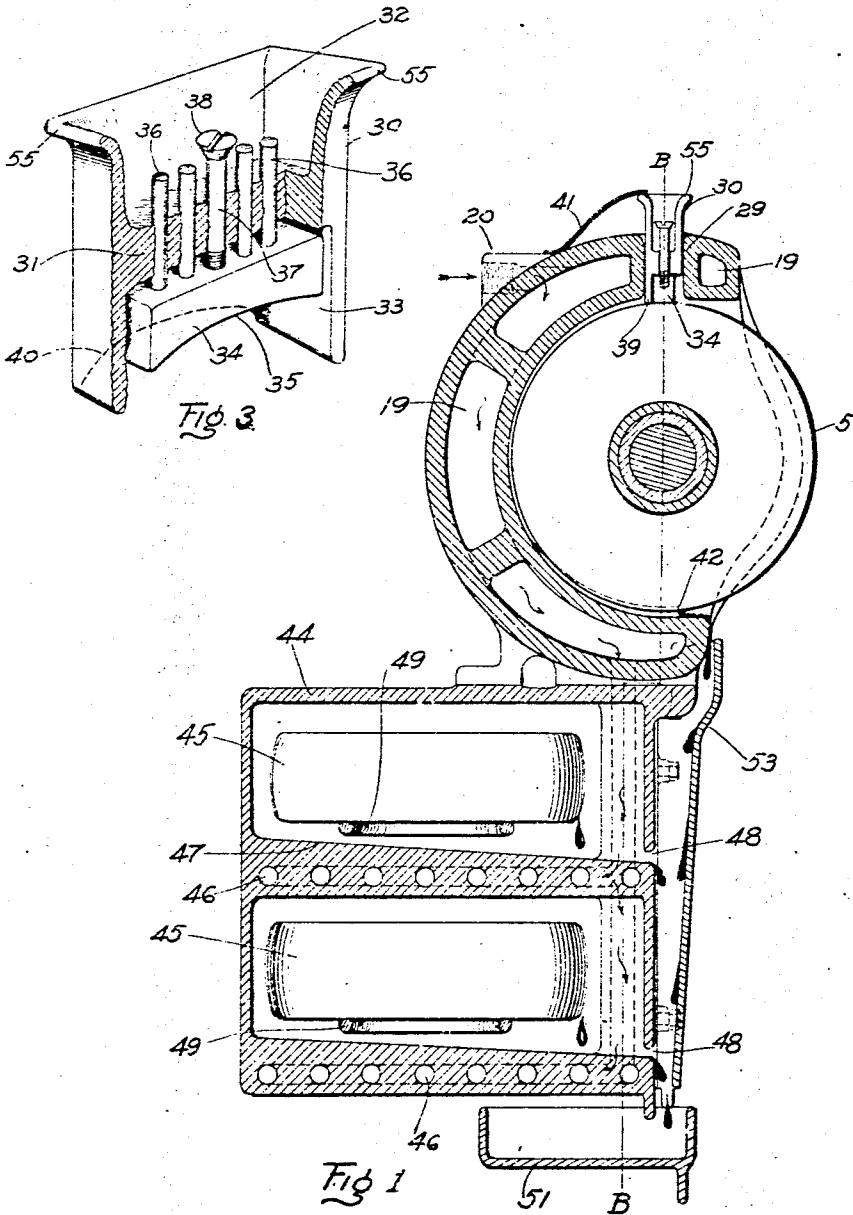


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HEEL OR SOLE EDGE WAXING MACHINE.
APPLICATION FILED MAR. 26, 1910.

966,471.

Patented Aug. 9, 1910.

