April 16, 1963 C. E. MEYERHOEFER 3,085,279

VACUUM CLEANER ASSEMBLY

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FIG. 1

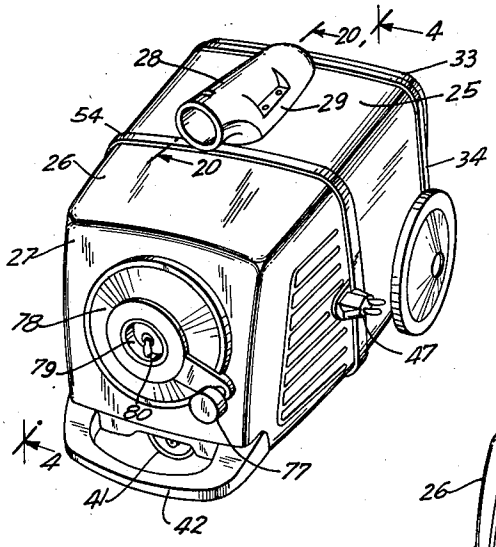


FIG. 2

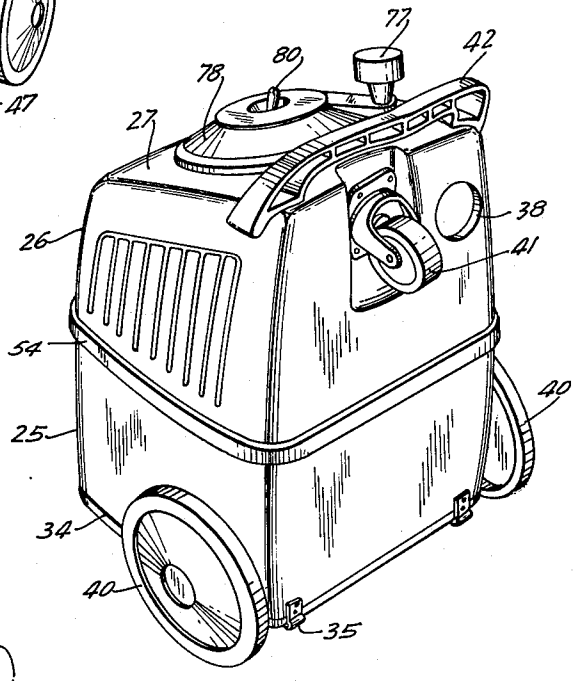
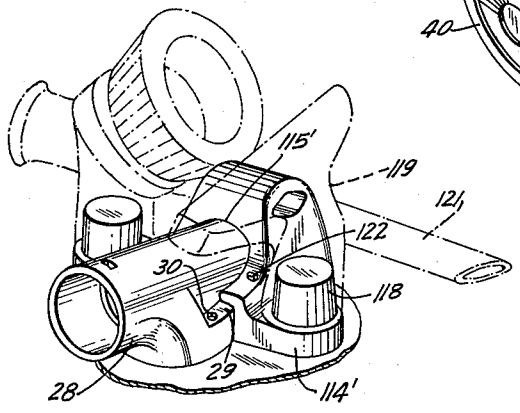


FIG. 3



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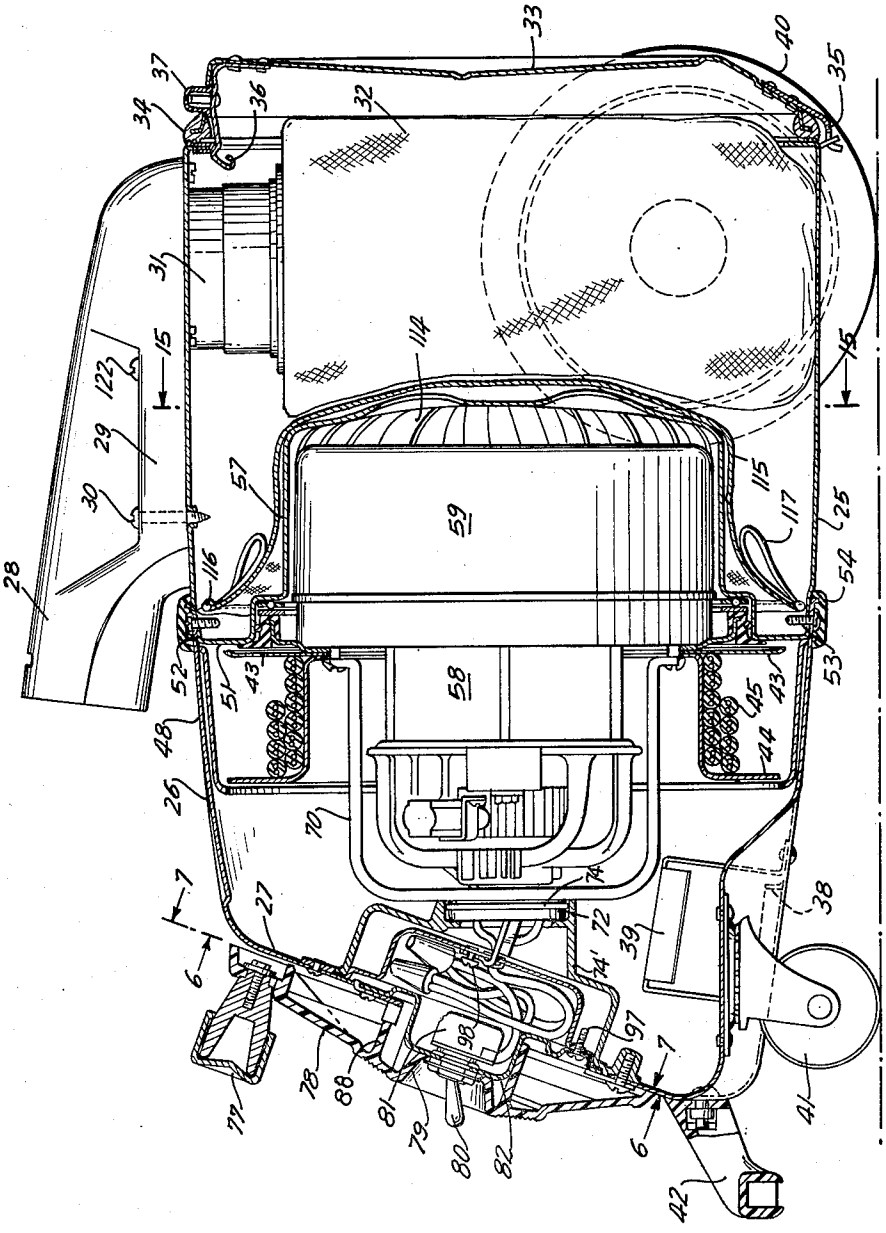


