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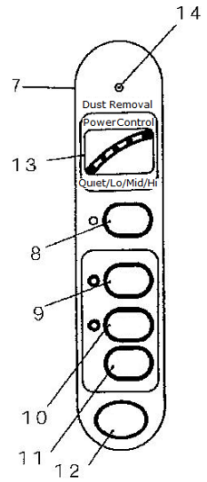
(54) [Title of Invention] Electric Vacuum Cleaner

(57) [Abstract]

[Purpose] To provide a full power switch that makes a vacuum cleaner even more convenient to use.

[Constitution] A full power switch 12, that activates the maximum speed when an electric monitor is operating, provided on the display unit 7 of the handle 4, eliminates the inconvenience of having to press other switches multiple times and makes more efficient dust and debris removal possible.



8: Manual switch
9: Brush switch
10: Fuzzy switch
11: OFF switch
12: Full power switch

[Utility Model Claims]

[Claim 1] An electric vacuum cleaner having a control display unit 7 provided on a handle 4 connected to a main unit 1 and a suction unit 3, the control display unit 7 provided with a main switch 11 to turn an electric motor on and off, a brush switch 9 to turn a motor rotating a brush on and off, and a manual switch 8 to change the rotation speed of the electric motor to one of a plurality of levels, wherein a full power switch 12 is provided to activate the maximum speed when the electric motor is operating, independently of the operation of the manual switch 8.

[Brief Description of the Drawings]

[Fig. 1] Fig. 1 is a perspective view of a generic electric vacuum cleaner including the present invention.

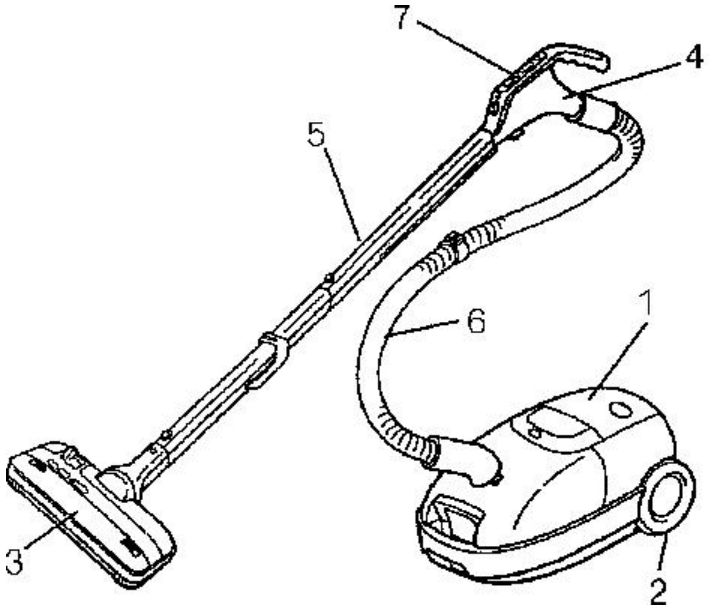
[Fig. 2] Fig. 2 is a plan view of the control display unit in an example of the present invention.

[Fig. 3] Fig. 3 is a plan view of a control display unit of the prior art.

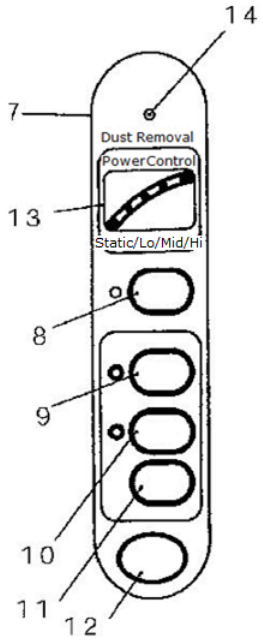
[Key to the Drawings]

1 Main unit
3 Suction unit
4 Handle
7 Control display unit
8 Manual switch
9 Brush switch
12 Full power switch

[Fig. 1]

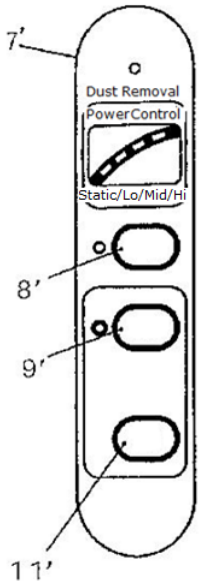


[Fig. 2]



8: Manual switch
9: Brush switch
10: Fuzzy switch
11: OFF switch
12: Full power switch

[Fig. 3]



8': Manual switch
9': Brush switch
11': OFF switch

[Detailed Description of the Utility Model]

[0001]

[Industrial Applicability]

The present invention was conceived to make a vacuum cleaner used in households more convenient to use.

