The present invention includes a flexible hose with at least two end fitting. The first end fitting is inserted into the wall valve of the central vacuum cleaner system. The first end fitting is generally rectangular in shape and may have a kill switch located thereto. The first end fitting may be used as a receiver. In addition the first end fitting may include a generally cylindrical coupling member. The coupling member may include at least one contact member. The contact member may be located on the outer circumferential surface of the coupling member. The second end fitting may be shaped like a handle for controlling the power head. In addition the second end fitting may be used as the transmitter. Located on the second end fitting may be an indicator light that lets the user know if the handle is transmitting to the first end fitting.
RF Block Diagram

Insertion of Wall Fitting

Kill Switch disengage

RF Signal Send

RF Signal Received

Vac Power On
RADIO FREQUENCY CONTROLLED CENTRAL VACUUM ENDFITTING

[0001] This application claims priority on U.S. Application Ser. No. 60/794,023 filed Apr. 21, 2006, the disclosures of which are incorporated herein by reference.

FIELD OF INVENTION

[0002] The present invention relates to improvements in vacuum systems. More specifically, the present invention relates to a vacuum handle having a radio frequency transmitter and an associated receiver for operating a vacuum system, in particular a vacuum system such as a central vacuum system. The vacuum handle communicates with the system through a receiver via a radio frequency remote control. The receiver may be an endfitting on the hose itself or on the system or elsewhere.

BACKGROUND OF THE INVENTION

[0003] A central vacuum power unit sits in an out-of-the-way area such as your garage, basement, or utility room. Wall inlet valves are then installed in various locations throughout the home and connected to the power unit through tubing. Generally, the tubing can be run through the attic, basement or cold air returns, and then dropped behind the interior walls to complete the installation. After installation, the system can be activated by simply plugging the lightweight hose into a wall inlet. The system then carries the dirt, dust, animal dander and allergens out of the room into the main power unit and deposits all of the debris into the canister. Most commonly used central vacuum cleaner systems today implement a hose assembly that has at least two end fittings. Generally, one end fitting is inserted into the wall valve, and the other end fitting, usually a handle, is attached to the opposite end of the hose assembly, which allows the user the ability to easily control the movement of the suction head. As is the case with most central vacuum systems, there exists the need to control the motor of the central vacuum cleaner system (hereinafter CV) via a switch located on the handle. This allows the user to start and stop the CV without going back and forth to the CV unit, generally located in an out-of-the-way area of the home. Also associated with most CV units are wall valves, which come in a variety of shapes and sizes, not to mention different contact locations.

[0004] This invention relates to a transmitting handle and a receiver associated with the system, for example, an end fitting, that is used with central vacuum systems. Central vacuum systems are increasingly popular. Central vacuum systems are commonly found in a variety of buildings, notably family residences. As mentioned above, a typical central vacuum system includes a vacuum pump connected to an electric motor for driving it, a plenum for generating a vacuum and duct work to another plenum for collecting debris in a vessel such as a bag and allowing exhaust air to be vented. The motor, vacuum pump and plenums are generally located in the basement or other relatively remote locations within a house. A network of tubing or ducts connects the central vacuum cleaner to each of the rooms to be serviced. One or more vacuum hose connection points are located in each of the rooms to be serviced. These openings are generally covered by an airtight flap or valve to prevent the induction of air through unused openings and to maintain a vacuum within the system. A hose with a wand end is connected to one of the connection point openings when that room is to be vacuumed. The wand normally includes a handle for the user to hold and a suction head for drawing in the air and collected debris.

[0005] A difficulty with prior central vacuum systems lies with turning the central vacuum motor on and off conveniently and reliably. Generally, because of the normal base ment location of the central pump motor, climbing up and down the stairs every time the user desires to use the system is inconvenient and tiring. As a result, several approaches to this problem of providing a convenient switch for operating the vacuum motor have been developed in the prior art. One such attempted resolution involved mounting an electrical switch on the handle of the portable hose and routing two low voltage wires along the hose to a coupling ring on the end of the hose, as will be discussed below, this configuration has some disadvantages.

