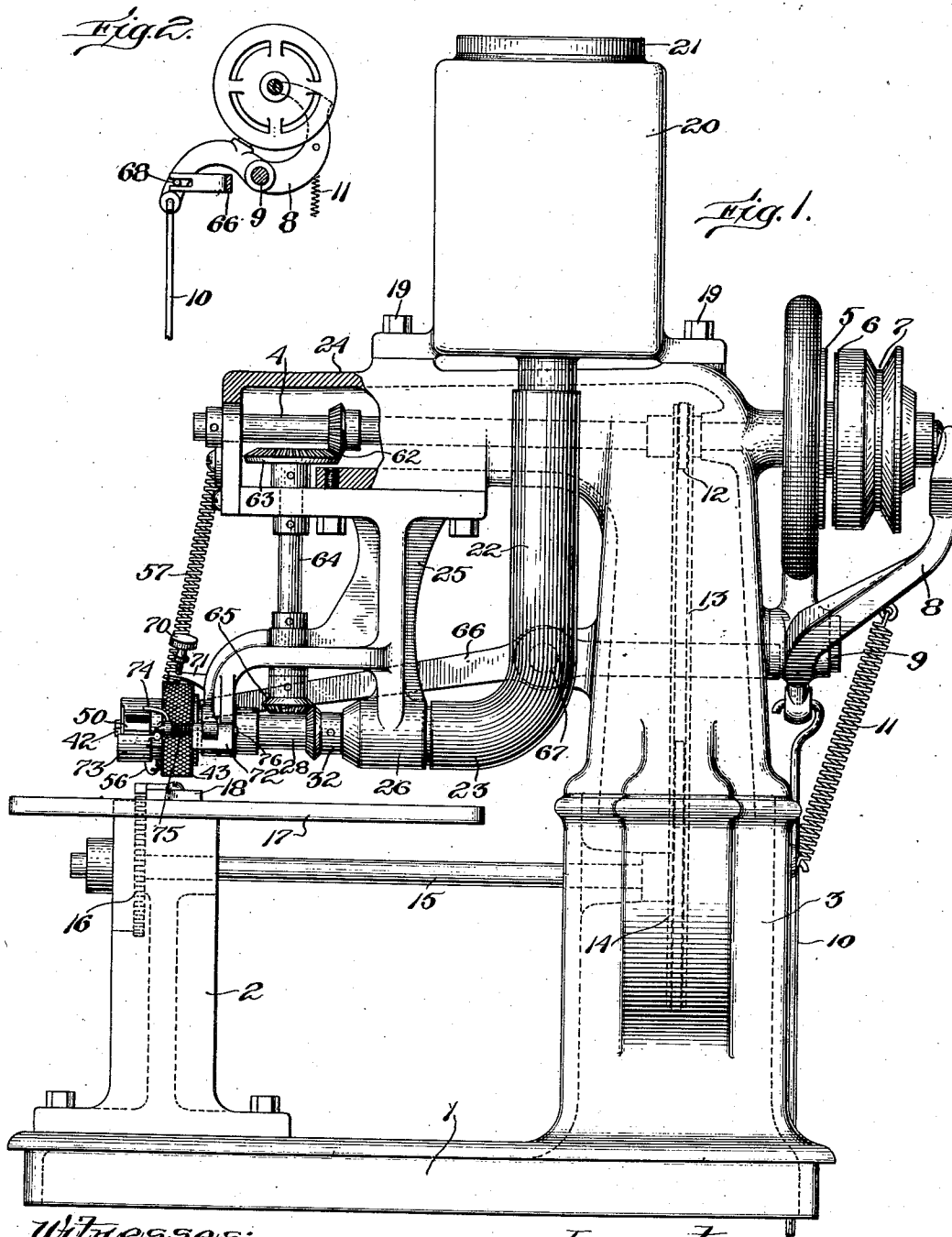


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CEMENTING MACHINE.
APPLICATION FILED AUG. 17, 1910.

1,027,144.

