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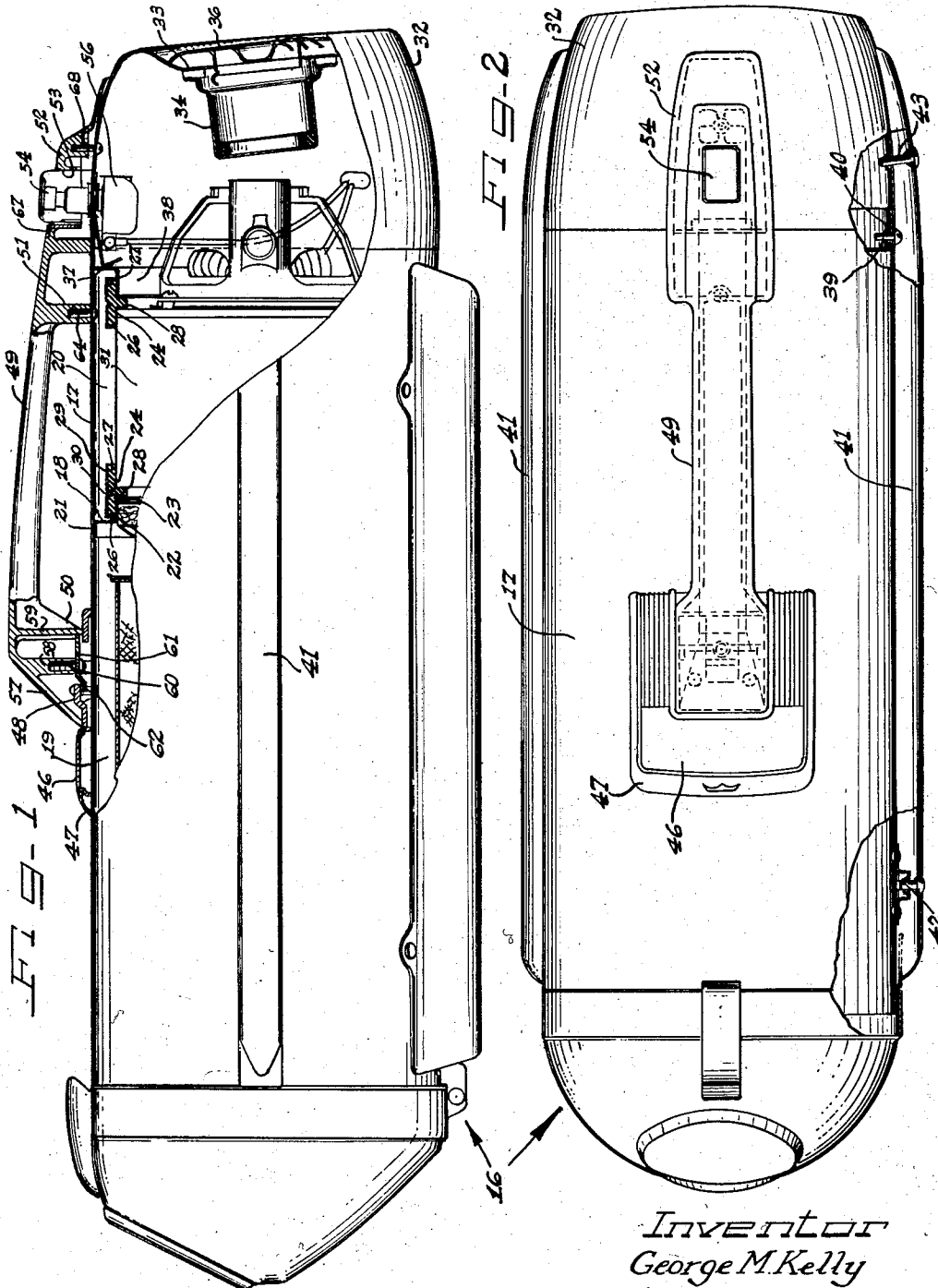
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TANK TYPE VACUUM CLEANER

