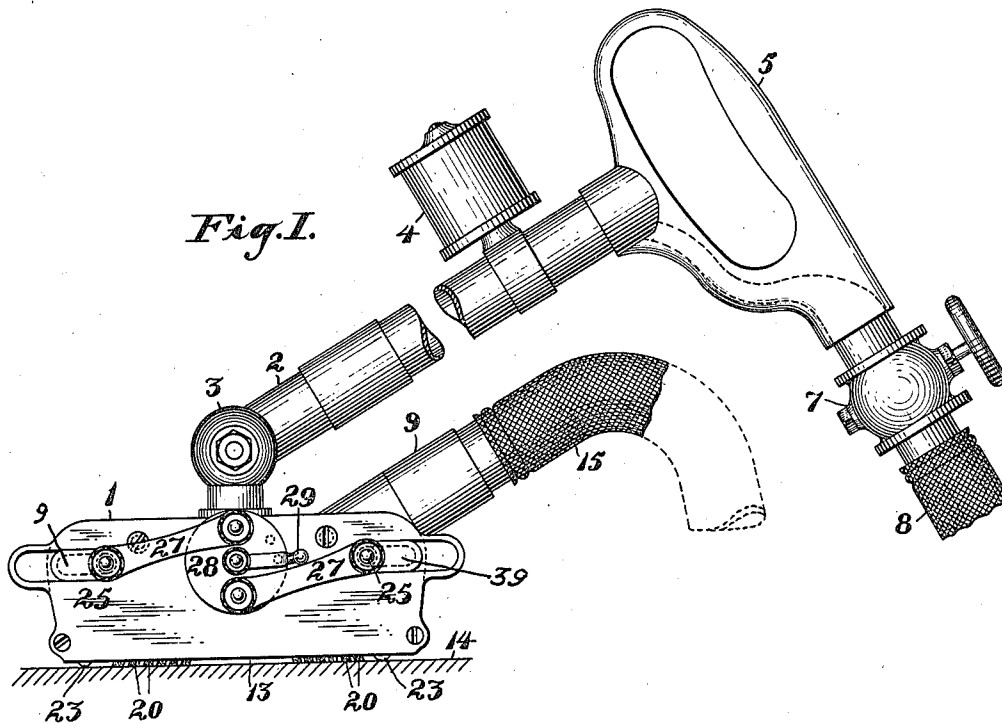


A. E. MOORHEAD.  
FLOOR CLEANSING APPARATUS.  
APPLICATION FILED OCT. 19, 1907.

Patented July 26, 1910.  
3 SHEETS—SHEET 1.

965,315.



Witnesses:

F. C. Fiedner  
A. A. Hammond.

Inventor,  
Albert E. Moorhead  
By Vernon E. Lodge  
his Atty.

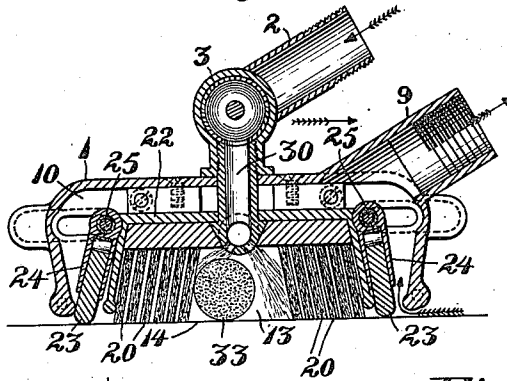
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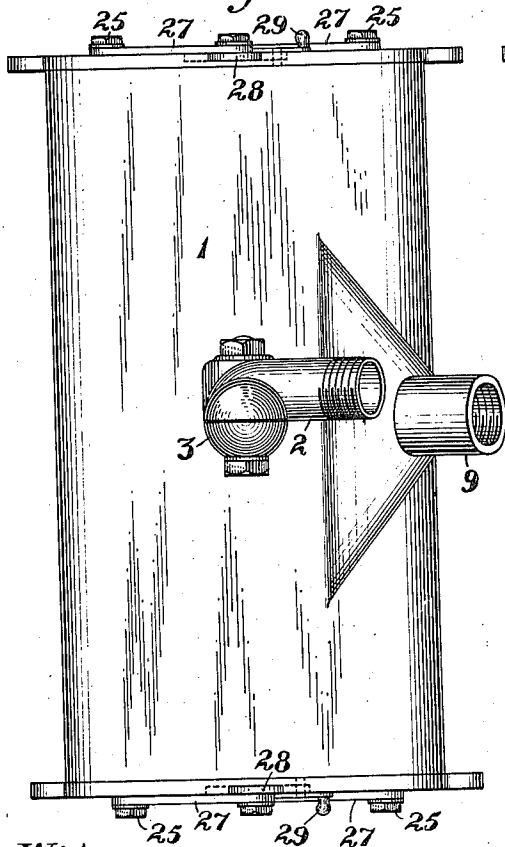
Patented July 26, 1910.

