

F. M. FURBER.
CEMENTING MACHINE.
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1,043,085.

Patented Nov. 5, 1912.

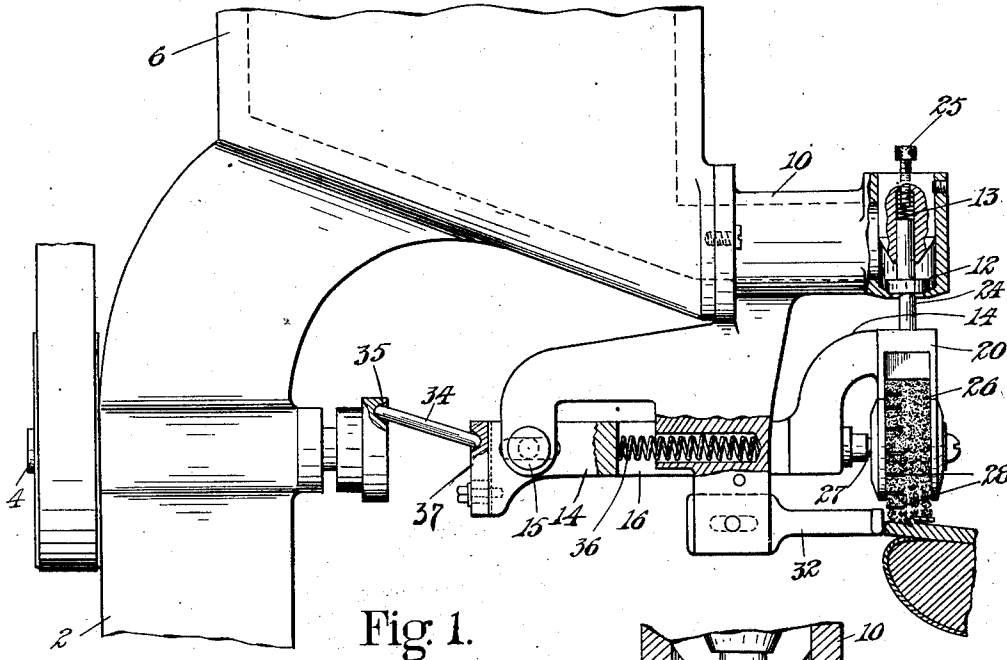


Fig. 1.

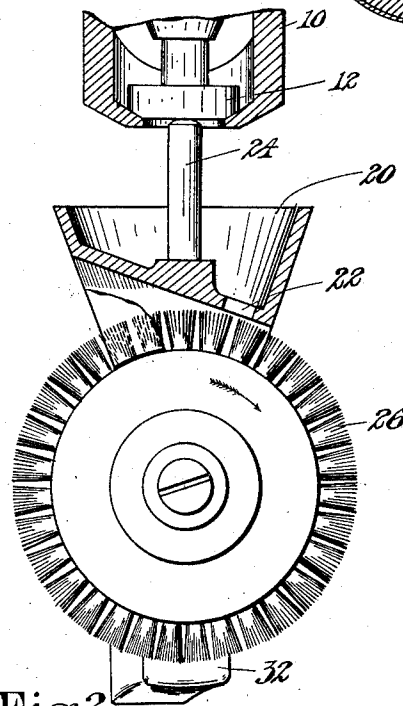


Fig. 2.

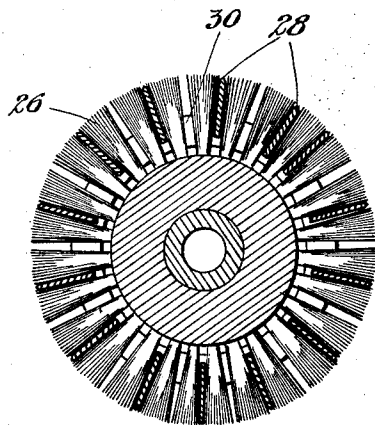


Fig. 3.

WITNESSES.

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CEMENTING-MACHINE.

1,043,085.

Specification of Letters Patent.