[0006] As mentioned above within the central vacuum cleaner market it is desirable and considered a feature for the user to be able to operate the on/off functions from the handle. Generally the switch may communicate with central vacuum unit or the power head at the end of the wand. When the hose is fastened to the wall opening valve, as by use of a bayonet mount or screw mount, contact points on the coupling ring engage matching contact points on the fitting in the wall opening. The contact points on the wall opening fixture are connected to a light gauge wire pair that runs along the tubing to an electrical relay which switches the vacuum motor on and off. This system suffers from at least four serious disadvantages. First, it is inordinately expensive to provide hoses and tubing or ducts having a wire pair running the length of the hose and tubing. Second, these wires are prone to breakage, creating an open circuit that is difficult to locate and expensive to repair. Third, because the cleaning implement is often subject to rough use and handling, the contact points on the coupling members frequently wear out or break, preventing the user from switching the system on. Finally, the flexible hoses that are generally used with these central vacuum cleaner systems are usually equipped with at least two wires running through the body of the hose. These wires are generally manufactured from steel, copper and the like, thus making these types of hoses heavy and a burden to carry around.

[0007] An alternative approach to solving this problem is disclosed in U.S. Pat. No. 4,829,626, issued to Harkonen et al. on May 16, 1989. Harkonen discloses a method for controlling a vacuum cleaner that includes a battery operated electrical sound signal generator mounted in the handle of the wand. When the signal generator is activated, it generates and transmits a sound signal through the tubing, which in turn is sensed by a receiver which generates an electrical pulse to start the motor of the vacuum cleaner. In the Harkonen system, when an operating lever located in the handle is moved to the on position a flap in the wand opens, allowing air to be drawn through the wand and the network of tubing to the vacuum cleaner and permitting the sound generated by the electrical signal generator to travel more easily to the receiving equipment located close to the vacuum cleaner motor. The sound signal is only generated momentarily in order to start the motor. Once the sound signal has been transmitted for the predetermined brief time, the sound generator is turned off. If the motor has started as
intended, the motor keeps running until the flow of air through the system is blocked. It is intended that the flap in the hose near the wand be manually swung into a position across the inlet of the hose, thereby blocking the flow of air. Then a detector detects the stopping of the flow of air and, in response, turns off the vacuum motor.

As mentioned above a typical central vacuum system generally includes an endfitting, which is inserted into the user’s wall valve. Currently there are approximately 20 different types of wall valves that are used in today’s central vacuum market. Each of which have different contact locations as well as different inside diameters. Because of the many different wall valves most users are limited to use the hose that is supplied with the central vacuum system. Thus, if a user wanted to attach a special attachment, such as an agitator or a brush, to the wall valve, there existed the potential of not having the contacts line up in the wall valve and the needed attachment.

Known universal hose end fittings, as these are called, typically include an electrical connector body having two prongs connected to power conductors in the hose. The connector body can be detached from the hose, either by disassembling the end fitting or by releasing a screw or similar fastener, reversed in direction, and reattached (the connectors are never disconnected). However, this requires that the connector body be realigned, so that the prongs protrude the correct distance in the correct direction to mate with the female contacts in the outlet, thus making for a most difficult procedure. Previous prior art have tried to correct this disadvantage by implementing a universal endfitting, such as U.S. Pat. No. 5,387,117, issued to Moyher, Jr. et al, assigned to Electrolux Corp.

OBJECTS OF INVENTION

It is an object of the present invention to provide an RF controlled vacuum system for houses and other buildings.

It is an object of the present invention to provide an RF controlled vacuum system that is operated from the handle by the user.

It is a further object of the invention to provide an RF controlled vacuum system where the handle has a transmitter that controls operation of the system through a receiver that may be connected to the system any of a variety of locations.

It is an object of the present invention to provide a central vacuum RF controlled endfitting and handle that is cost effective to produce and easy to manufacture.

It is another object of the present invention to produce a RF controlled endfitting and handle that is easy to maintain and simple to install.

It is another object of the present invention to produce a RF controlled endfitting and handle that may be used in a variety of different wall valves.

It is still another object of the present invention to produce a RF controlled endfitting and handle that will only communicate with each other when the endfitting is inserted into a wall valve.

