

May 7, 1963

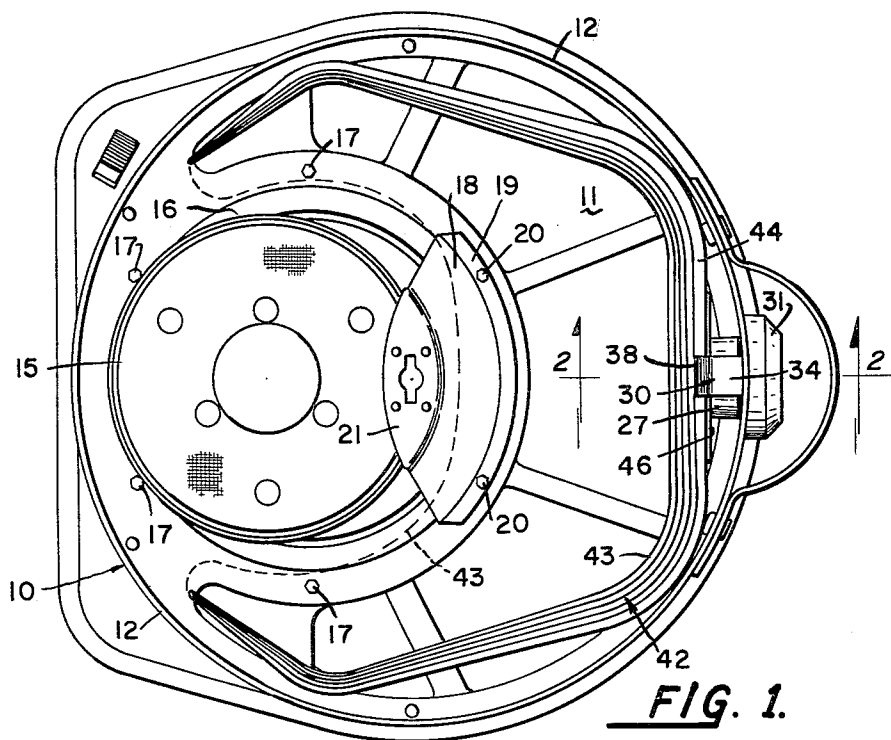
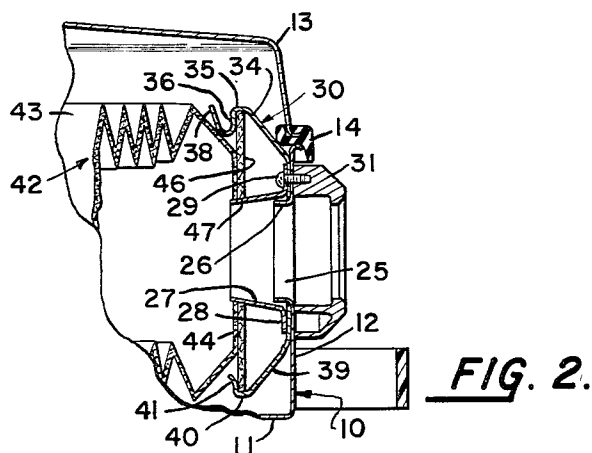
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3,088,260

SUCTION CLEANER BAG MOUNTING MEANS

Filed Aug. 17, 1959

2 Sheets-Sheet 1



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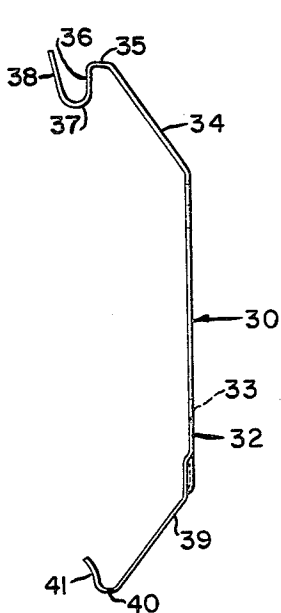


FIG. 3.

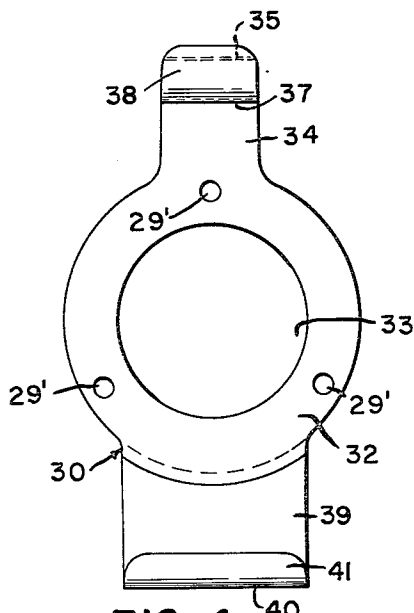


FIG. 4.

