

Dec. 29, 1959

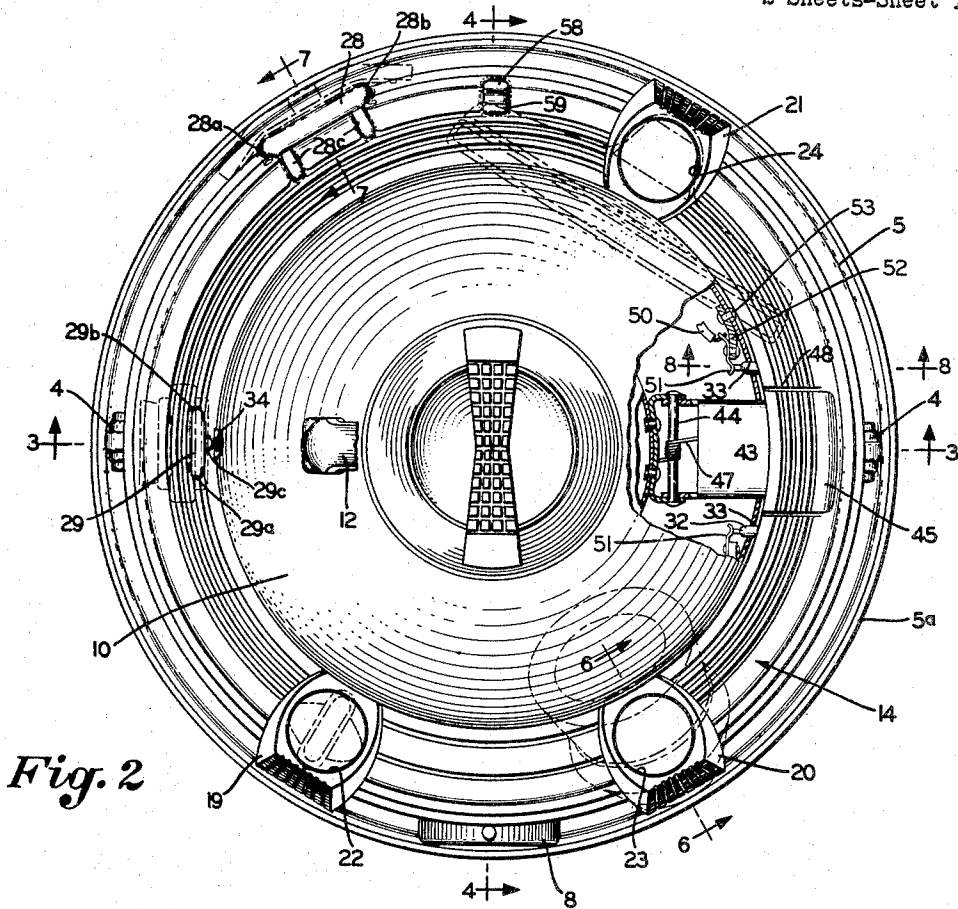
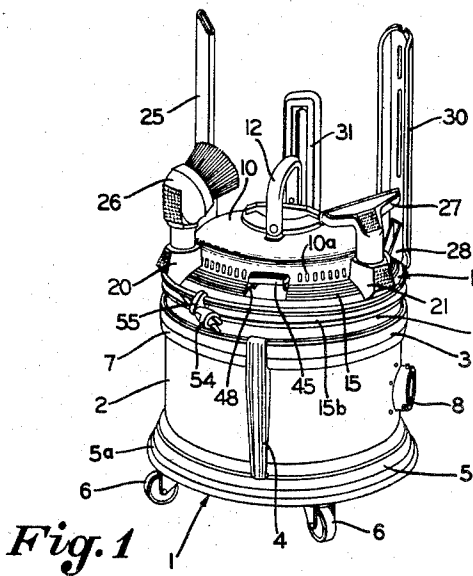
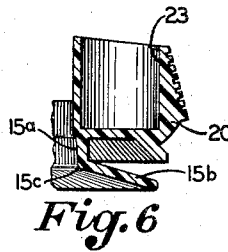
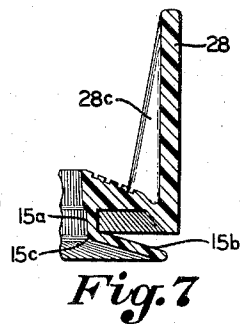
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2,918,692

