A. C. GALES.

AUTOMATIC SHOE CLEANER.

APPLICATION FILED JUNE 15, 1920.

1,420,375. Patented June 20, 1922.

Fig. 1.

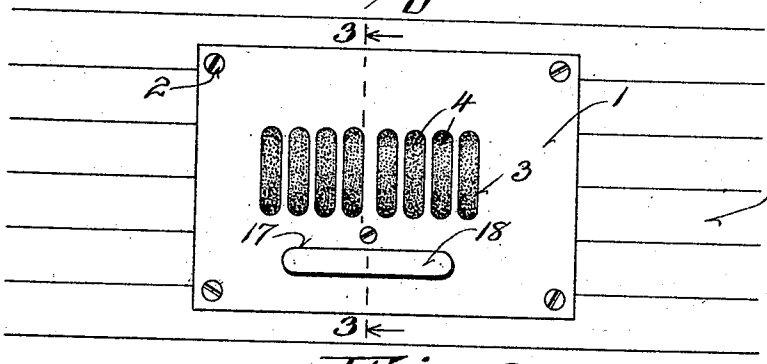


Fig. 2.

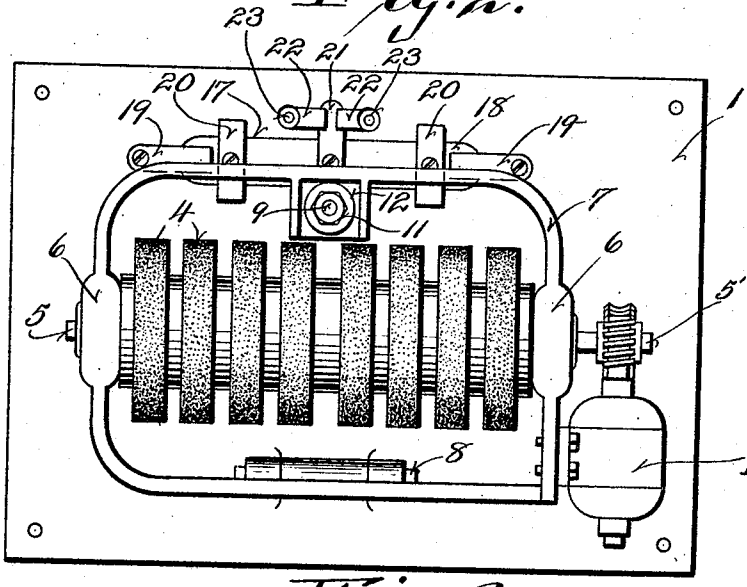
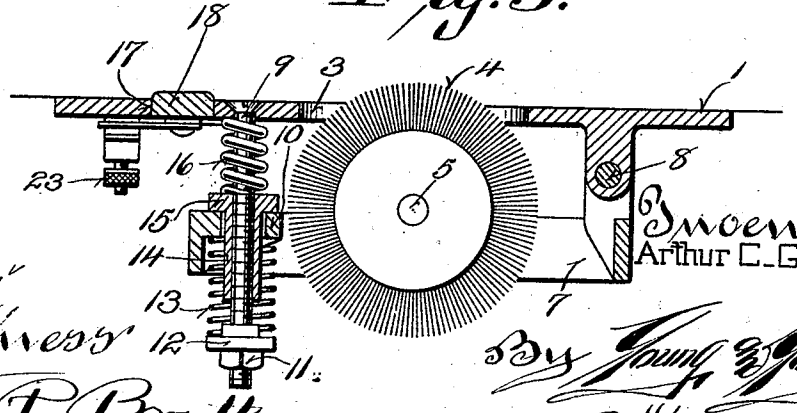


Fig. 3.



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AUTOMATIC SHOE CLEANER.

1,420,375. Specification of Letters Patent. **Patented June 20, 1922.**

Application filed June 15, 1920. Serial No. 389,084.

To all whom it may concern:

Be it known that I, ARTHUR C. GALES, a citizen of the United States, and resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Automatic Shoe Cleaners; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to new and useful improvements in cleaning devices and machines and has particular reference to a shoe cleaner.

The primary object of this invention is to provide a machine of this character which will be automatic in its action, that is to say will be caused to operate when the article to be cleaned is placed in juxtaposition with respect to the cleaning elements.

It is a further object of the invention to provide a machine of this character having a plurality of cleaning elements and provided with a guard means which will prevent portions of a shoe, for instance the heel, from getting caught in any part of the machine.

It is a further object of the invention to provide means whereby the cleaning elements in addition to having a yieldable action, may be readily adjusted to permit greater or lesser portions thereof to project through said guard means. A more specific object of the invention is to provide a machine of this character with an electrical driving mechanism which, while normally inactive, will become operative when a circuit is closed by the engagement of a portion of the article to be cleaned with a suitable switch.

Still another object of the invention is to provide a simply constructed, inexpensively and easily operated shoe cleaner which will be exceedingly efficient in operation.

