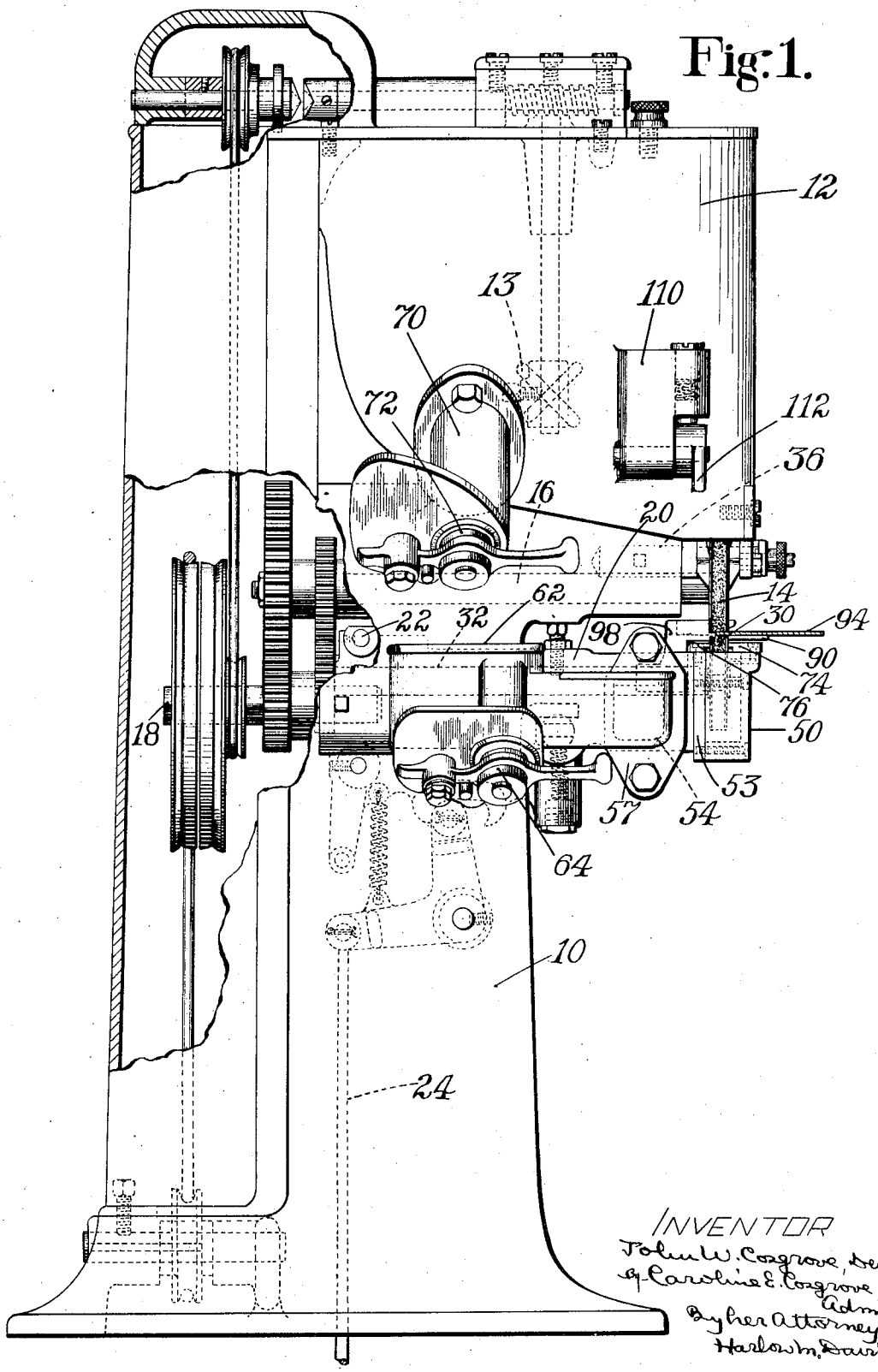
Oct. 24, 1933. J. W. COSGROVE 1,931,528

COATING MACHINE

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Fig. 1.



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Fig. 2.

