M. F. BROGAN.

CEMENTING MACHINE.

APPLICATION FILED OCT. 27, 1906.

1,030,769. Patented June 25, 1912.

4 SHEETS—SHEET 1.

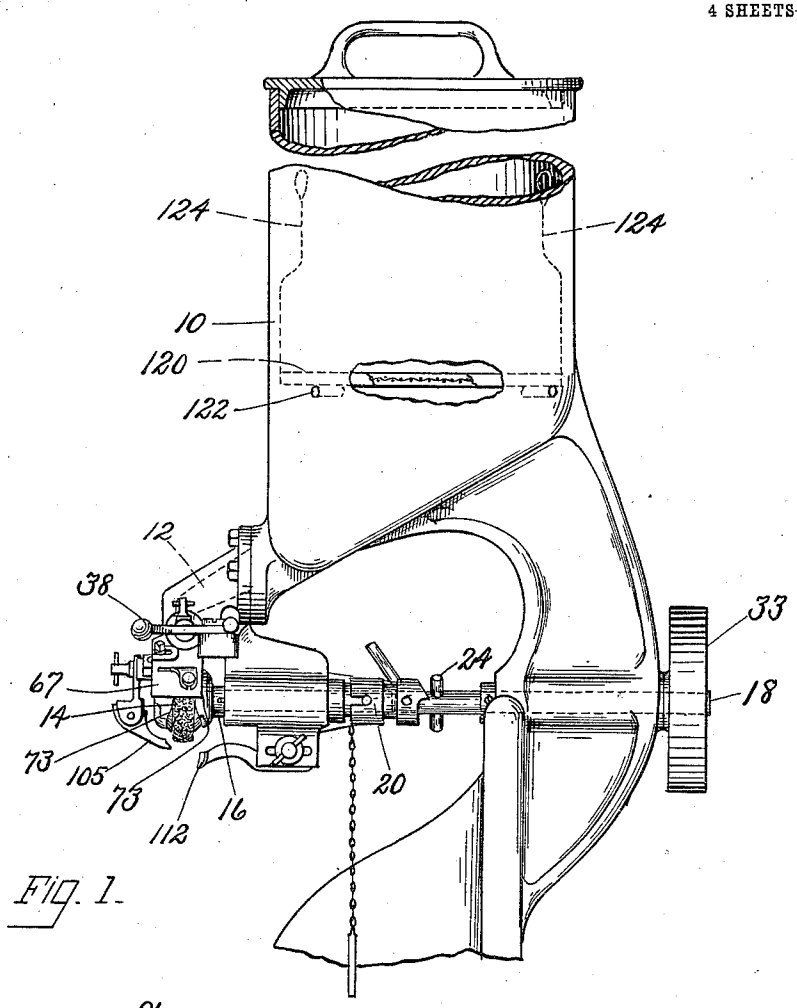


Fig. 1.

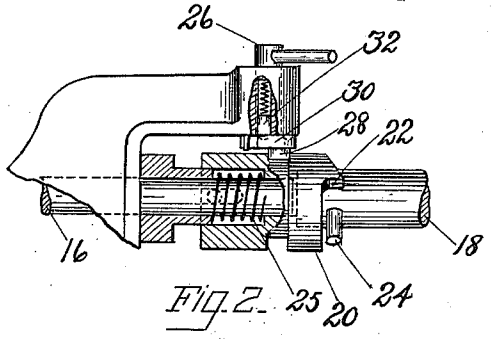


Fig. 2.

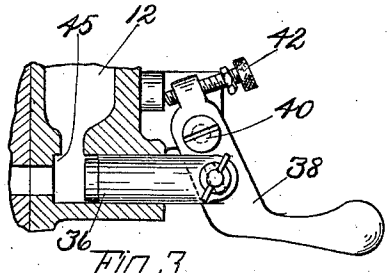


Fig. 3.

WITNESSES.

Elizabeth C. Comfe

Arthur L. Russell

INVENTOR.

M. Frank Brogan

By Fish Bitterley,

Nelson W. Howard

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

M. F. BROGAN.

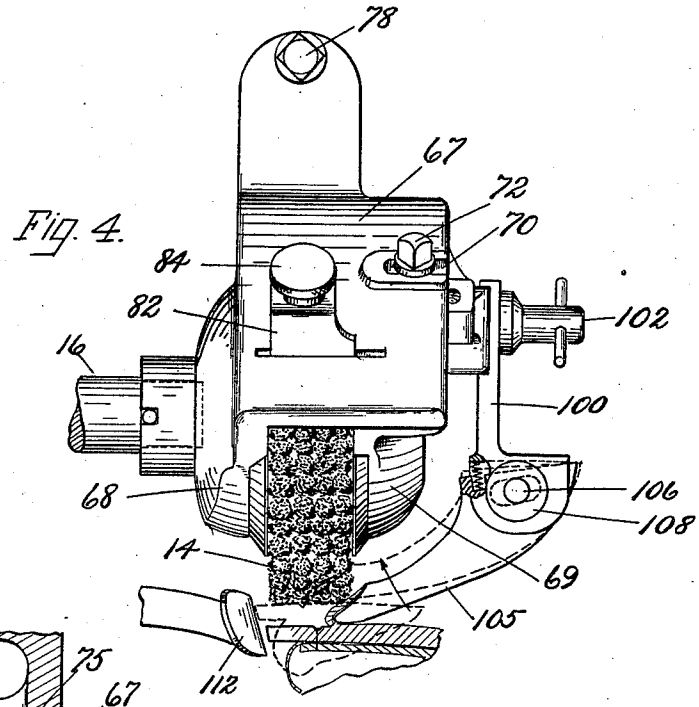
CEMENTING MACHINE.

APPLICATION FILED OCT. 27, 1906.

1,030,769. **Patented June 25, 1912.**

4 SHEETS—SHEET 2.

Fig. 4.



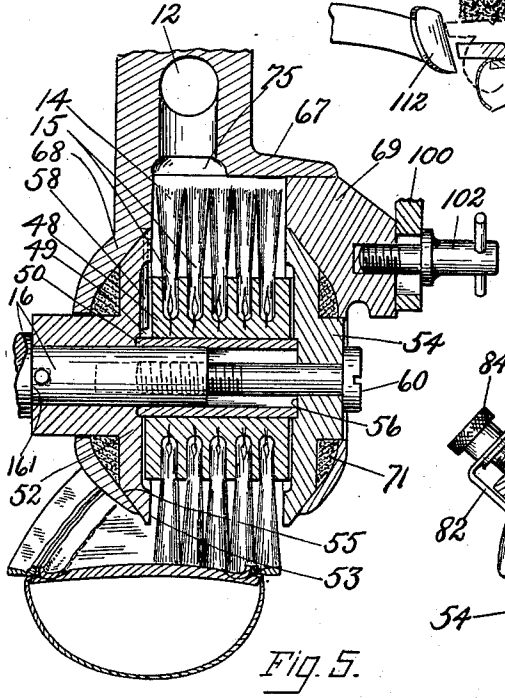


Fig. 5.