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2 Sheets-Sheet 1



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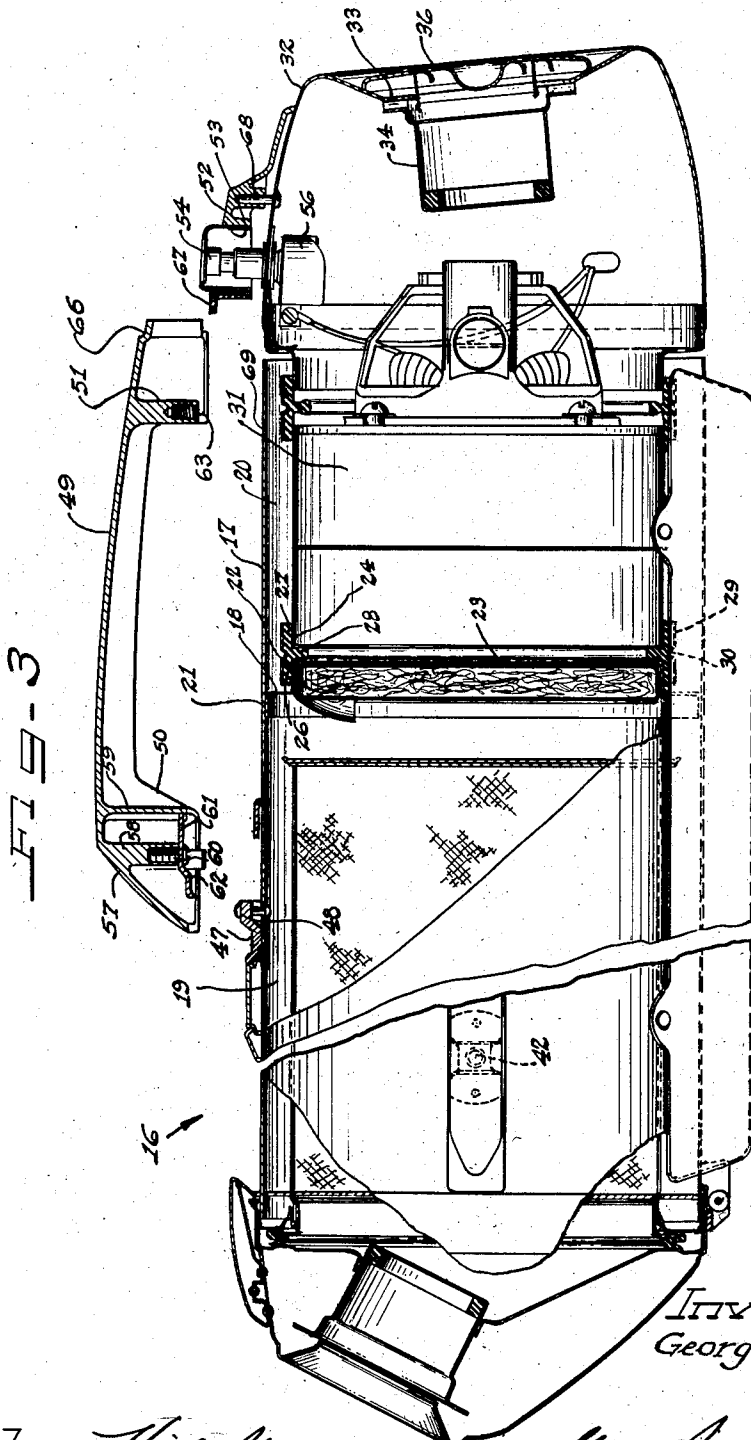
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TANK TYPE VACUUM CLEANER

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5 Claims. (Cl. 15—327)

This invention relates generally to cleaning apparatus and more particularly to a so-called tank type vacuum cleaner, the present disclosure relating particularly to certain improvements and advantageous structural features which enhance the operation and functioning of a tank type vacuum cleaner.

