No. 784,249. PATENTED MAR. 7, 1905.

L. A. CASGRAIN.

MACHINE FOR DAMPENING THE SOLES OF BOOTS OR SHOES.

APPLICATION FILED JUNE 13, 1904.

2 SHEETS—SHEET 1.

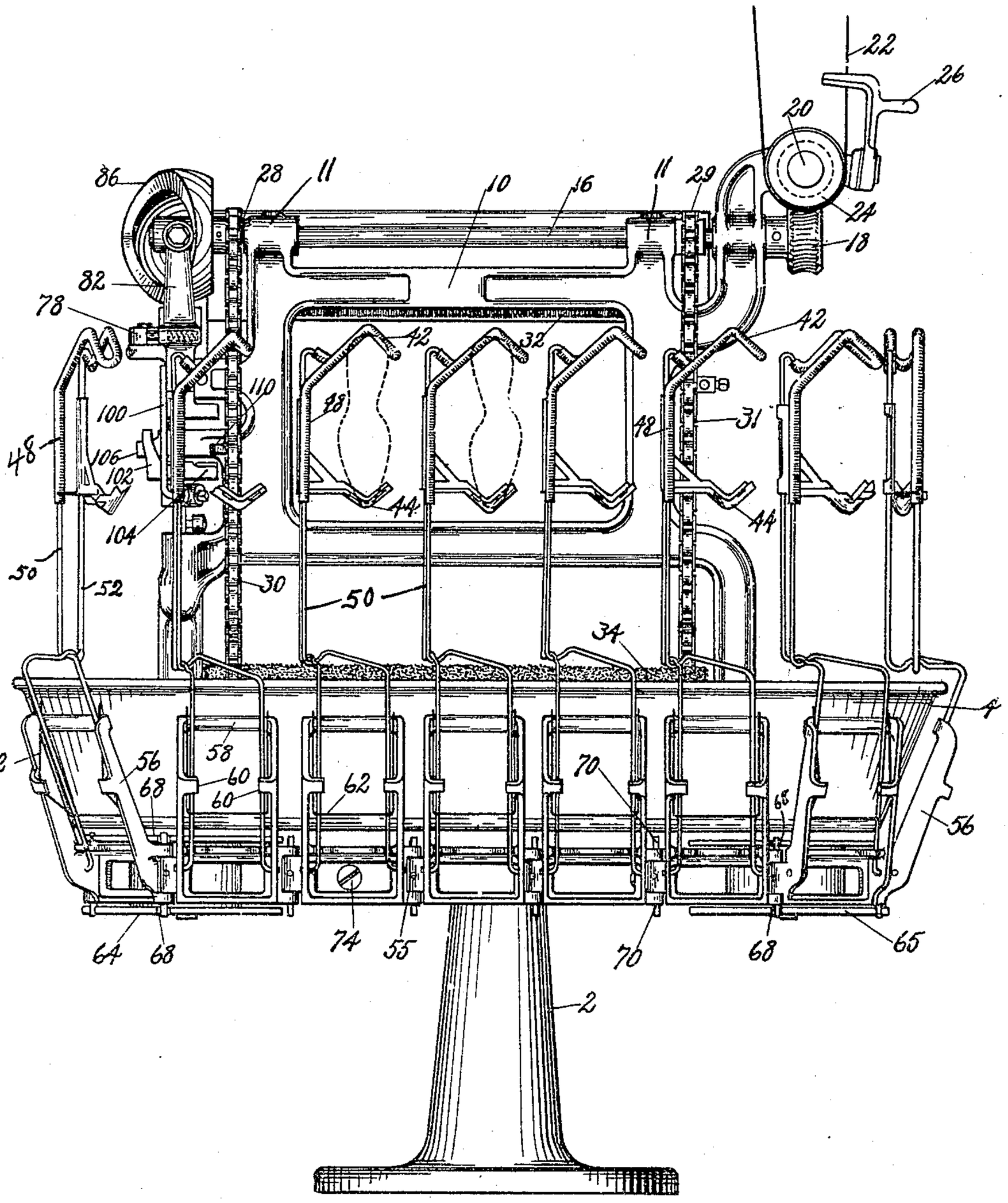

FIG. 1.

