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SUCTION CLEANERS

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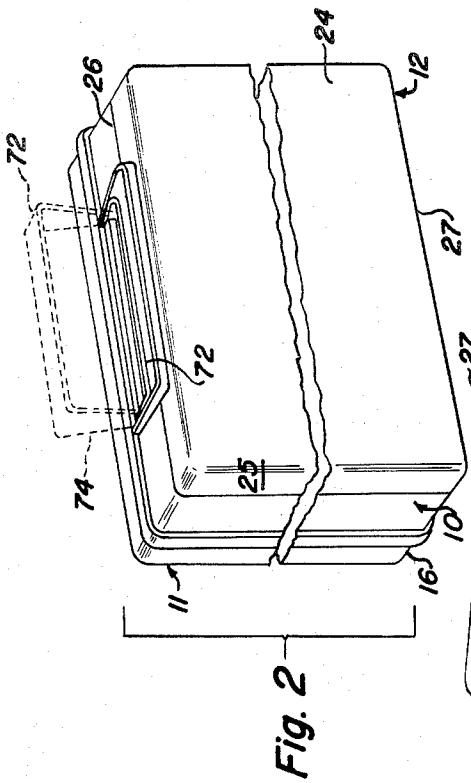


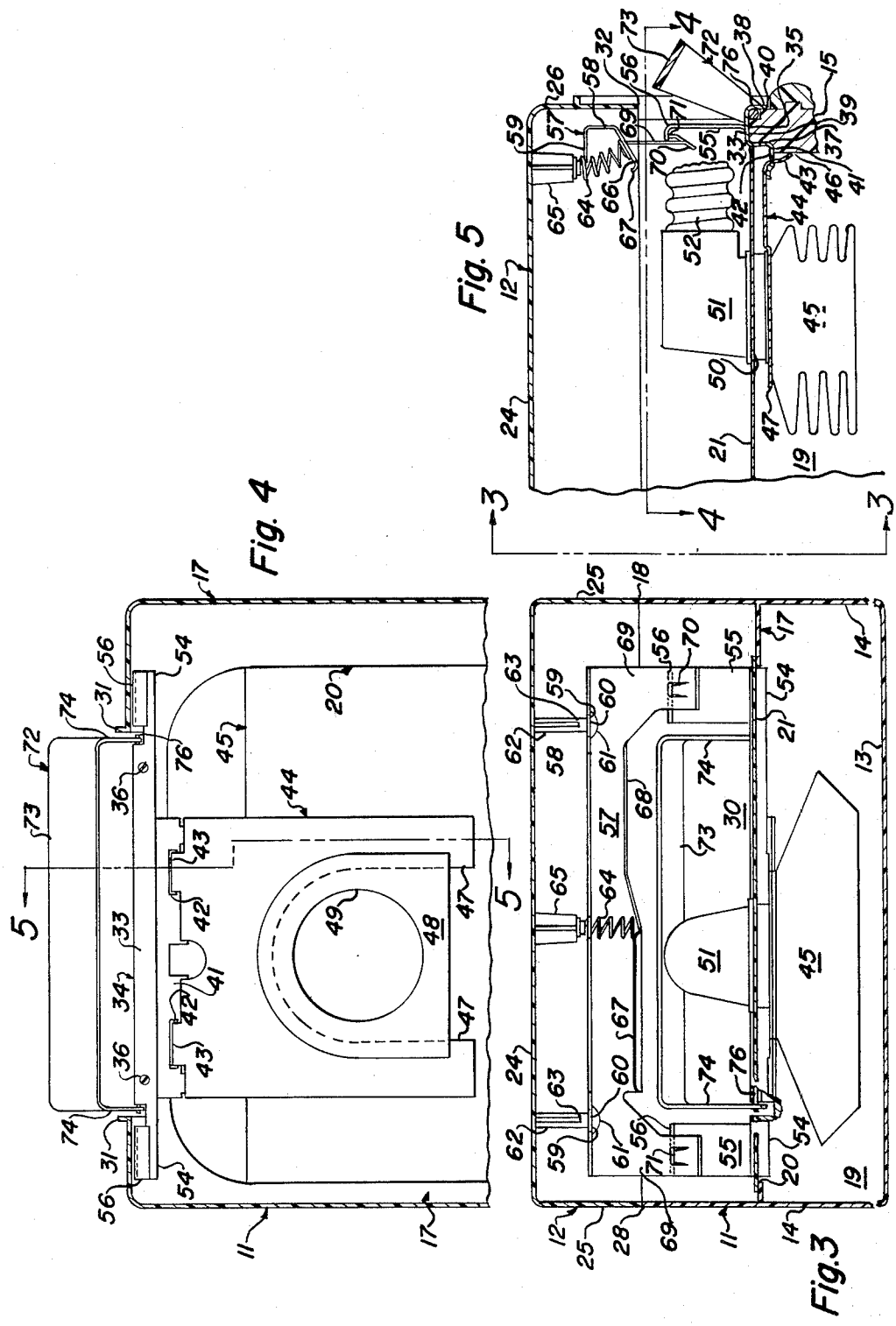
Fig. 2

Fig. 1

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SUCTION CLEANERS

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SUCTION CLEANERS

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The present invention relates to electrical appliances and more particularly to a canister type suction cleaner provided with a carrying handle collapsed into an opening through which the hose normally projects.

