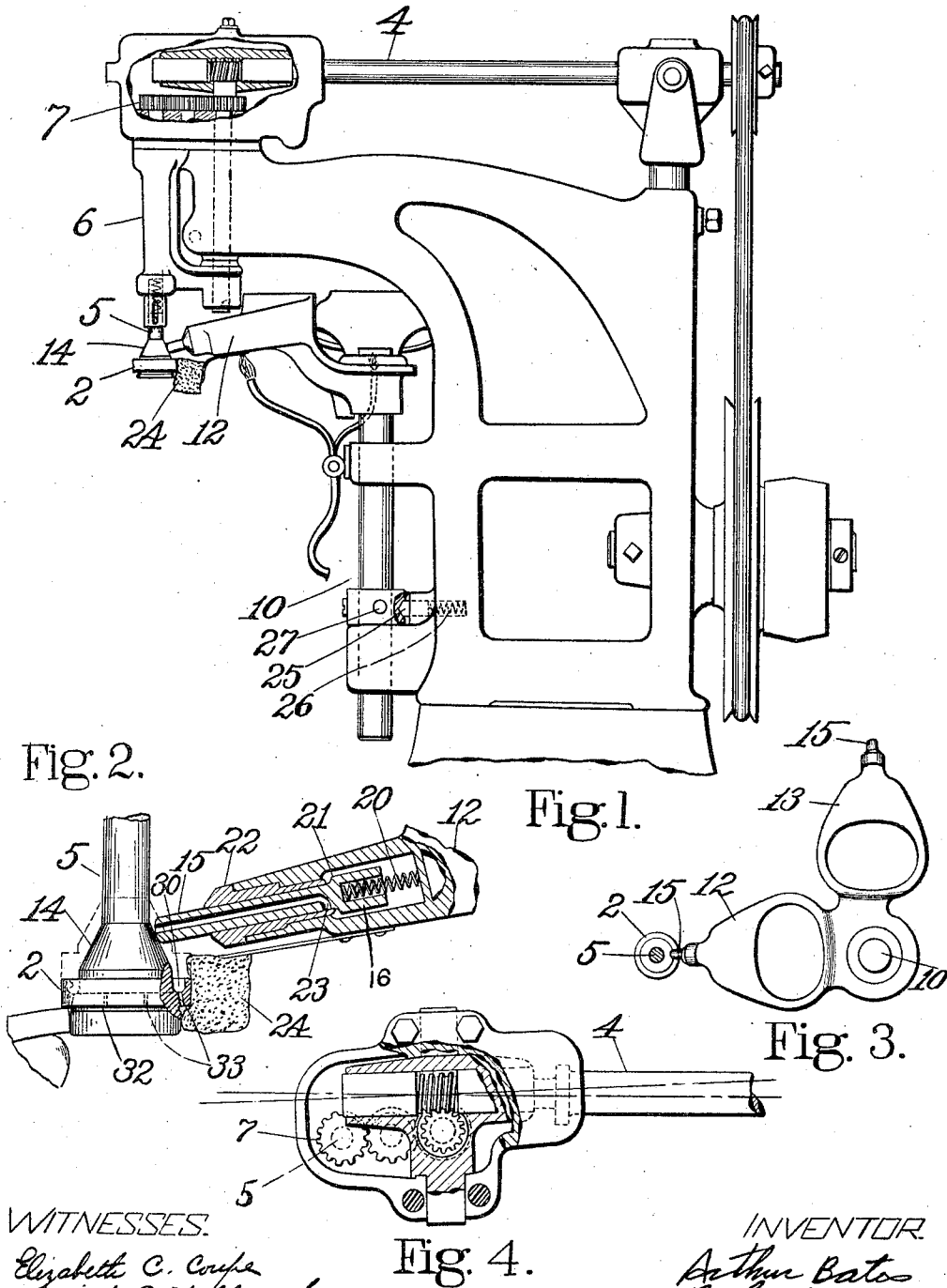


A. BATES.
SHOE FINISHING AND OTHER MACHINE.
APPLICATION FILED FEB. 8, 1909.

1,030,560.

Patented June 25, 1912.



WITNESSES.

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Fig. 4.

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SHOE-FINISHING AND OTHER MACHINE.

1,030,560.

Specification of Letters Patent.

Patented June 25, 1912.

