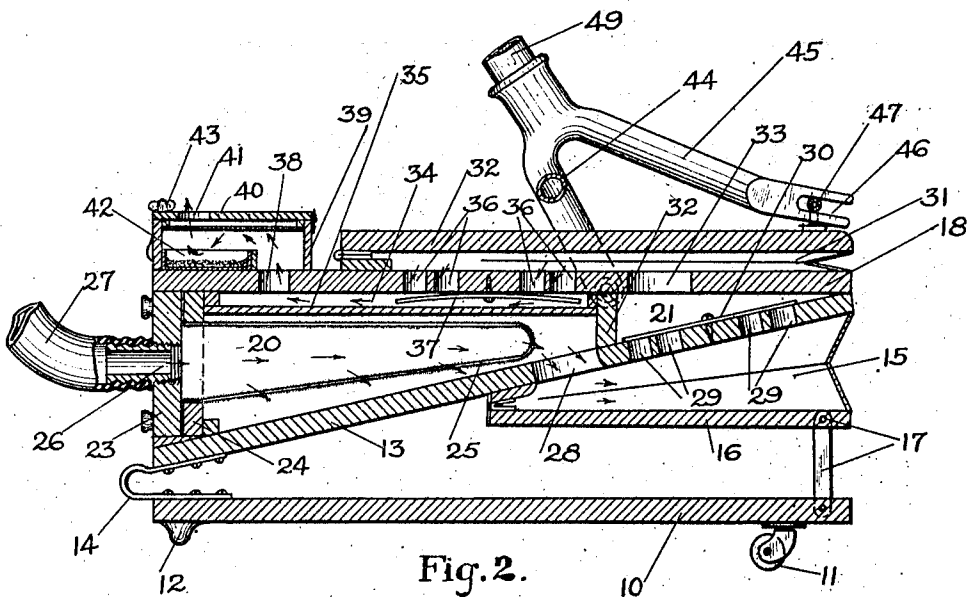
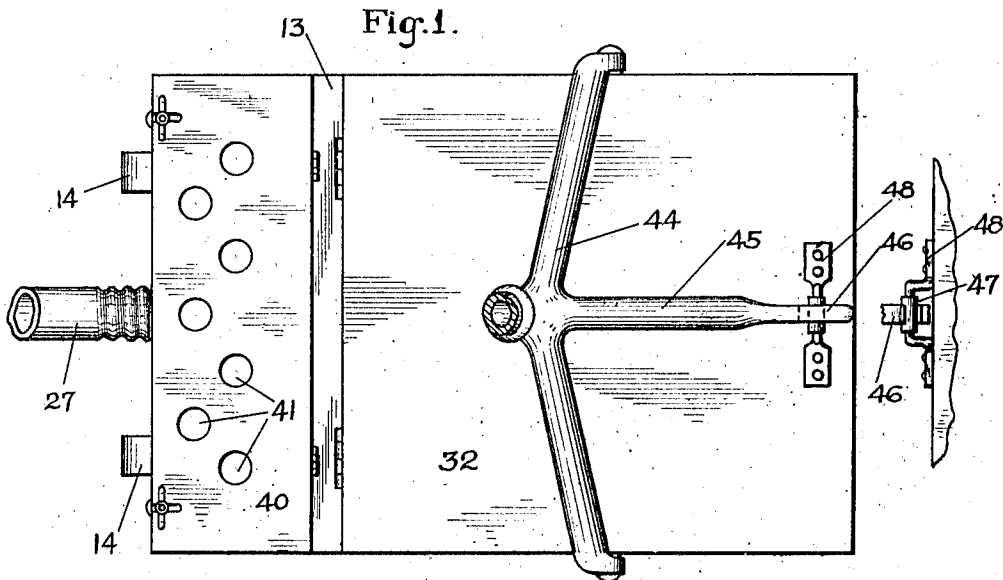


W. G. BETZ.
PUMP FOR CLEANERS.
APPLICATION FILED APR. 10, 1912.

1,053,698.

Patented Feb. 18, 1913.

2 SHEETS—SHEET 1.



Witnesses.

R. W. Stone.
Thomas Colson

Inventor.

William G. Betz.
By Joshua R. Thomas
his Attorney.

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2 SHEETS-SHEET 2.

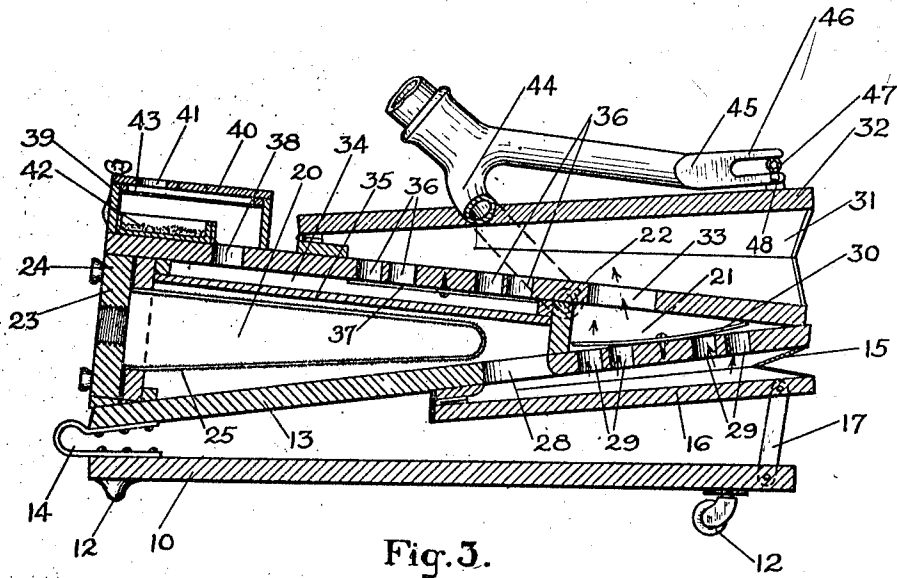


Fig. 3.