FIG. 4

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FIG.5

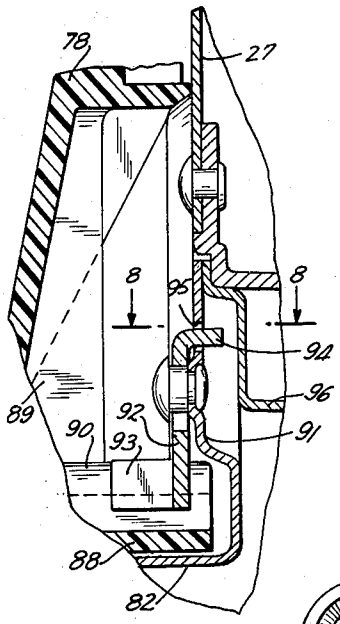


FIG.6

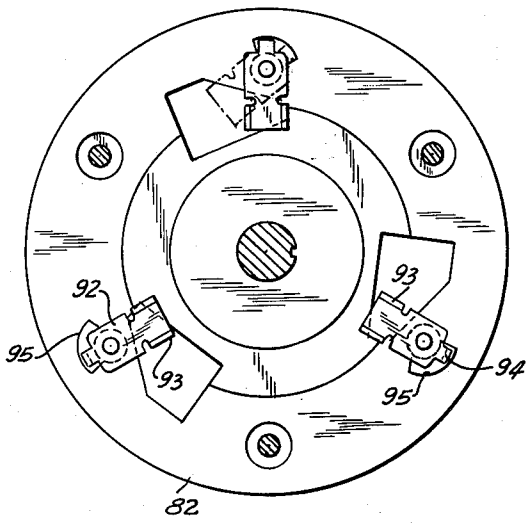


FIG.8

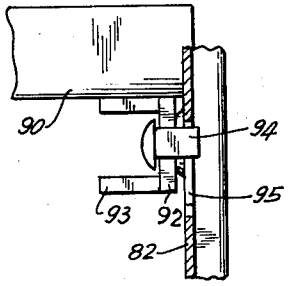


FIG.7

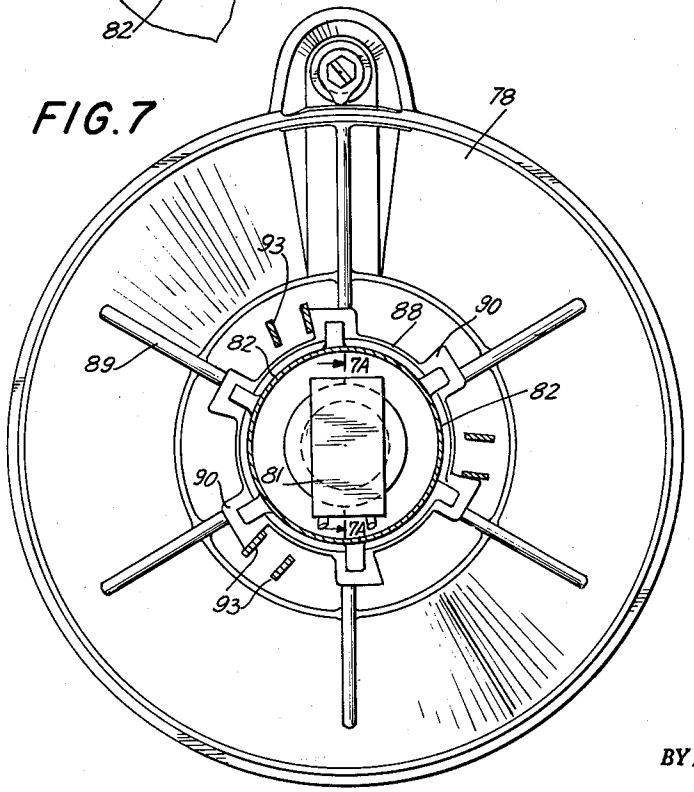
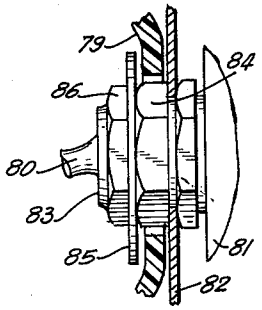


FIG.7A



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FIG. 9

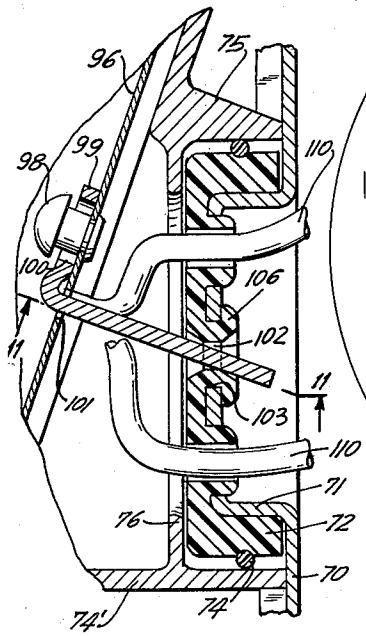
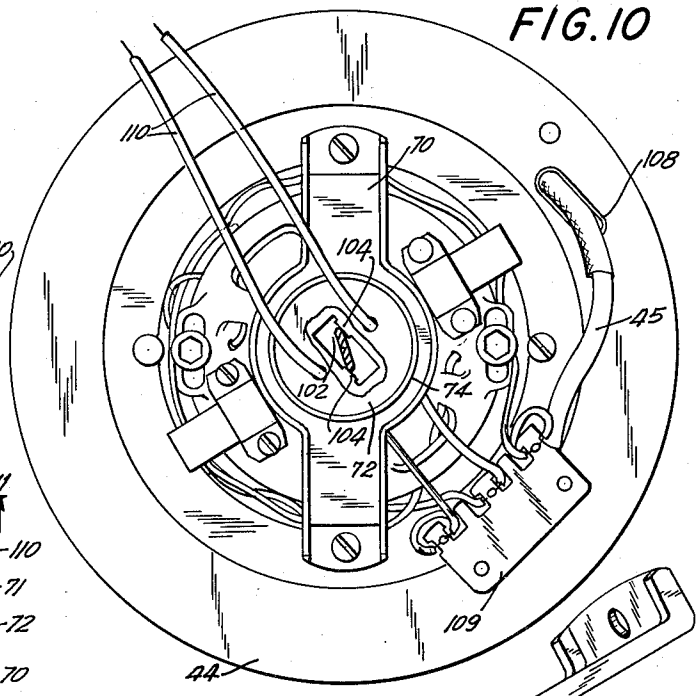