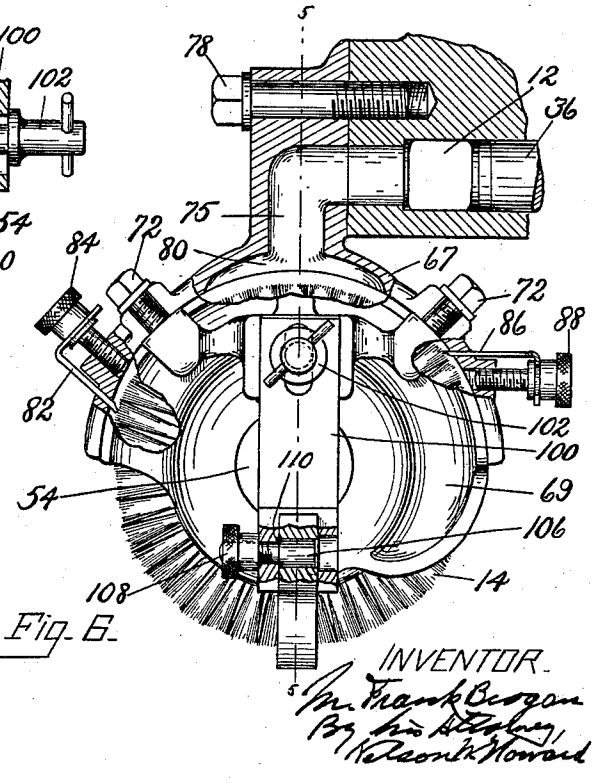


Fig. 6.

WITNESSES.

Elizabeth C. Coupe

Arthur L. Russell

INVENTOR.

M. Frank Brogan

By his Attorneys,

Pierce & Howard

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

M. F. BROGAN.

CEMENTING MACHINE.

APPLICATION FILED OCT. 27, 1906.

1,030,769. **Patented June 25, 1912.**

4 SHEETS—SHEET 3.

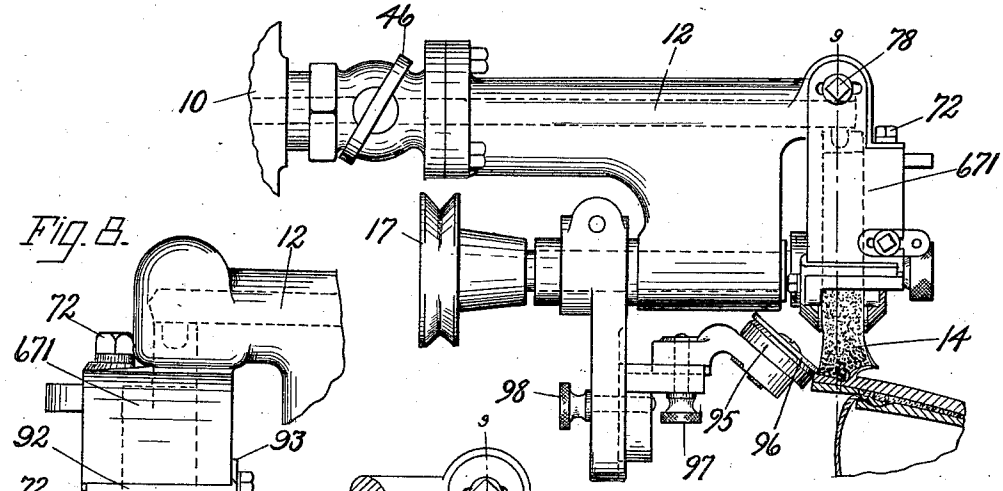
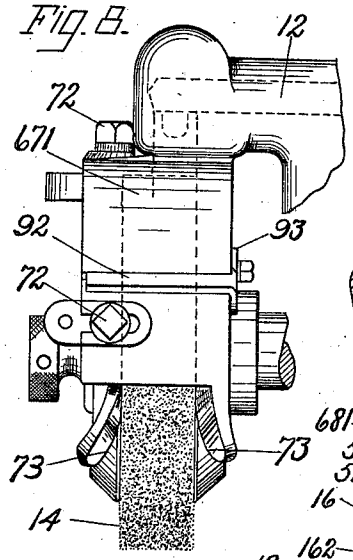


Fig. 7.

Fig. 8.



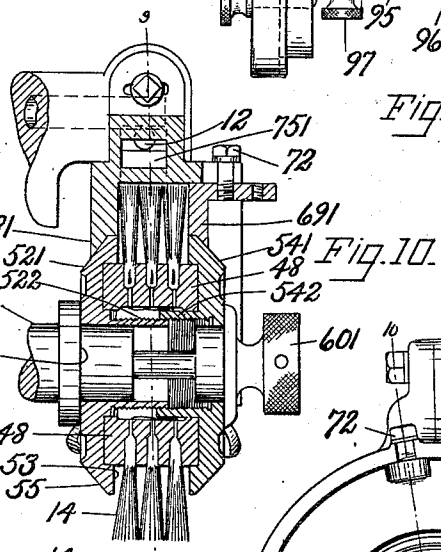


Fig. 10.

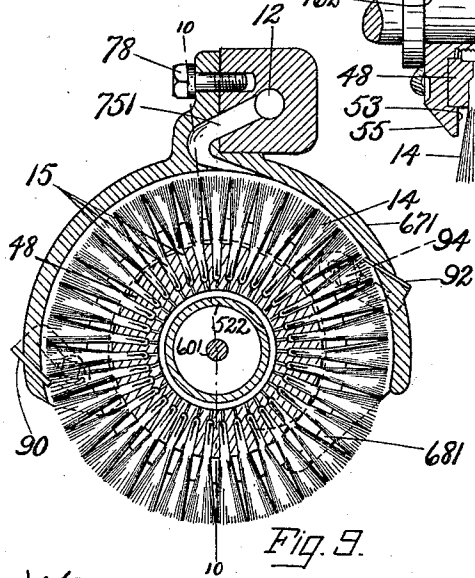


Fig. 9.

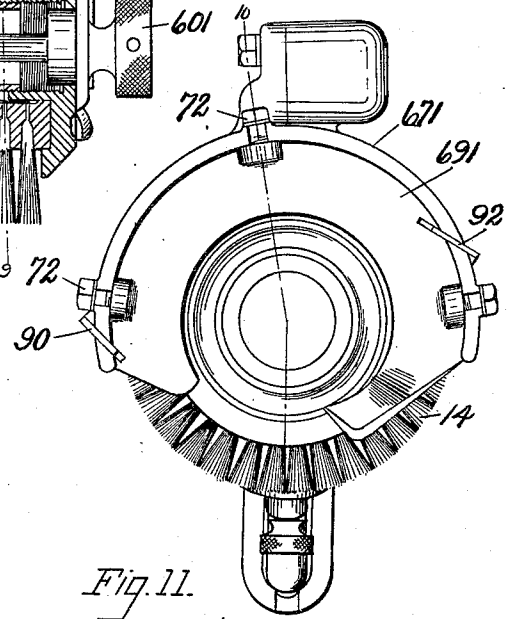


Fig. 11.

WITNESSES.

Elizabeth C. Coyle

Arthur L. Russell.

INVENTOR.

M. Frank Brogan

By his Attorneys,

Peter & Howard

M. F. BROGAN.

CEMENTING MACHINE.

APPLICATION FILED OCT. 27, 1906.

1,030,769.

Patented June 25, 1912.