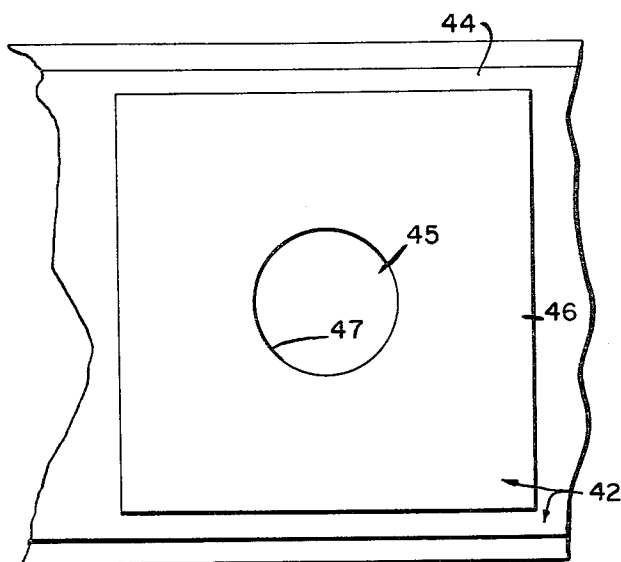


FIG. 5.

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SUCTION CLEANER BAG MOUNTING MEANS
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3 Claims. (Cl. 55—374)

This invention relates to suction cleaner dust bag mounting means. The bag mounting means of this invention is embodied in a cleaner of the flat canister type in which the motor-fan unit shaft is vertically disposed when the cleaner is in its operative position and the dust bag is located at one side of the motor-fan unit within the cleaner chamber.

The object of the invention is to provide very simple and efficient means for mounting the dust bag in the cleaner so that the dust receiving opening in one of its side walls registers with an air intake opening in the cleaner housing and all the dust laden air passing through the suction nozzle is delivered to the dust bag through said air intake opening in the housing without strain on the bag.

Another object of the invention is to provide means for protecting the dust bag against undue wear and to limit its expansive capacity in the area immediately opposite the dust receiving opening, thereby causing the dust laden air to pass into the bag interior to deposit the dust therein uniformly and efficiently for its intended purposes and to discharge dust-free air throughout the bag surfaces. This object is achieved by providing the cleaner housing with a center support located between the motor-fan unit and the dust bag and shaped to smoothly support the bag in the area opposite the dust receiving opening when the bag is inflated by incoming dust laden air.

Another object of the invention is to provide cooperating means on the cleaner housing and on the dust bag whereby the bag is manually positioned, quickly and easily, and retained in fixed position for receiving dust laden air, and whereby the correct positioning of the bag relatively to the air intake opening is assured, said mounting means nevertheless permitting quick easy removal of the bag by the mere lifting of a single spring metal retaining arm.

Other objects and advantages of the invention will become apparent from the drawings and the following description.

In the drawings:

FIG. 1 is a top plan view of a suction cleaner embodying my invention, the housing cover having been removed to exposed the interior. The dust bag is shown in solid lines as it appears when folded and new, and in dotted lines as it appears when inflated by incoming dust laden air.

FIG. 2 is a vertical sectional view in the plane of the line 2—2 of FIG. 1, but showing the cover of the housing in place.

FIG. 3 is a vertical sectional view of dust bag mounting member, detached from the cleaner, on an enlarged scale.

FIG. 4 is a front elevational view of the member shown in FIG. 3.

FIG. 5 is an elevational view of part of the dust bag and of the mounting plate of stiff material attached to the bag.

In that embodiment of the invention shown in the drawing, the cleaner housing 10 comprises a bottom 11, side wall 12, and removable cover 13 provided with a peripheral resilient ring 14. Within the housing chamber, adjacent one side thereof, is a motor-fan unit 15 mounted on a base plate 16 which is part of the cleaner bottom and is connected to the bottom 11 by bolts 17. Adjacent the

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inner side of the motor-fan unit 15 is a center support which comprises an upright member 18 curved horizontally and provided with a lower flange 19, secured to the base plate 16 by bolts 20, and an upper flange 21. The center support and upper flange 21 thereof cooperate with locking means on the cover 13 to retain the cover on the cleaner housing. Said cover locking means is the subject of my copending application, Serial No. 834,107, filed August 17, 1959, now Patent No. 3,050,921, granted August 28, 1962, and therefore need not be described in detail herein. However, the center support member 18 cooperates, for a purpose to be described herein, with the dust bag mounting means which is the subject of this application.

As best shown in FIG. 2, the housing wall 12 is provided with an air intake opening 25, the housing material adjacent the opening being intumed as shown at 26. A frusto-conical collar 27, with attaching flange 28, extends into the housing chamber from the side wall 12, surrounding the opening 25 and intumed member 26. The flange 28 of the collar 27 is mounted on the housing wall by three screws 29 which extend through said flange 28, through a dust bag mounting member 30, through the cleaner wall 12 and into the nozzle hose ring 31 on the exterior of the housing.