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To all whom it may concern:

Be it known that I, ARTHUR BATES, a subject of the King of England, residing at Leicester, Leicestershire, England, have invented certain Improvements in Shoe-Finishing and other Machines, 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 use in the manufacture of boots and shoes and is herein shown as embodied in a machine for finishing shoes by top ironing.

The machine to which the invention has herein been applied may be in general the same as that shown in prior application Serial No. 438,797, filed June 16, 1908.

The object of this invention is to provide improved means for supplying the finishing material adapted to effect economies in the use of said material and to permit different kinds of finishing materials to be conveniently used with the same machine.

An important feature of this invention consists in novel means for feeding the finishing material adapted to start the feeding when the work is put into position to be treated and to stop the feeding when the work is withdrawn. This feature of the invention also contemplates provision for varying during the progress of the operation the rate at which the material is fed and in accordance with the judgment of the workman. To this end the working tool, which is the top ironing tool in this instance and serves to distribute wax and work it into the marginal portion of the shoe bottom rubbed by it, has capacity for another movement in addition to its work rubbing movement. This additional movement may be effected, as herein shown, by the work itself lifted in the direction of working pressure against the tool and operates to start the delivery of wax from the wax holder. For this purpose the tool has an inclined or conical face engaging or adapted to engage a yielding nozzle of the wax holder and press the nozzle backwardly into the holder to open a passageway through which the wax flows to the engaging surface of the working tool. This engaging surface terminates in a wax retaining surface from which the wax flows downwardly through

suitable orifices communicating with the work rubbing face of the tool.

Another object of the invention is to provide means for effecting readily a change in the character of the wax or the like supplied to the tool, say, for instance, to enable wax of varying colors to be used.

Accordingly a further feature of the invention consists in the combination with the arrangement for establishing communication between the source of wax supply and the tool of means to enable any one of a plurality of wax receptacles to be brought into coöperative relationship with the tool.

A convenient arrangement is one in which each wax receptacle is provided with a valve that can be brought into range of the tool so that when work is pressed against the tool the latter will be displaced and will actuate the valve that is in coöperative relationship with it to permit wax to be supplied from the receptacle on to the tool.

A convenient embodiment of the invention will now be described as applied to a machine of the type illustrated in the said prior application but it must be understood that this embodiment is by way of example only and that the construction, the arrangement of parts, and its application could be varied without departing from the spirit of the invention.

These and other features of this invention including certain details of construction and combinations of parts will appear in connection with the following description of the machine and will then be pointed out in the claims.

Figure 1 is a side elevation of a top ironing machine equipped with the present invention; Fig. 2 is a similar view on a larger scale and partly in section; Fig. 3 shows the wax holders in plan; Fig. 4 is a detail of the tool actuating mechanism.

In the machine provided with this embodiment of the invention there is a rotary and oscillating burnishing iron 2 that receives rotary and reciprocatory movements in the manner and by the means set forth in the said prior application from a shaft 4 and intermediate connections to the tool spindle 5. In addition however to its movements of rotation and oscillation the iron is arranged so as to be moved upward by the pressure of the work when the latter is raised against the underside of the tool.

Conveniently this upward movement may be obtained by mounting the spindle carrying the tool in bearings in swinging frame 6 by which the oscillation of the tool is obtained. The spindle with the gear wheel 7 by which the spindle and with it the tool is rotated is arranged to have a small amount of end play.

The tool and spindle may be maintained normally in their lowermost position by gravity or by means of a spring mounted in any suitable and convenient manner.

Adjacent to the burnishing tool 2 is a vertical post 10 that carries two or more reservoirs 12, 13 which may contain wax of different colors. The post is adapted to be turned in bearings in the main frame so as to bring a nozzle, with which each reservoir is provided, into the path of the burnishing tool in its upward movement. The nozzles 15 of the reservoirs are spring controlled in such a way that when either of the nozzles is placed above the burnishing tool, the upward movement of the latter by the pressure of the work will open the nozzle and permit the wax to flow therethrough on to the tool.

The upper surface of the burnishing tool is provided with an inclined or conical surface 14 which acts as a cam to displace the nozzle upon the upward movement of the tool.