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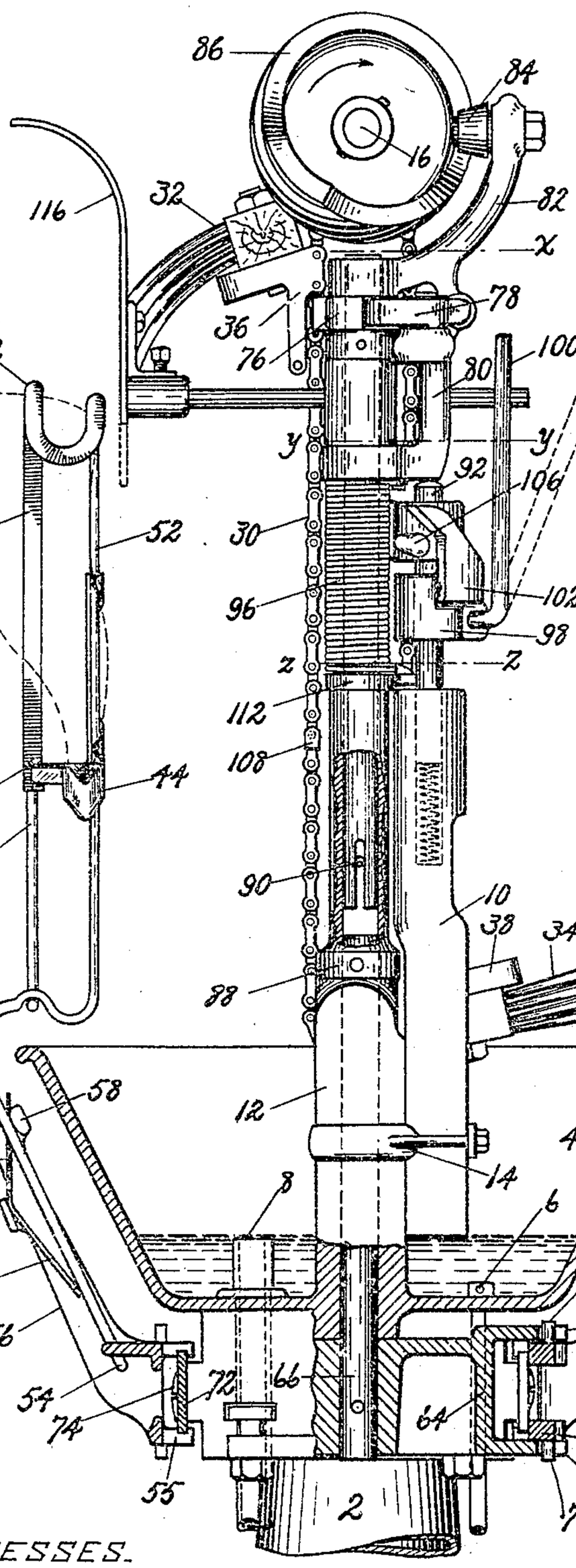

FIG. 2.

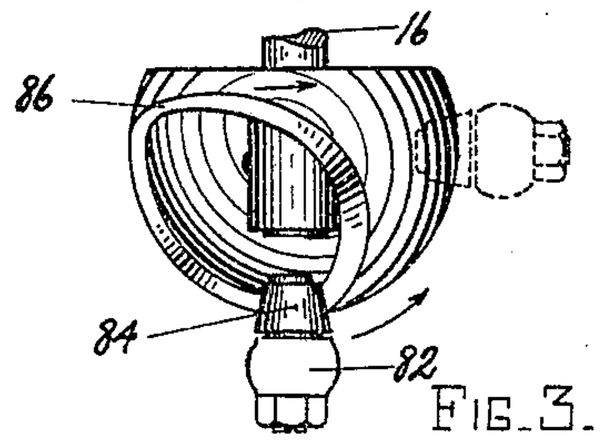

FIG. 3.

