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H. B. WHITE

2,085,244

AIR CONDITIONER

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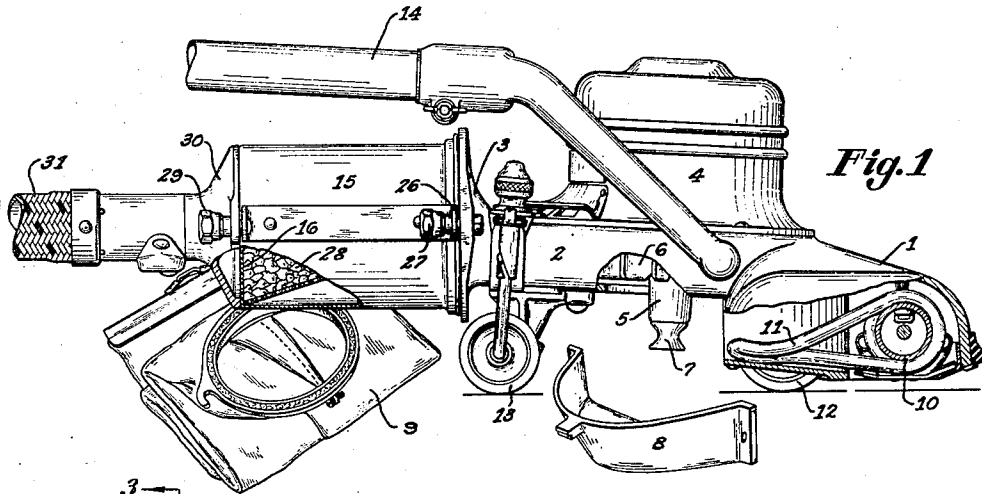


Fig. 1

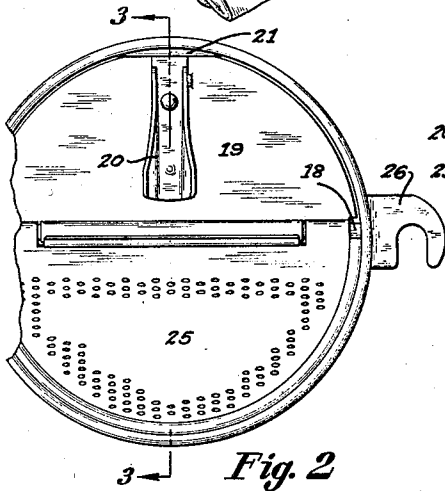


Fig. 2

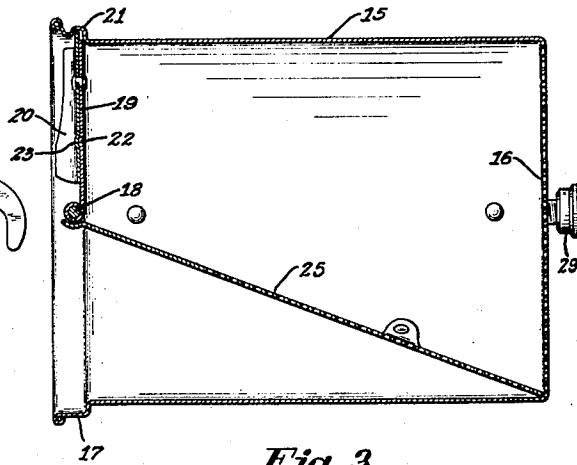


Fig. 3

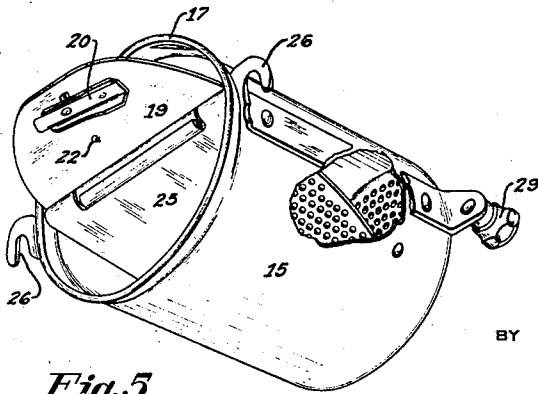


Fig. 5

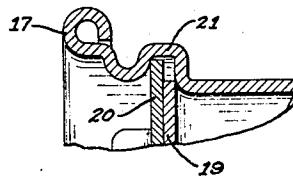


Fig. 4

INVENTOR

Harry B. White

BY

Harry S. Drumaree

ATTORNEY

UNITED STATES PATENT OFFICE

2,085,244

AIR CONDITIONER

Harry B. White, Canton, Ohio, assignor to The Hoover Company, North Canton, Ohio, a corporation of Ohio

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6 Claims. (Cl. 21-127)

The present invention relates to air conditioning in general and particularly to a new and improved odor-dispensing or air-conditioning unit for a suction cleaner. More specifically the invention comprises an improved air-conditioning unit adapted to be secured to a suction cleaner that air moved by the suction cleaner may pass through the unit to volatilize a medium carried therein.

