

J. S. THURMAN.
DUST RECEPTACLE.
APPLICATION FILED MAY 24, 1909.

951,624.

Patented Mar. 8, 1910.

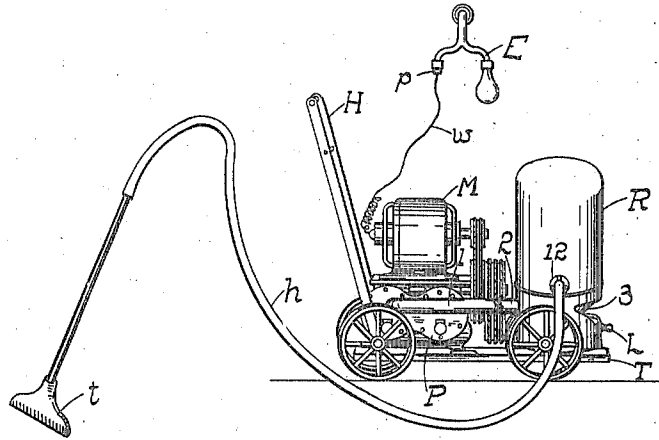


FIG. 1.

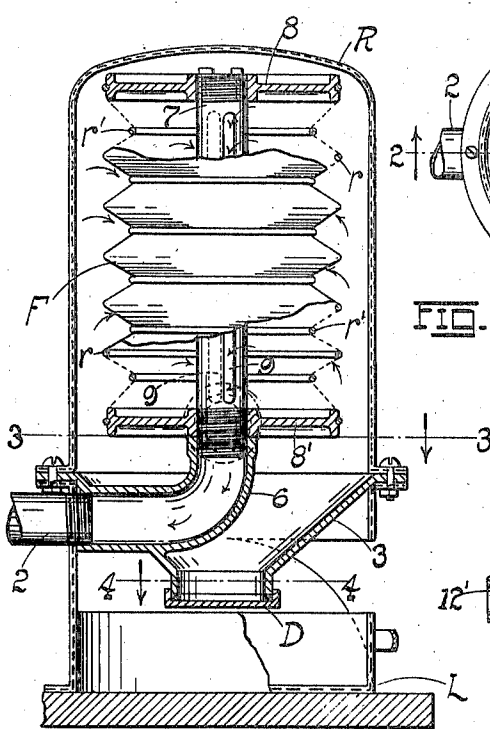


FIG. 2.

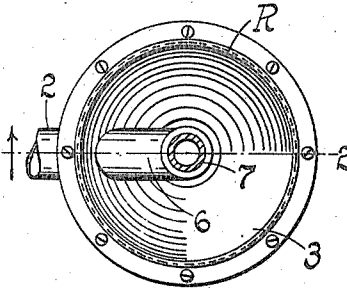


FIG. 3.

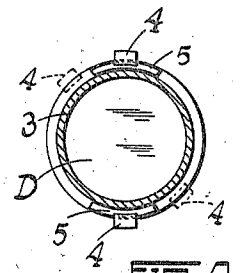


FIG. 4.

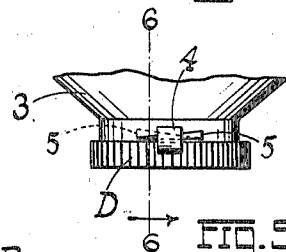


FIG. 5.

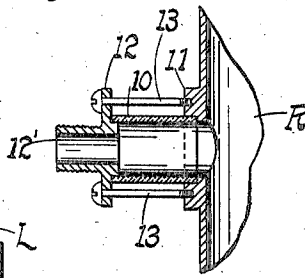


FIG. 7.

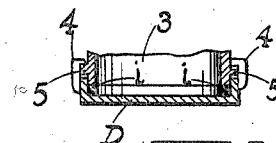


FIG. 6.

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DUST-RECEPTACLE.

951,624.

Specification of Letters Patent.

Patented Mar. 8, 1910.

Original application filed August 1, 1908, Serial No. 446,463. Divided and this application filed May 24, 1909. Serial No. 497,953.

To all whom it may concern:

Be it known that I, JOHN S. THURMAN, citizen of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Dust-Receptacles, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention has relation to improvements in dust-receptacles for electrically operated vacuum-cleaners; and it consists in the novel details of construction more fully set forth in the specification and pointed out in the claims.