FIG. 10



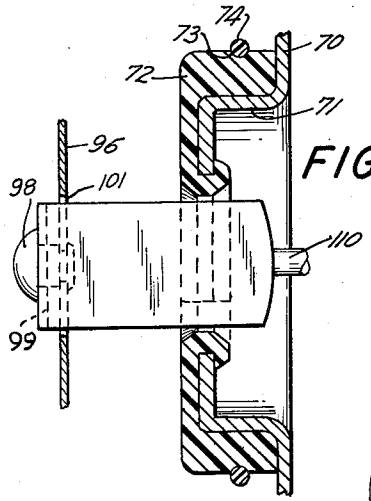


FIG. 11

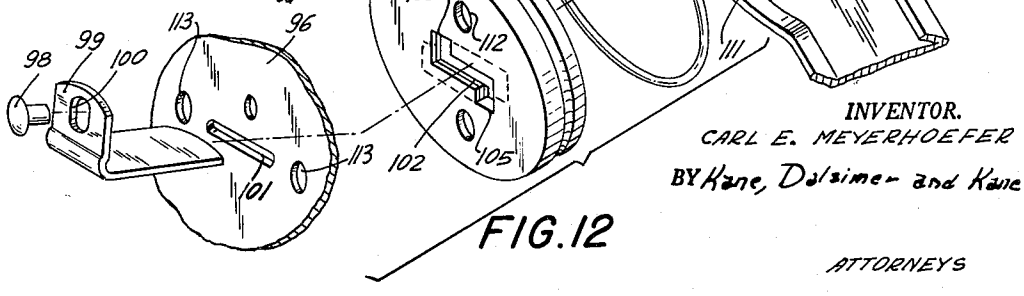


FIG. 12

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FIG. 13

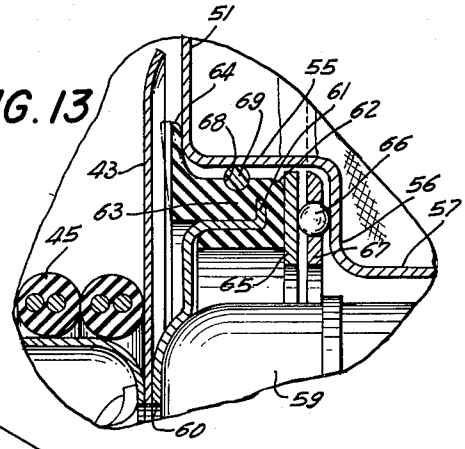
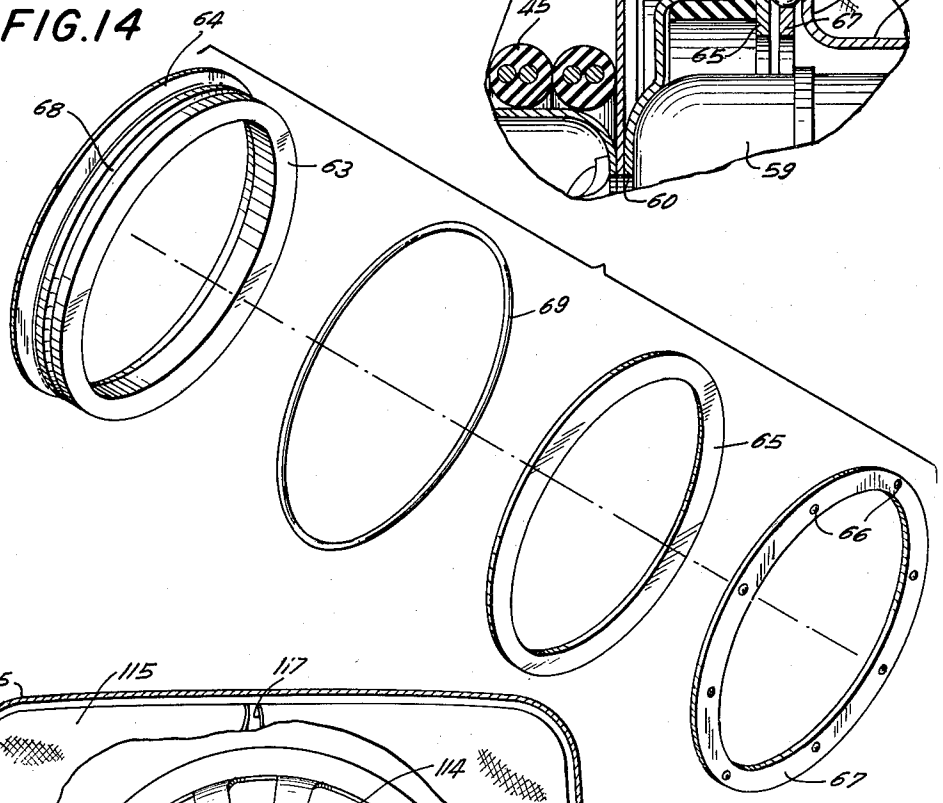


FIG. 14



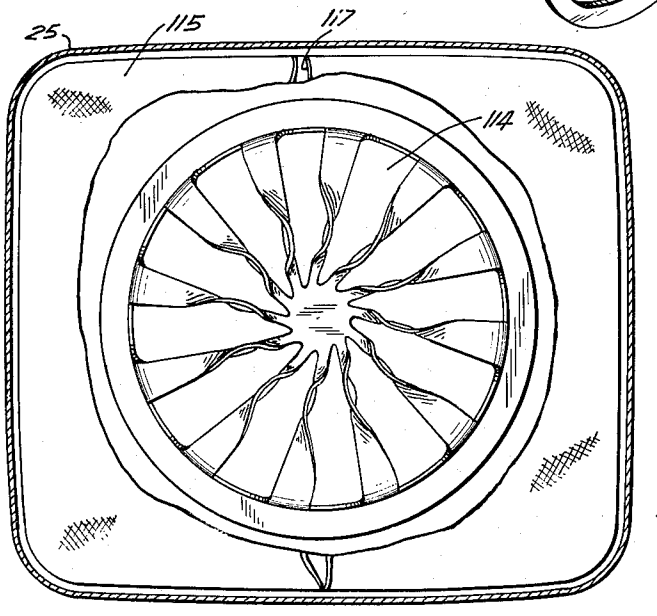


FIG. 15

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VACUUM CLEANER ASSEMBLY

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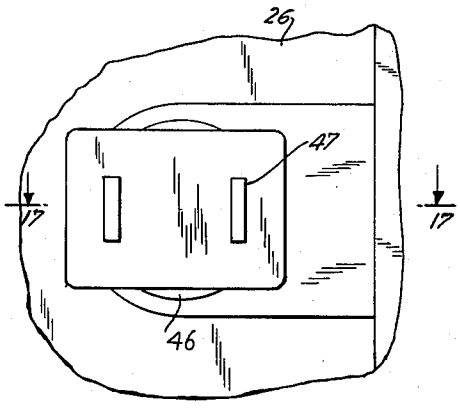


