

No. 849,338.

PATENTED APR. 2, 1907.

A. W. ROGERS.
BUFFING MACHINE.
APPLICATION FILED SEPT. 14, 1906.

2 SHEETS—SHEET 1.

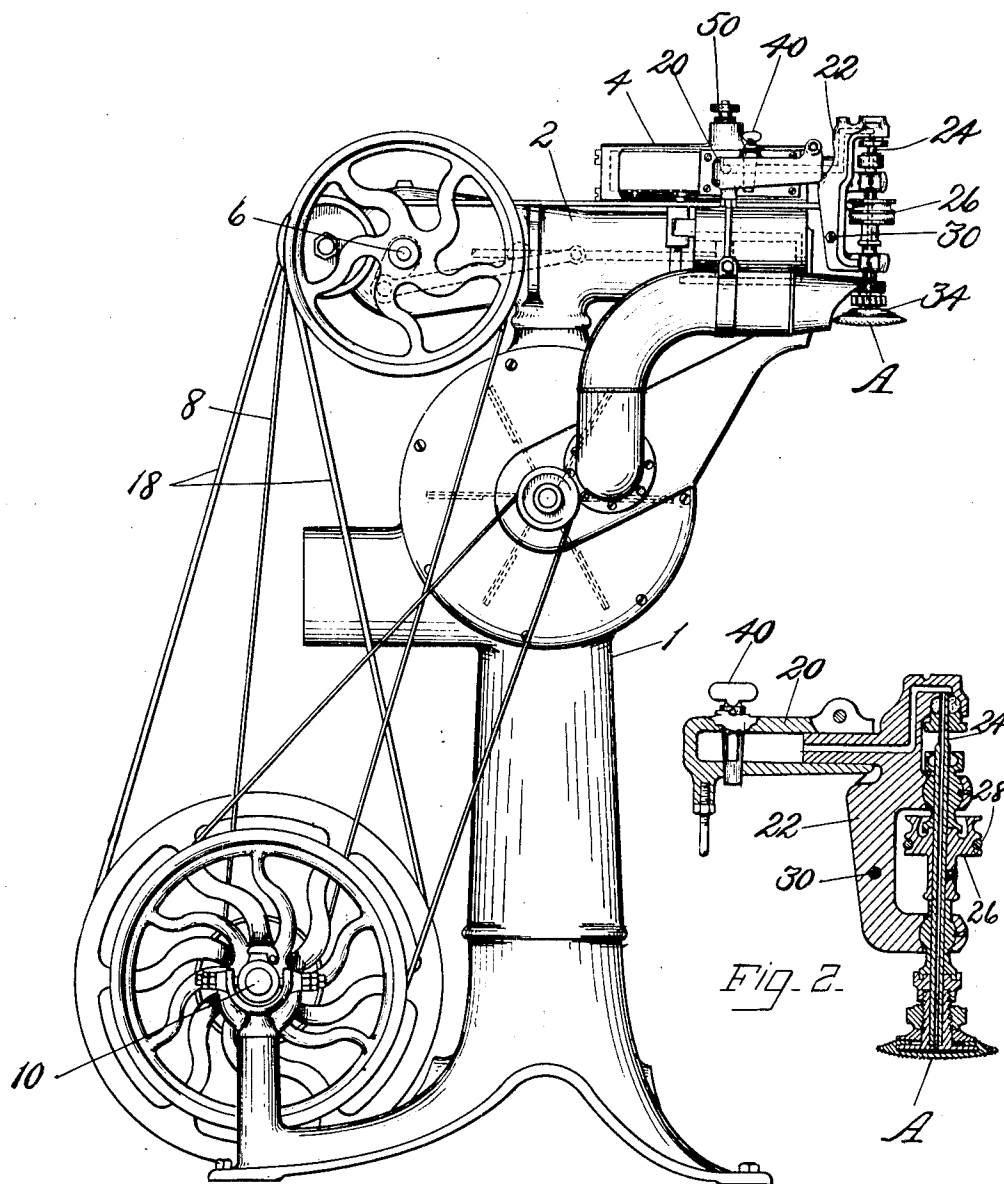


Fig. 1.

Fig. 2.

