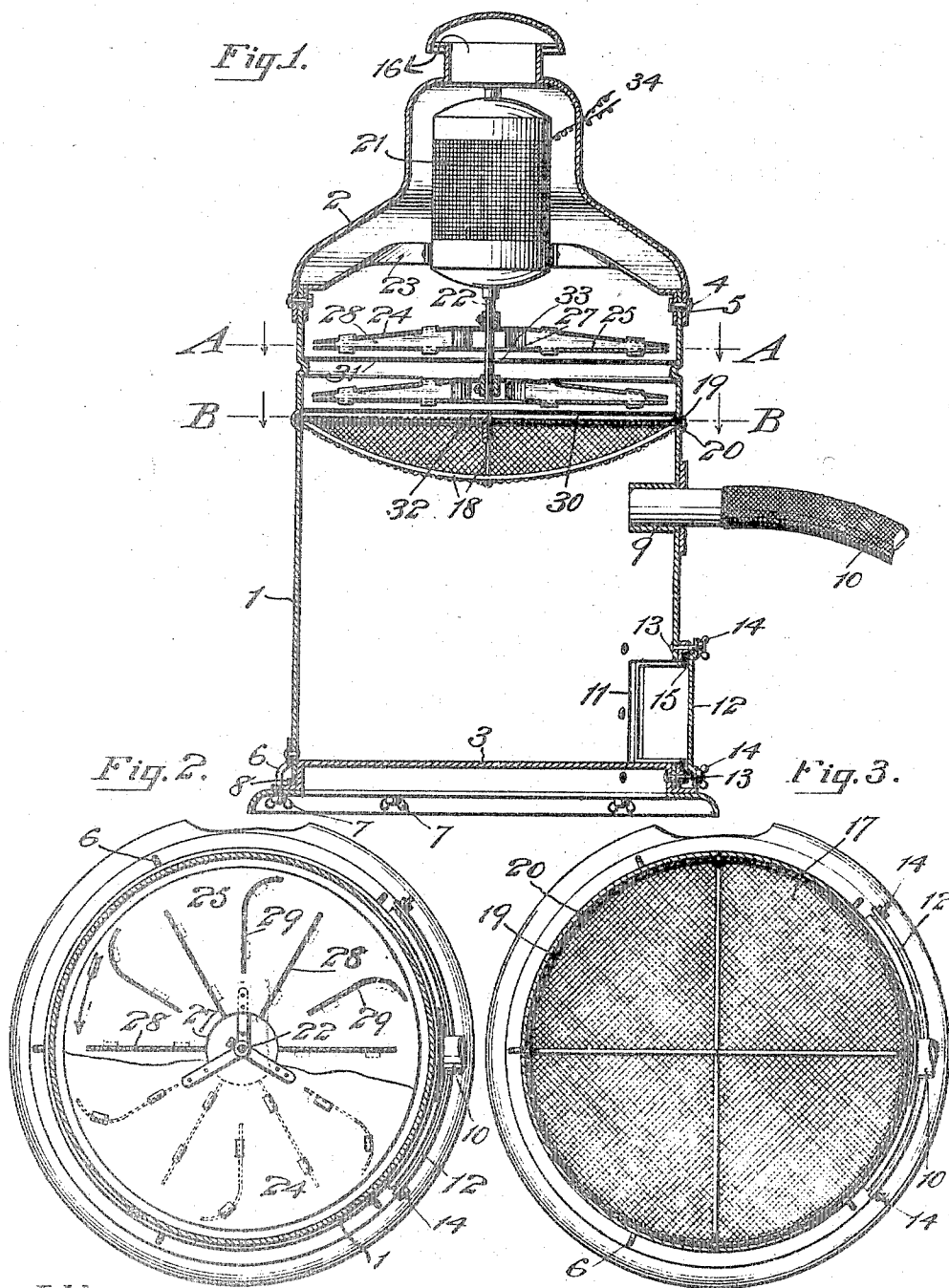


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EXHAUST FAN FOR VACUUM CLEANERS.

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Patented Dec. 11, 1917.



Witnesses:-
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UNITED STATES PATENT OFFICE.

WILLIAM H. UPTON AND OSCAR STOLP, OF NEW YORK, N. Y.

EXHAUST-FAN FOR VACUUM-CLEANERS.

1,249,692.

Specification of Letters Patent.

Patented Dec. 11, 1917.

Application filed October 5, 1912, Serial No. 724,124. Renewed May 8, 1917. Serial No. 167,370.

To all whom it may concern:

Be it known that we, WILLIAM H. UPTON and OSCAR STOLP, citizens of the United States, and residents of the borough of Manhattan, in the city and State of New York, have invented a new and useful Improvement in Exhaust-Fans for Vacuum-Cleaners, of which the following is a specification.

The object of our invention is to provide improved suction means and also to provide certain improvements in the construction, form and arrangement of the several parts of the machine whereby the machine is materially simplified and access to its interior facilitated, without impairing its efficiency. Some of the specific novel features of our invention are:—

The removal of the bottom of the vessel and its packed joint; the location of the dust removal opening substantially flush with the bottom of the vessel; the removable door therefor and the packed joint for the door; the shape, construction and mounting of the dust screen; the location and arrangement of the motor; and the location, form and arrangement of the exhaust fan or fans.

