Nov. 23, 1965 D. T. KURLINSKI 3,218,665

SUCTION CLEANERS

Filed March 8, 1963

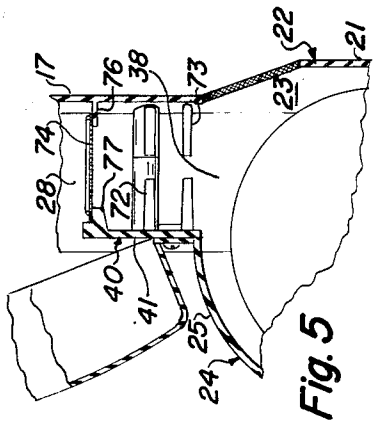


Fig. 5

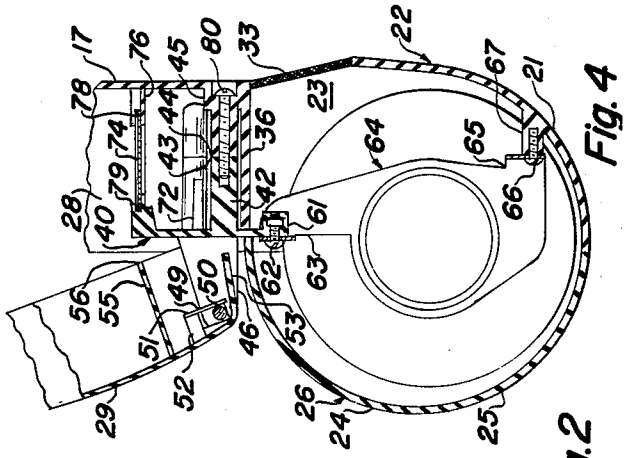


Fig. 4

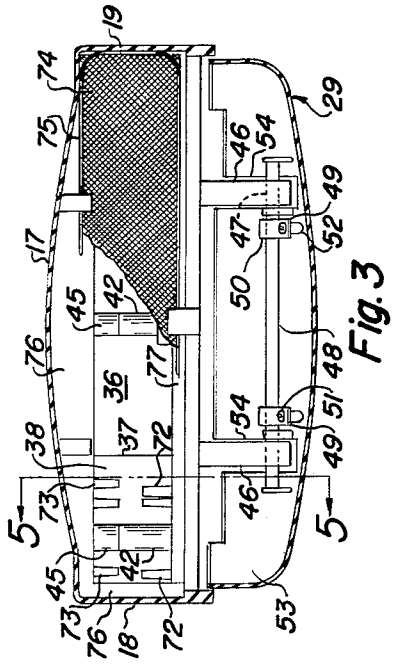


Fig. 3

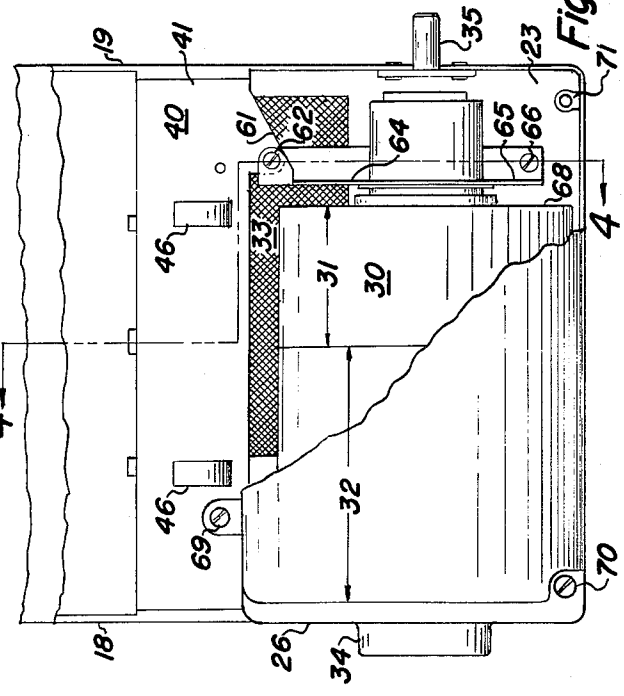


Fig. 2

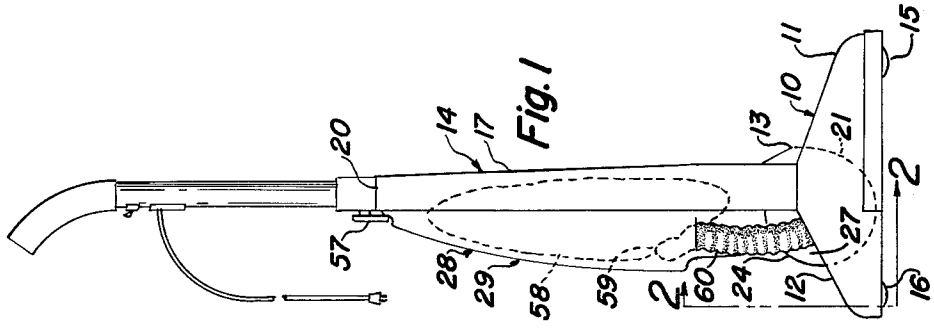


Fig. 1

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SUCTION CLEANERS

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The present invention relates to suction cleaners and more particularly to the assembly of parts to provide a simplified structure.

An object of the invention is to provide a suction cleaner with an elongated housing having a filter chamber and a motor-fan chamber with support means therebetween to assemble related parts. Another object is to provide support means in the housing to facilitate assembling a cover for the housing to gain access to the filter chamber, to mount a secondary filter between the filter chamber and motor-fan chamber, to support a motor-fan unit in its chamber, to prevent access to electrical parts of the motor-fan unit and for attaching a member to complete the motor-fan chamber. Other objects and advantages of the invention will become apparent from the following description and drawings, wherein:

FIGURE 1 is a side elevational view of the suction cleaner,

FIGURE 2 is an enlarged view along the line 2—2 in FIGURE 1 with the housing cover removed and parts broken away to more clearly show the structure,

FIGURE 3 is a top view of FIGURE 2 with the housing cover attached,

FIGURE 4 is a section along the line 4—4 in FIGURE 2 with the cover partly opened, and

FIGURE 5 is a section along the line 5—5 in FIGURE 3.

The embodiment of the invention herein disclosed comprises a body 10 having a nozzle 11 at its front end from which rearwardly extends a pair of spaced arms 12, only one of which is shown, to define a space therebetween in which is arranged the lower portion 13 of an elongated housing 14. The body 10 is supported on front and rear wheels 15 and 16 respectively.

The elongated housing 14 includes a front wall 17, opposed side walls 18 and 19 terminating at their upper ends in a top wall 20 and at their lower ends in an arcuate wall 21 which forms the front half 22 of a motor-fan chamber 23. The rear half 24 of the motor-fan chamber 23 is formed by an arcuate wall 25 and opposed end walls 26 and 27. Arranged upwardly of the motor-fan chamber 23 is a filter chamber 28 provided with a cover 29 and which extends to the top wall 20 of the housing 14.

