WALL MOUNTED CLOTHES CLEANING VACUUM APPLIANCE
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This invention relates to a vacuum cleaner unit adapted to be mounted on a wall, either as an appendage thereto or as a flush installation, and is more particularly directed to such a unit with a provision for storing the vacuum hose therein. The invention is especially concerned with a wall-mounted vacuum cleaning unit housed in its entirety in a single casing and well suited for cleaning clothing.

Various wall-mounted vacuum cleaners are suggested by the prior art. Many of these cleaners have the common characteristic that the wall-mounted units thereof are only part of a relatively complex system. Such systems are, of necessity, relatively expensive both to initially install and maintain. Furthermore, these systems typically have no adequate provision for vacuum hose storage.

In addition to complex systems of the type mentioned above, small vacuum units have also been suggested for wall installation. These units are similar to the systems in that they frequently comprise a series of components which require separate mounting and have no adequate provision for vacuum hose storage. As a result, wall-mounted vacuum cleaning units have had very little public acceptance, even though such units have many obvious advantages over portable units of the type largely in use at present.

It is, accordingly, a principal object of the subject invention to provide a wall-mounted vacuum cleaner unit which overcomes the shortcomings of prior devices of the type enumerated above.

Another and related object of the invention is to provide a wall-mounted vacuum cleaner unit housed in a unitary casing having provision therein for the storage of a vacuum hose.

Yet another object of the invention is to provide a vacuum cleaner unit which is relatively inexpensive to fabricate and aesthetic in appearance.

The objects of the invention are accomplished through the provision of a vacuum cleaner having the vacuum and dirt collecting components thereof housed in a unitary casing, which casing is provided with a novel face panel encompassing both the vacuum inlet and exhaust and a vacuum hose storage provision. In its broadest aspect, the face panel comprises a central section having an open concave receptacle juxtaposed to one side thereof. An open channel extends around the other sides of said central section and has the end portions thereof opening into said receptacles. The receptacle has a vacuum intake port extending therethrough and the channel is adapted to confine therein a hose secured to said intake port.

The foregoing and other objects and the detailed structure of the subject invention will become more apparent when viewed in the light of the accompanying drawings, wherein:

Fig. 1 is an elevational view illustrating the vacuum cleaner of the invention mounted in a wall; and,

Fig. 2 and Fig. 3 are cross sectional views taken on lines 2—2 and 3—3, respectively, of Fig. 1.

Referring now to the drawings, the housing of the inventive vacuum cleaner unit is identified in its entirety by the numeral 10 and is shown mounted in a wall 11.

The forward side of the housing comprises a face panel 12 having a relatively flat central section 13 with an open receptacle 14 juxtaposed to one side thereof and an open channel 15 extending around its other sides and opening into said receptacle. Outlet ports 16 and 17 extend through the upper end of the receptacle 14 and intermediate exhaust ports 18 are provided in the back of the unit for use when the unit is recessed in a wall. Either the ports 16 and 17 or the ports 18 may be closed off depending on the mounting arrangement used. A vacuum intake port 20 extends through the wall of the receptacle 14 juxtaposed to the central section 13. A vacuum hose fitting 21 closes the port 20 and has extending therefrom an opening 22 formed integrally with a hose receiving nozzle 23 extending into the receptacle 14. The fitting 21 is held in the opening 20 by a close slide fit with a sleeve 24 secured in the housing by a grooved section 25 (see Fig. 2).

The sides of the housing 10 are formed by top and bottom walls 26 and 27, respectively, sidewalks 30 and 31, and intermediate walls 32 and 33, all of which extend rearwardly from the face panel 12. The rear of the housing between the intermediate walls 32 and 33 is closed at its lower portion by a wall 34 formed integrally with said intermediate walls and the wall 27 and a removable panel 35 secured to said intermediate walls by screws 36 (see Fig. 3). A mounting flange 37 extends laterally around the housing 10 from the top and bottom walls and the sidewalks and facilitates the substantially flush mounting of the housing in the wall 11, as illustrated in Figs. 2 and 3. To facilitate mounting of the housing 10 against the surface of a wall (not illustrated), alternative mounting means in the form of brackets 40 and 41 in the wall 34 and panel 35, respectively, are provided. These brackets are formed with slots 38 therein adapted to be received on mating elements on a mounting strip (not illustrated) secured to a wall. A pair of feet 39 are mounted on the back of the housing at the bottom to stabilize the housing when it is supported on the brackets 40 and 41.

