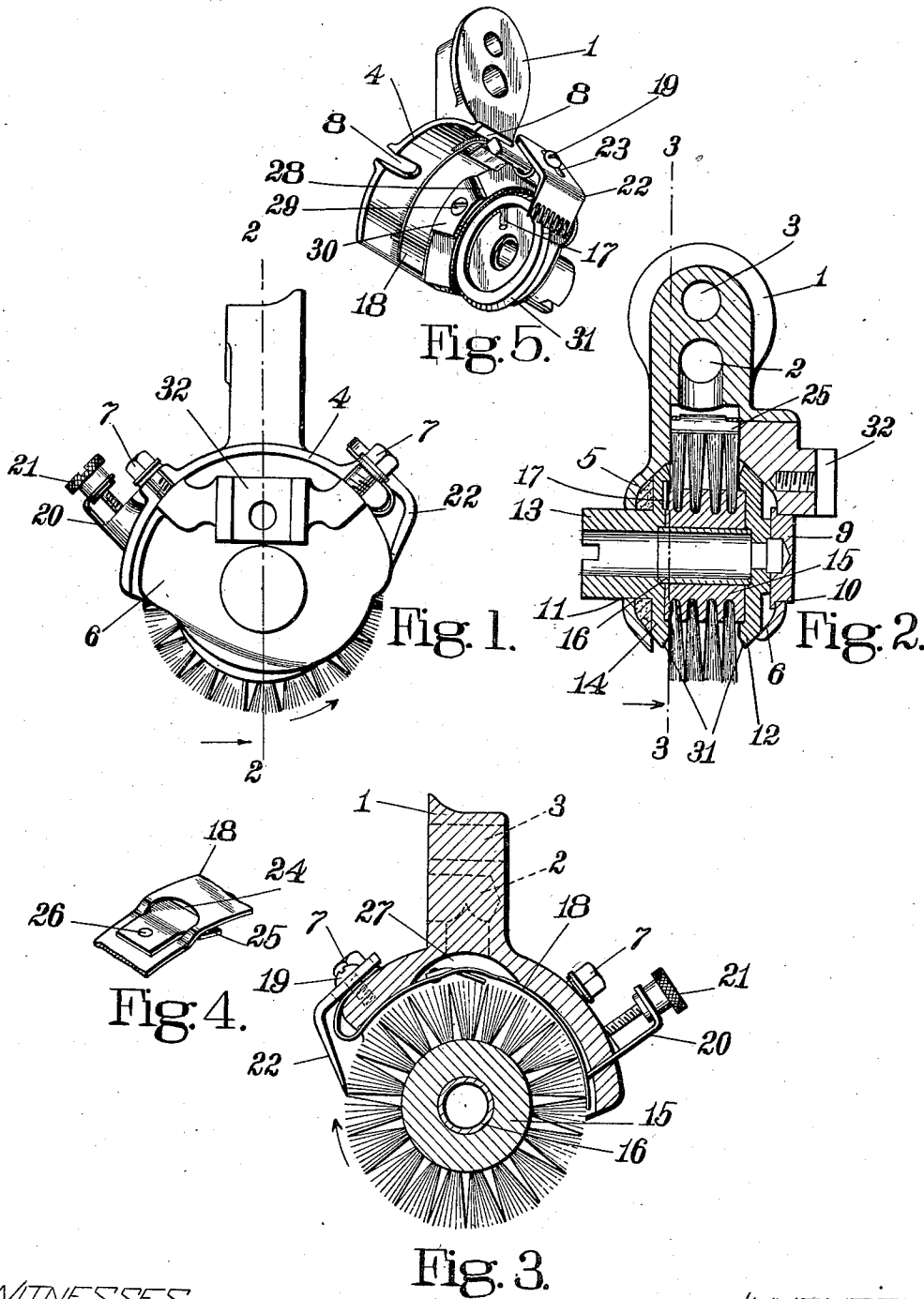


M. F. BROGAN.
CEMENTING MACHINE.
APPLICATION FILED NOV. 19, 1908.

1,013,735.

