C. P. STANBON.

CHANNEL CEMENTING MACHINE.

APPLICATION FILED FEB. 27, 1904.

1,004,705.

Patented Oct. 3, 1911.

2 SHEETS—SHEET 1.

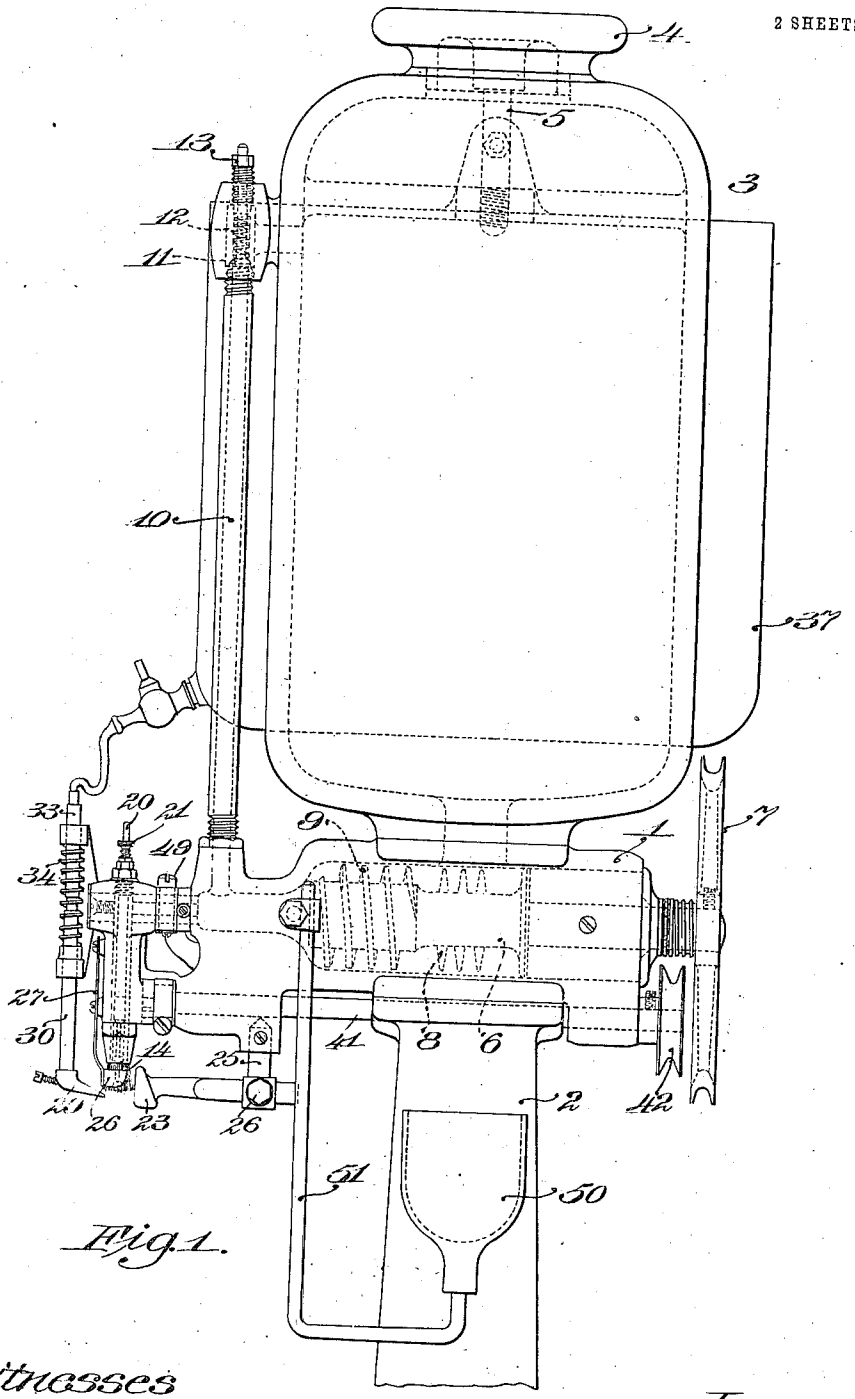

Fig. 1.