2 SHEETS—SHEET 1.



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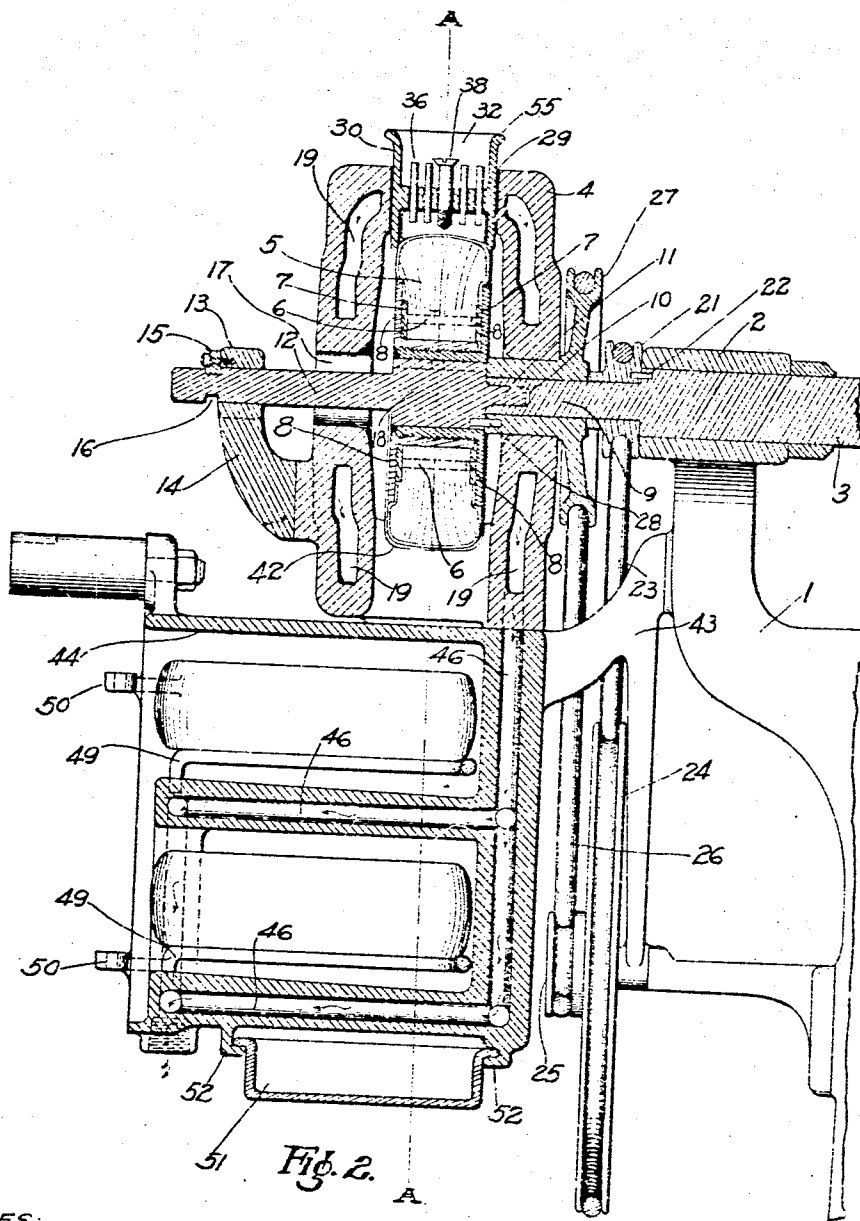


Fig. 2. A

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UNITED STATES PATENT OFFICE.

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HEEL OR SOLE EDGE WAXING MACHINE.

966,471.

Specification of Letters Patent.

Patented Aug. 9, 1910.

Application filed March 26, 1910. Serial No. 551,802.

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 Heel or Sole Edge Waxing Machines, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

The invention to be hereinafter described relates to heel and sole edge finishing machines, and more particularly to such machines for applying wax to the heel or sole edges of boots and shoes.

The aims and purposes of the present invention are to provide a convenient, simple and efficient form of machine of the above general character for applying an even film of wax or other material to the soles of boots and shoes. These aims and objects will best be made clear from the following description and accompanying drawings of one form of means for carrying the invention into practical effect.

In the drawings:—Figure 1 is a section on the line A—A of Fig. 2, and showing a machine embodying features of the present invention; Fig. 2 is a section on the line B—B of Fig. 1; and Fig. 3 is a detached detail with parts broken out, of the wax spreader and reservoir.

The machine frame 1 for sustaining the operative parts may be of any usual or desired character and be provided with suitable bearings 2, for instance, for a driving shaft 3 which may be rotated from any usual or desired source of power, not shown.