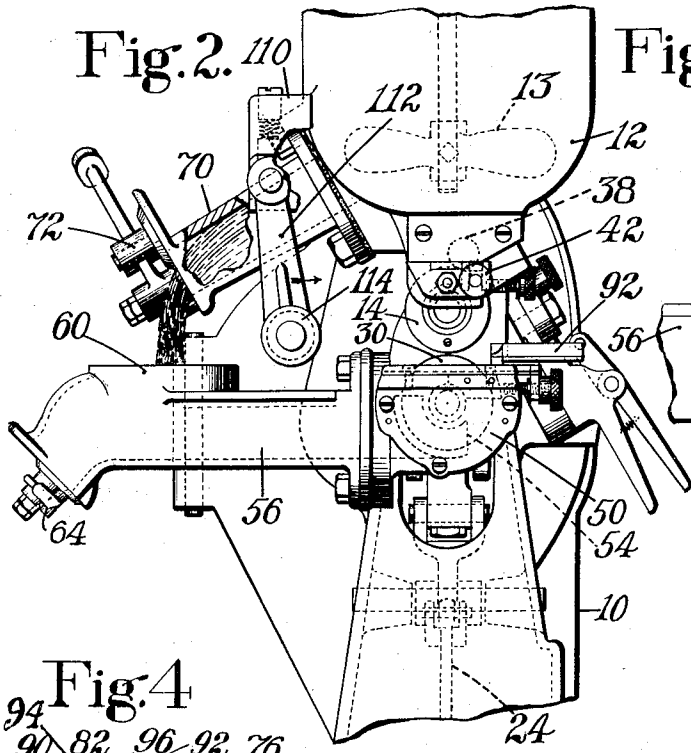


Fig. 3.

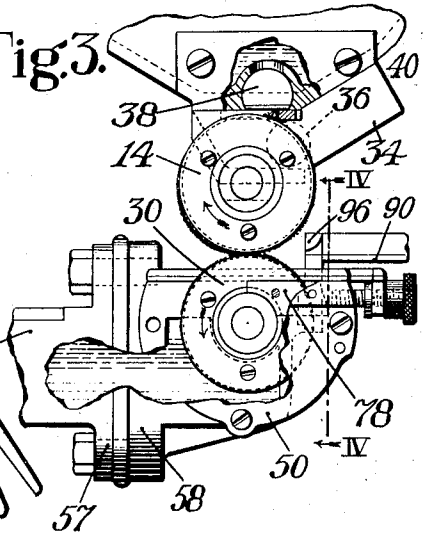


Fig. 4

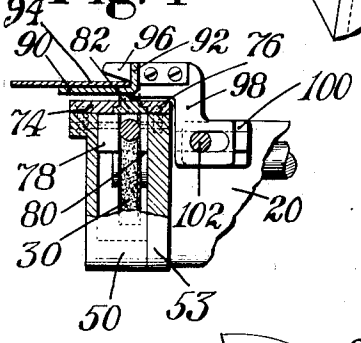
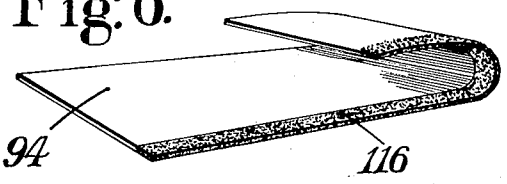


Fig. 5.

Fig. 6.



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Patented Oct. 24, 1933 1,931,528

UNITED STATES PATENT OFFICE

1,931,528

COATING MACHINE

John W. Cosgrove, deceased, late of Medford, Mass., by Caroline E. Cosgrove, administratrix, Medford, Mass., assignor to United Shoe Machinery Corporation, Paterson, N. J., a corporation of New Jersey

Application June 14, 1929. Serial No. 371,000

6 Claims. (Cl. 91—39)

This invention relates to coating machines and is herein illustrated as embodied in a machine for applying adhesive coatings, such as cement to shoe parts.

Manufacturers of rubber soled shoes of the tennis or sneaker type and of cloth gaiters or overshoes secure the various shoe parts to one another by applying marginal stripes of cementitious material along one or both faces of a piece of work. According to the wishes of the manufacturer and because of the varying designs of the different shoe parts, the marginal stripes vary in width.

An object of the invention is to provide an improved coating machine which will be easier to operate and better adapted for the application of stripes of cement of different widths to shoe parts such, for example, as those above referred to.