Patented May 21, 1912

3 SHEETS-SHEET 1.



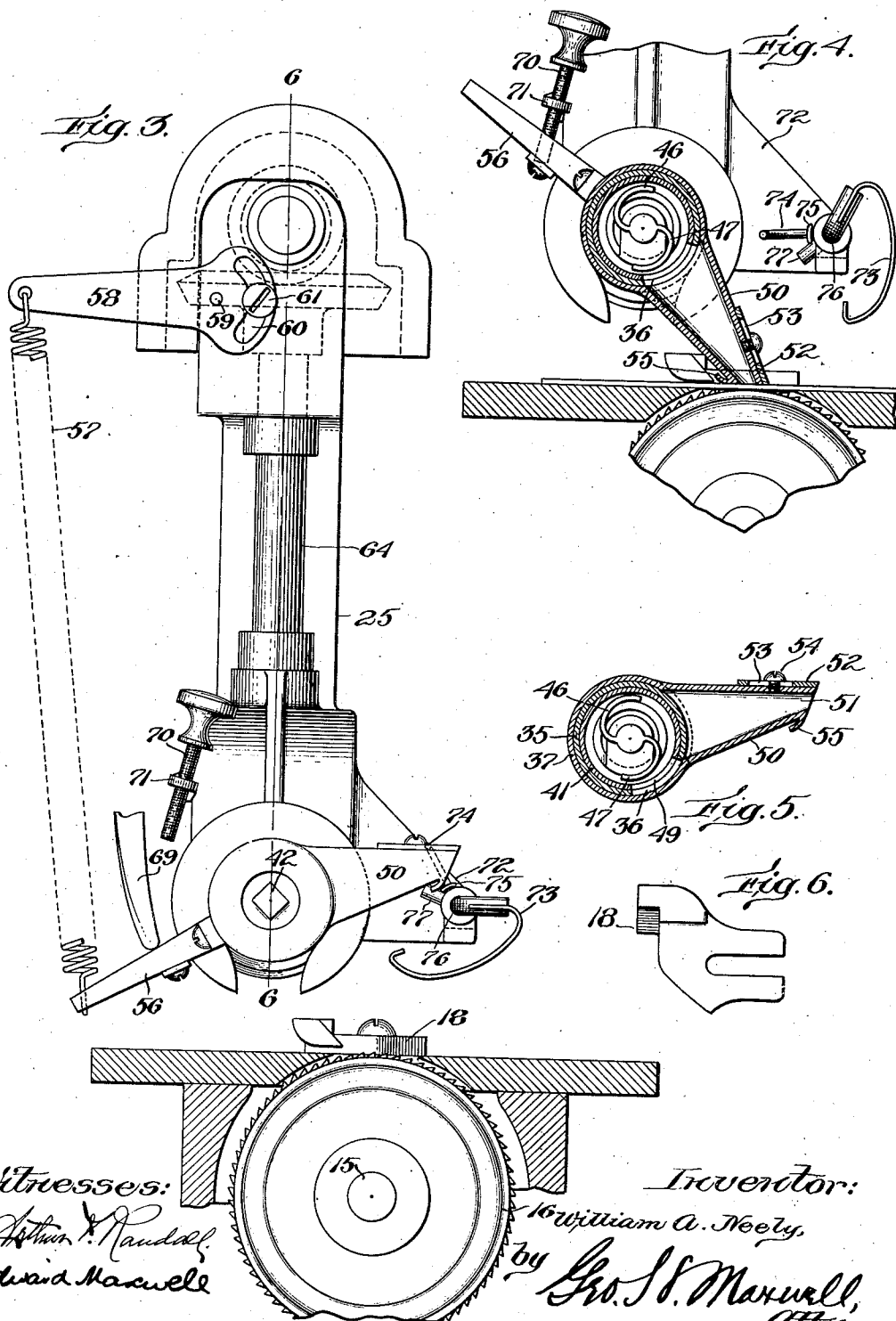
Witnesses:
Arthur H. Randall
Edward Maxwell

Inventor:
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3 SHEETS—SHEET 3.

Fig. 7.

