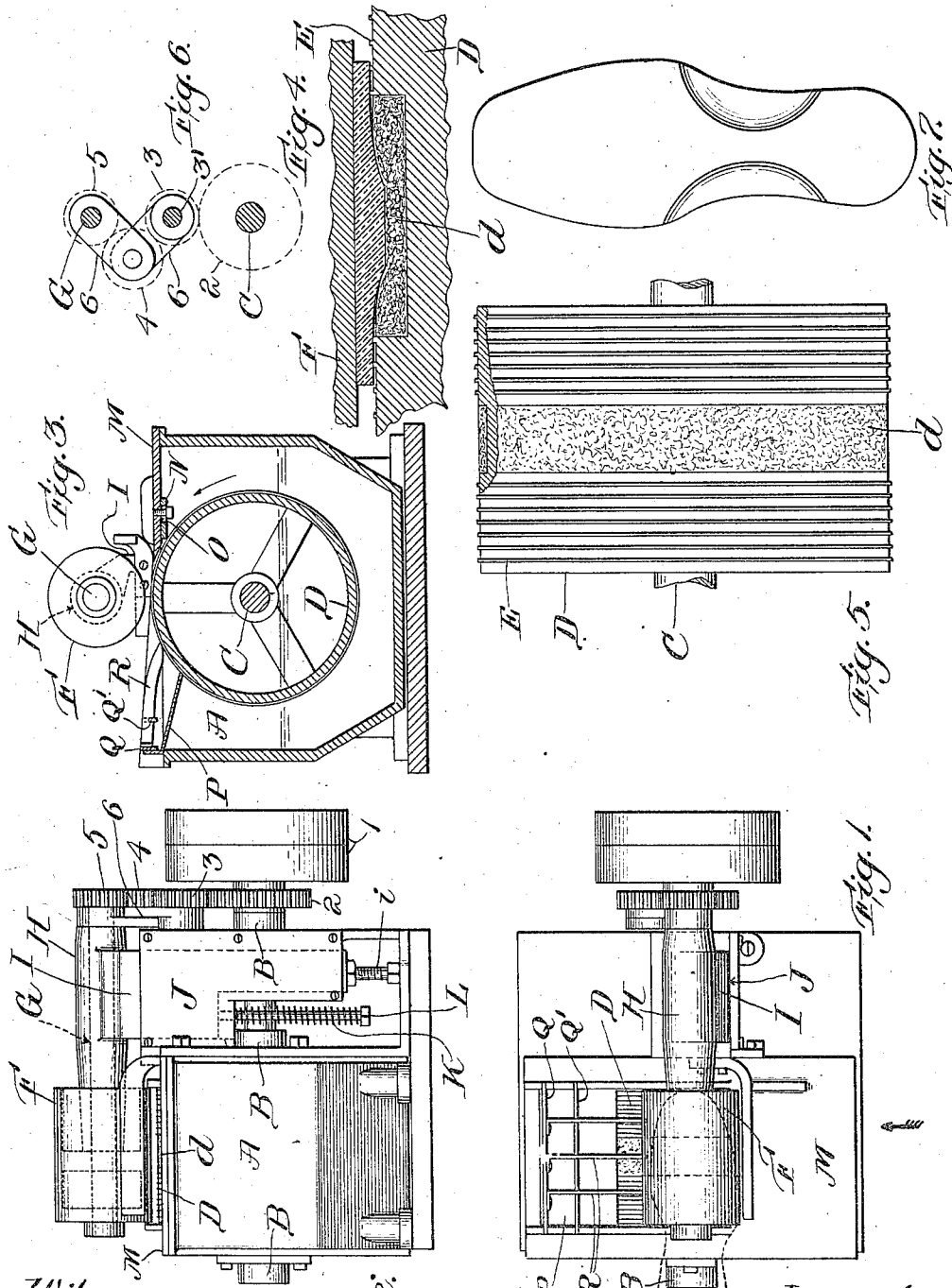


A. E. JOHNSON.
MACHINE FOR APPLYING LIQUID CEMENT OR OTHER LIQUIDS TO STOCK.
APPLICATION FILED APR. 23, 1901.

949,018.

Patented Feb. 15, 1910.



Witnesses:

Arthur D. Randall,
Charles S. Thurston

Fig. 2.

Inventor:

Albert E. Johnson,
by Olwin R. Mitchell,
Attorney.

Fig. 1.

UNITED STATES PATENT OFFICE.

ALBERT E. JOHNSON, OF BROCKTON, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF NEW JERSEY.

MACHINE FOR APPLYING LIQUID CEMENT OR OTHER LIQUIDS TO STOCK.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ALBERT E. JOHNSON, a citizen of the United States, residing at Brockton, in the county of Plymouth and State of Massachusetts, have invented a new and useful Improvement in Machines for Applying Liquid Cement or other Liquids to Stock, of which the following is a specification.

