Nov. 4, 1952 H. A. KROENLEIN 2,616,114

ELECTRICAL SWITCH FOR CYLINDER TYPE VACUUM CLEANERS

Filed May 31, 1945

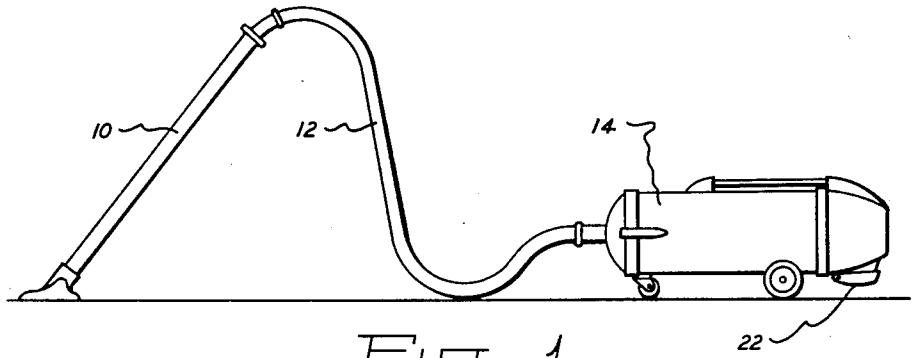


Fig. 1.

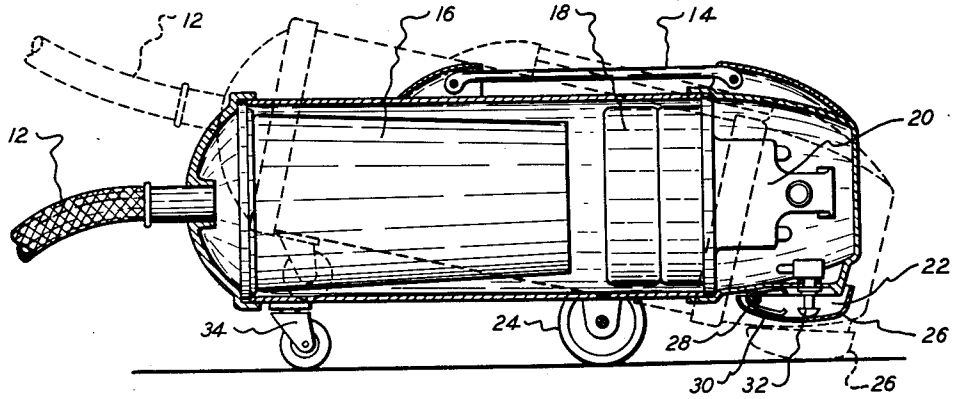


Fig. 2.

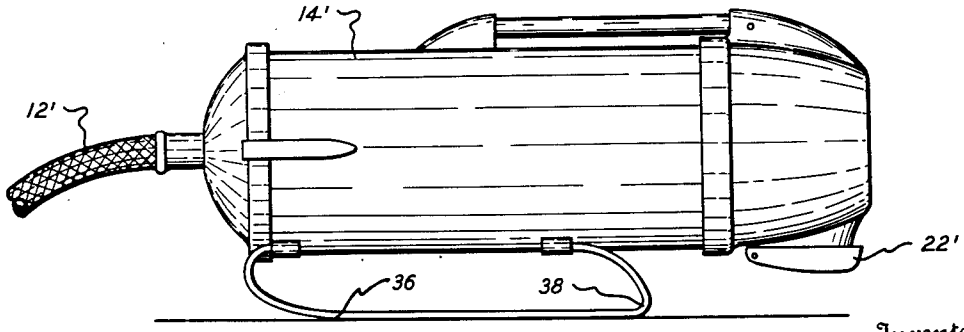


Fig. 3.

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Patented Nov. 4, 1952 2,616,114

UNITED STATES PATENT OFFICE

2,616,114

ELECTRICAL SWITCH FOR CYLINDER TYPE VACUUM CLEANERS

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Application May 31, 1945, Serial No. 596,919

3 Claims. (Cl. 15—327)

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The present invention relates to improvements in electric vacuum cleaner constructions of the so-called cylinder type. Such cleaners conventionally have an elongated housing which contains the filter, air pump and motor and are horizontally disposed when in use with wheels or skids attached to the housing. When being used, cleaners of this type are drawn across the floor by the operator pulling upon the suction hose attached to one end of the elongated housing.

In cleaners of the type described, it has been the practice heretofore to mount the electrical switch for the motor on the elongated housing, usually at its uppermost position where it may be conveniently actuated by the foot. With this arrangement the operator is unable to turn the motor on and off from the point of operation, namely, at the nozzle end of the suction hose. As a result it is necessary to take several steps back to the housing in order to operate the switch. This is time consuming and a somewhat inconvenient act, especially to the housewife. During the normal use of a domestic vacuum cleaner of the type herein being considered, the vacuum motor is frequently turned on and off while the cleaner is being used.

According to the present invention the aforesaid inconvenience has been materially overcome by distributing the weight of the elongated housing differently, and relocating the motor switch in such a manner that the switch may be turned off and on by the operator from the nozzle end of the suction hose by manipulating the hose in such a manner that the housing is tilted and the switch actuated.

Thus one of the objects of the present invention is to provide an improved vacuum cleaner of the type described having the operation of the motor controlled through manipulation of the hose.

Another object of the present invention is to provide a new combination of a cylinder type vacuum cleaner having an electric switch so located that the switch may be turned on and off by tilting the cleaner housing through manipulation of the vacuum hose.

