

Nov. 8, 1932.

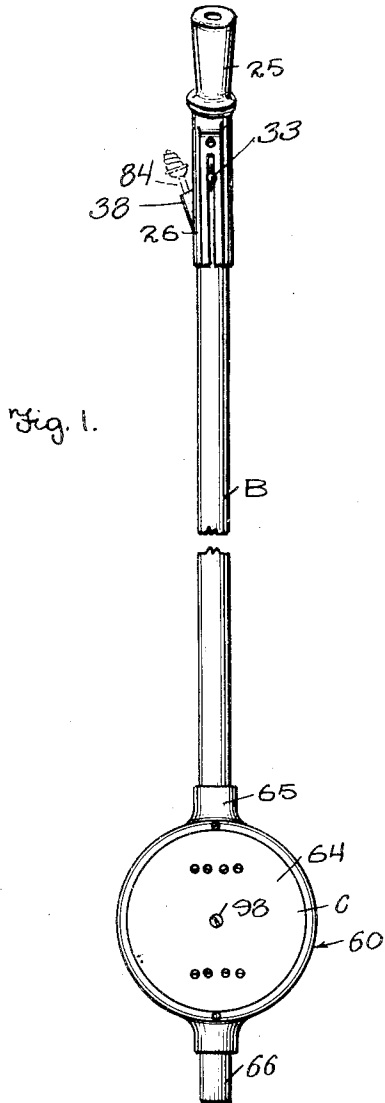
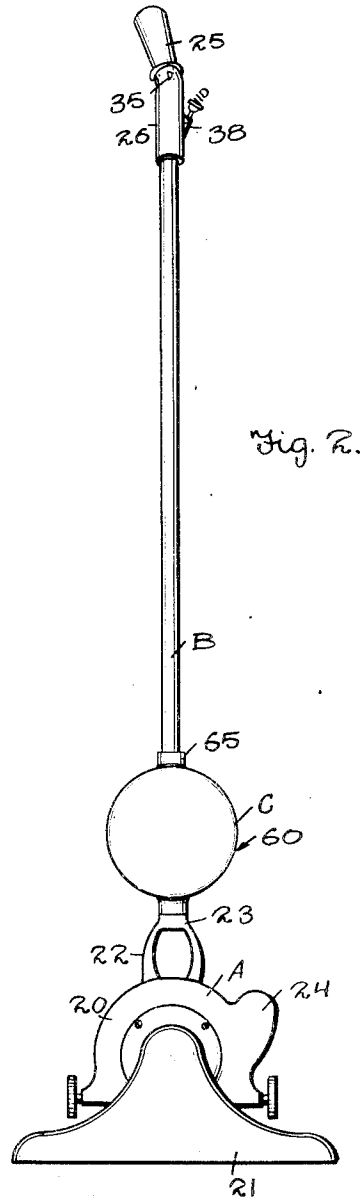
B. J. TAMARIN

1,887,173

HANDLE FOR VACUUM CLEANERS

Filed Jan. 26, 1926

4 Sheets-Sheet 1



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Witnesses
C. E. Churchman
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BY Richard B. Owen

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Nov. 8, 1932.