3 SHEETS—SHEET 2.

*Fig. II.*



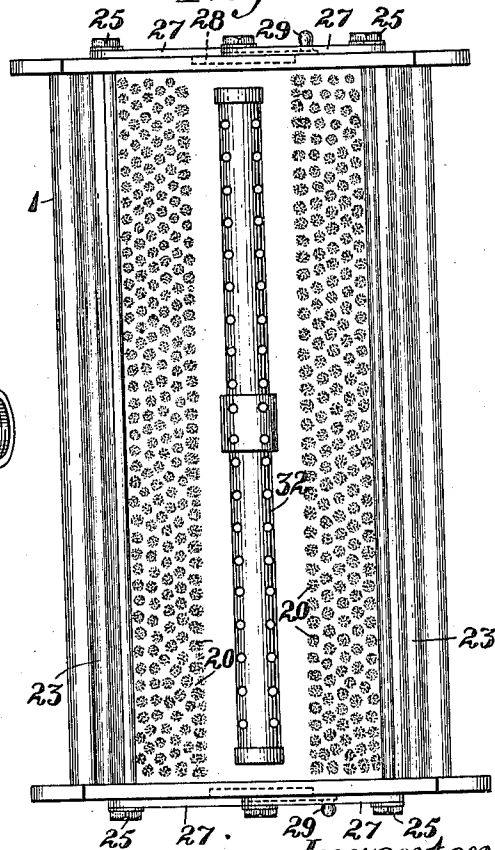
*Fig. III.*



Witnesses:-

*F. C. Fiedner*  
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*Fig. IV.*



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*Albert E. Moorhead*

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3 SHEETS—SHEET 3.

Fig.V.

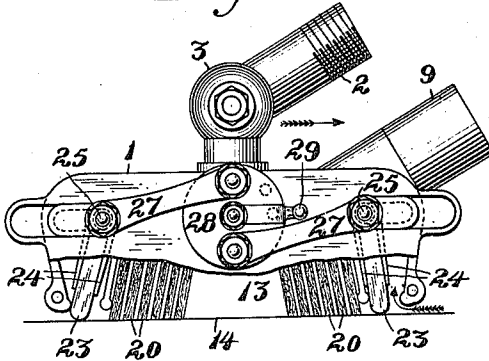


Fig.VI.

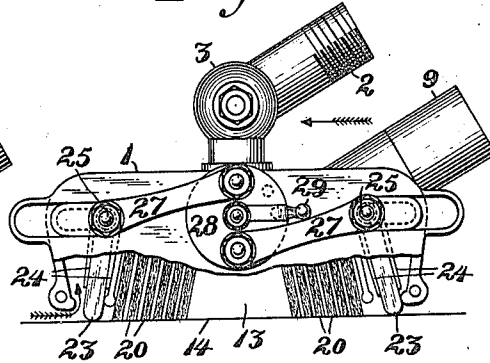


Fig.VII.

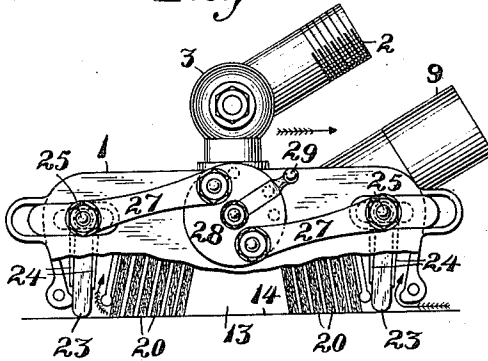


Fig.VIII.

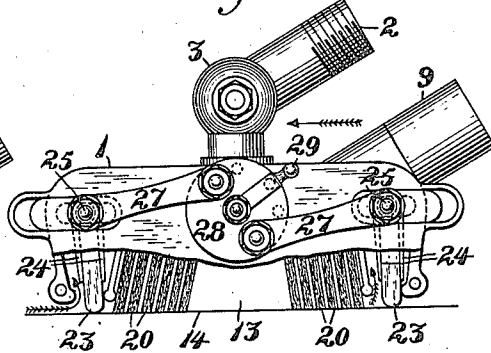


Fig.IX.

