

No. 681,636.

Patented Aug. 27, 1901.

F. M. FURBER.  
SCOURING OR BUFFING MACHINE.

(Application filed June 11, 1901.)

(No Model.)

2 Sheets—Sheet 1.

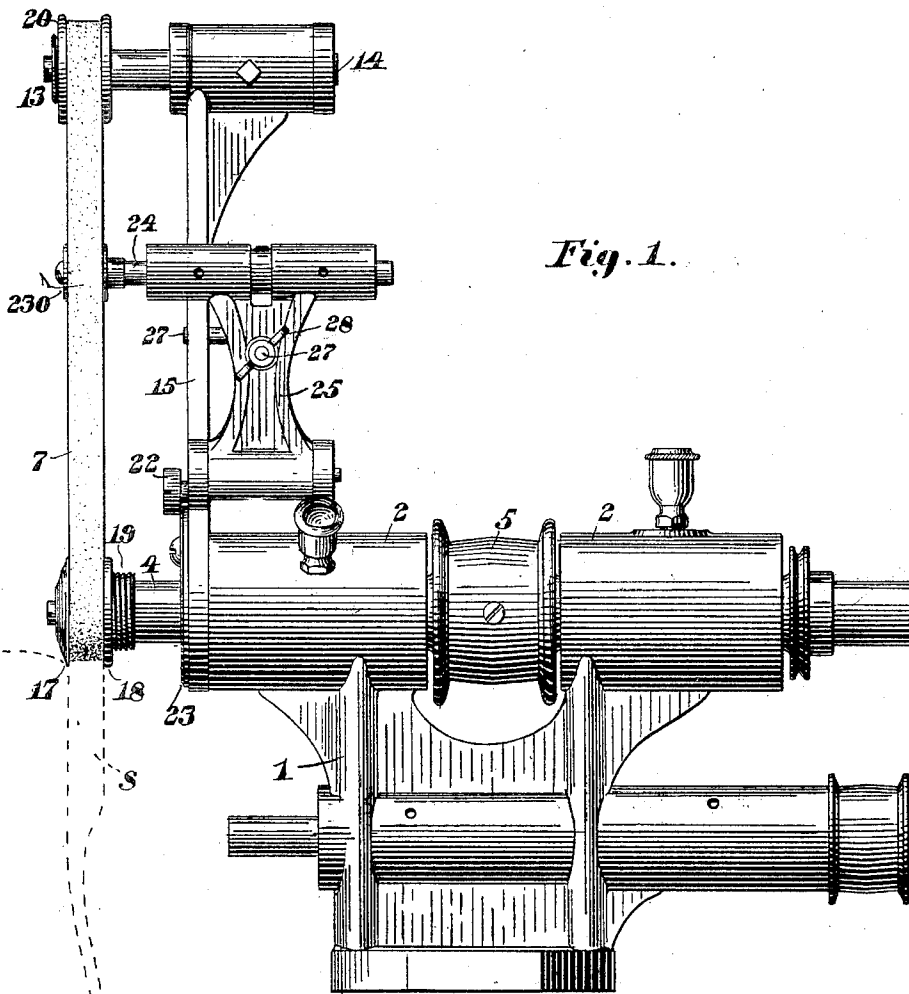


Fig. 1.

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Fig. 2.

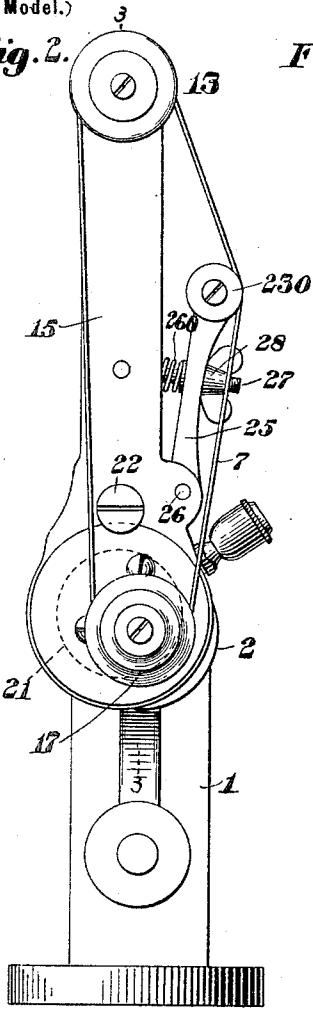


Fig. 3.