FIG. 16

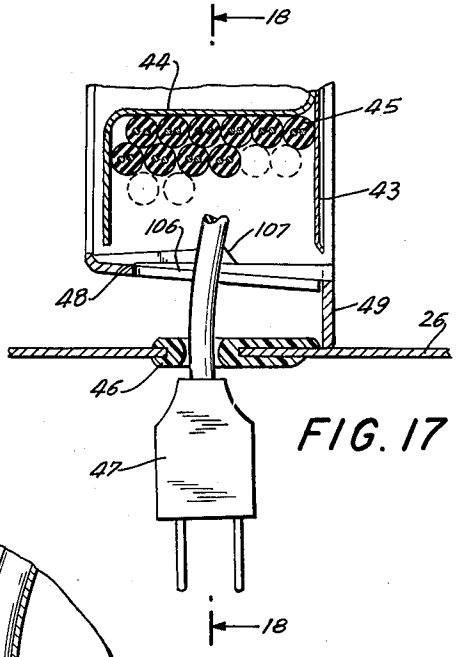


FIG. 17

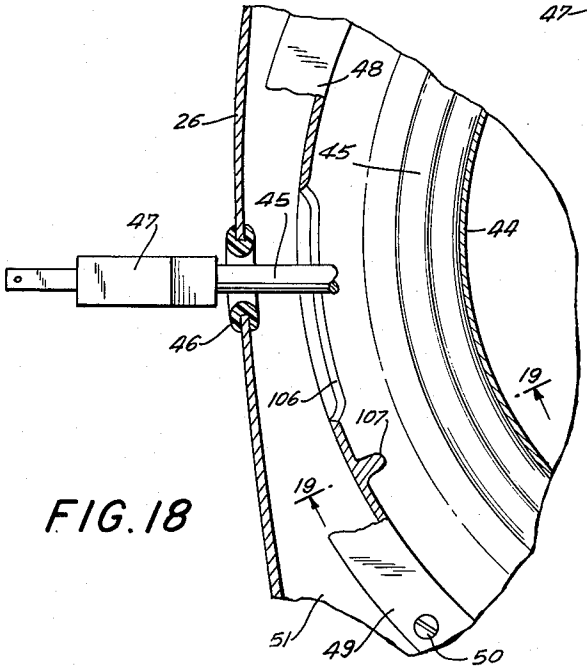


FIG. 18

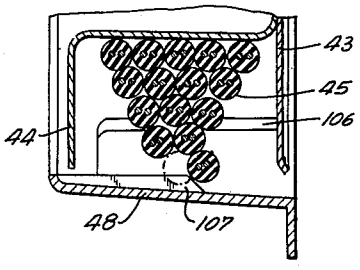


FIG. 19

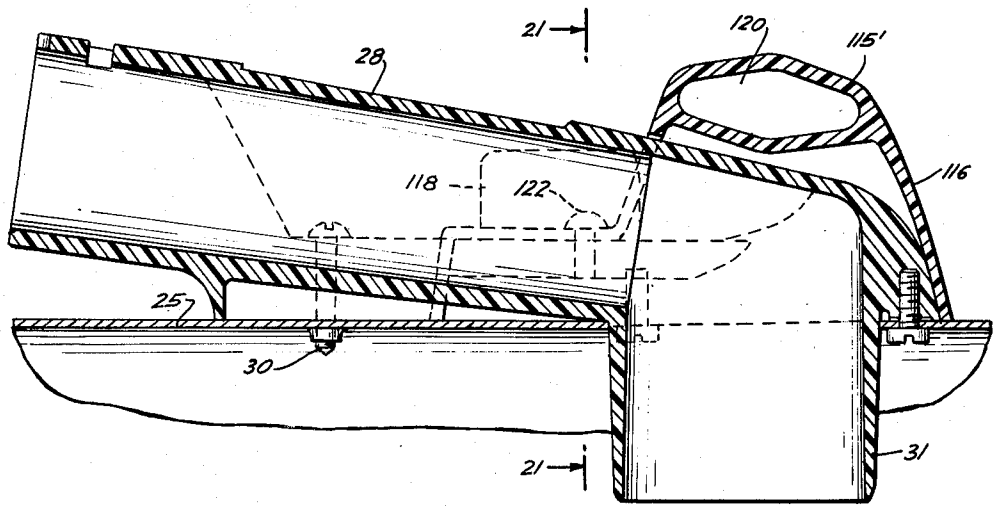
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FIG. 20



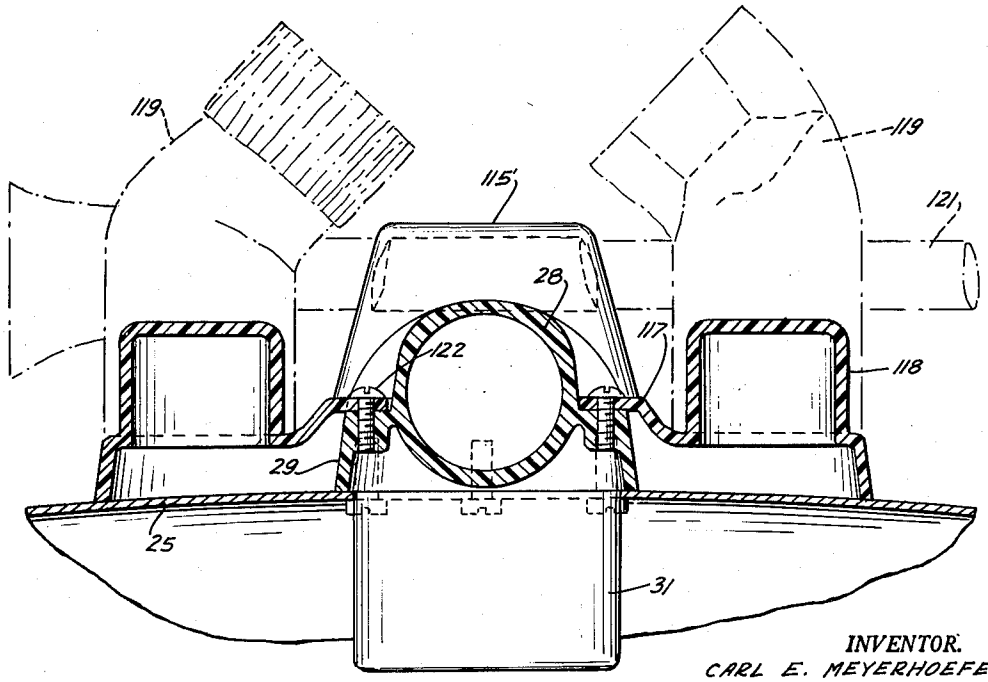


FIG. 21

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United States Patent Office 3,085,279 Patented Apr. 16, 1963