An object of the invention is to provide an electrical appliance having a body including a base and a cover therefor, operating parts in the base, an opening in the body for passage of one of the cleaner parts, and a carrying handle having a configuration conforming in part to the outline of the opening and mounted for movement from a projected carrying position to a collapsed position within the opening. Another object is to provide a suction cleaner with bracket means forming a common support for a carrying handle, a support for a dirt filter and also forming part of a cover latch. Other objects and advantages of the invention will become apparent from the following description and drawings, wherein:

FIGURE 1 is a perspective view of the cleaner with the cover closed, the carrying handle in projected position and the hose extending through the opening to carry out the cleaning operation,

FIGURE 2 is a broken perspective view showing the cleaner body in upended storage position with the handle in collapsed and projected positions, the latter being shown in dotted lines,

FIGURE 3 is a view taken along the line 3—3 in FIGURE 5,

FIGURE 4 is a view along the line 4—4 in FIGURE 5 with the hose and cover for the suction chamber removed, and

FIGURE 5 is a section along the line 5—5 in FIGURE 4 to which has been added the covers for the suction chamber and the cleaner body.

The embodiment of the invention herein disclosed comprises a body 10 having a base 11 and a cover 12. The base 11 is substantially rectangular and includes a bottom wall 13, opposed side walls 14, a front wall 15, and a rear wall 16. The base 11 is provided with a platform 17 positioned below the upper peripheral edge 18 of the upstanding walls 14, 15 and 16. The platform or bulkhead 17 cooperates with the lower portions of the walls 14, 15 and 16 and the bottom wall 13 to form a suction chamber 19. Access to the suction chamber 19 is through an opening 20 in the platform 17 and the opening 20 is closed by a suction chamber cover 21 suitably hinged to the platform 17 rearwardly of the opening 20. Arranged in the suction chamber 19 at the rear thereof is an unshown motor-fan unit which creates suction pressure in the chamber 19 and discharges air under pressure through an outlet 22 in the base 11. A switch 23 is suitably connected to the suction creating means to control operation of the latter.

The cleaner cover 12 is provided with a top wall 24, depending opposed side walls 25, a front wall 26 and rear wall 27, the latter being suitably hinged to the rear wall 16 of the base 11. The lower peripheral edge 28 of the depending cover walls abuts the upper peripheral edge 18 of the base vertical walls when the cover 12 is moved to its closed position. The cleaner body 10 is supported on wheels 29 suitably attached to the base bottom wall 13.

The front wall 15 of the base 11 is provided with a marginal access opening 30 having opposed vertical side walls 31 which cooperate with the edge portion 32 of the cover front wall 26 to complete the opening 30 when the

cover is closed. The bottom wall of the opening 30 is defined by a panel portion 33 of a supporting bracket 34 and which rests on the surface 35 in the base front wall 15 and is secured thereto by a pair of screws 36.

The panel 33 of the bracket 34 has depending walls 37 and 38 which respectively seat along the surfaces 39 and 40 of the base front wall 15. The bracket depending wall 37 inwardly of the base front wall 15 has a flange 41 projecting into the chamber 19 and is provided with a pair of spaced hinge openings 42, each of which receives a lug 43 projecting from an edge of a mounting 44 for a filter bag 45. The lugs 43 extend downwardly through the hinge openings 42 to abut the inner surface of the base front wall 15 as indicated at 46 to maintain the bag mounting member 44 in a horizontal position. The bag mounting member 44 is provided with a bifurcated end 47 which removably supports a fiber collar 48 of the filter bag 45 to position the latter in the chamber 19. In order to remove the filter bag 45, the bag mounting member 44 is pivoted about the lugs 43 in the spaced hinged openings 42 to present the bifurcated end 47 at a higher angle to the operator and the bag collar 48 is then detached therefrom; thereafter a new bag may be connected to the bifurcated end 47. The bag collar 48 is provided with an inlet 49 which communicates with the suction air inlet 50 in the chamber cover 21. Rotatably connected in the suction air inlet 50 is the elbow 51 of a flexible hose 52 which extends through the access opening 30 and is provided at its outer end with a suitable surface cleaning tool 53.