Suitably supported from the main frame is the casing 4 for surrounding the waxing wheel 5, which may be of any desired or suitable character, but which herein is preferably formed of felt or other suitable material held together by a screw bolt 6, Fig. 2, passing through side clamping plates 7, said waxing wheel, thus formed, being held between the clamping flanges 8. The flanges 8 may be held together in coöperative relation with the waxing wheel proper by means of screw-threaded connections, as indicated

in Fig. 2, and the waxing wheel itself may be of the general type set forth in my prior application, Ser. No. 501,919, filed June 14, 1909. In said prior application the waxing wheel was defined as forming a wax reservoir by being boiled in wax, and this form of waxing wheel, while not essential to the present invention, has been found to be convenient and practically effective.

The main driving shaft 3 has an extension 9, Fig. 2, the outer portion of which is provided with a socket 10 to receive the pin portion 11 of the shaft 12 on which the waxing wheel is mounted. The outer end of the shaft 12 is sustained in a suitable bearing 13 carried by an arm 14 projecting from the casing 4, said shaft 12 being longitudinally movable in the bearing 13 and normally held in waxing wheel supporting position, as indicated in Fig. 2, by means of a catch 15 which is adapted to engage an annular recess 16 in the outer portion of the shaft 12. The casing 4 has an enlarged side opening 17 to permit the enlarged wheel supporting portion 18 of the shaft 12 to move outward or to the left, Fig. 2.

The casing 4 is preferably formed as a hollow casting, although this form of construction is not essential and has a heat circulating recess 19 which not only extends circumferentially about the waxing wheel, when the latter is in operative position on its sustaining shaft 12, but also extends about the side portions of the waxing wheel, thereby to effectively maintain the waxing wheel in proper heated condition. At the upper portion of the casing there is an inlet 20, Fig. 1, into which a suitable heating medium, such as steam, may be admitted into the circulating passages 19.

From the construction thus far described it will be seen that the waxing wheel is substantially embraced or inclosed by the heating casing or chamber 4 upon all portions thereof with the exception of that part of the waxing wheel to which the work is presented, as indicated in Fig. 1. Of course variation in this respect may be made within the true scope of the present invention, as pointed out in the claims, but the described

form of casing and waxing wheel mounting is convenient and of good practical form. From the construction thus far described it will also be seen that upon lifting the catch 15 from its engagement with the circular recess 16, the shaft 12 may be withdrawn to the left and the waxing wheel be freed therefrom so that the waxing wheel may be taken from the front or open side of the casing or heating chamber 4. In order that the waxing wheel may be placed in operative position, it is only necessary to withdraw or move the shaft 12 to the left, Fig. 2, insert the waxing wheel in the casing or chamber 4, then move the shaft 12 into the bearing portion of the waxing wheel and lock it in such position, as indicated by Fig. 2, by means of the catch 15.

As well understood by those skilled in the art it is desirable that the waxing wheel shall rotate slowly and substantially at the same surface speed as the work which is presented and turned with respect to the waxing wheel, to the end that the waxing wheel may lay or roll upon the surface to be treated a thin film of wax. It has been found in practice that a rapidly rotating waxing wheel is often the cause of poor work, because it travels faster than the heel is turned with the result that wax will bank or dam up on different portions of the heel, especially near the breast. With these matters in view, the present invention contemplates means for driving the waxing wheel at reduced speed from the driving shaft 3, and as one means for securing this end the shaft 3 has mounted thereon the pulley 21, Fig. 2, connected thereto by suitable means such as the pin 22. A belt 23 connects the pulley 21 and a large belt pulley 24 mounted on the machine frame 1 at the lower part thereof and the hub 25 of which is formed as a small belt pulley to receive the belt 26 which passes over the pulley 27 loosely mounted on the reduced portion 9 of the shaft 3. In order that the waxing wheel may be rotated with the pulley 27 at the desired speed, the hub of the pulley 27 is preferably provided with a driving connection for imparting to the waxing wheel the desired motion, such form of connection in the present embodiment of the invention being a pin 28, as indicated in Fig. 2.

