

J. B. KIRBY.  
VACUUM CLEANING MACHINE.  
APPLICATION FILED SEPT. 15, 1913.

1,236,944.

Patented Aug. 14, 1917.

2 SHEETS—SHEET 1.

Fig. 1

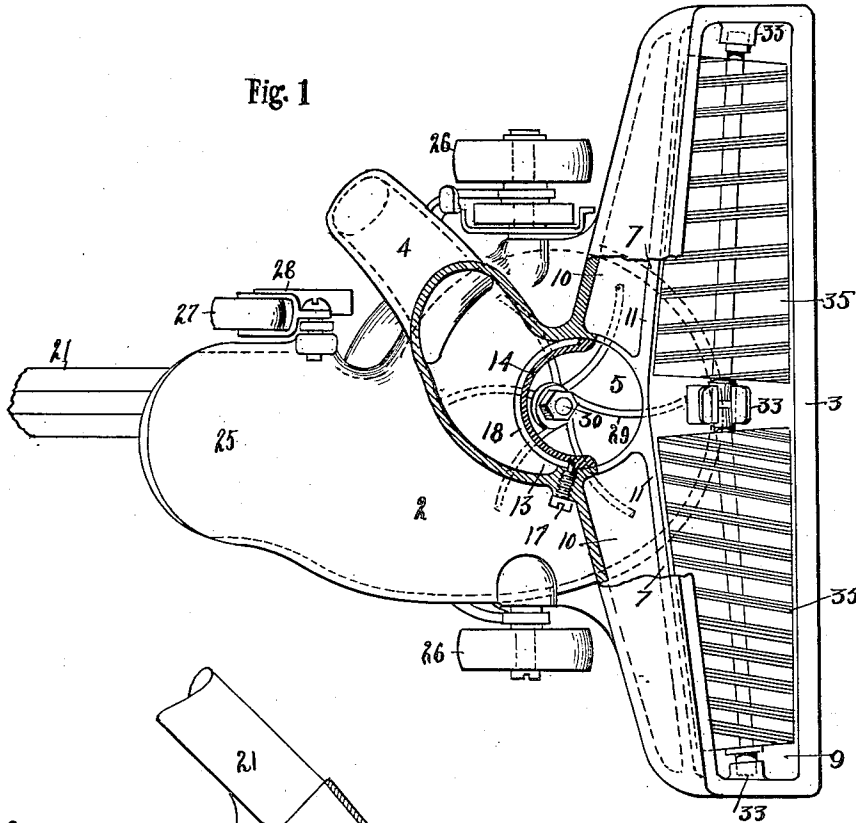
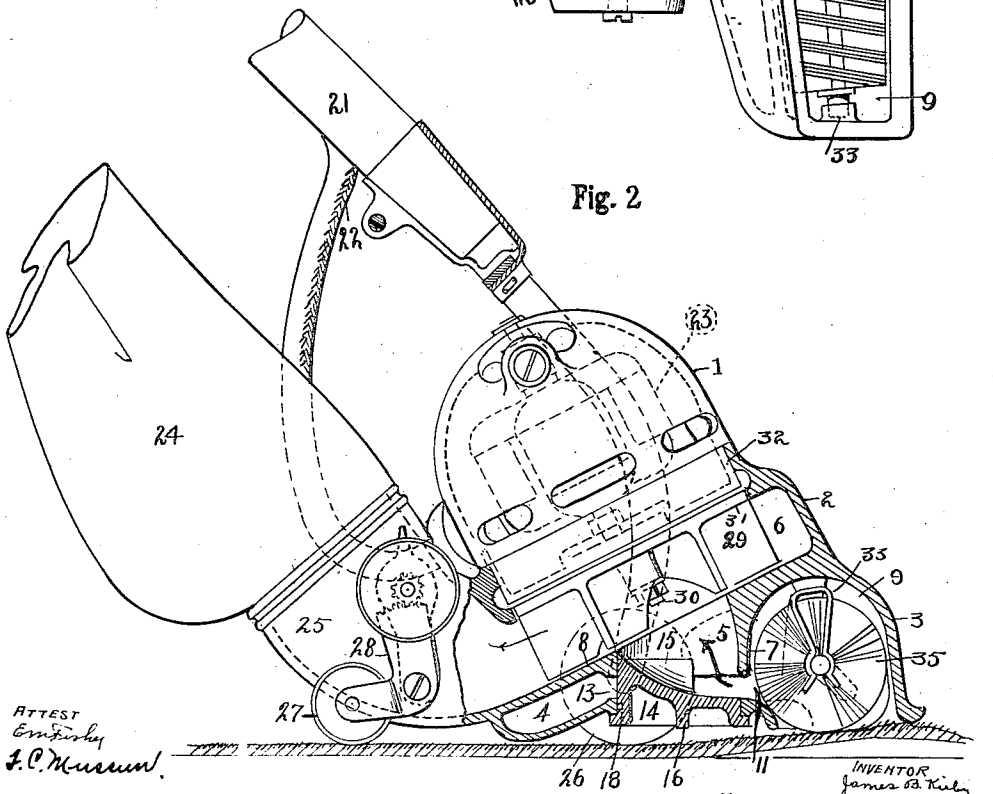