It is an object of this invention to provide a tank type vacuum cleaner which will not only be particularly efficient functionally but which will be especially pleasing in ornamental appearance. To effect this end, the structure provided in accordance with the principles of the present invention contemplates the utilization of assembly of components which intermate with one another and which are so related as to afford no visual indication of the retaining means by which the assembly of components is kept in firm assembly.

An open ended casing is provided having an inwardly extending wall dividing the interior of the casing into a dirt separation compartment and a motor compartment. The wall is provided with a longitudinally extending annular flange and a first support member including a cushioning ring made of resilient material encircles the flange. The first support member has a radially inwardly extending medial rib adjacent the flange receiving the motor of a motor fan unit so that one end of the motor will be received in the cushioning ring and will abut the medial rib.

A cover member is provided to close one end of the casing and includes an inwardly extending longitudinal flange which carries a second support member including a cushioning ring having a radially inwardly extending medial rib so that the second support member receives the other end of the motor and the end of the motor also abuts the medial rib.

The casing is further provided with a lug on the exterior thereof and the cleaner is equipped with a two-piece handle, one piece of the handle having a latch underlying the lug on the casing. The other piece of the handle is carried on the cover and intermating locking means are provided between the two pieces of the handle to retain the handle in a unit assembly when the cover is connected to the casing. A separate fastening means preferably a concealed fastening means is provided for selectively locking the cover to the casing.

Because of the advantageous structural provisions made, the connection of the cover member to the casing operates to clamp the motor fan unit in resilient suspended assembly within the casing and simultaneously retains the handle in unit assembly.

At the front end of the casing, a cover is pivotally connected to the casing for pivotal movement toward and away from a closing position relative to the casing. A dirt separating bag is inserted through the open end of the casing into the dirt separating compartment and is provided with an annular flange on one end thereof adapted to overlie an inwardly extending wall portion formed on the casing adjacent the open end thereof.

A resilient annular ring having a recess formed therein

receives the flange of the dirt separating bag and provides face portions on opposite sides of the flange. The resilient ring is formed with a lip extending generally radially outwardly in spaced relation to one of the faces of the ring and the lip engages the cover so as to provide an effective seal between the casing and the cover.

A latching mechanism is located between the casing and the cover to lock the cover to the casing. The latch includes a strip of spring metal having a body portion connected to the cover and the body portion is provided with an upstanding embossment having a depressed center portion with raised side portions which together provide a pin recess. The strip further includes a spring tongue portion which extends towards the casing and which is received within a recessed portion of a locking member pivotally pinned to the embossment. Thus, the locking member is spring biased for latching engagement with the casing.

It is an object of the present invention to provide a tank type cleaner having improved cushion mounting for a motor fan unit.

A further object of the present invention is to provide a mounting structure for a motor fan unit in a tank type cleaner which may be readily replaced and which is convenient to assemble.

A further object of the present invention is to provide a multi-piece handle apparatus for a tank type cleaner in which structural provision is made to effect continuity of the handle components.

Many other features, advantages and additional objects of the present invention will become manifest to those versed in the art upon making reference to the detailed description which follows and the accompanying sheets of drawings in which a preferred structural embodiment of a tank type cleaner incorporating the principles of the present invention is shown by way of illustrative example.

On the drawings:

Figure 1 is an elevational view with parts broken away and with parts shown in cross section of a tank type cleaner constructed in accordance with the principles of the present invention;

Figure 2 is a plan elevational view, somewhat reduced, and with parts broken away and with parts shown in cross section of the cleaner shown in Figure 1;

Figure 3 is a broken enlarged view somewhat similar to the view of Figure 1 but showing additional parts broken away and showing parts in cross section to illustrate additional details of construction, a portion of the view being exploded and showing parts moved out of assembled position to illustrate additional advantages provided in accordance with the principles of the present invention.

As shown on the drawings:

The cleaner of the present invention is indicated generally at 16 and comprises an open ended hollow casing 17 having a medial partition or wall 18 dividing the interior of the casing 17 into a dirt separation compartment 19 and a motor-fan compartment 20.

