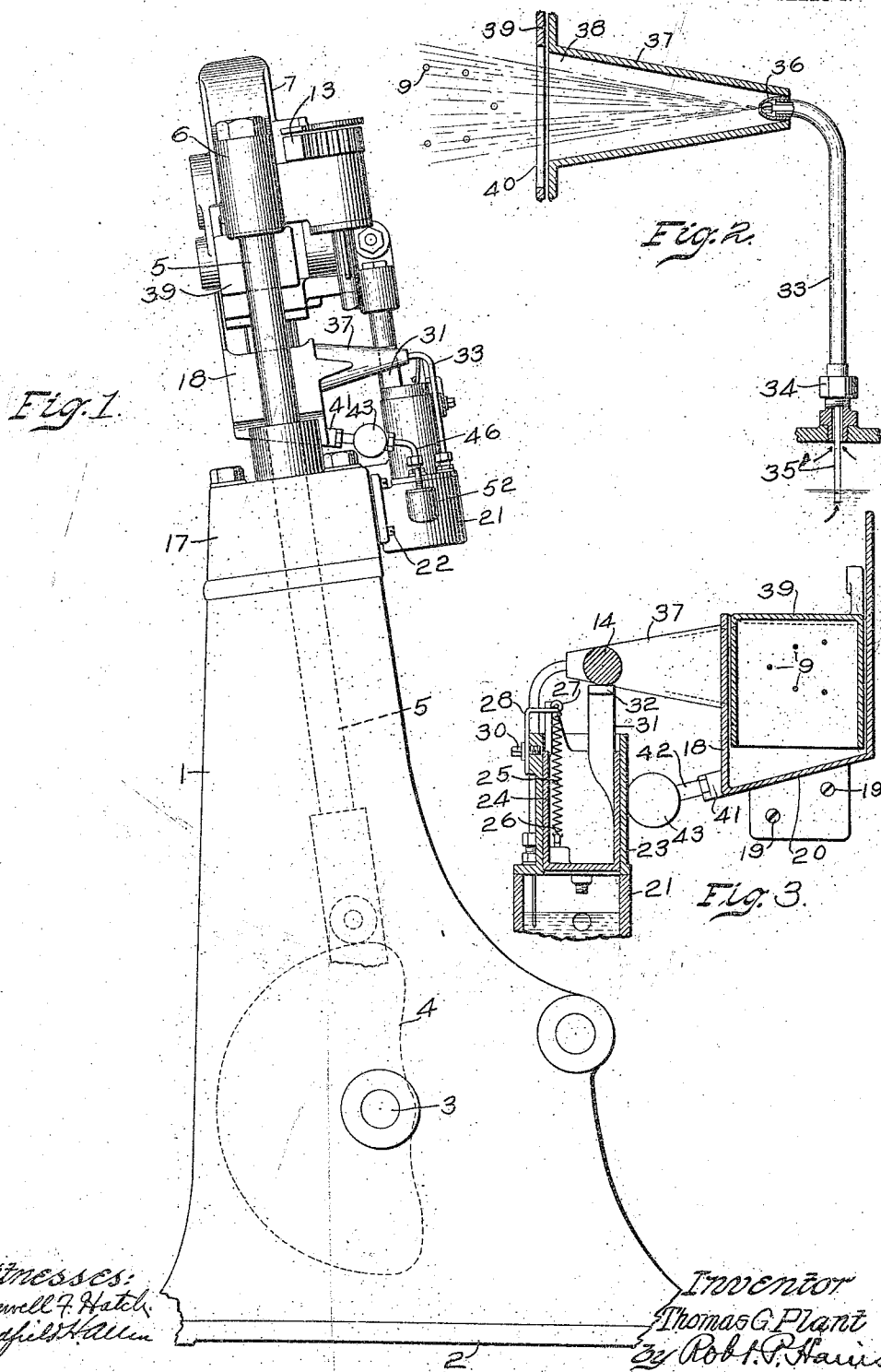


958,289.

T. G. PLANT.
BOOT AND SHOE MACHINE.
APPLICATION FILED OCT. 29, 1909.

Patented May 17, 1910.