4 SHEETS—SHEET 4.

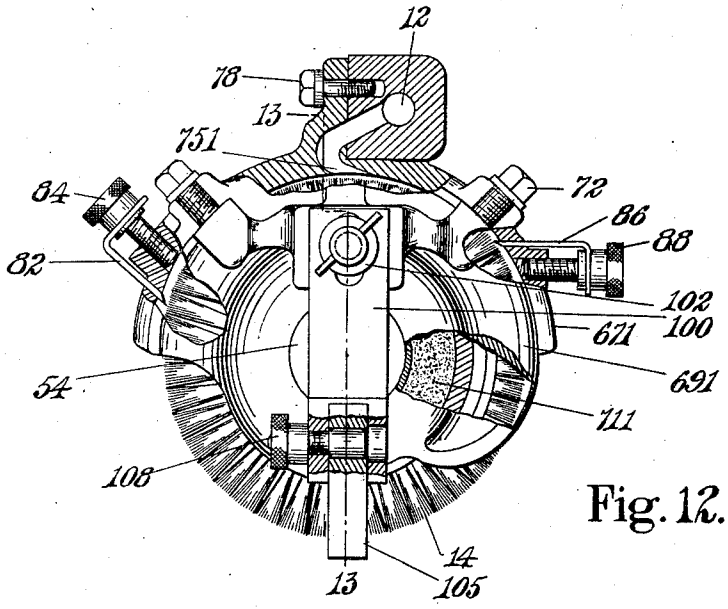


Fig. 12.

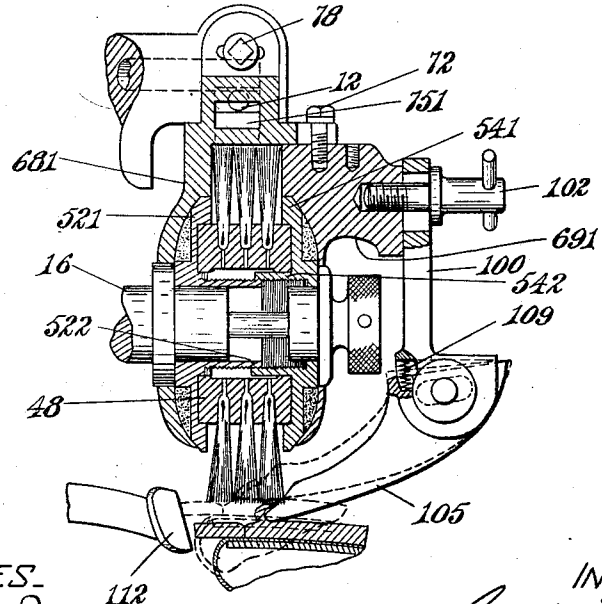


Fig. 13.

WITNESSES.

Arthur R. Russell

Berta H. Hathaway

INVENTOR.

Richard Frank Brogan

By his Attorney

Nelson W. Howard

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

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.

1,030,769. Specification of Letters Patent. **Patented June 25, 1912.**

Application filed October 27, 1906. Serial No. 340,866.

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 machines for applying cement or other coating material to stock, and more particularly to machines for applying cement to boots and shoes. In many machines of this class an objection has arisen from the fact that they are constructed so as to be easily "flooded"; that is, during the operation of applying cement to stock a greater amount of the cement than is necessary is delivered to the applying member. Of this excess a portion is delivered to the stock, usually much more than is requisite and in an uneven layer, and the remainder flows over and about the applying means on contiguous parts of the machine and frequently smears portions of the stock which it is desirable to keep free from cement. In many machines this condition is due to the fact that the flow of cement from the reservoir is governed by a valve which is under control of the operator and is designed to be opened from time to time to supply regulated quantities of cement, as needed, to the applying member. Experience has shown that, as a rule, the boys who are usually placed on this class of work keep this valve too freely open. As a result much cement is wasted and, when a shoe is being operated upon, portions of the surface which are later to be finished and polished receive a coating of cement which often forms disfiguring stains.

One object of this invention, therefore, is to construct a machine provided with suitable safeguards against an occurrence of these undesirable conditions. One means of accomplishing this object is by providing automatic controlling means to regulate the flow of cement from the source of supply. In the construction herein illustrated, cement is delivered to the applying member in a continuous stream through an unobstructed conduit from the reservoir, so that, unless suitably controlled, an excess will be delivered. This excess is avoided by automatically damming the flow when the requisite amount for use has been delivered to the applying member. This may be done by delivering cement to the applying member, which is preferably mounted on a continuously rotating hub, from a direction such that when the applying member has become properly supplied with cement it will act in its continued rotation to back up the cement in the conduit. The rotation of the applying member thus continually tends to bank or dam up in the supply passage all cement in excess of the amount which it can effectively use. The point of delivery on the applying member, supposing it to be rotating in a counter-clockwise direction as the operator faces the machine, is preferably either in or at the right of a vertical line passing through its axis. Such a location allows the peripheral surface of the applying member to pass the delivery opening before it commences its downward movement so that it acts to force back the surplus cement flowing from the reservoir, which action continues and is effective so long as the rotary movement continues. In one construction herein shown as embodying the invention the cement is delivered to the rotating applying member from a direction which is counter to its direction of rotation and which may be substantially tangential to the peripheral surface of said member. This arrangement insures a very effective action of the rotating member in forcing back into the conduit all excess of cement over what is required to satisfy the carrying capacity of the applying member. The delivery of cement as described, counter to the direction of rotation of the cement-applying member is preferable in machines in which pressure above the normal air pressure is employed for forcing the cement from the reservoir. In a gravity feed machine, however, I prefer to deliver the cement to the applying member in a direction substantially perpendicular to the peripheral face of said member and approximately vertically above said member as thereby a freer delivery of cement is obtained. It is the practice to present work intermittently to the cement applying member, the operator presenting one shoe then laying it aside and taking up another. I prefer to provide a small reserve supply of cement which may

be substantially equivalent to that required for coating one shoe in position to be taken up rapidly by the applying member to replace that taken from said member by the work while a shoe is in position to be cemented. To this end there is preferably formed at or near the mouth of the conduit a recess in which this reserve body of cement may accumulate and from which it may be rapidly taken up by the applying member. It has been found advantageous with these arrangements for delivering the cement to provide the applying member for a portion of its periphery about the point of delivery with a suitable inclosing medium. This inclosing medium preferably consists of a partial peripheral cover which may be provided with side plates, thus forming, in effect, a hood about the upper portion of the applying member. The side plates preferably extend inwardly to the rotating hub and may extend downwardly as far below the hub as is practicable and desirable. With such a construction, to assist in preventing "flooding", means may be provided for preventing cement from escaping from the interior of the hood except by being taken up by the applying member after said member has delivered a portion of its load to the work, or by being forced back into the delivery passage after the delivering capacity of the applying member has been satisfied.

Another object of the invention, then, is to construct the inclosing medium in such manner that cement, on being delivered thereinto and upon an applying member, can only escape in one or both of the two ways just mentioned. The preferred manner of accomplishing this is to provide the hood with suitable means for damming the outlet between its peripheral cover and the adjacent surface of the applying member.