It is still a further object of the present invention to produce a RF controlled endfitting and handle that will only communicate with each other when the appropriate button is pressed in on the handle.

SUMMARY OF INVENTION

In the broadest aspects, the present invention is concerned with a control system which includes a vacuum handle held by a user that has a radio frequency transmitter that communicates with a receiver. The receiver is activated by a transmitted radio frequency signal generated by a transmitter in the handle. The handle encloses a battery and a transmitter control circuit. A switch such as a push button switch is provided so that when it is activated by the user the transmitter generates an RF control signal via an antenna for transmission to a receiver. In one embodiment there may be a transmitter which generates a signal. The signal is broadcast to a system control circuit via an antenna. The receiver includes an antenna for receiving RF signals from the transmitter. In one embodiment the transmitter can include an encoder for generating an encoded signal as the button is depressed by a user. The encoder is connected to a RF signal generating circuit for combining the encoded signal with a RF carrier signal. The encoded RF signal is amplified by an amplifier and broadcast to the system control circuit via the antenna. The RF signal generating circuit, amplifier, and antenna can be an LC oscillator. It is to be understood that other wireless for communicating with the system control unit can be used. For example, the transmitter can be provided with circuitry for modulating the encoded output signal from the encoder into an infrared signal or ultrasonic signal. The receiver in the system control unit can be provided with corresponding circuitry for receiving encoded infrared or ultrasonic signals.

The receiver can include an antenna for receiving encoded RF signals from the transmitter. The RF signals are processed by an amplifier and then demodulated into digital signals by a RF regenerative detector, which is tuned to the transmitter frequency, and digitizing operational amplifiers. The digital signals are decoded by a decoder, which opens the normally closed relay to turn on the system. When the button is depressed again, the relay returns to its normally closed relay. It will be appreciated that there may be other means for using an RF circuit to operate the switch.

In the prior art previously cited, Harkonen et al, there are present significant drawbacks. The battery and sound generator combination occupy a significant volume within the handle of the wand, making the wand heavier, larger, and more unwieldy. In the present invention a battery and a tiny transmitter are only needed, thus allowing for a smaller size handle. Accordingly, there is a need for a remote control switching system for central vacuum systems that can reliably be turned on from the wand without direct connections back to the main power unit. It would therefore be desirable to provide remote operation of the central vacuum appliance so that the operator does not have to go back to the wall socket to disconnect the system. The present invention also includes a means for maintaining optimum battery life. In a preferred embodiment the handle has an RF button so that the battery will only be discharged when the user presses down on the button. However, the end fitting, because its circuit does physical work by holding power to the relay, therefore power preservation is critical. When the endfitting is disconnected from the wall valve it is conceivable that the RF circuit within the end fitting would still power up. One example would be when the user was ready to store the hose after operation. In order to solve this, a simple universal kill switch has been implemented, which
only when depressed upon insertion into the wall valve does the circuit within the end fitting power up to respond to signals from the handle circuit. The button linked to the kill switch is of special design, as it must be able to turn the end fitting circuit on if depressed only partially. In addition it preferably is able to retract completely into the housing while maintaining the circuit in a powered up state. The kill switch feature of the present invention is also compatible with the many different types of wall valves in the market today. This is accomplished by a spring loaded, telescoping button, the spring force of which is designed to overcome the kill switch spring only in the event the button is depressed.

Perhaps the greatest difficulty with the method of Starken lies in the means for stopping the vacuum cleaner. In the normal course of using a vacuum cleaner, many possible events that could block the flow of air through the hose suggest Starken themselves. In some cases, merely pressing the vacuuming head hard against a surface to be vacuumed can block the flow of air sufficiently to cause the vacuum motor to stop. This is particularly the case when the vacuum head is operated near or on non-porous materials. Further, items too large to pass conveniently through the tubing may be inadvertently sucked into the vacuum head, thereby turning it off.