2 SHEETS—SHEET 1.



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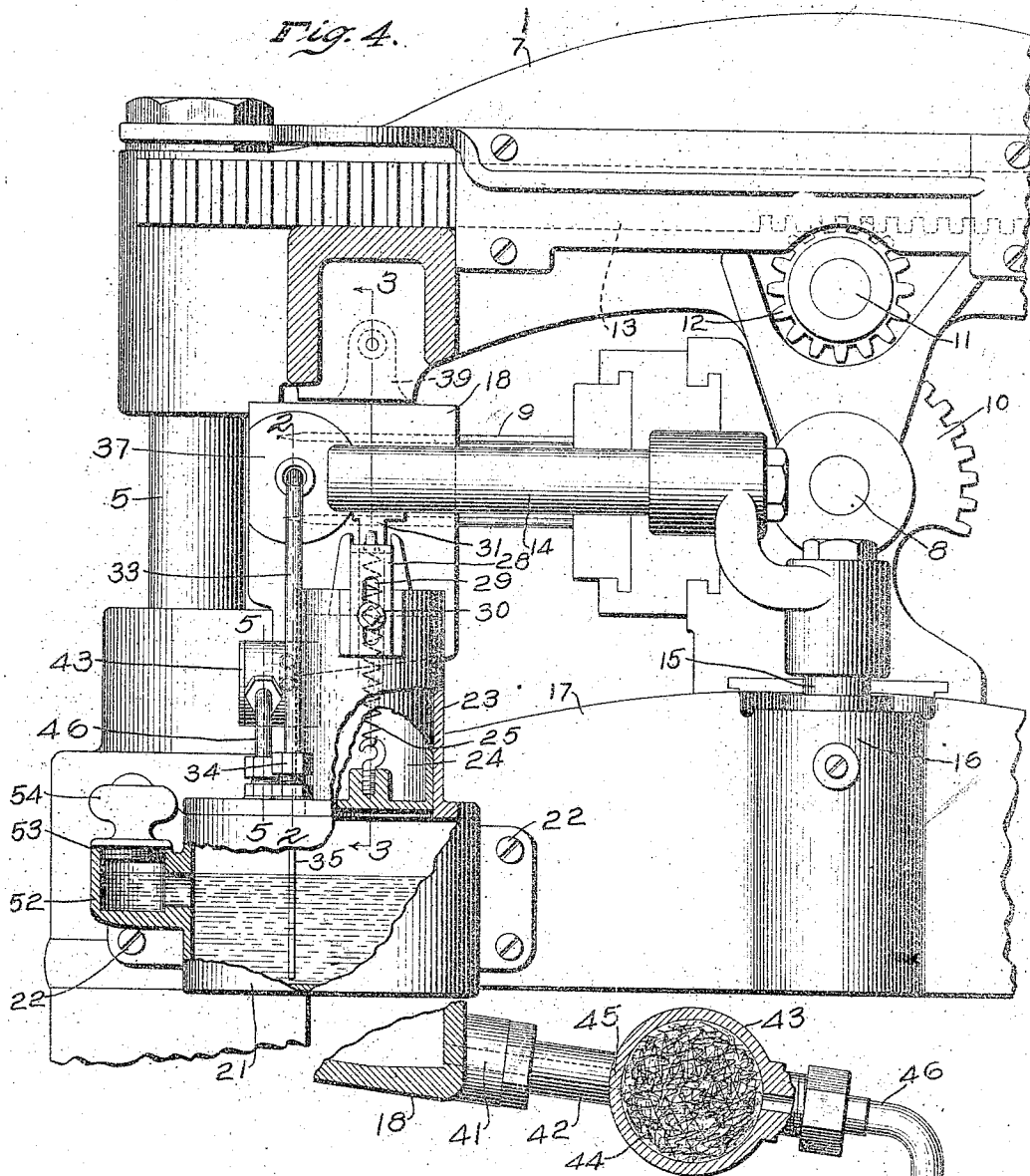
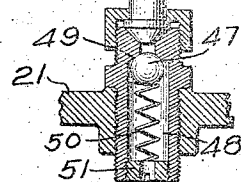


Fig. 5.



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UNITED STATES PATENT OFFICE.

THOMAS G. PLANT, OF BOSTON, MASSACHUSETTS.

BOOT AND SHOE MACHINE.

958,289.

Specification of Letters Patent.

Patented May 17, 1910.

Application filed October 29, 1909. Serial No. 525,251.

