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H. SCHWABE

2,741,073

SHOE UPPER ROUGHING MACHINE

Filed Sept. 8, 1953

2 Sheets-Sheet 1

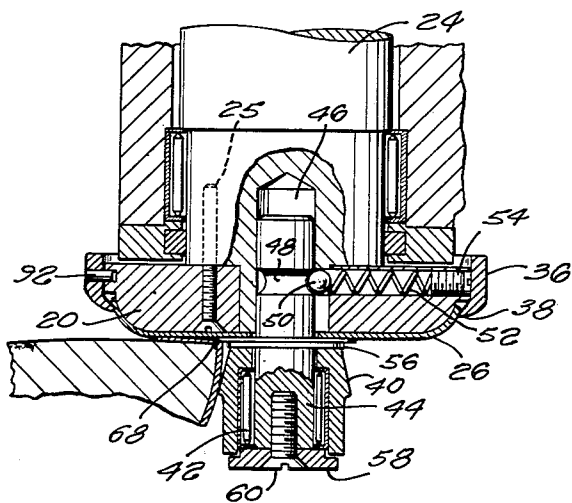


FIG. 3.

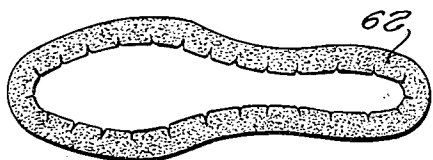


FIG. 4.

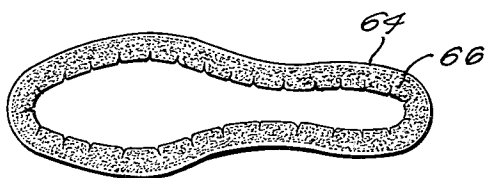


FIG. 5.

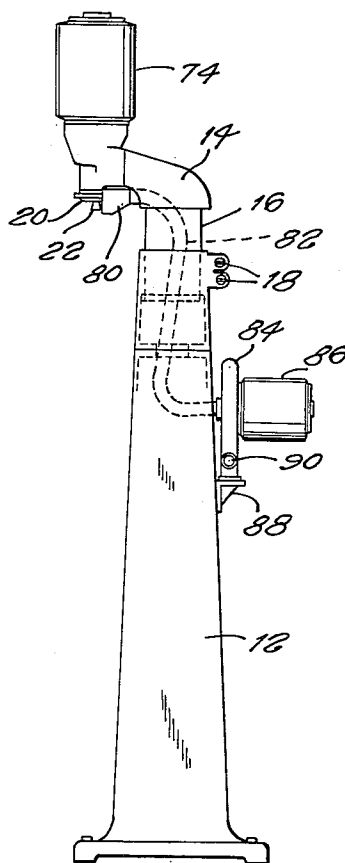


FIG. 1.

INVENTOR
HERMAN SCHWABE
BY *James and Franklin*
ATTORNEYS

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H. SCHWABE

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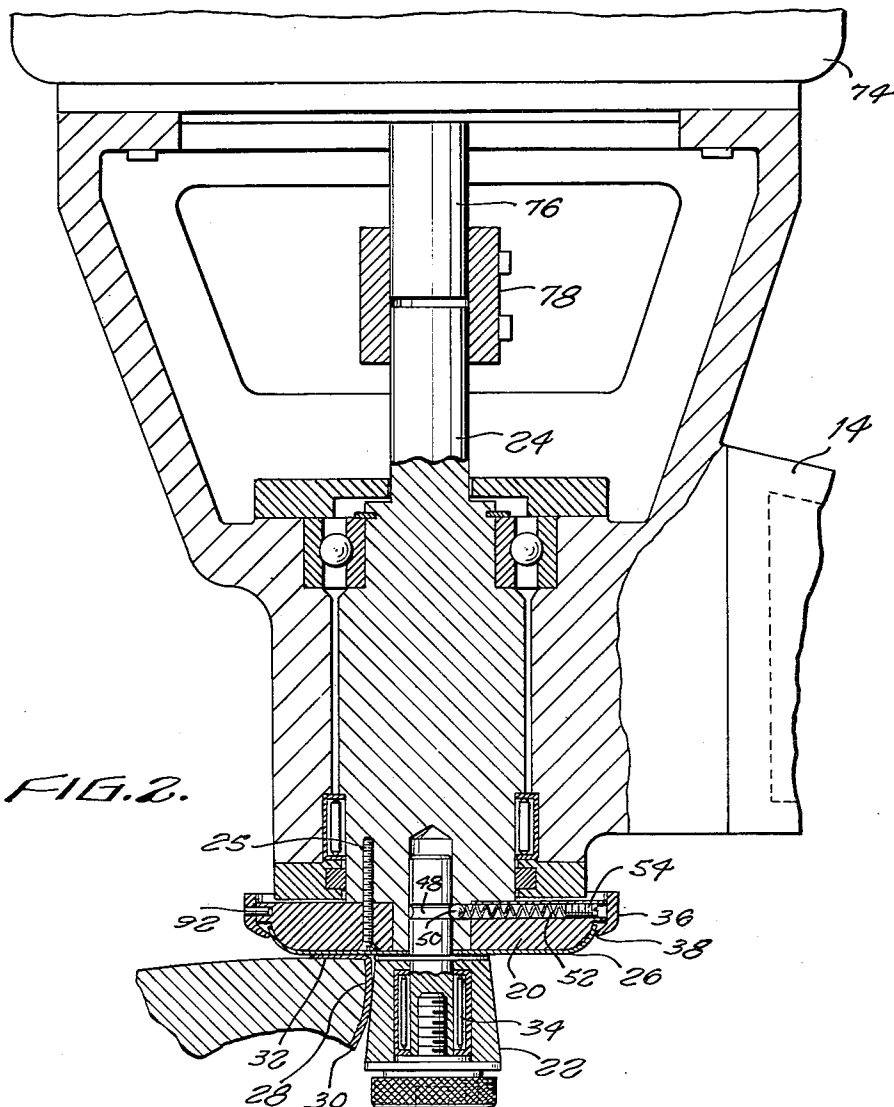


