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R. HAPPE ETAL

3,286,446

MULTI-USE CANISTER TYPE VACUUM CLEANER

Filed Aug. 27. 1963

3 Sheets-Sheet 1

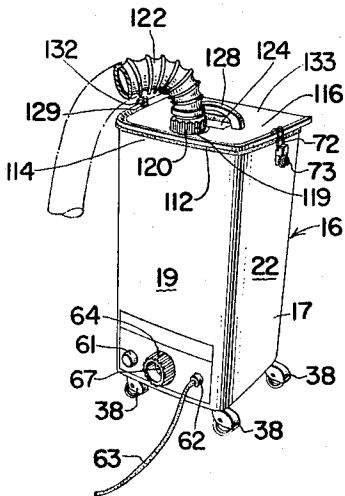


Fig. 1

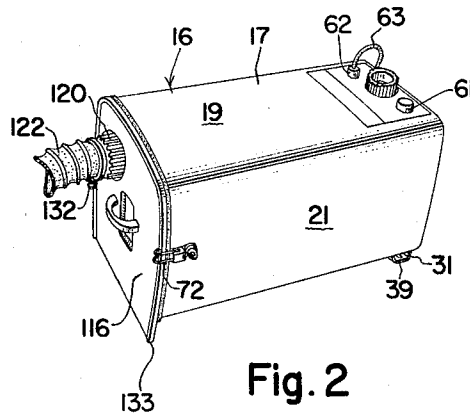


Fig. 2

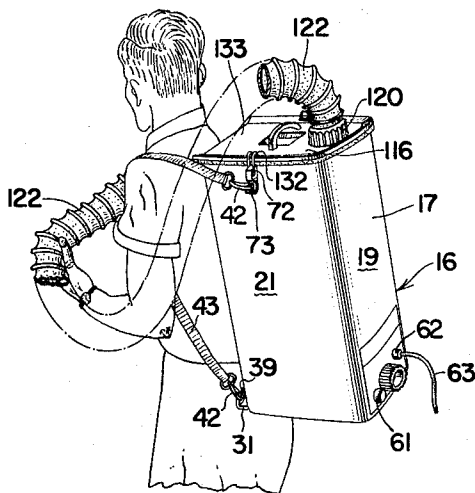


Fig. 3

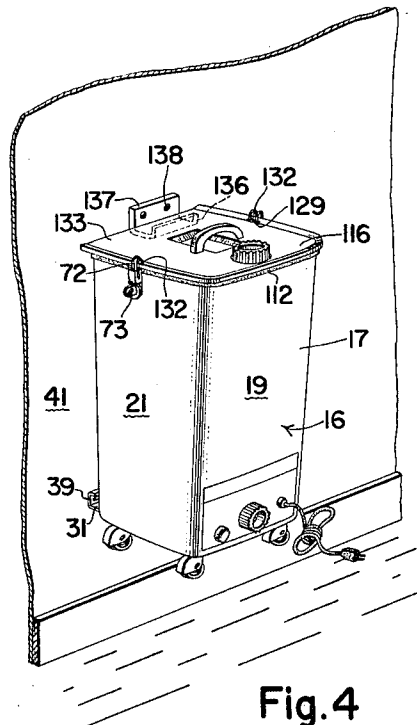


Fig. 4

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3 Sheets-Sheet 3

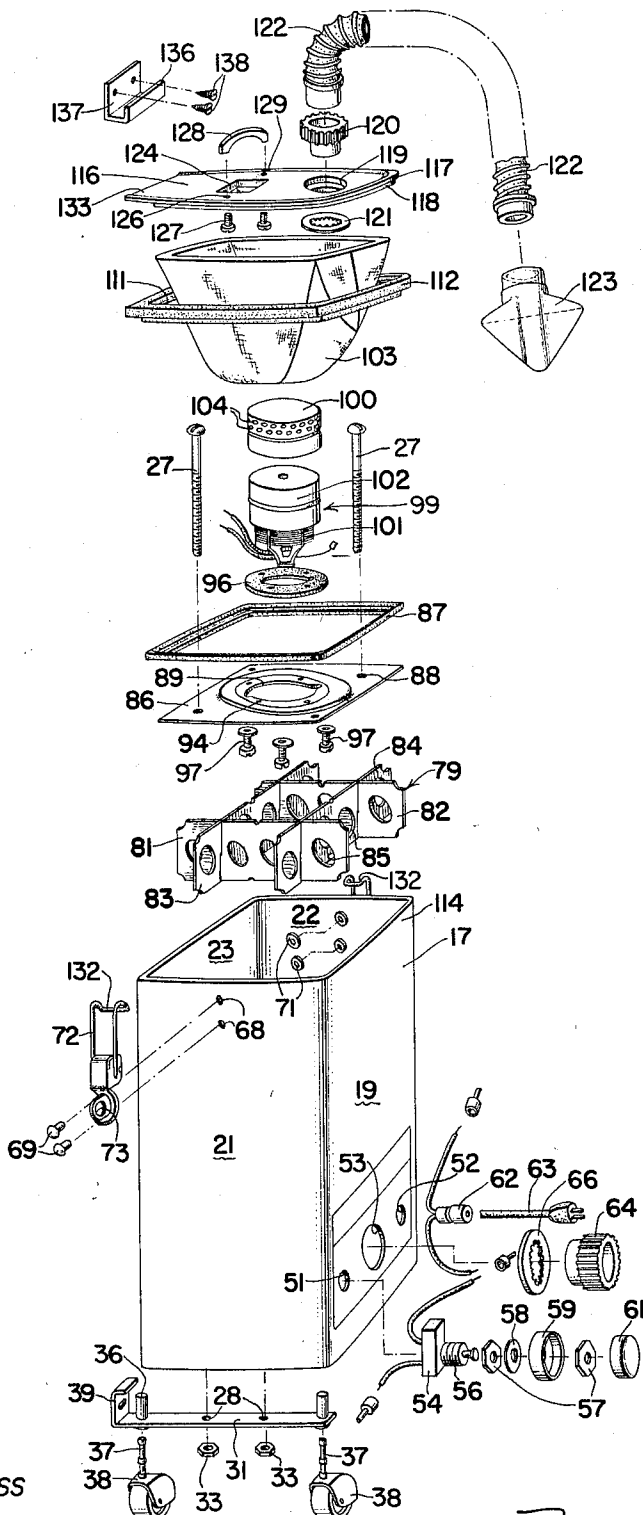


Fig.6

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MULTIUSE CANISTER TYPE VACUUM CLEANER
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1 Claim. (Cl. 55—357)

The invention relates to vacuum cleaners and more particularly to a type of vacuum cleaner that is especially adapted for use in the home, for attaching to power tools, for cleaning a work shop, a cellar etc., and the primary object of the present invention is to provide an improved device of this character.

Another object of the invention is to provide an improved vacuum cleaner which has many different uses and which can be employed as an upright canister type cleaner, as a horizontal tank type cleaner, as a portable cleaner or hung on a wall bracket. A further object of the invention to provide a vacuum cleaner which is inexpensive to manufacture and easy to assemble.

With the above and other objects in view, as will hereinafter appear, the invention comprises the devices, combinations and arrangements of parts hereinafter set forth and illustrated in the accompanying drawings of a preferred embodiment of the invention, from which the several features of the invention and the advantages attained thereby will be readily understood by those skilled in the art.

In the drawings:

FIG. 1 is a perspective view of a vacuum cleaner embodying the present invention and shows the cleaner used as an upright canister type cleaner mounted on casters,

FIG. 2 is a perspective view of the vacuum cleaner shown in FIG. 1 but showing it used as a horizontal tank type cleaner,

FIG. 3 is a perspective view of the same vacuum cleaner showing it carried on a person's back as a portable vacuum cleaner,

FIG. 4 is a perspective view of the same vacuum cleaner showing it hung on a wall bracket,

FIG. 5 is an enlarged sectional view taken on the plane 5—5 of FIG. 4, and

FIG. 6 is an exploded perspective view showing the internal parts of the vacuum cleaner shown in FIGS. 1 through 5.