SUCTION CLEANER TOOL HOLDER CONSTRUCTION

Filed July 16, 1957

2 Sheets-Sheet 1



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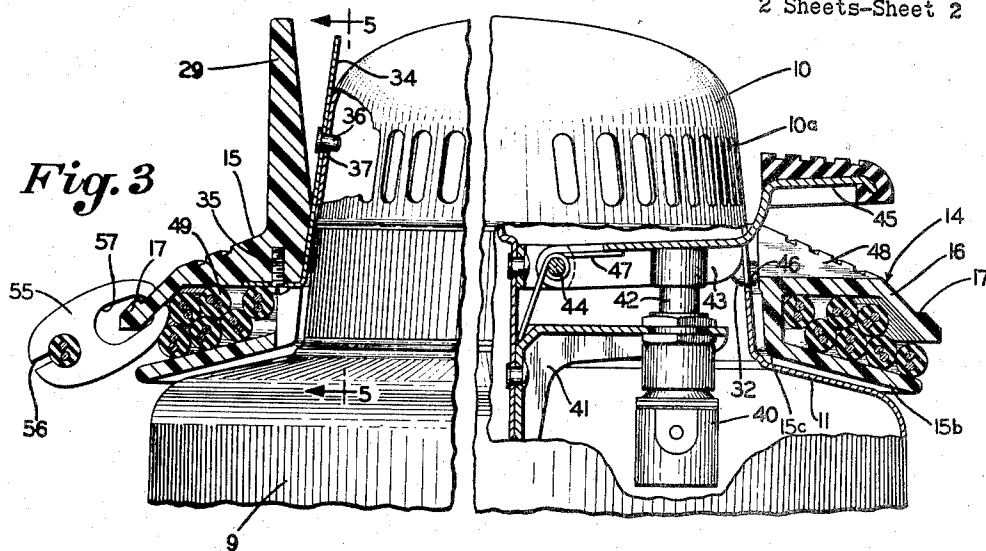
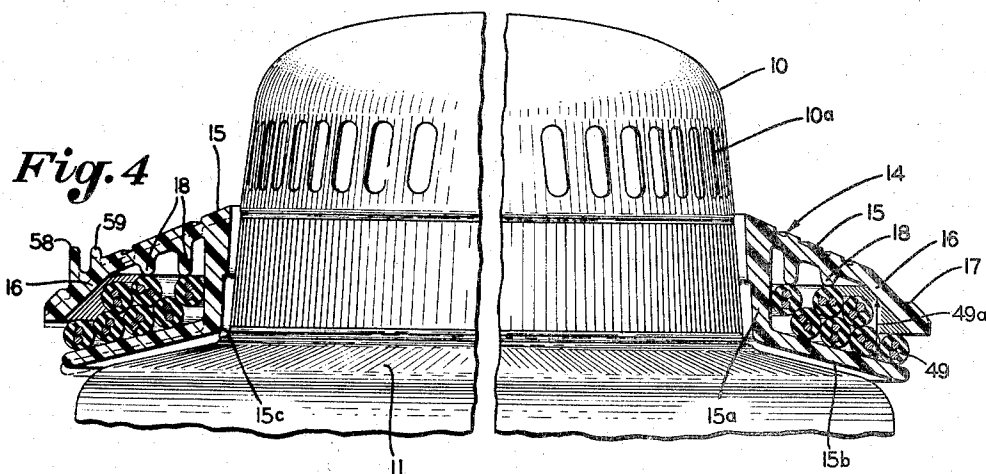
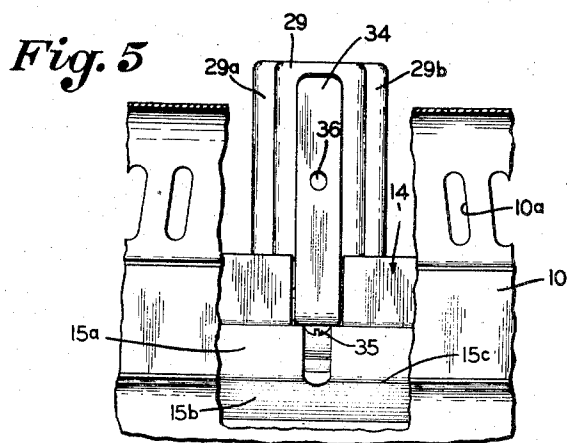
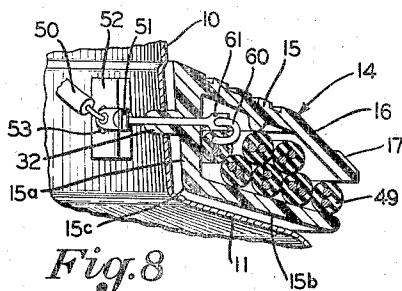
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SUCTION CLEANER TOOL HOLDER CONSTRUCTION

