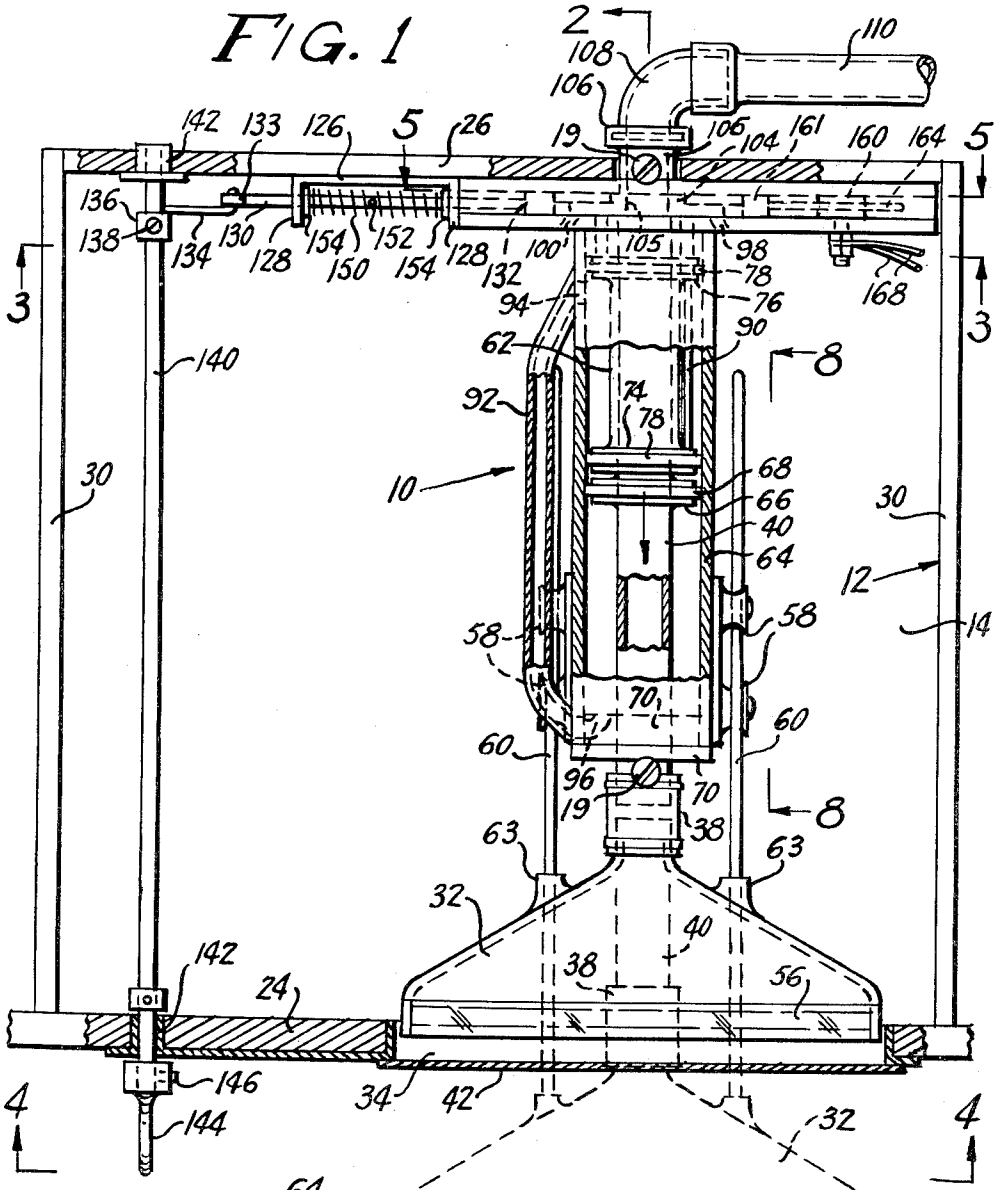
April 3, 1962 H. BIERSTOCK 3,027,588

VACUUM CLEANER FLOOR SWEEPINGS PICK-UP BASEBOARD APPARATUS

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FIG. 1



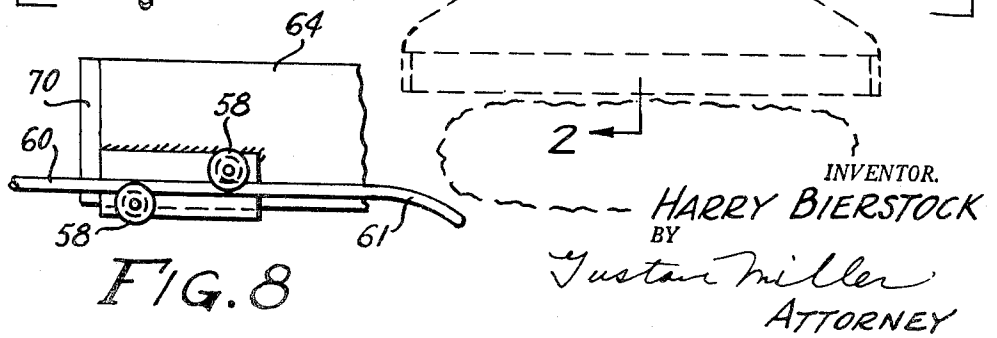


FIG. 8

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VACUUM CLEANER FLOOR SWEEPINGS PICK-UP BASEBOARD APPARATUS

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6 Sheets-Sheet 2