Patented Nov. 5, 1912.

Application filed April 24, 1908. Serial No. 428,974.

To all whom it may concern:

Be it known that I, FREDERICK M. FURBER, a citizen of the United States, residing at Lynn, 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 machines for applying liquid material, such as cement, to shoes or other stock and particularly to machines for applying cement to the channeled portions of the soles of shoes.

An object of the invention is to provide a novel cement applying machine in which the delivery of cement will be controlled by the position of the work to be coated, the flow of cement being automatically stopped when the work is withdrawn from position to receive it, and preferably also being automatically started when the shoe is presented in position to be coated.

A further object of the invention is to provide means for controlling the delivery of cement in relation to the rate at which the work is advanced for receiving its coating, and still another object is to provide improved means for spreading the cement on the work.

A very important feature of this invention consists in a machine arranged to provide a continuous flow of cement while the work is in place with means for automatically shutting off the delivery of cement when the work is withdrawn from receiving position. Preferably, also, means is provided for starting the flow of the cement when the work is moved toward or into its receiving-position, and insuring the continued flow until the work is withdrawn. By stopping the delivery of cement automatically when the shoe is withdrawn, waste of cement is avoided and also objectionable overloading of the cement-applying brush which is likely to occur when the operator controls a valve by a foot treadle and often fails to shut it off as soon as a shoe is finished. By also starting the cement automatically the use of the usual treadle can be entirely avoided and economy in the use of cement effected because cement will only

be delivered while the shoe is in position to receive it.

Another feature of this invention that is of great importance consists in cement applying means constructed and arranged to deliver cement to the work in proportion to the advance of the work. This feature is of especial importance in such work as channel cementing in which the rate at which the work can conveniently be fed varies at different points. It is possible, and in practice desirable, to advance the shoe very rapidly while the relatively straight sides are being coated but when the toe is reached and the shoe must be turned the advance is necessarily slower than it may be at the sides. It is however not necessary to supply at the toe a correspondingly greater quantity or coating of cement. By this invention approximately the same quantity of coating of cement may be applied during the slow advance at the toe as during the more rapid feed at the sides.

A further important characteristic of this invention is found in the combination with means for supplying cement in proportion to the advance of the work, of means for spreading the cement which is operated independently of the rate of feed of the work. This enables the operator by varying the rate of feed to obtain a more thorough spreading of the cement at the parts of the work which for any reason require especial care, such, for example, as the crumpled lip of the sole at the toe of the shoe.

A more specific feature of the invention is found in a construction in which a brush is arranged to be rotated by contact with the work and to deliver cement by this movement while it has a movement in a different direction, as, for example, an axial reciprocatory movement to spread the cement. In a channel cementing machine the axial movement transversely of the channel lip is particularly advantageous in working cement into the folds of the inwardly turned and crumpled portion of the lip at the toe.

A further feature of the invention consists in novel means for applying the cement to the work comprising a rotary brush and means for actuating the brush in the direction of its axis. This arrangement is of particular advantage in a machine for

cementing the channeled portions of a shoe sole which comprise the feather and the overturned or partially overturned channel flap. In this operation it is important to
 5 get cement into the angle at the base of the flap and the movement of the brush forth and back transversely of the feather and flap effects this placing of the cement in a superior manner in addition to spreading it
 10 properly over the face of the flap and feather.

These and other features of the invention, including numerous details of construction and combinations of parts, will be more
 15 fully explained in connection with the drawings and will then be pointed out in the claims.

Figure 1 is a side view of a machine embodying the invention in one of the best forms now known to me; Fig. 2 is a section
 20 of Fig. 1 on line 2—2. Fig. 3 is a section of Fig. 1 on line 3—3.

