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AUTOMATIC SHOE WIPER
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Fig. 1

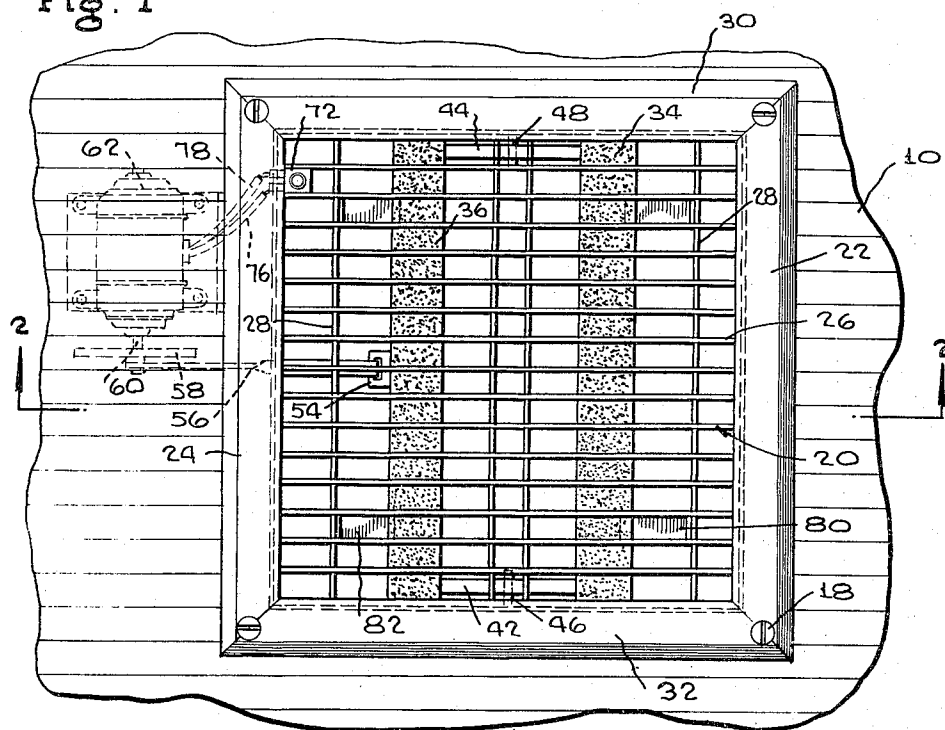


Fig. 2.

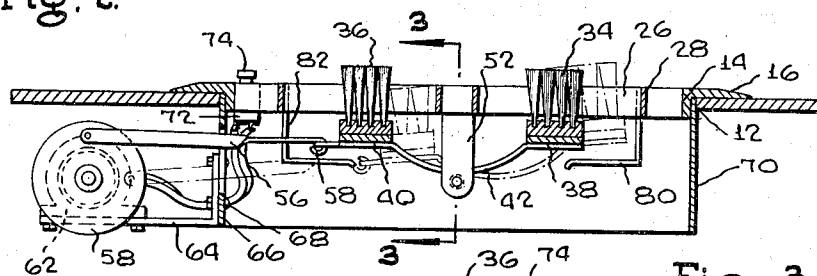
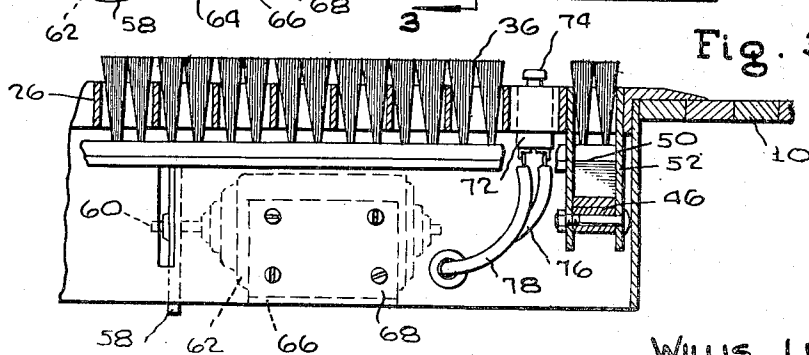


Fig. 3



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AUTOMATIC SHOE WIPER

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3 Claims. (Cl. 15—37)

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This invention appertains to improvements in devices for automatically wiping the soles of shoes or boots and has for its primary object to provide an efficient and compact cleaner, which consists of a grid enclosing an opening, formed in the floor of a porch, entrance hall or the like, brush units being rockably mounted in the opening and adapted to oscillate upwardly and downwardly through the grid to engage the soles of the shoes of a wearer, standing on the grid.

Another object of this invention is to provide a motor driven shoe wiper or cleaner, the motor being operated by a push button switch, which can be actuated by the feet of a user, preparatory to standing on the grid.

These and ancillary objects and structural features of merit are attained by this invention, the preferred embodiment of which is set forth in the following description and illustrated in the accompanying drawing, wherein:

Figure 1 is a top plan view of a fragmentary portion of a floor, with a shoe cleaner or wiper, constructed in accordance with the principles of this invention, being operatively mounted in an opening formed therein;

Figure 2 is a longitudinal vertical sectional view taken on line 2—2 of Figure 1, and,

Figure 3 is a fragmentary transverse sectional view taken on line 3—3 of Figure 2.