WITNESSES

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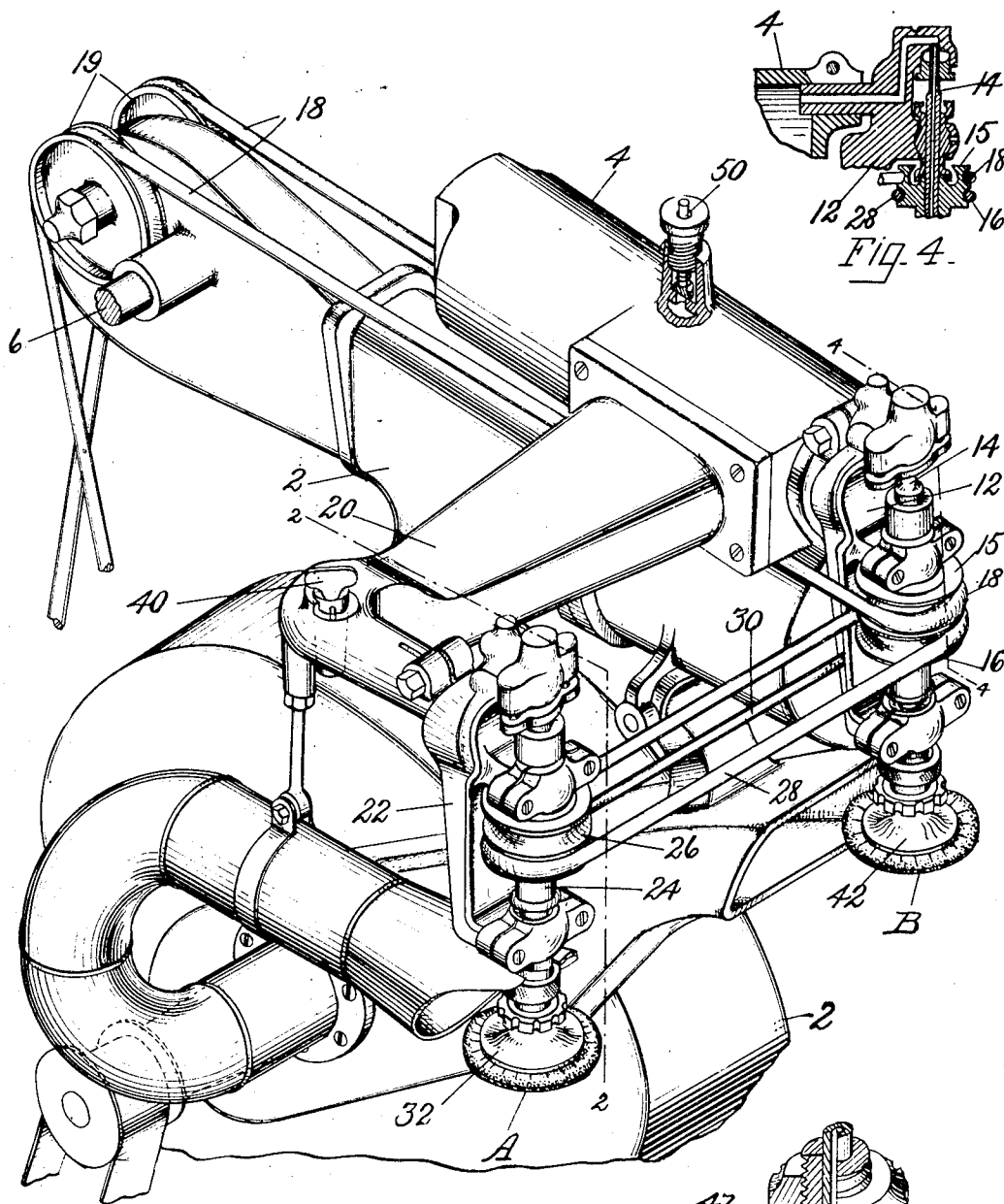
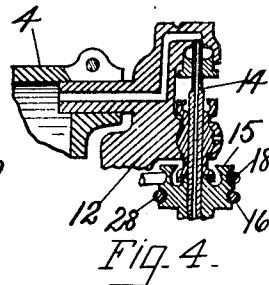
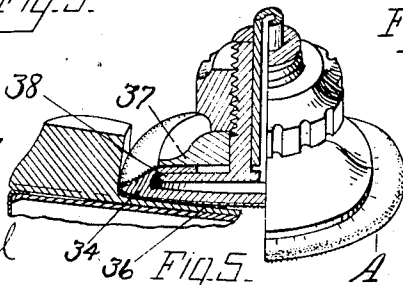
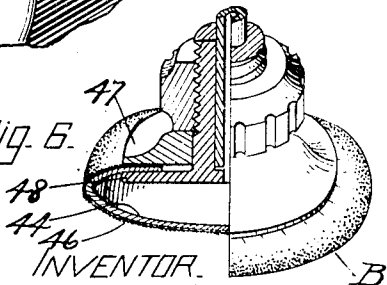


Fig. 3.

Fig. 6.



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BUFFING-MACHINE.

No. 849,338.

Specification of Letters Patent.

Patented April 2, 1907.