To all whom it may concern:

Be it known that I, THOMAS G. PLANT, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented an improvement in Boot and Shoe Machines, of which the following description, in connection with the accompanying drawings, is a specification, like numerals on the drawings representing like parts.

The invention herein to be described relates to machines for treating boots and shoes, and more particularly to lubricating devices employed for the purpose of lubricating the awls or prickers of such machines.

The aims and purposes of the present invention are to provide simple and effective means for lubricating the awls of boot and shoe treating machines. In the present embodiment of the invention the lubricating devices are illustrated and described in connection with a machine for treating the heels of boots and shoes, although, as will be obvious, the invention is not necessarily restricted thereto.

As well understood by those skilled in the art it is common to form openings in the heels of boots and shoes for the insertion of the fastening means which either hold the parts of the heel together or unite the heel to the heel seat. It is ordinarily the practice, also, to compress the heel and while in this compressed condition to prick it. Obviously great friction results by the passage of the awls through the heel, and the heat generated is liable to cause serious injury to the awls, as will be readily understood.

In the drawings:—Figure 1 is a general side view of one form of heel treating machine having the present invention associated therewith; Fig. 2 is a section on the line 2—2 of Fig. 4; Fig. 3 is a section on the line 3—3 of Fig. 4; Fig. 4 is an enlarged detail back view of one side of the upper portion of the machine of Fig. 1, with parts broken away to more clearly disclose the elements beneath; and Fig. 5 is a section on the line 5—5 of Fig. 4.

While, as hereinbefore noted, the invention is applicable to a large variety of machines wherein awls or prickers are used for piercing leather, the present embodiment of the invention indicates its association with a heeling machine of the general type set forth in my prior application No. 412,727,

filed January 25, 1908, to which reference may be had.

Having reference to Fig. 1 the machine frame 1 rising from the supporting base 2 may be of any desired construction to accommodate the working parts, and it has mounted in suitable bearings therein the shaft 3 having appropriate cams 4 which act upon the lower ends of rods 5 connected at their upper ends at 6 to the cross-head 7, in all of which respects the general characteristics of the machine shown in the drawings may correspond to the like parts in my prior application referred to, or otherwise as desired.

Mounted in suitable bearings in the cross-head 7 is the turret shaft 8 carrying the usual awls or prickers 9 and nail driving devices (not shown). Connected to the turret shaft 8 is the segment gear 10 operatively joined to the actuating shaft 11 by suitable gearing, as set forth in my said application, and said shaft 11 is itself actuated through a gear 12 and the sliding rack bar 13 which may be actuated in any suitable manner, or as pointed out in said application.

The turret which carries the awls and nail driving devices is preferably provided with the guiding pins 14 and 15, said pins being adapted to engage the perforation in a lug 16 secured to the fixed cross frame 17 carried by the machine column, the construction being such that one of said pins 14 or 15 will engage the said perforation and serve to guide either the awls or nail driving devices as the cross-head rises and falls.

As usual in this class of machines, the cross-head carrying the turret is first moved downward to cause the awls to penetrate the heel and then raised to permit the awls to be moved to one side by partial rotary movement of the turret, and the nail driving devices to be brought into co-acting relation with the fasteners to be driven, whereupon the cross-head is again caused to descend to drive the fasteners. These features and characteristics of a heeling machine are well understood and need no further elucidation.

Secured to the machine frame in position to receive the awls 9 when they are in their inoperative position, as indicated in Fig. 4, is a casing 18, Figs. 1, 2 and 3, said casing having an open top, and its side next adjacent the turret head being also open to permit the awls to enter said casing as the

turret head descends. This casing 18, as best shown in Fig. 3, is detachably secured to the machine frame by suitable screws 19 or otherwise and has a slanting bottom 20.

5 Likewise secured to the machine frame, as indicated in Figs. 1 and 4, is a lubricating tank 21, said tank being disposed below the casing 18 and conveniently attached to the machine frame by suitable means, such as the screw bolts 22.