Witnesses

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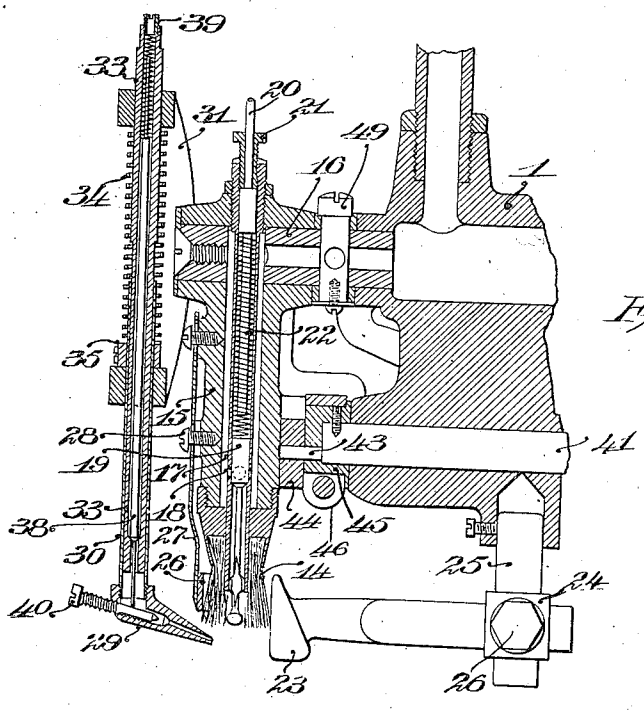

Fig. 2.

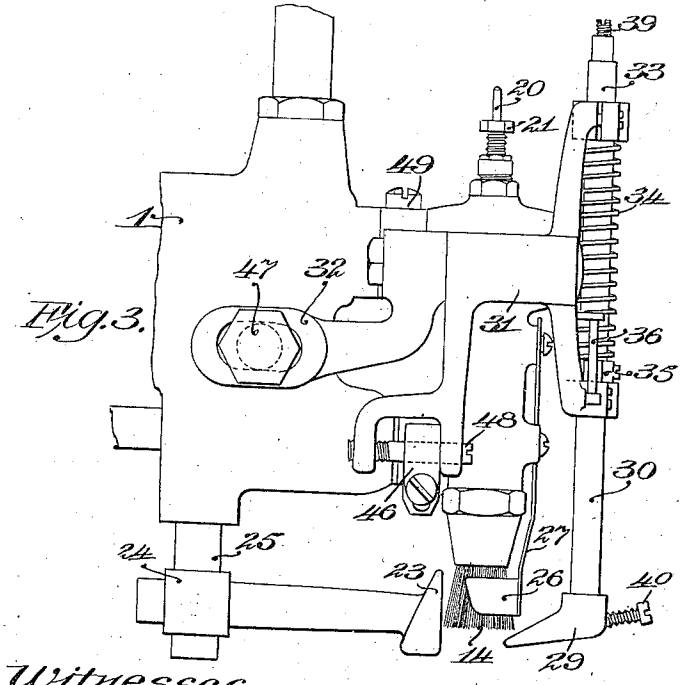

Fig. 3.

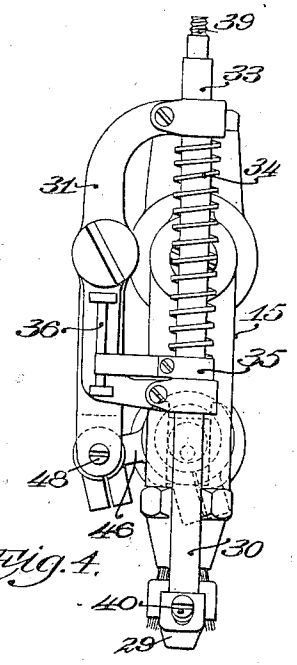

Fig. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

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CHANNEL-CEMENTING MACHINE.