It has been customary to supply coating machines of the general type above-mentioned with a variety of rolls having different widths so that the operator might select a roll which would apply cement only to the part of the work which should be coated without wasting cement by applying it to a greater width than was needed. Although such an arrangement is economical of cement and may operate perfectly, it is somewhat expensive because of the necessity for a considerable number of parts and is inconvenient for the operator because of the need for changing rolls to meet the demands of various groups of work. Moreover, in the case of an applying roll which is supplied with cement from an underlying receptacle, part of the cement may be used from part of the width of the roll and the unused cement will be returned directly to the receptacle without difficulty. On the other hand, when it is desired to utilize the cement from only a portion of the width of an upper roll fed by means of a superposed receptacle, there is danger that the unused portion of the cement will drip from the roll before it is carried back up into the receptacle if work is presented to only a portion of its width. To meet this problem an important feature of the invention resides in an improved arrangement whereby the machine may be provided with a roll or rolls of the maximum width desired, and the operator enabled successfully to utilize only such a portion of the width of the rolls as is needed for the particular work at hand. In the illustrated embodiment, this result is accomplished with respect to the lower applying roll of the double machine by providing an adjustable work supporting table having an extended guiding edge, said table being adjustable across the width of the roll so that the work may be presented to any desired portion thereof. As herein illustrated and in accordance with an important feature of the invention, the upper roll of a double coating machine is provided with a novel construction embodying a scraper for removing cement from a portion of the width of the periphery of the roll so that cement is carried out of the receptacle by only so much of the width as is to be utilized in coating the work.

This and other features of the invention are described in the following specification, taken in connection with the accompanying drawings, in which

Fig. 1 is a side elevation of the machine;

Fig. 2 is an end elevation of the operative parts of the machine showing how cement may be drained from the upper to the lower receptacle;

Fig. 3 is a fragmentary view showing the applying rolls, with parts of the receptacle broken away and in section;

Fig. 4 is a vertical section on the lines IV—IV of Fig. 3 through the scraper and the gage associated with the lower roll;

Fig. 5 is a fragmentary perspective view of the applying rolls and the associated parts; and

Fig. 6 is a view of a piece of work which has been coated.

The invention as herein illustrated is embodied in a machine of the type shown in Letters Patent of the United States No. 1,380,360 granted June 7, 1921 upon the application of John W. Cosgrove, to which reference may be had for the description of parts, such as the driving mechanism, not herein fully shown and described. In common with the machine shown in that patent, the one herein illustrated is provided with a pedestal frame 10 supporting a large receptacle 12 for supplying coating material to the upper applying roll 14. A driven agitator 13 is provided in the receptacle 12. This roll 14 is journalled on a shaft 16 which is driven by a gear connection from a drive shaft 18, and the machine is provided with a movable support 20 in the form of an arm pivoted at 22 and raised by mechanism including a treadle connection 24. In the patented machine this movable support 20 carries a driven feed roll as the machine is arranged to coat only one face of the work, but in the machine herein illustrated, provision is made for coating both faces and a lower applying roll 30 is employed which is secured to a

shaft 32 journalled in the movable supporting arm 20, and likewise driven by suitable connections with the drive shaft 18.

Leakage of cement around the lateral faces of the upper roll is prevented as in the patented machine by mounting said roll in a close fitting removable casing 34 having a supporting stud 36, and cement is supplied to or shut off from the upper roll by means of a control valve 38. In order that a portion only of the width of the periphery of the upper roll may be used for coating a marginal portion of a piece of work narrower than the width of the roll, the machine is provided with a novel scraper 40 slidably mounted in the casing 34 for movement in a direction parallel to the axis of the roll 14, and the position of the scraper is determined by an adjusting nut 42 engaging a forked end of the scraper and threaded on a fixed screw. The scraper 40 has a rectangular cross section and its lower corner adjacent to the periphery of the roll 14 is brought into such close relation to said roll as shown in Fig. 3 that it acts as a scraper to remove practically all the cement supplied to one portion of the width of the roll. This scraper 40 is cut away as shown at 44 in Fig. 5 to leave a narrow opening adjacent to the part of the roll by which a coating is to be applied; at the same time the cut-away portion approaches sufficiently closely to the periphery of the roll 14 so that it regulates the quantity of cement taken out thereby. This scraper arrangement allows the application of a stripe of cement separated from the edge of the work, if desired.