A still further object is to provide an improved vacuum sweeper of the type described in which the weight of the cleaner has been so distributed that it may be readily tiltable through manipulation of the suction hose in order to control the operation of the electric motor.

These and other objects and advantages residing in the combination, arrangement and construction of parts will be more fully understood

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from a consideration of the following specification and claims.

In the drawing,

Fig. 1 is a side elevational view of my improved vacuum cleaner construction and electric switch arrangement,

Fig. 2 is an enlarged vertical cross-sectional view of the housing construction shown in two positions of operation, and

Fig. 3 is a side elevational view of a slightly modified form of the invention.

Electric vacuum cleaners of the type with which the present invention is particularly concerned comprise a nozzle portion **10**, a suction hose **12**, a housing **14** in which is located a filter bag **16**, an air pump **18**, and an electric motor **20**.

In lieu of mounting the electrical switch for turning the motor **20** on and off on top of the housing **14** in the conventional manner, according to the present invention the electrical switch **22** is so located that when the housing **14** is tilted around the wheels **24** as a fulcrum, the switch is actuated.

The switch **22** can be of any conventional construction of the type which is depressed first to turn the switch on and then turned off on the next depression i. e. the switch is the so-called "push-push" type. As shown the switch **22** comprises a sheet metal actuating portion **26** hinged at **28** with a spring **30** holding the same extended as shown in full line in Fig. 2. A force against the member **26** rocking the same counterclockwise around the pivot **28** results in the plunger **32** being actuated to either turn the motor **20** on or to turn the same off.

It will be understood that the air pump **80** and motor **20** constitute the major portion of the weight of the housing **14**. By locating the wheels **24** slightly to one side of the center of mass of the entire assembly, a deliberate jerking movement of the hose **12** into the dotted line position shown in Fig. 2 will result in the housing **14** being tilted, bringing the member **26** into engagement with the floor to actuate the plunger **32** to either turn the motor **20** on or off, depending on the particular portion of the cycle of operation. Forward swivel wheels **34** support the front end of the housing **14**.

It should be apparent from the foregoing description that the operator working at the nozzle end can either turn on or off the motor **20** by merely moving the hose **12** upward sufficiently to tilt the housing **14** in the manner illustrated in Fig. 2. It will be appreciated that a sudden flip of the hose **12** causing a vertical wave to be

transmitted therealong will be in a position to snap the electrical switch 22 on and off as desired.

To those skilled in the art it will be readily apparent that numerous types of electrical switches actuated through the tilting of the housing 14 will suggest themselves. Accordingly, it is my desire to not only specifically claim the location of the electric switch in the manner illustrated in combination with the tilting of the housing 14, but to also broadly include within the scope of the present invention other forms of electrical switches actuated through the tilting of the housing 14.

In the modification shown in Fig. 3, the housing 14' is equipped with an electrical switch 22' at the rear end thereof and in a position to engage with the floor for actuation on tilting of the housing 14'. In lieu of the wheel structure shown in Figs. 1 and 2, a suitable skid 36 has been provided and so-located that the distribution of weight and fulcruming action is the same as was described with reference to the construction shown in Figs. 1 and 2. It will be understood that by elevating the housing 14' through the hose 12', the electrical switch 22' can be turned off and on by the tilting action of the housing 14' about the fulcrum point 38.

Having thus described my invention, what I desire to cover by Letters Patent and claim is:

1. In a suction cleaner; a casing housing a filter, a suction pump and an electric motor for driving said pump; means for supporting said casing, a suction hose connected to said casing forming a manipulating element for moving said casing about a supporting surface on said supporting means and for tilting said casing about a portion of said supporting means as a fulcrum, a control switch mechanism of the push-push type for energizing and de-energizing said motor, actuating means on said casing for operating said switch projecting below said casing in position to be moved into contact with a supporting surface to apply operating pressure to said switch mechanism when said casing is tilted about said portion of said supporting means.

2. In a suction cleaner; a casing housing a filter and an electric motor driven suction pump, surface engaging supporting means on said casing terminating short of one end of said casing, a suction hose connected to said casing and providing a manipulating element for moving said casing on said supporting means and for tilting said casing about the portion of said supporting means nearest said one end of said casing as a fulcrum, a control switch for energizing and de-energizing said motor driven pump, an actuating mechanism for said switch of the type which operates said switch to open and closed circuit positions in response to successive applications of pressure applied to said mechanism, and means movably mounted on said casing between said one end thereof and said fulcrum and projecting below said casing to be moved into contact with a supporting surface to apply operating pressure to said actuating mechanism when said casing is tilted about said part of said supporting means as a fulcrum.

3. In a suction cleaner; a casing housing a filter, a suction pump and an electric motor for driving said pump; means for supporting said casing for movement in a normal cleaning position on a supporting surface, a suction hose connected to said casing forming a manipulating element for moving said casing about a supporting surface on said supporting means and for tilting said casing away from said normal cleaning position about a portion of said supporting means as a fulcrum, means forming an energizing circuit for said motor including a control switch carried by said casing and having closed and open circuit controlling positions for energizing and de-energizing said motor respectively, mechanism operative in response to successive applications of force thereto for successively operating said switch to said open and closed circuit controlling positions, an actuating member movably mounted on said casing operative in response to each predetermined tilting movement of said casing about said portion of said supporting means away from said normal cleaning position to impart an operating force to said mechanism and said switch being of the type which is stable in each of said circuit controlling positions except as modified by said actuating member.

HENRY A. KROENLEIN.

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