

1,401,237.

Fig. 3.

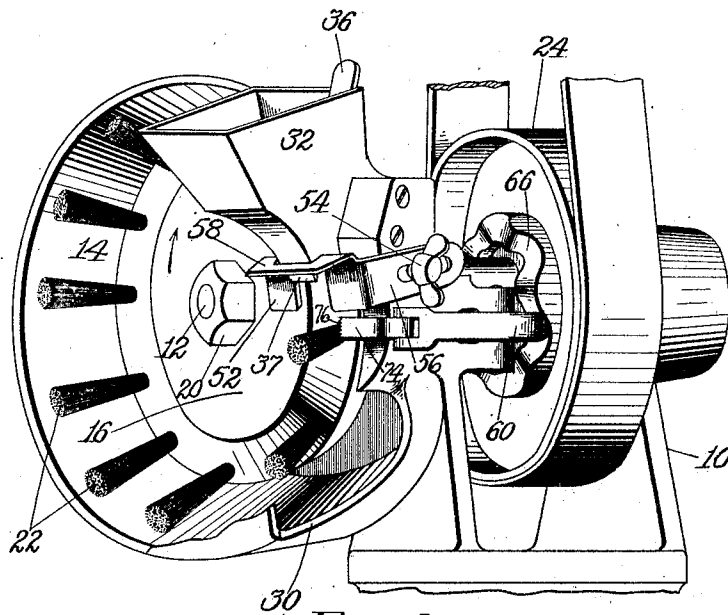


Fig. 1.

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UNITED STATES PATENT OFFICE.

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CEMENTING APPARATUS.

1,401,237.

Specification of Letters Patent. Patented Dec. 27, 1921.

Application filed July 20, 1918. Serial No. 245,847.

To all whom it may concern:

Be it known that I, LOUIS A. CASGRAIN, a citizen of the United States, residing at Beverly, in the county of Essex and State of Massachusetts, have invented certain Improvements in Cementing Apparatus, of which the following description, in connection with the accompanying drawing, is a specification, like reference characters on the drawings indicating like parts in the several figures.

My invention relates to cementing apparatus, and more particularly to that for applying cement to shoes.

In the manufacture of the sneaker type of shoes, in accordance with the usual practice, there is applied to the lasted upper a coating of cement extending over the entire bottom of the inner sole and over the adjacent edge of the upper for the attachment of the outer sole and the foxing, and it is desirable that the edge of this coating along the upper be uniformly spaced from the bottom of the shoe so there shall be visible on the fabric no smears of cement beyond the edge of the outer sole. It is customary to perform this operation by hand, it requiring considerable skill to accomplish it satisfactorily. An object of the present invention is to provide an apparatus by which cement may be distributed quickly and evenly over both the bottom and edge portions of a shoe, with uniformity at the foxing or outer-sole edge, by a relatively inexperienced operator.

A feature of the invention consists in a flexible member movable to bring its side into contact with one of the portions of a shoe positioned by a suitable rest and apply cement to said portion, and then to yield so that its end moves over and cements another portion, thus acting upon both portions. The structure I have found most suitable for this purpose includes a rotatable brush having its bristles or similar fibers furnishing the previously mentioned flexible member and extending in the same general direction as the axis of rotation. In coating shoes for foxings, the action of the applying member is preferably such that it first contacts with and coats the edge of the upper, and then yields and sweeps over the bottom portion. A bottom rest is shown, over which the work is guided, the relation

of this being such that the applying member extends from one side of the rest to the other and is revolved past it. To vary the position of the band of cement applied, for example to locate its edge on the upper, the relation between the bottom rest and the end of the applying member may be changed, as by adjusting the rest.

A further feature of the invention concerns the provision of a work gage by utilizing for this purpose the edge of the opening of a cement container delivering to an applying member movable over and taking cement from the opposite side of the opening. Thereby an organization of extreme simplicity and effectiveness is obtained. In the present embodiment of the invention there is at one side of the delivery opening opposite the gage edge means for adjusting its size, and over this adjusting means the applying member preferably moves.

I may employ for the cement-applying means a device, as a brush, in which the flexible members contacting with the work consist of groups or tufts of fibers spaced from one another. With such a structure I prefer so to separate the members that they will not interfere with one another in their yield. The applying members cooperate with the other elements of the apparatus in a novel manner, with the work gage, for example, causing the cement, when cementing for foxings, to enter fully the angle between the work and gage, insuring a uniform edge.

The above and other features are illustrated in the accompanying drawing, in which,

Figure 1 is a perspective view of one embodiment of the invention, parts being broken away;

Fig. 2 is a horizontal section taken on the axis of the brush; and

Fig. 3 is a partial side elevation with portions in section, illustrating particularly the cement container and the cooperation of the brush therewith.