Flush mounting on the housing 10 in a wall of plasterboard, or the like, is facilitated by an angle section 42 extending around the periphery of the opening in which the housing is to be mounted and having one side thereof extending into the opening and the other side thereof extending slightly over the forward surface of the wall. The section 42 is held in the position illustrated (see Fig. 2) by screws 43 extending through the forward surface thereof and through the wall 11 into engagement with nut elements 44 on the rearward side of the wall. The housing 10 is, in turn, secured to the angle section 42 by metal screws 45 extending through openings provided therefor in the top and bottom walls and the sidewalk walls and into threaded engagement with the angle section 42.

The housing 10 has formed therein a vacuum chamber 46 having a lower end in communication with the opening 20. A dirt collecting bag 47 is received in the chamber 46 and has the mouth thereof sealedly secured to the fitting 21 by an annular clamp 50. The bag 47 is fabricated of a permeable material which permits the relatively free drawing of air therethrough while at the same time preventing the passage of dirt therethrough.

A blower chamber 51 is confined by the upper end of the housing 10 and is open at its upper end to the outlet ports 16 and 17 and at its lower end to the vacuum chamber 46. A guide section 52 is interposed between the chambers 46 and 51 to facilitate the flow of air to the intake of a blower 53 mounted in the chamber 51.
electric motor 54 is also received in the chamber 51 and is drivingly engaged with the blower 53. Mounting brackets 55 and 56 hold the motor 54 centrally in the chamber 51 so as to define an annular passage around through which fluid communication is established between the discharge side of the blower 53 and the outlet ports 16 and 17. Electrical power is supplied to the motor 54 by an electrical cord 57 connected thereto. The circuitry between the cord 57 and motor 54 is of conventional nature and has interposed therein a switch 60 adapted to turn the motor off and on. The switch 60 is mounted on the central section 13 of the face panel 12 so that the actuating button 61 extends through said panel. Conventionally electric leads 58 (only one of which is illustrated) connect the switch circuitry to that motor.

The vacuum cleaner construction is completed by a flexible vacuum hose 62 having one end secured to the nozzle 23 of the fitting 22 and the other end secured to a cleaning nozzle 63. The hose 62 is adapted to be either pulled from the housing 10, as illustrated in solid lines, or to be confined in the channel 15, as illustrated in phantom lines (see FIG. 1). The cleaning nozzle 63 is of generally right angle configuration and is adapted to be received in its entirety in the receptacle 14, as illustrated in phantom lines in FIG. 1. The right angle configuration of the nozzle 63 facilitates both its handling when used for cleaning and the seating thereof in the receptacle 14, since the right angle interior surface of the receptacle mates with the right angle surface of the nozzle. Thus, it can be seen that the interrelationship of the hose-nozzle combination 62–63 and the receptacle-channel combination 14–15 facilitates both the use of the hose 62 for cleaning purposes and the ready storage thereof in the housing 10. The interrelationship of the hose 62 and channel 15 is particularly desirable, since the hose functions to close the outlet ports 16 and 17 when it is received within the channel, thus enhancing the aesthetic characteristics of the vacuum cleaner and closing said ports to the entrance of foreign objects.

A particularly desirable feature of the subject vacuum cleaner construction results from the interrelationship of the fitting 21, sleeve 24 and receptacle 14. Specifically, the sleeve fits between the fitting 21 and sleeve 24 facilitating the removal of the fitting, along with the bag 47 and hose 62 secured thereto, from the housing 10. During such removal, both the fitting 21 and bag 47 are pulled through the receptable 14. Once removed from the housing 10, the bag 47 may be released from the fitting 21 and, optionally, the bag, or a replacement bag, is secured to the hose and re-installed in the housing as illustrated in FIG. 2. Thus, means is provided to facilitate the ready disposal of dirt collected in the bag 47.