Application filed September 14, 1906. Serial No. 334,687.

To all whom it may concern:

Be it known that I, ANDREW W. ROGERS, a citizen of the United States, residing at Beverly, in the county of Essex and Commonwealth of Massachusetts, have invented certain Improvements in Buffing-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 operating on the bottoms of boots and shoes, and particularly to that type of machines which is characterized by a buffing or abrading device comprising a pneumatic support and an abrasive covering.

The invention is herein shown as embodied in a machine in which a buffing device for operating on the shoe-bottom is applied to the lower end face of a vertical rotary spindle.

In the operation of finishing shoe-bottoms it is customary to treat the surfaces to be finished with a buffing device comprising a supporting member and a coarse abrasive covering, of sandpaper, emery-cloth, carborundum, or the like, to remove the glaze from the grain of the leather. The shoe-bottom is then treated with a cleaning device comprising a pneumatic support having a finer abrasive covering to clean the surface of the leather, remove any scratches or marks left by the buffing operation, and rub up the nap formed by the fibers of the buffed leather, thus giving the surface a velvety appearance.

It is the practice in most factories to use for buffing the leather a supporting member having different characteristics from the support used for the cleaning operation. One form of support employed for buffing is an inflatable pad having a thin angular edge of solid rubber and a thick lower wall, this form of support being especially adapted for "shanking out" or buffing the shanks of the soles.

The thin edge enables the buffing device to reach into the angle formed by the shank of the sole and the breast of the heel and buff this portion of the shoe, and the thick lower wall maintains the form of the support when it is filled with air under pressure. The pneumatic support commonly used in the cleaning operation has a rounded edge and thin walls, which are distended by the air to

form a cleaning device which is free from angles that might abrade the work unevenly and which is sufficiently soft and yielding to conform readily to the contour of the different portions of the shoe-bottom presented to it. It is usually preferred to maintain a higher pressure of air in the pneumatic support of the cleaning device than in the support of the buffing device, as the air serves mainly as a cushion in the latter support without materially distending the support.

Heretofore it has been necessary to treat the shoes by a machine equipped with a buffing device adapted for buffing the bottoms and then to disconnect the machine from its driving mechanism, wait for it to come to rest, remove the support and abrasive covering used for buffing, and replace these parts with a pneumatic support and covering adapted for cleaning. When this had been done, the air-supplying mechanism had to be adjusted and the machine restarted and allowed to run until the cleaning device was properly inflated before the buffed shoes could be cleaned. As it has been the practice to make this change from one device to the other and back again for each case of shoes, the time thus consumed has materially decreased the number of shoes which an operator could finish in a day. The alternative practice of course has been to have two machines, one of which was adjusted and equipped for buffing and the other one for cleaning. The extra investment and the additional floor-space required for the two machines are obvious objections to this practice, and the second handling of the shoes not only consumed time, but was detrimental to their shape.

An important object of the present invention is to provide one machine by which the several portions of the shoe-bottom can be properly buffed and then cleaned with a single handling of the shoe.

To this end a feature of the invention consists in a machine of the class described provided with a plurality of devices each comprising a support and an abrasive covering and having provision for supplying air under pressure to the devices and means for regulating the relative supply of air to the different devices. Preferably each support will be readily removable, so that the machine

may be conveniently equipped with supports and coverings having the desired characteristics.

The several features of the invention, including certain details of construction and combinations of parts, will be fully explained in the following specification and pointed out in the claims.

In the accompanying drawings, which show a preferred embodiment of the invention, Figure 1 is a side elevation of the machine. Fig. 2 is a section on line 2 2 of Fig. 3 through a buffing device which is constructed particularly with reference to buffing or shanking out the rear part of the sole in the angle made by the shank and the breast of the heel. Fig. 3 is a perspective view of the upper portion of the machine shown in Fig. 1. Fig. 4 is a section on line 4 4 of Fig. 3. Fig. 5 is a view, partly in section and on a larger scale, of the buffing device shown in Fig. 2. Fig. 6 is a similar view of the device which is employed for cleaning the shoe after it has been buffed.

The standard 1 of the machine supports a head 2, which is provided with an air-reservoir 4 and contains an air-compressor of suitable construction, by which air is forced under pressure into the reservoir.

The compressor is operated by a crank on a shaft 6, which is driven by a belt 8 from a pulley on the main shaft 10.

To the front end of the head (see Fig. 3) is secured a spindle-bracket 12, in which is journaled a spindle 14, having pulleys 15 and 16. The spindle is driven by a belt 18, passing from the pulley 15 over idlers 19 to a pulley on the main shaft.

