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2,974,343

SUCTION CLEANER CORD STORAGE MEANS

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2 Sheets-Sheet 1

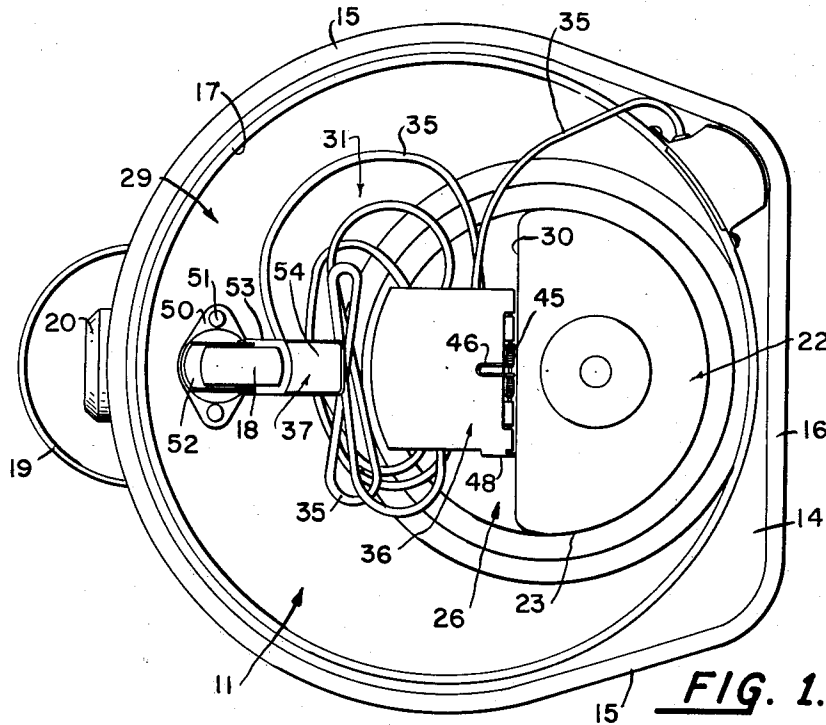


FIG. 1.

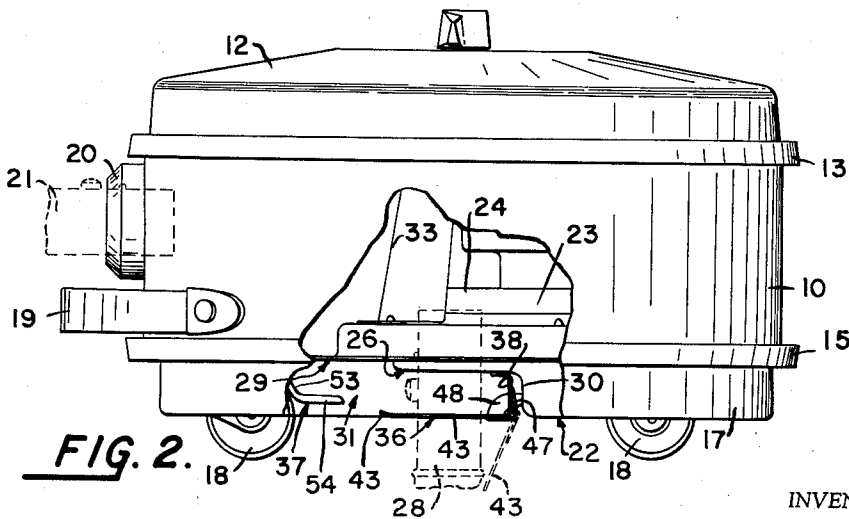


FIG. 2.