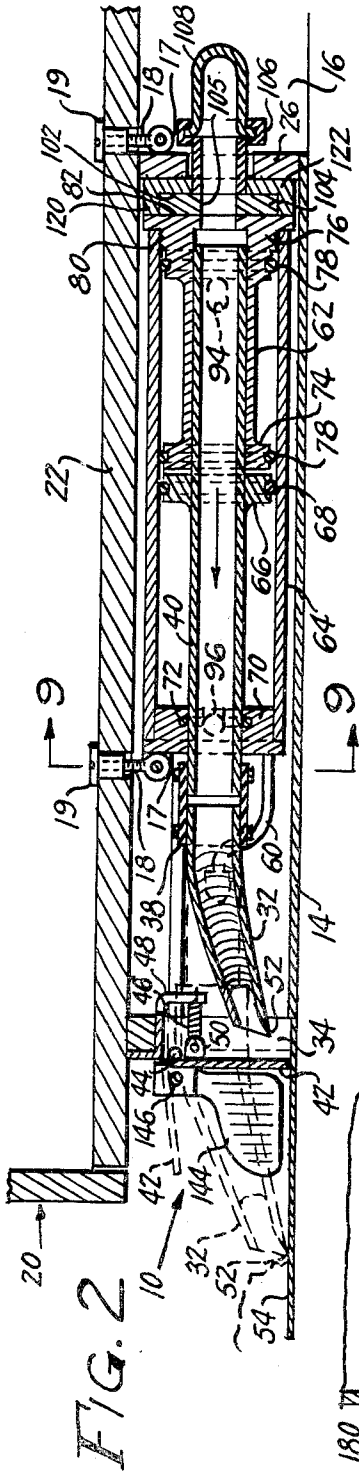


FIG. 2

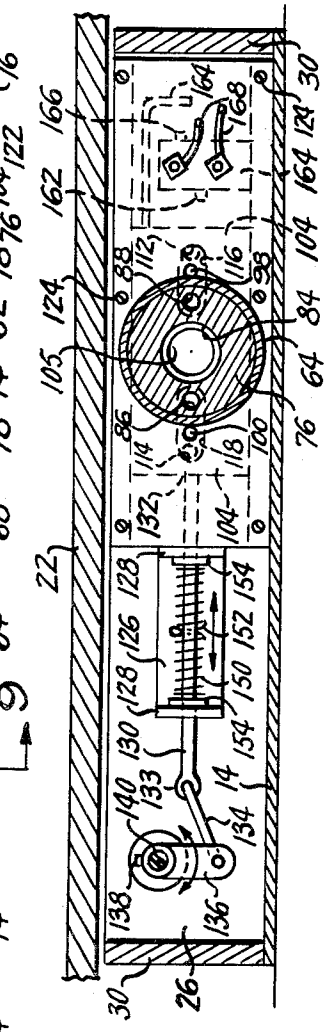


FIG. 3

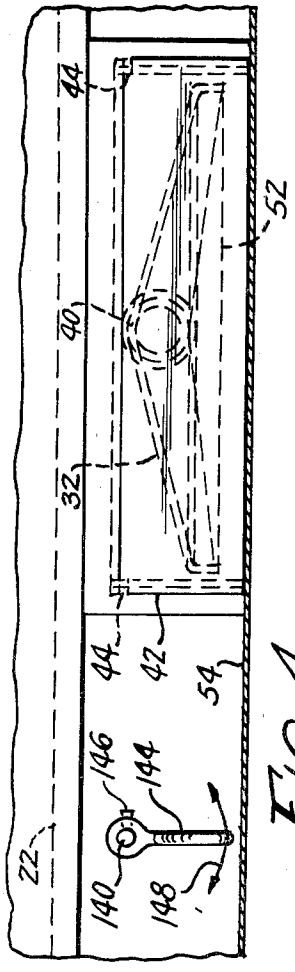


FIG. 4

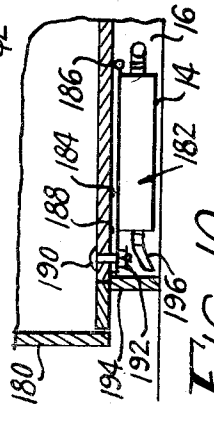


FIG. 10

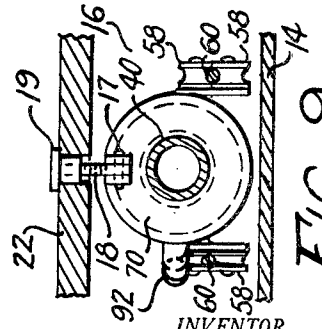


FIG. 9

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VACUUM CLEANER FLOOR SWEEPINGS PICK-UP BASEBOARD APPARATUS

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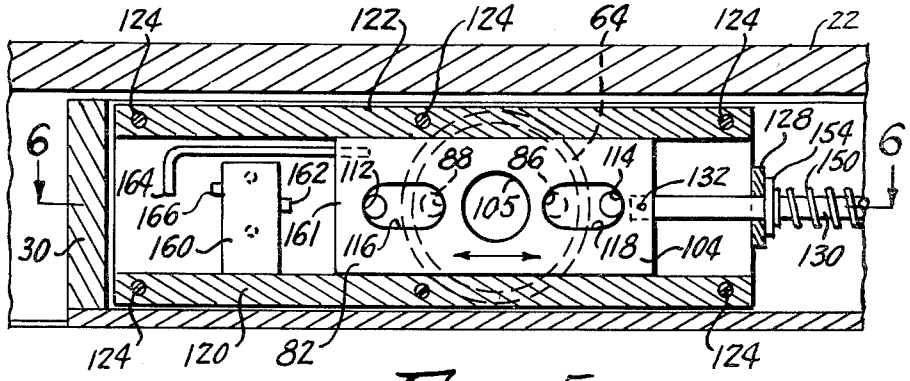