In the drawings, Figure 1 is a perspective showing the application of my invention; Fig. 2 is a vertical middle section of the dust-receptacle taken on the line 2—2 of Fig. 3; Fig. 3 is a horizontal section on the line 3—3 of Fig. 2; Fig. 4 is a horizontal section on the line 4—4 of Fig. 2 taken through the base of the hopper of the receptacle; Fig. 5 is a side elevation of the base of the hopper of the receptacle; Fig. 6 is a vertical transverse section on the line 6—6 of Fig. 5; and Fig. 7 is an enlarged middle section of the glass tube or cylinder for observing the dust as it passes into the receptacle.

The present is a division of my pending application Serial Number 446,463, filed Aug. 1, 1908, for electrically driven vacuum cleaner, being confined to the receptacle proper.

It has for its object to provide a dust-receptacle for house-cleaning systems which will insure a maximum exhaust for the limited power available in the ordinary incandescent electric-lamp socket supplying the energy to the motor for the vacuum pump.

A further object is to eliminate from the construction of the pump both fans and bellows.

A further object is to provide a receptacle wherein the course taken by the dust-laden air will insure perfect filtering thereof before the same is discharged into the room or open space in which the apparatus may be located.

A further object is to make suitable provision for observing the passage of the dust into the receptacle.

The invention embodies however, other

and further details the advantages of which will be readily apparent from a detailed description thereof which is as follows:—

Referring to the drawings T, represents a truck of any convenient design adapted to be wheeled about the premises by a handle or frame H hinged at one end thereto. Mounted at the front of the truck is an electric motor M to which the necessary current may be conducted by a wire *w* leading from a plug *p*. The motor-shaft is geared in any mechanical manner to the shaft of the double-cylinder vacuum pump P, the exhaust pipes 1 of which terminate in an intake leg or pipe 2 directly connected to the air-discharge opening of the dust-receptacle R. Since the pump is not herein claimed no detailed description thereof is necessary.

The upper portion or tank of the dust receptacle is preferably of pressed steel, and rests on the tank-bottom comprising a conical hopper 3 having a central discharge mouth closed by a door D, below which is a dust-pan L. The door is provided with a pair of diametrically disposed claws 4, 4, which, by a turning of the door in proper direction about its vertical axis, ride up the inclined faces of the wedges or keepers 5, 5, carried by the walls of the hopper mouth, and thereby force the door against the rubber gasket *i* as shown (Fig. 6) thus insuring a tight joint. By simply giving the door a turn in reverse direction, a sufficient distance to disengage the claws from the wedges, the door may be removed and the contents of the receptacle be allowed to drop into the pan L.

Formed integrally with the hopper base of the dust receptacle (and virtually an extension of the air eduction leg 2 coupled thereto) is an upwardly extending elbow 6 to the upper and inner terminal of which is screwed the base of the filter-supporting pipe 7, to whose upper end is screwed the upper terminal head or disk 8, and to the lower end of which is screwed the lower head or disk 8' of a filter or screen F composed of a suitable cloth covering secured to a series of alternately large and small rings *r*, *r'*, the pipe 7 being provided with elongated slots or openings 9 for the passage of the filtered air therethrough from the tank to the pump. The inner end of the elbow 6

terminates along the vertical central axis of the receptacle, so that it serves to center the filter within the receptacle, leaving an annular space between the filter and the receptacle walls for the free passage of the dust-laden air.

It will be seen that the air-discharge elbow 6 of the bottom of the dust-receptacle conducts the air which is drawn into the receptacle, out of the receptacle near the bottom of the latter, this character of flow tending to precipitate the dust toward the bottom and into the hopper 3 where it naturally should collect. Again, the annular space between the filter F and the walls of the receptacle R being considerably constricted by reason of the large cross-sectional diameter of the filter, restrains the air more or less in its passage through the filter, and hence affords ample time for the dust to precipitate itself into the hopper rather than penetrate the fabric of the filter.

Tapping the walls of the receptacle immediately above the hopper 3, and substantially ninety degrees from the air discharge therefrom is a transparent or glass dust-display tube 10 secured in position between the flanged heads 11, 12, tied by screws 13 passed through the flanges, the head 11 being secured to the receptacle wall, and the head 12 being provided with a screw-nipple 12' to which one end of the suction or line-hose *h* is secured, the opposite end of the hose being connected to the suction-head or renovating tool *t* (Fig. 1). The transparent character of the display tube 10 allows the operator to inspect the dust as it is drawn into the receptacle, and affords him the opportunity of judging when the cleaning operation is concluded.