10 Rising from the lubricating tank 21 is a cylinder 23, Figs. 1 and 3, in which fits a hollow plunger or piston 24, normally held in its raised position by means of a spring 25 connected at one end 26 to the interior of the piston or plunger and at its other end 27 to a suitable lug secured to or projected from the cylinder 23. In order that the tension of the spring 25 may be readily adjusted to
20 suit the conditions of use, the lug or pin 27 is preferably carried by an adjustable bracket 28, Figs. 3 and 4, which is slotted at 29 to receive the securing bolt 30, the construction being such that upon loosening the securing bolt 30 which is tapped into the cylinder 23, the lug or pin 27 may be adjusted vertically in either direction to properly adjust the tension of the spring 25 and cause it to normally hold the plunger or
30 piston 24 in raised position. Likewise secured to the plunger or piston 24 is an arm or lug 31, Figs. 3 and 4, having an upper portion 32 adapted to be engaged by the pin 14 secured to the cross-head turret, when
35 said pin and the awls which are disposed parallel thereto are in their side position, as indicated in Fig. 4, and upon depression of the cross-head.

It will be noted that the cylinder 23 communicates directly with the interior of the lubricating tank 21, and from the construction described it will be noted that the spring 25 will act to hold the piston or plunger 24 in raised position, and as the cross-head descends this plunger or piston
45 will be depressed by the pin 14, provided the awls are at the time being in inoperative or side position. If, however, the awls and perforce their guide pin 14 are not in inoperative or side position as the cross-head descends, but are in active position to pierce or prick the shoe-heel, then the arm or lug 31 and its connected piston or plunger 24 will not be depressed.

55 Rising from the lubricating tank 21 is an aspirator 33 which is secured to the top of the tank by means of a suitable nut and screw connection 34. Passing through the tube of the aspirator is the inner tube 35 which extends to near the bottom of the tank, as indicated in Fig. 4.

Projecting from the end 36 of the aspirator, Fig. 2, is a hood, preferably of conical form, leading into an opening 38
65 in the wall of the casing 18, Figs. 2 and 3,

the construction being such that upon depression of the piston or plunger 24, as hereinbefore pointed out, air pressure will be exerted in the top of the lubricating tank, thus forcing some of the lubricant and air currents through the aspirator, as indicated in Fig. 2.

In order that the oil spray projected by the aspirator may be confined to proper action upon the awls 9, in the manner hereinbefore noted, the cross-head 17 has secured thereto a casing 39, Fig. 3, disposed to receive the ends of the awls, when said awls are in their side or raised position, as indicated in Fig. 4. The general characteristics of the casing 39 are such that as the cross-head descends, said casing 39 will telescope into the casing 18, thus inclosing the awls by a substantially closed chamber for the action of the lubricant. In order that the lubricant may pass into the awl chamber thus created by the two casings 18 and 39, the casing 39 is provided with an opening 40, Fig. 2, which registers with the opening 38 at the end of the hood 37, when the casing 39 is in lowered position, as indicated in Fig. 3, the construction being such that the oil spray will be projected into the casing 39 into intimate contact with the awls as they and the casing 39 move downward
95 under the action of the cross-head.

As hereinbefore noted, the bottom of the casing 18 is formed preferably inclined, as at 20, Fig. 3, and connected to the lower portion of the casing, as at 41, Figs. 1, 3 and 5, is a drain pipe 42 through which surplus lubricant may pass. This drain pipe is preferably connected to the top of the lubricating tank 21 and provided with a suitable strainer to prevent dirt and other foreign
105 substances getting into the tank. One convenient form of such strainer is indicated in Figs. 4 and 5, wherein it comprises a suitable casing 43 containing fibrous or other straining material 44 connected, as at 45, with the drain pipe 42. Connected to the strainer casing 43 is a pipe 46 leading to the top of the lubricating tank 21. In order that air may not escape into the pipe 46 and find its way into the casing 18 upon
115 depression of the piston or plunger 24, the inlet to the pipe 46 is preferably provided with a stop valve, one form of which is indicated in Fig. 5. The stop valve may be conveniently provided with a ball 47 contained in a suitable socket piece 48 and held to its seat 49 covering the inlet opening to the pipe 46 by means of a spring 50, the lower end of which rests upon a perforated plug 51, the perforation thereof leading to
125 the interior of the lubricating tank 21.

From the construction described it will be noted that as the plunger or piston 24 descends and causes a spray of lubricant or oil to be impinged upon the awls 9 for the

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time being in inactive position, the ball 47 will be held to its seat and close the opening to the pipe 46; but, as the piston rises in response to its spring 25, the partial vacuum formed in the lubricating tank will cause the ball 47 to drop from its seat 49 and permit a suction to be exerted through the pipes 46 and 42, thereby causing withdrawal of any lubricant in the bottom of the casing 18 which will pass through the strainer and back into the tank.