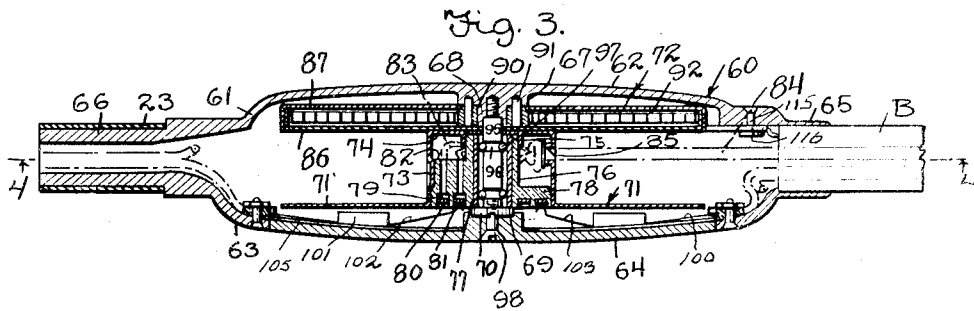
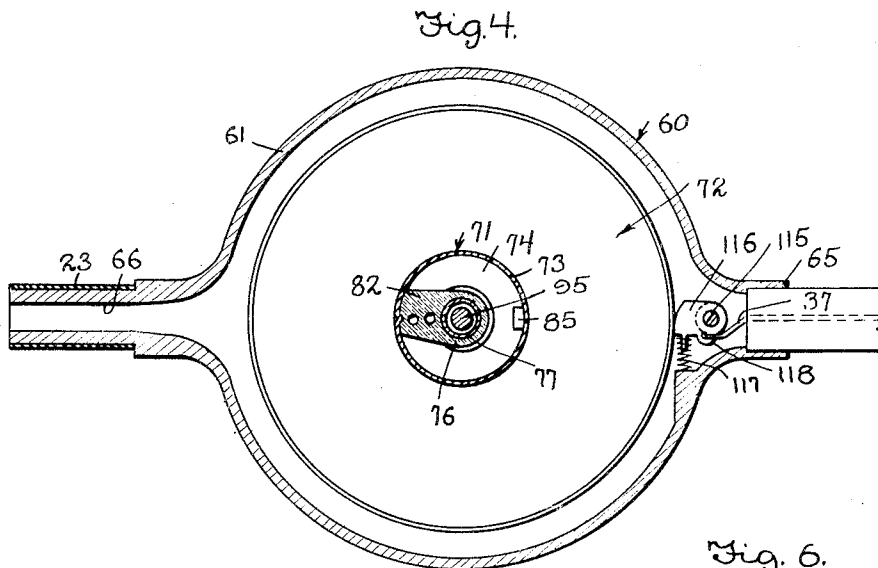
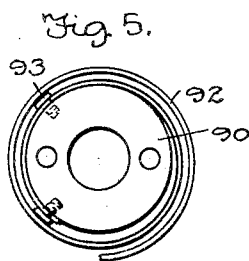
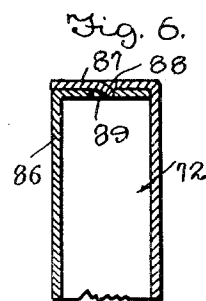
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1,887,173

HANDLE FOR VACUUM CLEANERS

Filed Jan. 26, 1926

4 Sheets-Sheet 2



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1,887,173

HANDLE FOR VACUUM CLEANERS

Filed Jan. 26, 1926

4 Sheets-Sheet 3

Fig. 7.

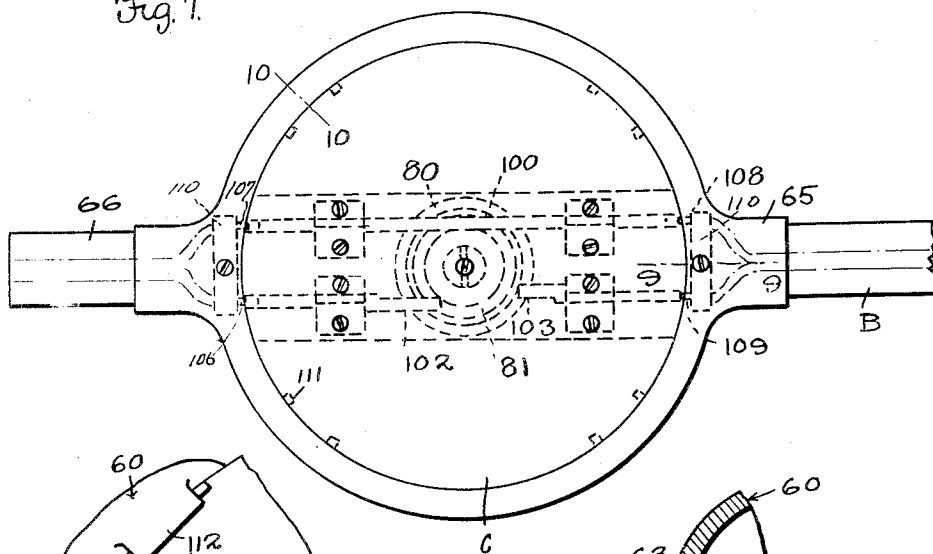
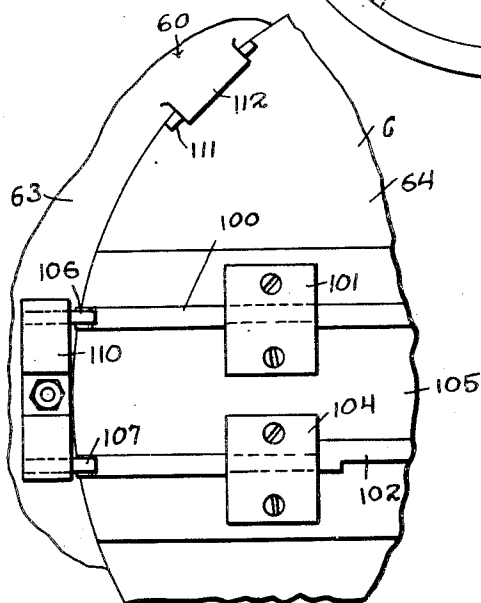