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2 Sheets-Sheet 2



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SUCTION CLEANER TOOL HOLDER CONSTRUCTION

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Application July 16, 1957, Serial No. 672,293

5 Claims. (Cl. 15—323)

The invention relates to a combined cord storage reel and tool holder construction for vertical tank type suction cleaners, and more particularly to a combined reel and holder unit detachably associated with the cleaner; and this application is a continuation-in-part of my co-pending application Serial No. 506,009, filed May 4, 1955, and now abandoned.

A tank type suction cleaner generally includes accessories, such as tools, attachments, and an extension hose, that may be used in conjunction with the cleaner for suction cleaning purposes. When not in use, the accessories are stored in various ways usually on the cleaner or in separate containers of special design. The accessories are carried from place to place with the cleaner for use when required.

Some cleaners have the accessories mounted on the outer surface by whatever means is satisfactory for the particular cleaner involved. Thus, one cleaner has the tools clipped to the outer housing by means of hooks or clips extending outwardly from and permanently secured to the cleaner housing. Other tools are attached to a detachable wire ring surrounding the cleaner. Still other cleaners have the accessories carried on the cleaner by means of fabric belts.

All of such tool carriers have the disadvantage that the tools extend beyond the surface of the cleaner to an extent that they bump and scratch furniture, because the tools, attachments or other accessories protrude an excessive distance beyond the surface of the cleaner. Thus, the cleaner with accessories mounted thereon is unwieldy as well as unattractive.

Associated with the foregoing disadvantage is the problem of storing the electric cord. For most cleaners no provision is made for cord storage so that a cord is usually loosely disposed near the cleaner.

I have discovered that these disadvantages may be overcome by the provision of a detachable tool holder on which several of the more essential accessories may be stored within easy reach. The tool holder mounts the accessories in a permanent stationary manner with respect to the cleaner housing and the accessories may be arranged so that they do not extend beyond the outer periphery of the cleaner housing. By providing the housing with a bumper of resilient material having a diameter greater than that of any other part of the housing, it is thereby possible to prevent the accessories from bumping and scratching many furniture surfaces which would otherwise be marred by the mounted accessories if they should extend beyond the bumper. Each accessory may be mounted in a fixed position entirely within the confines of the periphery of the bumper.

Moreover, each accessory is mounted with respect to the particular cleaner involved so as to minimize as much as possible the interference with the air outlets on the cleaner housing.

In addition the tool holder includes a reel portion for mounting the electric cord of the cleaner in a convenient,

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neatly arranged manner with respect to the accessories. This arrangement is achieved by rotating the cleaner upon its casters so that the cord can be easily wound about the tool holder reel portion without interference from the accessories.

Furthermore, the tool holder includes a snubber by which only the necessary amount of cord can be unwound from the holder with the remaining portion of the cord held in place in the reel means provided by the tool holder.

Finally, the tool holder is constructed so that it may be separated and lifted from the top of the cleaner and placed upon a shelf, if necessary, when the suction cleaner is stored in a space having limited height which would not accommodate the total height of the cleaner with the accessories mounted thereon. In such event the tool holder may be replaced upon the cleaner when it is used again without disturbing the accessories attached thereto.

Accordingly, it is a general object of this invention to provide an accessory holder for a suction cleaner having means for the storage of accessories used with a suction cleaner.

It is another object of this invention to provide an accessory attachment which mounts the accessories within the periphery of a bumper member surrounding the suction cleaner housing.