Patented Jan. 2, 1912.



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UNITED STATES PATENT OFFICE.

MICHAEL FRANK BROGAN, OF LAWRENCE, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

CEMENTING-MACHINE.

1,013,735.

Specification of Letters Patent.

Patented Jan. 2, 1912.

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To all whom it may concern:

Be it known that I, MICHAEL FRANK BROGAN, a citizen of the United States, residing at Lawrence, in the county of Essex and Commonwealth of Massachusetts, have invented certain Improvements in Cementing-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to means for coating stock and is herein shown as embodied in a machine for applying cement to shoes.

It is customary to apply cement to the bottoms of Goodyear shoes preparatory to laying the outer sole, the cement being employed for the purpose of holding the outer sole temporarily on the shoe and for forming a tight joint between the outer sole and the welt, inseam and filling after the outer sole has been permanently attached. Cement is also applied to the channel and channel flap of the outer sole after the outer sole has been stitched to the welt, the flap then being laid to cover the line of stitches. In the first case a comparatively wide cement applying means or distributor is advantageous, in the second a narrower one.

The present invention is shown as embodied in a device which is capable of accommodating distributors of either type, as desired, the features of said invention being applicable to distributors of any width.

It is usual to allow the cement to fall upon the distributor at some given point in its width and to employ spreaders to work the cement across the face of the distributor and spread it in a layer of as uniform thickness as possible. Hitherto these spreaders have been of the type known as "doctors" or "scrapers" which operate upon a comparatively small area at any given moment and whose principal extent is in a direction approximately transverse to the path of movement of said distributor; and although various types and combinations of types of these spreaders have been used the result has not been altogether satisfactory where wide distributors were used.

One feature of this invention relates to a spreader of a new type which operates on a considerable area continually so as to reach all parts of said area simultaneously and which extends for some distance in proxim-

ity to the working face of the distributor and conforms approximately to the outline of said working face. Preferably this spreader is adjustable to regulate the thickness of the layer of cement; and if the outline of the working face of the distributor makes it desirable, said spreader may be flexible. In the latter case it may simplify the adjustability to make the spreader resilient. This latter quality is also desirable where the distributor has an unyielding working face, since in that case, it will allow the passage of any particles of foreign matter which may become lodged on the face of the distributor and which otherwise might cause parts of the device to bind or break. This spreader may be a flat resilient member of approximately the width of the distributor, fixed at one end and having an adjustable finger bearing upon a point near the free end and serving to move the latter end of the spreader toward the distributor to spread the cement in an even layer. It is to be noted that the spreader accomplishes the further purpose of controlling the amount of cement carried away by the distributor, since the only path of escape for the cement is by way of the adjustable end of the spreader. Moreover, where the distributor takes the form of a brush the spreader may, if desired, be forced down upon the brush and thus, by compressing the brush, limit the amount of cement which it will take up.

In applying cement to stock, particularly in applying cement to the bottoms of filled shoes it is found that particles of foreign matter are picked up by the distributor and that these particles tend to interfere with the flow of cement to the distributor.

Another feature of my invention, therefore, relates to the provision of cement delivery means provided with means for preventing such particles from clogging the flow of cement; and this means may conveniently take the form of a protector or deflector extending at an angle to the direction of flow of the cement and approximately in the direction of motion of the distributor at the point of delivery.

In practical use of the device it sometimes happens that cement works down upon the side face of the distributor and from this point to the side of the stock. This results in a daub or stain of cement

on the stock at a point where it may be injurious to the value of the stock; and to prevent the injurious results referred to above, another feature of this invention relates to means whereby one side face of the distributor is kept free from cement. This means may be of any suitable form and in the illustrated embodiment is shown as a flat wiper having a beveled front presented toward the oncoming portion of the distributor, the arrangement being such that the yielding part of the distributor is crowded to one side as it passes the wiper, and any cement which may have worked down on this side is removed.

When the distributor is a brush this wiper serves the further purpose of compacting the bristles laterally from one side and preventing the outer bristles from straggling and daubing the stock at one side of the portion which it is intended to coat with cement.