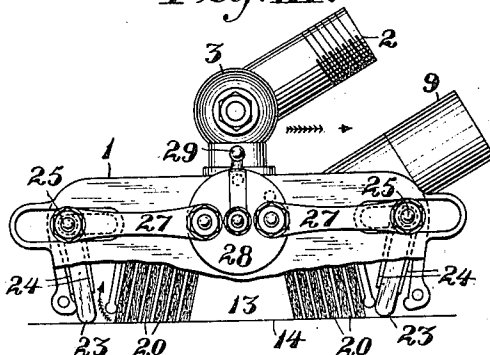
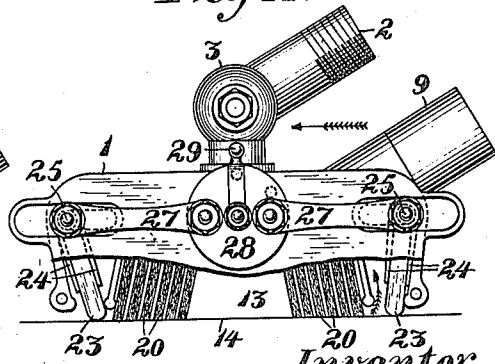


Fig.X.



Witnesses:

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W. A. Hammond.

Inventor:

Albert E. Moorhead  
By O. E. Hedges  
his Attorney

# UNITED STATES PATENT OFFICE.

ALBERT E. MOORHEAD, OF SAN FRANCISCO, CALIFORNIA.

## FLOOR-CLEANSING APPARATUS.

965,315.

Specification of Letters Patent. Patented July 26, 1910.

Application filed October 19, 1907. Serial No. 398,295.

*To all whom it may concern:*

Be it known that I, ALBERT E. MOORHEAD, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Floor-Cleansing Apparatus, of which the following is a specification.

This invention relates to floor cleansing apparatus and to certain improvements therein, especially directed to the operation called scrubbing.

The object of my invention is to rapidly and effectually cleanse floors of all kinds by washing, scrubbing and mopping without the usual labor and flooding with water that takes place in hand cleansing.

The improvements consist in a movable collecting device, hereinafter called a case, adapted to be impelled by hand over the surfaces of floors and to which is supplied water, and if required, disinfecting substances and soap and to which is connected a vacuum chamber and flexible conducting pipe, so that the foul water and impurities will be drained away and removed from the collecting case or operating device as fast as they accumulate, and conveyed to a suitable collecting tank or receiver with the required accessories to separate solid impurities from the spent water.

My improvements also include means for removing water from the floor immediately around and outside of the collecting case, so that such operation takes place by the movement of said case in either direction.

In the accompanying drawings, Figure 1 is a side view of one of my improved scrubbing devices showing the aqueous and pneumatic connections; Fig. 2 is a transverse section through the movable collecting device or case; Fig. 3 is a plan view of the same device; Fig. 4 is a view of the bottom of the same; Fig. 5 is a side view of the cleansing device shown as removing water from a floor on the back stroke, or toward the operator, as indicated by the arrows; Fig. 6 is a view of the same device shown as collecting water from a floor in front of the operator, or on a forward stroke, as indicated by the arrows; Fig. 7 is a view of the same device shown as moving to the right and draining water from a floor at one side, also from the interior chamber, as indicated by the arrows; Fig. 8 shows the reverse of Fig. 7 or showing the device mov-

ing to the left, as indicated; Fig. 9 is a view of the same device shown as moving to the right and draining water from the interior or brush chamber alone; Fig. 10 is a view of the same device shown moving oppositely to the movement of Fig. 9, or from the operator, as indicated by arrows.

The fixed portions of the apparatus, for creating a partial vacuum and draining the water from within and around the movable device or casing 1, are not herein shown but correspond in most of their features to a like device shown and described in Letters Patent No. 820,007, granted to me on the 8th day of May 1906 for an improved pneumatic cleansing apparatus, with the distinction, however, that the present devices relate mainly to the use of water and the former to the use of air.

1 indicates a casing, closed at the top, sides, and ends, and open at the bottom. To said casing water is supplied by a flexible hose 8 from any suitable source of supply of water under pressure, the water thus supplied passing through a stop valve 7, then through the hollow handle 5 of the apparatus, and then through a pipe 2, to which is connected a small receptacle 4, in which may be deposited soap, disinfectants, deodorizers, or other soluble substances, the water then passing through a flexible joint 3, and by a pipe 30 discharging into a pipe 32 extending centrally and longitudinally of the case, and formed with two rows of perforations, by which the water is discharged into a chamber 13 and on to the floor 14.