Fig. 2



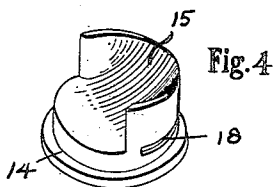
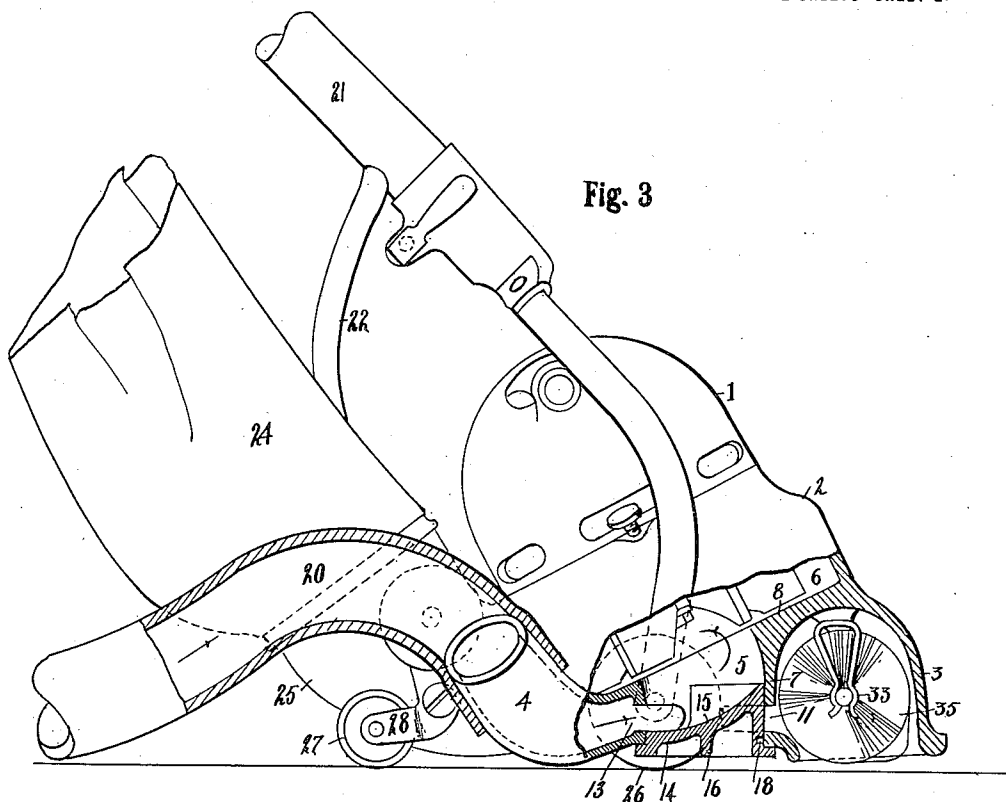
ATTEST  
Embodied  
J. C. Munn.

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James B. Kirby  
By Fisher Munn ATTYS

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ATTEST  
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# UNITED STATES PATENT OFFICE.

JAMES B. KIRBY, OF CLEVELAND, OHIO.

VACUUM CLEANING-MACHINE.

1,236,944.

Specification of Letters Patent.

Patented Aug. 14, 1917.

Application filed September 15, 1913. Serial No. 789,747.

*To all whom it may concern:*

Be it known that I, JAMES B. KIRBY, citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Vacuum Cleaning-Machines, of which the following is a specification.

This invention relates to improvements in vacuum cleaners, and particularly to a machine having separate suction inlets and a single valve to open either of said inlets and close the other, one inlet communicating with a floor nozzle and the other with a nozzle at the end of a hose for independent use on furniture, curtains, etc.