FIG. 5

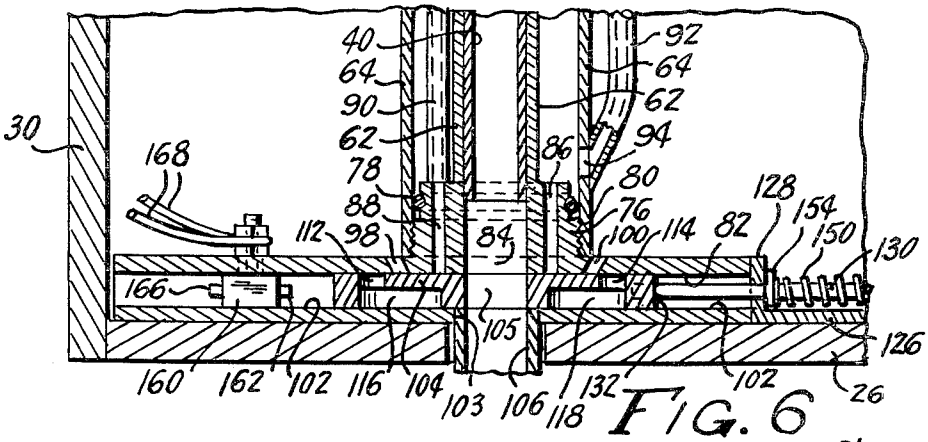


FIG. 6

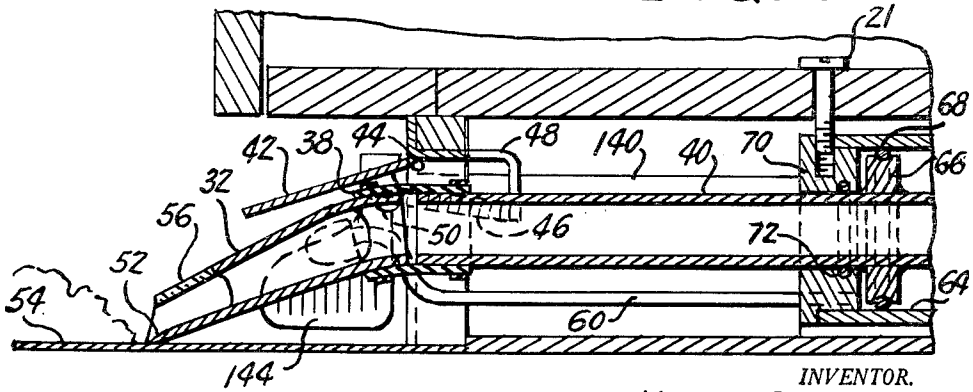


FIG. 7

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FIG. 11

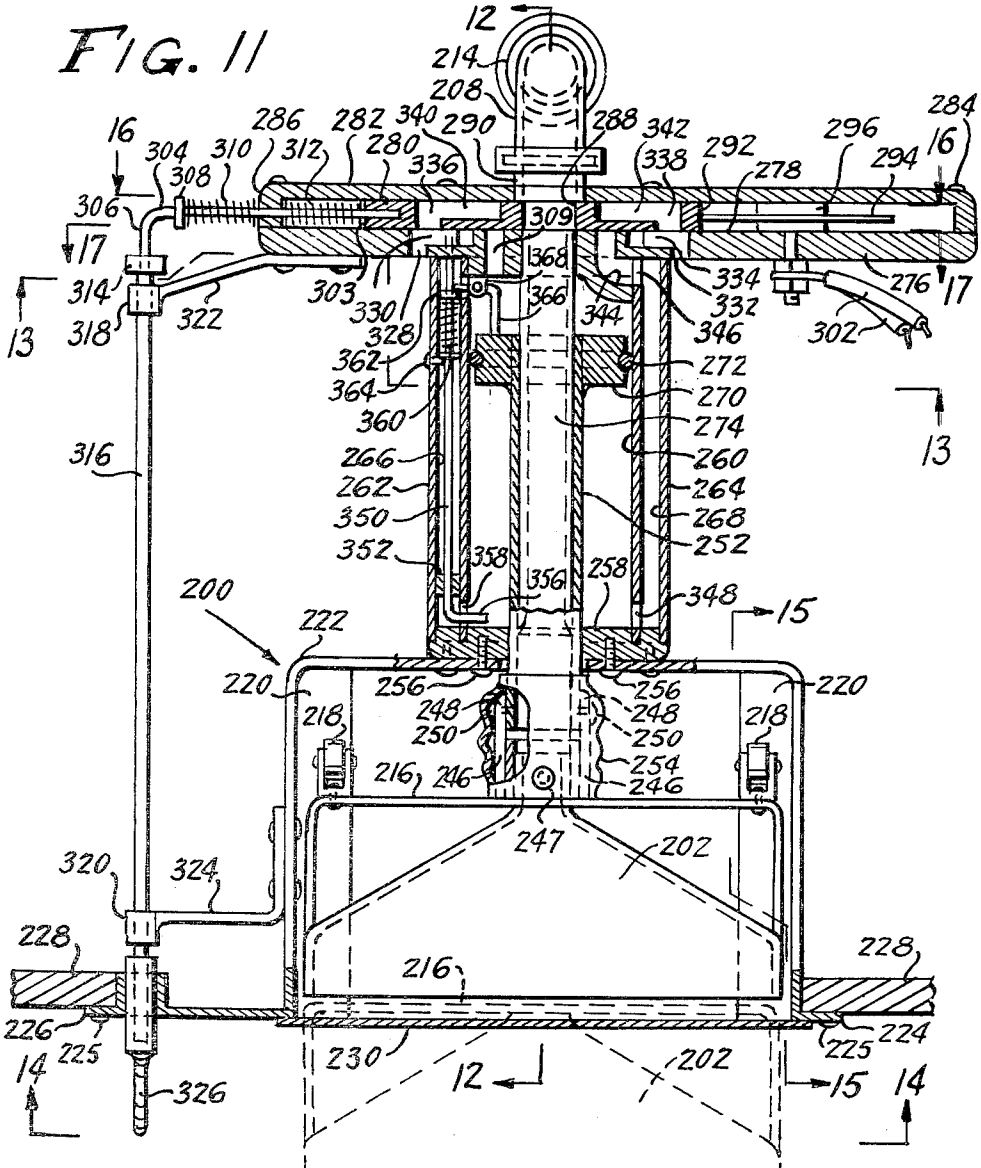
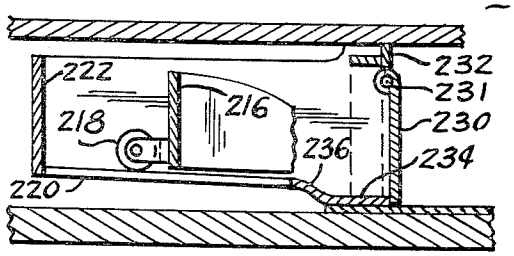


FIG. 15



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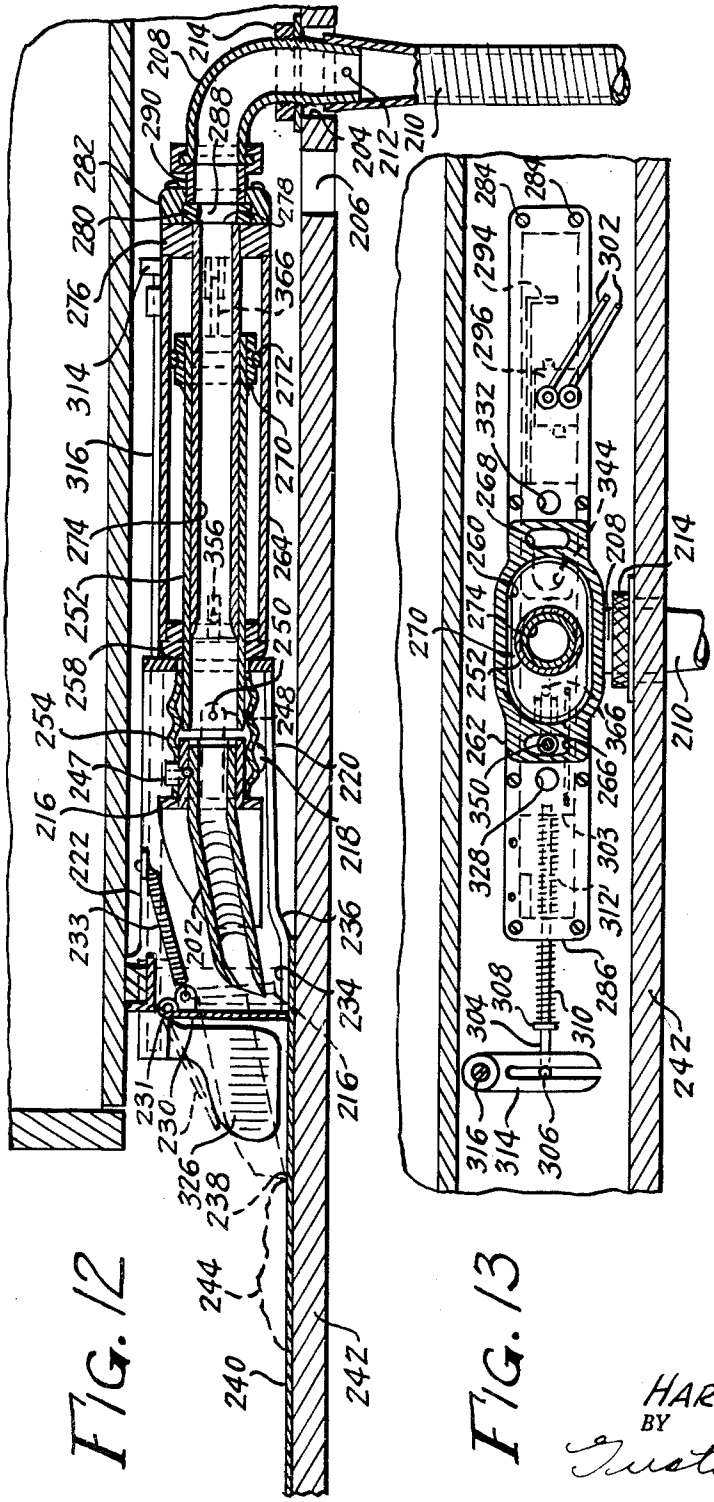