Referring now more particularly to the accompanying drawing, a portion 10 of a conventional flooring is illustrated, the same being formed with an opening 12, within which the open rectangular frame 14 is vertically disposed. The frame is formed with a horizontal mounting flange 16, which extends laterally from the upper edge of the frame and overlies the bounding edges of the floor. The mounting flange is fixed to the floor by suitable headed fasteners 18.

A grill or grid 20 is formed between the sides 22 and 24 of the frame, the grid including a plurality of vertically arranged bars 26, which are disposed in spaced relation and have their opposing ends fixed to the frame sides 22 and 24. Rigidifying bars or brace bars 28 are disposed between the frame sides 30 and 32, transversely to the bars 26 and in spaced relationship.

Elongated brushes 34 and 36 are disposed transversely between the frame sides 30 and 32, with the bristles being interposed between the grid bars 26, as seen in Figure 3. Backing plates 38 and 40 are fixedly superimposed on the heads of the brushes and U-shaped mounting arms 42 and 44 have their opposing ends formed integral with the backing plates 38 and 40, as seen in

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Figure 2. The arms retain the brushes in spaced parallel relation and mount the arms for oscillatory movement, so that each brush head moves in an orbit path and a figure eight motion is obtained.

In this respect, rollers 46 and 48 seat the arms 42 and 44, the rollers being transversely disposed between the lower ends of a pair of supporting plates 50 and 52. The upper ends of the plates are fixed to the sides 30 and 32 of the frame and to the adjacent grid bar of the grid 20. Thus, the arms are mounted on the rollers and a rocking motion is obtained, as the arms are reciprocated in a direction transverse to the longitudinal axis thereof.

An apertured tongue 54 extends laterally from the head of the brush 36 and is connected to an operating link 56 by a hook 58, which is formed integral with the link. The link 56 is pivoted to an eccentric 58, which is circumposed on the armature shaft 60 of an electric motor 62 and is reciprocated by the motor to effect a consequent reciprocatory movement of the brushes. The motor 62 is mounted on a supporting plate 64, which is provided with an upstanding mounting flange 66. The mounting flange 66 is fixed to one side 68 of an open frame 70, which has its upper edge clamped between the edges of the opening and the frame 14. The frame 70 encompasses the brushes and serves to direct the dirt and other debris, brushed from the soles of the shoe, below the grid 20. Thus, the sides of the frame, acting as baffles, prevent the dirt from swirling under the floor, at a point remote from the opening.

A switch 72, of the push button type, is mounted between the bars of the grid 20, adjacent to the sides 24 and 30 of the frame, with the button 74 extending upwardly above the coplanar upper edges of the grid bars 26. Insulated conductors 76 and 78 are connected to the contacts on the switch and to the motor, so that the motor can be easily activated by a user from a standing position.

Angular stops 80 depend from the brace bar 28, adjacent to the frame side 22, and confronting stops 30 depend from the brace bar 28, adjacent to the side 24 of the frame. The angular L-shaped stops are provided to limit the to and fro or reciprocatory movement of the brush heads, the brush heads being reciprocated in a path of motion parallel to the frame sides 30 and 32 and being vertically oscillated, due to the mounting of the arms 42 and 44 on the rollers.

In use, the button 74 is depressed to energize the motor 62 and the motor, through the eccen-

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trically mounted link 56 is operative to reciprocate the brushes 34 and 36. As the brushes are reciprocated, the arms 42 and 44 move on the rollers 46 and 48, so that each brush moves in an independent orbit to engage the wear surface of the wearer's shoes, as the wearer stands on the grid 20. Any dirt or other debris, brushed from the wear surface of the shoes by the brushes, will be directed downwardly through the grid work and, of course, the dirt may be suitably channeled or otherwise handled, so as to be removed by a disposer unit.

Having thus described this invention, what is claimed is:

1. A shoe wiper comprising an open frame including spaced parallel sides, a fixed grid extending between the sides of said frame, a pair of brushes arranged in horizontal parallel spaced relation between and transversely of the sides of said frame and below said grid and each having the brushes extending vertically through said grid, said brushes being connected to said frame sides for oscillatory and reciprocatory movement, and means operatively connected to one of said brushes intermediate its ends for oscillating and reciprocating said brushes simultaneously in one direction.

2. A shoe wiper comprising an open frame including spaced parallel sides, a fixed grid extending between the sides of said frame, a pair of brushes arranged in horizontal parallel spaced relation positioned between and transversely of the sides of said frame and below said grid and each having the brushes extending vertically through said grid, a rotatable roller positioned between said brushes and carried by each of the frame sides, said rollers being horizontally aligned, a U-shaped arm rollably arranged in a vertical plane and supported on each of said roll-

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ers and having one end fixedly secured to one of said brushes and having the other end fixedly secured to the other of said brushes, and reciprocating means operatively connected to one of said brushes intermediate its ends for reciprocating said brushes simultaneously in one direction.

3. A shoe wiper comprising an open frame including spaced parallel sides, a fixed grid extending between the sides of said frame, a pair of brushes arranged in horizontal parallel spaced relation positioned between and transversely of the sides of said frame and below said grid and each having the brushes extending vertically through said grid, a pair of spaced supporting plates positioned between said brushes and dependently carried by each of said frame sides, a rotatable roller carried by each pair of plates, said rollers being horizontally aligned, a U-shaped arm arranged in a vertical plane and extending between each pair of plates and rollably supported on the adjacent roller and having one end fixedly secured to one of said brushes and having the other end fixedly secured to the other of said brushes, reciprocating means operatively connected to one of said brushes intermediate its ends for reciprocating said brushes simultaneously in one direction.

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