Fig. 8

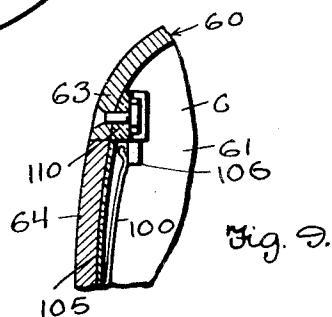


Fig. 9.

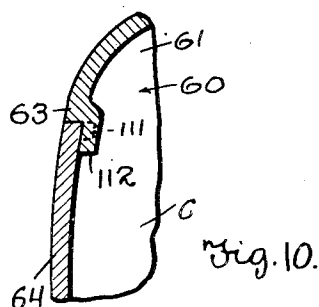


Fig. 10.

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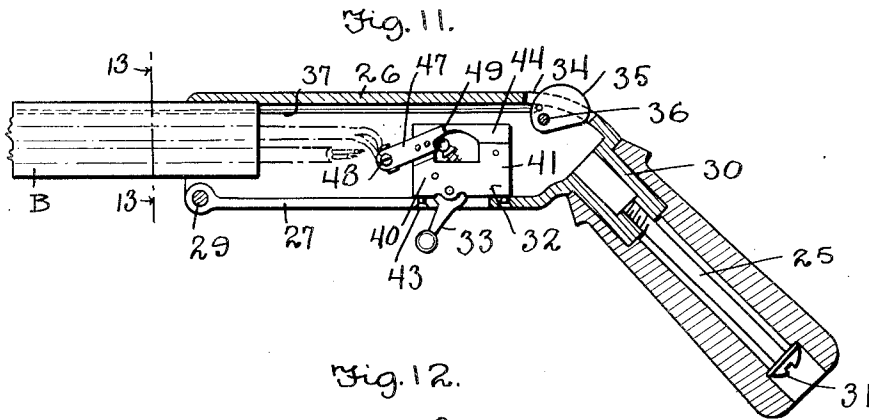
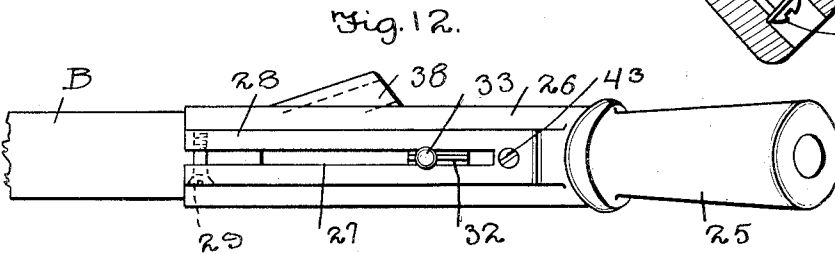
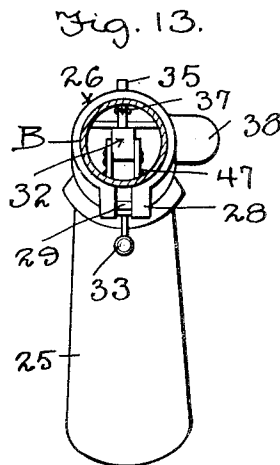
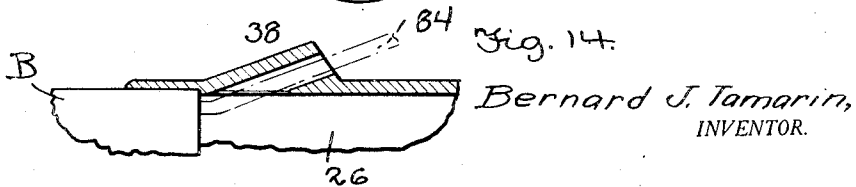
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1,887,173