Within the casing 1 two brushes 20 are secured to the inside of an inner frame 22 which is secured by screws to the inside of the casing 1. Said brushes diverge slightly downward and rest in contact with the floor, as clearly shown in Fig. 2, in order to scour the floor thoroughly in the forward and backward motion of the casing 1 when scrubbing. The ends of the casing 1 are slotted to receive slides 39, which carry transverse rods 25. Upon said rods are loosely mounted clamps 24 which carry rubber wipers 23. Said wipers 23 are adjustable in position in the holders 24 in order to compensate for wear. To the ends of the rods 25 are attached links 27 which are fastened to disks 28, and, by means of a stop handle 29, can be set in any one of three different positions, as shown in Figs. 5, 7, and 9, which illustrate said positions of the

parts on a backward stroke, as do Figs. 6, 8, and 10 on a forward stroke, the adjustments being the same. Since the wipers are pendulously supported on the rods, they are moved by the friction with the floor 14 to the right or left, as the case may be, opposite to the course in which the scrubbing device is moving.

15 indicates a flexible hose connected at its outer end to a suitable suction device and at its inner end to a conduit 9 which enters obliquely into an interior chamber 10 of the casing 1. Said chamber 10 is in communication with the space at each side of the casing 1 between the interior of the side wall of said casing and the corresponding wiper holder 24. By the above described backward motion of the wipers 23 due to their friction with the floor, the wiper 23 on the rear side of the casing, having reference to the direction in which the casing is moving, is brought into contact with the lower edge of the rear side wall of the casing, closing the same, but the forward wiper 23, is, by said backward motion, withdrawn from the advancing side wall of the casing, as shown in Fig. 2, forming a suction inlet, through which the dirty water on the floor is drawn upward into the space between the wiper holder and the advancing side wall of the casing, thence into the chamber 10 and thence into the suction pipes 9 and 15. In the reverse motion, this latter wiper is dragged backward by friction with the floor, closing the former inlet opening, while the other wiper is withdrawn from the other side wall of the casing, creating an inlet, through which, in turn, the dirty water is sucked up into the chamber 10 and thence into the suction pipes 9 and 15. These pivoted wipers thus perform double functions, wiping and collecting water from the floor, and also acting as valves to control the entry of water into the chamber 10 and suction pipe 15.

When the handle 29 is in the position shown in Figs. 5 and 6, the passage to the chamber 10 from the part of the floor in contact with the brushes is closed by the wiper holders, and only the water outside of said wiper holders can pass into said chamber 10 and to the suction pipe 15.

When the handle 29 is set in an intermediate position, as shown in Figs. 7 and 8, the water on the front or advancing side of the scrubbing device can be sucked up only outside of the front wiper, and the water on the floor in contact with the brushes can be sucked up only inside the rear wiper, according to the direction in which the scrubbing device is moving.

When the handle 29 is in the position shown in Figs. 9 and 10, only the water within the wipers can be drawn up into the chamber 10 and into the suction tube 15.

As shown in Fig. 2, a roll or cylinder 33 of a soluble disinfectant substance, or of such substance combined with soap, may be placed between the brushes, said roll being gradually worn away by the motion of the apparatus and dissolved by the supply of water.

I claim:—

1. In a floor scrubbing device, a movable containing casing open at the bottom, brushes therein arranged to rest upon a floor, a perforated water pipe adapted to discharge water on the floor adjacent to said brushes, means to supply water thereto, and means to draw away the water from the floor adjacent to the brushes, substantially as described.

2. In a floor scrubbing device, a movable containing casing open at the bottom, brushes therein arranged to rest upon the floor, a perforated water pipe between said brushes adapted to discharge water on the floor adjacent to said brushes, means to supply water thereto, and means to draw away the water from the floor adjacent to the brushes, substantially as described.

3. In a floor scrubbing device, a movable containing casing open at the bottom, brushes therein arranged to rest upon a floor, a perforated water pipe adapted to discharge water on the floor adjacent to said brushes, means to supply water thereto, means to draw away the water from the floor adjacent to the brushes, and rubber movably-supported wipers outside said brushes, substantially as described.

4. In a floor scrubbing device, a movable containing casing open at the bottom, brushes therein arranged to rest upon a floor, a perforated water pipe adapted to discharge water on the floor adjacent to said brushes, means to supply water thereto, means to draw away the water from the floor adjacent to the brushes, and rubber movably-supported wipers outside said brushes, and arranged to be moved into contact with the sides of the casing, to act as valves to control communication with the interior of the casing, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALBERT E. MOORHEAD.

Witnesses:

JAMES MASON,  
M. V. COLLINS.