A further feature of my invention relates to a provision for allowing a flexible distributor to spread when stock is pressed against it; and this may be conveniently provided for by forming the side plates with beveled edges which diverge outwardly from the distributor. With this construction, when a brush for example, is employed, the bristles, as they reach their operative position and are no longer confined by the sides of the hood, are allowed to spread so as to readily give up their load of cement and work it thoroughly into the stock.

These and other features of the invention, including certain details of construction and combinations of parts will be explained in connection with the following description of a machine and will be pointed out more definitely in the claims.

Figure 1 is an elevation; Fig. 2 is a transverse section on the line 2—2 of Fig. 1; Fig. 3 is a longitudinal section on the line 3—3 of Fig. 2; Fig. 4 is a detail perspective of the cement delivery means and its associated protector; and Fig. 5 is a perspective showing the interior of the hood, one of the side walls having been removed.

A main casting 1 is provided with a cement conduit 2 and is adapted to be fixed to the frame of the cementing machine in such a manner that the conduit leading from the cement reservoir shall be alined with the inlet to the conduit 2. Any manner of so fixing the casting may be employed, as for example, a screw bolt passing through the bore 3. The main casting 1 forms in effect a hood composed of a cover 4 and side walls 5 and 6, the wall 6 being shown as separate and held in adjusted position by screw bolts 7 which are adapted to slide in slots 8 in the cover.

With this construction the width of the hood may be varied to accommodate distributors of different widths. A bearing 9, which may be of brass or other suitable material, is fixedly mounted in an opening 10 in the wall 6, and against this bearing is seated a side plate 12. The corresponding opening 11 in the opposite wall 5 is adapted to fit snugly about a hollow stem 13 which carries the opposite side plate 14. Between these plates 12 and 14 the distributor, herein shown as a rotary brush, is held. The bristles are mounted in an annular member 15 which is commonly of wood; and inserted through the annular member is a cylindrical hub 16 having its ends bearing in sockets in the side plates 12 and 14. To compel the rotation of the brush with the side plate 14 there is provided in the annular member 15 a radial slot which fits over a pin 17 fast to the plate 14. Packing may be employed, if desired, between the plates 12 and 14 and the walls of the hood.

In order to obtain a coating of uniform thickness on the distributor, a spreader 18 has been provided which conforms throughout its extent approximately to the outline of the working face of the distributor and is of a width approximately equal to that of said distributor. In the present embodiment the spreader 18 is shown as a resilient strip bent back upon itself at one end and fastened by a screw 19 to the cover of the hood. But although the spreader has been shown as a resilient strip fixed at one end it should be understood that neither the shape, nor the resiliency, nor the manner of fastening is indispensable, since it is evident that a rigid spreader, for example, could be used so long as it was provided with a face which conformed approximately to the outline of the face of the distributor. And although the present spreader has been shown as extending over almost the entire upper face of the distributor, it should be understood that no particular length is indispensable provided the spreader covers a considerable area so as to operate upon all points in that area simultaneously. In order to obtain a layer of cement of desired thickness, means is provided for moving the spreader toward and from the distributor. In the illustrated embodiment the resiliency of the spreader accomplishes the latter movement while the former is accomplished by a strip 20 extending through a slot in the cover of the hood and having its opposite end bent and formed as a yoke which fits in an annular groove in a thumb screw 21, whereby, as the screw is advanced, the spreader 18 is moved toward the distributor. Instead of the means described above the spreader might be differently

mounted—in short any suitable means for moving the spreader toward and from the distributor may be employed.

In addition to its function as a spreader 5 the member 18, in any embodiment of the invention wherein the distributor is of a yielding nature, operates also as a regulator to regulate the amount of cement taken up by the distributor and thus indirectly, the 10 flow of cement from the cement delivery means. This is particularly true where the distributor takes the form of a brush, a brush being in some characteristics similar to a sponge, the spaces between the bristles 15 corresponding roughly to the pores of the sponge. In this case it is possible to compress the brush to such an extent that its capability for taking up cement is greatly reduced.