Journalled in standards in a frame 10 is a shaft 12, at one extremity of which is carried an applying device preferably furnished by a brush 14. This brush may consist of a head 16, conveniently in the form of a disk of wood, the head being held by a nut 20 against a shoulder formed by a re-

duced portion 18 of the shaft. From the outer face of the head near its periphery and in a direction generally parallel to the axis of the shaft, though here shown as somewhat inclined outwardly therefrom, are groups or tufts of some such flexible fibers as bristles. These groups appear uniformly spaced circumferentially of the head, being separated by such a distance from one another that when they are bent in the cementing operation, the adjacent groups will not come into contact. The advantage of this will later appear. The shaft and brush are rotated from any convenient source of power through a pulley 24 so secured to the shaft that they turn together.

About the brush, supported upon the frame, is a casing 26 to retain cement which may be thrown off in the rotation of the parts, this casing being provided with a removable cover 28, giving access to the brush. At one side of the casing is an opening 30, through which the bristles carrying the cement come in contact with the work. Carried upon the frame near the upper edge of the opening 30 is a cement container, here shown as furnished by a receptacle 32 of such size as to contain the desired quantity of cement. At its bottom the container narrows to a contracted throat terminating in a delivery opening 34, the size of which, and therefore the quantity of cement flowing, is controlled by a gate or like member 36, which is illustrated as sliding over the inner face of the rear wall of the container. The brush is so located that the ends of the bristles move over the container wall and then across the gate and opening. They are somewhat flexed by this contact, and when released at the lower edge of the gate tend to assume their normal positions and thus throw the cement toward a gage 37. This gage I preferably furnish by the wall of the container or passage therefrom at the opposite side of the delivery opening from the gate 36. With it the work contacts to define the margin of the coating applied. Since the groups of bristles are wholly out of contact with one another when bent, each group in delivering its cement at the edge of the gage is free to enter the angle between said gage and the work in a nearly straight position, so, with the impulse applied to the cement as just described, the entire surface of the upper adjacent to the gage is uniformly coated. As the bristles wear in use, it is desirable to have means for adjusting the relation between their ends and the gage portion 37. This is preferably accomplished by a screw 38 threaded into a bore in the end of the shaft 12 opposite the brush and having outside the frame a nut and lock nut 40, between which and the frame is interposed an anti-friction washer 42. The washer is forced against

the frame to carry the brush toward the gage for any particular adjustment of the nuts, by a spring 44 situated at the bottom of the bore and contacting at its outer end with a key 46 passing through a slot 48 in the shaft and being driven into an opening in the hub of the pulley. The key and slot compel the rotation of the shaft with the pulley, while permitting the independent longitudinal movement of the former.

To furnish a support and guide for the work so it may be moved in the proper relation to the gage 37, there is a rest 52 situated upon the opposite side of the gate 36 from the gage, with the groups of bristles moving past the rest and their ends extending beyond it. This rest is shown as in two portions connected by a yoke 58 extending over the throat of the container so that a somewhat extended supporting surface is presented to the work. It may be adjusted toward and from the gage to vary the width of the strip of cement applied to the upper by a screw 54 passing through a slot in a shank 56 of the gage and into the frame. To assist the operator in moving the work regularly past the revolving groups of bristles, I provide feeding mechanism, including a bell-crank lever 60 fulcrumed at 62 upon the frame. This lever has near the end of one arm an anti-friction roll 64 contacting with a cam 66 upon the adjacent face of the pulley 24. A plunger 68 movable in a recess in the inner side of the casing 26 and forced toward the lever by a spring maintains the roll 64 in contact with the cam. The opposite end of the lever has pivoted upon it at 72 a feeding detent 74, the serrated end 76 of which contacts with the work in successive reciprocations of the lever by the cam. This tends to urge the work step by step across the rest for the application of cement by the bristles. Upon the outward movement of the detent to avoid feeding in this direction, it may yield against a spring-pressed plunger 78 seated in a recess in the adjacent end of the lever 60.

In employing the apparatus for cementing a lasted shoe, as indicated in section at S in Fig. 3 of the drawings, the bottom of the shoe is placed against the rest, and, the shaft 12 being in rotation, it is advanced over said rest and beneath the delivery opening of the hopper by the operator, aided by the action of the feeding detent. The successive groups of bristles in their revolution, passing across the opening in the container in the direction indicated by the arrow in Fig. 1, carry the cement, as previously described, fully into the angle between the gage and the upper, coating this portion of the work first by the contact of their sides with the upper, and then yielding so that the ends of the bristles pass over the edge and across the bottom of the innersole

past the longitudinal axis of the shoe. As the work advances, this operation continues about the entire periphery of the upper, the coatings from opposite sides upon the bottom meeting and overlapping at the center so that the innersole is completely coated.