My invention relates more particularly to machines intended to spread cement or other liquids over the surface of the soles of shoes or the surface of other articles, and my objects are to provide a liquid-spreading machine adapted to spread cement or other liquid evenly; to spread it in any desired thickness, with a minimum of waste; to spread it rapidly without tearing or injuring the surface on which it is to be spread; to give capacity for spreading upon articles of greater size than the width of the spreading drum; to provide means whereby a portion only of a given surface may be coated if desired; and to perform all the operations at the highest possible speed and with the greatest degree of ease and safety. This I accomplish by the means which I shall now describe, the machine described being especially adapted for spreading rubber cement upon the soles of shoes.

The preferred embodiment of the invention is illustrated in the accompanying drawings, in which:—

Figure 1 is a plan showing in dotted lines the position of a sole when having its "slip" only coated with cement; Fig. 2 is a side elevation looking in the direction of the arrow, Fig. 1; Fig. 3 is a cross-section of Fig. 1; Fig. 4 is a sectional view of part of the drum and presser roll on an enlarged scale showing the shank part of a sole between the drum and presser roll; Fig. 5 is a view of my improved drum partly broken away; Fig. 6 is a detail of the driving mechanism of the presser roll; and Fig. 7 is a sole with a skived shank portion.

Referring to the drawings: On opposite sides of a vat or tank A adapted to hold the liquid to be spread, which, for convenience, I have supposed to be rubber cement and upon the frame of the machine, are bearings B in which is journaled a shaft C having mounted upon it a drum D partly immersed in the cement contained in the vat. The

acting surface of this drum, the function of which is to raise cement from the tank and spread it upon the article to be cemented, is preferably broken by a multiplicity of narrow circumferential ridges E. The tops of these ridges stand at a preferably uniform slight elevation above the main cement-carrying surface of the drum, that elevation depending upon the viscosity of the fluid to be spread and the thickness of the layer of the fluid desired to be deposited, as will be hereinafter explained. At about the middle portion of the length of this drum which is preferably formed of a suitable unyielding material, as cast-iron, its surface is circumferentially grooved and has an annular ring or strip of felt or other suitable yielding, and preferably absorbent, material secured in said groove in such fashion that the outer surface of the felt is substantially flush with the main cement-carrying surface of the drum. This strip of felt is marked *d*.

Above the drum D is a presser roll F which has a smooth cylindrical surface adapted to bear upon the tops of the ridges E and is mounted upon a shaft G journaled in a comparatively long bearing H. This bearing H is carried on the upper side of a plate I adapted to slide in a guide J formed in the frame of the machine, and so to allow the presser roll F to move away from the drum D when a sole or other article to be coated with cement is inserted between the drum and the roll. The roll F is normally pressed toward the drum D by a spring K mounted on rod L, parallel with the guide-way, one end of the spring K abutting against the frame of the machine, while the other end abuts against the head of the rod L, thereby allowing the spring K to be compressed as the roll F rises. A screw I, which enters a screw threaded aperture in the bottom of plate I and the head of which normally rests against the bed-plate of the machine, serves as an adjustable stop to regulate the downward movement of the plate I.

It will be observed that the roll F is carried by a bearing at one end of the roll, while the other end of the roll is free. By this arrangement it is possible to pass between the rolls articles greater in width than the length of the rolls or to pass articles between the rolls some part of the article

projecting from between the rolls and thus not undergoing the cementing action of the drum. This is an important feature of my machine.

5 Any suitable driving mechanism may be used; that shown in the drawings consists of tight and loose pulleys, 1, mounted on the main shaft C, and a train of gears 2, 3, 4, 5, to transmit rotary motion from the shaft C to the parallel shaft G, the number of teeth on these gears being proportioned to make the presser roll F run properly in contact with the tops of the ridges E on the drum D. To allow for the up and down motion of the shaft G caused by the rising and falling of the presser roll as different thicknesses of stock pass under it, the gear 4 is mounted on a pin carried at the joint of two links 6, the other ends of which are journaled, one on the shaft G of the presser roll to which the hub of the gear 5 is fast, and the other on the fixed stud 3', of the gear 3. The train of gearing is so designed that adjacent surfaces of the presser roll and the drum D will travel in the same direction. It will now be understood that if a sole or other article on which it is desired to spread cement be inserted between the drum and the presser roll, it will be seized between the presser roll and the ridges of the drum and drawn through between them, the main cement-carrying surface of the drum lying close to the surface of the sole on which the cement is to be spread but not in contact with it.

On the side of the drum from which the soles or other stock are fed is a cover M to the vat or tank A, which serves as a feeding table to deliver stock between the rolls. On the under side of this cover is a stripper plate N fastened in any suitable manner. I prefer to fasten this by screws passing through slots O in the plate in such manner that the stripper plate may be fastened with its edge at any desired distance from the surface of the drum. This plate serves to strip off from the drum any excess of cement which might otherwise be carried up by it. A cover P on the delivery side of the rolls likewise fits close. Cross bars Q, Q', running from side to side of the vat on the delivery side of and parallel with the drum, support thin ways R which are adapted to receive the sole or other cemented article after it has passed between the rolls. These ways are fixed with their points close to the surface of the drum, so that if thin stock is being cemented, which might have a tendency to cling to the drum after passing the rolls, it will be caught by the points of the ways R and stripped off the drum.