In addition to the improved switch of the present invention, the end fitting inserted into the wall valve is also equipped with an improved universal adapter. Prior art such as Moyer, Jr. et al., implements a reversibly rotatable connector body, however with this type of end fitting, one could only use this type of end fitting with a limited type of wall valves. In addition, this type of universal end fitting is bulky, and there exists the potential for bending or breaking of the leads. The universal adapter of the present invention has individual contact pads that permits use with a variety of different wall valves, via these pads. In addition, the contact pads are spring loaded, thus these two features allow the end fitting of the present invention to maintain a snug fit regardless of what manufacturer’s wall valve is used.

It is now virtually standard to have a switch built into the outlet so that insertion of the metal probe of a vacuum hose acts to contact a low voltage supply, which operates the central vacuum motor. The hose is then extended from the wall outlet to a simple handle/nozzle. The handle/nozzle may be operated with a brush, but the general idea is to suck the dirt into the system and into the central dust collector. The present invention allows the user to efficiently and easily turn the central vacuum cleaner on and off via RF. Although the use of RF for remote control is not new, one has yet to utilize it with a CV in a manner like the applicant. The present invention liberates the user of the need for these heavy flexible hoses, because the handle communicates with the end fitting via Radio Frequency, (hereinafter RF).

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is one example of a view of two end fittings which communicate through radio frequency.

FIG. 2 is a side view of the handle end.

FIG. 3 is a perspective view of the end fitting that connects, for example, to a wall.

FIG. 4 is a view of the wall end fitting and a wall outlet.

FIG. 5 is a view of the end fitting connected to the wall outlet.

FIG. 6 is a view of the opening of the wall outlet with the cover displaced.

FIG. 7 is a bottom perspective view of the end fitting of FIG. 3.

FIG. 8 is a top perspective view of the end fitting of FIG. 3.

FIG. 9 shows the individual contact pad of end fitting of FIG. 3.

FIG. 10 shows a portion of the handle of the present invention.

FIG. 11 shows the RF button being depressed.

FIGS. 12 and 13 show the kill switch button.

FIG. 14 shows the kill switch button being depressed.

FIG. 15 shows the kill switch button being retracted into the housing.

FIG. 16 shows the RF handle button being depressed once to turn the device on.

FIG. 17 shows the RF handle button being depressed a second time to turn the device off.

FIG. 18 is a side view of each end of a hose with the end fitting and the handle.

FIG. 19 is a view of the components of the end fitting.

FIG. 20 is an exploded view of the end fitting.

FIG. 21 is an exploded view of the handle assembly.

FIG. 22 is an alternative exploded view of the handle assembly.

FIG. 23 is a flow chart showing a representative operation of the device of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

As seen in FIG. 1 there is one example of an embodiment of the central vacuum cleaner hose assembly 10, (hereinafter hose assembly) of the present invention. Although shown in connection with a receiver on an end fitting that is on one end of the hose, it will also be appreciated that the receiver can be elsewhere. For example, the receiver can be on the wall outlet or on the vacuum generating portion of the system of any other suitable location. The hose assembly of the present invention includes a first end fitting 20, a second end fitting 30, and a flexible hose 70. It will also be appreciated by those skilled in the art that the shape of the handle 20 and the end fitting 30 described in connection with one embodiment of the present invention can vary as desired. The hose may be any one of the hoses that are typically used in the art. As mentioned in the background of the invention, the switch in the handle may communicate with either the end fitting or
the power head, for simplicity one will discuss the handle/end fitting configuration, taking note that the handle/power head configuration works similarly.