1,004,705. Specification of Letters Patent. Patented Oct. 3, 1911.

Application filed February 27, 1904. Serial No. 195,598.

To all whom it may concern:

Be it known that I, CHARLES P. STANBON, a citizen of the United States, residing at Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Channel-Cementing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to channel cementing machines which are used in the manufacture of boots and shoes for applying cement to the channel portion of the sole and to the backwardly turned channel flap preparatory to the operation of laying the channel flap and leveling or beating out the sole of the shoe.

The object of the present invention is to provide a machine by which this operation can be easily and quickly performed, and by which the desired amount of cement can be applied to the channel and to the channel flap without wasting the cement or applying it to other parts of the shoe, which are serious objections incident to the construction and operation of prior channel cementing machines. Before the channel flap can be laid it must be moistened as otherwise it is liable to injury during the flap laying operation and can not be readily pressed down into proper position. The channel flap is moistened either before or after the channel cementing operation, and this is usually done by dipping the sole of the shoe into water, the entire surface of the sole as well as the channel flap being subjected to the action of the water. This is objectionable, especially with the cheaper grades of shoes, as unless great care is exercised, the water soaks into the sole and into the filling beneath the sole, causing these parts to swell and thereby injuring and often spoiling the shoe.

An object of the present invention is to provide means for moistening the channel flap simultaneously with the application of the cement to the flap and channel, whereby the channel flap alone is moistened and a separate cementing operation is done away with.

In accordance with the present invention the cement is applied to the channel and channel flap by means of a brush. Coöperating with this brush is a channel flap guide arranged to support the channel flap against the brush. This channel flap guide holds the channel flap in position so that cement is applied over its entire surface, but is not applied to the surface of the sole inside of the channel flap. Preferably a vibrating motion is imparted to the channel flap guide longitudinally of the channel flap, whereby the resistance offered to the feeding of the shoe beneath the brush is decreased and also the folds in the channel flap are straightened out and all portions of the flap are subjected to the action of the brush. While this feature of the invention contemplates the use of any suitable form of brush, a vibrating brush is preferably employed and means are provided for simultaneously vibrating the brush and the channel flap guide in opposite directions longitudinally of the flap, whereby the tendency of one of these moving parts to move the shoe is counteracted by the other part and also the cement is more evenly and thoroughly distributed over the surface of the flap.

The invention contemplates the provision of a tank or reservoir for the cement and means for feeding the cement to the brush, and in order to prevent the cement being supplied to the brush except when a shoe is presented thereto, a feature of the invention consists in providing means actuated by the shoe when presented to the brush for controlling the flow of cement to the brush. This means preferably consists of a valve located in the passageway leading to the brush, which valve is adjustable to vary the amount of cement supplied to the brush so that the flow of cement can be regulated by the operator to suit the character of the work being operated upon, and the cement can be applied without any waste.

That feature of the invention which re-

lates to the means for moistening the channel flap is preferably embodied in a construction in which a hollow channel flap guide is provided, the guide being connected to a supply of water and the passageway in the guide opening at the inner end of the guide so that the water is delivered at the base of the flap. In order to stop the flow of water from the guide except at such times as the shoe is in position, a valve is preferably provided in the channel flap guide which is operated by the upward movement of the guide when the shoe is presented to the cement applying brush.

In addition to the features of invention above referred to, the machine hereinafter specifically described, embodies certain novel features of construction and arrangement, the advantages of which will be obvious to those skilled in the art from the following description taken in connection with the accompanying drawings, in which—

Figure 1 is a view in side elevation of a machine embodying the various features of the invention in their preferred form, Fig. 2 is a sectional view of the front portion of the machine frame and the parts supported thereby, Fig. 3 is a view in side elevation of the front portion of the machine frame looking in the opposite direction from Fig. 1, and Fig. 4 is a view in front elevation of the parts illustrated in Figs. 2 and 3.

Referring to the drawings, 1 indicates what may be termed the frame of the machine consisting of a casting secured upon the upper end of a standard 2.