A practical embodiment of the invention is represented in the accompanying drawings, in which,

Figure 1 represents the machine in vertical central section,

Fig. 2 is a horizontal section taken in the plane of the line A—A of Fig. 1 and

Fig. 3 is a horizontal section taken in the plane of the line B—B of Fig. 1.

The dust collecting vessel comprises a vertically arranged cylindrical body portion 1, a top 2 and a bottom 3. The top 2 is removably secured to the body portion 1, by suitable means, such as bolts and nuts 4 and 5. The bottom 3, is removably secured to the body portion 1, by suitable means, such for instance, as bolts and nuts 6 and 7. A packing 8 is located at the joint between the body portion 1 and the bottom 3, for preventing the passage of air therethrough. The vessel is provided with a dust and air inlet opening 9, which may be connected to a suitable nozzle, not shown herein, through a pipe connection 10. This vessel is furthermore, provided with a dust removal opening 11, located substantially flush with the bottom 3, for facilitating the removal of the dust and dirt from the vessel. A door 12 is provided for this opening 11, which door is re-

movably secured in position by suitable means, such as bolts and nuts 13 and 14. A packing 15 for the door is provided to prevent the passage of air therethrough. The top 2 is provided with an air outlet opening 16.

The dust screen is composed of a cloth 17 stretched over a wire frame, comprising bowed cross pieces 18 and a circular piece 19. This screen is removably sprung into its position horizontally across the body portion 1 of the vessel, by providing the said body portion with an annular groove 20 arranged to receive the periphery of said screen. This screen is placed within the vessel with its convex face pointing downwardly. This screen divides the vessel horizontally into upper and lower chambers, the lower chamber being devoted to the collection of dust and the upper chamber being devoted to the housing of the motor and exhaust fans.

The motor 21 is mounted with its shaft 22 arranged vertically and centrally within the upper chamber of the vessel. The means which we have shown for supporting the motor in this position, comprises bracket arms 23 secured to the motor and also to the body portion 1. The top 2 is of such size as to permit a free escape of the air upwardly past the motor and out through the outlet opening 16.

One or more exhaust fans are carried by the motor shaft 22. In the present instance, we have shown two of these fans, but it is to be understood that a greater or lesser number may be employed if so desired. This fan comprises upper and lower disks 24, 25, diverging from their peripheries toward their centers; one of said disks, in the present instance the lower disk, having a central opening 27, said disks being spaced apart by alternating straight and curved vanes 28, 29, the vanes 28 extending from the central opening 27, outwardly to points a short distance inwardly from the periphery of the fan and the curved vanes 29 extend inwardly from points in close proximity to the periphery to points a distance from the said central opening. This arrangement of these vanes and disks produces a fan having an enormous capacity for exhausting air.

A horizontally arranged diaphragm 30 is secured within the vessel below and in close proximity to the lower exhaust fan and a similar diaphragm 31 is secured with-

in the vessel below and in close proximity to the upper fan. These diaphragms have central holes 32, 33 respectively for the passage therethrough to the under side of the fans. By making the dust screen downwardly convexed, we are enabled to provide a substantial air space between the screen and the lower diaphragm 30.

The motor is herein shown as an electric motor, connected to a source of energy, not shown, through the conducting wires 34.

In operation, when the motor is operated, the fans carried thereby exhaust the air from within the vessel, thus drawing the dust and dirt into the lower chamber. When desired, the door 12 may be removed for removal of the dust and dirt.

When it is desired to gain access to the interior of the vessel for thorough cleaning, the bottom 3 may be removed; also the top 2 and the screen and diaphragms as well as the motor.

It is evident that various changes might be resorted to in the construction, form and arrangement of the several parts without departing from the spirit and scope of our invention, hence we do not wish to limit ourselves strictly to the form shown and described, but

What we claim is:

1. An exhaust fan for vacuum cleaners comprising horizontally arranged upper and lower disks, the lower disk having a cen-

tral opening, radially straight vanes interposed between the disks and extending outwardly from the central opening to points within the periphery, and vanes having radially straight inner ends between aforesaid vanes and spaced a distance from the opening and curved outer ends extending to points nearer the periphery than the said radially straight vanes.

2. An exhaust fan for vacuum cleaners comprising horizontally arranged upper and lower disks gradually diverging from the periphery to the center, the lower disk having a central opening, radially straight vanes interposed between the disks and extending outwardly from the central opening to points within the periphery, and vanes having radially straight inner ends between aforesaid vanes and spaced a distance from the opening and rearwardly curved outer ends extending to points nearer the periphery than the said radially straight vanes.

In testimony that we claim the foregoing as our invention, we have signed our names in presence of two witnesses, this second day of October 1912.

WILLIAM H. UPTON.
OSCAR STOLP.

Witnesses:

F. GEORGE BARRY,
OTTO W. HOLMGREN.