[0002]

[Prior Art]

As shown in Fig. 3, a control display unit 7’ of a certain type of electric vacuum cleaner has a push-type main switch 11' installed in the main unit 1 to turn an electric motor (not shown) on and off, a push-type brush switch 9' to turn the power to a motor for a rotating brush (not shown) provided on the underside of a suction unit 3 on and off, and a rotary-type manual switch 8' is to change the setting of the electric motor to a plurality of levels, namely, static, low, and high. Each of these switches is used to operate the vacuum or rotary brush as needed.

[0003]

[Problem to Be Solved by the Invention]

A conventional manual switch is a multi-level rotary-type switch in order to avoid increasing the number of switches.

This makes it inconvenient to switch the setting from static to high, as cleaning must be interrupted and the manual switch pressed three times to go from low to medium to high.

High is the maximum speed, and the suction work rate can be as high as 320 watts. Therefore, it is commonly used for a few seconds to a few dozen seconds for wall cleaning or localized cleaning. It is also cumbersome to press the switch several times each time the high setting is used.

[0004]

[Means for Solving the Problem]

The present invention relates to an electric vacuum cleaner having a control display unit provided on a handle connected to a main unit and a suction unit, the control display unit provided with a main switch to turn an electric motor on and off, a brush switch to turn a motor rotating a brush on and off, and a manual switch to change the rotation speed of the electric motor to one of a plurality of levels, wherein a full power switch is provided to activate the maximum speed when the electric motor is operating, independently of the operation of the manual switch.

[0005]

[Operation]

If there is dust and debris along the wall or in a local area, while the fuzzy switch 10 is being used to automatically clean the area with suction power and rotation speed and the full power switch 12 is pressed, the cleaning conditions and power indicated by the fuzzy switch

10 are released, the suction work rate reaches its maximum of 320 watts, and the dust and debris are immediately removed at maximum capacity.

Once this dust and debris has clearly been removed, release of pressure from the full power switch 12 immediately releases the maximum capacity, returning the switch to its previously set position.

[0006]

[Example]

An example of the present invention will now be described. Here, 1 is the main unit of the vacuum cleaner with an electric motor for suction and a dust collection chamber inside and casters 2 on the underside.

3 is a suction unit with a suction opening on the underside, a rotating brush in the suction opening, and a brush rotating motor to rotate the brush.

4 is a gun-type handle connected to the suction unit 3 via an extension tube 5 at the front and the suction port of the main unit 1 via a flexible hose 6 at the rear.

[0007]

The control display unit 7 on the top side of the handle 4 has a manual switch 8, a brush switch 9, a fuzzy switch 10, a main switch 11, and a full power switch 12 arranged in order from the tip.

The manual switch 8 is a rotary-type switch for changing the electric motor to four different levels, namely, static, low, medium, and high with each press of the switch, and the level is indicated using lights or some other indicator 13.

The manual switch 8 is sequentially set to suction work rates from 70 to 320 watts for the static, low, medium, and high levels.

[0008]

The brush switch 9 is used to selectively turn the rotating brush off and on by pressing it, and the rotating brush rotates at the speed set using the manual switch 8.

The fuzzy switch 10 automatically adjusts the suction force of the main unit 1 and the speed of the rotating brush, no matter which level the manual switch 8 has been set to, according to fuzzy logic, based on the air pressure detected by a pressure sensor used to determine the type of floor surface (such as carpet, tatami, bare floor, etc.) and the waste load of the paper bag. Here, the maximum suction work rate is held at 220 to 250 watts.

[0009]

The main switch 11 is pressed to turn the electric motor off and on.

The full power switch 12 sets the electric motor to its maximum speed and produces a suction work rate of 320 watts only when the switch is being held in, and returns to the level set by the switches when released.

Here, 14 is a lamp used to indicate that the vacuum is clogged.

[0010]

The operations performed by this example will now be explained. If the fuzzy switch 10 has been used to automatically set the suction power and rotation speed during cleaning and there is dust and debris along a wall or in a local area, pressing the full power switch 12 cancels the cleaning or power level set by the fuzzy switch 10 and the suction work rate

reaches 320 watts, which is the maximum capacity, to immediately remove the dust and debris.

When it is clear that the dust and debris has been removed, releasing pressure from the full power switch 12 immediately releases the maximum capacity, returning the level to the previous setting.

[0011]

The same operation can be performed by pressing and releasing the full power switch 12 from a lower setting set using the manual switch 8.

[0012]

[Effect of the Invention]

When a full power switch is used to maximize performance, there is no need to press a manual switch or other switches multiple times, or to pause the cleaning process. Switching and efficient dust and debris removal can also be performed immediately. Releasing pressure on the full power switch automatically returns the level to the previous setting.

TRANSLATION CERTIFICATION

Date: May 31, 2024

To whom it may concern:

This is to certify that the attached translation is an accurate representation of the documents received by this office. The translation was completed from:

- Japanese

To:

- English (USA)

The documents are designated as:

- JPH0580451U

Emily Paras, Project Manager in this company, attests to the following:

"To the best of my knowledge, the aforementioned documents are a true, full and accurate translation of the specified documents."

Signature of Emily Paras