In the illustrated embodiment, the partition or wall 18 takes the form of a stamping provided with an annular flange spot welded to the casing 17 as indicated at 21 and being further provided with a longitudinally extending flange 22 terminating in a perforate section 23 extending inwardly thereof. The flange 22 is spaced inwardly of the walls of the casing 17 and it may be noted that that portion of the partition or wall 18 extending outwardly of the flange 22 is imperforate so that all air passing from the dirt separation chamber 19 to the motor fan compartment 20 must pass through the perforate section 23 and between the confines of the longitudinally extending annular flange 22.

In accordance with the principles of the present invention, the partition or wall 18 operates as a component of an improved motor mounting arrangement. An annular ring support member 24 is provided which is made of a suitable resilient and elastic material such as rubber. Preferably, the shape of the ring 24 in cross section resembles a T including an arm portion 26 encircling the flange 22, an arm portion 27 extending longitudinally in the direction of the motor-fan compartment 20, and a medial radially inwardly extending rib 28.

To lend a certain amount of rigidity and support to the ring 24, an annular sleeve 29 is provided which is made of a relatively rigid material such as metal. The sleeve 29 encircles the ring 24 and includes an inwardly directed embossment 30 which prevents relative displacement of the sleeve 29 with respect to the ring 24.

A motor-fan unit indicated at 31 is received in the motor-fan compartment 20. One end of the motor-fan unit 31 is shaped to be complementary in configuration to the recess provided between the medial rib 28 and the leg 27 of the ring 24. Thus, the motor-fan unit 31 is resiliently cushioned.

A second support ring 24 is provided and the opposite end of the motor-fan unit 31 is shaped to be complementary in configuration to the recess provided between the leg 26 and the medial rib 28.

A cover member 32 is provided for the cleaner 16 and is adapted to close one open end of the casing 17. To distinguish between the opposite ends of the cleaner 16, the cover member 32 may be referred to as a discharge cover member since the cover member 32 is provided with a discharge aperture 33 having mounted in registry therewith an attachment fitting connection cup 34, the aperture 33 normally being shielded by a louvered baffle 36.

Adjacent the open end of the cover member 32 is provided an inwardly extending partition or wall 37 which takes the form of a stamping having a flange portion spot welded to the cover member 32 and a second longitudinally extending flange portion 38 which is spaced inwardly of the walls of the cover member 32 so as to be received in the recess between the medial rib 28 and the leg 27 of the support ring 24.

As shown in Figure 2, the casing 17 is suitably apertured to pass a fastening screw 39 adapted to engage a threading boss 40 provided on the wall 37 connected to the cover member 32. By such provision, the motor-fan unit 31 is inserted into the motor-fan compartment 20 so that the one end of the motor-fan unit will be received in the first described ring 24 whereupon the cover member 32 may be advanced towards assembly with the casing 17 so that the second described ring 24 will carry the other end of the motor-fan unit 31 and will, in turn, be carried by the wall 37 on the cover member 32. Thereafter, the screw fasteners 39 are utilized to lock the cover member 32 in firm assembly with the casing 17 and the motor-fan unit will be cushioned in a resilient mounting arrangement within the casing 17.

Preferably, two fastening screws 39 are utilized to connect the cover member 32 to the casing 17 and these screws are located at diametrically opposite points corresponding to the axis of a slide-type bumper 41 mounted on each side of the casing 17. The slide type bumper 41 not only enhances the streamlined appearance of the cleaner 16 but serves to conceal the screw fasteners 39. Each bumper is connected to the casing 17 as is indicated by the fastening means shown at 42 and to the cover member 32 by the fastening means as shown at 43.

The cooperation between the cover member 32 and the casing 17 is also utilized in connection with the handle structure provided for the cleaner 16 in accordance with the principles of the present invention. A nameplate 46 is retained by a retainer member 47 firmly assembled to the casing 17. The retainer 47 comprises a bracket having a lug 48 spaced outwardly of the casing walls.