HANDLE FOR VACUUM CLEANERS

Filed Jan. 26, 1926

4 Sheets-Sheet 4



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UNITED STATES PATENT OFFICE

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HANDLE FOR VACUUM CLEANERS

Application filed January 26, 1926. Serial No. 83,918.

This invention appertains to vacuum cleaners and more particularly to novel means for taking up slack in the electric cord therefor, thereby eliminating the length of surplus wire in rear of the vacuum cleaner when the same is in operation and the inconveniences contingent therewith.

The primary object of the present invention is the generally improved electric feed cord take up and that type of vacuum cleaner handle shown in my Patent 1,484,681 issued to me February 26, 1924, whereby the electric feed cord of the vacuum cleaner will be effectively handled and maintained in good condition over a long length of time.

Another salient feature of the invention is the provision of novel means for forming the casing for receiving the take up reel and novel means for incorporating the casing in the length of the handle of the vacuum cleaner.

A further object of the invention is the provision of novel means for forming the spring drum and for associating the drum with the take up reel and the casing and novel means for arranging the spring drum, whereby the same effectively performs the function of a brake drum, whereby the operator of the vacuum cleaner can readily control the rotation of the reel and the consequent rewinding of the cord upon the reel.

A further object of the invention is the provision of novel means of associating the contacts of the drum with the cover of the casing, and novel means for associating the cover with the casing, whereby the contacts will be held in proper arrangement relative to the take up reel at all times.

A further object of the invention is to provide a novel outlet and inlet for the sliding cord carried by the handle whereby the cord can be readily controlled by the operator of the cleaner and whereby wear on the cord will be reduced to a minimum.

A further object of the invention is the provision of a novel hand grip having associated therewith in a novel manner the control for the brake, the control switch of the vacuum cleaner and the outlet guide for the electric cord, whereby the entire control of

the cleaner will be under direct command of one hand of the operator of the vacuum cleaner.

A further object of the invention is the provision of novel means for forming the reel itself, whereby the cord can be readily connected therewith and whereby the feed wires of the cord can be readily connected with the contact rings carried by the reel.

A further object of the invention is the provision of a novel support for the reel and novel means for associating the support with the casing and the cover of the casing, said support embodying a novel arrangement of ball bearings for permitting the free rotation of the reel thereon.

A further object of the invention is the provision of a novel arrangement of the spring casing forming a part of one side of the reel and for forming the brake drum, of the brake mechanism for the take up device.

A further object of the invention is the provision of a novel eccentric associated with the casing, and novel means for operating the eccentric to move the same in contact with the periphery of the spring drum, so as to permit the control of the take up to be under the command of the operator at all times.

A still further object of the invention is the provision of novel means of assembling the reel and drum within the casing, a novel means for supporting the reel and drum, and novel means for permitting the removal of the cover, without displacing the reel and novel means for releasing the reel and drum from the casing by the loosening of a single retaining center stud.

A still further object of the invention is the provision of a novel handle having a take up for the electric cord in the length thereof, which can be readily connected with conventional vacuum cleaners, and which will be durable and efficient in use, and one which can be placed upon the market and incorporated with a vacuum cleaner at a small cost.