It is another purpose of this invention to provide an accessory holder for a suction cleaner that holds the accessories compactly and within easy reach of the user.

It is another object of this invention to provide an accessory holder which is adapted to hold accessories adjacent the cleaner housing without interfering with the normal flow of air from the cleaner outlet.

It is another object of this invention to provide an accessory holder which provides reel means for storing the electric cord of the cleaner.

It is another purpose of this invention to provide an accessory holder for a suction cleaner which is associated with the cleaner housing in such manner as to permit easy attachment and detachment of the holder, and to avoid damage to the holder in use.

Finally, it is an object of this invention to provide an improved accessory holder which substantially eliminates the defects enumerated and which obtains the foregoing desiderata in a simple and effective manner.

These and other objects and advantages apparent to those skilled in the art from the following description and claims may be obtained, the stated results achieved, and the described difficulties overcome by the discoveries, principles, apparatus, parts, combinations, subcombinations and elements which comprise the present invention, the nature of which is set forth in the following statement, a preferred embodiment of which—illustrative of the best mode in which applicant has contemplated applying the principles—is set forth in the following description and which is particularly and distinctly pointed out and set forth in the appended claims forming part hereof.

The nature of the improved apparatus of the present invention may be stated in general terms as including, an annular member having spaced brackets for the storage of suction cleaner accessories, the member having a diameter less than the largest outer diameter of the suction cleaner on which it is mounted, the member being provided with reel means within which the electric cord of the cleaner may be stored and in which the cord may be wound and unwound, and the member being detachably pin supported on the housing of a suction cleaner.

In the accompanying drawings, which are illustrative of a preferred embodiment of the invention, by way of example, and in which similar numerals refer to similar parts thereof:

Fig. 1 is a perspective view of the improved suction cleaner tool holder construction of the present invention having accessories mounted thereon;

Fig. 2 is an enlarged plan view of the accessories holder with the location of accessories which may be mounted thereon shown in dot-dash lines, the view having broken-away portions to show certain internal parts of the cleaner;

Fig. 3 is a vertical sectional view looking in the direction of the arrows 3—3, Fig. 2, showing the manner in which the accessory holder is mounted upon the upper portion of the suction cleaner;

Fig. 4 is a vertical sectional view looking in the direction of the arrows 4—4, Fig. 2;

Fig. 5 is a fragmentary, vertical sectional view taken on the line 5—5 of Fig. 3;

Fig. 6 is a fragmentary, vertical sectional view taken on the line 6—6 of Fig. 2;

Fig. 7 is a fragmentary, vertical sectional view taken on the line 7—7 of Fig. 2; and

Fig. 8 is a fragmentary, sectional view looking in the direction of the arrows 8—8, Fig. 2.

In Fig. 1 a vertical tank type suction cleaner is generally indicated at 1. It comprises a lower cylindrical housing 2, an upper housing 3 attached to the lower housing 2 by means of a pair of oppositely disposed clamps 4, and a dolly 5 having casters 6. The dolly 5 preferably includes a resilient bumper portion 5a with a diameter greater than any other portion of the cleaner 1. The upper and lower housings 3 and 2 are connected in airtight relation by means of an airtight gasket 7. In the lower housing 2 is disposed an inlet port 8 to which a suction hose (not shown) may be attached in the usual manner.

The upper housing 3 includes a cylindrical portion 9 having a diameter equal to the lower housing 2, a dome 10 of smaller diameter having air outlet ports 10a therearound (Figs. 1, 3 and 4), and an annular shoulder portion 11 inclined between the side wall of dome 10 and the portion 9. Surmounting the dome 10 is a carrying handle 12.

In Fig. 1 the accessory or tool holder is generally indicated at 14. The holder 14 extends outwardly from the side walls of the dome 10 and is spaced above the shoulder portion 11 (Figs. 3 and 4); and the holder 14 has an annular channel shape in cross section surrounding the dome 10 and having a downwardly and outwardly sloping upper flange portion 15 with an inclined peripheral portion 16. A bead 17 is disposed on the upper surface of the peripheral portion 16 and a number of reinforcing ribs 18 extend down from the undersurface of the portion 15.