FIG. 1.

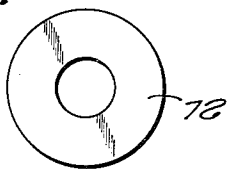
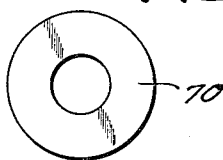


FIG. 6.



INVENTOR
HERMAN SCHWABE
BY *James and Franklin*
ATTORNEYS

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2,741,073

SHOE UPPER ROUGHING MACHINE

Herman Schwabe, Long Beach, N. Y.

Application September 8, 1953, Serial No. 378,960

13 Claims. (Cl. 51—128)

This invention relates to machinery used in the manufacture of shoes having a cemented outsole, and relates more particularly to shoe upper roughing machines.

In making one type of shoe the edge of an upper is drawn around the sole of a last, and an outsole is subsequently cemented to the upper. For this purpose the folded-over edge of the upper is preferably roughened as a preliminary to the cementing operation. Often it is desired to provide a marginal allowance around the periphery of the last which is not roughened, in order to be sure not to mar any part of the upper which might prove to be visible after the cementing operation.

Although machines have already been devised for roughing a shoe upper, such machines have not proved altogether satisfactory, and the primary object of the present invention is to generally improve shoe upper roughing machines.

More particular objects are to provide a machine which is convenient and easy to use; which is relatively simple and inexpensive in construction; which employs a relatively inexpensive material, preferably sandpaper, as an abrasive; which provides for ready and rapid change of the sandpaper; and which nevertheless holds the sandpaper firmly.

Further features and objects of the invention center about the provision of guide means to help position and guide the shoe as it is being roughened. For this purpose I provide a guide which may be carried by the abrasive wheel but which is freely rotatable, so that it does not partake of the rotation of the wheel, and yet may rotate slightly as the periphery of the lasted upper is moved therealong.

Still another object is to provide a readily changeable and removable means for providing a margin allowance which is protected from abrasion. Thus the width of the protected margin is readily changed, and may be omitted altogether.

A detailed object is to make the working part of the machine adjustable in height to suit the convenience of the operator. Another detailed object is to equip the machine with a hood and suction blower system to carry away any of the abrasive and leather set free during the roughing operation.

To accomplish the foregoing, and other objects which will hereinafter appear, my invention resides in the shoe upper roughing machine elements, and their relation one to another, as are hereinafter more particularly described in the following specification. The specification is accompanied by drawings, in which:

Fig. 1 is a side elevation of a shoe upper roughing machine embodying features of my invention;

Fig. 2 is a section through the lower part of the head of the machine, at the abrasive carrying wheel;

Fig. 3 is a similar section showing a modification;

Fig. 4 is a plan view showing the roughened part of a lasted upper;

Fig. 5 is a similar view showing a lasted upper in which a margin of predetermined width has been protected against abrasion;

Fig. 6 shows a margin allowance disc of one diameter; and

Fig. 7 shows a margin allowance disc of different diameter.

Referring to the drawing, and more particularly to Fig. 1, the machine comprises a pedestal 12 carrying a forwardly projecting arm 14, the latter having a vertical cylindrical portion 16 which is telescopically related to pedestal 12, so that the height of the machine may be adjusted, the adjustment being locked by appropriate bolts at 18. The arm 14 carries an abrasive carrying wheel 20, and a shoe guide 22.