Disposed within the motor-fan chamber 23 is a suction creating unit 30 including a fan system 31 and driving motor 32. The suction creating unit 30 operates to expel air from the chamber 23 through an outlet opening 33 to the atmosphere and the opening 33 is covered by a suitable grill to prevent inserting the operator's fingers into the chamber 23. The motor-fan chamber 23 is provided with trunnions 34 and 35 which are suitably mounted in the spaced arms 12 to rotatably support the housing 14 on the body 10.

Arranged between the lower end of the filter chamber 28 and the motor-fan chamber 23 is a transverse wall 36 which extends from the housing side wall 19 to a point 37 spaced from the opposite side wall 18 to provide an inlet opening 38 to the interior of the motor-fan chamber 23.

A support panel 40 extends between the side walls 18 and 19 of the housing 14 and includes a plane surface 41 from which inwardly projects three spaced studs 42 having their terminal ends 43 abutting the ends 44 of similar studs 45 on the front wall 17. A screw 80 extends through

each of the studs 45 and is threaded into the studs 42 of the supporting panel 40 to secure the latter to the housing wall 17.

Projecting outwardly from the plane surface 41 of the panel 40 are a pair of spaced posts 46 each provided with an opening 47 in which is rotatably supported an elongated hinge pin 48. The cover 29 is pivotally attached to the hinge pin 48 by a pair of brackets 49 which engage the hinge pin 48 at 50 and are each removably secured to the cover 29 by a screw 51 threaded into a projection 52 on the cover 29. The cover 29 can be completely removed from the housing 14 by loosening the screws 51 to disengage the brackets 49 from the hinge pin 48. The lower end wall 53 of the cover 29 has a pair of marginal slots 54 to receive the posts 46 when the cover 29 is moved downwardly to its opened position to provide access to the interior of the bag chamber 28. Spaced above the cover end wall 53 is a partition 55 the lower edge 56 of which seats against an unshown gasket in the plane surface 41 of the support panel 40 when the cover 29 is closed to thereby provide an air tight seal. A latch 57 at the upper end of the housing 14 secures the cover 29 in its closed position. A dirt filtering bag 58 is suitably supported on the interior of the cover 29 and is connected to the nozzle 11 by a conduit 59 and hose 60 to convey dirt-laden air to the bag 58.