In the accompanying drawings, Figure 1 is a bottom view, partly in section, and Fig. 2 is a side elevation and sectional view of my improved machine, showing the floor nozzle in open communication with the fan chamber and the hose nozzle shut off. Fig. 3 is a side and sectional view of the machine with a hose attached to the rear nozzle and with the fan chamber closed to the front nozzle. Fig. 4 is a perspective view of the valve. The present machine comprises a motor casing 1 mounted at one end of a hollow body or casing 2 having a fan chamber 6 in the part nearest the motor. Upon the side opposite to the motor the fan chamber communicates with a suction chamber or well 5, upon one side of which is formed the floor nozzle 3, and upon the other side of which is formed the hose connecting provision 4. The nozzle 3 is separated from the fan chamber by the partition 8 and is formed with an elongated, work-engaging suction mouth arranged out of alinement with the center of the fan chamber. The hose connection here shown consists of a hollow nipple made integral with the casing and adapted to receive an extension hose, though it is obvious that other modes of effecting this connection could be employed. The interior of this well or suction chamber is formed as a surface of revolution so as to permit a valve member of appropriate shape to be revolvably mounted therein, and communicates with the interior of the floor nozzle 3 by means of an opening 11, and with the hose nipple by means of an opening 13. I have illustrated the collecting nozzle as formed with an internal wall 7 forming passageways 10 for the distribution of the suction and with agitating devices 35 for

the dislocation of adherent dirt, but these features are wholly disconnected from the present invention and are not necessarily employed therewith, though I have illustrated them in order to provide a complete and operative machine, but reserve their subject-matter for my copending application filed of even date herewith and numbered 789,745.

Within the well or suction chamber 5 is provided the valve 14, which is of a shape to fit snugly but rotatably within said well. The end of this valve is closed but one side is formed with an imperforate segmental portion 15 adapted, when the valve is turned to the appropriate position, to obstruct either of the openings 11 or 13 while leaving the other unobstructed. The interior of this valve is preferably formed upon a concave curve, thus causing it to act as a deflector while preventing the occurrence of eddies and dust pockets. In the present embodiment the valve 14 is applied from the exterior of the casing and forms a closure for the well or suction chamber 5, being secured in place by a radial screw 17 mounted in the wall thereof and engaging a shallow arcuate groove 18 in the exterior of the valve. The outer face of the valve has a cross rib 16, which forms a finger grip for rotating the valve.

The hose connection 4 is of nipple form to slip-engage the hose 20, Fig. 3, but any other mechanical connection may be substituted. This hose nipple is also shown as being formed integral with the fan casing 2 and is projected upwardly at an angle at one side of the casing to permit convenient attachment and detachment of the hose. The hose may remain affixed to the nipple 4 while the floor nozzle 3 is in use and the free end of the hose may be coiled upon and carried by the pivoted handle 21 which also carries the electrical connection 22 for the motor 23. The usual dust bag 24 is attached to the outlet elbow 25 for the fan chamber 6, and this bag is also suspended from the handle 21 according to the customary practice.

The supporting mechanism for the machine preferably comprises two main wheels 26 at the sides of casing 2 and a single rear wheel 27 carried by a crank arm 28 pivoted at one side of elbow 25, though this forms no part of the invention claimed herein, but is described and claimed in my copending

application Serial number 789,746 of even date herewith.

The fan 29 is mounted on the outer end of the motor shaft 30 and has a solid disk or base 31 facing the reduced end 32 of the motor casing 1, the parts being preferably constructed and arranged as described and claimed in my copending application Serial Number 789,745 of even date herewith, though the improvements claimed herein are independent of the shape, arrangement, construction, or inclination of these parts. The floor nozzle 3 is open at its bottom and is here shown provided with suitable bearings or supports 33 for the shafts of two rotatable brushes 35 which are preferably round and tapering and situated with their larger ends opposite each other. The bottom opening of the brush chamber conforms in outline to the taper of the brushes, as does the division wall 7 and both brushes are axially inclined to bring their peripheral surfaces substantially flush and parallel with the front and rear bottom edges of the nozzle. These edges do not ride upon the floor but are elevated therefrom more or less as conditions may require. However, the carpet or other article which is being cleaned is usually lifted into engagement with the nozzle and its brushes by the suction of the fan, and the brushes are rotated by contact with the object which is being cleaned. The smaller end of the two brushes furnish the rotative power when the machine travels over the floor as the bristles at such points are comparatively short and stiff, whereas the larger diameters of the brushes afford longer and more pliable bristles which act as sweepers in view of their greater arc of travel. Any lint or thread which is picked up by the brushes is released therefrom by the suction which is localized linearly over a small area of the brushes by slot 11 in wall 7. However the particular improvements herein claimed are independent of the presence or construction of any brushing mechanism, the brushing devices shown being claimed in my copending application Serial Number 789,745 of even date herewith.