Referring now to Fig. 2, the arm 14 has appropriate bearings carrying a short shaft or hub portion 24, which fixedly carries at its lower end a sand wheel 20. They may be secured together, as by means of a number, say three, screws 25. This is intended to receive and hold a thin sand disc 26 which may be made of sand or other abrasive material adhered to paper, cloth, or other backing material. In most cases sandpaper is adequate. The machine further comprises the guide 22, which is located on the side of the sandpaper disc 26 opposite the wheel 20, so that the periphery 28 of a lasted upper 30 may be held against the guide 22 while the folded-over edge 32 of the upper is held against the sandpaper disc 26. The guide 22 may be slightly frusto-conical as shown in Fig. 2, or may be stepped somewhat as shown in Fig. 3, but broadly speaking may be said to be "generally cylindrical," and is located coaxially of the shaft 24. The guide 22 is mounted for free rotation, as by means of roller pin bearings 34, and therefore need not and does not partake of the high speed rotation of the shaft 24 and its sand wheel 20. In the drawing all roller bearings have been shown with exaggerated clearance around the rollers.

Considering the arrangement in greater detail, the sand wheel 20 is preferably downwardly convex, and is disposed at the lower end of a shaft which is upright. The sand disc 26 preferably is made matingly concavo-convex, and is readily applied to the sand wheel 20. It is releasably secured in position, as by means of a readily removable peripheral ring 36, which has a flange 38 to bear against and hold the edge of the sandpaper disc, thereby securing the latter to the wheel.

For this purpose the inside of the ring 36 and the periphery of the wheel 20 may be matingly threaded, but for faster action I prefer to employ a pin and slot construction. In this case the ring has a number of pins, say two or three pins, one of which is visible at 92 in Figs. 2 and 3. These pins are fixed in the ring, as though integral therewith. The wheel 20 has mating helical slots. Thus the ring is quickly applied with only a short rotative movement, but is forced upward tightly against the sandpaper, as with a regular full thread.

To additionally facilitate changing from one sandpaper disc to another the guide 22 is also readily removable. Referring to Fig. 3 it will be seen that the guide 40 is freely rotatable on roller pin bearings 42 carried by a stud 44 the upper end of which is received in a mating hole 46 in the lower end of the main driving shaft 24. The stud 44 is preferably circumferentially indented at 48 to provide a detent action in cooperation with a spring pressed ball 50, the latter being urged inward by means of a compression spring 52 held in position by a suitable screw 54. The stud 44 preferably includes a stop shoulder 56 which limits the insertion of the stud, while still providing the desired clearance in axial direction for the guide roller 40. It will be evident that the shoulder 56 may act also to support the center part of the sandpaper disc, but this support is not needed because the disc ordinarily is held taut by the ring 36, which draws the rim of the paper upward.

3

When the sandpaper has become worn it is merely necessary to pull the guide roller 22 downward, and to then release the circumferential ring 36, whereupon the old sandpaper disc is removed and a new one applied. Ring 36 is replaced, and then the guide 22, thus clearing the way for operation on additional shoes. The guide roller is held on the stud 44 by means of the thrust washer 58 and the screw 60.

As so far described the lasted upper would be roughened all the way to the edge of the last, as is shown at 62 in Fig. 4. If it be desired to have a narrow margin which is not roughened, as shown at 64 in Fig. 5, while roughening the remainder of the intumed edge as shown at 66, it is merely necessary to insert a thin margin-disc 68 between the shoulder 56 and the sand disc 26. This margin-disc 68 is larger in diameter than the shoulder 56, and is large enough to protect some of the edge of the upper from being brought into contact with the sandpaper. The disc is thin and smooth, and the upper is therefore not roughened or injured by contact with the disc. Such discs may be provided of varying diameter, as is indicated at 70 and 72 in Figs. 6 and 7, so that the width of the protected margin of the upper may be varied.

Reverting now to Fig. 2 the shaft 24 is driven by a motor 74, the shaft 76 of which is directly connected to shaft 24, as by means of a coupling 78. In Fig. 1 the motor 74 is shown to be mounted in upright position directly over the forwardly extending arm 14, and directly above the sand wheel 20.

To remove the abrasive and leather particles the machine is preferably provided with a hood and a suitable blower. In the present case the hood is shown at 80, and is mounted directly adjacent and preferably enclosing the rear part of the sand wheel 20. From hood 80 an exhaust pipe 82 leads rearward and downward to a suitable blower 84, which is driven by a motor 86. The blower and motor are mounted on a bracket 88. It will be understood that the outlet 90 of the blower is itself connected to a known type of filter bag, or is connected for discharge in some other way which will avoid harm.

It is believed that the construction, operation, and method of use of my improved shoe upper roughing machine, as well as the advantages thereof, will be apparent from the foregoing detailed description. It will also be apparent that while I have shown and described my invention in a preferred form, changes may be made in the structure shown without departing from the scope of the invention, as sought to be defined in the following claims. In the claims the term "sand disc" is intended to include any abrasive paper or abrasive cloth.