The nozzle indicated at 15 in Fig. 2 may conveniently consist of a plunger 16 that is perforated and held outwardly from an extension of the casing of the reservoir 12 by a spring 20 located between the end of the plunger and an abutment in the said extension. The nozzle is prevented from being forced out of the extension by the provision of an enlarged portion or collar 21 at its inner end which collar bears upon a ferrule or sleeve 22 screwed into the extension. The perforation through the nozzle terminates in an opening 23 that, when the nozzle is in its extended or normal position, is closed by contacting with the side of the ferrule. When the nozzle is pushed inwardly in opposition to the spring communication is established between the perforation in the nozzle and the interior of the reservoir whereby the wax will flow therethrough and be delivered to the burnishing tool. The flow of the wax may be varied by increasing the upward movement of the tool 2 within limits. The edge of the tool is kept free from accumulations of wax by the wiper 24.

To maintain the particular reservoir containing the wax it is desired to use in the position in which its nozzle is in the path of the burnishing tool a detent device is provided that acts in combination with the vertical shaft 10 hereinbefore referred to as carrying the reservoirs. This device may

comprise a plunger 25 located in a recess in the frame and pressed outwardly by a spring 26 seated between the end of the recess and a collar on the plunger. The end of the plunger is provided with a conical part that is adapted to engage with one or another of two recesses 27, or of a greater number of recesses when there are more than two reservoirs, in a collar secured to the vertical shaft and thus secure the reservoirs in the required positions.

The two reservoirs are preferably connected so that one burner under that reservoir in action will without burning or wasting the wax keep the other reservoir warm enough to enable it to be used almost immediately it is moved *in situ* over the burner and into coöperation with the iron the other reservoir then moving out of action and from contact with the flame and cooling sufficiently to prevent wastage of wax or a relatively small burner may be maintained under the reservoir which is not in use, as shown in Fig. 1.

The operation of the embodiment of the invention will be understood from the foregoing description but it may be briefly recapitulated as follows:—The reservoir containing the wax of the color required for the work is turned with the vertical shaft so as to bring its nozzle in the path of the burnishing tool. When work is pressed against the tool the latter is raised and in lifting its inclined upper surface bears against the end of the spring-pressed nozzle which is forced inward against the action of the spring. This permits the wax contained in the reservoir to pass to the tool and be used upon the work. The wax collects more or less in the wax retaining space 30 on the top of the tool and flows from thence to the wax applying surface 32 through openings 33. Upon withdrawing the work the burnishing tool resumes its normal position and so allows the spring in the reservoir extension to close the nozzle and thereby arrest the supply of wax. When the wax contained in the other reservoir, which may be of another color is required for use the vertical shaft is turned to bring that reservoir into operative position and the detent 25 will hold it thus turned while the work is carried out as above described. The oscillation of the burnishing iron or tool in dealing with the work will not disconnect the said tool from the wax supply as the amplitude of the oscillation is insufficient to remove the tool out of contact with the nozzle, the spring always keeping the end of the nozzle in contact with the tool notwithstanding that different parts of the curved surface of the tool are brought into contact with the nozzle during the oscillation. This oscillatory movement has, however, an effect which is

beneficial in that it carries the convex nozzle engaging surface of the tool forth and back across the nozzle and thus reciprocates the nozzle slightly but enough to facilitate the flow of the wax through the nozzle.

Having explained the machine of this invention and described a preferred construction embodying the same I claim as new and desire to secure by Letters Patent of the

United States:—

1. A top ironing machine having in combination, a wax holder, a top ironing tool, arranged to have a working movement and an additional movement, means for effecting the working movement and means whereby said additional movement is made to control the delivery of wax from the holder.

2. A top ironing machine having in combination, a wax holder, a top ironing tool having a work rubbing face and a face to make operative engagement with the wax holder for controlling the delivery of wax to the tool.

3. A machine of the class described having a working tool, a holder for finishing material, means to actuate the tool to do its work, said machine having also provision for permitting additional movement of the tool relatively to the holder at the will of the operator by pressure of the work against the tool during the operation of the tool thereon, and means whereby said additional movement controls the delivery of the finishing material to the work.

4. A machine of the class described having a working tool, a holder for finishing material, and means to actuate the tool to do its work, and a wedge face on the tool operatively connected with the holder said machine having provision for movement of the tool to wedge the holder open for delivering finishing material.