The opposite ends of the bracket inner wall 37 are each provided with an extension 54 positioned beyond the vertical end walls 31 of the opening 30 and from which upwardly project a latch keeper 55 having an arcuate end 56 directed toward the interior of the body 10.

The latch means cooperating with the keepers 55 are mounted on the cover 12 and comprise an elongated latch plate 57 having a front vertical panel 58 from the upper edge of which rearwardly projects a pair of spaced lugs 59, each provided with an opening 60 through which extends a headed screw 61 threaded into a boss 62 depending from the cover wall 24. The openings 60 in the latch plate lugs 59 are considerably larger than the diameter of the bosses 62, but movement of the plate 57 therealong is limited by abutting the end 63 of a rib on each boss 62 to thereby provide a loose connection, acting as a hinge, between the latch plate 57 and the screws 61. A compression spring 64 is interposed between a post 65 depending from the cover top wall 24 and a seat 66 formed on a flange 67 projecting inwardly from the lower edge 68 of the front panel 58. Depending from opposite ends of the key plate front panel 58 is a latch member 69 which is provided at its lower end with a cam surface 70 terminating in a latch end 71. The spring 64 biases the latch plate 57 counterclockwise, as viewed in FIGURE 5, about its loose connection on the bosses 62 so that the latch ends 71 are brought into engagement with the keepers 55 to lock the cover 12 with respect to the base 11.

The supporting bracket 34 also provides means to secure a carrying handle 72 to the cleaner base. The handle 72 has an elongated hand grip portion 73 terminating in lateral ends 74, each of which is provided with an opening to pivotally mount the handle on a rod 76 secured to the base 11 between the surfaces 35 and 40 of the front wall 15 and the panel 33 and wall 38 of the bracket 34. The handle 72 is so contoured with respect to the access opening 30 that when the handle 72 is moved to its collapsed position flush with the cover front wall 26, then the handle ends 72 are positioned adjacent the vertical walls 31 and the grip portion 73 along

the cover edge portion 32 whereby the handle 72 forms a lining for part of the opening 30 without closing the latter.

When the cleaner is not in use, the hose 52 is coiled on the platform 17, the cover 12 is closed and the cleaner is in upended storage position with the handle 72 collapsed flush with the cover front wall 26 into the opening 30, as shown in FIGURE 2.

If it is desired to use the cleaner, the operator inserts her hand in the opening 30 and grasps the handle grip 73 to pivot the latter about the rod 76 to the vertical carrying position shown in dotted lines in FIGURE 2. The operator can then carry the cleaner to the desired location and set it down on its supporting wheels in horizontal operating position. In this position of the cleaner the handle 72 will remain in its horizontal operative position shown in FIGURE 1 to expose the full dimensions of the access opening 30.

The stored hose 52 on the platform 17 is uncovered by the operator inserting her hand into the access opening 30 and exerting a force on the latch plate flange 67 to compress the spring 64 causing the latch plate to pivot clockwise, as viewed in FIGURE 5, to disengage the ends 71 of the latch members 69 from the keepers 56 whereby the cover 12 can be moved to its opened position. The stored hose 52 is then uncoiled from the platform 17 and rests on the bracket panel 33 and projecting handle 72 and thereafter the cover 12 is closed to confine the hose 52 in the opening 30. The cover 12 is releasably locked in closed position by the ends 71 of the latch members 69 engaging the keeper hooks 56 when the peripheral edges 28 and 18 of the cover 12 and base 11 respectively abut each other.

The switch 23 is moved to its "On" position to energize the unshown motor-fan unit and create suction in the chamber 19 which suction is transferred through the bag 45 and hose 52 to the nozzle 53, and the dirt removed by the latter is deposited in the filter bag 45 and the cleaned air is discharged through the outlet 22. When it is necessary to replace the filter bag 45, the chamber cover 12 is moved to open position and the bag mounting member 44 is pivoted on its lugs 43 upwardly out of the chamber 19 to remove the bag collar 48 from the bifurcated end 47 of the member 44. A new bag is then inserted on the bifurcated end 47.

After the cleaning operation is completed the tool 53 is removed from the hose 52, the cover 12 is opened and the hose coiled on the exposed platform 17. The cover 12 is then closed and the operator grasps the projecting handle 72 to transport the cleaner to its storage location in upended position and the handle 72 moves downwardly into the opening 30 to its collapsed storage position.