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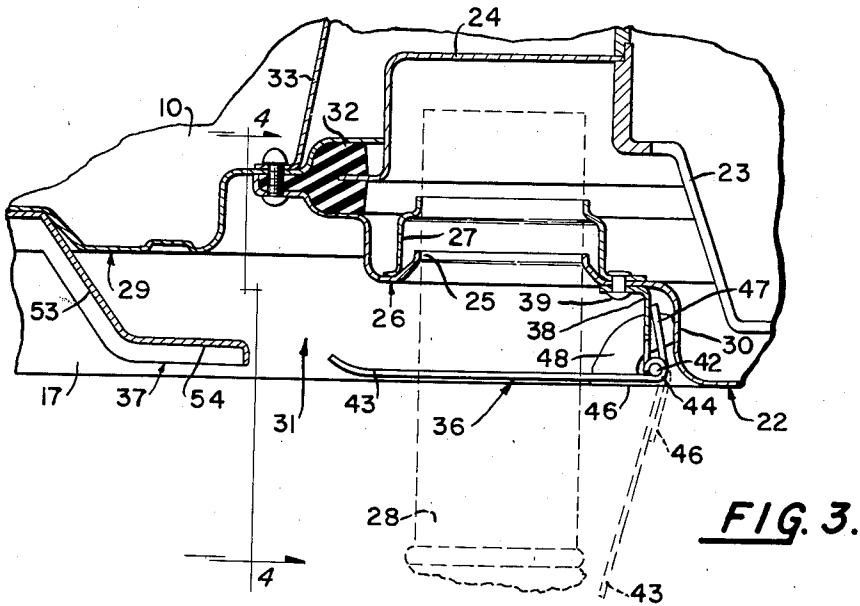
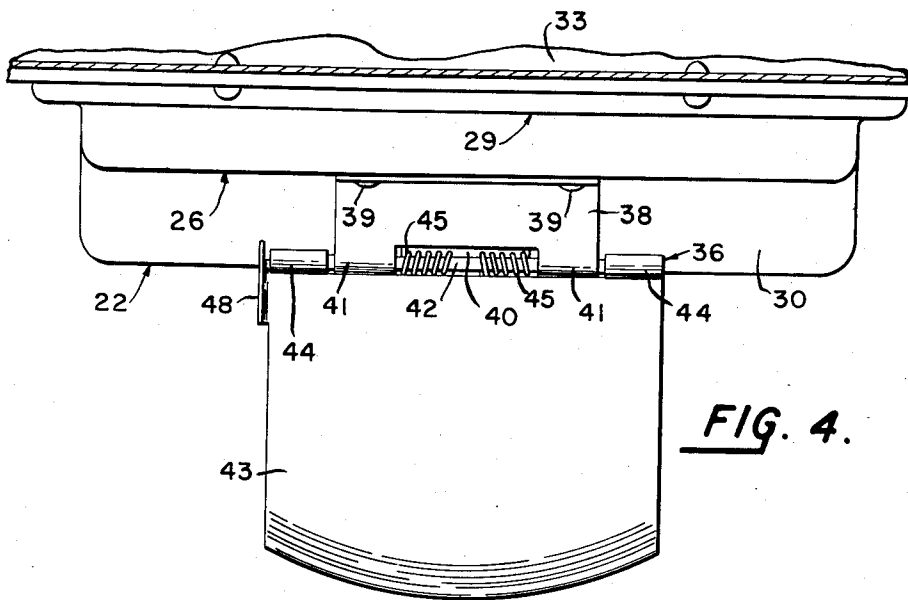
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SUCTION CLEANER CORD STORAGE MEANS

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2 Sheets-Sheet 2



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SUCTION CLEANER CORD STORAGE MEANS

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7 Claims. (Cl. 15—323)

This invention relates to suction cleaner electrical cord storage means. The invention is shown herein as embodied in a suction cleaner of the flat canister type, resembling a hat box in shape. In its operative position, the bottom of the cleaner is supported on casters and the removable cover constitutes the top of the housing. In its stored position, the cleaner housing is designed to rest on one of its sides, with the caster carrying bottom rearwardly facing and vertically disposed, the latter being provided with means for quickly mounting the cord thereon in such manner that it is concealed from anyone viewing the front or sides of the cleaner housing.

The main object of the invention is to provide cord storage means on the cleaner housing which permits the conventional electrical cord to be looped back and forth in the hand of the user, and the looped cord to be quickly and easily placed and retained in stored position on the cleaner.