The dust bag mounting member 30 of spring metal is shown detached and enlarged in FIGS. 3 and 4. It comprises a central body 32, circular in shape, provided with a central aperture 33 large enough to permit the body 32 to surround the intumed portion 26 of the housing wall 12 when the member 30 as a whole is positioned as shown in FIG. 2, between the flange 28 and wall 12.

The central body 32 is formed integrally with an upwardly inclined arm 34, a flat short substantially horizontal contact member 35, and down-turned keeper member 36 terminating in a curved portion 37 and upturned handle end 38. The body 32 is also formed integrally with a downwardly inclined arm 39 provided with a flat, short substantially horizontal contact member 40 and upturned keeper 41. The screws 29 by which the collar 27 is mounted on the wall 12 also extend through three apertures 29' in the central body 32 of the mounting member 30 to mount it on said wall as shown.

A dust bag 42 may be made of cloth or paper. As shown herein, the bag is of the disposable paper type, folded when new and unused, as indicated in full lines in FIG. 1. When inflated as it is during operation of the cleaner by incoming dust laden air, the side wall 43 facing the motor-fan unit 15 is forced toward said unit and toward the upright member 18 of the center support as indicated by the dotted line 43. Midway between its ends, the dust bag side wall 44 which faces the cleaner housing wall 12 is provided with an air receiving opening 45. A mounting plate 46 of stiff material such as cardboard or other suitable relatively thin flat stiff material is apertured to provide an opening which registers with the opening 45 in the dust bag wall 44. That part of the plate 46 adjacent the aperture therein is fastened by glue or other suitable means to that part of the bag wall which surrounds the opening 45, leaving the plate 46 free from the bag in the areas adjacent the outer edges of the plate, as shown in FIG. 2.

The dimensions of the mounting plate 46 and the space between the contact members 35 and 40 of the mounting member 30 are correlated so that said contact members of the arms 34 and 39 yieldingly engage the upper and lower edges, respectively, of the plate 46. The dust bag 42 is placed in the cleaner housing as shown in FIG. 1, then the lower edge of the plate 46 is positioned to rest on the contact member 40 of the arm 39 where it is retained by the keeper 41, and then the

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handle end 38 is raised by lifting the curved portion 37 and end 38 and the upper edge of the plate 46 is inserted into contact with the under surface of the contact member 35 where it is retained by the keeper 36.

The diameter of the opening 45 in the dust bag and of the registering opening in the plate 46 is such that the edge 47 of the latter opening snugly surrounds the frusto-conical collar 27 near its inner end as shown in FIG. 2. The free end of the collar 27 extends into the dust bag and delivers dust laden air thereto from the conventional hose (not shown) leading from the floor nozzle or other nozzle used for drawing dust from surfaces. The hose is inserted into the hose ring 31, through the wall 12, intumed member 26, and collar 27, wherein it is held in air tight engagement by the frusto-conical walls of the collar, to deliver dust laden air to the bag 42.

The mounting member 30 cooperating with the mounting plate 46 of the dust bag provides a very simple and efficient means for correct manual placement of the bag in proper position relatively to the air intake means of the housing, and for quick, easy removal of the bag. The center support 18 protects the bag by supporting it in the area opposite the air intake means and also aids in the efficient distribution of dust within the bag and discharge of clean air from the bag surfaces.

Changes may be made in details of construction and in the form and arrangement of parts without departing from the scope of the invention as defined by the appended claims.

I claim:

1. In a suction cleaner provided with dust bag mounting means comprising a housing including a side wall and a bottom providing a chamber, an air intake opening in the side wall, an air intake collar surrounding the air intake opening and projecting axially inwardly from said opening in said side wall into the chamber, and a dust bag having an opening in one of its side walls, a flat plate of stiff material having an opening extending there-

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through attached to the dust bag adjacent the dust bag opening with said openings in register with each other; the improvement comprising, a bag mounting plate positioning and fastening means within said chamber comprising a pair of vertically spaced oppositely inclined arms, one of said arms being biased toward the other and each being carried by the side wall of said housing adjacent said collar to project angularly inwardly therefrom on opposite sides of said collar, a keeper member adjacent the free end of each of said arms for yieldably receiving and supporting opposite edge portions of said bag mounting plate therebetween, and the opening in said bag mounting plate being of a diameter to snugly surround said collar in air tight engagement therewith when said bag mounting plate is yieldably received between said keeper members and supported by said inclined arms.

2. The suction cleaner of claim 1, in which said air intake collar is exteriorly tapered toward its open end and said opening in said flat bag mounting plate is of larger diameter than that of said collar at the inner open end thereof.

3. The suction cleaner according to claim 1, wherein a relatively flat and stiff body member is mounted on the inner side wall of said housing adjacent the air receiving opening in said wall and surrounding said air intake collar, and said oppositely inclined bag mounting arms being connected to opposite edges of said body member and projecting angularly inwardly therefrom on opposite sides of said collar.

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