3 indicates the cement tank or reservoir which is supported upon the frame 1 and preferably cast integral therewith. At its upper end the tank 3 is provided with an opening which is closed by a cover 4, the cover being firmly held in position by means of a screw threaded stud 5 projecting downwardly from the cover and screwing through a cross web in the upper part of the tank. At its lower end the tank 3 communicates with a chamber formed in the frame 1 in which is mounted a shaft 6. This shaft is journaled in a bushing removably secured in the rear end of the chamber and is provided at its outer end with a pulley 7. Suitable packing disks are provided for preventing the escape of the cement at this end of the chamber. Below the opening leading to the cement tank the shaft 6 is provided with radial projections 8 for thoroughly mixing the cement, and at its forward end is provided with a feed worm 9 by which the cement is forced through the passageway leading to the brush, this passageway being in communication with the front end of the chamber in the frame as will be hereinafter described. From the front end of the chamber a passageway also leads to the upper portion of the cement tank, the passageway being formed in lugs projecting from the frame and from the upper end of the cement tank and connected by a pipe 10. This passageway forms a by-pass through which the surplus cement is forced back into the tank. In the upper end of this passageway a valve 11 is provided which is pressed against its seat at the upper end of the pipe 10 by means of a spring 12 coiled around the stem of the valve and interposed between the head of the valve and an adjustable screw threaded stop 13. By turning the stop 13 in one direction or the other, the tension of the spring 12 can be adjusted and thereby the pressure at which the cement is supplied to the cement applying brush can be regulated as desired and an even flow of the cement to the brush insured.

The cement applying brush is indicated at 14 and is mounted upon the lower end of a brush carrier 15 consisting of an arm pivotally mounted at its upper end upon a stud 16 projecting from the front end of the frame 1. The socket of the brush has a screw threaded engagement with the lower end of the brush carrier and is thus removably secured thereto as indicated in Fig. 2. The stud 16 is provided with a passageway opening at one end into the chamber in the frame 1 and at the other end into a passageway formed in the stud and in the brush carrier 15. In this latter passageway a valve casing 17 is located which consists of a tube the upper end of which has a screw threaded engagement with the brush carrier above the stud 16 and the lower end of which projects through the socket of the brush 14. The valve casing 17 is provided above the socket of the brush with a series of openings 18 with which a valve 19 mounted in the valve casing is arranged to cooperate. This valve is provided with a downwardly extending stem, the lower end of which is arranged to contact with the shoe when presented to the brush. The valve is arranged to move vertically in the valve casing, and when in its lowest position, as illustrated in Fig. 2, closes the openings 18 in the valve casing. When the shoe is presented to the brush, the valve is raised and the openings 18 are wholly or partially uncovered to allow the cement to flow through the openings to the brush. The upward movement of the valve 19 is limited by a stop rod 20 located in the valve casing above the valve. The upper end of the rod 20 extends through an adjustable screw 21 which bears against an enlarged portion of the rod. Between the enlarged portion of the rod and the valve 19 a coiled spring 22 is interposed which serves to depress the valve 19 when the shoe is removed from contact with the brush, and to also hold the stop rod 20 in its raised position. By turn-

ing the screw 21 in one direction or the other, the stop rod 20 can be adjusted to limit the upward movement of the valve 19 so that the valve when raised will either partially or completely uncover the openings 18 in the valve casing. The flow of the cement to the brush can thus be regulated to suit the character of the work being operated upon. In case the valve 19 remains raised after the shoe is removed from contact with the brush, it can be depressed by depressing the rod 20 against the tension of the spring 22. By reason of the screw threaded engagement of the valve casing 17 with the brush carrier 15 the valve casing and the valve can be adjusted bodily to bring the lower end of the valve rod into the desired position.

In order to enable the operator to readily hold a shoe in position to be operated upon by the cement brush and to aid the operator in guiding the shoe, an edge rest or guide 23 is provided at the rear side of the brush against which the edge of the sole bears during the cementing operation. The shank of this edge guide has a sliding engagement with a block 24 mounted for vertical adjustment upon a stud 25, a clamping bolt 26 serving to clamp the shank of the guide and the block 24 in adjusted position.