The preferred manner of mounting the cement-applying member on the rotating hub is between suitable devices for securing it against lateral displacement, as a pair of flanges carried by the hub. The flanges may have their peripheral faces met by the sides of the hood which form tight joints therewith, thus protecting such portion from being covered with cement. Preferably a packing of felt or other suitable material is provided between a portion of the engaging surfaces of the flanges and the sides of the hood. It is not essential however that the peripheral faces of the flanges be entirely covered by the sides of the hood and in the constructions herein shown a portion of the peripheral faces of the rotating flanges is exposed, and another object of the invention is to provide means whereby this exposed portion will be kept clean, thus insuring tight joints between the sides of the hood and flanges. A convenient means for effecting this object is to provide a wiper arranged diagonally across the exposed portion of the peripheral face of each flange for wiping, during their rotation, any cement that may have been deposited thereon toward and on the applying member. The preferable construction is so to shape the rear ends of the side plates on the hood that they will perform this function.

It is readily seen that the joint between the flanges, used for securing the applying member in position, and the sides of the hood should be kept tight to prevent leakage. Frequently the applying member is provided with a body portion which is liable to warp or otherwise change its dimensions when moistened and if the securing means were maintained in contact therewith they would be thrown out of alinement with the hood sides.

Another object of the invention is to prevent an occurrence of this condition. A preferred means is to provide a construction whereby the flanges may be locked a sufficient distance apart so that a change in the dimensions of the body portion of the applying member may occur and not affect their alinement.

It is customary in the manufacture of many grades of boots and shoes to cut a channel in the face of the sole from its edge or near its edge inwardly, the flap thus formed being then turned backwardly and the sole fastening material inserted through the channel. Both channel and flap are then cemented, and the flap subsequently turned back in place. It is also customary in the manufacture of "Goodyear" shoes to coat their bottoms with cement after they have been lasted and welted. This is done to provide the bottom with means for temporarily securing the outsole on the shoe during the operation of permanently fastening the outsole to the welt.

With these practices in view, another object of the invention is to provide a machine which, although fitted with a hood or other medium for inclosing a portion of the cement applying member as above noted, can be readily and quickly adapted for cementing either channels or bottoms by the substitution of a cement-applying member of a narrow width adapted for coating the channels or a greater width for coating bottoms. The preferred means for accomplishing this object is to mount one of the side plates of the hood so that it may be adjusted transversely, thus altering the size of said medium to accommodate different sizes of applying members.

In cementing channels it is sometimes preferable to gage the position of the shoe by a guide engaging under the channel flap and serving to lift the edge of that flap from the face of the sole so that danger of

smearing the face of the sole with cement while coating the flap is avoided.

A further object of this invention is to provide an improved construction of guide and to mount the guide so that it may be adjusted inwardly and outwardly according to the position of the channel flap without special attention on the part of the operator. As has been explained the outer side plate of the hood is positioned inwardly or outwardly according to the width of the brush to be used and the brush is changed for different widths of channels. I prefer to attach the guide to this outer plate of the hood so that it will be supported in different relations to the work according to the width of channel cementing brush that is in the machine.

To the accomplishment of these objects and such others as may hereinafter appear the invention comprises the novel construction and combinations of parts herein described and pointed out in the claims, reference being made to the accompanying drawings showing the preferred embodiment thereof, in which:—

Figure 1 is a side elevation of a machine embodying this invention in the best form now known to me. Fig. 2 is a plan view partly in section of the parts connecting the brush shaft to the driving shaft. Fig. 3 is a plan view partly in section of the shut-off for closing the conduit leading from the reservoir to the brush chamber. Fig. 4 is an edge view, on an enlarged scale, of the cement-applying brush and the parts more closely associated with it, this view being taken from the opposite side of the machine from that shown in Fig. 1. Fig. 5 is a sectional view on the line 5—5 of Fig. 6, the work guide being turned into an inoperative position and partly broken away. This figure shows the use of the cement-applying brush in coating the bottom of a shoe with cement. Fig. 6 is a front elevation partly in section of the parts shown in Fig. 4. Fig. 7 is a side elevation of a modified construction embodying this invention. Fig. 8 is a view, on an enlarged scale, of a cement-applying brush and the parts associated with it, this view being taken from the opposite side of the machine from that shown in Fig. 7. Fig. 9 is a sectional view on the line 9 in Figs. 7 and 10. Fig. 10 is a transverse section on the line 10 of Figs. 9 and 11. Fig. 11 is a front elevation of the parts shown in Figs. 8 and 10. Fig. 12 is a front elevation, partly in section, illustrating the application of the guide 105 to the form of construction shown in Figs. 9, 10, and 11. This figure also illustrates the use of packing 711 for preventing the passage of cement between the brush hub and the side plates 681 and 691. Fig. 13 is a vertical section on the line 13—13 of Fig. 12.

Referring to the drawings, cement is supplied from any suitable reservoir or tank 10, from which it is led by any convenient means, as a conduit 12, to the cement-applying member which is mounted in such manner that a shoe or other article to be cemented may be conveniently presented thereto. The applying member is herein shown as a circular brush 14 preferably composed of a series of knots of bristles 15, but obviously any suitable material may be substituted for the bristles, or any other means capable of performing the required function may be employed. This brush is suitably secured to one end of a shaft 16 conveniently located with respect to the opening from conduit 12. The shaft 16 may be rotated in any convenient way as, for example, directly from a pulley 17 as in Fig. 7, but I prefer to employ the arrangement shown in Figs. 1 and 2. In this construction the brush shaft 16 is connected to a drive shaft 18 by a conveniently operable clutch comprising a sliding collar 20 secured to the shaft by a pin and slot connection shown in Fig. 2, and having a shoulder 22 adapted to engage a pin 24 carried by the driving shaft. A spring 25 presses the collar into interlocking engagement with the pin and a device is provided for withdrawing the collar from the pin to discontinue the rotation of the brush shaft. This device is a rotatable pin 26 mounted in a portion of the frame and having adjacent to the collar an eccentric stud 28 that stands in a groove in the collar. The pin 26 has a flange 30 provided with recesses to be engaged by a locking plunger 32 mounted in the frame as shown in Fig. 2 to retain the pin in the position to which it may be adjusted. The pin 26 has a handle and is located within convenient reach of the machine operator so that the clutch may readily be operated to disconnect the brush shaft from the drive shaft. The latter may be actuated by a suitable pulley as 33.

Between the reservoir and the brush is placed a shut-off for controlling the flow of cement through the conduit 12. I prefer to employ the shut-off illustrated in Fig. 3. and wherein the main upright portion of the conduit 12 is shown as joined by a lateral forwardly directed portion which extends to the brush chamber as will be seen in Fig. 6. At the junction of these two portions a gate in the form of a plunger 36 is arranged. The plunger works through a slideway in the casting and at its outer end is connected to a lever 38 which is fulcrumed at 40 and carries a stop screw 42 by which the movement of the lever for withdrawing the plunger may be adjustably regulated. It is contemplated that the stop screw will be adjusted according to the flow of cement desired which may vary for example according to the fluidity of the cement and according to the width of

the brush to be supplied with cement. Preferably the wall of the conduit 12 opposite the inner end of the plunger will be cut away to form a seat 45 into which the plunger will fit to produce a tight joint that will not allow any escape of cement. If desired a stop-cock 46 of usual construction may be employed as shown in Fig. 7 instead of the shut-off above described. Owing to the improved manner in which cement is delivered to the applying member, as will be hereinafter explained, the shut-off may without danger of flooding the machine be left freely open to any desired extent while brush 14 rotates, thus providing an unobstructed conduit from the cement-supplying to the cement-applying means.