It is an object of the present invention to provide a new and improved odor-dispensing unit for a suction cleaner. It is a further object to provide a new and improved air-conditioning unit adapted to be secured to the suction cleaner and to direct a flow of air over a volatile medium. Still another object is the provision of an air-conditioning unit comprising a casing adapted to be secured to the exhaust outlet of a suction cleaner and provided with means to support volatile crystals and to direct air through these crystals. A still further object is the provision of a simplified air-conditioning unit comprising a crystal container in which the volatile element is so positioned that the air passing through the unit volatilizes an increased amount of the volatile medium. A still further object is the provision of an odor-dispensing unit adapted to contain volatile crystals which are easily replenished, which crystals are supported in a new and novel manner in the unit so that air moving through the unit functions with maximum efficiency to volatilize those crystals. These and other more specific objects will appear upon reading the following specification and claims and upon considering in connection therewith the attached drawing to which they relate.

In the drawing in which a preferred embodiment of the invention is disclosed:

Figure 1 is a side view of a modern suction cleaner with the unit constructed in accordance with the present invention attached thereto;

Figure 2 is a view of the cleaner end of the unit;

Figure 3 is a section upon the line 3-3 of Figure 2;

Figure 4 is an enlargement of a portion of the section shown in Figure 3 and shows the door-locking relationship;

Figure 5 is a view in perspective of the unit per se with the door open to receive fresh volatile material.

Referring now to the drawing in which a preferred embodiment of the present invention is disclosed a modern suction cleaner comprising a nozzle 1, a fan chamber 2, an exhaust outlet

3, and a motor casing 4, is disclosed. An unshown driving motor is positioned within the casing 4 and its extended shaft 5 passes through the fan chamber 2, where it carries a suction-creating fan 6, and is provided at its lower end with a pulley 7. In normal on-the-floor operation the fan chamber 2 is connected to the nozzle 1 by means of a pulley cover plate 8 which, however, is shown removed from the cleaner in Figure 1. With the cover plate 8 in place air is drawn through the nozzle 1, and into the fan chamber 2 to be exhausted through the exhaust outlet 3 into a suitable dust bag 9, which is shown detached. A surface covering agitator, indicated generally by the reference character 10, is positioned within the nozzle 1 and is connected to the driving pulley 7 by a power-transmitting belt 11 so that upon rotation of the motor shaft the agitator rotates in contact with the surface covering under the nozzle to disturb and dislodge foreign matter embodied therein. The cleaner is movably supported upon front and rear wheels, indicated by the reference characters 12 and 13, and a pivoted handle 14 is provided by which the operator may exert a propelling force in using the cleaner in on-the-floor cleaning.

The operator of the cleaner desiring, for any of a number of reasons, to treat the air in a room or within a given space, the air conditioning unit constructed in accordance with the present invention is connected to the cleaner. The unit, indicated generally by the reference character 15, is adapted to be secured to the exhaust outlet of the cleaner so that air exhausted by the suction-creating fan may pass therethrough and contact a volatile medium contained therein. In order that the cleaner may work with maximum effectiveness the cover plate 8 is removed permitting a free flow of air into the fan chamber from the exterior atmosphere, and at the same time the power-transmitting belt 11 is disconnected from the driving pulley 7 thereby taking from the motor a load which is entirely unnecessary in the use contemplated.

The air-conditioning unit 15 constructed in accordance with the present invention comprises a cylindrical body having an integral foraminous end 16. The opposite end of the cylinder is defined by an enlarged rim 17 which is adapted to contact and seat against the flanged end of exhaust outlet 3. The upper half of this end of the unit is covered by a door 18 which is pivoted on pin 19 extending on a diameter of the cylinder. Door 18 is adapted to be pivoted to an open po-

sition, as shown in Figure 5, to permit entry into the interior of the container. A pivoted latch member 20 is carried by door 19 and is adapted to be moved into a grooved seat 21 formed in rim 17 to lock plate 19 in closed position. A raised convex protuberance 22 on door 19 is adapted to seat in an indented seat 23 in latch 20 to prevent unintended displacement of the latch from its door-locking position.