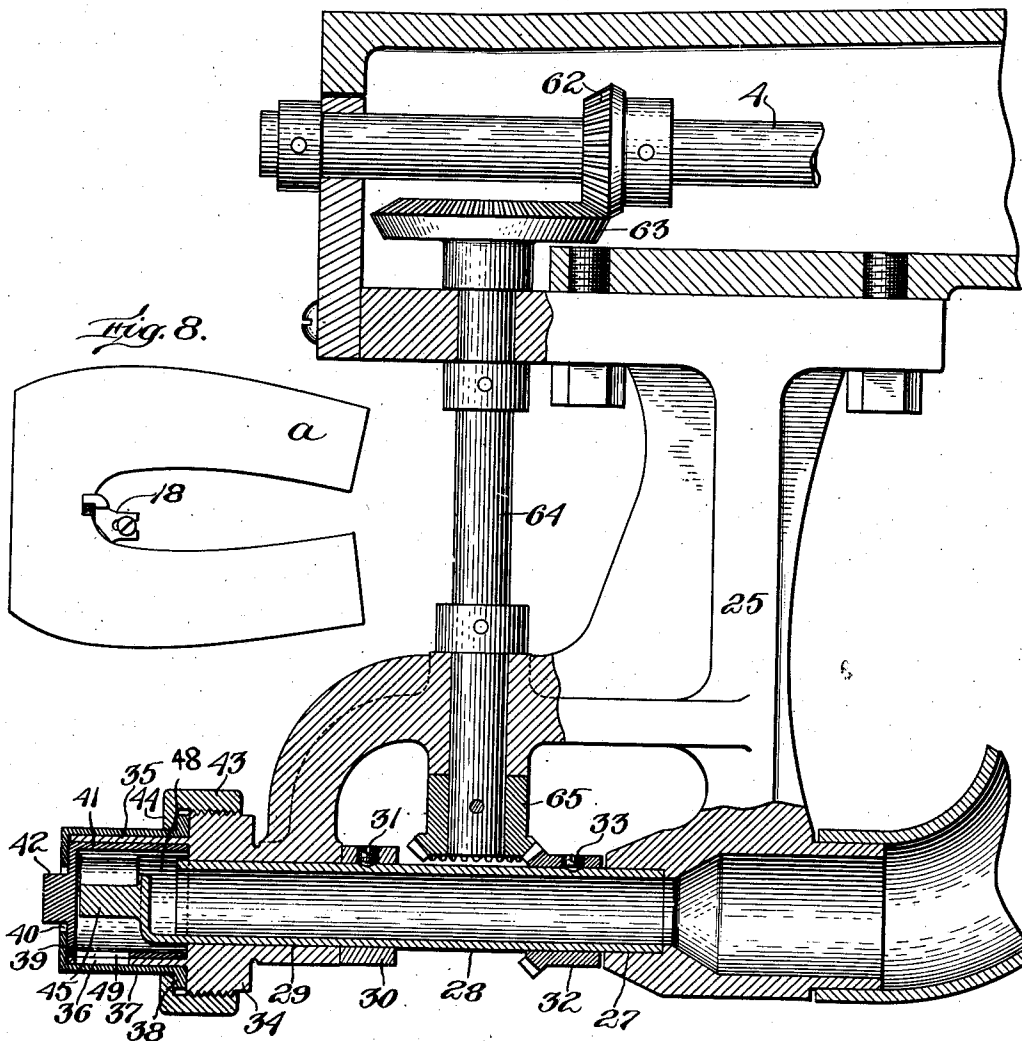
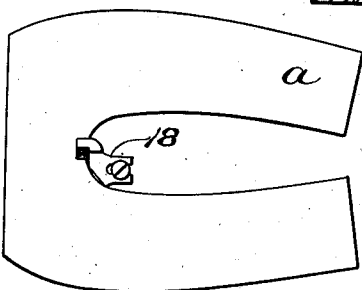


Fig. 8.



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UNITED STATES PATENT OFFICE.

WILLIAM A. NEELY, OF LYNN, MASSACHUSETTS, ASSIGNOR TO BOSTON MACHINE WORKS COMPANY, OF LYNN, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

CEMENTING-MACHINE.

1,027,144.

Specification of Letters Patent.

Patented May 21, 1912.

Application filed August 17, 1910. Serial No. 577,681.

To all whom it may concern:

Be it known that I, WILLIAM A. NEELY, a citizen of the United States, and resident of Lynn, in the county of Essex and State of Massachusetts, have invented an Improvement in Cementing-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has to do with cementing machines, especially designed for applying cement to the uppers of boots or shoes, but the same is applicable for other and general uses in shoe manufacture or elsewhere.

Heretofore in the application of cement to shoe-parts by hand, a great waste of cement has been inevitable, and further, the necessary exposure of considerable portions of the cement to the air for extended intervals results in undesirable evaporation of the solvent thereof. Machines have heretofore been designed for applying cement, but these have not, to my knowledge, been constructed to keep the cement away from contact with the atmosphere up to the time of its application to the part to be treated, and have hence been subject to a like objection as in the hand method.