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

1. An apparatus for cementing the bottom portion of shoes and the adjacent edge of the upper, comprising a flexible applying member and a rest having a work-guiding surface at its side opposite the applying member and arranged to permit said applying member to be moved into contact with one of the surfaces to be cemented, the member then yielding to permit its end to move in contact with another surface.

2. An apparatus for cementing shoes for soles and foxings, comprising a flexible applying member, and a work rest arranged for contact with the bottom portion of a shoe and presenting said shoe to the applying member to permit said member to be moved into contact with the edge of the shoe upper, and then to yield to move over the bottom portion.

3. In a shoe cementing apparatus, a bottom rest, and a flexible, revoluble applying member extending from one side of the bottom rest to the other and movable in its revolution past said bottom rest, said movement being in a direction at an angle to the extension of the applying member by the bottom rest.

4. In a shoe cementing apparatus, a bottom rest, a flexible, revoluble applying member extending from the work-engaging side of the bottom rest by the opposite side and movable in its revolution past said bottom rest, and means for advancing the work across the path of revolution of the applying member.

5. In a shoe cementing apparatus, a bottom rest, a flexible, revoluble applying member extending in a direction transverse to that in which it may be flexed from the work-engaging side of the bottom rest by the opposite side and movable in its revolution past said bottom rest, and means constructed and arranged to permit the normal relation between the bottom rest and the applying member to be adjusted.

6. In a shoe cementing apparatus, a bottom rest, a revoluble applying member consisting of fibers extending from the work-engaging side of the bottom rest by the opposite side in the direction of the length of the fibers and movable in its revolution past said bottom rest, and means constructed and arranged to permit the adjustment of the bottom rest toward and from the end of the applying member.

7. In a cementing apparatus, an applying

member, and a cement container having an opening through which cement is delivered to the applying member, an edge of said opening serving as a work gage.

8. In an apparatus for cementing shoes for foxings, an applying member, and a cement container having an opening through which cement is delivered to the applying member, an edge of said opening being arranged for contact with the shoe upper to limit the line of cement at the upper edge of the foxing.

9. In a cementing apparatus, a frame, a cement container mounted thereon and having a delivery opening, an edge of said opening serving as a work gage, and a work rest secured to the frame at the opposite side of the opening from the gage edge.

10. In a cementing apparatus, a cement container having a delivery opening, an edge of said opening serving as a work gage, and an applying member movable at the opposite side of the opening from the gage edge.

11. In a cementing apparatus, a cement container having a delivery opening, an edge of said opening serving as a work gage, a work rest situated at the opposite side of the opening from the gage edge, and an applying member having its end movable between the gage edge and the work rest.

12. In a cementing apparatus, a cement container having a delivery opening, an edge of said opening serving as a work gage, an applying member operating in contact with the opposite side of the container from said edge, and means for moving the applying member over said side of the container.

13. In a cementing apparatus, a cement container having a delivery opening, an edge of said opening serving as a work gage, an applying member operating in contact with the opposite side of the container, and means constructed and arranged for moving the applying member toward and from the container.

14. In a cementing apparatus, a cement container having a delivery opening, an edge of said opening serving as a work gage, means situated opposite the gage edge for adjusting the size of the delivery opening and applying means cooperating with the opening.

15. In a cementing apparatus, a cement container having a delivery opening, an edge of said opening serving as a work gage, means situated opposite the gage edge for adjusting the size of the delivery opening, and a flexible applying member movable over the adjusting means into cooperation with the gage edge.

16. In an apparatus of the class described, a movable series of flexible spaced applying members yielding in contact with the work,

and a work-engaging member cooperating with the applying members, the space between the applying members being sufficient to prevent interference with one another in their yield at the time of cooperation with the work-engaging member.

17. In an apparatus of the class described, a movable series of flexible spaced applying members yielding in contact with the work, the space between the members being sufficient to prevent interference with one another in their yield, and a gage with which the members cooperate.

18. In an apparatus for cementing shoes for foxings, a gage arranged to contact with the shoe and form an angle therewith, and flexible cement-applying members separated from one another to permit them to enter the angle between the gage and work.

19. In an apparatus for cementing the bottom portion of shoes and the adjacent edge of the upper, a gage cooperating with the edge of the upper, and a flexible applying member, the end of which is movable into cooperation with the gage edge while the side contacts with the edge of the upper, the member then yielding to permit its end to move in contact with the bottom portion.