The preferred manner of constructing brush 14 is to wire or otherwise secure the knots of bristles 15 about the periphery of a body portion in the form of an annulus 48 which, as it is discarded when the bristles are worn out, is preferably of some inexpensive material such as wood. Thus the acting portion of the applying member has a support independent of the rotating hub 50 on which it is mounted. Although wood is a preferable selection for the material from which annulus 48 is made, an objection thereto is that when moist it will expand and warp, thus tending to throw any device used for securing it on hub 50 out of adjustment which is undesirable in this machine. Therefore the annulus, if of wood or a similar material, must be mounted so as to allow for expansion. A construction to this end is shown in Fig. 5. Should annulus 48 be composed of a moisture-proof material, with which an allowance for expansion need not be provided for, the construction of Fig. 10 may be employed. With this latter construction a wooden annulus may also be used if desired. In these constructions hub 50 is provided with suitable devices, preferably situated adjacent the cement-applying member, for securing said member against lateral displacement. These devices are here shown as a pair of flanges 52 and 54. Flange 52 is provided with a peripheral lip 53 adapted to overlap annulus 48 and bring the flange edge nearer the brush, its peripheral face being preferably beveled as shown at 55. Flange 54 is provided with a peripheral lip and beveled face in a similar manner to flange 52. Flanges 52 and 54 are provided with annular grooves 56 in which hub 50 rests, abutting against the shoulder formed thereby. In the construction of Fig. 5, hub 50 is so proportioned that the distance between the flanges is slightly greater than the width of annulus 48. With this construction although the annulus is held securely in place, sufficient space is left between the inner faces of the flanges and the side of the annulus to allow for the expansion or warping of the latter when a material is used in which this action is likely to occur. Any convenient means may be used to prevent rotation of annulus 48 on hub 50, an effective arrangement comprising a slot or groove 49 in the annulus adapted to register with a pin 58 passed radially through flange 52. The flange 52 is provided with a sleeve on its outer side, said sleeve being bored to fit the reduced end portion of the brush shaft 16 and to abut against a shoulder 161 on said shaft. The assembled hub and brush are secured to the shaft in any convenient manner, as by a locking screw 60 extending through the flange 54, threaded into the end of said shaft, and clamping the hub and flanges against the shoulder 161 on the shaft.

The constructions shown in Figs. 10 and 13 are similar to that of Fig. 5 with the exception that the flange 521 has formed integral with it a portion 522 of the hub and the flange 541 has likewise a portion 542 of the hub and these two parts of the hub are screw threaded one upon the other as shown. It is thus seen that flange 541 may be screwed up tight against annulus 48, when said annulus is composed of moisture-proof material, and then locked in position, or it may be adjusted so as to allow for a slight clearance when the annulus is composed of wood or other material which is likely to warp or swell. The several parts are clamped against a shoulder 162 on the brush shaft by a screw bolt 601.

In cementing channels it is customary to use brushes varying in width from about $\frac{1}{4}$ to $\frac{3}{4}$ inches according to the width of the channel and flap to be coated, and with the constructions herein shown it is not necessary to remove the whole hub when a change of brush is made as the distance between the flanges can be altered according to the width of brush to be applied.

As this machine is designed to do away with the necessity for intermittently opening and closing a valve or gate adjacent the brush for regulating the delivery of cement to the brush the construction must be such that flooding will not occur. To this end the brush is preferably provided with an inclosing medium or hood about a portion thereof connected to conduit 12 in such a manner that although there is an unobstructed passage from the reservoir to the brush the flow of cement is continually held in check so that only the requisite amount is supplied to the bristles. To effect this result the hood is preferably formed of a peripheral portion or cover 67, fitting somewhat closely about the ends of the knots of bristles 15 so as to leave but a slight clearance, and side plates 68 and 69 which meet and form a tight joint with the bevels on the peripheral faces of flanges 52 and 54, respectively, the inner

surfaces formed thereby being smooth and even, as shown in Fig. 5. Side plate 68 is preferably cast integral with the portion 67 of the hood, but side plate 69 is preferably made adjustable on the part 67 as by being secured in transverse slots 70 in said part by means of suitable cap screws 72. This construction, while completely inclosing the upper portion of the brush, permits the width of the brush inclosing space in the hood to be varied to receive brushes of varying widths, at the same time retaining an entirely smooth and even interior surface against which the bristles contact. In the modification shown in Figs. 7, 8, 9, 10 and 11 the parts 671, 681 and 691 of the hood are in all essential respects similar to the corresponding parts in the other figures.

A source of great annoyance in machines of this class has arisen from the fact that the parts about the hub become quickly covered with cement. In this construction, particularly, the peripheral flange bevels must be kept clean in order to insure a tight joint with the sides of the hood and the flanges. This is provided for to a great extent by the joint itself, particularly in the construction shown in Figs. 4, 5 and 6 wherein the side plates 68, 69 extend to the collars or axial extensions of the flanges 52, 54. I prefer also to form annular recesses in the outer faces of the flanges and to insert in these recesses a ring 71 of packing material such as felt, as shown in Fig. 5. In the construction shown in Figs. 7 to 11, this packing of felt is not shown, although it is obvious that it might be employed as will be understood from Figs. 12 and 13, wherein the packing is designated by the reference character 711. It will be observed that a portion of the flanges of the brush is left exposed below the hub and I have provided means for cleaning these exposed portions as the brush rotates. To this end the side plates of the hood are flared outwardly at their lower ends, as shown at 73, 73, in Figs. 1 and 8, so that the lines on which they meet the flanges run diagonally thereacross. These flaring ends, in this position, act as wipers for wiping cement from the outer edges of the flanges, inwardly across the bevels and finally to the cement-applying member.

The flanges, annulus and hub have been shown and described as separate parts, one purpose of making them separate being to permit brushes of different widths to be employed. It is clear, however, that these parts of the cement applying member are rigidly held together and that after an annulus of the desired width has been clamped in place this composite member acts in all ways like an integral one. There is thus present a rotary cement applying member having a beveled portion and a wiper to contact with said portion.

