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2,463,153

BELT AND ROTARY BRUSHES FOR SHOE CLEANING

Filed Feb. 13, 1946

2 Sheets-Sheet 1

Fig. 1

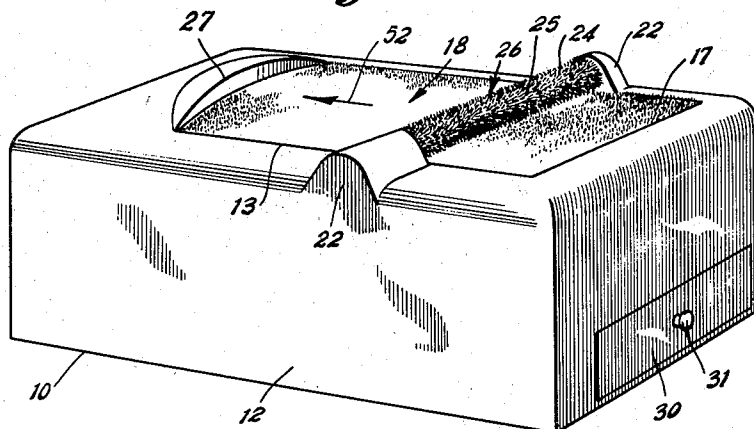
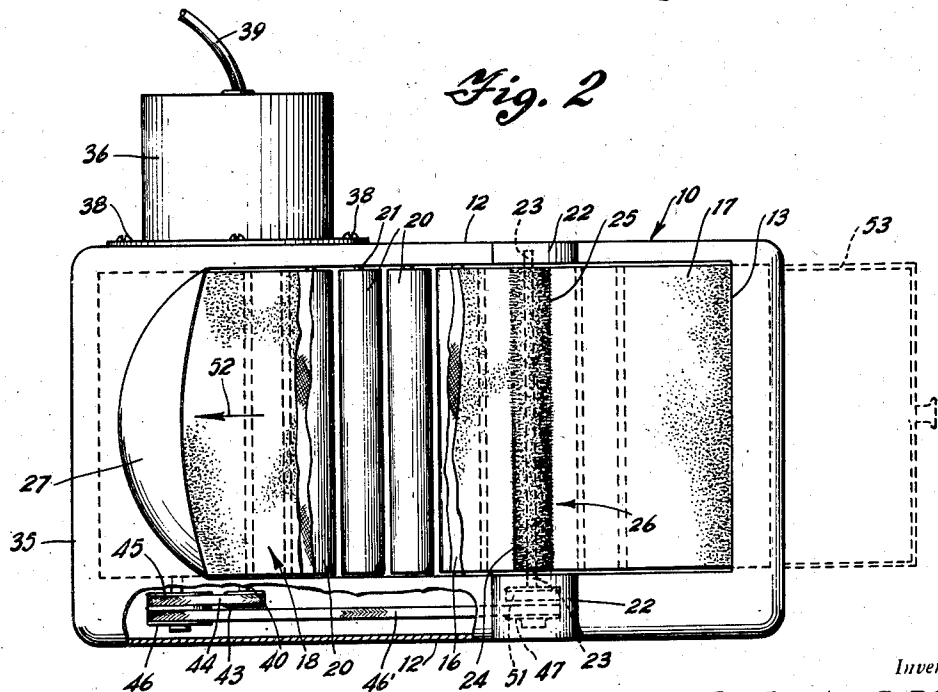