FIG. 12

FIG. 13

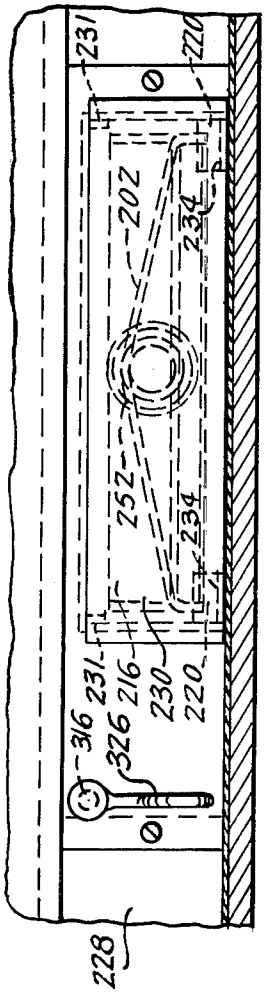


FIG. 14

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VACUUM CLEANER FLOOR SWEEPINGS PICK-UP BASEBOARD APPARATUS

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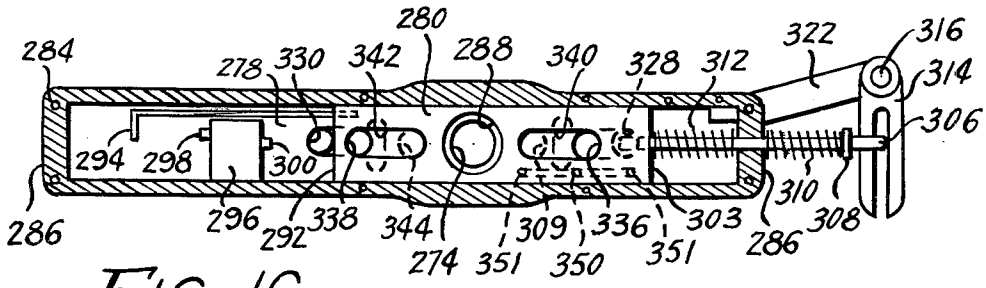


FIG. 16

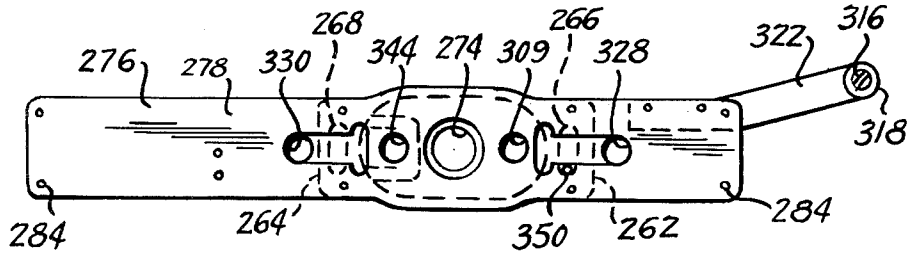


FIG. 17

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United States Patent Office

3,027,588

Patented Apr. 3, 1962

3,027,588

VACUUM CLEANER FLOOR SWEEPINGS PICK-UP BASEBOARD APPARATUS

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Filed Aug. 8, 1960, Ser. No. 47,851

23 Claims. (Cl. 15—301)

This invention relates to a vacuum cleaner floor sweepings pick up baseboard apparatus and has for an object to provide an improved apparatus for utilizing a vacuum cleaner for picking up floor sweepings, and for locating the vacuum cleaner sweepings pick up apparatus in a convenient location in any desired room of the house, and more particularly, in such a manner so that it may be extended through the baseboard of the room or of a cabinet in the room so as to place a vacuum cleaner nozzle in contact with the floor at a desired location so as to suck in dirt, debris and dust that has been swept to that particular location, thus avoiding the necessity of stooping and operating a hand broom and brush for picking up the floor sweepings to dispose of them.

A further object of this invention is to provide a vacuum cleaner floor sweepings pick up baseboard apparatus which may be conveniently operated by the toe of the operator, without the necessity of bending or stooping, so as to move the vacuum cleaner nozzle through the baseboard to the pick up location and while simultaneously turning on the vacuum cleaner, and then when the operation is completed, to retract the nozzle back through the baseboard, closing the opening through which the nozzle has extended, and simultaneously cut off the vacuum cleaner.

Still a further object of this invention is to provide a vacuum cleaner floor sweepings pick-up baseboard apparatus operating under principles which may be embodied in more than one form, and which may be located in the space under cabinets behind the baseboard of the cabinet, or even in a closet behind the baseboard of a room, and be connected either permanently or temporarily to a vacuum cleaner, and wherein the vacuum cleaner, when temporarily connected thereto, may be readily disconnected therefrom and used in its conventional manner.

This invention provides an improved form of vacuum cleaner floor sweepings pick up baseboard apparatus of the applicant's prior invention on the same subject, as shown in prior patent application Serial No. 845,988 filed October 12, 1959.

With the above and related objects in view, this invention consists in the details of construction and combination of parts, as will be more fully understood from the following description, when read in conjunction with the accompanying drawings, in which:

FIG. 1 is a partly elevational and partly broken away and sectional view of the apparatus of this invention, in operative position.

FIG. 2 is a sectional view on line 2—2 of FIG. 1.