Another object of the invention is to eliminate projecting spool or reel-like formations on the housing which require the cord to be wound thereon for storage purposes. Usually the available space surrounding such projecting formations is quite restricted and it is difficult and time consuming for the operator to wind the cord thereon and to fasten the end in such manner as to retain the cord in intended position. By using the cord storage means of my invention, it is unnecessary to wind the cord around a spool or other formation. The cord can be looped quickly back and forth in the hand of the operator, and by a single movement can be placed in its looped condition into its intended storage position adjacent the cleaner wall.

Another advantage of the invention lies in the fact that the means for retaining the electrical cord in stored position adjacent the cleaner bottom also serve for other purposes, namely, the hinged plate which is part of the retaining means of my invention also serves as the exhaust opening cover or deflector plate, and the rigid plate which is part of the retaining means also serves as a guard for one of the casters on which the housing is supported in operation. A further advantage results from the form and location of the motor-fan unit in the cleaner housing and the form of the bottom on which said unit is mounted whereby a recess is provided on the exterior side of the bottom for reception of the looped cord.

When the cleaner is stored on its side, with the cover vertically disposed and forwardly facing as intended, the electrical cord stored adjacent the rearward outer side of the bottom, in accordance with my invention, is securely held in position and concealed from anyone viewing the front or sides of the cleaner housing.

Other objects and advantages will appear from the drawings and the following description.

In the drawings:

Fig. 1 is a bottom plan view of a suction cleaner embodying my invention, showing the electrical cord of the cleaner looped back and forth and stored adjacent the bottom.

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Fig. 2 is an elevational side view of the cleaner in its operative position, part of the housing wall being broken away to reveal part of the internal construction.

Fig. 3 is a vertical sectional view on an enlarged scale of the cord retaining means, including part of the housing bottom and part of the motor-fan unit and exhaust means shown in elevation in Fig. 2.

Fig. 4 is a vertical sectional view in the plane of the line 4—4 of Fig. 3, but showing the hinged cord retaining plate in downturned position.

In that embodiment of the invention shown in the drawings, the suction cleaner comprises a housing having side walls 10, bottom 11 and removable cover 12 which closes the open top of the housing. The cover is provided with a peripheral resilient ring 13. A base 14, with furniture guard 15 around its edges, extends outwardly from the housing wall 10. The base 14 generally is circular except at one side, as shown at the right of Fig. 1, a flat end surface 16 is formed upon which the cleaner rests when in its stored position and when it is being used as a blower. For these purposes, the flat surface 16 cooperates with the resilient ring 13 of the cover to support the cleaner.

A circumferential skirt 17 depends from the base 14, below the bottom 11, and conceals part of the casters 18 on which the housing rests when in its operative position as a suction cleaner. A handle 19 is mounted on the housing wall 10 opposite the flat side 16. Adjacent the handle, the wall 10 is provided with an air intake opening surrounded by the nozzle hose ring 20 fixed to the housing. The conventional air intake tube 21 is shown in dotted lines in Fig. 2.

The cleaner bottom 11 comprises sections in different planes. When the cleaner is in its operative position as a suction cleaner, supported on the casters 18, the sections are in different horizontal planes. The bottom section 22 is the lowermost portion which supports a motor-fan unit 23 from which extends an exhaust conduit 24 communicating with an exhaust opening 25 in the bottom 11 near its center. That portion of the bottom surrounding the exhaust opening 25 is indicated at 26 in Fig. 3. A reinforcing collar 27 cooperates with the bottom section 25 to receive a blower or exhaust air tube 28 shown in dotted lines.

Another part of the bottom 11, a section designated 29, is in a higher plane than the exhaust area 26, and the latter is in a higher plane than the motor-fan supporting section 22. Thus there is formed on the cleaner bottom an externally opening recess defined by the inner wall 30 of the section 21 and that part of the skirt 17 which extends around the left hand portion of the cleaner housing as viewed in Fig. 1. The recess as a whole has been designated 31. The construction of the motor-fan unit 23, the resilient annular mounting 32 in which the motor-fan unit 23 and the exhaust conduit 24 are supported, and the center support 33 need not be described in detail herein since these parts are not elements, per se, of the invention, but as heretofore pointed out, the formation of the bottom 11 and arrangement of the bottom sections 22, 26 and 29, on and above which said parts are mounted, provide the recess 31 and cooperate with the cord retaining means which now will be described.