From the construction thus far described it will be apparent that from the high speed of the driving shaft 3 a reduced speed of rotation is imparted to the waxing wheel 5, and that the waxing wheel may be detached from driving connection with its driving means by simply withdrawing its shaft 12 outward or to the left, Fig. 2, and another wheel may be readily substituted therefor.

It is desirable from time to time to renew the supply of wax on the waxing wheel.

This is so quite regardless of whether the waxing wheel is itself constituted as a reservoir for wax by having been previously boiled therein, or whether it is of the usual type. It is likewise desirable that the wax be evenly distributed over the convex rim of the wheel so that an even distribution of the wax as a thin film may be made to the heel or sole edge. With the above general objects in view the present invention contemplates a combined wax spreader and reservoir which shall have a relatively unyielding edge to engage with the yielding rim of the waxing wheel to spread the wax thereon, and which shall in addition thereto be capable of supplying wax to the waxing wheel from time to time. For the best results this wax spreader and reservoir should be heated, and as one means of carrying this feature of the invention into practical effect the following has been provided. The casing or heating chamber 4 at its upper portion is provided with an opening or recess 29, the walls of which are maintained at the desired temperature by means of the heating medium which is passed through the casing or chamber 4. In this opening or recess 29 is loosely mounted the combined wax spreader and reservoir 30, shown on enlarged scale in Fig. 3. This wax spreader and reservoir is preferably formed of metal and has a web portion 31 above which is the reservoir 32 for holding wax, and below which is a guiding recess 33 for a block 34, the lower edge 35 of which is adapted to ride upon the convex surface of the waxing wheel. Projecting upward from the block 34 are a series of pins or fingers 36 which pass through openings in the web portion 31, preferably somewhat larger than the diameter of the pins or fingers 36. These pins or fingers 36 are preferably of substantially uniform diameter, and to prevent the block 34 from becoming disengaged from the wax spreader and reservoir when it is lifted from the recess 29 a suitable stop is provided, that in the present instance being formed by a screw 37 tapped into the block 34 and passing through the web 31 with its head 38 disposed above said web, the construction being such that the block 34 is maintained in co-acting relation with the wax spreader and reservoir when the latter is removed from operative position. One wall 39, Fig. 1, of the wax spreader and reservoir is carried downward and its lower edge is curved in conformity with the convex rim of the waxing wheel, so that it acts as a spreader to spread the wax uniformly over the surface of the wheel as the latter rotates beneath it.

From the construction thus far described it will be apparent that the spreader is in the form of a weight loosely mounted in the

recess 29 or other suitable guiding device, so that its wax spreading edge 10 may come in contact with the convex and relatively yielding surface of the waxing wheel, and it will also be apparent that the spreader will be maintained in a suitably heated condition so that its wax spreading capacity shall be maintained. At the same time the heated condition of the wax spreader and reservoir 32 maintains the wax contained in said reservoir in a liquid state so that as the waxing wheel rotates beneath the wax spreader, the block 34 will be moved up and down slightly to enable sufficient liquid wax to pass downward through the openings in the web 31 into contact with the surface of the waxing wheel. The pins 36 and the block 34 may not always be essential to the effective operativeness of the wax spreader and reservoir, but these devices are found convenient as a means for keeping the openings which lead from the reservoir to the waxing wheel clear of obstruction so that proper quantities of wax may at all times pass to the surface of the waxing wheel. Not only will the edge 40 of the wax spreader itself act as a means for spreading the wax on the waxing wheel, but the concaved edge of the block 34 will likewise cooperate to this end. Obviously also the effectiveness of the wax spreader, that is its bearing force upon the face of the waxing wheel, may be augmented, if desired, by means of a spring 41, Fig. 1, although this is not usually essential.

The waxing wheel which may be of the usual type, as hereinbefore noted, and which is preferably surrounded by the usual or desired flexible cover, may at times become coated with a too thick covering of wax, and as it is essential that a film or thin coating of wax only be applied to the work, means are provided for scraping surplus wax from the waxing wheel on such occasions. As one means to this end there is projecting upward from the lower part of the casing or heating chamber 4 a scraper 42, Figs. 1 and 2, which may be in the form of an edge or plate secured to the casing or heating chamber and which is of the general contour of the convex rim of the waxing wheel.