My invention has for its prime objects to feed and force cement directly from a closed receptacle through a closed conduit, and apply the same directly to the part to be treated. Further, to provide an arrangement whereby the outlet for cement is automatically closed immediately upon stoppage of the machine. Further, to provide means for advancing the work and forcing cement directly thereupon, such means being operated from a single source and hence in timed relation.

Still further objects relate to an improved self-guiding feeding device for the cement, a convenient arrangement of the parts for ready and expeditious manipulation, and the attainment of other desirable results, as will hereinafter more fully appear.

Referring to the drawings, Figure 1 shows a side view of the machine; Fig. 2 is a detail elevation showing certain of the clutch operating parts; Fig. 3 is a front view of the main operative portions of the machine; Fig. 4 shows a transverse section through the cement forcing and applying device and adjacent parts in operative position; Fig. 5 is

a like transverse section through the cement forcing and applying devices in inoperative position; Fig. 6 shows a plan of the work guide; Fig. 7 shows a central longitudinal section in detail on line 6-6 of Fig. 3 of the cement feeding and forcing devices with the drive therefor; and Fig. 8 shows a plan of a circular vamp, being a shoe-part to which the machine is especially adapted to apply cement.

Upon a suitable base 1 is mounted a support 2 for a work table and a vertical column 3 for supporting the other operating parts. Near the top of said column are provided bearings for a shaft 4 constituting the source of power for operating the machine. Said shaft has fixed thereon a clutch face 5 adapted to be engaged by a cooperating clutch face 6 on a driving pulley 7, said pulley typifying any convenient source of power. The cooperating clutch faces 5 and 6 are adapted to be brought into engagement for driving the shaft 4 by a suitably formed lever 8 fulcrumed upon said column at 9 and having a link 10 extending from an end thereof adapted to be operated by a suitable treadle or other manual means (not shown). The lever 8 is normally held so as to leave the clutch members separated by a suitable spring 11 having its ends fixed thereto and to the column 3, as shown. The shaft 4 has a connection by a pulley 12, belt 13 and pulley 14 to a shaft 15 suitably journaled in said column and in the support 2. Said shaft 15 is adapted to operate, preferably by having the same fixed thereon, a work-advancing wheel 16 having, as shown, peripheral serrations for engaging and advancing the work. As shown, the periphery of said wheel extends slightly above the top of the work table 17, suitably fixed upon the support 2. Said table has secured thereto adjacent said feed wheel 16 a suitably curved work guide 18, the particular form of said guide shown being that especially adapted for properly guiding circular vamps in the cementing operation. It will be understood that the particular form of said guide may be modified for different shapes of work. Fixed to the top of said column 3 by bolts 19 or otherwise is a tank or receptacle 20 for cement, adapted to be closed from admission of air by a suitable closure 21. Leading from the bottom of said tank is a suitable conveyer tube 22, bent

around to a horizontal position as it nears the plane of the work table, as at 23. Said column 3 has a portion 24 bent over to a horizontal position over the work table, and depending therefrom is a bracket 25, having at one side of the bottom thereof a tubular portion 26 forming a continuation of the tube 23, which is connected therewith at one end as shown. The other end of said tubular portion is formed as a bearing 27 for one end of a tube 28, which has a further bearing adjacent its other end at 29 in the other side of the bracket 25.

The tube 28 may be held from longitudinal displacement by a collar 30 adjustably fixed thereto, as by a set screw 31 and a driving pinion 32 likewise adapted to be secured to said tube, as by a screw 33. A projecting portion of the bracket 25 is formed as a circular screw-threaded block 34, said block having projecting integrally therefrom a collar 35 having an open end and a cut-out portion 36 near the bottom thereof for a purpose to be explained. Fitted upon said collar is a thimble 37 having at one end an external flange 38 adapted to abut against the end of the block 34 and at its other end an internal flange 39 with a central aperture 40 therein. Fitted internally within said collar 35 is an annular gate 41 of slightly greater length than said collar and having an angular projecting portion 42 adapted to be operated by a wrench or the like. Fitted upon the external threads of the block 34 is an internally threaded thimble 43 having an internal flange 44 adapted to engage the flange 38, and, when said thimble 43 is turned tight, to clamp the thimble 37 against the block 34 and, at the same time, by means of the flange 39, also clamp the gate 41 against rotation between said flange and the end of the block 34.