The tank may be provided with any usual form of means for filling it or supplying it with lubricating material, and one form of such means is indicated in Fig. 4, wherein the side of the tank has projecting therefrom the supply opening 52, Fig. 4, the top 53 of which is disposed below the top of the tank so that the tank can never be completely filled. The inlet opening 52 may be conveniently closed by means of a screw plug 54, or otherwise.

From the characteristics of the invention as hereinbefore set forth in connection with the illustrated form thereof, it will be noted that, when the awls are piercing the work and are consequently in operative position, the guide pin 14 will not contact with the arm or lug 31 so that the lubricating device will likewise remain inactive. When, however, the awls are in their inoperative position, as indicated in Fig. 4, and the cross-head descends, the pin 14 will contact with the arm or lug 31 carried by the piston or plunger 24 and will depress the same, thereby forcing a spray of lubricant through the aspirator and onto the awls which are at the time inclosed by the casings 39 and 18, and upon upward movement of the cross-head any surplus lubricant will be drawn from the bottom of the casing back into the tank after passing through a suitable strainer.

Obviously changes and variations may be made in the various elements which are described as a convenient form of the invention without departing from the true scope or spirit thereof, which is definitely set forth by the claims, and while herein the awls or pricking devices are described as being lubricated, it will be apparent that where desired the drivers for driving the nails or fasteners may be lubricated and the term prickers or pricking devices herein is intended to be inclusive of drivers.

What is claimed is:

1. In a heeling machine for boots and shoes, the combination of heel pricking means, means to move the heel pricking means into and out of operative position, and lubricant spraying means operative upon movement of the pricking means when in inoperative position to spray said pricking means.

2. In a heeling machine for boots and shoes, the combination of a cross-head, heel

prickers carried thereby, means for operating the cross-head, and a lubricant spraying device operative upon movement of the prickers to throw lubricant thereon.

3. In a heeling machine for boots and shoes, the combination of heel pricking means, a lubricant spraying device for throwing a lubricant upon the pricking means, and means to move the pricking means and operate the spraying device.

4. In a heeling machine, the combination of a cross-head, heel prickers carried thereby, a lubricant spraying device, a casing into which the spraying device delivers the lubricant spray, and means for operating the spraying device to deliver lubricant to the prickers.

5. In a heeling machine, the combination of a cross-head, heel prickers carried thereby, a casing into which the prickers project, a lubricant spraying device connected with said casing, and means for operating the spraying device to deliver lubricant spray upon the prickers when in said casing.

6. In a boot and shoe machine, the combination of a leather pricking device, a spraying device for spraying a lubricant upon the pricking device, and means for operating the pricking and spraying devices.

7. In a boot and shoe machine, the combination of a leather pricking device, a casing into which the pricking device may extend, a lubricant spraying device, and means for operating the spraying device to cause it to deliver a spray of lubricant upon the pricking device when in said casing.

8. In a boot and shoe machine, the combination of heel prickers, a cross-head on which they are mounted, means for moving the prickers into and out of operative position, means for operating the cross-head, a lubricant spraying device, and means actuated upon movement of the cross-head when the prickers are in inoperative position to throw a spray of lubricant upon the prickers.

9. In a boot and shoe machine, the combination of heel prickers, a cross-head on which they are mounted, a casing movable with the cross-head and into which the prickers may extend, a lubricant spraying device, and means to cause said device to throw a spray of lubricant upon the prickers in said casing.

10. In a boot and shoe machine, the combination of a cross-head, means for raising and lowering the cross-head, a heel pricking device, a lubricant spraying device for throwing a lubricant spray upon the pricking device, and means for moving the pricking device into the zone of the lubricant spray.

11. In a boot and shoe machine, the combination of a pricking device, a lubricant spraying device for throwing a lubricant spray upon the pricking device, and means for relatively moving the pricking device

and lubricant spraying device to position the pricking device in the zone of the lubricant spray.

12. In a boot and shoe machine, the combination of a pricking device, a lubricant spraying device for throwing a lubricant spray upon the pricking device, a casing for receiving the lubricant spray, and means for relatively moving the pricking device and lubricant spraying device to position the pricking device in the zone of the lubricant spray.