Disposed below the heating chamber or casing 4 and properly sustained by the machine frame through the medium of a bracket 43 is a chamber 44 for supporting a supply of waxing wheels 45, preferably two, and maintaining them in heated condition ready to be placed in operative position. This chamber 44 may be suitably heated, as indicated in Figs. 1 and 2, by carrying the heating medium for the casing or chamber 4 downward to suitable conduits 46 formed in the walls of the chamber 44, the lower wall or floor 47 of the several com-

partments in the chamber 44 being preferably inclined to permit any surplus wax dripping from the reserve waxing wheels 45 to pass downward thereon to the exit 48. Each of the reserve waxing wheels 45 may be suitably sustained upon a skeleton support 49, and the several compartments be appropriately closed by a door hung on the pintles 50, as indicated in Fig. 2.

In order to catch the surplus wax that may be discharged from the waxing wheel in use or from the reserve waxing wheels, there is provided at the lower portion of the chamber 44 a tank 51 which may be formed as a drawer and suitably sustained by the guides 52, Fig. 2, the construction being such that when it has become substantially full of wax, the reservoir 51 may be removed and its contents discharged. Leading to the reservoir 51, as indicated in Fig. 1, there is a chute 53 adapted to receive the surplus wax as it is scraped from the waxing wheel, either by the scraper 42 or as it is discharged from the reserve waxing wheels in the chamber 44, the construction being such that the surplus wax shall be properly collected in the reservoir 51, thereby preventing waste and accumulation of wax on the floor and about the machine.

From the construction described it will be apparent that the waxing wheel may be readily attached to or disconnected from its driving medium, and that the supply of wax upon its surface may be maintained uniform throughout its operation, the wax spreader and reservoir serving to supply and spread the wax upon the surface of the waxing wheel, and the scraper 42 serving, when the amount of wax coating becomes too great upon the waxing wheel, to scrape off the surplus and maintain an even and uniform supply of wax. It will also be apparent that the wax spreader and reservoir will be maintained in a desired heated condition to cause its wax spreading edge 40 to act most effectively upon the relatively yielding surface of the waxing wheel rim, and to maintain the wax in the waxing reservoir in suitable liquid condition to pass through the openings in the web 31 onto the rim of the waxing wheel.

In order that the spreader or block 30 and the associated wax reservoir 32 may not drop from the guiding means, such as the recess or opening 29 in the casing, when the waxing wheel is removed, suitable means, such as the stops 55, formed by the outward flaring upper edge of the spreader, are provided, the construction being such that while the spreader is loosely retained in its guide or opening 29 and rests by its weight upon the rim of the waxing wheel, yet when the waxing wheel is removed the spreader merely drops downward until the stops 55

meet the upper edge of the opening or recess 29. Obviously any suitable form of stop may be employed for this purpose.

Modifications may of course be made in the details without departing from the spirit of the invention, the scope of which is definitely set forth by the claims.

What is claimed is:

1. In a heel or sole edge waxing machine, the combination of a waxing wheel having a yielding rim, a casing or heating chamber partially surrounding said waxing wheel, a wax spreader having a relatively unyielding wax spreading portion to bear upon the waxing wheel rim, and a scraper to scrape from said rim surplus wax.

2. In a heel or sole edge finishing machine, the combination of a waxing wheel having a yielding rim, a wax spreader having a relatively unyielding rim engaging portion to spread wax on the yielding rim of the waxing wheel, said spreader being provided with a wax reservoir, for holding liquid wax, means for heating the spreader and wax reservoir and means to supply wax from said reservoir to the waxing wheel.

3. In a heel or sole edge finishing machine, the combination of a waxing wheel having a yielding rim, a loosely mounted wax spreader having a relatively unyielding wax spreading portion and sustained by the yielding rim of the waxing wheel, a heated wax reservoir, and means for transmitting wax from said reservoir through the spreader to the waxing wheel.