The frame 2 of the machine has bearings for a driving shaft 4 provided with a belt pulley as shown in Fig. 1 and the head of the frame supports or is shaped to form a reservoir 6 for holding a quantity of cement. The bottom of the reservoir preferably slants as indicated toward the outlet at the front of
 30 the machine. About this outlet the reservoir is formed to receive the conductor 10, which is removably attached to the reservoir and may be differently formed according to the cement applying means to be employed. As
 35 shown in Fig. 1, the conductor terminates in the vertically bored portion open at its lower end and provided with a seat for the valve 12 which is normally pressed downwardly by the spring 13. The casting of which the
 40 conductor is a part extends downwardly and also rearwardly and forms a support for the brush carrier 14. This carrier is mounted to have movement both horizontally and vertically, being connected to the casting by a
 45 pin and slot at 15 and forked at 16 to embrace and be guided by a depending portion of the casting. This arrangement permits the brush to be lifted by the engagement of the work therewith. The brush carrier is
 50 shaped to form a cement box 20 located directly above the brush and having an inclined floor terminating in an outlet at 22. The cement box also has a post 24 which is located relatively to the valve 12 so that
 55 when the brush is lifted by the work the valve will be opened to permit discharge of the cement from the conductor into the cement box from which it flows upon the upper portion of the periphery of the brush.
 60 A set screw 25 is arranged to be engaged by the valve stem and limit the extent to which the valve may be opened by the upward movement of the brush.

The brush indicated at 26 in Figs. 1, 2,
 65 and 3 is preferably not driven, but mounted

to turn upon an axle 27 by its surface engaging with the work. When no work is in position the brush stands idle, the cement being shut off by the valve 12, and when the shoe is advanced in contact with the brush
 70 the latter turns merely with the speed of the work. The brush is provided with fingers 28, shown as blades, which may be supported by or formed upon a flange 30 secured to the hub of the brush. These fingers extend ap-
 75 proximately to the periphery of the brush and are adapted to engage the work. They facilitate the turning of the brush by the work and they also constitute a substantially rigid element against which the shoe may be
 80 pressed upwardly for raising the brush and opening the valve. The fingers are shown as extending only partially across the width of the brush and are located to engage the feather of the sole. They may serve as a
 85 lateral abutment for the base of the channel flap and therefore as guiding devices for determining the lateral position of the shoe with relation to the brush. When the fingers are used for this purpose they will terminate
 90 at their front or right hand ends, in Fig. 1, in such a position with relation to the width of the brush that they will prevent the brush from extending over the edge of the channel flap into such a position that cement might
 95 get upon the face of the shoe sole. It should be noted that these fingers engage the sole successively as said sole is advanced and that this successive engagement tends to cause a vibrating movement of the carrier and hence of the valve, the advantage of such movement being due to the viscosity of the cement which renders its normal flow somewhat sluggish. An edge guide 32 is
 100 shown in Fig. 1 which may be used either alone or in conjunction with the fingers 28 to determine the lateral position of the work with relation to the brush.

As above mentioned, the brush carrier 14 is movable horizontally or endwise. Between the rear end of the carrier and the shaft 4 there is arranged a rod 34 having one end in an eccentrically located socket 35
 110 of a disk that is rotated by the shaft. The other end of the rod 34 is seated in a socket 36 of a plate 37 adjustably mounted on the rear end of the brush carrier, the sockets being so located that the inclination of the rod is alternately increased and decreased as the shaft
 115 turns. By this arrangement the brush carrier is moved forwardly by the rod at each rotation of the shaft 4 and the length of the reciprocating movements may be varied by adjusting the plate 37. A spring 36 reversely moves the carrier, thus effecting with
 120 the rod a reciprocation of the brush lengthwise of its axis and transversely of the channeled portions of the shoe sole. By this means the cement, which is supplied in proportion to the upward pressure of the work
 125 130

against the brush, is thoroughly worked into the angle between the channel flap and the feather of the sole.

Certain features which are common to this application and to applicant's co-pending application, Ser. No. 428,975, have been claimed in said co-pending application.

Having explained the nature of this invention and described a mechanism embodying the same in the preferred form, I claim as new and desire to secure by Letters Patent of the United States:—

1. A machine for cementing the channeled portions of a shoe sole having in combination means for supplying cement, a cement distributing device, and means for imparting working movement to said device, said machine having provision for an additional movement of said distributing device to control the delivery of cement to the distributing device.