The head 2 has a laterally-projecting arm 20, herein shown as secured directly to the reservoir 4, the forwardly-bent free end of which supports a spindle-bracket 22, in which is a spindle 24, having a pulley 26.

A belt 28 passes from the pulley 26 to the pulley 16 on the spindle 14, so that the second spindle is driven from the spindle 14.

A brace 30, extending from the bracket 12 to the bracket 22 below the level of the belt 28, assists in holding the brackets rigidly at the proper distance apart.

The spindle 24 is provided with a holder 32 for a buffing device A, herein shown as comprising a pneumatic support 34 and an abrasive covering 36. The support has a well-defined angular edge portion of solid rubber and a stiff thick lower wall. The edges of the mouth of the pneumatic support and the edge of the abrasive covering are clamped tightly between the members 37 and 38 of the holder. The spindle 24 is tubular, as shown in Fig. 2, and the opening therein connects with an air-conduit leading through the arm 20 to the air-reservoir 4.

A valve 40 is arranged to regulate the flow of air into the pneumatic support 34, and

thus control the extent to which said support is inflated.

The spindle 14 is provided with a holder 42 for a cleaning device B, shown as comprising a pneumatic support 44 and an abrasive covering 46. The pneumatic support 44 has thinner and more flexible walls than the support 34 and has a rounded flexible edge portion. The edges of the mouth of the support 44 and the free edges of the abrasive covering 46 are clamped between the members 47 48 of the holder 42.

The spindle 14 is tubular and has connection through a conduit, as shown in Fig. 4, with the air-reservoir.

When the pneumatic support 44 is inflated, as shown in Fig. 6, it is distended to present a convex lower face and a rounded edge. This forms a cleaning device which is very yielding, so that it conforms readily to the contour of the surface presented to it and which is free from any angular projections which might abrade the work unevenly.

The air-reservoir 4 is provided with a relief-valve having a cap-piece 50, which may be adjusted to regulate the pressure of air in the cleaning device B.

The valve 40 enables the pressure of air in the buffing device A to be adjustably regulated with relation to the pressure in the cleaning device B, and preferably said valve will be adjusted to allow only sufficient air to enter the pneumatic support 34 to cushion the lower face of said support without distending it materially. If desired, the pneumatic support 34 may be replaced by a support of a different kind.

The machine is equipped with a fan and with flues extending to the buffing and cleaning devices for drawing away the dust produced by the machine.

In the use of the machine the operator may present a shoe first to the buffing device A, which is adapted to remove from the shoe-bottom any stains or dirt which may be present and to remove the glaze from the grain of the leather, said buffing device being provided with an abrasive covering of a suitable quality for this purpose. The shape of the support gives to the buffing device a thin angular edge adapted to act upon the surfaces in the angle formed by the shank of the sole and the breast of the heel. In practice the greater part of the buffing operation is done by the edge and marginal portion of this buffing device. When the surfaces being finished have been properly buffed, the shoe is presented to the cleaning device B, which conforms readily to the surface being treated and is provided with a suitably-fine abrasive covering to adapt it to remove any scratches or inequalities in the surface left by the buffing device and to rub up the nap to give the finished shoe-bottom a velvety appearance. It will be observed that the buffing and clean-

ing devices are so located that the shoe may be presented first to the one and then to the other while the operator stands in the same position, so that the finishing of the shoe-bottom may be effected by a single handling of the shoe and without any loss of time between the buffing and cleaning operations. The valve 40 provides means by which the relative supply of air to the two devices may be regulated in accordance with the preference of different operators or the conditions presented by different classes of work. By closing the valve the air may be entirely cut off from the spindle 24 and the supplying means rendered inoperative for delivering air to the buffing device carried by that spindle. This arrangement avoids wasting the compressed air when device A is not in use and also permits the use on the spindle 24 of a buffing device of a different type, if desired.

Having explained the nature of this invention and described a preferred embodiment thereof, I claim as new and desire to secure by Letters Patent of the United States—

1. In a machine of the class described, a plurality of rotary devices for operating on

the bottoms of shoes, each device comprising a holder, a pneumatic support and an abrasive covering; combined with means for supplying air under pressure, including an air-compressor, and conduits leading from the compressor through each of the holders to the pneumatic supports; and means for regulating the relative supply of air to the different pneumatic supports.

2. In a machine for operating on the bottoms of shoes, a rotary device comprising a pneumatic support and an abrasive covering; combined with a second rotary device comprising a support and an abrasive covering; mechanism for actuating said devices; means adapted to supply air under pressure to said devices; and means for rendering the air-supplying means operative or inoperative for supplying air to the second device.

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

ANDREW W. ROGERS.

Witnesses:

BERTHA H. HATHAWAY,
NELSON W. HOWARD.