The brush 14 is removably mounted upon the lower end of the brush carrier 15 as has been stated, so that a brush can be readily removed and another of a different size substituted therefor when the nature of the work requires such change. In order to avoid frequent changes of the brush, the machine illustrated is provided with means for compressing the bristles of the brush so that the same brush can be used upon different classes of work. These means consist of a plate 26 located at the front side of the brush and carried upon the lower end of a leaf spring 27. This spring is secured at its upper end to the brush carrier 15 by means of a screw and intermediate its ends is acted upon by an adjusting screw 28 by means of which the plate 26 can be forced against the bristles of the brush. If desired the guide 23 can be adjusted so as to compress the bristles of the brush on the opposite side. The adjustment of the plate 26 either alone or in conjunction with the guide 23 compresses the bristles of the brush so that the working face of the brush is made to correspond in width to that of the channel flap and channel portion of the sole which are to be supplied with cement.

The channel flap guide is indicated at 29. This guide is located at the front side of the brush and is arranged to extend beneath the channel flap and hold it up against the brush during the operation of the machine. As shown in the drawings, the guide is mounted upon the lower end of a hollow rod 30 which is mounted to slide vertically in the lower arm of a frame 31 pivotally mounted upon a stud projecting from a bracket 32 secured to the frame 1 of the machine. Within the hollow rod 30 a hollow rod 33 is located, the upper end of which is clamped in the upper arm of the frame 31. The channel flap guide is held yieldingly in its lowest position by means of a spring 34 coiled around the rods 30 and 33 and interposed between the upper arm of the frame 31 and a block 35 secured to the rod 30, the downward movement of the rod 30 being limited by the contact of the block 35 with the lower arm of the frame 31. The block 35 extends laterally on one side of the rod 30 and is provided with a slot which engages a guide rod 36 upon the lower arm of the frame 31, whereby the rod 30 is held from rotation.

In the machine illustrated in the drawings, the channel flap guide 29 is utilized as a means for moistening the channel flap and to this end it is made hollow, the passageway in the guide being in communication with the passageway formed by the hollow rods 30 and 33 and terminating at the inner end of the guide. Water supplied to the passageway is thus delivered at the base of the channel flap which is thus moistened without any liability of injury to the shoe. The water is supplied from a tank 37 mounted upon the cement tank 3 through a flexible tube connecting with the upper end of the rod 33. It is desirable that water should be delivered from the channel guide only at such times as a shoe is being operated upon and accordingly the machine illustrated in the drawings is provided with means, actuated when the shoe is placed in position to be operated upon, for controlling the flow of water. As illustrated, this means comprises a valve 38 which is in the form of a rod mounted to reciprocate in the rod 33 and coöperate with a valve seat near the lower end of the rod. The valve rod is held against the seat by means of a coiled spring interposed between a shoulder on the rod and a stop screw 39 in the upper end of the rod. The lower end of the valve rod rests upon a screw 40 mounted in the channel flap guide 29, whereby, when the guide is raised by the engagement of a shoe therewith, the valve rod is lifted from its seat and water is allowed to flow through the passageway in the guide. The inner end of the screw 40 is shaped to coöperate with a valve seat formed in the channel flap guide, as illustrated in Fig. 2, so that by adjusting the screw 40 the amount of water delivered upon the channel flap can be regulated or the water can be shut off entirely if desired.

The channel flap guide 29 and the cement applying brush 14 are vibrated simultane-

ously in opposite directions longitudinally of the channel flap. The mechanism for so actuating the guide and brush comprises a shaft 41 mounted in bearings in the frame of the machine and provided at its rear end with a driving pulley 42. At its front end the shaft 41 is provided with a crank pin 43 which engages a block 44 mounted in a vertical slot in the rear side of the brush carrier 15. By means of this construction the brush carrier 15 is oscillated upon the pivot stud 16 by the rotation of the shaft 41. At its front end the shaft 41 is also provided with an eccentric 45 which, through an eccentric-strap and link 46, imparts an oscillating movement to the frame 31 in which the channel flap guide 29 is mounted. As is clearly shown in Fig. 4, the crank pin 43 and the eccentric 45 are so placed with relation to each other on the shaft 41 that the brush carrier 15 and frame 31 are oscillated in opposite directions.