4. In a heel or sole edge finishing machine, the combination of a waxing wheel having a yielding rim, a casing or heating chamber partially surrounding the waxing wheel, a wax spreader having a relatively unyielding wax spreading portion resting upon and sustained by the yielding rim of the waxing wheel, a wax reservoir, means for transmitting wax from said reservoir through the spreader to the waxing wheel, and a scraper for scraping surplus wax from the rim of the waxing wheel.

5. In a heel or sole edge waxing machine, the combination of a waxing wheel having a yielding rim, a wax spreader having a relatively unyielding wax spreading portion and provided with a wax reservoir for holding liquid wax, means for maintaining the waxing wheel spreader and reservoir heated, and means for supplying wax from the reservoir of the spreader to the rim of the waxing wheel.

6. In a heel or sole edge waxing machine, the combination of a waxing wheel having a yielding rim, a casing or heating chamber partially surrounding said waxing wheel, a wax spreader having a relatively unyielding wax spreading portion and formed as a weight to rest upon the rim of the waxing

wheel, a wax reservoir, said spreader and wax reservoir being heated by the said heating chamber, and means for transmitting wax from the reservoir through the spreader to the waxing wheel.

7. In a heel or sole edge waxing machine, the combination of a waxing wheel having a yielding rim, a loosely mounted wax spreader having a relatively unyielding wax spreading portion and formed as a weight to rest upon the rim of the waxing wheel, a wax reservoir formed as part of said spreader, means for heating the reservoir to maintain the wax in liquid condition, and means for transmitting the liquid wax from the reservoir through the spreader to the rim of the waxing wheel.

8. In a heel or sole edge waxing machine, the combination of a waxing wheel having a yielding rim, a spreader having a relatively unyielding edge portion to rest upon the yielding rim of the waxing wheel, said spreader being provided with a wax reservoir, and a heated wall disposed about said spreader to maintain it hot and the wax in liquid condition.

9. In a heel or sole edge waxing machine, the combination of a waxing wheel having a yielding rim, a casing having a heating chamber extending about the waxing wheel and open at its front, said casing being provided with an opening or recess, and a combined spreader and wax reservoir movable in said opening or recess and having a relatively unyielding edge for spreading the wax on the yielding rim of the waxing wheel.

10. In a heel or sole edge waxing machine, the combination of a waxing wheel, a spreader having an edge to bear on the rim of the waxing wheel and provided with a wax reservoir, said spreader and reservoir being mounted to move freely as the waxing wheel rotates relative thereto, a guide for holding the spreader in position that its edge may bear upon the waxing wheel and spread the wax thereon as the waxing wheel rotates, and means for effecting gravity delivery of liquid wax from the reservoir of the spreader to the waxing wheel.

11. In a heel or sole edge waxing machine, the combination of a waxing wheel, a spreader having a portion to bear upon the waxing wheel, to spread the wax thereon, a wax reservoir disposed above the spreading portion of the wax spreader, said spreader and wax reservoir being freely movable in a direction toward and from the waxing wheel as the latter rotates relative thereto, and conduits leading from the reservoir to the waxing wheel.

12. In a heel or sole edge waxing machine, the combination of a waxing wheel to apply a film of wax to the heel or sole of a boot

or shoe, and a wax spreader having a portion to engage and spread the wax on the waxing wheel, said spreader being provided with a wax reservoir and mounted for free movement toward and from the axis of the waxing wheel to conform to the varying radial dimensions of said wheel as it rotates.

13. In a heel or sole edge waxing machine, the combination of a waxing wheel to apply a film of wax to the heel or sole of a boot or shoe, a wax spreader having a portion to engage and spread the wax on the waxing wheel, said spreader being provided with a wax reservoir, and a gravity wax feed from the reservoir of the spreader to the waxing wheel.

14. In a heel or sole edge waxing machine, the combination of a waxing wheel having a yielding rim, a wax spreader having a por- reservoir for wax and a wax spreading edge to engage the rim of the waxing wheel, and a movable block disposed at one side of the spreading edge of the wax spreader and bearing on the rim of the waxing wheel.