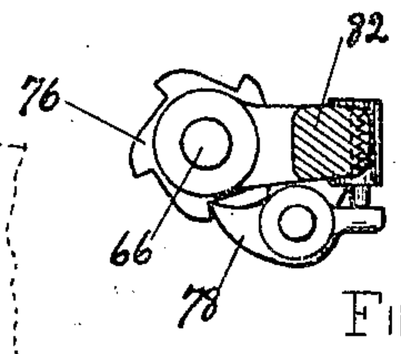

FIG. 4.

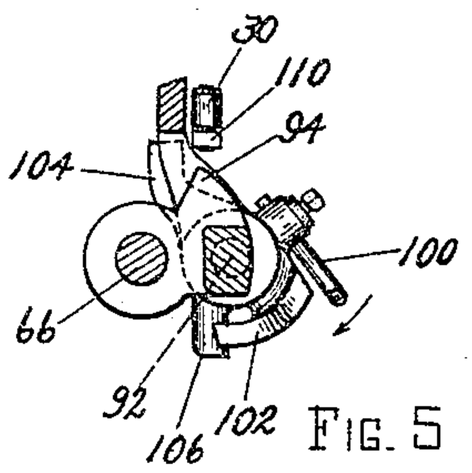

FIG. 5

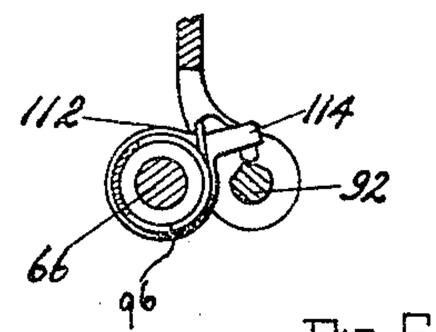

FIG. 6

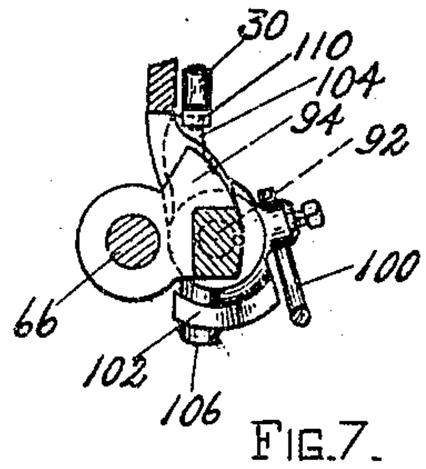

FIG. 7.

WITNESSES.

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No. 784,249. Patented March 7, 1905.

UNITED STATES PATENT OFFICE.

LOUIS A. CASGRAIN, OF WINCHESTER, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

MACHINE FOR DAMPENING THE SOLES OF BOOTS OR SHOES.

SPECIFICATION forming part of Letters Patent No. 784,249, dated March 7, 1905.

Application filed June 13, 1904. Serial No. 212,335.

To all whom it may concern:

Be it known that I, LOUIS A. CASGRAIN, a citizen of the United States, residing at Winchester, in the county of Middlesex and Commonwealth of Massachusetts, have invented certain Improvements in Machines for Dampening the Soles of Boots or Shoes, 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 dampening or tempering leather; and the object of the invention is to provide means for dampening the outer sole of a boot or shoe without wetting the inner sole or the portion of the upper that is adjacent to the sole.

Another object of the invention is to provide means for dampening the soles of a number of shoes uniformly and rapidly which will not require skill on the part of the operator.