The conventional electrical cord is designated 35 in Fig. 1 and shown in its stored position in the recess 31. It is retained by a hinged plate assembly 36 and by a stationary, rigid plate 37. The assembly 36 comprises an angle bar 38 of flat thin metal, the horizontal portion of which is connected by rivets 39 to the bottom section 26 between the exhaust opening 25 and the recess wall 30. The vertical portion of the angle bar 38 extends downwardly adjacent to and generally parallel with said wall 30 as shown in Fig. 3, and its lower edge is cut away

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as indicated at 40 in Fig. 4. The side portions are curled rearwardly to form bearings 41 in which is journaled a hinge pin 42. The outer ends of the hinge pin 42 are journaled in a hinge plate 43 by means of the curled portions which provide bearings 44 at opposite sides of the plate. A spring 45 coiled around the pin 42 has a median arm 46 which bears against the under or outer surface of the plate 43 and urges it to maintain the horizontal position, parallel to the bottom 11, shown in full lines in Fig. 3. The opposite free ends 47 of the spring extend upwardly and bear against the vertical portion of the angle bar 38. A stop 48 fixed to the hinge plate 43 bears against the recess wall 30 to limit the movement of the plate toward the bottom 11.

The hinge plate 43 serves as a cover or deflector for the exhaust opening 25 when the electrical cord 35 has been removed from the recess 31 and the cleaner is being operated as a suction cleaner. When the cleaner is being used as a blower, the exhaust air tube 28 is inserted into the opening 25, into engagement with the bottom section 26 and collar 27, and for this purpose the hinged plate 43 is swung into the dotted line position of Fig. 3.

Cooperating with the hinged plate 43 to retain the electrical cord in storage, is the rigid plate 37 which comprises an attachment plate 50 mounted on the cleaner bottom section 29 by rivets 51. The attachment plate 50 is located diametrically opposite the hinge pin 42 and adjacent the central front of the cleaner (in its operative position) which becomes the top or handle end of the cleaner in its stored position. The plate 50 is centrally depressed to receive a ball bearing swivel mounting 52 which is part of the caster assembly shown in Fig. 1. Two other casters 18, non-swivel type, support the cleaner toward the right hand side, as viewed from Fig. 1, but have been omitted from that view for sake of clarity. The rigid plate 37 also comprises a downwardly inclined arm 53 which terminates in a horizontally disposed free arm 54 directed toward but spaced from the hinged plate 43. In transverse section, the portions 53 and 54 of the rigid plate 37 are convex on their upper or inner surfaces, thus providing smooth slightly curved surfaces, free from edges, to contact the electrical cord retained by the described parts.

When the cleaner is not in use and the electrical cord is to be stored in the recess 31 adjacent the bottom 11, the cleaner is turned so as to rest on the parts 16 and 13, with the bottom substantially vertical. The cord is looped back and forth in the hand of the user, and by a single quick and easy movement of one hand is placed behind the hinged plate 43 while the latter is being slightly tilted away from the cleaner bottom by the other hand of the user. By the same movement, a portion of the looped cord is placed behind the free arm 54 of the rigid plate 37. Thus the cord occupies space in the recess 31, between the bottom 11 (particularly the sections 26 and 29 thereof) and the parts 36, 37, where it is concealed from anyone viewing the cleaner from the front or sides in its stored position. The looping of the cord back and forth in the hand of the operator and its placement in the recess 31 is achieved in much less time than is required to wind the cord around a spool or other projecting formation on a cleaner. Further, the elimination of such projecting parts for cord reception provides space in which the cord can be concealed without extending the skirt portion 17 and increasing the size of the cleaner housing.

Changes may be made in details of construction and in the form and arrangement of parts without departing from the scope of the invention defined by the appended claims.

I claim:

1. A suction cleaner having a housing including a bottom, means on the housing supporting the cleaner for storage with the bottom in substantially vertical position, a recess in the external side of the bottom, an exhaust

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opening in said recessed portion of the bottom, a plate hingedly connected at one edge to the bottom and overlying said exhaust opening in spaced relation thereto, means yieldingly urging said hinged plate toward the recess, a rigid plate mounted on the bottom at a distance from said hinged plate having a free end extending toward but spaced from the hinged plate, and an electrical cord connected to the housing adapted when looped back and forth to be passed between the said rigid and hinged plates into the recess and to be retained therein by contact with said plates.