The channel-shaped holder 14 also includes a generally cylindrical channel base wall 15a and a lower flange 15b, the lower flange 15b being spaced below the upper flange 15 and above the shoulder 11, as shown in Figs. 3 and 4.

The tool holder 14 is preferably formed of molded plastic material providing the strength and rigidity necessary for supporting tools whether the holder is mounted on or detached from the cleaner.

At spaced intervals around the holder 14 are a plurality of mounting brackets for various tools and attachments. The mounting brackets are integral with the holder 14, and, as shown in Fig. 1 are five in number to accommodate five of the more essential accessories used with the cleaner 1. The brackets are so spaced that they do not interfere with the air outlets 10a in the dome. However, it is understood that more or less mounting brackets may be provided on the tool holder 14.

The five mounting brackets shown are indicated at 19, 20, 21, 28 and 29 and these brackets are so arranged and located that accessories may be mounted thereon in upright position occupying space entirely within the con-

finer of the outer periphery of the bumper 5a, as shown in dot-dash lines in Fig. 2.

Three of the five mounting brackets, 19, 20, and 21, have sockets 22, 23, and 24, respectively of similar dimensions, as shown in Figs. 2 and 6. In the sockets 22, 23 and 24 are stored certain of the accessories, such as a crevice tool 25, a dust brush 26, and a nozzle 27 (Fig. 1). Inasmuch as the accessories 25, 26, and 27 have similar tubular portions for insertion into the end of a suction hose attachment for the cleaner (not shown) in the usual manner, each of the accessories may be placed interchangeably in the sockets 22, 23, and 24.

Two of the five mounting brackets, 28 and 29 (Fig. 2), extend vertically from the upper surface of the holder 14. The bracket 28 has opposite vertical edges 28a and 28b slightly flared downwardly for the purpose of mounting a floor duster 30 having conventional spring clips (not shown) on the back surface for gripping the edges 28a and 28b. In addition the bracket 28 is provided with similar reinforcing ribs 28c (Figs. 2 and 7).

The bracket 29 is similar to and smaller than the bracket 28. The bracket 29 includes oppositely disposed edges 29a and 29b on which is mounted a brush 31 (Fig. 1). Moreover, the bracket 28 is reinforced by a rib 29c similar to the ribs 28c of the bracket 28.

The tool holder 14 is detachably mounted on the cleaner 1. This is accomplished by molding a pair of spaced pins 32 integrally of the molded plastic body of the tool holder 14 (Fig. 8) so that the pins 32 project inwardly of the inner cylindrical surface of channel base wall 15a of the tool holder 14. A pair of spaced apertures 33 are formed in the wall of dome 10 (Fig. 2) for receiving the pins 32. A spring detent 34 (Figs. 2, 3 and 5) is mounted on the opposite side of the holder 14 extending upwardly of the sloping holder portion 15 within the central opening of the holder formed by the channel base wall 15a. The lower end of the spring detent 34 is secured to the undersurface of the holder flange 15 by a screw 35 (Fig. 3) and the upper portion of the spring detent 34 is provided with a pin 36 adapted to be releasably engaged in an aperture 37 formed in the wall of the dome 10 (Fig. 3).

Normally the spring detent 34 holds the pin 36 engaged within the dome aperture 37, but the spring detent 34 may be flexed radially outwardly to the left from the position shown in Fig. 3 to disengage the pin 36 from the aperture 37 and permit the holder 14 to be detached from the cleaner 1.

The removal of the holder 14 from the cleaner 1 is accomplished after releasing the detent pin 36 from aperture 37 (Fig. 3) by raising the left-hand portion of the holder 14 somewhat and then moving the entire holder slightly to the right which permits the pins 32 to be disengaged from apertures 33.

Thus, the pins 32 and 36 and the cooperating apertures 33 and 37 in which the pins are received form a spaced three-point detachable mounting support for the holder 14 on the cleaner 1 and locate the holder 14 in the desired position with respect to the cleaner and spaced above the shoulder 11.

Since it is necessary to provide clearance between the outer surface of the pins 32 and 36 and the apertures 33 and 37 for ease in detachably mounting the holder 14 on the cleaner 1 by the procedure described, and for ease in entering the pins 32 and 36 into and releasing them from the apertures 33 and 37, the mounting of the holder 14 on cleaner 1 is somewhat loose by the amount of clearance provided.