In the manufacture of certain grades of boots and shoes it is customary to dampen the outer sole, to make the leather soft and pliable, just previous to the operation of permanently fastening the sole to the lasted shoe, as the leather can be penetrated more easily when it is in this condition and the head or end of the fastening material will be less noticeable when the shoe is finished. Heretofore it has been customary for the operator to dampen the outer sole by dipping it in a pail of water after it had been temporarily secured to the lasted shoe. This method, however, has proved unsatisfactory, because the operator would very often dip the sole too far into the water, so that the inner sole of the shoe and a portion of the upper would get wet, and the method was, moreover, objectionable on account of the time required to perform the operation, as well as the impossibility of dampening the soles of a number of shoes uniformly. These objectionable features have all been overcome by my present invention. In the machine herein shown, embodying the preferred form of my invention, a plurality of shoes are sustained in shoe-supports and water is applied to their outer soles without any liability of wetting the inner sole or any portion of the upper of the shoe. The soles of all shoes are also dampened uniformly, and practically no skill on the part of the operator is required for running the machine.

Figure 1 of the drawings represents a front elevation of a machine embodying my invention. Fig. 2 is an elevation of the left-hand end of the machine shown in Fig. 1, some of the parts being shown in section. Fig. 3 is a detail plan view of the cam which moves the actuator. Fig. 4 is a detail view, partly in section, taken on the line *x x* of Fig. 2. Fig. 5 is a detail view, partly in section, taken on the line *y y* of Fig. 2. Fig. 6 is a detail view, partly in section, taken on the line *z z* of Fig. 2; and Fig. 7 is a view similar to Fig. 5, but with the parts in a different position.

The machine herein shown and described, which represents the preferred form of my invention, comprises a tank for holding water or other liquid substance, brushes for applying such substance to the soles of shoes, supports in which the shoes are held, a carrier for the supports, and mechanism for feeding the carrier.

Referring to the drawings, 2 represents a base which supports a tank 4, provided with a water-supplying pipe 6 and an overflow 8, which keeps the water in the tank always at the same level. Projecting upwardly at the opposite ends of the tank are standards 12, to which the head or frame 10 of the machine is adjustably secured by clamps 14, as shown in Fig. 2, said head being provided with bearings 11 for a cam-shaft 16, that has mounted at one end a gear 18, which meshes with a worm on the driving-shaft 20. The shaft 20 is driven by means of a belt 22 and pulley 24 and is provided with a loose pulley onto which the belt is shifted by a shifting device 26 when it is desired to stop the rotation of said shaft. Sprocket-wheels 28 and 29 are mounted on the cam-shaft 16 and are engaged by sprocket-chains 30 and 31, that pass over sprocket-wheels on a counter-shaft, (not shown,) said counter-shaft being mounted in bearings in the standards 12. Brushes 32 and 34 are se-

cured to said sprocket-chains, and in the movement of said chains the brushes will be first carried down through the water in the tank and then up over the surface of the soles of the shoes that are held in supports about the periphery of the tank.

The shoe-supports are mounted on a carrier which is fed intermittingly, as hereinafter described, and each support comprises a rod that is bent to form a heel-clamp 42 and guide-rods 50 and 52. The upper end of the guide-rod 50 is surrounded by a coiled spring 48, which also surrounds the heel-clamp 42, so as to afford an engaging surface which will not mar the leather in the heel portion of the shoe, and the guide-rod 52 is surrounded by the hollow shank of a toe-support 44. The toe-support is provided with an arm having teeth 46, which engage the coils of spring 48, whereby said support is yieldingly held in position with relation to the heel-clamp. By sustaining the toe-support yieldingly in position a shoe can be easily removed from the support by simply forcing the toe-support downwardly. Moreever, the position of said toe-support relatively to the heel-clamp can be quickly changed to accommodate different-sized shoes by disengaging the teeth 46 from the spring and moving said support toward or away from the heel-clamp, the teeth 46 being then allowed to engage the spring to retain the support in its adjusted position.