2. A suction cleaner having a housing including a bottom, side walls and cover forming a cleaner chamber, a motor-fan unit mounted in the chamber on the bottom adjacent one side of the cleaner, that portion of the bottom supporting the motor-fan unit being located in a plane lower than the rest of the bottom whereby a recess is formed on the external side of the bottom adjacent said motor-fan supporting area, an exhaust opening in the recessed portion of the bottom, a plate hingedly connected at one edge to the bottom and overlying said exhaust opening in spaced relation thereto, means yieldingly urging said hinged plate toward the recess, a rigid plate mounted on the bottom at a distance from said hinged plate having a free end extending toward but spaced from the hinged plate, and an electrical cord connected to the housing adapted when looped back and forth to be passed between the said rigid and hinged plates into the recess and to be retained therein by contact with said plates.

3. The suction cleaner defined by claim 2, in which the hinged plate is pivotally connected to the bottom by a hinge pin which is adjacent and parallel to the inner edge of the motor-fan unit supporting area of the bottom.

4. A suction cleaner having a housing including a bottom, means on the housing supporting the cleaner for storage with the bottom in substantially vertical position, a motor-fan unit in the housing supported on the bottom adjacent one side, the bottom area supporting the motor-fan unit being in a plane different from the rest of the bottom whereby a recess is formed on the external side of the bottom adjacent said area, an exhaust opening in said recessed portion of the bottom, a plate hingedly connected at one edge to the bottom adjacent said motor-fan supporting area and overlying said exhaust opening in spaced relation thereto, means yieldingly urging said hinged plate toward the recess, means on the bottom including a swivel type caster for supporting the cleaner in suction cleaning position, a rigid plate mounted on the bottom including an attachment plate, an inclined portion and a free end extending toward but spaced from the hinged plate, the attachment plate being located between the caster and the bottom and the inclined portion being adjacent the caster, and an electrical cord connected to the housing adapted when looped back and forth to be passed between said hinged plate and said free end of the rigid plate into the recess and to be retained therein by contact with said plates.

5. The suction cleaner defined by claim 4, which includes an angle bar connected to the cleaner bottom adjacent the motor-fan supporting area, a hinge pin, bearings on the bar in which said hinge pin is mounted, bearings on the hinged plate in which said hinge pin is mounted, and a coiled spring on the hinge pin having a median portion bearing on the outer surface of the hinged plate.

6. A suction cleaner having a housing including a bottom and side walls having a skirt portion extending below the bottom, the major portion of the external bottom surface being in a plane above the lower edge of the skirt portion and forming with said skirt an externally accessible recess in the cleaner bottom, means on the housing supporting the cleaner for storage with the bottom in substantially vertical position, a plate hingedly connected at one edge to the bottom and overlying said

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recess in spaced relation to the bottom, means yieldingly urging said hinged plate toward the bottom, a rigid plate mounted on the bottom at a distance from said hinged plate having a free end extending toward but spaced from the hinged plate, and an electrical cord connected to the housing adapted when looped back and forth upon itself to be passed between the said rigid and hinged plates into said recess and to be retained therein by contact with said plates.

7. A suction cleaner having a housing including a bottom, side walls and cover forming a cleaner chamber, the side walls having a peripheral skirt extending below the bottom, a motor-fan unit mounted in the chamber on the bottom, that portion of the bottom supporting the motor-fan unit being located in a plane lower than the rest of the bottom whereby a recess is formed externally of the bottom between said motor-fan unit supporting portion and said skirt, a plate hingedly connected at one edge to the bottom and overlying the recess in spaced relation thereto, means yieldingly urging said hinged plate toward the bottom, a rigid plate mounted on the bottom at a distance from said hinged plate hav-

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ing a free end extending toward but spaced from the hinged plate, and an electrical cord connected to the housing adapted when looped back and forth upon itself to be passed between said rigid and hinged plates into said recess and to be retained therein by contact with said plates.

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