With these objects in view the invention resides in the novel features of construction, combination and arrangement of parts which will be hereinafter more particularly described and claimed, and shown in the accompanying drawing wherein:

Figure 1 represents a plan view of the invention.

Figure 2 is a bottom plan view, and

Figure 3 is a transverse sectional view taken substantially on the plane of the line 3—3 of Figure 1.

This invention may be placed in any desired location, but is preferably inset into a floor or the like F so that the lower surface of the combined guard and supporting plate 1 is flush with the floor surface, this plate being removably secured in position by screws or the like 2. The cleaning elements and all of the necessary mechanism for operating the same are carried directly by this supporting plate 1 and normally disposed therebeneath as indicated in Figures 2 and 3. Said plate is provided with a longitudinal series of spaced parallel slots 3, the width of each of which is preferably less than the width of a shoe heel to guard against the likelihood of such a part being caught in the cleaning mechanism.

A cleaning element in the form of a circular bristle brush 4 is located beneath the plate 1 below each of the slots 3 in such a position as to permit portions of the bristles thereof to project through the slots and above the plane of the upper surface of said plate as indicated in Figure 3. These several circular brushes are mounted upon a single drive shaft 5, the opposite ends of which are journaled in bearings 6 carried by opposite sides of a substantially rectangular frame 7. One of the other sides of the frame 7 is hinged as at 8 to the under side of the supporting plate 1, while the opposite corresponding side is yieldably hung from the plate.

In other words a spring rod 9 depends below the plate 1 and extends through an ear 10 projecting from the last mentioned side of the frame 7, the lower end of this rod being screw threaded and receiving a nut 11 and a stop washer 12. An expansile coil spring 13 is disposed about the spring rod 9 between the ear 10 and said washer 12. The rod 9 also has threaded thereon a headed adjusting sleeve 14, the same being slidable through the opening in the ear 10 with the head thereof disposed thereabove. A second expansile coil spring 16 surrounds the rod between the head 15 and the under side of the supporting plate 1. As a result of this arrangement it is obvious that one side of the frame 7 may yield downwardly against the tension of the spring 13, but can be adjusted upwardly by rotating the sleeve 14 to compress the spring 16.

The circular brushes 4, all of which are secured upon the shaft 5, are rotated by an electric motor M hung upon the frame 7 in position to have its shaft geared to the projecting end 5′ of said shaft 5. Since it is

unnecessary to revolve the brushes 4 at all times, provision is made, as hereinbefore mentioned, for operating the motor M only when an article is being cleaned by the portions of the brushes projecting through the slots 3.

That is to say the plate 1 has an elongated slot 17 extending at right angles to the slots 3 and receiving a depressible switch plate 18, the same being yieldably held with its upper surface slightly above the plane of the upper surface of the plate 1 by means of spring supporting fingers 19. Transversely extending plates 20 carried by the switch plate 17 limit the upward movement of the latter. Also the switch plate 18 carries a movable contact 21 which bridges a pair of spaced stationary contacts 22 when the former is depressed. Circuit wires may be led from the binding posts 23 of the stationary contacts 22 to the motor M and to a suitable source of electric current.

In using the invention, it is obvious that the operator places the article to be cleaned, for instance a shoe, in such a position that a portion thereof will engage and depress the switch plate 17, while another portion is held in contact with the brushes 4.

By suitably shifting the shoe, the sole and sides thereof can be very efficiently and quickly cleaned by the rapidly revolving brushes. As soon as the shoe is removed from the plate 1 or out of contact with the switch plate 18, the electric circuit is broken and the operation of the motor is discontinued with a consequent cessation of the rotation of the brushes 4. Various changes may be made in the form and proportions of the different parts of the invention without departing from the principles thereof or sacrificing any of the advantages.

I claim:

1. In a cleaning machine of the class described, a supporting plate, a frame hinged to the plate and being yieldable with respect thereof, a cleaning element carried by the frame in position to be engaged by an article on the plate, an electric motor for moving the element and circuit closing means yieldably movable with respect to said plate for closing the circuit through the motor.

2. In a cleaning machine of the class described, a supporting plate having an opening therein, a frame yieldably carried by the plate, a rotary cleaning element carried by the frame and having a portion extended through the plate opening, an electric motor for revolving the cleaning element, and a circuit closing means operable for closing the circuit through the motor.

3. In a cleaning machine of the class described, a supporting plate having an opening therein, a frame hinged to the plate beneath the same, a rotary cleaning element carried by the frame and having a portion extended through the plate opening, electric means carried by the frame for revolving the cleaning element, and a circuit closing means located adjacent the cleaning element and operable by a portion of the article to be cleaned and during the cleaning thereof.

In testimony that I claim the foregoing I have hereunto set my hand at Racine, in the county of Racine and State of Wisconsin.

ARTHUR C. GALES.