Within container 15 is a perforated flat baffle plate 25. Plate 25 extends upon a diameter of cylinder 15 at the pivot pin 18 of door 19 and slopes from that diameter at an acute angle to the major axis of the cylinder, in the direction of the length of the cylinder, to the periphery of the cylinder adjacent the end 16, as is illustrated in Figure 3. Plate 25 is solid for a part of its length immediately adjacent pivot pin 18 but is perforated from this closed area to its opposite end. This relationship is clearly shown in Figures 2 and 3. The baffle plate is adapted to support the volatile crystals positioned in the container, and, being perforated, permits an air stream to pass upwardly therethrough.

The odorizer unit is adapted, as previously described, to be secured to the exhaust outlet of the cleaner. For this purpose slotted flanges or ears 26, 26 are secured to the exterior of the container at its cleaner end. These ears are adapted to overlie the manually-operable bag-securing clamps, one of which is indicated in Figure 1 by the reference character 27, carried by the flanged end of cleaner exhaust outlet 3.

In operation as the air is forced from the exhaust outlet of the cleaner it enters the odorizer unit through the mouth formed below the plate or door 19. The only exit for the air is through the perforations of sloping plate 25 which supports a supply of volatile crystals 28, as indicated in Figure 1. These crystals under the force of gravity tend to slide to the pocket formed by the plate and the adjacent end wall 16. As the air passes through the plate the crystals are blown in all directions by the force of the moving air, but under force of gravity again return to the plate to be repeatedly driven upwardly, the air stream passing from the container by way of the perforated end plate 16. The constant activation of the crystals by the air stream results in rapid deterioration and volatilization through presenting at all times a maximum of surfaces. Additionally is the factor of crystal fragmentation through forceful contact with the metallic walls.

When it is only desired to condition a particular room the odorizing unit alone is connected to the exhaust outlet of the cleaner and the air upon passing through the unit is exhausted directly into the atmosphere of the room. In the event, however, it is desired to direct the vapor from the volatile medium directly into contact with articles of furniture etc. for the purpose of moth-proofing, a dusting tool hose is connected to the unit. To accommodate this function the unit is provided with manually operable clamping lugs 29, 29 at its outer end which are spaced and positioned so as to receive the connector 30 of a dusting tool hose 31 of a type adapted normally to be secured directly to the exhaust outlet 3 in the use of the cleaner as an off-the-floor blowing unit. With the dusting tools connected to the unit the functional operation thereof is identical with that previously described with the exception that the air upon passing from the unit through the perforated plate 16 passes directly

into the dusting tool connector 30 and through the dusting tool hose 31 to be directed into the desired point of application.

I claim:

1. An air-conditioning unit for a suction cleaner comprising a cylindrical container, means on said container adapted to secure said container to an air conduit of a suction cleaner, a transverse sloping perforated plate extended across said container and making an acute angle with the axis thereof, said container being formed with air passageways at the opposite ends of said plate one above and one below said plate and which are therefore upon the opposite sides thereof so that air passing thru said container must pass thru said plate.

2. In an air-conditioning unit for a suction cleaner, a container forming a chamber having impervious side walls, means to secure said container to an air conduit of a suction cleaner, a transverse sloping perforated plate extending the length of said chamber, said container being formed with air passageways at the opposite ends of said plate, the exhaust passageway being above said plate and the intake passageway being below so that air passing through said chamber must pass upwardly through said plate.

3. In an air-conditioning unit for a suction cleaner, a container forming a chamber having impervious side walls, means to secure said container to an exhaust outlet conduit of a suction cleaner, a transverse perforated plate extending the length of said chamber and at an acute angle with the direction of air flow through said container, said container being formed with air passageways at the opposite ends of said plate, the intake passageway at the end of said plate adjacent said securing means being below said plate and the exhaust passageway at the opposite end of said plate being thereabove in order that air passing through said chamber will pass upwardly through said plate.

4. An air-conditioning unit for a suction cleaner comprising a container forming a chamber with impervious side walls and having an inlet end and an outlet end, a transverse perforated plate extended the length of said chamber and sloping relative to the axis of said container, the inlet end of said container being provided with an air passageway opening below said plate, the outlet end of said container being provided with an air passageway opening above said plate, and means to connect said container to a source of air flow.

5. The construction recited by the preceding claim characterized in that a removable impervious door closes the inlet end of said chamber above said perforated plate and permits of the replenishment of the volatile medium carried by said plate.

6. In an air-conditioning unit for a suction cleaner, a horizontal container forming a chamber having impervious side walls, means to secure said container to an exhaust outlet conduit of a suction cleaner, a transverse perforated plate extended across said container and sloping at an acute angle with the horizontal, said container being formed with air passageways at the opposite ends of said plate one above and one below said plate, the passageway above said plate including a perforated wall which cooperates with said plate to form a volatile element storage space.

HARRY B. WHITE.