2. A cementing machine for coating the feather and the lip of a shoe sole and having a rotary distributor, comprising flexible bristles arranged to engage the lip, and rigid elements arranged to engage the feather.

3. A cementing machine for coating the feather and the lip of a shoe sole and having a rotary distributor, comprising flexible bristles and a circumferential series of radial fingers to engage the feather and the base of the lip to position the shoe.

4. A cementing machine for coating the feather and the lip of a shoe sole and having a rotary distributor, comprising flexible bristles and a circumferential series of radial fingers to engage the feather and the base of the lip to position the shoe, combined with cement supplying means including an operative connection with said fingers whereby pressure of the work in positioning the shoe controls the delivery of the cement.

5. A cementing machine having in combination a brush, a movable brush carrier, a receptacle rigid with said carrier, a valve controlling a source of supply of cement and a connection between said receptacle and valve.

6. A channel cementing machine, having shoe positioning means, a cement spreading brush arranged for rotation in the direction of the length of the channel by contact with the work as the latter is fed, and means for reciprocating the brush transversely of the channel.

7. A channel cementing machine having a rotary brush provided with work guiding means to engage the base of the channel lip, means operated by transverse movement of the brush for starting the flow of cement, and means for rapidly reciprocating said brush across the channel lip.

8. In a cementing machine, a rotary cement spreading brush, a pivoted carrier by

which said brush is supported, and means including a spring for rapidly reciprocating the brush axially.

9. A channel cementing machine, having cement supplying means, and a device arranged for movement in one direction to open the supplying means and in another direction to carry the cement to the work, and means for moving said device in a third direction to spread the cement upon the work.

10. A machine for cementing the channel of a shoe having, in combination, a freely rotatable brush provided with a rigid element for engaging said channel and means for supplying cement to said brush, said means including a valve and a connection between said valve and brush, whereby pressure of a shoe against the brush opens the valve, the space beneath the brush being unobstructed whereby a shoe may be freely presented to said brush with varying pressure.

11. A cementing machine having in combination a distributor, a carrier therefor, a spring for moving said carrier in one direction, and means including an eccentric and a rod for moving said carrier in the reverse direction.

12. A cementing machine having in combination a distributor and actuating means therefor comprising an eccentric and a rod operatively connected with said distributor for moving said distributor in one direction, and a spring for moving it in the reverse direction.

13. A machine for cementing the channel of a shoe having, in combination, a freely rotatable brush, a movable carrier for said brush, means for supplying cement to said brush, said means including a valve and a connection between said valve and said carrier, and means for reciprocating said brush across said channel.

14. A cementing machine, having in combination, means for supplying cement, a valve for controlling the flow of said cement and an applying member constructed and arranged to open said valve intermittently during the application of cement to a piece of stock.

15. A cementing machine, having in combination, means for supplying cement, a valve for controlling said supply, and an applying member constructed and arranged to control the opening of said valve, said member being provided with rigid elements which successively engage the work whereby the valve is vibrated.

16. A channel cementing machine having a cement applying device arranged to be actuated by rolling contact with the work, and means for imparting an additional cement spreading movement to said applying device.

17. A channel cementing machine having shoe positioning means, a cement applying brush mounted for free rolling movement lengthwise of the channel, and means for
5 actuating the brush transversely of the channel.

18. A channel cementing machine having shoe positioning means, a cement applying brush mounted for free rolling movement
10 lengthwise of the channel, means for actuating the brush transversely of the channel, and means for guiding the shoe laterally to position it with relation to the path followed by the brush in its movements trans-
15 verse of the channel.

19. In a machine of the class described,

cement applying means, a pivotally mounted support for said means constructed to deliver cement thereto, and means for supplying cement to said support including a valve 20 arranged to be opened mechanically by pressure upon the support and to be closed automatically when said pressure is removed.

In testimony whereof I have signed my 25 name to this specification in the presence of two subscribing witnesses.

FREDERICK M. FURBER.

Witnesses:

ARTHUR L. RUSSELL,
JAMES R. HODDER.

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