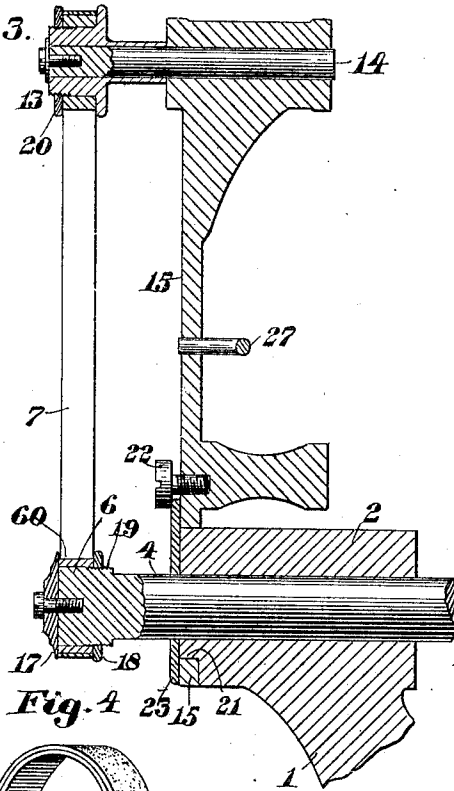
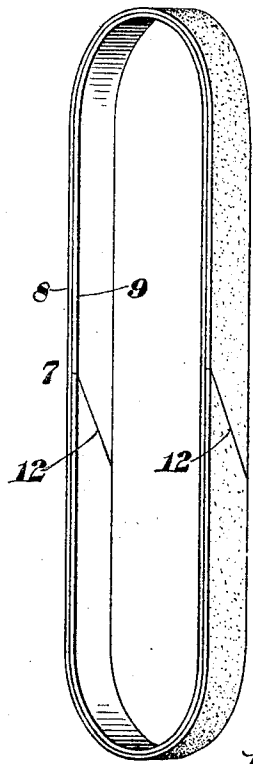


Fig. 4



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# UNITED STATES PATENT OFFICE.

FREDERICK M. FURBER, OF HAVERHILL, MASSACHUSETTS.

## SCOURING OR BUFFING MACHINE.

SPECIFICATION forming part of Letters Patent No. 681,636, dated August 27, 1901.

Application filed June 11, 1901. Serial No. 64,063. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK M. FURBER, of Haverhill, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Scouring or Buffing Machines, of which the following is a specification.

This invention relates to machines for scouring or buffing the edges of leather articles, such as heels and soles of boots and shoes, and particularly of boots and shoes having spring-heels.

The invention consists chiefly in a machine comprising, first, a rotary roll, preferably cushioned or yielding surfaced and constituting the support for the abrasive material used in the scouring or buffing operation, said roll being of relatively small diameter, so that the abrading-surface can act only on the part requiring its action without touching other adjacent parts, and, further, so that the roll will not inconveniently obstruct the inspection of the work by the operator and when used on edges having reëntrant curves, such as those at the shank portions of sole edges, can enter such curves and act efficiently thereon; secondly, a belt of abrasive material, such as sand or emery coated cloth or other flexible material, supported in part by said roll and made of such length that it constitutes a continuously-changing abrasive cover for the portion of the roll which receives the pressure of the work, means being provided for additionally supporting the belt and maintaining it in frictional contact with the roll, and, thirdly, a guard or shield at one end of the roll adapted to prevent contact between the abrasive belt and an adjacent part, such as the upper of a boot or shoe, the shield being formed to enter the rand or welt crease between the heel or sole and the upper.

The invention also consists in certain incidental improvements, all of which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a side elevation of a scouring or buffing machine embodying my invention. Fig. 2 represents an end elevation of the same. Fig. 3 represents a section on line 3 3 of Fig. 2. Fig. 4 represents a perspective view of the abrasive belt.

The same characters of reference indicate the same parts in all of the figures.

In the drawings, 1 represents the supporting head or frame, which may be mounted on a suitable column or pedestal or otherwise supported. Journaled in bearings 2 2 on the head 1 is the driving-shaft 4, to which motion may be imparted by a belt running on a pulley 5, affixed to said shaft.

6 represents a roll, here shown as a part of the driving-shaft and rotated thereby. The roll has a cushioned or yielding periphery which may be formed by a facing 60, of felt or other suitable yielding or cushioning material, affixed to the rigid core or body of the roll.

7 represents an abrasive belt which may be of any suitable construction. It is preferably composed of two strips or layers 8 9 of suitable textile fabric cemented or otherwise secured together, each strip having diagonal ends which are abutted together to form joints 12 12, extending obliquely across the belt, as shown in Fig. 4, the said joints being at different parts of the belt, so that each layer extends continuously across the joint of the other layer. The outer layer 9 is surfaced with suitable granular or powdered abrasive material, such as sand or emery. This construction provides a strong and durable belt which is not liable to separate at the joints and is free from bunches or ridges thereat, the oblique arrangement of the joints preventing liability of the displacement of the meeting edges of the joint of the outer layer by contact with the work. This oblique arrangement is more important and advantageous on the outer layer than on the inner, because the joint of the inner layer does not come in contact with the work and is protected by the material of the outer layer. Hence I do not limit myself to a belt in which the joint of the inner layer is obliquely arranged, as said joint may be otherwise formed and arranged, if desired, although I prefer to arrange both joints obliquely. The belt is held in frictional contact with the cushioned periphery of the roll 6 by an idle pulley 13, mounted on a shaft or stud 14, which is supported by an arm or extension 15 on the head 1. The length of the belt is such that its abrasive coating has a much greater

surface area than the roll 6, so that the abrasive surface is constantly changed with reference to the roll, any given portion of said surface alternately approaching and receding from the periphery of the roll. Hence while the acting part of the belt partakes of the curvature of the periphery of the roll and constitutes a closely-fitting cover therefor said surface is much more durable and is much less liable to be heated by its contact with the work than would be the case if the abrasive cover were fitted closely to the entire periphery of the roll instead of being an elongated belt supported in part by the roll and in part by an idle pulley.