In use of the cleaner, some external object may bump or strike the sloping or inclined or bead portions 15, 16 or 17 of the holder 14 with considerable downward force, resulting in momentary downward deflection of portions of the holder 14, particularly in zones spaced 90° in either direction (Fig. 2) from the spring detent 34, that is, in the upper and lower zones of the holder 14 viewing

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Fig. 2. Such deflection, if severe enough, could cause breakage of the relatively brittle molded plastic material from which the holder 14 is formed, unless the extent of deformation is limited.

Such deflection or deformation of the holder 14, however, is limited so that breakage thereof cannot occur, by engagement of the lower corner 15c between the holder portions 15a and 15b, with the shoulder 11 if the holder is subjected accidentally to a deflecting force. Such deflecting force may deform the lower flange 15b of holder 15 slightly before further deflection is limited, as indicated in dot-dash lines at the left of Fig. 4 which shows further downward deflection of holder 14 stopped by engagement of corner portion 15c with cleaner shoulder 11.

In addition, the cleaner is provided with a starter switch 40 (Fig. 3) by which an electric motor (not shown) is operated. The switch 40 is fixed in place by a bracket 41 and includes a switch actuator or plunger 42 at the upper end which is operated by a lever 43 pivoted at 44 and having an outer end 45 extending through an opening 46 in the dome 10. Each time the cleaner motor is turned on or off, the outer end 45 of the lever is depressed from its upper position where it is retained by a spring 47 around the pivot 44. To accommodate this movement of the switch lever 45, the tool holder 14 includes a recess 48 into which the lever 45 moves each time it is depressed.

The channel shape of holder 14 formed by flanges 15 and 15b and channel base wall 15a provides reel groove means 49a within which the cleaner cord 49 may be wound for storage purposes (Figs. 3 and 4). When the cord 49 is not in use, it may be stored within the cord reel means 49a as shown in Figs. 3 and 4. When the cleaner is used, the cord may be unreeled by pulling on the end of the cord where the plug 54 is attached, causing the cleaner to rotate upon the casters 6 until a sufficient length of cord has been unwound. When it is again desired to store the cleaner, the unwound cord length may be reeled into the reel means groove 49a by rotating the cleaner 1 upon the casters 6 by the handle 12 until the cord 49 is completely contained within the reel means groove, as shown in Figs. 3 and 4 for compact storage.

The outer end of the cord 49 is provided with a conventional electric plug 54 (Fig. 1) which may be retained in place by means of a cord clip 55 which is shown more clearly in Fig. 3. The cord clip 55 is composed of resilient material and is slotted at one end at 56 to attach the clip to the cord 49. In addition, the clip 55 is slotted at the other end at 57 to attach the clip to the peripheral portion 16 of the tool holder 14 where it is retained by the bead 17.

The tool holder 14 also includes a pair of upright snubber projections 58 and 59 (Figs. 2 and 4) which are spaced from each other by a distance slightly less than the width of the cord 49 so that the cord may be inserted between the projections when less than all of the cord is unreeled for use. In this manner only the amount of cord necessary for use may be unwound, the remaining portion being retained in the storage groove without becoming displaced due to the projections 58 and 59 holding the cord firmly in place.

If necessary for storage purposes of the cleaner 1, the tool holder 14 may be removed from the top of the cleaner by releasing the detent 34 and lifting the holder 14 therefrom. Since the cord 49, stored in the cord storage reel groove means 49a, must be electrically connected with the cleaner motor (not shown) within the dome 10, means must be provided for separating such electrical connection in order to remove the tool holder 14 from the cleaner while retaining the cord 49 stored in the cord storage reel groove means. This separation of the electrical connection may be accomplished as shown in Figs. 2 and 8. Wires 50 leading to the cleaner motor and

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switch 40 may be connected with spring contact clip terminals 51 mounted on molded insulating blocks 52 which, in turn, are attached to the dome 10, preferably by rivets 53 (Fig. 2).