Fig. 2



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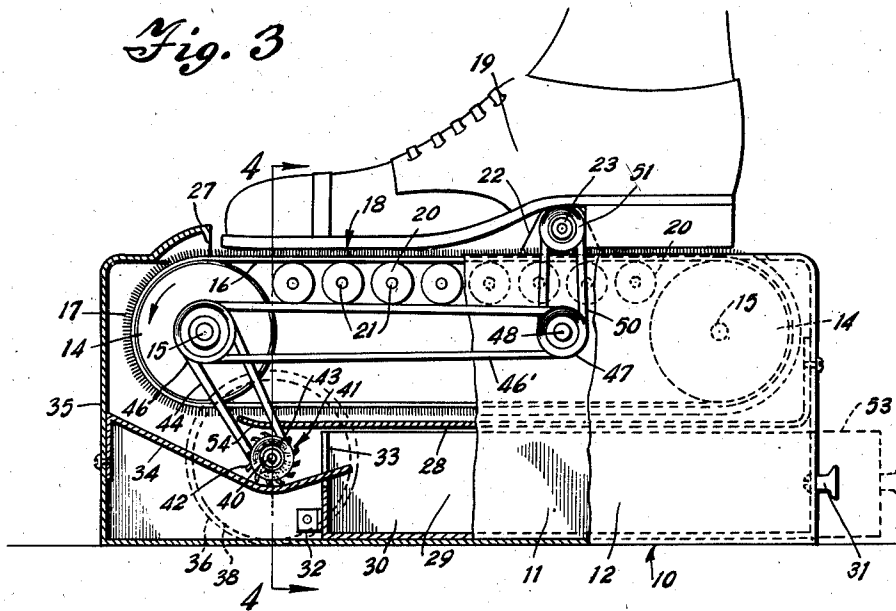
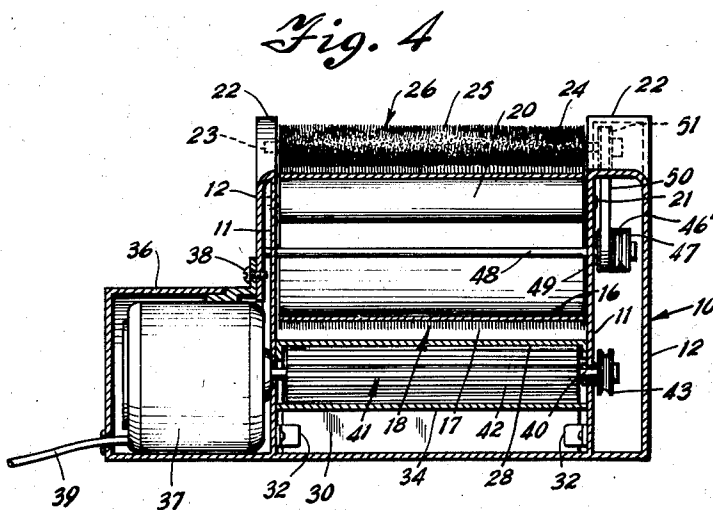
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BELT AND ROTARY BRUSHES FOR SHOE CLEANING

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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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BELT AND ROTARY BRUSHES FOR
SHOE CLEANING

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2 Claims. (Cl. 15—36)

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This invention relates to new and useful improvements and structural refinements in shoe cleaning devices, more particularly, to a device whereby mud, dirt, dust and the like, may be quickly and conveniently removed from the sole, heel, the sides and from the shank of the shoe, this operation being performed either when the shoe is being worn or when it is removed from the foot of the user.

A further object of the invention is to provide a shoe cleaning device in which means is provided for preventing undesirable dissipation of such dirt, etc., while the shoe is being cleaned, by collecting the same in a suitable dust receptacle from which it may be subsequently emptied.

Another object of the invention is to provide a cleaning device to which the shoe may be readily and comfortably applied and which is actuated by means of an electric motor provided therein.

An additional object of the invention is to provide a cleaning device which is of simple construction and which cannot easily become damaged.

With the above more important objects in view, and such other objects as may become apparent as this specification proceeds, the invention consists essentially of the arrangement and construction of parts as illustrated in the accompanying drawings, in which:

Figure 1 is a perspective view of the invention;

Figure 2 is a plan view thereof, partially broken away to reveal its construction;

Figure 3 is a side elevation of the same, also partially broken away, and

Figure 4 is a cross-sectional view, taken in the plane of the line 4—4 in Figure 3.

Like characters of reference are used to designate like parts in the specification and throughout the several views.

Referring now to the accompanying drawings in detail, the invention consists of a box-like housing designated by the general reference numeral 10, the same being provided on the longitudinal sides thereof with the inner and outer side walls 11 and 12 respectively.

The upper end of the housing is formed with an opening 13, and a pair of end rollers 14 are positioned on the shafts 15, the latter in turn being rotatably journaled in the sides 11 adjacent to the opening 13.

An endless belt 16 passes around the rollers 14 and is provided on the outer surface thereof

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with the bristles 17, thus constituting a movable brush designated generally by the reference character 18. A portion of this brush is exposed through the opening 13 and defines a shoe receiving platform on which the shoe 19 may be positioned, as is best illustrated in the accompanying Figure 3.

This platform is reinforced on the underside thereof with a plurality of supporting rollers 20, the same being rotatably positioned on suitable shafts on pins 21 extending through the housing sides 11.

The upper end of the housing 10 is also formed with an aligned pair of hollow bearing blocks 22, in the inner surfaces of which is journaled a shaft 23. The latter carries a roller 24 provided on the periphery thereof with the bristles 25, the same constituting a rotatable brush designated by the general reference character 26. It will be noted that the bristles of this roller or brush are in contact with the bristles 17 of the brush 18.

The upper end of the housing is also provided with a dust pick-up scoop 27 extending transversely across one end of the opening 13, the purpose of the scoop being hereinafter more fully set forth.