The tube 28 has fashioned upon its outer end a rotary propeller 45 having blades 46 and 47, which blades are curved as shown and extend substantially to the inner periphery of the gate 41. As will be seen from Fig. 7, the tube 28 has communication through the passage 48 with the space within the gate 41, the whole construction just described forming forcing means adapted to force cement through an opening 49 in the gate 41, which may be made to register with the cut-out portion 36 of the collar 35. It will be observed that by turning said gate 41 and bringing the same in different positions, a variable outlet from said propeller can be obtained, depending upon whether the openings 36 and 49 are in full or only partial registry, and further, that said outlet can be entirely closed at will.

The thimble 37 is normally allowed free movement upon the collar 35, the thimble 43 being loosened, and said thimble carries at one side thereof a cement applicator 50, shown

as a spout converging to its outlet point 51 and having fixed thereto at said outlet point an adjustable spreader plate 52. As shown, said spreader plate may be properly adjusted to perform its function by means of the slot 53 and the clamping bolt 54. An intumed ear 55 may be formed upon the other side of said outlet to facilitate the passage of the material past the same. Referring to Figs. 4 and 5, it will be seen that said applicator spout 50 is of a length to extend down when in a somewhat oblique position opposite the feed wheel 16 and when in such position that it registers with the opening 36. Fixed to the side of said thimble 37 opposite the spout 50 is an arm 56, said arm being engaged by one end of a spring 57, the other end of said spring being secured to an arm 58. Said arm 58 may be adjustably fixed to the framework so as to impart variable tension to the spring 57 by means of a pivot 59, an arcuate slot 60 and a clamp bolt 61, this arrangement providing for a considerable adjustment of the angular position of said arm, as will be obvious. Said shaft 4 is adapted to rotate the tube 28 through suitable gearing, shown as consisting of a bevel gear 62 fixed thereon meshing with a bevel gear 63 fixed on a vertical shaft 64 suitably journaled in the bracket 25 and having at its other end a beveled pinion 65 adapted to mesh with the pinion 32 above mentioned. A lever 66 is fulcrumed at 67 on a lug projecting from the framework and has a suitable pin and slot engagement, as at 68, see Fig. 2, with the lever 8, to be operated thereby. The other end 69 of said lever 66 is extended to engage the arm 56 and depress the same against the tension of the spring 57 when lowered upon the release of the arm 8 by the treadle actuated link 10 as aforesaid. As will be seen from Figs. 3, 4, and 5, this movement will result in the elevation of the applicator spout 50 to inoperative position, this at the same time closing communication between the same and the opening 36, thus hermetically closing the outlet from the force feeder. An adjusting screw 70 is threaded through an ear 71 on the framework in a position to engage the arm 56 on its upward movement and thus limit the possible depression of the applicator 50 through the action of the spring 57.

Pivoted upon a suitable projection from the bracket 25 is a drip catcher 73, said drip catcher having a short arm 74 adapted to be engaged by the applicator spout when raised to inoperative position, which results in a swinging of said drip catcher around into position to wipe off and catch any particles of cement remaining upon the mouth of the applicator spout when the same is raised. Referring to Figs. 1 and 3, it will be noted that the operator standing in front of the

machine has the parts of the work to be operated on and the cement applicer at all times in the plane of view in front of him, and that the arrangement is such as to provide for the feed of the work from left to right, thus making the machine more convenient and adapted for rapid operation.

In operation, a piece of work, as the circular vamp *a*, is presented at the left of the machine, as shown in Fig. 3, the treadle is depressed, thus starting the actuation of the shaft 4 and its operated parts from the pulley 7, and at the same time, through the connections described, the elevation of the end 69 of lever 66 permits the spring 57 to pull down the applicer spout 50 into operative position above the feed wheel 16. The force propeller being at the same time started into operation, a suitable quantity of cement is forced through the mouth 51 of the cement applicer and properly spread upon the edge of the work in a manner readily understood. The propeller and the work feeding being operated from a single source of power, it will be seen that the feed of cement will be varied correspondingly with the speed of movement of the work. It will be seen that no cement is expelled until the work-feed is started into operation, although the cement is delivered to the forcing device ready to expel. Further, that the feed of cement is largely self-guiding, being under the yielding tension of the spring 57, and this tension, being adjustable, is readily changed for different classes of work, the same being also flexible so as to pass easily over seams, etc.