The brushes are adjustably mounted in brackets 36 and 38, which are rigidly fastened to the chain, and when said brushes become worn they can be moved outwardly. The sprocket-chains can also be tightened when they become loose and worn by releasing the clamps 14 and moving the head 10 upwardly, so as to increase the distance between the shaft 16 and the counter-shaft.

In the embodiment of my invention herein shown the carrier which sustains the shoe-supports consists of a plurality of links that form a chain 55, each link having projecting therefrom a frame 56, to which a shoe-support is pivotally connected at 54. The shoe-supports project upwardly and over the edge of the tank and are held normally in this position by springs 62. Each frame is also provided with laterally-projecting lugs 60, which prevent the shoe-support from being swung on its pivot too great a distance from the edge of the tank, said lugs also acting as a bearing for the spring 62 referred to. As shown in Fig. 2, the chain or carrier is supported by and travels on a track 72, that corresponds in form to the outline of the tank and which is secured to a stationary part of the machine by screws 74, the links of said chain being provided with grooves which engage the upper and lower edges of the track.

The mechanism for feeding the chain or shoe-support carrier consists of a double sprocket-wheel 64, that is mounted on the lower end of a vertical shaft 66, which rotates in bearings formed in the standard 12 at the left-hand end of the machine, said shaft having fastened to its upper end a ratchet-wheel 76, that is moved intermittingly by a pawl 78 on an actuator 80. A similar sprocket-wheel 65 is mounted on an eccentric sleeve carried by a downwardly-projecting stud at the opposite end of the machine, and both sprocket-wheels are provided with teeth 68, which engage pins 70, that connect the links which form the chain. As shown in Fig. 2, the shaft 66 is formed in two sections, one telescoped upon the other, to permit the head of the machine to be raised for tightening the sprocket-chains 30 and 31, the lower section of the shaft having connected therewith a sleeve 88, that is provided with a pin which engages the bifurcated end of the upper section of the shaft. For tightening the chain 55, which forms the shoe-support carrier, the eccentric sleeve on which the sprocket-wheel 65 is mounted is shifted so as to increase the distance between the axes of rotation of the sprocket-wheels.

The actuator 80 is loosely journaled on shaft 66 and has projecting from its upper end an arm 82, that is provided with a cam-roll 84. A cam 86 on the shaft 16 coöperates with the roll 84 on the arm of the actuator and operates to intermittingly move said actuator from the position in which the roll is shown in dotted lines in Fig. 3 into the position shown in full lines in said figure, thereby rotating the ratchet-wheel 76, shaft 66, sprocket-wheel 64, and the chain or carrier 55, to which the shoe-supports are attached. When the actuator arrives at the end of its feeding movement, as indicated by the full-line position of the roll in Fig. 3, it will be retained in such position by a novel locking device, and at such times the roll on arm 82 will be out of engagement with the cam 86, so that no movement will be imparted to the actuator until the roll is again returned to its dotted-line position in Fig. 3.

The device for locking the actuator comprises a spring-pressed pin 92, that is mounted in the head 10, and said pin has rigidly connected therewith a block 98, which is provided with an extension 104, a cam-plate 102, and an adjustable handle 100. (See Fig. 5.) When the actuator occupies the position shown in Fig. 2, with its pawl 78 in engagement with a tooth of the ratchet-wheel 76, preparatory to feeding said wheel, the upper end of the pin 92 will contact with the under side of the actuator, so that said pin will be held depressed; but as the actuator is moved forwardly for feeding the ratchet-wheel the pin will be released and will be forced upwardly by its spring to engage a shoulder 94 on the actuator, thereby locking the actuator at the

end of its feeding movement until the pin is again depressed.