The inner ends 60 of the wires forming the cord 49 (Fig. 8), are permanently fastened to spaced pins 61 which extend through the pins 32 which form part of the spaced three-point detachable mounting support for the holder 14 on the cleaner. The inner ends of pins 61 protrude slightly from the ends of the plastic insulating material pins 32 and make contact engagement with the spring contact clips 51 when the tool holder 14 is mounted on the cleaner as shown in Figs. 2 and 8.

When the tool holder 14 is detached from the cleaner the contact between pins 61 and spring contact clips 51 is broken so that the cord 49 may remain in the cord storage reel groove means 49a. After detachment from the cleaner, the tool holder 14 and retained cord 49 may be stored, like a tray, with the accessories, on a nearby shelf. When the tool holder 14 is again attached to the cleaner, the electrical connection of the cord 49 with the cleaner motor and switch 40 is again automatically made when the three-point detachable mounting support for the holder 14 on the cleaner is established, by contact between the ends of pins 61 and the spring contact clips 51.

Accordingly, the device of the present invention provides a reel and tool holder construction for a canister type suction cleaner, that carries and stores accessories in a stable manner to hold the accessories within the circumference of the widest, bumper portion of the cleaner; that provides a storing recess for the electric cord of the cleaner; that includes means by which only the necessary amount of cord need be unwound from the cord recess; and that permits the tool holder along with the cord to be separated from the cleaner for storing in a nearby place when the usual storage space for the cleaner is too small to accommodate the higher total assembly of the cleaner and accessories.

In the foregoing description certain terms have been used for brevity, clearness and understanding, but no unnecessary limitations are to be implied therefrom beyond the requirements of the prior art, because such terms are used for descriptive purposes and are intended to be broadly construed.

Moreover, the embodiments of the improved construction illustrated and described herein are by way of example, and the scope of the present invention is not limited to the exact details of construction shown.

Having now described the features, construction and principles of the invention, the characteristics of the new suction cleaner tool holder construction, and the advantageous, new and useful results provided; the new and useful discoveries, principles, parts, combinations, sub-combinations, structures, and arrangements, and mechanical equivalents obvious to those skilled in the art are set forth in the appended claims.

I claim:

1. Cord reel and tool holder construction for a vertical tank type suction cleaner, said construction including a cleaner housing provided with a dome member having side walls of smaller diameter than the housing and defining an annular shoulder, an annular holder member telescopically seated on said dome side walls and nonrotatable therewith, pin means formed on one of the members engaged in apertures formed in the other of said members, releasable pin detent means generally diametrically opposite said pin means engaged between the dome side walls and holder member, said pin means and pin detent means being so located as to detachably support the holder member on the dome member at a position spaced above the shoulder, the holder having spaced upper and lower annular flanges and a connecting base wall forming channel-shaped cord storage reel groove

means, and a plurality of spaced tool holder brackets extending upward from said holder member.

2. Cord reel and tool holder construction for a vertical tank type suction cleaner, said construction including a cleaner housing provided with a dome having side walls of smaller diameter than the housing and defining an annular shoulder, an annular holder telescopically seated on said dome side walls and nonrotatable therewith, a pair of apertures formed in the dome side walls, a pair of pins projecting inwardly of the inner periphery of the holder and being engageable with said apertures, a detent aperture formed in said dome side walls generally diametrically opposite said pair of apertures, a spring detent member mounted on the holder having a pin projecting therefrom and being engageable with said detent aperture, said apertures and pins being so located as to detachably support the holder on the dome at a position spaced above the shoulder, the holder having spaced upper and lower annular flanges and a connecting base wall forming channel-shaped cord storage reel groove means, and a plurality of spaced tool holder brackets extending upward from said holder.

3. Cord reel and tool holder construction as defined in claim 1 in which an annular resilient bumper surrounds the cleaner housing and has a diameter greater than any other portion of the cleaner, and in which the spaced

tool holder brackets are so located on the holder member with respect to the housing and bumper that tools may be engaged with the brackets and held in spaces located within the confines of the periphery of the bumper.

4. Tool holder construction as defined in claim 1 including an electric cord located in the cord storage reel groove means, and releasable cord contact means mounted on the dome and holder members.

5. Tool holder construction as defined in claim 1 including an electric cord located in the cord storage reel groove means, and releasable cord contact means including contact pins connected with one end of the cord and extending through the holder member pin means, and spring contact clips mounted on the dome member.

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