[0047] In the preferred embodiment, there is a hose assembly 10 connected with a central vacuum system. It must be pointed out that the hose assembly of the present invention may be implemented with all types of central vacuum systems known in the art. As is with all central vacuum systems, there exist wall valves located throughout different areas of the house. A typical wall valve 60 may be seen in FIGS. 4-6. Generally a wall valve will have an appearance similar to an electrical outlet. However, different types of central vacuum systems may implement different shapes and sizes, for the purposes of brevity, one will describe the hose assembly of the present invention as used with a standard central vacuum system. Again drawing one's attention to FIGS. 4-6, one can see a standard wall valve 60 associated with a standard central vacuum system. Wall valve 60 may have a generally rectangular shape with a generally circular aperture 60a located near its center. Wall valve 60 may be mounted onto the wall via any suitable mounting means known in the art. In the present embodiment one mounted wall valve 60 to the wall with standard wood screws. Drawing one's attention to inner circumferential surface 61 one can see two contact points A and B. Contact points A and B may be located anywhere on inside circumferential surface 61, in one embodiment contacts A and B may be located on the lower portion of circumferential surface 61, as seen in FIG. 4. In another embodiment one may have contacts A and B located on the upper portion of circumferential surface 61 of wall valve 60, as seen in FIG. 6. With the present invention placement of the contacts A and B may be anywhere, because of the unique pad contact located on first end fitting 20. In normal operation the user will insert first end fitting 20 into aperture 60a until the front surface 21a of first end fitting 20 contacts or is in proximity to the front surface 62 of wall valve 60, as seen in FIG. 5. Once inserted, first end fitting 20 will then communicate with second end fitting 30 i.e. the handle assembly, via RF, and then transmit the desired signal to the central vacuum system it must stressed again that different types of wall valves have different configurations, and as such first end fitting 20 may connect to different wall valves in different ways.

[0048] As mentioned previously the hose assembly 10 of the present invention has two end fittings. First end fitting 20 may have a RF assembly 21. RF assembly 21 may have a front surface 21a, a rear surface 21b, a top surface 21c, a bottom surface 21d, and two opposing side surfaces 21e and 21f, as seen in FIG. 3. Located on rear surface 21a may be an aperture 22 used to receive an end of the hose 70. Alternatively, the RF assembly can be fitted over the outer surface of the hose near the end thereof. In addition, located on front surface 21a may be another aperture 22a used for exhausting debris into the collector of the central vacuum system. Aperture 22a may also be used for retaining universal portion 23 to end fitting 20. End fitting 20 may be of such dimensions so as to be able to house a battery and/or a battery pack, and a receiver (see FIG. 19). In addition, end fitting 20 houses a tiny receiver. Extending tangentially from front surface 21a may be a generally circumferential flange 24. Flange 24 may have an outer circumferential surface 24a and a top surface 24b and bottom end 24c, as seen in FIGS. 7 and 8. Extending in a generally perpendicular direction toward top surface 24c may be a generally rectangular member 25 that may also extend from top surface 24b to bottom surface 24c, as seen FIG. 13. Member 25 may extend the total length front surface 21a or only partially therefrom. In the preferred embodiment one had member extend the entire length of front surface 21a so as to contact top surface 21c, as seen in FIG. 1. Member 25 may be of any suitable shape known in the art including, but not limited to a circle, a square, a rectangle, or the like. In the preferred embodiment one implemented a generally rectangular shape for member 25. In addition, a portion of member 25 may slant towards top surface 21c, as in the preferred embodiment, or member 25 may not so as to form a rectangle. The shape of member 25 will depend on what the user desires. Member 25 may be used to house kill switch 26, as seen in FIGS. 12 and 13. Member 25 may also mate with a recess 25a in wall valve 60.

[0049] Kill switch 26 may include an internal spring 26b and a button 26a. Switch button 26a may be located on front surface 25a of member 25. In addition switch button 26a may extend perpendicularly from front surface 25a of member 25. The distance that switch button 26a will extend will be determined by the manufacturer during fabrication of end fitting 20. The shape of switch 26a may be any suitable shape known in the art including, but not limited to a circle, a square, a rectangle, or the like. In the preferred embodiment one implemented a generally cylindrical shape for button 26a of switch 26. Switch button 26a may be implemented to automatically shut down end fitting 20, when end fitting 20 is removed from wall valve 60. In order to be compatible with the many different varieties of wall valves on the market today, switch button 26a may be a spring loaded, telescoping button, which may be designed to overcome internal spring 26b of switch 26. In addition, switch button 26a may be designed to turn end fitting circuit on if depressed partially, and switch button 26a may be designed to be able to retract completely into member 25 while maintaining the circuit in a powered up state. In normal operation when end fitting 20 is inserted into wall valve 60, switch button 26a will overcome the force of internal switch spring 26b, thus activating internal circuitry of end fitting 20. When end fitting is removed from wall valve 60, switch button 26a will be forced back to an extended position by internal switch spring 26b, thus powering down internal circuitry of end fitting 20.