20 In applying cement to stock, and particularly in applying cement to the bottoms of filled shoes, it is found that particles of foreign matter—for example, cork—are picked up by the distributor (hereinafter referred 25 to as a brush). Means to remove the particles is provided, said means being shown as a bent member 22 having a slot 23 at one end through which passes the screw 19, and having at its other end a series of teeth forming 30 a comb which rests upon the face of the brush, the screw and slot connection furnishing means for adjusting the comb. Notwithstanding this provision for removing particles of foreign matter, a portion of 35 these particles fails to be removed and, being carried forward by the brush, is liable to accumulate in and about the mouth of the cement supply conduit and to clog or even entirely shut off the flow of cement. To prevent such clogging, a cement delivery means 40 has been provided which is so protected that particles of foreign matter are prevented from working into the conduit. In the illustrated form the delivery means includes a slot 24 in the spreader 18, and the 45 protector or deflector is shown as a tongue 25 having a reduced end which passes upwardly through the slot and is riveted at 26 to the spreader, the spreader having a comparatively abrupt bend on each side of said slot so as to preserve the general semi-circular outline of said spreader. It should be 50 understood, however, that this construction is purely illustrative. The cement delivery means, although shown as including a slot, might be a tube or nozzle of suitable form and the protector might be differently mounted, the principal requirement being that cement issuing from the delivery means 55 shall be deflected in the direction of movement of the brush at the point of delivery or that the cement shall be delivered first to the protector and then to the brush. With regard to this member 25 it should be noted 60 that it may serve the further purpose of re-

tracting the bristles, as they pass beneath the cement delivery means, in such a manner that the cement is delivered among the bristles and the brush is properly loaded 70 with cement. It should also be understood that its function as a bristle retractor is quite distinct from its function as a protector of the cement delivery means and that consequently, the retractor might take a 75 different form if desired. The member 25 also serves the further purpose of preventing the cement from flowing down over the rear portion of the brush and dripping upon the work.

As has been stated it sometimes happens 80 that cement from the side face of the brush works down on to the side of the stock. In order to guard against such an occurrence a cleaning means is provided which operates to keep one side of the brush free from cement; and in the illustrated form this means 85 is shown as a flat scraper or wiper 30 held by a screw 29 to the side wall of the hood and having a beveled front 28 which opposes the oncoming portion of the brush, the construction being such that as the bristles at 90 the side of the brush ride up the bevel 28 and pass along the plate 30 any cement clinging to them is removed. In the illustrated form the spreader 18 is cut away at 95 the side to allow it to be adjusted without permitting escape of cement.

It is desirable to allow that part of the brush which is contacting with the stock to spread in order that the cement may be 100 worked thoroughly into the stock and that the brush may give up as much of its load of cement as possible. To provide for this, plates 12 and 14 are formed with bevels 31. The portions of the brush within the hood 105 are supported by the sides of the hood, but as soon as these portions pass out into operative position the beveled edges of the plates allow them to spread.

At 32 is shown a socket for the reception 110 of a support for a channel flap guide when the device is used for applying cement to the channel flap.

In operation a rotary shaft mounted on the frame of the machine extends into the 115 hollow stem 13 and is adapted to be clutched thereto at will. The clutch having been thrown in, cement is allowed to flow from the reservoir (also mounted on the frame of the machine) into the conduit 2. From the 120 conduit 2 it passes into the cavity 27 and then through the cement delivery means 24 where it is deflected by the member 25 in the direction of movement of the brush at that point. The screw 21 is turned to move 125 the member 18 so as to obtain a coating of the desired thickness, and in doing this the member 18 may be forced against the brush so as to compress the tufts of bristles and thereby regulate the amount of cement 130

which the brush is capable of taking up. A proper coating of cement having been secured, the stock is pressed upward against the lower portion of the brush thereby causing the brush to spread and the cement to be properly applied. As the brush continues in its path, particles of foreign matter which are picked up are to a great extent removed by the comb 22, while those which pass the comb are prevented by the protector 25 from clogging the flow of cement.