Referring more specifically to the drawings, the invention is disclosed as embodied in a vacuum cleaner 16 comprising an open topped plastic drum 17 in the form of a rectangular parallelepiped formed with a bottom wall 18, and an encompassment comprising a front wall 19, two side walls 21 and 22, and a rear wall 23. When the vacuum cleaner 16 is in the upright position shown in FIGS. 1, 3, 4 and 5 the top of the drum 17 is closed by means hereinafter fully described.

The bottom wall 18 of the drum 17 is provided with four holes 26 (only 2 being shown) through which pass four bolts 27 (only 2 being shown). The bolts 27, in addition to performing another function presently set forth, pass through holes 28 formed in two foot assembly bars 31 and 32 and by means of nuts 33 the bars 31—32 are secured to the bottom wall 18. In addition, the bottom wall 18 and the bars 31 and 32 are provided with registering holes 34 adapted to accommodate caster tubes 36 which in turn receive the upstanding caster stems 37 formed as part of conventional casters 38. Each of the bars 31 and 32 is formed with an apertured upstanding end 39 adapted to engage a floor (FIG. 2), engage a building wall 41 (FIG. 4), and to receive a snap 42 (FIG. 3) of a carrying strap 43.

The lower portion of front wall 19 is formed with three holes 51, 52 and 53. The hole 51 accommodates an electric switch 54 comprising a threaded stem 56 designed to receive two nuts 57, a washer 58, an escutcheon 59, and a button 61. The hole 52 accommodates a strain relief 62 through which passes an extension cord 63. The hole 53 accommodates a plastic exhaust ferrule 64 which is held in place by a metallic internally toothed clamp washer 66. The ferrule 64 is provided with a filter screen 67. Each of the side walls 21 and 22 is provided with a pair of space holes 68 which by means of rivets 69 and washers 71 secure latches 72 to the walls 21 and 22. Each latch 72 has an eyelet 73 adapted to receive one of the snaps 42.

Internally of the drum 17, there rests on the bottom wall 18 an egg crate type spacer 79 formed from four bars 81, 82, 83 and 84 each having apertures 85. On top of the spacer 79 there rests a square motor mounting plate 86, the four outer edges of which are received by a sound deadening resilient gasket 87. The plate 86 is formed with four spaced holes 88 through which pass the bolts 27 to thereby hold the plate 86 firmly against the top of the spacer 79. The center of the plate 86 has a large opening 89 surrounded by four holes 94. A resilient gasket 96 rests on the plate 86 and four screws 97 pass upwardly through the holes 94 in the plate 86, through holes in the gasket 96 and enter threaded holes formed in a portion 98 of a motor fan unit 99. The motor fan unit 99 will not be described in detail because the internal parts thereof form no part of the present invention. Therefore, suffice it to say that the unit 99 has a motor portion 101 which drives a fan (not shown) in a fan portion 102. The motor fan unit 99 is topped by a guard cap 100 designed to fit over the fan portion 102. The fan portion 102 pulls air downwardly through a dust collecting bag 103, which air enters the fan portion 102 through a plurality of holes 104, formed in the cap 100, then through passageways (not shown) in the motor portion 101, through the apertures 85 in the bars 81, 82, 83 and 84 and out through the exhaust ferrule 64 and screen 67. The guard cap 100 prevents the bag 103 from being drawn by suction into the fan portion 102.

The upper end of the dust collecting bag 103 has sewer thereinto a wire frame 109 (FIG. 5) bent into a substantial square form. The frame 109 and the upper end of the bag 103 rest on an inwardly extending shelf or flange 111 of a substantially square gasket 112. The upper and outer portion of the gasket 112 is formed with an inverted channel 113 designed to fit over the upper rim 114 of the drum 17. A cover or lid 116 closes the upper end of drum 17 by reason of having two downwardly extending ribs 117 and 118. The rib 117 engages the upper surface of the gasket 112 thereby sealing the upper end of the drum, and the rib 118 extends lower than the rib 117 thereby pressing the upper end of the bag 103 and its wire frame 109 into engagement with the shelf 111. The lid 116 is formed with an intake hole 119 which accommodates the shank of an intake ferrule 120 secured by the washer 121 and which in turn accommodates one end of a flexible extension hose 122. The other end of the hose 122 accommodates a nozzle 123. The upper surface of the lid 116 is formed with an upwardly open hand accommodating depression 124 and a pair of spaced holes 126 through which pass screws 127 for securing a pick up handle 128 to the lid 116. The upper surface of the lid 116 is also formed with a pair of spaced upwardly open depressions 129—129 designed to receive the hook-ends 132 of the latches 72. The lid 116, as best seen in FIG. 5, is provided at one side with an overhang 133 which has a downwardly open recess 134 fashioned to receive an upturned flange 136 of a channel shaped

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hanger bracket 137, the other flange thereof being adapted for fastening to a wall by screws 138.