3,085,279

VACUUM CLEANER ASSEMBLY

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Filed Jan. 5, 1961, Ser. No. 80,781
5 Claims. (Cl. 15—323)

This invention relates to a structurally and functionally improved vacuum cleaner assembly.

It is an object of the invention to provide an assembly which will efficiently clean floor surfaces, carpets, etc.; and as a part of the same a readily operated cord or lead mounting structure such that the operator will be able to readily store that lead with the apparatus.

A further object is that of designing an improved mechanism in which air leakage will be reduced to a minimum. Accordingly, the motor-blower unit thereof will exert a maximum suction effect which will assure a rapid and thorough cleaning of surfaces by the apparatus.

Moreover the assembly will include a tool rack of novel design which, if used, will enable those accessory tools which are desirable for different cleaning operations to be mounted upon the cleaner casing so that they are instantly available to the operator.

With these and other objects in mind reference is had to the attached sheets of drawings illustrating one practical embodiment of the invention and in which:

FIG. 1 is a perspective view of the cleaner assembly and showing the same in one position;

FIG. 2 is a similar view showing the mechanism in a different position;

FIG. 3 is a perspective view of a tool rack designed to form a part of the assembly;

FIG. 4 is a sectional side view of the mechanism and casing taken along line 4—4 of FIG. 1;

FIG. 5 is a fragmentary sectional side view in enlarged scale showing a portion of the dial and parts adjacent thereto;

FIGS. 6 and 7 are transverse sectional views taken along the lines 6—6 and 7—7 and in the direction of the arrows as indicated in FIG. 4;

FIG. 7A is a fragmentary sectional view taken along the line 7A—7A and in the direction of the arrows as indicated in FIG. 7;

FIG. 8 is a sectional plan view taken along the line 8—8 in the direction of the arrows as indicated in FIG. 5;

FIG. 9 is a fragmentary sectional side view of parts to the rear of the dial;

FIG. 10 is a rear elevation of the entire dial assembly including accessory parts;

FIG. 11 is a transverse sectional view taken along the line 11—11 in the direction of the arrows as indicated in FIG. 9;

FIG. 12 is a fragmentary exploded view of the coupling or driving parts;

FIG. 13 is a fragmentary sectional side view of a portion of the cord reel and the adjacent gasket and anti-friction mounting;

FIG. 14 is an exploded view of the parts providing that gasket and mounting;

FIG. 15 is a transverse sectional view taken along the line 15—15 in the direction of the arrows as indicated in FIG. 4;

FIG. 16 is an enlarged fragmentary side elevation of the outer end of the current conducting cord and adjacent casing parts;

FIG. 17 is a sectional plan view taken along the line 17—17 in the direction of the arrows as indicated in FIG. 16;

FIG. 18 is a transverse sectional view taken along the line 18—18 in the direction of the arrows as indicated in FIG. 17;

FIG. 19 is a still further transverse sectional view taken in the direction of the arrows along the line 19—19 of FIG. 18;

FIG. 20 is a sectional side view in enlarged scale taken along the line 20—20 and in the direction of the arrows as indicated in FIG. 1; and

FIG. 21 is a transverse sectional view taken along the line 21—21 in the direction of the arrows as indicated in FIG. 20.

Primarily referring to FIGS. 1, 2 and 4, it will be seen that the casing structure includes sections 25 and 26 conveniently tapered toward the front face of the assembly. That front face indicated at 27 is shown as inclined in a downward and forward direction. An inlet fitting includes a forwardly extending tubular portion 28 having flanges 29 through which securing elements 30 may extend to fasten the fitting against movement with respect to the casing. This fitting has a collar (see also FIGS. 20 and 21) identified by the numeral 31 and extending through an opening in the casing section 25 into the interior of the latter. The collar mounts the neck of a filter such as a bag 32. The latter may be formed of air porous paper or any other suitable material. The rear face of the casing assembly is preferably provided by a cover 33. The latter supports a gasket 34 for sealing contact with the edge zone of the adjacent casing portion.

The cover is movable to afford access to the interior of the casing. A suitable structure for use in this connection involves parts of a detachable hinge assembly secured respectively to the casing and cover and indicated at 35. At a diametrically opposed point in the cover a latch 36 is present and which may be shifted by means of an actuator 37. This latch cooperates with a surface of the adjacent casing section 25 to normally maintain the cover in a casing-closing position. With the operation of the actuator 37 this latch is released and the cover may be swung downwardly to expose the rear portion of the casing. In fact, if desired, the hinge structure 35 may be uncoupled so as to completely detach the cover. In the forward section 26 of the casing an outlet opening 38 is provided and defined by an inwardly extending collar 39.

By having the inlet and outlet openings of the casing disposed in the top and base surfaces of the latter, a convenient arrangement is provided for the operator. More particularly, as in FIG. 1, with the casing in horizontal position a hose or other accessory part may readily be coupled with the tube 28 of the inlet. When the casing is upended as in FIG. 2, then the discharge or outlet opening 38 becomes accessible. If the assembly is to be employed as a blower, then in this position the end of the hose or equivalent unit may be inserted through opening 38 and extend in sealing engagement with collar 39. In the latter operating condition the user will not ordinarily find it necessary to move the unit over a supporting surface. However, when functioning as a vacuum cleaner and in the position shown in FIG. 1, it is desirable that the operator be able to freely move the entire assembly by, for example, pulling on the hose. For this reason it is preferred to employ suitable supports in association with the casing. Those supports will conveniently embrace a pair of wheels 40 rotatably mounted adjacent cover 33 and the base face of the casing. These wheels will have a diameter such that their peripheries will extend beyond the casing and cover faces as shown. Additionally, adjacent the forward end of the base face a rotatable caster 41 may be pivotally supported to extend below the lower surface of the casing.