A partition 28 is provided to form a dust collecting chamber 29 in the lower portion of the housing 10, and a removable drawer-like pan or receptacle 30 is positioned in this chamber, as will be clearly apparent from the accompanying drawings. The outer end of the pan is provided with a suitable pull-knob 31, and a pair of angle brackets 32, secured to the side walls 11, prevent the drawer from being pushed too far into the housing 10. The inner end of the pan 30 is formed with an opening 33 and a deflector plate 34, secured to the end wall 35 of the housing, is angulated substantially as shown and extends into the pan 30 through the opening 33, as is best illustrated in Figure 3.

A suitable casing 36, containing an electric motor 37, is secured to one of the side walls 12 by means of the bolts 38, the motor being provided with a current conductor 39 and on the armature thereof, with an extension shaft 40. The latter carries an exhaust fan designated generally by the reference numeral 41, the same consisting of a plurality of elongated, transversely arcuated blades 42, secured by their longitudinal edges to the shaft 40 and extending radially therefrom.

The shaft 40 also carries a grooved pulley 43 which is connected by means of an endless belt

or cord 44 to a further pulley 45 positioned on one of the aforementioned shafts 15. The latter carries an additional pulley 46 connected by the belt 46' to a pulley 47, this being positioned on a shaft 48 journaled in the side walls 11. The shaft 48 in turn carries a further pulley 49, connected by the belt 50 to a pulley 51 on the shaft 23 of the aforementioned rotatable brush 26. It will be apparent that in this manner, rotation of the motor 37 will result in concurrent rotation of the fan 41, the roller brush 26 and one of the rollers 14, the latter in turn, imparting movement to the movable brush 18. Rotation of the motor 37 is such that the brush 18 moves in the direction of the arrow 52.

Having thus described the constructional details of the invention, its method of operation will now be presented.

When the invention is placed in use, the shoe 19 (while worn or removed from the foot) is placed on the platform constituted by the portion of the movable brush 18 exposed through the opening 13, as is illustrated in the accompanying Figure 3.

The rotation of the motor 37 will move the brush 18 as has been already described, so that dust, dirt, mud and the like will be removed from the sole and the heel of the shoe. By turning the shoe over from side to side, the sides thereof may be cleaned in this same manner.

The rotating brush 26 may effectively be used to clean the upraised shank of the shoe, and it will be noted that the supporting rollers 20 will reinforce the brush 18 to a sufficient extent, so that the shoe may be brought firmly in contact with the brush.

The dirt, etc., removed by cleaning will be deposited on the brush 18, including the dirt removed by the brush 26. In effect, the latter will be continually cleaned by the contacting bristles 17 and 25, and the dirt accumulated on the brush 18 will be carried toward the scoop 27.

Concurrent with the brushing action, the rotating fan 41 will create a partial vacuum in the vicinity of the scoop, so that the dirt, dust, and the like, will be drawn therein and over the deflector 34 into the dust pan 39. The latter may be periodically cleaned by simply withdrawing the same from the housing 10, as indicated by the phantom lines 53.

If desired, the end of the portion 28 may be upturned as at 54, to contact the bristles 17, thereby "scraping," so to speak, any dirt such as may still remain on the brush 18 at that stage.

While in the foregoing there has been shown and described the preferred embodiment of this invention it is to be understood that minor changes in the details of construction, combination and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as claimed.

What I claim as my invention is:

1. In a shoe cleaning device, the combination of a substantially horizontal endless belt brush, a rotary cylindrical brush mounted in an exposed position along the upper run of said belt brush and engaging the upper surface thereof, said cylindrical brush having a diameter substantially equal to the height of the heel of a shoe to be cleaned, and means for rotating said cylindrical brush and driving said belt brush at relatively different surface speeds whereby both the front vertical surface of the heel and the under surface of the arch of the shoe are cleaned by said cylindrical brush, the bottom of the sole and heel are cleaned by the belt brush, and said cylindrical brush and said belt brush mutually clean each other.

2. In a shoe cleaning device, the combination of a substantially horizontal endless belt brush, a rotary cylindrical brush mounted in an exposed position along the upper run of said belt brush and engaging the upper surface thereof, said cylindrical brush having a diameter substantially equal to the height of the heel of a shoe to be cleaned, and means for rotating said cylindrical brush and driving said belt brush at relatively different surface speeds and in relatively opposite directions at their point of contact whereby both the front vertical surface of the heel and the under surface of the arch of the shoe are cleaned by said cylindrical brush, the bottom of the sole and heel are cleaned by the belt brush, and said cylindrical brush and said belt brush mutually clean each other.

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