From the above, it will be understood that dust containing air enters the nozzle 123, passes through the hose 122, the intake ferrule 120 and into the bag 103. The bag 103 removes dust from the air and clean air is drawn through the bag 103 and, as previously stated, through the holes 104, through the motor portion 101, through apertures 85 and out through the ferrule 64 and screen 67. When the bag 103 becomes full, the latches 72 are opened to release the lid 116 so that the bag 103 may be removed and emptied, after which the bag 103 and the lid 116 are replaced and fastened in place by the latches 72. From FIGS. 1 through 4 it can be seen that the subject vacuum cleaner 16 has many different uses. Specifically FIG. 1 shows it used as a vertical canister type cleaner supported on casters 38. FIG. 2 shows it used as a horizontal tank type cleaner supported on the ends 39 and the overhang 133. FIG. 3 shows it carried a person's back by means of snaps 42 and straps 43. FIG. 4 shows it semipermanently supported on a bracket 137 by reason of the flange 136 entering the recess 134 of the overhang 133. In addition to the above the vacuum cleaner 16, because of the use of the plastic drum 17, the egg crate type spacer 79, the motor mounting plate 86, the gasket 112, and the cover or lid 116 is inexpensive to manufacture and easy to assemble.

Having thus described the invention, what is claimed herein is:

A multiuse vacuum cleaner adapted for use as an upright canister cleaner, a horizontal canister cleaner, and a portable cleaner, said cleaner comprising in combination a parallelepiped shaped hollow drum having a closing end wall, an encompassment side wall, and an open end; a pair of carrying straps; snaps at both ends of each of said straps; a pair of apertured foot assembly bars, each bar being formed with an apertured upstanding end, said upstanding ends extending beyond one side of said encompassment side wall and being adapted to engage a floor when said cleaner is used as a horizontal cleaner, each of said foot assembly bars having a respective one of said straps associated therewith and the snap of the respectively associated strap removably attaching the snap of the respective strap through an aperture of its associated foot assembly bar for using said cleaner as a portable cleaner; means for securing said foot assembly bars to the closed end wall of said drum; four casters, two of which are carried by each of said bars; an egg crate spacer placed in said drum, said spacer being formed from a plurality of interengaging apertured slats, the bottom edges of said slats engaging the inside surface of said end wall; a motor mounting plate engaging the top edges of the slats of said egg crate spacer; means for holding said mounting plate in place; a motor-fan unit mounted on said mounting plate;

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an exhaust ferrule passing through a wall of said drum; a cap-type guard carried on the top of said motor-fan unit, said guard having a solid top wall and an apertured side wall; a flanged gasket fitted to the upper end of said drum; a dust collecting bag having its upper end carried on the flange of said gasket, and said dust bag being held in a position to filter all dust laden air entering said drum; an apertured lid closing the open end of said drum; a pair of latches secured to opposite sides of said drum and holding said lid to the open end of said drum, each of said latches having a respective one of said straps associated therewith, each of said latches being formed with an eyelet removably receiving one of the snaps carried on the straps associated therewith; a pick-up handle secured to said lid; an extension hose attached to an aperture in said lid; and an overhanging extension formed as part of said lid, said extension extending substantially at right angles to and from the same side of the outer surface of said encompassment side wall from which the upstanding ends of said foot assembly bars extend, and said extension cooperating with the upstanding ends of said foot assembly bars to provide feet for supporting said cleaner when said vacuum cleaner is used as a horizontal canister cleaner, and said extension having a downwardly open recess adapted for engaging a wall bracket when said vacuum cleaner is hung on a wall.

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