Therefore, with the assembly in a normal position as in FIG. 1 it is mounted so that the operator will experience no difficulty in traversing it over floors and carpets by

simply pulling, for example, on the hose connected with the inlet fitting. When upended as in FIG. 2, the assembly will be partially supported for free movement by wheels 40 contacting the supporting surface in that the peripheries of those wheels extend below the base face or cover 33. To assist the user in shifting the unit from one to the other position a guard 42 may extend forwardly of the front face of the casing assembly and preferably adjacent its lower edge zone. This guard has its central zone spaced from the casing to thus furnish a handle portion which may be readily grasped by the operator for shifting purposes and will also serve as a means for transporting the assembly when a user desires to carry it.

According to the present teachings, a cord receiving reel or member will form a part of the assembly so that the current-supplying lead to the motor may be housed within the casing. Such a unit has been shown in FIG. 4 and includes a hub plate 43 to which there is secured a generally L-shaped ring 44 at a point short of its periphery. Accordingly, a trough is provided by these elements and which will serve as a reel upon which the cord or lead 45 may be wound. As shown (FIG. 17–18), the end of this cord extends through an opening conveniently defined by a grommet 46 and supports a plug 47 at a point beyond the casing. This plug in the usual manner may be connected with a suitable electrical outlet.

Extending around the reel is a shroud 48, defining with the trough portion of the reel the compartment housing lead 45. The shroud is mounted by, for example, having its rear zone terminating (see FIG. 18) in an interrupted flange 49 provided with openings through which securing elements 50 extend. Those element engage with a portion of a partition assembly within the vacuum cleaner.

That part embraces the zone 51 of a shell which extends perpendicular to the axis of the cleaner and the outer edge portion of which is bent as at 52 to extend generally parallel to the outer faces of casing parts 25 and 26. These casing portions as well as the edge zone of the shell may be secured against movement by fastening elements such as 53 and this juncture of the parts is conveniently encircled by a band 54. Inwardly of zone 51 the shell extends angularly as at 55 (see FIG. 13) in a direction parallel to the axis of the cleaner. Inwardly of part 55 the shell continues in another generally ring shaped portion 56 again extending substantially perpendicular to the longitudinal axis of the assembly. Inwardly of zone 56 the shell continues as a tubular portion 57. A unit embracing an electrical motor 58 connected to a blower assembly within a housing 59 secured against movement with respect to the motor-enclosing frame is provided. Part 59 extends within the bore of the tubular portion 57 and is spaced from the surface thereof.

Referring especially to FIG. 13, it will be seen that there extends outwardly from the casing 59 of the blower a mounting plate 60 which is affixed thereto. The edge zone of this plate includes a rearwardly extending portion 61 terminating in an outwardly projecting flange 62. These parts are enclosed within the body of a gasket 63 of rubber or similar material to secure the latter against movement with respect to the plate. As shown in both FIG. 13 as well as FIG. 14, the gasket 63 has an outstanding and flexible flange or edge portion 64 overlying the inner zone of shell part 51. A washer 65 of metal or other suitable material is in contact with the rear edge of gasket 63 and bears against an annular series of anti-friction elements 66 carried by a race 67. These elements also bear against the surface of zone 56 of the shell. Additionally, in this partition assembly gasket 63 is conveniently formed on its outer face with a groove 68 which receives a ring 69 of suitable anti-friction material. That material may be polypropylene. As a consequence of these anti-friction bearings, the motor-blower unit is rotatably supported adjacent its midzone within the main casing of the assembly.

Adjacent its forward end the motor-blower unit is supported for rotation by conveniently having affixed to it a bracket 70 of generally U-shape and including in the face of its base a collar portion 71 (see FIGS. 9 to 12, inclusive). This collar is enclosed by a cup 72 of rubber or similar plastic material which in common with the gasket 63 will assure against the transmission of vibration to adjacent parts and also prevent noise being thus transmitted. Cup 72 is formed in its edge with an annular groove 73 which receives a ring 74 of anti-friction material which may be the same as that providing ring 69. Fixed to the inner face of the front portion 27 of the casing assembly is a supporting or bracket structure 74'. The latter includes an inwardly extending flange 75 having a diameter slightly greater than that of the cup 72 but corresponding to the outer diameter of ring 74. Adjacent its base flange 75 is provided with an inwardly extending lip 76 which projects beyond the edge zone of the cup base to thus limit axial shifting of the latter in a forward direction. Accordingly, the motor-blower unit will be retained in position and when not operating is susceptible to freely rotating within the enclosing casing structure of the assembly.

In order to thus rotate the unit a crank is preferably employed. If the forward face of the causing be tilted, as shown, and the axis of the crank be perpendicular thereto, then a structure such as a universal joint or assembly may be employed to connect the crank with the motor-blower unit; the axis of which will be parallel to the casing axis. Such an arrangement of parts is preferably provided. Irrespective of this, however, it is preferred to employ a one-way clutch assembly connecting the crank with the unit. In this manner when the crank is rotated in one direction, the unit and the reel associated therewith will move in unison with the crank. When the crank is rotated in an opposite direction, then it will have lost motion with respect to the reel which will remain stationary.

Such a crank has been shown at 77 in FIGS. 1, 2 and 4 and is secured to the peripheral zone of a plate 78 in the form of a dial. The central zone of this dial is conveniently formed with a recess 79 from which there extends outwardly the actuator 80 of a switch unit 81. This switch unit is carried by the outwardly extending portion (see FIGS. 4 and 7A) of a housing 82. To effect this result the conventional threaded collar 83 of the switch assembly extends through an opening in this portion as well as an opening formed in the dial 78; the latter opening being of a sufficiently large diameter to clear the assembly. This collar mounts nuts 84 and 86 clamping the assembly against movement with respect to the housing 82 and also mounting a washer 85 against movement. The latter overlies the outer face of dial 78. Accordingly, the dial is capable of rotation with respect to these parts. However, it is retained so that it will not shift axially of collar 83.

The dial, as in FIGS. 6 and 7, presents on its inner face a hub portion 88 which encircles the forwardly extending part of housing 82. For rigidifying and strengthening purposes radial ribs 89 may be included in the dial especially if—as preferred—it be formed of a plastic material. The hub 88 has extending outwardly from it a series of abutments 90. Adjacent the hub and beyond its radial edge zone housing 82 is extended forwardly as at 91. At this point it pivotally supports on its forward face pawl members 92. The inner ends of each of these members preferably terminates in a pair of finger portions 93. Beyond their pivots the outer ends of these members are extended rearwardly as at 94 and ride within slots 95 formed in housing 82. These slots serve to limit the rocking movements of the pawls to zones between that shown in full and dot and dash lines in FIG. 6.