I claim:

1. In a vacuum cleaner, a fan casing having a central intake, said casing also having a floor nozzle and a hose connection communicating with said intake, and a rotatable valve in said casing and having its axis approximately in alinement with the axis of said intake, said valve having an obstructing portion adapted to close communication between said intake and either said nozzle or said hose connection while leaving communication open with the other.

2. In a vacuum cleaner, a casing having a fan chamber and a well communicating therewith, a suction nozzle communicating

with one side of said well, a hose connection communicating with the other side of said well, a movable member in the portion of said well opposite said fan chamber and having a deflecting surface traversing said well and also having at one side a deflecting plate adapted to intercept communication between said well and either said nozzle or said hose connection.

3. In a vacuum cleaner, a casing having a substantially cylindrical fan chamber provided with a central intake in one of its walls, the interior wall of said intake being formed as a surface of revolution and forming a well, and said well being formed with passageways leading to separate nozzles, and a rotatable valve in said intake, and having a portion adapted to close either of said passageways while leaving the other passageway open.

4. In a vacuum cleaner, a casing having a substantially cylindrical fan chamber and a central well, said casing having a floor nozzle arranged at its front and a hose connection at its rear, said casing also being formed with passageways connecting said nozzle and hose connection with opposite sides of said well, and a movable valve member within said well having at one side an obstructing shoulder arranged to cover one of said passageways, the other side being free from obstruction.

5. In a vacuum cleaner, a hollow body having a substantially cylindrical fan chamber, a floor nozzle arranged transversely across the forward portion of the body and having a downturned inlet mouth, a hose connection arranged at a distance from said nozzle, said casing being formed with a well between said nozzle and connection and communicating with both of them, said well being in communication with the low pressure portion of said fan chamber, and a valve member in said well arranged to assume different positions therein, said member having an obstructing portion arranged to close communication with either the nozzle or the hose connection and open communication with the other.

6. In a vacuum cleaner, a hollow body having a cylindrical fan chamber formed with an inlet opening in one of its flat walls, a floor nozzle carried by the lower part of said body beyond said flat wall, said nozzle being located at one side of said inlet opening and communicating therewith by means of a passageway, said body being formed at the opposite side of said inlet opening with a hose connection to said inlet, a reversible valve located in said body opposite said inlet opening between said nozzle and said hose connection and adapted to cut off either of the same from said inlet opening, and means for supporting said body with said valve closely adjacent to the floor.

7. In a pneumatic cleaner, a casing having a fan chamber, a well outside of and facing said chamber and communicating therewith, a nozzle arranged beneath said fan chamber and at one side of said well, said nozzle communicating with said well by means of a passageway opening into the side thereof, a hose connection carried by said casing and communicating with said well at a point removed from said passageway, and a valve in said well adapted to obstruct either the passageway leading to said nozzle or the passageway leading to said hose receiving provisions while leaving the other passageway open.
8. In a pneumatic cleaner, a casing having a fan chamber, a suction chamber arranged directly below said fan chamber and communicating therewith, and a hose connection arranged below said fan chamber and at one side of said suction chamber, said hose connection communicating with the side of said suction chamber, and said suction chamber being provided with an opening in the bottom thereof, and a movable member arranged to fit within said suction chamber and having an extension adapted to obstruct the entrance into said hose connection.
9. A vacuum cleaner comprising a pump chamber, a suction chamber having at one end an outlet opening to the pump chamber, a suction nozzle disposed at one side of said suction chamber, the suction chamber having a radial inlet opening in its wall at a point removed from said nozzle, and a movable member fitted in said suction chamber at a point opposite to its connection with said pump chamber and having at one side an imperforate segmental portion adapted to be interposed either across said inlet opening or between said nozzle and suction chamber.
10. In a suction cleaner, a casing provided with a pump chamber and a suction chamber communicating therewith, the walls of said suction chamber being formed as a surface of revolution and having a plurality of openings therein, one end of said suction chamber being in direct communication with the low pressure portion of said pump chamber, an integral collecting nozzle formed at one side of said suction chamber and communicating with one of said openings, means carried by said casing for the reception of an extension hose and communicating with the other of said openings, and a reversible member mounted in the part of said suction chamber removed from said pump chamber and having a lateral portion arranged to obstruct either of said openings and to leave unobstructed the other of said openings, depending upon the position to which it is turned.
- In testimony whereof I affix my signature in presence of two witnesses.
- JAMES B. KIRBY.
- Witnesses:  
F. C. MUSSUN,  
E. M. FISHER.