the exposed area of the shoe, said projecting apparatus being rendered effective to deliver cement by depression of the work support.

20. In a foxing-cementer, a cement receptacle having its top partially covered by a shielding device provided with an opening just large enough to receive the bottom of a shoe and expose the foxing area of the shoe below said shielding device, and means disposed beneath the shielding device upon opposite sides of the shoe for delivering cement to the exposed foxing area, said means and said receptacle being constructed and arranged to allow surplus cement to drip into the receptacle.

21. In a foxing-cementer, a receptacle, the top of which is partially covered by a shielding device having an opening constructed and arranged to receive the bottom of a shoe and to expose only the foxing area and bottom of the shoe beneath said shielding device within the receptacle, spraying devices beneath said shielding device and arranged upon opposite sides of the shoe, and means for removing from the receptacle surplus cement delivered by the spraying devices and delivering it again to the spraying devices.

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

JOHN M. BENJAMIN.

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