When brought to their outermost position, the inner ends of the pawls will override the edges of the abutments or projections 90. When extending in substantially radial

positions, they will engage those abutments. It follows, therefore, that when dial **78** is rotated in one direction, the clutch structure thus provided will engage to rotate housing **82** in synchronism therewith. Viewing the operation and referring especially to FIGS. 5 through 8, with dial **78** turning in a reverse position, ribs or abutments **90** will override pawl members **92**. This will cause no rotation of housing **82**. The latter being connected to the reel it is apparent that with the parts properly disposed a rotation of the dial in one direction will result in this reel turning to wind the cord **45** thereon. If, however, the dial is turned in the opposite direction, the clutch members will disengage. In this manner, unwinding and possible tangling of the cord is prevented.

In order to connect housing part **82** with the reel and to include in this connection a universal joint structure a second housing part **96** is attached thereto by, for example, screws **97**. Of course, if the front face of the casing and/or dial are not inclined, then no universal joint will be necessary. However, considering the preferred form of the invention as illustrated and with particular reference to FIG. 9, it will be seen that the base of housing part **96** is inclined and supports on its inner face a rivet **98** or similar element. A driver or tang has an angular end portion **99** provided with a relatively large opening **100** through which the shank of the rivet extends (see FIG. 12). Thus, the upper end of the driver or tang is loosely supported. Its body extends through a slit **101** formed in casing part **96**. Beyond this it extends through the slot **102** in the cup member **72**. It projects beyond the latter and then passes through the slot **103** formed in the collar **71** of bracket **70**. The latter slot preferably has opposed projecting portions **104** at the opposite ends of its side edges. The slot **102** of the cup **72** is formed with lateral enlargements **105** adjacent the opposite ends of its side edges and in line with the projections **104**.

Also, as shown in FIG. 9, the central portion of the cup extends as at **106** through slot **103**. It follows that when the body of the tang is not subjected to any rotational force it will be supported by the edges of slot **102** formed in the resilient cup member **72**. So supported no metal-to-metal contact between the driver and bracket **70** will occur. When the tang or driver is turned, however, the torsional effect exerted will result in a compression of those edge zones of slot **102** which are in contact therewith such that the faces of the tang will engage with the projecting portions **104** and rotate bracket **70** and consequently the motor unit connected therewith. The instant the turning force on the tang is released it will assume its initial position at which its inner end is yieldingly supported by the edges of slot **102**. So supported, no metal-to-metal contact will occur, and consequently vibrations and noise emanating from the operation of the motor-blower unit will not travel through to the casing part **96**.

Now returning to a consideration of the cord or electrical lead **45** it has been seen that this enters through an opening formed in casing section **26**. Immediately inwardly of this opening shroud **48** is disposed. The latter is also formed with an opening (FIGS. 17–19) defined by guiding lips **106**. The cord passes between these to the reel. Inwardly of the opening and supported upon the inner face of the shroud is a rib **107** providing a cam surface. With the reel turning to wind up the cord the latter may have its convolutions "build-up" in a manner such that the outer convolution would come in contact with the inner face of the shroud. This would prevent turning of the reel. The cam **107** will prevent this occuring in that under such circumstances the outermost convolution of the cord beginning to form on preceding convolutions will engage with the cam edge and be laterally diverted as shown in FIG. 19. Thus, no difficulties will be experienced in this connection.

The inner end of the cord passes through an opening **108** formed in the radially extending wall of the channel member **44** and will have its leads conveniently connected to a terminal panel **109** (see FIG. 10). This panel will connect with the leads of the motor embraced in the motor-blower unit and will also provide leads **110** extending toward the switch **81**. These leads will pass through openings **111** formed in the base of collar **71**, openings **112** formed in the base of cup **72** and openings **113** correspondingly formed in the base of housing part **96**. Beyond this they will connect with the terminals of the switch assembly so that by operating the actuator **80** of the latter the motor-blower unit will be energized or deenergized.

Thus, it is apparent that no structure in the nature of a commutator will be necessary to connect the inner end of the cord disposed upon the reel with the motor. This is because the motor will turn as a unit with the reel member. Likewise, leads **110** and the switch assembly turning as a unit with the motor-blower unit no commutator structure will be required between those leads and the switch. The leads **110** will have minimal zones between panel **109** and collar **71**. Therefore, they will be subjected to only the smallest amount of flexing as the crank is rotated. Again as a result of this structure, the danger of lead breakage is reduced. The tubular part **57** of the shell terminates in a base portion **114**. This is formed with slits as especially shown in FIG. 15. Consequently, this shell provides a guard structure at the intake end of the blower portion of the unit such that the filtering expedients will not be drawn into that part. However, air flow into this intake end will not be obstructed. A cloth layer **115** envelopes parts **59** and **114** and is maintained in position by a frame **116** to which tabs **117** may be connected. By means of the latter and with cover **33** and bag **32** removed an operator may withdraw the cloth or equivalent filter (which is to be considered semi-permanent) and may clean and replace it. Normally, however, this will only be done at infrequent intervals after a series of bags such as **32** have been filled with material and discarded.

It may be desirable to include in the assembly a tool rack such as has been shown in FIGS. 3, 20 and 21. To this end a unit may be produced which will include a base **114'** having a centrally arched portion **115'** and a rearward shell extension **116**. This base is slotted in line with its arched portion and provided with inwardly extending flanges **117**. At its ends it may be furnished with extended portions **118** received within the bores of tools indicated at **119** to thus retain them. The central arched portion **115** may also conveniently be formed with an opening **120** within which the shank **121** of a nozzle type tool may be received and retained. Previously there has been described the fact that retaining elements such as screws **30** engage with the openings in the flanges **29** of the intake fitting **28**. Further screws or bolts **122** may also be mounted by these flanges but not retaining the fitting on casing section **25**. Rather these fastenings may be dismounted and inserted through the openings in the flanges **117** of the support or holder after the latter has been positioned upon the flange portions **29** of the fitting. So disposed and as illustrated in FIG. 21, the holder will be anchored for movement as a unit with the casing assembly.

When an operator desires to employ the cleaner, it will simply be disposed adjacent the position where it is to be used. Thereupon, the operator will grasp plug **47** and pull upon it so that the reel will turn and unwind the cord so it will pass out of the opening defined by grommet **46**. Plug **47** will now be connected with a suitable outlet. A hose or equivalent structure will be connected with inlet fitting **28**. With a proper nozzle or other tool in turn connected with the hose the operator may begin to use the assembly.