Formed integrally with the support panel 40 is an ear 61 which projects into the motor-fan chamber 23 and is provided with an opening to receive a bolt 62 to support one end 63 of a motor bracket 64, the other end 65 of the bracket is secured by a screw 66 to a post 67 on the arcuate wall 21 of the front half 22 of the motor-fan chamber 23. One end 68 of the motor-fan unit 30 is mounted in the bracket 64 and thus the ear 61 on the support panel 40 assists in supporting the suction creating unit 30 in the motor-fan chamber 23.

The rear half 24 of the motor-fan chamber 23 is secured to the housing 14 by a pair of screws 69, only one of which is shown, threaded into the support panel 40. In addition the lower end of the motor-fan chamber rear half 24 is attached to the front half 22 by screws 70 threaded into bosses 71.

In order to prevent insertion of the operator's fingers through the air inlet 38 into contact with parts of the motor 32, the support panel 40 is provided with a plurality of projecting fingers 72 which cooperate with similar fingers 73 on the front wall 17, and such fingers are arranged in front of the air inlet 38.

Disposed in the bag chamber 28 between the end of the bag 58 and the transverse wall 36 is a secondary filter 74 provided with a resilient marginal wire frame 75. The filter 74 abuts a shoulder 76 on the front wall 17 and side walls 18 and 19 and also a shoulder 77 on the supporting panel 40, and is secured against the shoulders 76 and 77 by the resilient wire frame 75 being seated in spaced recesses 78 on the shoulder 76 and recesses 79 on the shoulder 77.

In operation, the suction-creating unit 30 draws dirt-laden air through the nozzle 11, and hose 60 into the bag 58 which removes the dirt and the cleaned air passes through the secondary filter 74 and air inlet 38 into one end of the motor-fan chamber 23 and then passes through the motor-fan unit 30 and outlet opening 33 to the atmosphere.

From the foregoing it will be perceived that the support panel 40 assists greatly in the assembly of the secondary filter 74, housing cover 29, suction-creating unit 30 and motor-fan chamber 23 and prevents insertion of the operator's fingers through the opening 38 into contact with the motor 32.

While I have shown and described but one embodiment

of my invention, it is to be understood that this embodiment is to be taken as illustrative only and not in a limiting sense. I do not wish to be limited to the particular structure shown and described but to include all equivalent variations except as limited by the scope of the claims.

I claim:

1. In a suction cleaner, a body having an inlet nozzle an elongated housing movably mounted on said body and having a filter chamber and a motor-fan chamber at opposite ends thereof, a filter in said filter chamber, a cover for said filter chamber to provide access to said filter, a suction creating motor-fan unit in said motor-fan chamber, wall means forming a portion of the wall of said motor-fan chamber and defining an air inlet thereto for passage of air between said chambers, a secondary filter in said housing between said wall means and said filter chamber, separable support means forming part of said housing and including a panel portion between said filter chamber and said motor-fan chamber, means projecting from one side of said panel portion for pivotally supporting said cover on said housing to expose and close said filter chamber, means projecting from the opposite side of said panel portion for supporting said secondary filter between said filter chamber and said wall means, and said panel portion projecting into said motor-fan chamber for mounting said motor-fan unit in its chamber.

2. In a suction cleaner as described in claim 1, and means on said panel overlying said air inlet in said wall means to prevent entrance of the operator's fingers into engagement with said motor-fan unit.

3. In a suction cleaner, a body having an inlet nozzle, an elongated housing movably mounted on said body and having a filter chamber and a motor-fan chamber at opposite ends thereof, a filter in said filter chamber, a cover for said filter chamber to provide access to said filter, a suction creating motor-fan unit in said motor-fan chamber, wall means forming a portion of the wall of said motor-fan chamber and defining an air inlet thereto for passage of air between said chambers, a secondary filter in said housing between said wall means and said filter chamber, support means forming part of said housing and including a panel portion between said filter chamber and said motor-fan chamber, means projecting from one side of said panel portion for pivotally supporting said cover on said housing to expose and close said filter chamber, means projecting from the opposite side of said panel portion for supporting said secondary filter between said filter chamber and said wall means, said panel portion projecting into said motor-fan chamber for mounting said motor fan unit in its chamber, and means on said panel overlying said air inlet in said wall means to prevent entrance of the operator's fingers into engagement with said motor-fan unit.

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