While for convenience the invention has been described as embodied in a machine for applying cement and the coating material has been referred to as cement in the specification and claims, it should be understood that the invention is not limited to the application of cement but may be used with any liquid or viscous material.

The invention has been set forth in connection with a specific machine, but it should be understood that the machine set forth is only illustrative, that various changes other than those already suggested may be made and that nothing herein contained is to be construed as limiting this invention and the scope of its application to the specific machine shown and described.

Having thus set forth my invention what I claim as new and desire to secure by Letters Patent is:—

1. In a machine of the class described, the combination of a distributor and a spreader which conforms approximately to the outline of the working face of the distributor.

2. In a machine of the class described, the combination of a distributor and an adjustable spreader which conforms approximately to the outline of the working face of the distributor.

3. In a machine of the class described, the combination of a distributor and a resilient spreader which conforms approximately to the outline of the working face of the distributor.

4. In a machine of the class described, the combination of a rotary distributor and a spreader which conforms approximately to the outline of the working face of the distributor.

5. In a machine of the class described, the combination of a distributor having a yielding working portion and means to compress said working portion to control the amount of cement taken up by said distributor.

6. In a machine of the class described, the combination of a distributor and a combined spreader and regulator to spread the cement and control the flow.

7. In a machine of the class described, the combination of a distributor and a spreader which operates upon all points in an extended area of the surface of the distributor simultaneously.

8. In a machine of the class described, the

combination of a rotary brush, means for delivering cement to the upper portion thereof, and a combined spreader and compressor to spread the cement and compress the bristles of the brush.

9. In a machine of the class described, the combination of a distributor, cement delivery means and a protector extending between said means and said distributor.

10. In a machine of the class described, the combination of cement delivery means, a protector, and a distributor, the protector being adapted to receive cement from the delivery means and to transfer it to the distributor.

11. In a machine of the class described, the combination of cement delivery means and a moving distributor, said means being constructed and arranged to deliver cement approximately in the direction of motion of the distributor at the point of delivery.

12. In a machine of the class described, the combination with cement delivering means, of a brush, and a bristle retractor arranged in operative relation to said delivery means.

13. In a machine of the class described, the combination of a distributor having a yielding acting face, means for delivering cement thereto, and means for depressing a portion of the acting face at the delivery point.

14. In a machine of the class described, the combination of a distributor having a yielding acting face, means for delivering cement thereto, a cover under which the acting face moves adjacent to the point of delivery and means for depressing the acting face at the delivery point to form a space between that face and the cover to receive the cement.

15. In a machine of the class described, the combination with a distributor, a hood and cleaning means within the hood and operating on the side of the distributor.

16. In a machine of the class described, the combination of a moving distributor, and a wiper adapted to operate on the side of the distributor, said wiper having a beveled end presented to the oncoming portion of the distributor.

17. In a machine of the class described, the combination of a brush and plates at the side of said brush, said plates being cut away to allow the brush to spread.

18. A machine of the class described, having in combination, a rotary distributor, a curved spreader, and means for adjusting said spreader.

19. In a machine of the class described the combination of a cylindrical cement applying member, a hood inclosing the upper part of said member, there being an opening in the upper wall of the hood, a resilient, perforated spreader curved to correspond

approximately to the outline of the applying member and arranged across said opening and means for adjusting said spreader.

20. In a machine of the class described
5 the combination of a cylindrical cement applying member, a hood inclosing the upper part of said member, there being an opening in the upper wall of the hood, a resilient, perforated spreader curved to correspond
10 approximately to the outline of the applying member and arranged across said opening, means for adjusting said spreader, and a protector extending into the perforation in said spreader.

21. In a machine of the class described 15
the combination with a rotary brush and an adjustable spreader having a curved operating face, of means for delivering cement beneath said spreader, and means for preventing cement so delivered from flowing back- 20
wardly down the rear portion of the brush.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MICHAEL FRANK BROGAN.

Witnesses:

FRED W. GUIBORD,

ARTHUR L. RUSSELL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