It has been determined by experience that if cement of the grade commonly used for cementing the channels and the bottoms of shoes is allowed to flow continuously by gravity, or at atmospheric pressure, through a suitable regulated opening upon a brush arranged in a properly constructed hood of the character described, flooding of the brush will be avoided. The opening through which the cement is delivered to the brush is preferably arranged so that the rotation of the brush has little or no tendency to suck the cement from the conduit. To this end the opening may be so arranged that the flow of cement is substantially radial to the axis of rotation of the brush, or it may be inclined to a radial line and approach a tangential line. Preferably when the direction of flow is inclined to the face of the brush the inclination will be opposed to the direction of rotation of the brush, as shown, for example, in Figs. 9, 10, and 12. This arrangement by which the cement is delivered approximately radially upon the upper face of the brush or at a substantial inclination opposed to the direction of rotation of the brush, causes the cement to be automatically banked up in the supply passage to an extent that only the required amount of cement flows out upon and is taken up by the brush. Very satisfactory results are obtained by delivering the cement in the manner described upon a portion of the brush that is moving upwardly in the rotation of the brush, and this arrangement appears to be preferable. To the above stated ends the hood is provided with a supply passageway located above the brush and as shown at 75 in Fig. 6. This passageway is directly above the center of the brush, one side thereof being on the right hand side of a vertical line passing through the axis of the brush. In Figs. 9 and 12 is shown a construction in which the hood is provided with a diagonally-arranged passageway 751 through its cover 671 extending substantially tangentially to the periphery of the brush, its inner end preferably opening upon a portion of the brush to the right of a vertical line passing through the axis of rotation of the brush and its outer end opening into the end of conduit 12. Preferably the forward edge (referring to the direction of rotation of the brush) of passageway 751 as in the vertical line passing through the axis of rotation of the brush, which places the inner end of the opening on the rear side of this line. With these locations it is readily seen that the rotation of the brush continually tends to force the excess cement supplied from the reservoir back up the cement passageway where it

acts substantially as a dam to prevent flow of the cement faster than the cement at its base is carried away and used by the rotating brush. A conveniently-located screw 78 secures the hood to a rigid part of the frame.

As previously explained, the cover of the hood is arranged so that a small space is left between its inner surface and the surface of the brush. Preferably and as shown in Figs. 5 and 6 the cover is cut away, as at 80 to form a shallow recess of much larger area than a cross section of the passageway. This recess holds a reserve body of cement in contact with the rotating brush. The provision of this body of cement above and in contact with the brush insures that the brush shall be well supplied with cement while it is applying the cement to the work. It will be understood that in the use of the machine the brush is rapidly rotated and an operator presents one shoe to the brush, moving it under the brush until the length of the channel on the surface of the bottom has been coated, he then returns the cemented shoe to the rack and takes another shoe. The body of cement held in the recess 80 forms a reserve from which the brush is more quickly and reliably supplied while it is delivering cement to a channel or shoe bottom than it could be from the relatively small cement passageway 75 or 751. The provision of this recess for a reserve supply of cement is of particular importance in a gravity-feed cementing machine in which the flow of cement is not as quickly responsive to the needs of the brush as may be a machine in which the cement is forced through the conduit by air pressure.

It is readily understood that as the brush wears away so that its diameter decreases the depth of the space between the periphery of the brush and the cover member 67 of the hood will increase and allow cement to be carried out too freely by the brush. To prevent this action means is provided for closing or damming the outlet from this space. This means consists as herein shown in a scraper or gate arranged in the space mentioned on each side of the brush. These gates are made adjustable so that as the brush wears down the outlet at these points may be effectually regulated. The preferred arrangement is shown most clearly in Figs. 4 and 6 wherein the scraper 82 is shown as arranged in a slot in the cover 67 and projecting into the hood substantially into contact with the periphery of the brush. The outer end of the scraper is bent upwardly and held upon a screw 84 which works in the hood 67 to adjust the scraper. The scraper 86 is similarly arranged upon a screw 88. In Figs. 8, 9 and 11 is shown a slightly different construction in which flat plates 90 and 92 extend transversely across the brush and pass through the hood, each being provided with a slotted ear attached to the side plate 68 of the hood through a cap screw 94. It is obvious that with this construction cement can be carried out of the lower side of the hood only while on the brush and when the delivery capacity of the brush is satisfied the cement will be forced into the only other outlet, namely, the supply passage. The best results have been obtained with an angular relation between the gates and brush, as shown in Figs. 6 and 9. Gates 82 and 90 also act as wipers for evening the cement on the periphery of the brush.

In cementing the channels and channel flaps of McKay shoes, I prefer to employ the work guide and channel flap raising device shown in Figs. 1, 4, 6, 12, and 13, which comprises a carrier member 100 secured in adjusted position upon the side plate 69 by a binding bolt 102 that passes through a slot in said carrier that permits vertical adjustment. The guide 105 is pivoted upon the lower end of the carrier and is shaped at its free end to extend under the channel flap and has a guiding engagement with the sole at the base of said flap. The guide also serves to lift the flap for holding its free edge above the face of the sole so that said flap may be coated with cement throughout its width without danger of cement being smeared over the face of the sole. To permit variations in the position at which the work is presented to the machine the guide is preferably yieldingly mounted on the carrier and in order to facilitate hooking the channel flap over the guide in putting the work into position to be cemented the guide is held normally in a position below its working position and also at the outer side of its working position. To this end the guide is pivotally connected to its carrier by a bolt 106 at a point above and at the outer side of the point at which it engages the work and is yieldingly held by a spring 109 in its lower outermost position where it will not get smeared with cement and where the channel flap may be easily engaged over the guide without interference by the brush. When the shoe is pressed upwardly against the lower inner end of the guide, said guide will swing inwardly and upwardly about its pivotal connection at 106, as for example from the full line to the dotted line position in Figs. 4 and 13. The bolt 106 extends through a downwardly and inwardly inclined slot in the carrier and has a shoulder 110 between which and its nut the carrier is clamped to hold the guide in adjusted position without interfering with the pivotal movement of the guide. It is to be observed that the guide is carried by the side plate 69 which is adjustable inwardly and outwardly for different sizes of brushes. Inasmuch as the brushes are changed according

to the width of the channels and flaps to be cemented it will be understood that an in and out adjustment of the guide according to the width of channel will be effected by the positioning of the side plate 69 without further attention by the operator. I prefer to use with the guide 105 an edge gage 112.

Instead of the guide 105 or in addition thereto the edge gage shown in Fig. 7 may be employed. This gage comprises a rotary member 95 having a flange 96 about its upper edge so that when a shoe is brought to bear thereagainst the edge of the sole may engage the periphery of member 95 and the flange will overlap the outer surface of the sole. This gage may be given a vertical and transverse adjustment through headed clamping screws 97 and 98 working in appropriate slots as in Fig. 7.

The reservoir 10 is preferably provided with a removable strainer 120 to catch matter which may be in the cement and might obstruct its flow. The strainer is preferably supported for ready removal upon cross bars 122 arranged slightly above the bottom of the reservoir. The strainer is shown as provided with upwardly extending arms 124 by which it may be engaged to lift it from the reservoir.

Obviously the machine may be changed in many of its details of construction without departing from the scope or spirit of the invention.

While for convenience the invention has been described as embodied in a machine for applying cement and in the specification and claims the material used in such a machine has been referred to as cement, it should be understood that the invention is not limited to a machine for applying cement; but that it is applicable to machines for applying other coating material, and therefore wherever the word cement occurs in the specification or claims it should, when the context permits, be construed as meaning any coating material.