From the foregoing, it will be perceived that the handle 72 when arranged in its collapsed position lies within the access opening 30 lining part of the latter without closing the opening 30. In addition, the bracket 34 provides a simplified arrangement for supporting the handle 72, the bag mounting member 44 and the latch keepers 52 on the front wall 15 of the cleaner base.

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. An electrical appliance such as a canister suction cleaner comprising a body having a base and a cover therefor, filter mounting means in said base for supporting a dirt filter, bracket means in said base for supporting said filter mounting means, a handle mounted on said base by said bracket means and movable to a projected carrying position and a collapsed inoperative position, and latch means on said cover and including part of said bracket means on said base for latching said cover to said base.

2. An electrical appliance as described in claim 1 and means in said body including said bracket means defining an opening to the interior of said body for entrance of the operator's hand to release said latch means to permit movement of said cover to opened position.

3. An electrical appliance such as a canister suction cleaner comprising a body having a base and a cover therefor, means in said base for supporting parts of the cleaner, means movably mounting said cover on said base to provide access to the cleaner parts when said cover is in opened position, means in said body defining an opening through which one of the cleaner parts may project while said cover is closed, a carrying handle movably supported on said body, said handle having a configuration conforming in part to the outline of said opening and arranged with respect thereto for movement from a projected cleaner carrying position to a collapsed position in which said handle lines part of said opening without closing the latter, means for mounting a dirt filter in said base, bracket means securing said carrying handle to said base, and said bracket means having means for supporting said filter mounting means in said base.

4. An electrical appliance such as a canister suction cleaner comprising a body having a base and a cover therefor, means in said base for supporting parts of the cleaner, means movably mounting said cover on said base to provide access to the cleaner parts when said cover is in opened position, means in said body defining an opening through which one of the cleaner parts may project while said cover is closed, a carrying handle movably supported on said body, said handle having a configuration conforming in part to the outline of said opening and arranged with respect thereto for movement from a projected cleaner carrying position to a collapsed position in which said handle lines part of said opening without closing the latter, latch means on said base and cover for latching the latter to said base, and bracket means securing said handle to said body, said bracket means also including means which form part of said latch means.

5. An electrical appliance such as a canister suction cleaner comprising a body having a base and a cover therefor, means in said base for supporting parts of the cleaner, means movably mounting said cover on said base to provide access to the cleaner parts when said cover is in opened position, means in said body defining an opening through which one of the cleaner parts may project while said cover is closed, a carrying handle movably supported on said body, said handle having a configuration conforming in part to the outline of said opening and arranged with respect thereto for movement from a projected cleaner carrying position to a collapsed position in which said handle lines part of said opening without closing the latter, bracket means securing said handle to said base, said bracket means also having rigid keeper means, and means movably mounted on said cover for detachably engaging said keeper means to latch said cover to said base.

6. An electrical appliance such as a canister suction cleaner comprising a body having a base and a cover therefor, means in said base for supporting parts of the cleaner, means movably mounting said cover on said base to provide access to the cleaner parts when said cover is in opened position, means in said body defining an opening through which one of the cleaner parts may project while said cover is closed, a carrying handle movably supported on said body, said handle having a configuration conforming in part to the outline of said opening and arranged with respect thereto for movement from a projected cleaner carrying position to a collapsed position in which said handle lines part of said opening without closing the latter, means for mounting a dirt filter in said base, bracket means for supporting said filter mounting means in said base, and latch means on said cover and on said bracket means for latching said cover to said base.

7. An electrical appliance such as a canister suction cleaner comprising a body having a base and a cover therefor, means supporting said body in a horizontal operating position, means in said base supporting a cleaner hose, means movably mounting said cover on said base to provide access to said hose when said cover is in opened position, means in said body defining an opening arranged substantially vertically when the cleaner is in said horizontal operating position and through which said hose projects with said cover closed, a carrying handle having a configuration conforming in part to the outline of said opening so as to line part of said opening without closing the latter, means supporting said handle on said body for movement from a collapsed position in which said handle partially lines said opening to a cleaner carrying position in which it projects substantially horizontally from said body and said vertically disposed opening to a position below said hose to support the latter when projecting through said opening.

8. An electrical appliance such as a canister suction

cleaner comprising a body having a base and a cover therefor, means in said base for supporting parts of the cleaner, means movably mounting said cover on said base to provide access to the cleaner parts when said cover is in opened position, cooperating means including bracket means defining an annular opening through which one of the cleaner parts may project while said cover is closed, said cooperating means arranged in said base and cover and disposed opposite each other when said cover is closed to complete said opening, and a carrying handle movably mounted on said bracket means forming part of said opening, said handle having a configuration conforming in part to the outline of said opening and arranged with respect thereto for movement from a projected cleaner carrying position to a collapsed position in which said handle lines part of said opening without closing the latter.

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