5. A machine of the class described having in combination, a rotary tool having a working surface on one end face, and having a beveled face on its other end, a holder for finishing material arranged for engagement by said beveled face, means for actuating the tool to do its work and provision whereby the tool may be actuated endwise to control the delivery of finishing material.

6. A machine of the class described having a holder for finishing material, a working tool, means for rotating the tool to do its work, means for vibrating the tool, and connections between the tool and the holder for vibrating a portion of the latter to facilitate the delivery of finishing material.

7. A machine of the class described having a holder for finishing material, a working tool, means for rotating the tool to do its work, means for vibrating the tool, and a nozzle extending from the holder into the path of the vibrating tool to be actuated thereby.

8. A machine of the class described having a holder for finishing material, a working tool, means for rotating the tool to do its work, means for vibrating the tool, and a nozzle extending from the holder into the path of the vibrating tool to be actuated thereby, said machine having provision for permitting the tool to be moved into and out of position to actuate the nozzle.

9. A machine of the class described having in combination, means including a nozzle for supplying finishing material, the work rubbing tool 2 having the nozzle actuating surface 14, and means for actuating the tool.

10. A machine of the class described having in combination, means for supplying finishing material, the work rubbing tool having the groove 30 for holding finishing material, the working face 32, the ducts 33, and the beveled face 14 to engage and actuate the supplying means.

11. A machine of the class described having in combination, means for supplying finishing material, including the yielding nozzle 15, the swinging frame 6, the rotary tool 5, capable also of endwise movement and having the beveled face 14 arranged to engage the yielding nozzle to control the delivery of the finishing material.

12. A machine of the class described having a working tool for operating on shoes, means for actuating it, and a plurality of holders for finishing material movable to place one or another in position to supply finishing material to the tool.

13. A machine of the class described having a working tool, means for actuating it, a plurality of connected holders for finishing material adapted for movement together to place any one in operative relation to the tool, said machine having provision for controlling the delivery of finishing material from the operative holder by the position of the work.

14. A machine of the class described having in combination, a holder for finishing material, a plunger yieldingly projected therefrom and formed with a duct or channel that communicates with the material in the holder when the plunger is pressed inwardly, said parts being arranged to close said communication when the plunger occupies its projected position, and an applying tool arranged for movement by the work to engage the plunger for starting the delivery of finishing material.

15. A machine of the class described comprising a tool for operating on shoes, provision whereby the tool can yield during its operation upon the work by pressure of the work thereagainst, means for operating the tool to do its work, a holder for finishing material, connections arranged to convey material from said holder to the working

face of said tool and provision whereby the said yielding movement of the tool controls the delivery of the finishing material to the tool.

5 16. A machine of the class described comprising, in combination, a holder for finishing material, a tool having a working movement and an additional movement and connections through which said material is
10 conducted to said tool including a device constructed and arranged to be engaged and moved by the tool and by said movements to control the flow of material through said connections.

15 17. A machine of the class described comprising, in combination, a holder for finishing material, a tool having a working movement and an additional movement, connections for conducting said material from the
20 holder to said tool including a device having a duct formed therethrough, said device being arranged to control the flow of material through said connections, means for moving said device to stop said flow of material, and provision whereby said device
25 may be moved by the tool during said additional movement of the tool to cause the flow of material through said connections to be resumed.

30 18. A machine of the class described comprising, in combination, a holder for finishing material, a tool having a working movement and an additional movement, connections for conducting said material from the
35 holder to said tool including a plunger having a duct formed therethrough, said plun-

ger being arranged to control the flow of material through said connections, provision for conducting said material from said duct to the working face of said tool and a
40 spring for moving said plunger to cut off said flow of material, said plunger having a part arranged for engagement with said tool whereby it may be moved against the tension of said spring to cause the flow of
45 finishing material through said connections to be resumed.

19. A machine of the class described comprising, in combination, a holder for finishing material, a tool movable relative to said
50 holder, connections for conducting material from said holder to said tool including a plunger mounted for sliding movement in a part of said holder and having one end positioned for engagement with the tool, said
55 plunger having a duct formed longitudinally thereof, and a port opening through the side of the plunger into said duct, a passage in said holder positioned to register with the port of said plunger in one po-
60 sition of the latter and a spring acting to hold said plunger with its end in contact with said tool and its port out of registry with said passage.

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

ARTHUR BATES.

Witnesses:

GRACE HOLMES,
ARTHUR ERNEST JERRAM.