It is desirable that means be provided for adjusting the channel flap guide 29 toward and from the edge guide 23 in order to bring it into the proper position to act upon different kinds of work. To this end the bracket 32 upon which the frame 31 is mounted is adjustably secured to the frame of the machine by means of a bolt 47 passing through a slot in the bracket, as is clearly shown in Fig. 2. To allow this adjustment to be made, the link 46 is connected to the frame 31 by means of a pin 48 passing through two lugs on the frame 31 and through the end of the link which is received between the lugs.

In the operation of the machine, the parts being in the positions illustrated in the drawings, the shoe is presented to the brush, the edge of the sole bearing against the guide 23 and the channel flap guide 29 extending under the channel flap. The upward pressure of the shoe against the brush raises the valve 19 and allows the cement to be forced from the chamber in the frame 1 through the passageway in the stud 16 and brush carrier 15 and through the openings 18 to the interior of the valve casing 17 and to the bristles of the brush, the pressure on the cement delivered to the brush depending upon the adjustment of the spring 12 of the valve 11 and the amount of cement depending upon the adjustment of the stop rod 20. The upward movement of the shoe against the brush also raises the guide 29, thereby lifting the valve rod 38 and allowing water to flow through the guide to the base of the flap. The brush and guide vibrate rapidly in opposite directions and as the shoe is fed forward by the operator, the flap is held up against the brush by the guide so that cement is applied only to the channel portion of the sole and to the surface of the channel flap. The brush moves back and forth over the surface of the channel flap and evenly distributes the cement while the vibrating movement of the channel flap guide smooths out the folds or puckers in the flap and causes all portions of its surface to be acted upon by the brush. The vibrating movement of the channel flap guide allows the shoe to be easily fed by the operator, any tendency of the guide to move the shoe in the hands of the operator being counteracted by the brush, the movements of which take place in the opposite direction. As soon as the shoe is removed, the valves 19 and 38 are returned to their normal positions and the flow of cement and water is instantly stopped. If at any time it is desired to shut off the supply of cement from the passageway in the brush carrier, this can be accomplished by turning a valve 49 which controls the passageway through the stud 16.

It will be seen that in the machine above described, the parts may be so adjusted and arranged that the cement will be applied only to the channel portion of the sole and to the channel flap, that cement is supplied to the brush only while a shoe is being operated upon, and that the flow of cement to the brush can be regulated so that only the necessary amount of cement is applied to the shoe. It will also be seen that the cement is not exposed to the air before reaching the brush so that there is no loss of cement by evaporation and no liability of the passageway between the tank and the brush becoming clogged. The cement is exposed to the air only after reaching the brush and in order to prevent evaporation of the cement left on the brush and clogging of the brush when not in use, a cup 50 is provided (see Fig. 1) carried upon a bent rod 51 clamped to the frame of the machine. When the machine is in use, this cup is swung back into the position illustrated in Fig. 1. When the machine is not in use, the cup 50, which is filled with water, is swung into a position beneath the brush and is then raised until the brush is immersed in the water.

It will be understood that the present invention is not limited to the specific construction and arrangement of parts illustrated in the drawings and above described, but that the invention may be otherwise embodied.

What is claimed is:

1. A channel cementing machine, having, in combination, a cement applying brush, and a channel flap guide arranged to support the flap in contact with the brush, substantially as described.

2. A channel cementing machine, having, in combination, a cement applying brush, a channel flap guide arranged to support the flap in contact with the brush, and means

for simultaneously vibrating the brush and guide in opposite directions longitudinally of the flap, substantially as described.