[0050] Extending from top surface 24b of flange 24 may be a generally cylindrical shape coupling member 40, as seen in FIG. 12. Coupling member 40 may have an inner and outer circumferential surface, 41a and 41b respectively. In addition the inner and outer diameters of these surfaces may be varied depending on the specific needs of the designer. Coupling member 40 may have one or a plurality of slots located around its circumference. Slots 42 may be of any suitable shapes known in the art, in the present invention one implemented generally rectangular shaped slots. Slots 42 in one embodiment may extend from front edge 43 to rear edge 43a. In the preferred embodiment two slots extend from front edge 43 to a mid point on coupling member 40, as seen in FIGS. 8, 12 and 14. Coupling member 40 may also have recesses 45 located adjacent to top surface 24c of flange 24. One may have a single or multiple recesses. In the preferred embodiment one implemented four recesses. These recesses are aligned with contact pads 50 of coupling member 40. Coupling member 40 may have contact pads 50. Contact pads 50 are generally concave in shape so as to be able to fit
inside a portion of coupling member 40. In another embodiment one may have contact pads 50 located around the entire circumference of coupling member 40. In addition, contact pads 50 may be made of any suitable conductive material known in the art including, but not limited to copper, aluminum, nickel and the like. Contact pads 50 may be spring loaded, which allows end fitting 20 to maintain contact with a variety of different wall valves. Contact pads 50 may range in a variety of different sizes, that is to say they may be square, round, rectangular, or any other suitable geometric shape in known in the art. Contact pads 50 may be connected to the internal circuitry of end fitting 20. In normal operation when kill switch button 26a of kill switch 26 is depressed the internal circuitry of end fitting 20 will transmit an electrical power to the central vacuum system motor, thus allowing the user the ability to vacuum up debris and the like. [0051] As mentioned above hose assembly 10 has two end fitting 20 and 30, the first 20 is used as a receiver, as previously discussed, and the second 30 is used as a transmitter. In the preferred embodiment a vacuum handle 30 is the second end fitting. Vacuum handle 30 may be any suitable shaped handle known in the art. In the preferred embodiment there is a handle 30 that has a member 31 for grasping the handle and a member 31a used for attaching to the desired attachment. Grasping member 31 may be generally rectangular in shape, as seen in FIG. 1. However, one may implement a variety of different shapes for grasping member 31, in a different embodiment grasping member may be ring shaped. The key feature of the handle of the present invention is that it should be able to house the internal circuitry needed to transmit the desired RF signal to end fitting 20. In addition, grasping member 31 may have an activation means which may for example be a switch or a button mechanism 32 or the like. Button mechanism 32 may be any suitable button mechanism known in the art. In the preferred embodiment one implemented a spring loaded button that may be depressed when the user desires to activate or deactivate the central vacuum system. In addition button 32 may be located anywhere on the handle. In the preferred embodiment one implemented a button on the top front surface of grasping member 31. This position for button 32 was preferred, because of the relative ease one would have in depressing button 32 with one’s thumb. In addition, one may have an indicator light 33 located near button mechanism 32. Indicator 33 may be implemented so as to allow the user the ability to know when the central vacuum cleaner is activated and deactivated. There may also be a second activation means 32a which can be used to operate an attachment on the nozzle end of the handle. Attaching member 31a may be any suitable attaching member known in the art. In the preferred embodiment one implemented a generally cylindrical tube. This attaching member was preferred, because a majority of attachments have the same cylindrical tube shape, thus a variety of different attachments may be implemented. [0052] Hose assembly 10 as mentioned previously may have a hose member 70. Any suitable type of known hose in the art may be used including, but not limited to a single wire reinforced, a double wire reinforced, and a hose with no reinforcement. In the preferred embodiment one implemented a reinforced light weight flexible hose. As mentioned in the background of the invention, this invention can eliminate the need for the wire reinforced hose if desired in some applications, because no electricity is being transmitted through the hose. In normal operation one end of hose 70 will be attached to end fitting 20 and the other end of hose 70 will be attached to second end fitting 30. [0053] In