Jan. 12, 1937. L. J. CHARIPAR 2,067,434

ACCUMULATOR

Filed April 18, 1935

Fig. 1

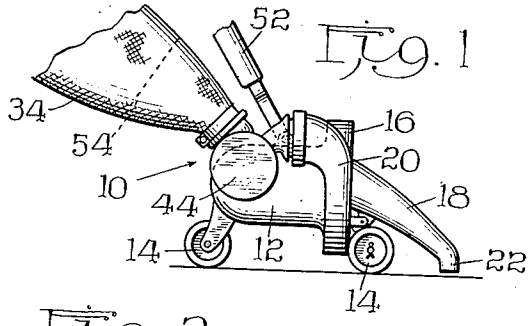


Fig. 2

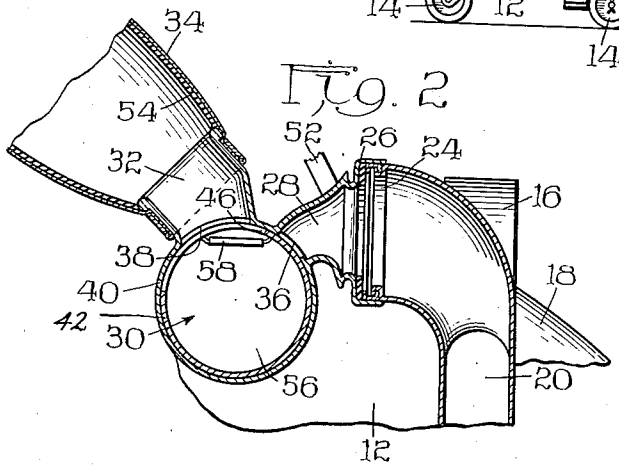


Fig. 3

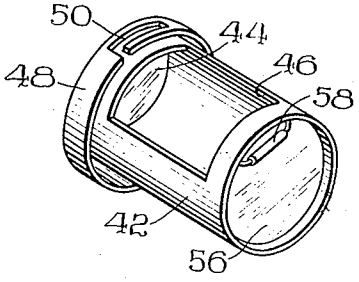


Fig. 4

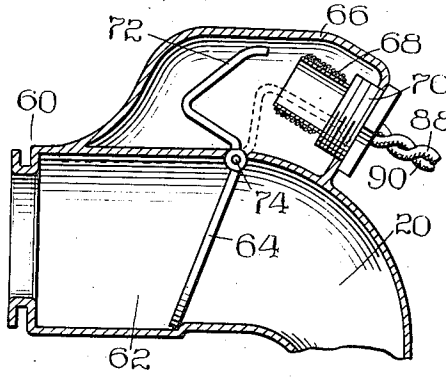


Fig. 5

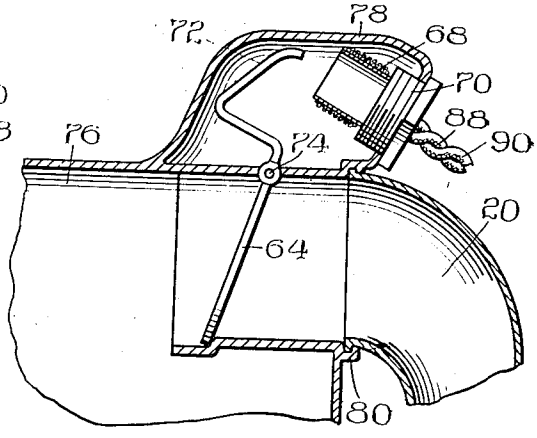
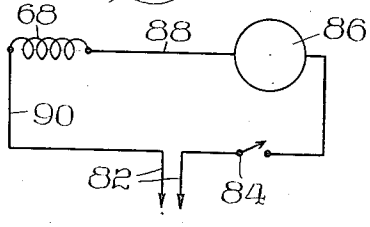


Fig. 6



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UNITED STATES PATENT OFFICE

2,067,434

ACCUMULATOR

Louis J. Charipar, Chicago, Ill.

Application April 18, 1935, Serial No. 16,964

1 Claim. (Cl. 183—36)

My invention relates to accumulators, and includes among its objects and advantages an improvement in the type of accumulator employed to separate dust or other air-borne materials from the air carrying them, as for instance in connection with portable machinery for sawing, grinding, polishing, or planing. I have illustrated the invention in connection with its most extensive use as part of a portable vacuum cleaner outfit.

In the accompanying drawing:

Figure 1 is a side elevation of a vacuum cleaner equipped according to the invention;

Figure 2 is a central vertical section through the accumulator;

Figure 3 is a perspective of the eliminator removed from the accumulator housing;

Figure 4 is a fragmentary section as in Figure 2, indicating an additional valve;

Figure 5 is a section similar to Figure 4 indicating an alternative position of valve and coupling; and

Figure 6 is a wiring diagram of an installation according to Figure 4 or Figure 5.