3. A channel cementing machine, having, in combination, a cement applying brush, a channel flap guide arranged to support the flap in contact with the brush, and means for vibrating said guide longitudinally of the channel flap, substantially as described.

4. A channel cementing machine, having, in combination, means for applying cement to the channel and channel flap and means for simultaneously moistening the channel flap, substantially as described.

5. A channel cementing machine, having, in combination, a cement applying brush and a channel flap guide arranged to support the channel flap in contact with the brush, said channel flap guide being provided with a passageway for conducting water to the channel flap, substantially as described.

6. A channel cementing machine, having, in combination, a cement applying brush, a yieldingly mounted channel flap guide arranged to extend beneath the channel flap and provided with a passageway for conducting water to the channel flap, and a valve actuated by the movement of the guide for controlling the flow of water, substantially as described.

7. A channel cementing machine, having, in combination, a cement applying brush, a flap moistening device, means for supplying cement and water to the brush and moistening device respectively and valves actuated by the shoe when presented to the brush and moistening device for controlling the flow of cement and water, substantially as described.

8. A channel cementing machine, having, in combination, a cement applying brush, an edge guide upon one side of the brush, and a channel flap guide on the other side of the brush, substantially as described.

9. A channel cementing machine, having, in combination, a cement applying brush and a yieldingly mounted channel flap guide arranged to support the flap in contact with the brush, substantially as described.

10. In a machine of the class described, the combination with means for applying cement to a shoe sole, of guiding means independent of the cement-applying means for engaging the channel-flap to guide the shoe with relation to the cement-applying means.

11. In a machine of the class described, the combination with means for applying cement to the channel-flap of a shoe sole, of means for supporting the channel-flap against the pressure of the cement-applying means.

12. In a machine of the class described, the combination with means for applying cement to the overturned channel-flap of a shoe sole, of means for raising the edge of the channel-flap from the sole.

13. In a machine of the class described, the combination with means for applying cement to the channel-flap of a shoe sole, of means arranged to be positioned under the channel-flap for holding the free edge of the flap away from the face of the sole while the cement is being applied to said flap.

14. In a machine of the class described, the combination with means for applying cement to the overturned channel-flap of a shoe sole, of a guide adapted to extend under the channel-flap for engaging the base of the channel-flap to position the shoe with relation to the cement-applying means.

15. In a machine of the class described, the combination with means for applying cement to the marginal portion of a channeled shoe sole, of a guide independent of the cement-applying means arranged to engage the sole at the inner side of the channel.

16. In a machine of the class described, the combination with means for applying cement to a shoe sole, of a yielding guide comprising a shank and a laterally extending finger adapted to hold the work yieldingly in normal relation to the cement-applying means.

17. In a cement-applying machine, the combination with means for applying cement to the channel and channel-flap of a sole, of yielding guiding means for engaging the base of the channel-flap.

18. A channel-flap cementing machine comprising a cement applying device, and a channel-flap-turning device disposed adjacent thereto, and arranged to turn the flap toward the cement-applying device and to cause it to pass between said cement applying and turning devices, substantially as described.

19. A channel-flap cementing machine comprising a brush and a channel-flap-turning device disposed adjacent thereto, and arranged to hold the channel-flap against the brush as the brush is passed over the bottom of the channel, substantially as described.

20. A channel-flap cementing machine comprising a brush and a flap-engaging device supported adjacent the face of said brush for turning the flap toward the brush, said flap-engaging device being movable toward and from said face, substantially as described.

21. A channel-flap cementing machine comprising a brush, a longitudinally movable arm supported adjacent thereto, extending at an abrupt angle to the face of the brush and having flap-engaging devices at its end for turning the flap toward the brush, as substantially described.

22. A cementing machine comprising a

brush, means for delivering cement thereto, a channel-flap turning device and means for supporting the same adjacent one side of said brush, said means permitting said turning device to be moved longitudinally of the brush, and a spring normally acting to hold the flap-engaging portion of said turning device adjacent the end of said brush, substantially as described.