17 represents a guard or shield located at the outer end of the roll 6 in position to prevent contact between the acting portion of the abrasive belt—that is, the portion in contact with the yielding periphery of the roll—and an adjacent part, such as the upper of a boot or shoe. The shield 17 is here shown as a thin-edged disk adapted to enter the crease between the rand or welt and upper of a boot or shoe, so that it prevents abrasion of the upper by the belt and also prevents edgewise movement of the belt in one direction. A flange 18 at the inner end of the roll prevents edgewise movement of the belt in the opposite direction. The shield 17 is engaged with the roll 6 and shaft 4, so that it will rotate therewith. I prefer to secure the flange 18 adjustably to the rigid body or core of the roll, so that it can be adjusted toward or from the shield 17 to accommodate belts of different widths. To this end the inner portion of the rigid body of the roll may be externally screw-threaded at 19, the flange 18 having an internal screw-thread adapted to be engaged with the external thread 19. This construction permits the adjustment of the flange 18 and the employment of a yielding cover or cushion of any desired width, the width of the cushion corresponding with the width of the belt. The idle pulley 13 may be provided with a flange 20, which is adjustable in the same way.

For convenience in applying and removing the abrasive belt I mount the arm 15 on a hub or circular shoulder 21, surrounding the shaft 4 and affixed to or formed as a part of one of the bearings 2, said hub being eccentric to the shaft and arranged so that when the arm 15 is in a given position—for example, the vertical position shown in Figs. 1 and 2—the idle pulley 13 will be farther from the roll 6 than when the arm is moved from said position—for example, to a horizontal position—the movement of the arm to the last-mentioned position so decreasing the distance between the idle pulley and the roll 6 that the belt will be slackened and its easy removal from the pulley and roll permitted, the return of the arm to a vertical position preventing the removal of the belt. The arm may be secured or locked in the last-mentioned position by suitable means, such as a

clamping-screw 22, engaged with the arm, and a flange 23, affixed to the eccentric hub 21 and arranged to be engaged by the head of the screw 22.

To automatically take up any slack caused by the stretching of the belt, I provide an idle pulley 230, affixed on a shaft 24, which is journaled in bearings on an arm 25, which is pivoted at 26 to the arm or extension 15. A spring 260, supported by a stud 27, affixed to the arm 15 and passing loosely through an orifice in the arm 25, presses said arm and the pulley 230 in the direction required to tighten the belt, said pulley being in contact with the inner surface of the belt. The pressure of the spring 260 may be regulated by a nut 28, engaged with the threaded outer portion of the stud 27 and bearing on the outer side of the arm 25.

It will be seen that the described machine is particularly adapted for scouring the edge of a spring-heel *s*, the heel being pressed against the portion of the belt that is supported by the roll 6, so that the belt is enabled by the cushion of the roll to conform closely to the shape of the heel, the shield at the same time preventing the belt from injuring the upper. The machine may also be adapted for scouring sole edges and other surfaces, the elongated belt enabling a relatively small roll to be employed without rapid wear of the abrasive surface and without liability of excessively heating either the abrasive surface or the work.

I do not limit myself to the details of mechanism here shown and may variously modify the same without departing from the spirit of the invention.

I do not limit myself to a roll having a cushioned or yielding periphery, although this is desirable for many kinds of work. In other kinds of work the roll may have a rigid periphery.

I claim—

1. An edge buffing or scouring machine comprising a rotary roll, an abrasive belt, means for holding the belt in frictional contact with a portion of the periphery of the roll, the said belt forming an abrasive cover for the portion of the roll on which it bears, and an upper guard or shield at one end of the roll whereby contact between said cover and the upper of a boot or shoe is prevented.
2. An edge buffing or scouring machine comprising a roll having end flanges, one of which is formed as an upper guard or shield, an arm mounted to swing on a bearing which is eccentric to the roll and having a flanged idle pulley at its outer end, an abrasive belt mounted on said roll and pulley, the said eccentric bearing being so arranged that a movement of the arm to a given position decreases the distance between the roll and pulley and permits the removal of the belt from between the flanges of the roll and pulley, while movement of the arm to another position increases said distance and prevents the re-

moval of the belt, and means for locking or securing the arm.

3. An edge buffing or scouring machine comprising a roll having end flanges, an arm mounted to swing on a bearing which is eccentric to the roll, a flanged idle pulley on said arm, an abrasive belt mounted on said roll and pulley, a spring-pressed belt-tightening pulley mounted on the arm between the

said roll and flanged pulley and means for adjusting said tightening-pulley.

In testimony whereof I have affixed my signature in presence of two witnesses.

FREDERICK M. FURBER.

Witnesses:

JAMES E. BARTLETT,  
ALMA S. MCNEILL.