Up to this moment and with the motor-blower unit

not operating the edge zone part 64 providing the pressure differential seal has remained clear of the adjacent surface 51. For this reason only minimum effort was necessary to turn the motor-blower unit and the reel as the cord was withdrawn. In other words, that unit was supported upon anti-friction bearings 66, 69 and 74. Now when actuator 80 is shifted to close the circuit through the switch and the motor, air will rush through the intake fitting 28, the wall of the filter bag 32, the filter 115 and through the slotted portions 57 and 114 of the shell into the blower wheel assembly within housing 59. A condition of subatmospheric pressure will be created within casing portion 25 and to the rear of the partition assembly of which shell portion 51 forms a part. Air will be discharged from the unit toward the front face of the vacuum cleaner and escape through the base opening 38. A condition of pressure higher than atmospheric will exist within casing portion 26. Under these circumstances the differential in pressure will create a condition under which air tends to flow back past the partition assembly between the flexible portion 64 of gasket 68 and the surface of shell 51. This will result in that flexible portion moving into contact with the surface of part 51 and sealing against the same. Under these circumstances it will be difficult if not impossible to effect a turning of the motor-blower unit and reel by means of the crank handle 77.

However, when an operator has completed the desired cleaning operation, then the motor circuit may be deenergized by again shifting actuator 80. As the blower ceases to function, the pressure differential will be relieved and the flexible portion 64 of the gasket 63 will disengage from the surface of part 51. Therefore, with plug 47 disconnected from the outlet box the operator may simply turn crank 77. This will rotate the dial 73 and the parts of the clutch assembliy will engage so that the reel together with the motor-blower unit will be turned. Under such turning cord 45 will be coiled around the reel. However, it will not jam against adjacent parts because of the cam surface 107 inwardly of the shroud opening 106 which functions to prevent a jamming build-up of the cable on the reel.

As will be understood, the driving or tang member is loosely supported by casing portion 96 so that it may incline with respect to a position perpendicular to the base surface of that part. This will compensate for any inequalities arising as a consequence of quantity manufacture and slight misalignments of the elements.

When the unit is stood on end as in FIG. 2, the crank and dial are in a most convenient position for easy cord winding. Motor unit is directly supported by ball bearings 66—67 for least friction or drag. Further, deflection rib 107 is vertical and will most readily deflect cord. Under these conditions it is possible—by fast rewind cranking—to create a considerable fly wheel effect, due to weight of motor blower parts, the momentum of which assists in overcoming the uneven drag of the line cord as it rides in contact with obstructions on the floor.

Thus, among others, the several objects of the invention as specifically aforenoted are achieved. Obviously numerous changes in construction and rearrangements of the parts may be resorted to without departing from the spirit of the invention as defined by the claims.

I claim:

1. A vacuum cleaner including in combination a casing formed with inlet and outlet openings, a part providing a front surface for said casing, a bracket fixedly secured to the inner face of said part, an annular flange included in said bracket, a motor-blower unit rotatable within said casing, an anti-friction bearing interposed between said unit and casing, a collar forming a part of said unit and extending within the space defined by said flange, a layer of vibration-insulating material surrounding said collar, a further anti-friction bearing interposed between said layer and said flange; said unit having its axis in line with the casing axis, a crank rotatably supported by said front face part with its axis of rotation extending angularly with respect to the casing axis, a reel fixed with respect to said unit, a multi-part unidirectional clutch having one part thereof connected to said crank and a universal joint connecting another part of said clutch and collar to rotate said unit in one direction.

2. A vacuum cleaner including in combination a casing formed with inlet and outlet openings, a motor-blower unit, supporting means within said casing for mounting said unit for bodily rotation therein, an electrical cord-receiving member within said casing supported for rotation with said unit, said casing being formed with an opening through which a cord may pass, manually controlled means exteriorly of said casing connected with said receiving member for rotating it and said unit, said manually controlled means having an axis of rotation extending angularly with respect to the axis of said member, a universal joint providing the connection between such member and manual means, and said joint comprising an assembly including driven and driving elements, said driven element embracing a transversely slotted body of non-resilient material, a layer of resilient material carried thereby and overlapping said slot and said driving element comprising a non-resilient tang projecting through said layer into said slot to normally be maintained out of contact with the edge of the body slot by said layer.

3. A vacuum cleaner as defined in claim 2, the connection between said manually controlled means and unit being such that said tang is swingable with respect to said manual means by rotating in synchronism therewith.

4. A vacuum cleaner including in combination a casing which in normal use of the cleaner will have its axis extending in a substantially horizontal plane and presenting front and rear ends, a tubular intake fitting having an open outer end and a downwardly extending collar at its rear end, said fitting being mounted upon the upper surface of said casing with its open end facing towards the front end of said casing and with its collar extending into said casing adjacent the rear end of the latter, a shell having an outer edge zone secured to said casing, a tubular portion extending from said zone towards the rear end of the casing, a motor-blower unit rotatably supported by said shell with the blower part of said unit extending within said tubular portion, a movable cover closing the rear end of said casing and spaced from said blower part, a distance adequate to provide a compartment for the reception of a filter bag connectible to said collar, said casing being formed with an outlet opening at a point between its forward end and said shell, the support of said unit by said shell comprising an angular shell part interposed between said zone and said tubular portion, said shell part extending parallel to the axis of the assembly, vibration-absorbing material interposed between said shell part and said unit, a ring portion additionally forming a part of said shell between said angular part and tubular portion and extending perpendicular to the casing axis, an anti-friction bearing interposed between said ring portion and said unit, a cord-receiving reel mounted for movement with said unit, means exteriorly of said casing and connected to said unit for rotating the latter and a unidirectional clutch interposed in the connection between said rotating means and unit.

5. A vacuum cleaner including in combination a casing formed with inlet and outlet openings, a motor-blower unit, a shell secured to said casing and extending inwardly thereof, said shell including surfaces projecting at angles with respect to each other, a gasket carried for movement with said unit, a flexible portion forming a part of said gasket and engageable with one of said shell surfaces, a supporting bearing connected to said unit and engageable with another of said surfaces whereby said unit may rotate with respect to said casing, an electrical cord-receiving member supported for rotation with said unit and disposed within said casing, the latter being formed with an open-

ing through one end of which a cord may pass and manually controlled means exteriorly of said casing and connected with said receiving member for rotating it and said unit.

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