23. A cementing machine comprising a brush, means for delivering cement thereto, a channel-flap turning device adjacent one side of said brush and arranged to cause the flap to pass between it and the brush and means for oscillating said brush and flap-turning device simultaneously, substantially as described.

24. A cementing machine comprising a brush, a channel-flap turning device at one side thereof, and means for oscillating said turning device, substantially as described.

25. In a cement-applying machine, the combination with means for applying cement to the channel and the overturned channel-flap of a shoe sole, of a guide adjustable toward and from the surfaces being cemented and also in a plane substantially parallel with said surfaces.

26. In a machine of the class described, the combination with means for applying cement to the marginal portion of the bottom of a shoe, of means arranged to engage the shoe upon opposite sides of the cement-applying means for guiding the shoe with the face of the shoe bottom in the desired plane with relation to the acting face, of the cement-applying means.

27. In a machine of the class described, the combination with means for applying cement to the overturned channel-flap of a shoe sole, of means arranged adjacent to the cement-applying means and adapted for lifting the channel-flap and supporting it above the face of the sole at the point where the cement is being applied.

28. In a machine of the class described, the combination with means for applying cement to the sole of a shoe, of guiding means for engaging the edge of the sole, and guiding means for engaging the face of the sole upon the opposite side of the cement-applying means.

29. In a machine of the class described, the combination with means for applying cement to a shoe sole, of guiding means comprising a support and a movable work-engaging member mounted thereon and provided with a laterally projecting portion adapted to extend under the channel-flap of the sole for guiding the work to the cement-applying means.

30. In a machine of the class described, the combination with means for applying cement to the channel-flap of a shoe sole, of means arranged to extend under the channel-flap and between the cement-applying means and the face of the sole adjacent to said applying-means for protecting the face of the sole from the cement.

31. A machine of the class described, comprising means for applying cement to the sole of a shoe, and guiding means constructed and arranged to engage the face of the sole at one side of the cement-applying means, said guiding means being independent of said cement-applying means, and having a surface about which the shoe may be rocked for inclining the face of the shoe more or less with relation to the cement-applying means.

32. In a cement-applying machine, the combination with means for applying cement to the channel of a shoe sole, of guiding means independent of the cement-applying means, for engaging the face of the sole at the inner side of the channel.

33. In a cement-applying machine, the combination with means for applying cement to the channel and channel flap of a shoe sole, of guiding means arranged to extend on the outer side of said cement-applying means for engaging the face of the sole adjacent to the channel.

34. In a machine of the class described, the combination with means for applying cement to the channel and the overturned channel-flap of a shoe sole, of means for engaging the sole at a plurality of points for controlling the position of the shoe whereby the faces of the channel and the overturned channel-flap to be cemented are presented in approximately the plane of the face of the cement-applying means.

35. In a machine for applying cement to an inwardly turned channel-flap of a shoe sole, the combination with cement-applying means, of means for straightening out crimped portions of the flap.

36. A cementing machine comprising a brush, means for delivering cement to the face thereof, and a channel-flap-turning device closely adjacent said brush at one side thereof, said turning device having a transversely extending, flap-engaging lip at its end, substantially as described.

37. A cementing machine comprising in combination cement distributing means, a cement delivery member in juxtaposition thereto, and means to impart distributing movement to said means, to distribute upon the work the cement delivered from said delivery member, and a flap-turning device to turn a channel flap in advance of said distributing means.

38. A cementing machine comprising in combination a cement delivery member, and cement distributing means arranged to act upon the cement delivered from said delivery member to distribute the same upon the work and a flap turning device to turn a

channel flap in advance of said distributing means.

39. The combination with a cement reservoir, of means for applying cement therefrom to the opposite channel surfaces to be cemented together, and a support for holding the back of the channel-flap toward said cement applying means, said support being provided with means permitting it to yield toward and from said applying means.

In testimony whereof I affix my signature, in presence of two witnesses.

CHARLES P. STANBON.

Witnesses:

FRED O. FISH,

ALFRED H. HILDRETH.