In the use of the machine a brush of the desired width is applied to the brush shaft. The shut-off stop is then adjusted according to the maximum flow of cement desired, which may depend upon the consistency of the cement being used and the width of the brush in the machine. The machine is started by clutching the brush shaft to the driving shaft and the brush will be continuously rotated until the machine is to be left unemployed for a material time, when the brush shaft may be very readily unclutched and the shut-off turned to close the cement conduit and permit the brush to be changed if that is desired. While the shut-off is open the cement flows into the hood and the periphery of the brush becomes supplied with an even coating of cement while the sides of the brush and its hub are kept clean and free from cement by the close joint between the hood and the moving parts. When the brush has become laden with cement and the chamber between the periphery of the brush and the walls of the hood has become filled the flow of cement from the conduit will automatically cease because there is no ready escape for the cement from the hood and because the arrangement for delivering the cement to the brush is such that the rotation of the brush tends to dam the cement automatically in the mouth of the conduit as soon as the chamber is filled instead of sucking it from the conduit. Superfluous cement is, therefore, not drawn from the conduit and flooding of the brush and associated parts is avoided. The operator supports the shoe in his hands and moves it under the brush to present thereto the different portions to be coated with cement. The movement of the shoe under the brush is in practice effected very rapidly by expert operators, and during this presentation of the shoe the cement may be taken from the brush faster than it is supplied from the conduit in which the movement of cement may have temporarily ceased when the brush had become satisfied in the preceding interval. During such rapid removal of cement from the brush by the intermittently presented work the brush is replenished with cement from the reserve supply collected in the recess that is preferably provided adjacent to the mouth of the cement conduit. During the time occupied in laying away the coated shoe and bringing the next shoe to the brush the periphery of the brush will be again supplied with cement and the recess filled from the conduit. It will thus be seen that the flow of cement will be controlled without attention from the operator because the cement is automatically banked up or its flow in the conduit arrested as soon as the cement-applying member becomes satisfied. It may, therefore, be seen that this invention prevents flooding even though the machine may be used by careless operators and yet the cement-supplying means is readily responsive to demands made upon it and the quantity of cement supplied can be easily increased or diminished to meet different conditions. If channels are being cemented the channel lip guide occupies the position shown in Fig. 1, its lateral relation to the edge of the sole and the edge guide being determined by the width of the brush on the brush shaft so that no lateral adjustment of the lip guide or of the edge guide for different widths of soles is required because the desired lateral relation of the lip guide according to the width of the channel varies with the width of brush required for each particular width of channel. In presenting the shoe to the lip guide the channel flap may be first hooked over the end of the guide without danger of smear-

ing the sole with cement and then the shoe pressed upwardly by which means it and the guide will be moved obliquely toward their operative relation to the brush. When the guide is not to be used it may be turned up into an inoperative position, as shown in Fig. 5.

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

1. A shoe cementing machine having, in combination, a cement-applying member and a cement-supplying means having an unobstructed opening communicating directly with the upper face of the applying member and formed to hold in contact with said applying member a quantity of cement substantially equivalent to that required for coating one shoe.

2. A shoe cementing machine arranged to permit shoes to be presented in the hands of the operator and having, in combination, a continuously rotating cement-applying member, and a cement receptacle opening directly upon the upper edge of the applying member and formed relatively thereto to cause the discharge of cement to be controlled by the continuously rotating applying member according to the amount taken from said member intermittently by the work.

3. A shoe cementing machine, having, in combination, a rotary cement applying member, a conduit for cement, said conduit being of less diameter than said member and means for accumulating and holding in contact with the upper surface of said member a supply of cement the face of which as it contacts with said member is of greater area than a cross section of said conduit.

4. A shoe cementing machine having, in combination, a rotary cement-applying brush and cement-supplying means having a conduit leading directly to the upper part of the brush and terminating thereat in a flaring portion adapted to hold against the brush a thin wide body of cement.

5. The combination with a rotatable cement-applying member, of means for supplying cement thereto from a direction counter to the direction of rotation of the applying member.

6. The combination with a rotatable cement-applying member, of a partial peripheral cover therefor, and means for supplying cement through said cover from a direction counter to the direction of rotation of the applying member.

7. The combination with a cement-applying member, a source of cement supply, a hood inclosing a portion of the applying member, and a conduit leading from the source of cement to the hood, at a point on top of the applying member and terminating in a flaring cavity between the hood and the applying member the walls of which are formed to retain the cement over the upper side of the brush.

8. The combination with a rotatable cement-applying member, of a hood about a portion thereof, and means for supplying cement to the interior of said hood from a direction counter to the direction of rotation of the applying member.

9. The combination with a rotatable cement-applying brush or the like, of a hood about a portion thereof provided with a cement passageway entering the brush chamber in a line substantially tangential to the peripheral surface of the brush.

10. The combination with a rotatable cement-applying member, of a hood about a portion thereof provided with a cement passageway having one end on one side of a vertical line passing through the axis of the applying member and its other end on the other side of said vertical line.

11. The combination with a rotatable cement-applying member, of a hood about a portion thereof provided with a cement passageway extending diagonally through the hood wall, one edge of the inner end of said passageway being substantially vertically above the axis of the applying member.

12. The combination with a rotatable cement-applying member, of a hood about a portion thereof provided with a passageway arranged to deliver cement to said member at a point on the right of a vertical line passing through its axis when rotating in a counter-clockwise direction.

13. The combination with a cement-applying member, of a hood inclosing the top thereof, and means for damming the outlet between the surface of said applying member and the hood at both ends of the hood whereby a quantity of cement is maintained upon the top face of the applying member in the space between it and the hood.

14. The combination with a rotatable brush, a source of cement supply, a hood about a portion of the brush and a conduit leading from the source of cement supply to the hood, said hood being formed to hold a relatively small body of cement against the brush adjacent to the mouth of said conduit, gates arranged for closing the space between the hood and the periphery of the brush for confining said body of cement, and means for adjusting said gates to take up wear of the brush.

15. The combination with a cement-applying member, of a hood completely inclosing a portion thereof, and means whereby said hood may be adjusted to accommodate applying members of different widths.

16. The combination with a rotary cement-applying member, of a hood about a portion thereof comprising a peripheral portion and side plates one of which is transversely ad-

justable with relation to the peripheral portion to adapt the hood to cover cement-applying members of different widths.

17. A shoe cementing machine having, in combination, a rotary cement-applying member and cement-supplying means terminating in a shell located above and covering substantially the entire width and a portion of the length of the acting face of said applying member and formed to hold against the periphery of the applying member a thin wide body of cement which is adapted to be taken up rapidly by the applying member during the presentation of a shoe thereto and to be replaced during the interval between the presentations of shoes.

18. In a cementing machine, the combination with a cement-applying brush, a hub supporting the brush and extending beyond the sides of the brush, clamping plates carried by the hub and loosely embracing the brush, means for securing the clamping plates and the hub in assembled relation, and means connecting the brush with one of said parts to cause it to be rotated therewith.

19. In a cementing machine, the combination with a rotary brush, clamping plates upon opposite sides of the brush and movable therewith, relatively stationary members between which the brush and plates turn, and a packing interposed between the clamping plates and the stationary members.

20. In a cementing machine, the combination with a rotary brush, clamping plates upon opposite sides of the brush and movable therewith, a hood inclosing a portion of the brush and having side plates between which the brush and clamping plates rotate, and a packing arranged between the side plates of the hood and the clamping plates to prevent leakage of cement at the joint.

21. In a cementing machine, a hub, a cement-applying member mounted thereon, and a pair of flanges for securing said member in position, one of said flanges being screw threaded on said hub whereby it may be held at different distances away from the other flange to embrace the cement-applying member loosely, and means for locking said threaded flange in any desired position of lateral adjustment.