As is clearly shown in Figures 1, 2 and 3, a two-piece handle is provided for the cleaner 16 including a first piece 49 having front leg portions 50 and rear leg portions 51 and a second piece 52 which is provided with a through aperture 53 for accommodating a push-button actuator 54 of an electric switch 56.

The front leg portions of the first piece 49 include a plurality of legs 57, 58 and 59. The legs 58 and 59 extend generally normal to the axis of the cleaner 16 and the leg 58 is apertured to receive a screw 60 used to retain a latch member 61 in assembly with the leg portions 50.

The leg 57 is angularly inclined relative to the leg 58 and has an extending portion which terminates in spaced relation to a lip 62 formed on the end of the latch member 61.

The rear leg portions 51 of the first piece 49 include a threaded aperture 63 for receiving a fastening screw 64. The first piece 49 is recessed as at 66 and mates with a projecting portion 67 formed on the second piece 52.

The second piece 52 of the handle assembly is firmly connected to the cover member 32 by a fastener screw 68. In assembling the cleaner 16, the first piece 49 of the handle assembly is moved towards the casing 17 in the manner depicted in Figure 3. Thus, the leg 57 and the lip 62 of the latch member 61 form a clamping jaw which is adapted to obtain a purchase on the lug 48 provided on the retainer 47. By moving the first piece 49 into alignment relative to the lug 48, the lip 62 will underlie the lug 48 whereupon the rear leg portions 51 of the first piece 49 can be lowered towards the casing 17. The casing 17 is apertured as at 69, which aperture comes in registry with the threaded aperture 63 whereupon the fastening screw 64 is employed to place the first piece 49 in firm assembly with the casing 17. Thereafter, the cover member 32 is moved towards the casing 17 whereupon the intermating recess 66 and the projection 67 will mate the first piece 49 and the second piece 52 of the handle assembly.

As will be particularly noted in Figure 2, the arrangement of the two-piece handle thus provided affords unbroken continuity between the casing 17 and the cover member 32 and also greatly enhances the protection afforded the pushbutton switch apparatus 56 since the actuator 54 of the switch 56 is shielded by the handle assembly.

Although various minor structural modifications might be suggested by those versed in the art, it should be understood that I wish to embody within the scope of the patent warranted hereon all such modifications as reasonably and properly come within the scope of my contribution to the art.

I claim as my invention:

1. A tank-type cleaner comprising an open-ended casing having an inwardly extending wall dividing the interior of the casing into a dirt-separation compartment and a motor compartment, said wall having a longitudinally extending annular flange concentrically inwardly of said casing, a first support member including a cushioning and sealing ring made of resilient material having first and second arm portions separated by a radially inwardly extending medial rib adjacent said flange, one of said arm portions encircling said flange, a motor-fan unit having an air inlet end received in the other of said arm portions of said cushioning and sealing ring and abutting against said medial rib, said wall having air flow passages formed therein inwardly of said ring communicating air flow from said dirt-separating compartment into said air inlet, a cover member closing one end of said casing and having an inwardly extending longitudinally directed flange, and a second support member including a cushioning and sealing ring having a first arm portion encircling said flange and a second arm portion encircling the other air outlet end of said motor-fan unit and further including a radially inwardly extending medial rib adjacent said flange and abutting said motor-fan unit, said motor-fan unit

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having a discharge opening inwardly of said ring to discharge air rearwardly through said cover.

2. A cleaner comprising a cylindrical casing open at one end, a pair of identical rings including a first ring mounted in said casing inwardly of said open end, and a second ring spaced from said first ring adjacent the open end of said casing, each of said rings being angular and being made of a resilient material, each of said rings being substantially T-shape in cross section with a radially inwardly extending leg and opposite axially extending arms, one arm of said first ring supported by said casing and the other arm extending toward said open end of said casing, a motor generally complementary in configuration to the configuration of the rings inserted into the casing through said open end and having opposite ends received in said first and said second rings, respectively, and a cover member closing said open end of said casing and carrying said second ring and means fastening said cover member to said casing whereby said motor is clamped between and supported solely by the resilient engagement of said motor with the first and second rings.