Cement is supplied to the lower roll 30 by means of a small receptacle 50 which is more or less cup-shaped and is attached by screws 52 to a flange 53 provided with a flat end surface upon the casting constituting the movable support 20. This receptacle is only large enough to accommodate a roll as wide as ever will be needed with the machine and communicates through a passage 54 (Fig. 2) formed in the casting with a laterally extending trough 56 having a terminal flange 57 which is secured to a flange 58 integral with the casting 20. This trough 56 terminates in a rounded slightly enlarged receiving cup 60 which has a cover 62 and which is provided with a drainage valve 64. A removable cover 66 is provided for the trough 56 to give access to it when it is necessary to clean out cement which may have become hardened through improper use of the machine. Even with the storage space provided by the laterally extending trough 56, the quantity of cement available for the lower receptacle is very limited. Accordingly, provision is made for draining cement directly from the upper receptacle 12 into the lower receptacle 50. To this end a laterally extending spout 70 is mounted on the side of the upper receptacle 12 where it is out of the way of the operator and this spout extends to a point directly above the receiving cup 60 carried on the movable arm 20 of the machine. A valve 72, which like the drainage valve 64 is of the molasses cutter type, is provided to close the spout 70 until such time as it is desired to refill the lower receptacle 50 and the associated trough 56, whereupon it is only necessary for the operator to remove the cover 62 and to open the valve 72 so as to allow the coating material to flow directly from the larger upper receptacle to the small lower receptacle.

The arrangement just described is also advantageous in those cases in which, through inadvertence or carelessness, the machine is allowed to operate for any substantial period of time without the introduction of pieces of work and with the coating rolls 14 and 30 closely adjacent to one another. Under those circumstances, it has been found that the upper roll tends to pick up cement from the lower roll as suggested in Fig. 3 of the drawings and to carry it back into the upper receptacle. This action if allowed to continue has been known to cause the upper tank to overflow. With the arrangement provided, however, it is easy for the operator to draw off part of the contents of the upper tank by opening the valve 72 and it should be noted that since all the cement in the lower receptacle came originally from a filling of the upper receptacle there is no danger of carrying back enough cement to overflow the upper receptacle.

The lower receptacle 50 is also provided with cover members 74 and 76 which are movably secured with their side edges in close contact with the lateral faces of the lower roll 30 and which act as gibs or scrapers to keep clean a portion of the lateral faces of said roll. It will be observed, however, that there is a considerable inner section of the lateral faces which does not contact with these cover members, and these sections are kept clean by small plates 78 and 80 (Fig. 4) which are supported in position by dowel pins and which bear against the end faces of the roll 30 close to the hubs thereon. Control of the quantity of cement carried out by the periphery of the roll 30 is effected by an adjustable scraper 82, the position of which may be determined by a hand screw 84. The scraper 82 coacts with the cover plates 74 and 76 to form a complete closure for the receptacle 50 adjacent to the upgoing side of the roll 30. At this point, there is a considerable accumulation of cement which is removed from the periphery of the roll by the scraper 82 during the continued rotation of the lower roll 30, and there is a tendency for it to work up through the joints between said scraper 82 and the cover members 74 and 76. This action is prevented in the machine herein described by providing zigzag joints between the scraper 82 and the cover portion 76 which, as illustrated in Fig. 4, comprise a series of angularly disposed intersecting surfaces which provide several corners around which the cement must travel before it can escape at the top. Such an arrangement affords a maximum of protection against leakage without requiring machine work of such an accuracy as to make the cost excessive. It will be noted that it is found convenient to undercut the edges of the cover members 74 and 76 along the whole of their length as shown in Fig. 5, this being of no detriment at the downgoing side of the roll.

To assist the operator in so guiding the work that it will contact with only a portion of the width of the periphery of either one or both rolls, the machine is provided with a work supporting plate 90 having an upturned edge portion 92 of substantial length which serves as an edge guide for a piece of work 94, which may be, for example, the cuff, to be attached to a rubber gaiter or overshoe. Such a piece of work is laid on the table with its edge in contact with the edge gage 92 and is passed beneath the overhanging holddown finger 96, being thus guided along a path such that it will contact with only the desired portion of the rolls 14 and 30. The work table and edge gage are mounted upon a

bracket 98 which has a tongue-and-groove connection with a surface 100 machined on the side of the movable supporting arm 20, and this bracket is slotted so that it may be secured in adjusted position by means of a bolt 102 and a thumb nut (not shown).