normal operation, with all the features discussed above working together, the user simply inserts end fitting 20 into wall valve 60. Once inserted kill switch button 26a of kill switch 26 will be depressed, thus activating the internal circuitry of end fitting 20. The user can then remotely operate the central vacuum system by depressing button 32 of grasping member 31. When the user desires to deactivate the central vacuum system, the user simply depresses button 32 of grasping member 31 a second time. Thus, there is no need for the user to go back and forth to the central vacuum system, and there is no need to lug around a heavy hose. [0054] FIG. 19 is an exploded view of an example of an RF assembly 20. There is a first housing member 101 and a second housing member 102 that fit together to form the RF assembly. The first member has an opening on side 21b for receiving an end to the hose 70. An end of hose 70 can abut the inside edge 103 of stem 104. The stem has a sleeve portion 105 and an inside edge 103 and an outside edge 106. The first member 101 has an open area 107 for receiving a battery 108. Cover 111 may be placed over the open area 107 to protect the battery. One or more cushioning means 109 may be used to retain the battery in position. Board 110 is a RF receiver and antenna. This may be positioned in the recess 110a in the end fitting. [0055] The assembly also has outer hose anchor sleeve 112. Anchor sleeve 112 receives an end of the hose over the raised ridges 112a. The anchor sleeve is inserted into the open end 101b of first housing member 101 opposite open 101a. Swivel 113 is inserted into the assembly to permit the hose to rotate about the assembly during use or being moved. [0056] The second housing member 102 also has a stem 20 which is connected to the outlet 60. The second member 102 has one or more recesses 45 for receiving contacts 50. The contact 50 has a contact spring 120 that keeps the contact in position. A contact support 121 holds the contact in the recess 45. Each contact is electrically connected to the board 110 by wires 110b. As shown in FIG. 19, one pair of contacts 50a and 50b are electrically connected by wire 122. Contacts 50c and 50d are similarly connected. The button 26a may be a single member or may have an extension 26c. [0057] The handle 30 may be made up of two clam shell members 200 and 201 that fit together to form the handle assembly 30. The handle assembly has one end 202 that receives the hose 70 and a second end 203 that receives the nozzle 204. [0058] The handle end 202 that receives the hose 70 may have a ball valve 204 that is held in place by a swivel 205 and a clip ring 206. Over the clip ring outer hose handle connector 207 may be positioned. [0059] The nozzle end 203 has nozzle extender 208 that extends from the end 203. Over the end of the nozzle extender opposite the end 203 a bleed valve 209 may be positioned over which a nozzle 204 is placed. [0060] The hand grip portion 31 of the handle 30 may have a recess for receiving a battery 210. The battery may be held
in place by a cover 211. The RF transmitter board and antenna 212 is positioned in a recess in the arm and is connected to button 32. As the button is initially depressed, the RF transmitter sends a signal to the receiver to open the switch to operate the vacuum. When the button is again depressed, the RF transmitter signals the receiver to shut off the system.

[0061] As various changes could be made in the above constructions without departing from the scope of the invention, it is intended that all matter contained in the above description shall be interpreted as illustrative and not in a limiting sense. In the view above it will be seen that several objects of the invention are achieved and other advantageous results attained.

1. A hose assembly comprising a flexible hose having a first end and a second end, said first end having a handle assembly with a nozzle, said second end having a connection means removably securing said hose to a vacuum source, said handle assembly having a means for transmitting a radio frequency signal to said vacuum source, said radio frequency signal being capable of activating the vacuum source so that a vacuum is present at an end of said nozzle.

2. The hose assembly according to claim 1 wherein said handle assembly signaling said vacuum source to deactivate said vacuum source.

3. The hose assembly according to claim 2 wherein said receiver is at said second end of said hose assembly.

4. The hose assembly according to claim 2 wherein said handle assembly has an antenna and an RF transmitter in said handle.

5. The hose assembly according to claim 4 wherein a RF receiver is present in a wall outlet for providing a means for securing a hose to a vacuum system.

6. The hose assembly according to claim 5 wherein said outlet has a switch that shuts down said system when said end fitting is removed from the wall.

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