The immediate object and advantage of mounting the presser roll so that it is supported entirely from one end, thus leaving the other end free, is two-fold, namely, to

enable stock to be coated which is wider than the rolls, and also to permit spreading of the cement upon a portion only of the article to be coated, leaving the remainder dry. This latter function is highly desirable in cementing the "slip", so-called, to the outer sole. The "slip" covers only the fore part of the outer sole, and it is undesirable, therefore, to cement the shank and heel part, both because of a waste of cement and for other obvious reasons. In the process of securing the "slip" to the outer sole the outer sole is run through the machine sidewise (see Fig. 1); the heel and shank portions not passing through the machine. To accomplish this my construction is obviously well adapted, there being no obstruction at the free end of the presser roll, so that the sole may be passed between the drum and roll sidewise, with the heel and shank portions projecting.

The drum of my new liquid-spreading machine is of peculiar construction, and the peculiarity of its construction results in peculiar advantages of operation.

My new machine is primarily designed for spreading cement upon the soles of shoes in the process of manufacture, and while for those soles which have equal thickness in all parts, a drum the face of which is unyielding in every part would lay the cement properly, the fact is that it is common to skive off the sides of the shank part, and this skived portion does not, when a drum is employed, the entire face of which is unyielding, come into contact with the drum, being held out of contact by the thicker portions of the shank. My improved drum is designed to obviate this difficulty, and the result is accomplished by forming the face of the drum, about midway of the length of the drum, of felt or other suitable yielding material. The preferred method of construction is that shown in the drawings, in which an annular groove is formed in the face of and around the drum, and a strip of felt of suitable length and thickness laid and secured within the groove.

When the sole is passing through the machine, the fore and heel parts being wider than the felt, lie across the felt and engage the unyielding end portions of the drum, while, when the shank is passing between the drum and the roll, the thick portion of the shank being narrower than the felt, is forced into the yielding felt, permitting the skived edges of the shank to be brought into contact with the felt or with the unyielding portion of the face of the drum, according to the width of the shank.

I claim:

1. In a machine for coating stock with cement, the combination with a cement holder, of a member having a cement applying face comprising a rigid portion and a portion formed of absorbent material

adapted to yield for receiving inequalities in the surface of the stock being coated.

2. In a machine for coating stock with cement, the combination with a cement holder, of a member arranged to receive cement from the holder, said member having a cement applying face which comprises rigid portions for supporting and cementing the edge portions of the stock, and an intermediate portion formed of yielding material adapted to apply cement to uneven surfaces of the stock.

3. In a machine for coating stock with cement, the combination with means for supplying cement, of a roll having a cement applying face comprising end portions having cement carrying surfaces and provided with radial projections for sustaining the edge portions of the stock above said main cement carrying surfaces, and an intermediate portion formed of material capable of absorbing cement and of yielding to permit an irregular surface of the stock to be embedded therein.

4. In a machine for coating stock with cement, the combination with a cement holder, of a roll arranged to receive cement from the holder and having a cement applying face comprising rigid cement carrying portions for supporting and cementing the edge portions of the stock, an intermediate portion formed of yielding material adapted to apply cement to uneven surfaces of the stock, and a presser roll for engaging the stock to force projecting portions of the stock into the yielding material of the cement applying roll.

5. In a machine for coating stock with cement, the combination with cement supplying means, of a cement applying member having a portion of its acting face formed of unyielding material and a portion formed of relatively yielding absorbent material into which irregular surfaces of the stock may be pressed for causing the low portions of said surfaces to be coated with cement, and means for distributing cement over the entire width of the acting face of the cement applying member.

6. In a machine of the class described, the combination with a cement reservoir, of

a cement applying roll turning in the cement reservoir, and having a portion of its acting face formed of material capable of absorbing cement and yielding to permit irregular surfaces to be embedded therein.

7. In a machine for coating stock with cement, the combination with a cement reservoir, of a cement applying member turning in the cement reservoir having a portion of its acting face formed of yielding material capable of absorbing cement, and a presser member for engaging the stock to force projecting portions thereof into the yielding absorbent material of the applying member.

8. In a cementing machine the combination of a cylindrical drum and a cylindrical presser roll cooperating therewith; means for rotating the drum, said drum being provided with a circumferential groove having approximately the width of the shank of a sole and filled with a yielding, absorbent material and provided also with ridges E, on both sides of the groove, all organized to cause the sole to be supported by the ridges E while the fore and heel parts are between the drum and presser roll and to be embedded in the absorbent material while the shank is between the drum and presser roll.

9. In a machine for coating stock with cement, the combination with a cement holder, of a cement applying roll having end portions provided with circumferential ridges and an intermediate portion formed with a centrally arranged circumferential groove and a yielding filler located in said groove and having its surface substantially flush with the main cement carrying surfaces of the end portions of the roll.

10. In a machine of the class described, a roll for a cementing machine, said roll having a cement applying face, comprising unyielding end portions and provided between said end portions with a circumferential groove and a filler of felt in said groove to permit irregularities on the surface of the stock to be embedded therein.

ALBERT E. JOHNSON.

Witnesses:

O. R. MITCHELL,
CHARLES S. SMITH.