The operation of the invention will be readily understood. The plug *p* is connected to any convenient electric-light socket or equivalent fixture E, whereupon the motor M is at once set into motion and the vacuum pump P operated. This draws the air into the receptacle through the tool *t* and line-hose *h*, the air being sucked through the filter F, pipe 7, elbow 6, leg 2 and into the vacuum pump whence it is discharged in a way well known in the art. The air thus drawn through the apparatus (see arrows Fig. 2) leaves behind its impurities or dust and dirt, which drop to the bottom of the receptacle R into the hopper 3 whence it may be removed by the opening of the door D and caught in the dust-pan L.

So far as concerns the receptacle R, it is apparent that the pump therefor need not necessarily be "electrically operated," any kind of motor being possible of application. Of course for house cleaning purposes, an electric motor is most convenient. In lieu of a "pump," any equivalent exhaustor may

be substituted, a vacuum pump constituting of course, one species of exhaustor.

Having described my invention, what I claim is:—

1. In a vacuum cleaner, a dust-receptacle having a compartment adapted to be brought in communication with the induction or intake end of a vacuum pump, a conical hopper at the bottom of said compartment, said intake end being extended in elbow form upwardly through the hopper and terminating along the vertical axis of the compartment aforesaid, the hopper having a discharge mouth below the elbow, a peripherally slotted tubular extension coupled to the elbow, heads or disks at opposite ends of the extension, a filter disposed about the extension between the heads, the walls of the receptacle being provided with an opening at a point above the hopper whereby the same may be coupled to a line-hose for conducting a current of air in response to the suction created by the pump.

2. In a vacuum cleaner, a dust receptacle having a compartment adapted to be brought into communication with the intake of an exhaustor, a conical hopper at the bottom of said compartment, said intake being extended in elbow form upwardly through the hopper into the base of the compartment aforesaid, the hopper having a discharge mouth below the elbow, a tubular extension having peripheral openings, coupled to the elbow, heads at opposite ends of the extension, a filter disposed about the extension between the heads, the walls of the receptacle being provided with an opening at a point adjacent to the hopper whereby the same may be coupled to the line-hose for conducting a current of air in response to the exhaustor.

3. In a vacuum cleaner, a receptacle having a compartment adapted to be brought in communication with the intake end of a vacuum-pump, a conical hopper at the bottom of said compartment, said intake end being extended in elbow-form upwardly through the hopper and terminating along the vertical axis of the compartment aforesaid, the hopper having a discharge mouth below the elbow, a peripherally slotted tubular extension coupled to the elbow, disks or heads at opposite ends of the slotted extension, a filter disposed about the extension between the heads and forming a constricted passage with the walls of the compartment, the latter having an opening formed in the wall thereof at a point above the hopper whereby the same may be coupled to a line-hose.

4. In combination with a receptacle having an outlet opening formed in the wall thereof, an eduction pipe exerting a draft on the contents of the receptacle, said pipe

being extended through the center of the receptacle from the bottom to a point near the top thereof and suitable provision for discharging the contents of the receptacle
5 from a point below the eduction pipe.

5. In a vacuum cleaner, a receptacle having an eduction upwardly-turned elbow terminating on the axis of the receptacle and provided with a discharge hopper below
10 said elbow, said hopper having a discharge mouth at the bottom thereof, a tube extending from the elbow to the upper portion of the receptacle, and having peripheral openings, heads at opposite ends of the tube, and
15 a filter stretched between the heads.

6. In a vacuum-cleaner, a receptacle having an eduction upwardly-turned elbow ter-

minating on the axis of the receptacle and provided with a discharge hopper below said elbow, said hopper having a discharge mouth
20 at the bottom thereof, a tube extending from the elbow to the top of the receptacle and provided with peripheral slots, heads at opposite ends of the tube, and a filter stretched
25 between the heads and forming a constricted passage with the inner walls of the receptacle.

In testimony whereof I affix my signature, in presence of two witnesses.

JOHN S. THURMAN.

Witnesses:

EMIL STAREK,
N. A. MOFFITT.