13. In a boot and shoe machine, the combination of a pricking device, a lubricant spraying device for throwing a lubricant spray upon the pricking device, a casing for receiving the lubricant spray, means for relatively moving the pricking device and lubricant spraying device to position the pricking device in the zone of the lubricant spray, and means for withdrawing lubricant from the casing.

14. In a boot and shoe heeling machine, a cross-head, heel prickers carried thereby, a casing movable with the cross-head, means for moving the pricking devices into said casing, a lubricant spraying device, and means for operating the lubricant spraying device as the cross-head is moved to direct a lubricant spray into said casing.

15. In a heeling machine, the combination of a cross-head, a turret carrying heel prickers, means for turning the turret on the cross-head to place the prickers in operative or inoperative position, a spraying device for spraying a lubricant, means for raising and lowering the cross-head, and means movable with the cross-head for operating the spraying device when the heel prickers are in inoperative position.

16. In a heeling machine, a lubricant reservoir, a pipe for throwing a lubricant spray connected to said reservoir, a piston or plunger associated with the reservoir, a heel pricking device, and means for operating the piston or plunger to cause a spray of lubricant to be thrown on the heel pricking device.

17. In a heeling machine, a lubricant reservoir, a pipe for throwing a lubricant spray connected to said reservoir, a piston or plunger associated with the reservoir, a heel pricking device, a cross-head, means for raising and lowering the cross-head, and means connected to the cross-head for operating the piston or plunger to cause a spray of lubricant to be thrown on the heel pricking device.

18. In a heeling machine, the combination of heel pricking means, a spraying device for throwing a spray of lubricant on said heel pricking means, a casing into which the spray of lubricant is projected, and a drain connected to the casing for carrying away lubricant from the casing.

19. In a heeling machine, the combination of heel pricking means, a spraying device for throwing a spray of lubricant on said heel pricking means, a casing into which the spray of lubricant is projected, a drain connected to the casing for carrying away lubricant from the casing, and a strainer connected to the drain.

20. In a heeling machine, the combination of a heel pricking means, a reservoir for containing lubricant, a pipe connected to the reservoir for directing the lubricant onto the pricking means, a plunger or piston connected to the reservoir for creating pressure on the lubricant in the reservoir, and means movable with the pricking means to depress the plunger or piston.

21. In a heeling machine, the combination of a heel pricking means, a reservoir for containing lubricant, a pipe connected to the reservoir for directing the lubricant onto the pricking means, a plunger or piston connected to the reservoir for creating pressure on the lubricant in the reservoir, means movable with the pricking means to depress the plunger or piston, a casing for confining the lubricant spray, a drain pipe connecting the casing and reservoir, and means for raising the plunger or piston to draw lubricant from said casing.

22. In a heeling machine, the combination of a heel pricking means, a reservoir for containing lubricant, a pipe connected to the reservoir for directing the lubricant onto the pricking means, a plunger or piston connected to the reservoir for creating pressure on the lubricant in the reservoir, means movable with the pricking means to depress the plunger or piston, and a spring for raising the plunger or piston.

23. In a heeling machine, the combination of a cross-head, a turret carrying heel prickers, means for moving the turret on the cross-head to place the prickers in operative or inoperative position, means for lubricating the prickers while they are in inoperative position, and means for raising and lowering the cross-head.

24. In a machine for operating upon boots and shoes, the combination of pricking devices, a lubricant spraying device for spraying a lubricant upon the pricking means, and means for operating the spraying device.

25. In a machine for operating upon boots and shoes, a supporting frame, a pricking device, means for moving the pricking device, a casing movable with the pricking device, and lubricant spraying means for directing a lubricant spray into said movable casing.

26. In a machine for operating upon boots and shoes, a supporting frame, a pricking device, means for moving the pricking device, a casing movable with the pricking

device, a casing on the frame coöperating with the movable casing to form a lubricating chamber; a lubricant spraying device, and means for operating the same to direct
5 a spray of lubricant into said chamber and upon the pricking device.

27. In a machine for operating upon boots and shoes, the combination of a supporting frame, a pricking device, means for
10 reciprocating the pricking device, a casing secured to the supporting frame, a lubricating device connected to said casing for

lubricating the pricking device, a drain connected to said casing, a strainer connected to said drain, and means for drawing
15 lubricant from said casing and through the strainer.

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

THOMAS G. PLANT.

Witnesses:

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ALFRED H. HANDLEY.