3. A cleaner comprising, a open-ended cylindrical casing having a medial partition dividing the interior of the casing into a dirt-separation compartment and a motor compartment, a pair of resilient rings generally T-shaped in section and including a first resilient ring carried by said partition and having one arm extending into said motor compartment, said partition having flow passages formed therein inwardly of said ring, a motor-fan unit having an air inlet at one end inserted through the motor compartment end of said cylindrical casing and having said one end seated in said one arm of said resilient ring and communicating with said dirt separation compartment through said flow passages of said partition, said motor-fan unit having an air outlet at the other end thereof extending into an area adjacent said motor compartment end of said casing and discharging air out of the end of said motor compartment, a cover for said casing closing said motor compartment end of said casing and having a discharge opening centrally disposed therein in register with said air outlet of said motor-fan unit, and a second resilient ring of said pair of rings carried by said cover inwardly of said discharge opening and having an arm portion extending into said motor compartment for seating the other end of said motor fan unit when the cover is assembled to said casing to resiliently clamp said motor fan unit in cushioned assembly within said pair of rings in said casing, while sealing against said motor-fan unit to confine the flow of all air from said dirt-separating compartment through the motor-fan unit.

4. A tank-type cleaner, comprising, a casing, a cover for said casing, a lug on the exterior of said casing, a two-piece handle for said cleaner, one piece of said handle having a latch underlying said lug on said casing and ex-

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tending toward said cover, the other piece of said handle carried on said cover, and intermating locking means between said two pieces of said handle retaining said handle in unit assembly when said cover is on said casing, and separate fastening means for selectively locking said cover to said casing.

5. A tank-type cleaner, comprising, a casing, a cover for said casing, a lug on the exterior of said casing, a two-piece handle for said cleaner, one piece of said handle having a latch underlying said lug on said casing and extending toward said cover, the other piece of said handle carried on said cover, intermating locking means between said two pieces of said handle retaining said handle in unit assembly when said cover is on said casing, separate fastening means for selectively locking said cover to said casing, a medial perforated partition dividing the interior of the casing into a dirt separation compartment and a motor compartment, a resilient ring carried by said partition and extending into said motor compartment, a fan-motor unit having an air inlet at one end seated in said resilient ring and having an air outlet at the other end thereof extending into an area adjacent said one end of said casing, and a second resilient ring carried by said cover and seating the other end of said motor to resiliently clamp said motor in cushioned assembly within said casing.

References Cited in the file of this patent

UNITED STATES PATENTS

1,480,544	Cox	Jan. 15, 1924
1,632,848	Prahl	June 21, 1927
2,030,367	Grave	Feb. 11, 1936
2,107,819	Faber	Feb. 8, 1938
2,153,580	Lynger	Apr. 11, 1939
2,171,856	Lofgren	Sept. 5, 1939
2,240,150	Seyfried	Apr. 29, 1941
2,241,785	Lofgren	May 13, 1941
2,245,953	Anderson	June 17, 1941
2,286,479	Farr	June 16, 1942
2,307,538	Paulus	Jan. 5, 1943
2,335,031	Stevens	Nov. 23, 1943
2,335,428	Lofgren	Nov. 30, 1943
2,349,215	Wahlborg	May 16, 1944
2,397,536	Coss	Apr. 2, 1946
2,447,500	French	Aug. 24, 1948
2,567,030	Schaaf	Sept. 4, 1951
2,672,210	White	Mar. 16, 1954
2,674,405	Cawl	Apr. 6, 1954
2,717,748	Martinet	Sept. 13, 1955

FOREIGN PATENTS

257,490	Great Britain	Sept. 2, 1926
703,916	Germany	Mar. 19, 1941
524,938	Great Britain	Aug. 19, 1949