FIG. 3 is a sectional view on line 3—3 of FIG. 1, showing the valve and switch operating means.

FIG. 4 is a view on line 4—4 of FIG. 1.

FIG. 5 is a sectional view on line 5—5 of FIG. 1, showing the transverse slide valve means on a larger scale.

FIG. 6 is a sectional view on line 6—6 of FIG. 5.

FIG. 7 is a fragmentary sectional view, on a larger scale than but similar to FIG. 2, with the nozzle tube and nozzle extended in floor sweepings pick up position.

FIG. 8 is a fragmentary view on line 8—8 of FIG. 1.

FIG. 9 is a sectional view on line 9—9 of FIG. 2.

FIG. 10 is a view, on a small scale, of a slightly different manner of mounting this form of this invention in a cabinet base space.

FIG. 11 is a view, similar to FIG. 1, of a modified form of this invention.

FIG. 12 is a sectional view on line 12—12 of FIG. 11.

FIG. 13 is a sectional view on line 13—13 of FIG. 11.

FIG. 14 is a sectional view on line 14—14 of FIG. 11.

FIG. 15 is a sectional view on line 15—15 of FIG. 11.

FIG. 16 is a sectional view on line 16—16 of FIG. 11.

FIG. 17 is a sectional view on line 17—17 of FIG. 11.

There is shown at 10 the vacuum cleaner floor sweepings pick up apparatus of one form of this invention supported in a framework assembly 12 and framework floor 14 mounted in any convenient manner in the base space 16 of a cabinet 20, such as a kitchen cabinet. One convenient manner is to attach the framework assembly 12 and framework 14 in a depending position from hanger eye bolts 18 pivoted on brackets 17 on the framework assembly 12, bolts 18 extending into nuts 19 through cabinet floor 22, the cabinet baseboard also being suitably cutaway to receive the framework baseboard 24 therein, thus enabling the apparatus 10 to be readily mounted in an existing cabinet.

The framework assembly 12 has a rear wall 26, a front wall constituting its baseboard 24, and connecting side walls 30 between the rear and front walls. The apparatus 10 includes an elongated nozzle 32 extendable through an aperture 34 in the baseboard 24, the nozzle 32 being hinged by a flexible coupling ring 38 to one end of a slidably retractable tube 40. The baseboard aperture 34 has a door 42 pivotally hinged thereover at 44 and normally biased to closed position by a spring 46 extending between a bracket 48 and an ear 50 on the rear of the door 42, the door 42 thus camming the nozzle 32 downwardly as it is extended through the aperture 34 to bring its elongated lower lip 52 into contact with the room floor 54 in the area where the floor sweepings are to be picked up by this apparatus 10. The upper nozzle lip 56 is preferably of transparent plastic so as to provide viewability, but if desired, the entire nozzle mouth may be transparent. Bracket supported wheels 58 with bowed guide fingers 60 as shown in FIGS. 1 and 8 threadedly extend from the opposite sides of the back 63 of the nozzle 32 to lift the mouth from the floor 54 as it retracts through the aperture 34. Obviously, the nozzle 32 could be made rigid with the tube 40 if the tube 40 be mounted to extend a suitable slight angle to the horizontal.

The body of the tube 40 is slidably extendable within a sleeve 62 supported within housing chamber shown here as a cylinder 64, the cylinder 64 extending toward the rear wall 26. Fixed on the tube 40 within the cylinder 64 is a piston 66 having a piston ring 68 in contact with the inside of the cylinder 64 so as to slidably prevent any pressure of vacuum leakage between opposite sides of the piston 66. The front wall end of cylinder 64 is closed by an apertured plug 70 having a bushing 72 through which the tube 40 is slidable. The front eye bolt bracket 17 is secured on plug 70, but in FIG. 7 a hanger bolt 21 is threaded into plug 70.

The sleeve 62 has flanges 74 and 76 integral therewith at opposite ends, each flange having O-rings 78 making pressure tight contact with the inside of the cylinder 64 to prevent pressure or vacuum leakage thereby. The flange 76 is threaded at 80 to secure the end of cylinder 64 thereon as shown in FIG. 6. Beyond the threaded portion 80, the flange 76 becomes a valve seat 82 having a main vacuum opening 84 leading to the inside of sleeve 62 and thus to the tube 40, a small air passage 86 leading to the space between the cylinder 64 and the sleeve 62, and a second small air passage 88 having a bypass conduit 90 connected thereto and extending through the flange 74 to the space between the flange 74 and the tube piston 66. A second bypass conduit 92 extending on the outside of cylinder 64 connects a cylin-

der aperture 94 adjacent the flange 78 at one end thereof to an aperture 96 in the cylinder supporting plug 70 leading to the space between the tube piston 66 and the plug 70. Outside the end of the cylinder 64, the valve seat 82 is provided with two atmosphere connecting passages 98 and 100 as shown in FIG. 6.

Between the valve seat 82 and a second parallel valve seat 102 is a transversely slidable valve gate 104. Extending from an aperture 103 in the valve seat 102 and aligned with the main vacuum opening 84 in sleeve 62 is a coupling nipple 106 and an coupling elbow 108 for receiving the end of a vacuum hose 110. The hose 110 may be connected to a permanently connected vacuum cleaner (not shown), or to female coupling suitably located for receiving the male hose end of a conventional portable home vacuum cleaner, such as disclosed in copending application Serial No. 845,988, filed October 12, 1959 by this same inventor, of which this invention is an improvement.

The valve gate 104 is shaped substantially as shown in FIGS. 3, 5 and 6. The gate 104 has main vacuum aperture 105 centrally therein and two small ports 112 and 114 at the outer ends of oval recesses 116 and 118 in the face of the valve gate 104 adjacent the valve seat 102. The valve gate 104 is transversely movable in the space between the seats 82 and 102 provided by the top and bottom flanges 120 and 122 of valve face 102 secured to valve face 82 by studs 124.

A U-shaped bracket 126 is mounted on the wall 26 at one end of the valve seats 82 and 102 limiting the transverse movement of the valve gate 104 in that direction. The U-legs 128 are apertured and provide bearings for a connecting rod 130 secured at one end at 132 to the end of the valve gate 104, the other end of the connecting rod 130 being in the form of an ear 133 in which is pivotally connected a link 134, the other end of the link 134 being pivoted in an apertured finger 136 secured at right angles by a set screw 138 on a rotatable rod 140.