15. In a heel or sole edge waxing machine, the combination of a waxing wheel for applying a film of wax to the heel or sole of a boot or shoe, means for heating the waxing wheel, a loosely mounted block having an edge portion to bear upon and spread wax on the rim of the waxing wheel, and a wax reservoir provided with wax feeding means to deliver liquid wax to the rim of the waxing wheel.

16. In a heel or sole edge waxing machine, the combination of a waxing wheel for applying a film of wax to the heel or sole of a boot or shoe, means for heating the waxing wheel, a loosely mounted block having an edge portion to bear upon and spread wax on the rim of the waxing wheel, and a wax reservoir provided with wax feeding means to deliver liquid wax to the rim of the waxing wheel, said block and wax reservoir being maintained in heated condition by the means for heating the waxing wheel.

17. In a heel or sole edge waxing machine, the combination of a waxing wheel having a yielding rim, a wax spreader having a portion to bear upon and spread wax on the yielding rim of the waxing wheel, and a block loosely connected to the spreader and bearing upon the rim of the waxing wheel.

18. In a heel or sole edge waxing machine, the combination of a waxing wheel having a yielding rim, a combined wax spreader and wax reservoir formed as a loosely mounted block having a portion to bear upon and spread wax on the yielding rim of the waxing wheel, conduits leading from the reservoir to supply wax to the rim of the waxing wheel, and means to maintain said conduits free of obstruction.

19. In a heel or sole edge waxing machine,

the combination of a waxing wheel having a yielding rim, a combined wax spreader and wax reservoir, wax conduits leading from the reservoir to supply liquid wax to the waxing wheel, and a block bearing upon the waxing wheel and provided with means for keeping the conduits free from obstruction.

20. In a heel or sole edge waxing machine, the combination of a waxing wheel having a yielding rim, a combined wax spreader and wax reservoir formed as a loosely mounted block having a portion to bear upon and spread wax on the yielding rim of the waxing wheel, and means for heating the waxing wheel and the combined spreader and wax reservoir.

21. In a heel or sole edge waxing machine, the combination of a waxing wheel for applying a film of wax, a casing having a heat chamber entirely surrounding said waxing wheel except at the front, a driving shaft and reduction speed connections between said shaft and the waxing wheel to rotate it at reduced speed, and means permitting the wheel sustaining portion of said shaft to be moved endwise to disengage the waxing wheel and permit it to be removed from the front opening in the said casing.

22. In a heel or sole edge waxing machine, the combination of a waxing wheel for applying a film of wax to the heel or sole of a boot or shoe, a casing having a heating chamber surrounding said waxing wheel except at the front, a block sustained by and having an edge resting upon the rim of the waxing wheel when in position, a shaft for sustaining and driving the waxing wheel, means permitting endwise movement of the shaft to withdraw it from the waxing wheel, and means to prevent the block from dropping when the wheel is removed.

23. In a heel or sole edge waxing machine, the combination of a waxing wheel, a driving shaft for driving the waxing wheel and for permitting it to be replaced, and a casing having a heating chamber partly surrounding the waxing wheel in use, and having a chamber for maintaining a reserve waxing wheel in heated condition for use.

24. In a heel or sole edge waxing machine, a waxing wheel, means for supplying liquid wax thereto and for spreading the wax over the rim of the waxing wheel, a scraper for removing surplus wax from the waxing wheel, and a receptacle for receiving the surplus wax scraped from the waxing wheel.

25. In a heel or sole edge waxing machine, the combination of a waxing wheel for applying a film of wax to the heel or sole of a boot or shoe, a casing having a heating chamber partly surrounding said waxing wheel, a spreader and wax reser-

voir disposed above the axis of the waxing wheel and maintained in heated condition to supply liquid wax to the waxing wheel and spread the same over the rim of the waxing wheel, and a scraper disposed at the lower part of said casing to remove surplus wax from the waxing wheel.

26. In a heel or sole edge waxing machine, the combination of a waxing wheel having a yielding rim, a block having a spreading edge and mounted to rest upon

the yielding rim, and an additional block freely movable with respect to the spreading block and resting upon the rim of the waxing wheel.

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

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Witnesses:

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