I desire it to be understood that, viewing my invention in its broader aspects, it is immaterial whether the work-advancing means and the cement feeding and applying devices are operated from a common source of power, the essence of the invention in this respect residing in a broad construction of means for operating the work feed and the cement supply in exact timed relation, so that no cement is delivered until the work starts its movement, and the supply of cement is instantly stopped upon the cessation of work movement. I also believe it to be broadly new to provide means, operating in timed relation to the work feed, to cause the hermetic closure of the delivery from the cement supply simultaneously with the stoppage of the work movement, as likewise the corresponding means for causing the opening of the cement-delivering passage simultaneously with the starting of the work movement. I also consider it to be broadly new to feed the cement through a confined conduit and directly upon the work, in combination with means for advancing the work. I also consider the construction shown and above explained, whereby the work is fed from left to right with the portions being operated on always directly in front of the

operator and in full view, as an important feature of my invention. I have discovered that such a direction of feed enables the operator to handle the work with much greater speed and certainty than in any other manner, and the fact that the parts being operated on are always in view prevents mistakes which would otherwise be apt to occur.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A cementing machine, comprising means for feeding the work, separate means for forcing cement directly upon the work having an applicer to spread the same evenly over all portions of the work as it is fed along, and means for operating said elements in timed relation.
2. A cementing machine, comprising means for feeding the work, a separate positive force feed mechanism for cement having a delivery portion arranged to smear and spread the cement evenly in a continuous line over the work as it is fed, and a single power source arranged to operate said elements in timed relation.
3. A cementing machine, comprising means for feeding the work, a separate rotary cement pumping device arranged to receive cement from a suitable supply and force the same directly upon the work, means for spreading and smearing the cement evenly over the work as it is fed along, and means to operate said elements in timed relation.
4. A cementing machine, comprising a cement holder, a force feeder for cement, closed connections between said holder and feeder, said feeder being arranged to deliver and spread the cement directly upon the work, yielding means to hold said connections open when said feeder is operating, and other means arranged to come into action when said feeder is inactive to close said connections.
5. A cementing machine, comprising a cement holder, a force feeder for cement, and connections arranged to supply cement by gravity from said holder to said feeder, said connections including an element for applying power to said force feeder.
6. A cementing machine, comprising a cement holder, a force feeder for cement, and means arranged to supply cement from said holder to said feeder, said connections including a tube arranged to operate said force feeder, and means for applying power through said tube to said feeder.
7. A cementing machine comprising means for feeding the work, a normally closed cement holder, means for feeding cement therefrom directly upon the work as it is fed along, driving means for said work feeding and cement feeding means disengageably connected thereto, and means for

automatically closing the delivery passage from said feeding means upon disengagement of said driving means.

8. A cementing machine comprising means for feeding the work, a cement holder, means for forcing cement therefrom directly upon the work as it is fed along, means for communicating power at will to said work feeding and cement feeding means, and connections from said last named means to automatically cause opening of the delivery from the cement feeding device as power is applied and for closing the delivery when the power is disconnected.

9. A cementing machine, comprising a positively operated cement forcing device, operating means therefor, clutch mechanism to render said operating means active or inactive at option, a device connected with said clutch mechanism arranged to positively close the delivery passage when said operating means is inactive and permit the same to be opened when said operating means is rendered active, and means to hold the delivery passage normally open.

10. A cementing machine, comprising a positively operated cement forcer, a driving clutch member adapted to be connected therewith at will, a cement applier having yielding means to hold the same in communication with said forcer and against the work, means for operating said clutch element, and a lever connection between said means and said applier whereby the same is closed from the forcer upon disengagement of the clutch.

11. A cementing machine, comprising a normally closed cement holder, an inclosed conduit to feed cement therefrom, a force feeder arranged to receive cement from said conduit and having a spout with an attachment to spread the cement directly upon the work as it passes thereunder, and means for feeding the work.

12. A cementing machine, comprising means for feeding the work, a rotary cement forcing device, an adjustable gate encircling said forcing device and concentric therewith to vary the outlet therefrom, an applier arranged to receive the cement and spread the same evenly over the work as it is fed along, and means for holding said applier yieldingly against the work and under adjustable tension.

13. In combination, a cement feeder, an applier connected therewith and movable to operative and inoperative position, and a drip catcher connected to be brought adjacent the mouth of the applier when the same is moved to inoperative position.

14. In combination, a cement feeder, a cement applier arranged to swing to operative and inoperative positions, and a drip catcher mounted to be moved by said applier when swung to inoperative position.

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

WILLIAM A. NEELY.

Witnesses:

M. J. SPALDING,
EDWARD MAXWELL.