When it is desired to unlock the actuator, so that it will move into operative position for again feeding the ratchet-wheel, the handle 100 is moved in the direction of the arrow in Fig. 5, so as to carry the extension 104 on the block 98 into the position shown in Fig. 7, and while in such position the extension will be engaged by a tripping-block 110, carried by the continuously-moving sprocket-chain 30, whereby said locking-pin will be depressed and moved from engagement with the shoulder on the actuator. As the locking-pin moves out of engagement with said shoulder the actuator will be forced by a spring 96 in the direction of the arrow, Fig. 3, into its operative position, as indicated by the roll in dotted lines in said figure, said spring surrounding the shaft 66 and being connected at its upper end to the actuator and at its lower end to a collar 112. The collar 112 loosely surrounds the shaft and has a radially-extending arm 114, that is provided with a tooth which bears against a flat surface of the pin 92, thereby holding said pin either in position with the extension 104 in alinement with the tripping-block or out of alinement with said block. The extension is automatically moved out of alinement with the tripping-block by means of the cam-plate 102, which in the downward movement of the block 98 engages a stationary stud 106, that operates to gradually turn said block and its extension 104 into its normal position out of alinement with the tripping-block on the chain.

Two tripping-blocks 108 and 110 are provided and are so positioned on the sprocket-chain 30 that the actuator will be unlocked and will operate for feeding the shoe-support carrier when the brushes are out of engagement with the soles of the shoes, thereby reducing wear and friction.

A shield 116 is mounted at the rear of the machine to keep the water from spattering as the brushes leave the soles of the shoes, and, if desired, the shield may be extended downwardly, as shown in dotted lines in Fig. 2, to prevent the brushes from wetting the heel portion of the soles.

The operation of the machine is as follows: The driving-shaft 20, through its worm-and-gear connection with the cam-shaft 16, rotates said shaft, and with it the sprocket-wheels which drive the chains to which the brushes are attached, so that said brushes are carried down into the water in the tank and then up over the surface of the soles of the shoes which are held in the supports about the periphery of the tank. The operator standing at the left-hand end of the front of the machine will remove a dampened shoe from the shoe-support, which is then in front of him, insert a dry shoe in its place, and at the same time move the lever 100 so as to carry the extension 104 into alinement with one of the tripping-blocks on the chain 30. As the tripping-block engages said extension the block 98 and pin 92 will be depressed, thereby unlocking the actuator. The spring 96 will then move the actuator into the position shown in Figs. 1 and 2, with its cam-roll in contact with the driving-cam on shaft 16, and in the rotation of said cam the actuator will be moved from this position into the position in which the roll is shown in full lines in Fig. 3, thereby rotating the ratchet-wheel one step forward for feeding the shoe-support carrier, so that a different shoe-support will be moved into position in front of the operator. When the actuator arrives at the end of its feeding movement, the locking-pin will move upwardly to engage the shoulder thereon and will hold said actuator in this position until the handle 100 is again moved. The handle 100 can be adjusted in the position shown in dotted lines in Fig. 2, and when in such position it is adapted to be engaged by the heel-clamp as the operator is placing the shoe in the support, so that means are thus provided for setting the feeding mechanism in operation simultaneously with the operation of placing a shoe in the support.

I desire to have it understood that I am in no wise limited to the particular mechanism which I have illustrated and described, although said mechanism is the best embodiment of the invention now known to me, and it will be apparent that said mechanism may be varied in numerous ways without departing from the spirit and scope of my invention and that the machine may be used for purposes other than the dampening of soles.

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

1. In a machine of the class described, means for supporting a shoe, a dampening device, and means for moving said supporting means and dampening device relatively to each other for moistening the sole of a shoe.

2. In a machine of the class described, a plurality of movable shoe-supports, and a device movable transversely of the plane of movement of the supports for dampening the soles of shoes carried by said supports.

3. In a machine of the class described, a device for dampening the soles of shoes, means for supporting a plurality of shoes, and means for moving successive shoes into position to be engaged by said dampening device.

4. In a machine of the class described, a shoe-support, a carrier for said shoe-support, mechanism for feeding the carrier, and means for applying liquid substance to a shoe carried by the shoe-support.

5. In a machine for dampening the soles of

shoes, a shoe-support, a carrier for said shoe-support, mechanism for feeding the carrier intermittingly, and a continuously-operating device for applying water to the sole of a shoe sustained by the shoe-support.