This rotatable rod 140 is journaled at 142 through the housing rear wall 26 and the baseboard 24, and has a manually operable handle 144 secured thereto at 146 in a depending position. The handle may be swung in either direction as shown by double arrow 148 in FIG. 4. A coil spring 150 is placed about the portion of the connecting rod 130 between the U-legs 128 of bracket 126 in the position when the valve gate main vacuum aperture 105 is aligned with the main vacuum opening 84 in the sleeve 62 and the coupling nipple 106, and at this position, the handle 146 is depending in the vertical position shown in FIG. 4. Extending through the midpoint of this portion of the rod 130 between the U-legs 128 and thus through the coil spring 150 thereon is a cotter pin 152, bearing washers 154 being provided between the ends of the coil spring 150 and the U-legs 128. As a result, the coil spring 150 biases the connecting rod 130 and thus the valve gate 104 to the position with the gate aperture 105 aligned with the sleeve opening 84 and opening in nipple 106, and the handle 146 is simultaneously in the vertical depending position. Swinging the handle 146 in either direction simultaneously moves the valve gate 104 in a corresponding direction against the bias of the portion of the coil spring 126 between the cotter pin 152 and the U-leg 128 toward which it has been moved, so that when the handle 146 is released, the valve gate 104 automatically returns to its mid-position as shown.

A vacuum cleaner circuit controlling micro-switch 160 is mounted in the path of the other end 161 of the valve gate 104 and has a switch button 162 abutted by the end 161 of the valve gate 104 when the gate is moved to its limit in that direction, a hooked finger 164 being secured in the end of the valve gate 104 to extend over the switch 160 and about a second switch button 166 when the valve gate 104 is moved in the opposite transverse direction. Circuit wires 168 connect switch 160 to the motor of the vacuum cleaner to which the vacuum hose 110 is connected, the wires 168 extending directly to the vacuum cleaner motor if a permanent installation, or to a receptacle into which the cleaner wires may be plugged, if a portable conventional home vacuum cleaner, as set forth in applicant's copending application, identified above.

In operation, the handle 144 is moved in a counterclockwise direction as viewed in FIG. 4 to the off center position, moving valve 104 to the right as shown in FIGS. 1 and 3 (to the left as in FIGS. 5 and 6), and causes valve end 161 to contact switch button 162 and operate the vacuum cleaner (not shown), creating a vacuum through nipple 106. Valve 104 as thus moved connects nipple 106 through recess 118 and port 114 to air passage 86 and thus through conduit 92 and cylinder aperture 96 to create a vacuum in the space within cylinder 64 about tube 40 between tube piston 66 and plug 70, and simultaneously, valve opening 105 connects passage 88 from bypass conduit 90 through atmosphere passage 98. As a vacuum is created on the forward side (toward the nozzle 32) of the tube piston 40, atmospheric pressure reaching the back side of tube piston 40 through bypass conduit 90 moves the tube piston 40 forwardly, thus extending the nozzle 32 against the back of the door 42 opening the door 42 against its spring 50 and projecting the nozzle 32 forwardly as guided by the guide finger 60 in the bracket wheels 58. As the nozzle approaches its most forward position, the bowed ends 61 of guide fingers 60 causes the nozzle to then extend downwardly, causing its lower lip 52 to contact the floor 54 as seen in FIG. 7.

The handle 144, which has been operated by the human toe, is then released, and the spring 150, biased by the cotter pin 152, returns the handle 144 to center depending position (six o'clock position) and valve 104 is moved to the center position to align its main vacuum opening 105 between nipple 106 and sleeve opening 84, then drawing the vacuum through the tube 40 and nozzle 32 to pick up the dust, dirt and debris that has been swept to the vicinity of the nozzle lip 52 and thus dispose of the floor sweepings without the necessity of stooping and using a pan and brush to pick up the sweepings.

Thereafter, the handle is moved in a clockwise direction off center. This moves valve 104 to the opposite limit of its movement, moving the recess 116 and port 112 to connect nipple 106 to passage 88 and bypass conduit 90 and thus the space about tube 40 within sleeve 64 between tube piston 66 and sleeve flange 74 to the vacuum still present in nipple 106 as the vacuum cleaner is disconnected by the hooked finger 164 contacting the cut-off button 166 of switch 160, for it takes a little time for the cleaner to slow down and stop. Simultaneously, valve 104 has cut off the sleeve opening 84, and valve opening 105 now connects atmosphere passage 100 to air passage 86 and by pass conduit 92 to move the tube piston 66 to the sleeve flange 74, as the vacuum is created therebehind, and the nozzle 32 is retracted through the opening 34 and door 42 is closed both by gravity and the spring 50. Then when the nozzle 32 has been retracted, the handle 144 is released by the toe, and the portion of the spring 150 that had been compressed by the cotter pin 152 toward the other U-leg 128 biases the valve 104 back toward center position, leaving it ready for the next cycle of operation as above described.

In FIGS. 1 to 9, the apparatus has been shown as being suspended from the floor board 22 of a cabinet 20. In FIG. 10, a slightly different means of suspending the apparatus in a cabinet 180 is shown. In this form, the apparatus 182, identical with that at 10 except for the suspension means, has a metal roof 184 secured across its top, and this roof 184 is secured at its rear by a hinge pin 186 to a hinge plate (not shown) to the bottom of a door 188 fitted into an opening cut into the cabinet 180

and removably secured in this opening in any convenient manner.

The front end of the apparatus 182 is adjustably secured by a bolt 190 extending into a threaded aperture in a nut at the bottom of the front end of the metal roof 184. The cabinet baseboard has the same baseboard opening and door as in the first described form. The angle of the apparatus and thus of the nozzle 196 is adjusted by adjusting the bolt 190.

A somewhat modified form of the apparatus of this invention, differing in details but involving the same principles is at 200 in FIGS. 11 to 17 inclusive. As shown, this apparatus 200 is occupying the space beneath a cabinet, and has a nozzle 202 extendable through the cabinet baseboard 228 but it just as well may be located behind the wall of a closet and be extendable through the baseboard of the wall, inasmuch as it is not suspended from or connected to the cabinet, but is self-contained, and is adjustably supported on the room or closet floor, and to install this apparatus, it is only necessary to cut an opening through the baseboard through which the nozzle 202 is to extend, and two adjoining holes 204 and 206 in the room or closet floor, the hole 204 permitting an elbow pipe 208 to extend through the floor for receiving the hose 210 of a vacuum cleaner detachably thereon and be held thereon by a bayonet pin 212 extending into a suitable bayonet joint (not shown) in the vacuum cleaner hose. The elbow 208 is externally threaded to receive a knurled adjusting nut 214 thereon, the floor hole 206 providing an access opening for rotating tthe knurled nut 208 to thus adjust the angle to the apparatus 200.