In the embodiment of the invention selected for illustration in Figure 1, I have indicated the accumulator proper at 10 as attached to an ordinary vacuum cleaner unit. The vacuum unit selected for illustration comprises the motor 12, supported on wheels 14 and the fan housing 16 with which the intake 18 communicates centrally, and the discharge 20 peripherally. As usual, the mouth 22 of the intake 18 rides close to the supporting surface to pick up dust and dirt.

The discharge 20 is provided with a coupling flange at 24. The accumulator body terminates in a cooperating coupling member 26. From the coupling member 26 the passageway 28 extends into the chamber 30, and from the chamber 30 a short passageway 32 extends into the interior of the bag 34. The wall of the chamber 30 is cut away at 36 to afford communication with the passageway 28, and again at 38 to communicate with the passageway 32. Within the stationary cylindrical wall 40 defining the accumulator chamber 30 I position a cylindrical body 42 with its outer end closed as at 44 and with an arcuate peripheral slot at 46 adapted to move into register with both passageways 28 and 32 or, in the position of Figure 2, to register only with the passageway 32 leaving the passageway 28 closed by the adjacent cylindrical wall.

The head 44 extends outwardly beyond the cylinder 42 and has a cylindrical lip 48 defining an annular chamber between the lip and the cylinder 42. At one point in the periphery of the lip 48 is the bayonet slot 50, positioned to receive a simple outwardly projecting pin (not shown) on the wall 40 defining the chamber.

In using the device, the housewife will turn the body 42 in a clockwise direction from the position of Figure 2 to the limit permitted by the bayonet slot 50, which will move the opening 46 into register with both passageways 28 and 32. With the parts in this position the motor is started and the outfit manipulated by means of the usual handle 52 to move around over the floor and pick up the dust and dirt. During this operation the dust and dirt will practically all pass through the chamber 30 and up into the bag 34, although this is not essential, it being immaterial whether part of the dirt happens to accumulate in the chamber 30 or not.

When the user is through using the machine, the body 42 is turned back to the position of Figure 2, and by gently shaking the bag 34, together with rubbing or stroking it in a downward direction, all the dirt clinging to its walls will be fed back through the passageway 32 into the chamber 30. I line the tapered neck of the bag as at 54 with a bit of rubberized fabric or other smooth substance to facilitate the passage of the dirt out of the constricted portion of the bag. After the dirt is back in the chamber 30, the body 42 may be withdrawn by direct axial movement, and the entire contents thereof emptied into a paper bag or other suitable receptacle and thus disposed of. I have indicated a metal flap 56 pivoted at 58 which substantially obstructs the end of the cylinder 42 remote from the closure 44 when the body is in horizontal position but will swing open by gravity when the body is tipped up to empty the contents.

By moving the body to the position of Figure 2 during the process of emptying the dirt out of the bag 34, communication with the passageway 28 and the motor is cut off. This prevents the blowing of all or a substantial part of the dirt in the bag back through the discharge passage 20 into the motor housing.

In Figure 4 I have illustrated an alternative means for preventing such return of the dirt to the motor housing. The discharge 20 extends horizontally for a short distance to the coupling flanges 60 which may be identical with the coupling member at 24. In the intervening passage 62 I position a flap valve 64 which, in the position shown, completely obstructs the passage and prevents any flow through it. Means are provided for opening the flap valve 64 when the mo-

tor is operating to discharge material through the passage 20. I have illustrated automatic means housed in the integral housing 66. The solenoid 68 is mounted in position by means of the fitting 70, and when energized, will attract the armature 72 which is rigid with the flap valve 64, the whole being pivoted at 74. With such a construction as that of Figure 4 I may employ an accumulator according to Figures 1, 2, and 3, or any sort of chamber such, for instance, as that illustrated in Figures 1, 2, and 3 of Kirby Patent 1,983,175 of December 4, 1934.

In Figure 5 I have illustrated part of a large housing at 76 such as that in the Kirby patent just mentioned with the same flap valve 64 and armature 72. But in this embodiment the housing 78 is part of the attached chamber 76, the coupling connection being indicated at 80.

In either instance the solenoid 68 is wired as in Figure 6 where the source of power is indicated at 82, the wiring extending from one of the power mains to the control switch 84, from the control switch to the motor 86, from the motor 86 through wire 88 to the solenoid 68, and from solenoid 68 through wire 90 back to the source of power. Therefore, in both instances the flap valve will automatically be held open as long as the motor is energized, but turning off the motor will let it fall back into the closed position. With such a construction it is impossible for the operator to fail to close the valve before emptying the bag. The constructions of Figure 1 and Figure 5 may be applied as new attachments to cleaners already in service.

Without further elaboration the foregoing will so fully explain my invention that others may, by applying knowledge current at the time of application, readily adapt the same for use under various conditions of service.

I claim:

In combination with a vacuum cleaner having power driven air circulating means operating by impulse on the air and having a housing and an air discharge passage leading therefrom; a filter bag; means adjacent the discharge end of said air discharge passage defining an accumulator chamber and establishing communication through said chamber with said filter bag; means independent of the air stream for opening and closing the air path from the machine housing to the bag at a point between the accumulator chamber and the housing; means for controlling said opening and closing means; said accumulator chamber being positioned to receive material dislodged from said bag and falling into said chamber by gravity.

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