20. In an apparatus for cementing the bottom portion of shoes and the adjacent edge of the upper, a cement container having a delivery opening, an edge of said opening serving as a gage at the edge of the upper, and a flexible applying member the end of which is movable into cooperation with the gage edge while the side contacts with the edge of the upper, the member then yielding to permit its end to move in contact with the bottom portion.

21. In an apparatus for cementing the bottom portion of shoes and the adjacent edge of the upper, a cement container having a delivery opening, an edge of said opening serving as a gage at the edge of the upper, an applying device consisting of a series of spaced flexible members the ends of which are successively movable into cooperation with the gage while the sides contact with the edge of the upper, the members then yielding to permit their ends to move over the bottom portion.

22. An apparatus for cementing the bottom portion of shoes and the adjacent edge of the upper, comprising a movable brush having a series of fibers extending in the same general direction as the axis of rotation, and a work rest arranged to position shoe bottoms substantially at right angles to the axis of rotation.

23. An apparatus for cementing the bottom portion of shoes and the adjacent edge of the upper, comprising a movable brush having a series of fibers arranged in separate groups extending in the same general

direction as the axis of rotation, and a work rest arranged to position shoes for contact of the fibers with the edges of the uppers.

24. An apparatus for cementing the bottom portion of shoes and the adjacent edge of the upper, comprising a movable brush having a series of fibers arranged in separate groups extending in the same general direction as the axis of rotation and yielding in the operation of the apparatus, the distance between the groups of fibers being sufficient to prevent their contact with one another, and a work rest arranged for contact with the shoe bottoms to position the shoes for contact of the fibers with said bottoms and the edges of the uppers.

25. In a shoe cementing apparatus, a rotatable shaft, a head mounted thereon, and groups of fibers extending from the side of the head near and being confined to the peripheral portion, and a work rest situated opposite the head.

26. In a shoe cementing apparatus, a rotatable shaft, a head mounted thereon, a series of fibers extending from the side of the head near and being confined to the periphery, and a work rest adjacent to the path of revolution of the fibers.

27. In a shoe cementing apparatus, a rotatable shaft, a head mounted thereon, a series of fibers extending from the side of the head near the periphery, and a work rest adjacent to the path of revolution of the fibers between the extremities of said fibers and the head.

28. In a shoe cementing apparatus, a rotatable shaft, a head mounted thereon, a series of fibers extending from the side of the head near the periphery, and a work rest extending across the path of revolution of the fibers.

29. In a cementing apparatus, a shaft, a brush mounted thereon, a member for rotating the shaft, said member being provided with a cam surface, and a feeding lever for cooperation with the brush and actuated by the cam surface.

30. In a cementing apparatus, a shaft, a brush mounted thereon, cement-supplying means with which the brush cooperates, a spring acting upon the shaft to force the brush toward the cement-supplying means, and means for limiting the movement of the shaft.

31. In a cementing apparatus, a shaft containing a recess, a frame in which the shaft is journaled, driving means for the shaft, a spring situated in the shaft recess, a member carried by the driving means with which the spring contacts, shaft-adjusting means cooperating with the frame, a cement-applying member carried by the shaft, and a gage into cooperation with which the applying member is forced by the spring.

32. In a cementing apparatus, a shaft con-

5 taining a recess, a frame in which the shaft
is journaled, driving means for the shaft,
a spring situated in the shaft recess, a mem-
ber carried by the driving means with which
10 the spring contacts, a screw threaded in the
shaft recess and cooperating with the bear-
ing, a cement-applying member carried by
the shaft, and a gage into cooperation with
which the applying member is forced by
15 the spring.

33. In a cementing apparatus, a cement
container having a delivery opening the
wall of one side of which is arranged for
contact with the work, a cement-controlling
15 member furnishing a wall at the opposite
side of the opening and an applying mem-
ber operating across said walls.

34. In a cementing apparatus, a cement
container having a delivery opening the
20 wall of one side of which is arranged for
contact with the work, a cement-controlling
member situated at the opposite side of the
opening, and a brush movable over the con-

trolling member and across the opening into
coöperation with the opposite wall. 25

35. In a cementing apparatus, a cement
container having a delivery opening the
wall of one side of which is arranged for
contact with the work, a cement-controlling
member situated at the opposite side of the 30
opening, and a work rest situated at the side
of the container adjacent to the controlling
member.

36. In a cementing apparatus, a cement
container having a delivery opening the 35
wall of one side of which is arranged for
contact with the work, a cement-controlling
member situated at the opposite side of the
opening, a brush movable over the control-
ling member and across the opening into co- 40
operation with the opposite wall, and a
work rest adjacent to the opening and past
which the brush moves.

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

LOUIS A. CASGRAIN.