With these and other objects in view, the invention consists in the novel construction, arrangement and formation of parts, as will

be hereinafter more specifically described, claimed, and illustrated in the accompanying drawings, in which drawings:

Figure 1 is a rear elevation of the improved vacuum cleaner handle,

Figure 2 is a front elevation showing the handle in place on a conventional vacuum cleaner,

Figure 3 is a longitudinal section through the handle showing the improved take up,

Figure 4 is a section through the take up taken on the line 4—4 of Figure 3 looking in the direction of the arrows,

Figure 5 is a detail view illustrating the means of connecting the winding spring with the hub block,

Figure 6 is a detail enlarged section through the spring drum illustrating the means of connecting the sections together,

Figure 7 is an enlarged detail rear elevation of the improved take up showing the cover in position,

Figure 8 is an enlarged fragmentary view showing the inside of the casing and the novel means for associating the cover therewith,

Figure 9 is a detail section through the casing, taken on the line 9—9 of Figure 7,

Figure 10 is a detail section through the casing and cover taken on the line 10—10 of Figure 7 illustrating the novel means for holding the cover in proper position,

Figure 11 is an enlarged fragmentary longitudinal section through the hand grip of the vacuum cleaner illustrating the novel means for arranging the control brake and switch therein,

Figure 12 is a bottom plan view of the hand grip,

Figure 13 is a detail section of the handle taken on the line 13—13 of Figure 11 looking in the direction of the arrows, and

Figure 14 is a detail longitudinal section through the handle illustrating in detail the novel outlet and guide for the sliding cord.

Referring to the drawings in detail, wherein similar reference characters designate corresponding parts throughout the several views, the letter A generally indicates the conventional vacuum cleaner; B the improved handle for the vacuum cleaner and C the improved take up for the cord carried by the handle.

As stated the vacuum cleaner A is of the conventional construction and embodies the suction fan housing 20 and the suction nozzle 21. Rockably connected with the vacuum cleaner A in the usual manner, is the handle receiving yoke 22, which is provided with a sleeve 23 into which the novel handle B is adapted to be inserted as will be hereinafter more fully described.

The suction fan housing 20 is provided with the usual outlet 24, to which can be connected in the ordinary manner, the dust bag, (not shown).

The improved handle B is of a tubular construction and the inner end thereof has associated therewith the improved take up, which will be later described. The outer end of the tubular handle has connected therewith the pistol hand grip 25 which can be formed of fiber, wood or the like and this hand grip is connected with an attaching sleeve 26 which can be formed as preferred and which has slipped into the same the outer end of the handle B. This sleeve 26 is preferably provided at its under face with the longitudinally extending slit or slot 27 which can be reinforced by longitudinally extending beads 28 through which is extended a tightening screw 29 for firmly holding the sleeve on the said handle. The rear end of the handle is provided with an angularly extending nipple 30 of a less diameter than the sleeve on which the hand grip 25 is positioned and a suitable bolt or the like 31 can be employed for connecting the said hand grip with the nipple. The hand grip forms an important feature of the present invention and the various controls for the vacuum cleaner are arranged thereon, whereby the vacuum cleaner can be controlled by one hand of the operator and the sleeve has mounted therein a switch 32 for opening and closing the circuit to the vacuum cleaner motor and this switch is arranged directly in front of the pistol grip so that the operating handle 33 of the switch can be readily grasped by the index finger of the operator. The upper edge of the sleeve 26 directly in front of the hand grip 27 is provided with a slot 34 through which protrudes a thumb piece 35, which is employed for actuating the brake for the take up and will be hereinafter more fully described. It is to be noted however that this thumb piece 35 is arranged directly in front of the handle whereby the same can be easily manipulated by the thumb of the operator. This thumb piece 35 is preferably formed from flat steel and is rockably mounted upon a transversely extending pivot pin 36 carried by the said sleeve and directly above the pivot pin 36 the thumb piece 35 has rigidly connected therewith the manipulating or pull wire 37 for operating the brake and this wire is of a resilient nature similar to the ordinary piano wire control.

An outlet guide 38 extends angularly from one side of the sleeve 26 through which the electric cord for the cleaner passes during the sliding thereof and forms an important feature of the invention. This outlet is of such a construction that wear on the sliding cord is eliminated and the cord is free to pass from the handle at a point where the same can be readily controlled by the operator. The outlet 38 is arranged between the brake control thumb piece 35 and the switch trigger 33 whereby the cord can be readily handled from the hand grip as well as the manipu-

able machine screw 98 is provided for holding the cover plate 64 in position and this screw extends through the axial center of the cover into the axle as clearly shown in Figure 3 of the drawings.