22. In a cementing machine, a hub, a cement-applying member mounted thereon, a pair of flanges for securing said member in place, and means for cleaning said flanges of cement.

23. In a cementing machine, a rotatable hub, a cement-applying member mounted thereon, a pair of flanges for securing said member in place, and a wiper arranged diagonally across the peripheral face of each flange for wiping cement thereon toward said applying member as the hub rotates.

24. In a cementing machine, a hub, a cement-applying member mounted thereon, a pair of flanges for securing said member in place, and a hood about a portion of said applying member having side plates arranged to meet the peripheral faces of said flanges and form tight joints therewith.

25. In a cementing machine a hub, a cement-applying member mounted on the hub, a pair of flanges arranged at opposite sides of the member for securing it in place, said flanges having beveled outer faces provided with annular grooves, a hood covering a portion of the applying member and having side plates embracing the flanges, and a packing arranged in said annular grooves between the flanges and side plates to prevent leakage of cement from the hood.

26. In a cementing machine, a rotatable hub, a cement-applying member mounted thereon, a pair of flanges for securing said member in place, and a hood about a portion of said applying member having side plates arranged to meet the peripheral faces of said flanges and form a tight joint therewith, one end of each of said plates flaring outwardly across the peripheral face of its respective flange for wiping the cement inwardly toward said applying member as the hub rotates.

27. In a cementing machine a rotatable cement-applying member, a hood inclosing the upper portion of the applying member, a cement reservoir, an unobstructed conduit from the reservoir to deliver cement upon the brush within the hood, and means for regulating the amount of cement carried by the brush, said machine having provision for preventing escape of the cement from the hood except as it is carried out by the brush.

28. A cementing machine having, in combination, a rotary brush, means for supplying cement to the brush, a disk supported against one side of the brush and rotating therewith, and a scraper arranged to clean the disk.

29. A cementing machine having, in combination, a rotary brush, means for supplying cement to the brush, a disk having a beveled edge mounted against one side of the brush and turned therewith and a stationary scraper arranged to have wiping contact with said beveled edge of the disk.

30. A cementing machine having in combination a rotary applying member provided with a beveled portion, and means to wipe the cement from said beveled portion and return it to the cement applying portion of said member.

31. In a channel cementing machine, a rotatable cement-applying brush, a hood inclosing a portion of the brush and comprising a side plate adapted to be adjusted to receive brushes of different widths, and a

work guide carried by said side plate and controlled as to position by the lateral position of the side plate.

32. In a channel cementing machine, a rotatable cement-applying brush, a hood inclosing a portion of the brush and comprising a side plate adapted to be adjusted to receive brushes of different widths, and a channel flap lifting device arranged to extend under the brush and movable with said side plate for different widths of brushes.

33. In a channel cementing machine, the combination with a cement-applying brush, of a guide for the channel flap, a support upon which the guide is pivotally mounted, and a spring interposed between the support and the upper end of the guide on the side thereof next to the brush for holding the guide normally away from the brush.

34. In a channel cementing machine, the combination with a cement-applying brush of a guide for the channel flap, a support for the guide, a pin and slot connection between the guide and support arranged to secure the guide pivotally in positions of different adjustment on the support, and a spring for holding the guide normally rocked away from the brush.

35. A cementing machine, having in combination a rotatable cement-applying member, and a cement supplying means relatively constructed and arranged to cause the applying member to control the flow of cement from the supplying means, said machine having provision for holding a small quantity of cement in a position adjacent to the applying member whereby cement may be delivered to said member at times more rapidly than it is provided by the flow of cement from the supplying means.

36. A shoe cementing machine, having, in combination, a rotary cement applying member, a hood inclosing a portion of said member, said hood and member being constructed and arranged to prevent the escape of cement between their adjacent surfaces, and a conduit leading into the upper portion of said hood and terminating in a flaring opening.

37. A machine of the class described, having, in combination, a receptacle for cement, a conduit leading therefrom, a rotary cement applying member arranged to receive cement from the mouth of said conduit and to deliver it at a point approximately diametrically opposite, and means located in that portion of the path of the periphery of the rotary member between its point of delivery and its point of reception, for wiping cement which may remain on said member toward the center thereof.

38. A machine of the class described, having, in combination, a hood, and a cement applying member rotatable therein and provided with a cement carrying surface, said hood having wiping lips for said cement toward which said carrying surface moves from outside said hood whereby the cement on said member is wiped toward the center thereof.

39. A machine for applying viscous cement to shoes having in combination a cement applying member adapted to be continuously rotated, a receptacle for the cement and an unobstructed conduit leading downwardly from said receptacle to said member whereby the cement tends at all times to flow by gravity to said member, space being provided beneath said member so that shoes may be presented intermittently thereto, said conduit terminating in a flaring opening the edges of which are in contact with said member.

40. A cementing machine having a receptacle for cement and a rotary cement applying member in communication therewith, said member comprising a rigid frusto-conical portion the axis of which coincides with the axis of rotation of said rotary member and the largest diameter of which is less than the diameter of the operative portion of the cement applying member, and a wiper contacting with said frusto-conical portion and arranged to direct the cement toward the operative portion of the applying member.

41. A cementing machine having a receptacle for cement and a rotary cement applying brush in communication therewith, the hub of said brush having rigid therewith a member of less diameter than said brush and provided with a beveled portion and means for wiping the cement from said beveled portion and directing it toward the bristles of said brush.

42. A cementing machine having a receptacle for cement, a rotary brush, a hood extending partially over said brush, means for conducting cement from said receptacle to said brush, the rigid portion of said brush being provided with a frusto-conical portion the axis of which coincides with the axis of rotation of said brush and the largest diameter of which is less than the diameter of the brush, and a wiper in contact with said frusto-conical portion.

43. A cementing machine having in combination a receptacle for cement, a rotary brush, a hood extending partially over said brush, and means for conducting cement from said receptacle to said brush, the hub of said brush being provided with a frusto-conical portion the axis of which coincides with the axis of rotation of said brush and the largest diameter of which is less than the diameter of said brush, said hood having provision for scraping cement from said frusto-conical portion.

44. A channel cementing machine having in combination a source of supply of cement,

a rotary cement applying member, a hood inclosing a portion of said member, said hood and member being constructed and arranged to prevent the escape of cement between their adjacent surfaces and a channel flap lifting device arranged to extend into coöperative relation with said member.

45. A channel cementing machine having in combination a rotary cement applying brush, a receptacle for cement, a hood about a portion of said brush, a conduit leading from the receptacle to the hood, a scraper for controlling the space between the hood and the periphery of the brush, and a channel flap lifting device arranged to extend into coöperative relation with said brush.

46. A cementing machine having, in combination, a rotary applying member of cylindrical outline provided with beveled ends and means engaging said beveled ends and arranged to direct the cement toward the periphery of said member.

47. A cementing machine having, in combination, a rotary applying member of cylindrical outline having beveled ends, said member being provided with bristles to take up and apply the cement, a scraper to control the amount of cement carried by said bristles and a plurality of wings in contact with said beveled ends and arranged to direct the cement on to the bristles and toward the scraper.

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

M. FRANK BROGAN.

Witnesses:
JOHN J. HURLEY,
HELEN G. KENNEDY.