Upon the side of the receptacle 12, a lug 110 provides a pivotal support for an arm 112 carrying a cleaning roll 114, which is held either in inoperative position out of the way of the work or may be swung downwardly in the direction indicated in Fig. 2 to bring the roll 114 into contact with the upper cement roll 14. This cleaning roll is provided with adhesive material such as friction tape and removes portion of hardened cement from the less adhesive metallic surface of the applying roll 14.

In the use of the machine, cement is supplied to the upper tank 12 and a portion thereof drained through the spout 70 to fill the lower receptacle 50. The edge gage 92 is then adjusted in accordance with the width of the marginal stripe 116 to be applied to one or both surfaces of the piece of work 94. A corresponding adjustment is made of the scraper 40 to control the width of the band of cement applied by the upper roll 14 and the scraper 82 is adjusted to control the quantity of cement taken out by the lower roll 30. Assuming, then, that the valve 38 has been opened so that cement is being supplied to the upper roll, the machine is set in operation and the movably supporting arm 20 raised by the treadle connection 24 to bring the opposite rolls 14 and 30 into contact with the opposite faces of the piece of work 94 so as thereby to feed the work and to apply a coating of cement to its opposite faces. When it is desired to apply cement to only one face, then the lower receptacle 50 is not filled but the lower roll 30 is used merely as a work supporting feed roll.

Although the machine has been described herein in its particular application to coating shoe parts with cementitious material, it will be understood that the invention is in many of its aspects equally applicable to coating other articles than shoe parts and to applying other kinds of coating materials than cement. Accordingly, the scope of the invention is to be determined by the broadest construction of the terms of the claims which is permitted by the prior art.

Having thus described this invention what is claimed as new and desired to secure by Letters Patent of the United States is:

1. In a cementing machine, a cement applying roll, overhead means for supplying cement to said roll, and means to control the quantity of cement delivered to the work by the periphery of the roll comprising a bar scraper slidably mounted on said overhead means for adjustment across the periphery of the roll from side to side to clean cement from one portion of said periphery.

2. In a cementing machine, a cement applying roll, means for supplying cement to said roll comprising a casing partially surrounding the roll, and means to control the cement delivered to the work by the periphery of the roll comprising a scraper slidably mounted for movement through said casing and adjustable across the periphery of the roll from side to side, constructed and arranged in one position to limit the width of the band of cement applied to the work by removing cement from a portion of the periphery of said roll.

3. In a cementing machine, a cement applying roll, means for supplying cement to said roll, and means to control the quantity of cement taken out by the periphery of the roll comprising a scraper adjustable across the periphery of the roll and arranged to clean cement from one portion of said periphery, said scraper having a recessed portion overlying the roll constructed and arranged to limit the quantity of cement carried out by another portion of the periphery of the roll.

4. In a cementing machine, a cement applying roll, means for supplying cement to the upper portion of said roll comprising a casing partially surrounding the roll and arranged to prevent leakage of cement along the sides of the roll, means to control the quantity of cement taken out of the casing by the periphery of the roll comprising a scraper slidably mounted in said casing for movement across the periphery of the roll and provided with a cut-away portion to allow a limited quantity of cement to be taken out by a portion of said roll, and means for adjusting said scraper along a path parallel to the axis of said roll.

5. In a cementing machine, a cement applying roll, means for applying cement to said roll, means to control the cement delivered to the work by the periphery of the roll comprising a slidably mounted scraper capable of adjustment across the periphery of the roll and provided with a cut-away portion to allow a limited quantity of cement to be taken out by a portion of the width of the roll, and means for adjusting said scraper along a path parallel to the axis of said roll.

6. In a double cementing machine having superposed cement applying rolls, means for immersing the whole width of a portion of the periphery of each roll, and a scraper immersed in cement contacting with only a fractional portion of the width of the immersed portion of the periphery of one of said rolls to remove cement from part of the width of the periphery.

CAROLINE E. COSGROVE,
Administratrix of the Estate of John W. Cosgrove, Deceased.