The nozzle 202 is made usually of a suitable plastic material, and the plastic material used may be completely transparent so as to make it possible to view the dirt being drawn therethrough. The nozzle 202 has a rearwardly carriage 216 secured thereto and provided with wheels 218 at opposite sides which roll over a pair of tracks 220 forming part of a bracket 222. The bracket 222 is generally U-shaped and in addition has oppositely extending flanges 224 and 226 which are apertured to receive nails or screws 225 for securing the bracket in an opening cut through the cabinet or closet wall baseboard 228. Between the flanges 224 and 226, the opening is closable by a door 230 hinged at 231 to a cross bar 232 connected across the top of flanges 224 and 226, and biased downwardly by a spring 233 between the door and the bracket 222.

The front ends 234 of tracks 220 are at a lower elevation than the major rear portion of the tracks and is connected thereto by inclines 236, so that as the nozzle moves forward on wheels 218 through the opened door, the nozzle 202 drops down to place the lower nozzle lip 238 into contact with the covering 240 on the room floor 242 in the location to which the dust or debris 244 is to be swept to be picked up. The rear end of the nozzle 202 has a collar 246 held thereon by a spring loaded ball 247 thereon with extending ears 248 through which extend pivot pins 250 into the front end of an extendable and retractable tube 252 corresponding to the tube 40 in the first described form. A flexible air and pressure tight sleeve 254 is placed about the pivoted connection between the nozzle 202 and the tube 252 to prevent any loss of vacuum.

Secured to the bracket 222 by rivets 256 is a plug 258 which closes the front end of a housing chamber 260, this chamber corresponding to the chamber or cylinder 64 of the first described form of apparatus, and the tube 252 slidably extends through the bracket 222 and through a reasonably airtight fit in the plug 258. As will be seen from FIG. 13, the chamber 260 is non-cylindrical in cross-section, actually having straight top and bottom portions and opposite semi-cylindrical side portions, and integrally extending from the semi-cylindrical side portions are two flanges 262 and 264 each of which is provided with longitudinally extending passageways 266 and 268.

At its rear end within the chamber 260, the tube 252 has a piston 270 secured thereon and provided with a piston O-ring 272 shaped to conform with the inside of the chamber 260 so that it may slidably reciprocate therewithin without leaking pressure between opposite sides of the piston 270. The tube 252 telescopes over a pipe 274 which is supported in a plug 276 on the rear end of chamber 260. The rear surface of the plug 276 provides a valve face 278 cooperating with a valve 280 transversely slidable within a flanged valve casing 282 secured by studs 284 through its flanges 286 to the plug 276.

A nipple 290 connects the vacuum elbow 208 into valve casing 282 in axial alignment with the telescoped pipe 274, and the valve 280 has a main vacuum opening 288 therethrough aligned with the nipple 290 and the pipe 274 when the valve 280 is in neutral or central position. Secured to one end 292 of valve 280 is a hooked finger 294 which extends over a micro-switch 296 secured within the flanged casing 282 and arranged to contact an "On" switch button 298 when moved to the left in FIG. 11 (the right in FIG. 16) to start the vacuum cleaner and start the cycle (to be described hereafter) while the valve end 292 contacts the "Off" button 300 when the valve is moved in the opposite direction to stop the vacuum cleaner motor and end the cycle, wires 302 connecting the switch 296 to the vacuum motor.

At the opposite end 303 of the valve 280, there is secured a rod 304 reciprocably slidable through the end flange 286 of casing and ending in an angular hook 306. A collar 308 fixed on rod 304 cooperates with a coil spring 310 about the rod 304 between the collar 308 and the outside end of casing 282 to bias the rod 304 outwardly of the casing, while a second coil spring 312 about the rod 304 within the casing between the inner side of flange 286 and the valve end 303 biases the rod inwardly of the casing so that, when both springs are uncompressed, the rod 304 and hence the valve 280 remain in the neutral or central position, with the valve opening 288 aligned with nipple 290 and pipe 274.

The hooked end 306 of rod 304 is slidably secured in the control fork 314 fixed on the rear end of an operating rod 316. The operating rod 316 is journaled in bearings 318 and 320 on bracket arms 322 and 324. The rear bracket arm 322 is secured on an extending part of plug 276, while the bracket arm 324 is secured on bracket 222. The front end of operating rod 316 extends into and is secured in a toe-operable handle 326 journaled through bracket flange 226 and depending vertically when the valve 280 is in central or neutral position.

Both the valve 280 and the valve face 278 of plug 276 have additional passages for air or vacuum, which come into use when the valve 280 is moved away from neutral position. The plug 276 has passages 328 and 332 leading from atmosphere to transverse recesses 330 and 334 on the valve face 278 of plug 276. The valve 280 has through passages 336 and 338 leading to transverse recesses 340 and 342 on the side away from the valve facing 278 of plug 276.

The plug 276 has a passage 344 leading to an aperture 346 at the valve end of longitudinal passageway 268, and a second aperture 348 at the other end of passageway 268 leads into the chamber 260 on the forward side of piston 270. A second passage 309 in plug 276 from face 278 leads into the chamber 260 on the rearward side of piston 270.

A valve locking finger 350 extends through passageway 266 which is not used for air or vacuum passage, but is sealed against passage by bushing 352 through which the finger 350 reciprocates. A hooked end 356 of finger 350 extends through an aperture 358 into the chamber 260 to be struck by the piston 270 when it reaches the forward position to withdraw the locking finger 350 against the bias of a coil spring 360 thereabout between a collar 362 fixed on the finger 350 and a pin 364 extending through the flange 262 into the passage 266. The

other side of collar 362 (from the biasing spring 360) contacts one end of an angle 366 pivoted on a bracket 368 mounted on the plug 276. When the piston 270 strikes angle 366, it moves the finger 350 in a forward direction, that is, an unlocking direction, against the bias of spring 360, the same as when the hooked end 356 is struck by the other side of piston 270. However, when piston 270 is in motion, the spring 260 biases the locking finger so as to extend its straight end into a suitable one of two apertures 351 in the face of valve 280 when the valve has moved to an extreme off center position in either direction, holding the valve in the extreme off center position until the piston 270 has completed its journey to strike either the finger hook 356 or the angle 366 to unlock the valve 280 and permit it to return to neutral or central position.

In operation, this apparatus is used for picking up dirt, dust or debris 244 that is swept on the floor covering 240 to an appropriate area located adjacent the apparatus, preferably after the cycle has been started. To start the cycle, the handle 326 is moved by the operator's toe to the left as in FIGS. 11 and 14. This moves the valve 280 to the extreme left position causing hook finger 295 to actuate the "On" switch button 298, starting the vacuum cleaner motor and creating a suction through nipple 290. This suction travels then through recess 342 and passage 338 to passageway 344 and longitudinal passageway 268 to the forward side of piston 270 within chamber 269, while valve opening 288 connects passage 309 to recess 330 and through aperture 328 to atmosphere, so that, as a vacuum is created on the forward side of piston 270, atmosphere pressure flows in at the rearward side. As soon as the piston starts to move forward, spring 366 moves the locking finger 350 into locking contact 351 with the face of valve 280, holding the valve 280 in proper position until the piston 270 completes its forward journey and strikes the locking finger hook 356 to release the valve 280 and permit it to bias back to neutral position under the bias of coil spring 310.