I claim:

1. A shoe upper roughing machine comprising a motor driven shaft, a sand wheel at one end of said shaft arranged to receive and hold a sand disc, a generally cylindrical guide mounted coaxially with said shaft and freely rotatable relative to said shaft and sand disc, said guide being located on the side of said disc opposite the wheel, whereby the periphery of a lasted upper may be held against the guide while the folded-over edge of the upper is held against the said disc.

2. A shoe upper roughing machine comprising a motor driven shaft, an outwardly convex sand wheel at one end of said shaft arranged to receive and hold a matingly outwardly convex sand disc, a peripheral ring detachably secured to said sand wheel and having a flange to bear against and hold the edge of the sand disc thereby securing the disc to the wheel, and a generally cylindrical guide freely rotatable on a stud which is readily detachably inserted coaxially in said shaft.

3. A shoe upper roughing machine comprising a motor driven shaft, a sand wheel at one end of said shaft arranged to receive and hold a sand disc, a generally cylindrical guide freely rotatable on a stud which is readily detachably inserted coaxially in said shaft, and a thin

4

flat smooth margin disc having a diameter somewhat greater than the diameter of the guide resting against the center of said sand disc and held in position by said guide and stud.

4. A shoe upper roughing machine comprising a motor driven shaft, an outwardly convex sand wheel at one end of said shaft arranged to receive and hold a matingly outwardly convex sand disc, a peripheral ring detachably secured to said sand wheel and having a flange to bear against and hold the edge of the sand disc thereby securing the disc to the wheel, a generally cylindrical guide freely rotatable on a stud which is readily detachably inserted coaxially in said shaft, and a thin flat smooth margin disc having a diameter somewhat greater than the diameter of the guide resting against the center of said sand disc and held in position by said guide and stud.

5. A shoe upper roughing machine as defined in claim 1, in which the shaft is vertical, with the sand wheel mounted at its lower end and its driving motor connected thereabove and in which said shaft is carried on an overhanging arm at the upper end of an upright pedestal.

6. A shoe upper roughing machine as defined in claim 2, in which the shaft is vertical, with the sand wheel mounted at its lower end and its driving motor connected thereabove, and in which said shaft is carried on an overhanging arm at the upper end of an upright pedestal.

7. A shoe upper roughing machine as defined in claim 3, in which the shaft is vertical, with the sand wheel mounted at its lower end and its driving motor connected thereabove, and in which said shaft is carried on an overhanging arm at the upper end of an upright pedestal.

8. A shoe upper roughing machine as defined in claim 1, in which the shaft is vertical, with the sand wheel mounted at its lower end and its driving motor connected thereabove, and in which said shaft is carried on an overhanging arm at the upper end of an upright pedestal, and in which the machine further comprises an exhaust hood duct and motor driven blower with the hood immediately adjacent the sand wheel.

9. A shoe upper roughing machine as defined in claim 2, in which the shaft is vertical, with the sand wheel mounted at its lower end and its driving motor connected thereabove, and in which said shaft is carried on an overhanging arm at the upper end of an upright pedestal, and in which the machine further comprises an exhaust hood duct and motor driven blower with the hood immediately adjacent the sand wheel.

10. A shoe upper roughing machine as defined in claim 1, in which the shaft is vertical, with the sand wheel mounted at its lower end and its driving motor connected thereabove, and in which said shaft is carried on an overhanging arm at the upper end of an upright pedestal including telescopic parts to adjust the height of the sand wheel, and in which the machine further comprises an exhaust hood, duct, and motor driven blower with the hood located immediately adjacent the sand wheel.

11. A shoe upper roughing machine as defined in claim 2, in which the shaft is vertical, with the sand wheel mounted at its lower end and its driving motor connected thereabove, and in which said shaft is carried on an overhanging arm at the upper end of an upright pedestal including telescopic parts to adjust the height of the sand wheel, and in which the machine further comprises an exhaust hood, duct, and motor driven blower with the hood located immediately adjacent the sand wheel.

12. A shoe upper roughing machine comprising a motor driven shaft, an outwardly convex abrasive wheel at one end of said shaft, and a generally cylindrical guide freely rotatable on a stud which is readily detachably inserted coaxially in said shaft, whereby the periphery

of a lasted upper may be held against the guide while the folded over edge of the upper is held against the wheel.

13. A shoe upper roughing machine as defined in claim 12, in which the shaft is vertical with the abrasive wheel mounted at its lower end with the abrasive surface at the bottom of said wheel, and in which a driving motor is connected to the shaft above the wheel, and in which the shaft is carried on an overhanging arm at the upper end of an upright pedestal.

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