6. In a machine of the class described, a support for sustaining a shoe, a tank for holding water, a dampening device, and means for moving said device into the water in said tank and then into engagement with the sole of a shoe sustained on said support.

7. In a machine of the class described, a carrier, mechanism for feeding said carrier, means under the control of the operator for causing the feeding mechanism to become operative, and means for locking said feeding mechanism at the end of a feeding movement.

8. In a machine of the class described, a dampening device, actuating mechanism therefor, shoe-supports, a carrier for said supports, mechanism for feeding said carrier, and means operated by the dampening-device-actuating mechanism for causing the carrier mechanism to become operative.

9. In a machine for dampening the soles of shoes, a plurality of shoe-supports, a carrier for said shoe-supports, mechanism for feeding the carrier, a water-holding tank, a brush, and means to actuate said brush for taking water from the tank and applying it to the soles of shoes sustained by the shoe-supports.

10. In a machine of the class described, means for supporting a shoe, a dampening device, mechanism for relatively moving said supporting means and dampening device for moistening the sole of a shoe carried by said support, and means arranged to be actuated by the operation of placing a shoe on the support for causing said mechanism to become operative.

11. In a machine of the class described, a dampening device, a plurality of shoe-supports, a carrier for said shoe-supports, mechanism for feeding the carrier, and means for causing said feeding mechanism to become operative, said means being arranged to be operated by contact with a shoe-support as a shoe is being placed therein.

12. In a machine of the class described, a carrier consisting of a plurality of links, frames extending from each link and shoe-supports connected to said frames.

13. In a machine for dampening the soles of shoes, a carrier, shoe-supports pivotally connected to said carrier, means for yieldingly holding the shoe-supports in perpendicular positions and means for limiting the movements of the shoe-supports about their pivots.

14. In a machine for dampening the soles of shoes, a shoe-support comprising a heel-clamp and a toe-support, and means for holding said toe-support yieldingly in position with relation to the heel-clamp.

15. In a machine of the class described, a carrier, mechanism for feeding the carrier, and a device for locking the feeding mechanism, said device comprising a spring-actuated pin having a lateral extension, means for turning the pin to change the position of the extension, and means for engaging said extension and moving it downwardly to cause the locking device to become inoperative.

16. In a machine of the class described, a carrier, mechanism for feeding the carrier intermittingly, and means for locking said mechanism at the end of a feeding movement, said locking means comprising a spring-pressed pin provided with an extension which is adapted to be engaged and moved for rendering the locking device inoperative, means for moving said extension into operative position, and means for returning said extension to its normal position.

17. In a machine for dampening the soles of shoes, a water-holding tank, a shoe-support carrier encircling said tank, shoe-supports connected to said carrier, means for feeding said carrier to cause the shoe-supports to travel about the periphery of the tank, and means for applying water to the soles of shoes sustained in the supports.

18. In a machine for dampening the soles of shoes, a plurality of dampening devices, continuously-moving chains carrying said devices, a tripping-block carried by one of said chains, a shoe-support carrier, shoe-supports carried thereby, mechanism for feeding the carrier, and a device for locking said mechanism at the end of a feeding movement, said locking device having a part that is adapted to be engaged and moved by said tripping-block to render said feeding mechanism operative.

19. A machine for dampening shoes, comprising a continuously-rotating shaft that is provided with a cam and a plurality of sprocket-wheels, brush-carrying chains adapted to be driven by said sprocket-wheels, a shoe-support carrier, a plurality of shoe-supports carried thereby, and mechanism for feeding the carrier, said mechanism comprising a sprocket-wheel mounted on a shaft, and an actuator for rotating said shaft, said actuator being adapted to be operated by the cam on the continuously-rotating shaft.

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

LOUIS A. CASGRAIN.

Witnesses:

ARTHUR L. RUSSELL,

WELLS L. CHURCH.