As the piston 270 moves forward, it carries the tube 252 forward to push nozzle 202 against the back of the door 230, opening it against the bias of spring 233, and the nozzle 202 drops down as its wheels 218 ride down the incline 236 causing the nozzle lip 238 to touch the floor covering 240 when in extended position. At this moment, the valve 280 is restored to neutral position, as above described, and the vacuum suction is thereby transferred by valve opening 288 to the pipe 274 and tube 252 to the nozzle 202, causing it to entirely pick up all the floor sweepings, dirt or dust 244 that has been or is now swept to adjacent its vicinity.

When the pick up operation is finished, the toe is again pushed against the handle 326, but in the opposite direction, that is, counterclockwise in FIG. 14. This moves the valve in the opposite direction, the suction is connected to the rear of the piston and the atmosphere to the front thereof, through the passages and recesses as described above, the piston starts to move back, locking the valve until the cycle is completed, and then the valve is released by the locking finger 350. Of course, the vacuum motor has its operating circuit cut by the microswitch "Off" button by the valve end 292, but it takes some time for the operation of the vacuum motor to die down, and there is ample suction present while the motor is stopping to complete the cycle.

With this latter form of apparatus, it is only necessary to touch the operating handle 326 in either direction to initiate a complete half cycle as the valve 280 is locked in position until the half cycle is completed and then released by the locking finger 350, making it unnecessary to hold the handle 326 during the half cycle.

Although this invention has been described in considerable detail, such description is intended as being illustrative rather than limiting, since the invention may be variously embodied, and the scope of the invention is to be determined as claimed.

Having thus set forth and disclosed the nature of this invention, what is claimed is:

1. A vacuum cleaner floor sweepings pick up baseboard apparatus comprising a sweepings pick up nozzle device, said nozzle device including an elongated nozzle having a long lower lip portion mounted to extend through a baseboard aperture adjacent the floor area the sweepings from which are to be picked up, a vacuum hose, a tube on one end of which said nozzle device is mounted, a piston fixed on said tube, a housing chamber in which said piston fixed on said tube is reciprocably mounted, controllable valve means for selectively leading the vacuum from said hose to said tube and nozzle, or to either side of said piston within said housing chamber to advance or retract said tube and said nozzle device thereon, and a vacuum operating circuit controlling switch mounted for operation by said controllable valve means.

2. The apparatus of claim 1, said housing chamber being a cylinder.

3. The apparatus of claim 1, said housing chamber being non-cylindrical in cross-section.

4. The apparatus of claim 1, and a door pivoted over said baseboard aperture openable by said nozzle device advancing through said baseboard aperture.

5. The apparatus of claim 1, and vacuum bypass conduit means between said valve means and opposite sides of said piston in said housing chamber.

6. The apparatus of claim 5, and atmosphere connecting passage means in said valve means arranged to be connected by said valve means to the non-vacuum side of said piston.

7. The apparatus of claim 1, and means extending said lower lip portion into floor contact beyond said baseboard aperture.

8. The apparatus of claim 7, said extending means comprising a flexible connection between said nozzle device and said tube, and guide means biasing said nozzle downwardly as said nozzle device extends through said baseboard aperture.

9. The apparatus of claim 5, said valve means including a transversely slidable valve, means normally biasing said valve to vacuum completing position between said hose and said tube, said valve having means for selectively diverting the vacuum from said tube to said bypass conduit means to either side of said piston in said housing chamber.

10. The apparatus of claim 9, and manually operable means for selectively sliding said valve transversely against said biasing means.

11. The apparatus of claim 10, said circuit controlling switch being mounted in the transverse path of said valve in either direction.

12. The apparatus of claim 11, said manually operable means comprising a connecting rod secured to one transverse end of said valve, a manually rotatable rod extending at right angles to said connecting rod, a finger secured on and extending at right angles to said rotatable rod, and a link pivotally connected to said finger and to said connecting rod.

13. The apparatus of claim 12, said valve biasing means comprising coil spring means about said connecting rod, spring means abutment means fixed to said connecting rod at the midportion of said coil spring means, and fixed base means at each end of said coil spring means.

14. The apparatus of claim 1, a hollow member with which said tube telescopically cooperates, said hollow member leading the vacuum from said valve means to said tube and nozzle.

15. The apparatus of claim 9 and manually operable means for manually sliding said valve away from vacuum completing position between said hose and said tube to

a vacuum diverting position to said housing chamber against said biasing means.

16. The apparatus of claim 15, said biasing means restoring said valve to said vacuum completing position between said hose and said tube on release of said manually operable means.

17. The apparatus of claim 16, and locking means holding said valve in diverting position while said piston and tube are in motion, and means actuated by said piston at the end of its motion in either direction to unlock said valve holding means and permit said valve to bias to said vacuum completing position to said tube and nozzle.

18. The apparatus of claim 17, said locking means comprising a locking finger, means mounting said locking finger for longitudinal movement into contact with said slidable valve and at right angles to said slidable valve, means biasing said locking finger against said valve and means operatively connected to said locking finger extending into the path of said reciprocable piston adjacent each end of said path of movement to retract said finger from said valve upon contact by said piston.

19. The apparatus of claim 18, a pair of oppositely disposed longitudinally apertured flanges on said housing chamber, one of said longitudinally apertured flanges providing a passageway for the vacuum from said valve to one side of said piston in said chamber, the other of said apertured flanges providing a passageway in which said valve locking finger is operatively housed.

20. A vacuum cleaner floor sweepings pick up baseboard apparatus comprising a floor sweepings pick-up nozzle device, said nozzle device including an elongated nozzle having a long lower lip mounted to extend through a baseboard aperture adjacent the floor area the sweepings from which are to be picked up, a vacuum hose, a vacuum tube on one end of which said nozzle device is mounted, said vacuum hose being connected to said vacuum tube, motive power means connected to said nozzle device to advance or retract said nozzle device through the baseboard aperture, controllable means for actuating said motive power means, and a vacuum operating circuit operable by said controllable actuating means.

21. The apparatus of claim 20, and a door pivoted over said baseboard aperture openable by said nozzle device advancing through said baseboard aperture.

22. The apparatus of claim 20, and means extending said lower lip portion into floor contact beyond said baseboard aperture.

23. The apparatus of claim 22, said extending means comprising a flexible connection between said nozzle device and said tube, and guide means biasing said nozzle downwardly as said nozzle device extends through said baseboard aperture.

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