In operation, in order to use the subject vacuum cleaner it is merely necessary to remove the hose 62 and nozzle 63 from the confines of the housing, as illustrated in solid lines in FIG. 1, and to energize the motor 54 through means of the switch 60. Upon energizing of the motor 54, the blower 53 is activated and draws air through the nozzle 63, hose 62, and bag 47. At the same time, air is exhausted from the blower chamber 51 through the outlet ports 16 and 17. The flow of air through and out of the cleaner is indicated by the dashed arrow lines of FIG. 1. It is noted that air is preferably drawn into the nozzle 63 through a brush 64 mounted thereon, as is well known in the electric cleaner art.

To conclude, from the foregoing detailed description it is believed apparent that the present invention enables the accomplishment of the objects initially set forth herein. In particular, an improved unitary wall-mounted vacuum cleaner with a vacuum hose storage facility is provided. The vacuum cleaner is compact and may be mounted in a wall very easily while employing a flexible hose that is long enough to permit use of the vacuum cleaner as a brush for all of the clothing which the user is wearing, and the vacuum cleaner may be removed easily from the wall and carried about the house for small vacuum cleaning jobs. It is to be understood, however, that the invention is not intended to be limited to the specific embodiment illustrated and described, but rather is defined by the following claims.

What is claimed is:

1. In a vacuum cleaner adapted to be mounted on a wall, the combination comprising:
   (a) a casing with a face panel, said panel comprising:
      (1) a central section;
      (2) an open concave receptacle juxtaposed to said central section and having a vacuum intake port extending therethrough; and
      (3) an open channel extending around said central section and having the end portions thereof opening into said receptacle, said channel being adapted to confine a vacuum hose therein for storage;
   (b) a vacuum chamber housed in said casing rearwardly of said face panel and in fluid communication with said vacuum intake port;
   (c) a blower chamber housed in said casing rearwardly of said face panel and having an inlet port in fluid communication with said vacuum chamber and an outlet port opening through said casing;
   (d) a blower mounted in said blower chamber and having intake and discharge sides in fluid communication with said inlet and outlet ports, respectively;
   (e) a dirt collecting bag disposed in said vacuum chamber and having the mouth thereof facing said intake port;
   (f) a hose attaching fitting closing said intake port and having an opening extending therethrough in fluid communication between the interior of said bag and said receptacle; and
   (g) a vacuum hose secured to the opening of said fitting and extending into said receptacle, said hose being adapted to be either pulled forward of said casing or confined within said channel for storage.

2. A combination according to claim 1 wherein said fitting is adapted to be removed from said intake port and through said receptacle along with the dirt collecting bag secured thereto.

3. A combination according to claim 1 including a nozzle secured to the free end of said hose, said nozzle being adapted to be confined within said receptacle for storage.

4. A combination according to claim 1 wherein said receptacle and nozzle have like-shaped surfaces adapted to mate when said nozzle is confined within said receptacle.

5. A combination according to claim 1, including mounting flanges extending laterally from said casing to facilitate the substantially flush mounting thereof in a wall.

6. A combination according to claim 1 including a mounting bracket on the rear of said casing to facilitate the mounting thereof on a wall.

7. A combination according to claim 1, wherein:
   (a) said outlet port opens into said channel; and
   (b) said hose covers said outlet port upon being confined within said channel.

8. A face panel for a vacuum cleaner adapted to be mounted on a wall, said panel comprising:
   (a) a substantially flat central section;
   (b) an open concave receptacle indented rearwardly from said central section and having one side juxtaposed thereto, said side having a vacuum intake port extending therethrough; and
   (c) a recessed channel section indented rearwardly of said central section and extending therearound with the end portions thereof opening into said receptacle, said channel section being adapted to releasably confine a vacuum hose therein for storage.
9. A face panel according to claim 8 wherein said recessed channel section has an outlet port extending therethrough in a position which will be covered by a vacuum hose confined therein.

10. A face panel according to claim 8 including mounting flanges extending laterally from said channel and receptacle sections to facilitate the substantially flush mounting of said panel in a wall.

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