The means for controlling the circuit to the motor of the vacuum cleaner includes the switch 32 and the inner face of the cover plate 64 on one side of the stud 69 is provided with a contact strip 100 which is held in place by suitable retaining plates 101. On the opposite side of the boss 69 is arranged a pair of spaced contact springs 102 and 103 which are held in place by suitable plates 104 connected to the inner face of the cover plate. It being understood, of course, that the contact strip 100 and the contact springs 102 and 103 are insulated from the cover plate 64 by the use of a suitable sheet or plate of insulation 105. The inner ends of these springs 102 and 103 are offset and engage respectively the contact rings 81 and 80. The outer terminals of the contact springs 102 and 103 and the ends of the contact strip 100 extends slightly beyond the cover plate and engage contact fingers 106 and 107 arranged at one side of the casing and contact fingers 108 and 109 are arranged at the opposite side of the casing. These contact fingers 106 and 107, and 108 and 109 are secured to the blocks of insulation 110 which are secured to the casing by any suitable means. The fingers 106 and 107 have connected directly thereto the wires which extend to the motor for the vacuum cleaner, while the contact fingers 108 and 109 have secured directly thereto the wires which are connected to the binding posts 48 of the switch 32. It is thus obvious that when the trigger 33 is pulled and the rollers engage the contact fingers 49 that the circuit will be closed through the said motor.

In order to hold the cover in correct position at all times, so as to insure the proper engaging of the fingers 106 and 107 and 108 and 109 with the strip 100 and the springs 102 and 103 the inner face of the cover 64 is provided with pairs of spaced lugs 111 which are adapted to engage the opposite sides of inwardly directed tongues 112 formed on the said casing 60. It is thus obvious that the strip and the tongues or springs 102 and 103 will be placed in proper position relative to the contact fingers at all times.

The spring drum 72 besides performing the function of forming a part of the reel also forms the brake drum and pivotally mounted upon a suitable pivot screw 115 carried by the casing 60 adjacent to the sleeve 65 is a cam brake shoe 116 which is normally urged into engagement with the periphery of the drum by an expansion coil spring 117. This cam shoe 116 at one side of the pivot pin 115 is provided with an ear 118 to which is secured the flexible wire 37 which leads from the thumb control 35.

It is obvious that by operating the thumb control 35 that the brake shoe will be pulled away from the drum against the tension of the spring 113, which will allow the spring 92 within the drum to return the reel to its normal position.

From the foregoing description, it can be seen that a novel take up has been provided of exceptionally simple and durable construction, which will effectively accomplish the purpose intended.

Changes in details may be made without departing from the spirit or scope of this invention, but:

What I claim as new is:

In an electrically operated vacuum cleaner, a hollow handle, a spring rewind reel device for the reception of the electric cord of the vacuum cleaner and secured to and communicating with the end of said handle adjacent said cleaner, a hollow hand grip at the other end of said handle and communicating with the interior thereof and provided with a laterally positioned outlet spaced from the free end of the hand grip and inclined rearwardly, a thumb operated member movably supported by said hand grip, a spring controlled brake device for said reel and a connection between the brake device and said member whereby the hand of the operator may manipulate said hand grip and said member and the other hand of the operator control the travel of the electric cord through said outlet.

In testimony whereof I affix my signature.
BERNARD JACQUES TAMARIN.

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lation of the said thumb piece 35 and switch trigger 33.

The switch 32 is of conventional construction and embodies a frame 40 formed of sheet metal and this frame is of a substantially U-shape in cross section embodying spaced parallel side plates 41 and the frame is mounted upon the sleeve 26 by means of machine screws or the like 43. The side walls 41 have secured between the same a block of insulation 44. Secured to the opposite faces of the block of insulation 44 and arranged in spaced relation to the side walls 41 of the frame are contact arms 47, the rear ends of which have secured thereto binding wire posts 48. The inner ends of the contact arms 47 are provided with contact fingers 49. Pivotaly mounted in the frame 40 is the trigger or manipulating handle 33 of the switch and this trigger or handle extends through a slot formed in the bottom wall of the frame.

The improved take up C comprises a housing 60, which is preferably formed of aluminum and this housing is so molded as to blend in with the handle B and the vacuum cleaner A in order to enhance the entire appearance of the vacuum cleaner. The casing 60 is preferably of a circular configuration and includes the annular outer wall 61 and a concavo-convex side wall 62. It is to be noted that the outer wall 61 is of an arcuate shape and curved into the concavo-convex side wall 62. The said outer wall 61 at the end directly opposite the concavo-convex side wall 62 is provided with a retaining flange 63 for receiving the cover plate 64 of the housing and when the cover plate is in position, the casing is given an unbroken finished appearance. The outer end of the outer wall 61 is provided with a sleeve 65 in which is fitted in any desired way the handle B. At a point diametrically opposite the sleeve 65, the casing is provided with a reduced hollow extension or nipple 66, which is fitted within the sleeve 23 of the yoke 22 of the vacuum cleaner A. The axial center of the side wall 62 is provided with an internal boss 67 which is provided with a reduced axial extension 68 for a purpose which will also be hereinafter fully described. The inner surface of the cover plate 64 is also provided with an axially disposed boss 69 provided with a circular seat 70, the purpose of which will also be hereinafter described.

Mounted within the casing 60 is the novel take up reel 71 and the spring rewind drum 72. The reel 71 is preferably formed of sheet metal and includes a side disk 71' and hub 73. This hub 73 is stamped from the side plate 71' and the inner edge of the hub is provided with an inturned extension 74 having formed thereon the annular flange 75 for the reception of the block of insulation 76. This block of insulation 76 is secured to the

flange 75 and the hub 73 in any desired way, so that the said block will rotate with the wheel as a part thereof. Forced into and secured to the block of insulation 76 at the axial center thereof is the bearing hub 77 which is formed of metal suitable for the purpose intended. The block 76 at the end thereof adjacent to the side plate 72 of the wheel is provided with an integral disk 78 having the outer face thereof provided with spaced annular concentric grooves 79 in which are embedded contact rings 80 and 81. The block 76 is also provided with an enlargement 82 forming an inwardly disposed extension of the disk 78 and this extension is provided with a pair of spaced ways through which are threaded feed and return wires 83 of the electric cord 84. The terminals of the feed and return wires 83 are secured in any preferred way to the said contact rings 80 and 81. The hub 73 of the reel is provided with an instructed nipple 85 through which the feed cord 84 is threaded and the feed cord 84 is knotted in any desired manner so as to preclude the pulling of the cord through the said nipple after the same has been threaded there-through and the feed and return wires thereof connected with said contact rings.

The spring drum 72 is connected with the reel 71 at one side thereof and in fact forms a part of the wheel, that is, the spring drum is arranged in spaced parallel relation to the side wall 71' of the wheel and forms the other side wall thereof. This spring drum 72 embodies companion telescoping sections 86 and 87 and these sections are held against displacement by instructed spring tongues 88 formed on the outer section 87 which are adapted to engage in suitable openings 89 formed in the inner section 86. Disposed within the drum 72 is a bearing sleeve 90 which is arranged on the reduced extension 68 of the boss 67 and the sleeve is secured by means of pins 91 to the said boss. This side wall of the section 86 of the drum is carried directly by the hub 73 of the reel so that the drum will rotate therewith. Arranged within the drum 72 is the coil spring 92 the inner end of which is connected by means of screws 93 with the sleeve or disk 90, while the outer end of the spring is secured in any preferred way to the inner periphery of the said drum.

A bearing axle 95 is provided for the reel and is disposed within the hub sleeve 77 and this axle or supporting shaft is provided with grooves 96 for the reception of ball bearings 97 which bear against the said sleeve. The inner end of the shaft or axle is provided with a threaded extension which is threaded into the boss or stud 67. The outer end of said axle or shaft is provided with a suitable head for overlying the block of insulation 76 and the hub and this head fits in the seat 70 formed in the boss 69. A suit-