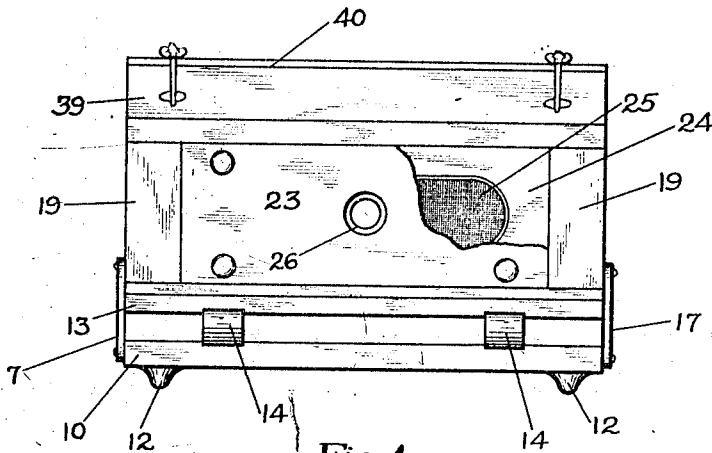


Fig. 4.

Witnesses.

R. W. Stone.

Thomas Colson

Inventor

William G. Betz

By Joshua R. Harris

his Attorney.

UNITED STATES PATENT OFFICE.

WILLIAM G. BETZ, OF CHICAGO HEIGHTS, ILLINOIS, ASSIGNOR OF FORTY ONE-HUNDREDTHS TO WILLIAM J. BURKE, TEN ONE-HUNDREDTHS TO HOWARD N. WAGG, AND FIFTEEN ONE-HUNDREDTHS TO GEORGIENA M. STIRNEMAN, ALL OF CHICAGO, ILLINOIS.

PUMP FOR CLEANERS.

1,053,698.

Specification of Letters Patent.

Patented Feb. 18, 1913.

Application filed April 19, 1912. Serial No. 691,929.

To all whom it may concern:

Be it known that I, WILLIAM G. BETZ, a citizen of the United States, and a resident of the city of Chicago Heights, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Pumps for Cleaners, of which the following is a specification.

This invention relates to new and useful improvements in pumps for vacuum cleaners, and is designed to provide a manually operable device which will create a constant suction through the hose and eliminate the intermittent suctions which have been pre-

dominant in the art heretofore. It is also an object of the present invention to provide a device of this character which will be provided with mechanisms for filtering or operating upon the air a second time in order to insure the entire removal of all fine particles of dust or foreign matter therefrom prior to exhausting the same.

With the above and other objects in view, this invention consists in the construction, combination, and arrangement of parts, all as hereinafter more fully described, claimed, and illustrated, in the annexed drawings, wherein:—

Figure 1 is a top plan view of the vacuum cleaner forming the subject matter of the present invention, Fig. 2 is a central vertical longitudinal section thereof, Fig. 3 is a similar view illustrating a changed position of the parts, and Fig. 4 is a front end elevation, parts thereof being taken away to illustrate the interior thereof.

The vacuum cleaner forming the subject matter of the present invention comprises a base provided with a supporting plate or platform hinged thereto through the medium of re-bent leaf springs interposed between the base and said platform or plate. The upper side of said platform carries suction and exhaust chambers which coöperate with bellows or pneumatics for the purpose of creating the necessary suction and exhaust of the present invention.

Reference being had more particularly to the drawings, 10 indicates a base provided with suitable casters 11 at one terminal thereof and rubber knobs 12 at the opposite terminal thereof, said knobs being elevated above the floor during the transportation of the device. A platform or plate 13 is hinged

to the forward terminal of the base 10 by 55 means of the re-bent leaf springs 14 which retain said platform or plate at an angle to the base 10, as clearly illustrated in Figs. 2 and 3. The under side of this platform 13 is provided with a pneumatic or bellows 15, 60 the movable section 16 of which is connected to the rear end of the base 10 by the links 17 which are interposed between said movable section and said base. The stationary side of the bellows or pneumatic 15 is embodied in the rear terminal of the platform or plate 13.

A cover 18 is rigidly secured to the rear terminal of the platform or plate 13 and has its forward terminal spaced from the lower or hinged terminal of the platform or plate 13 by the vertical standards 19 which are located upon each side of the door, as will hereinafter be more fully described. This cover 18 in combination with the platform or plate 13 and the front, to be hereinafter described, constitute a chamber which is divided into the compartments 20 and 21 by the partition 22. The suction compartment 20 is closed by a door or front 23 interposed 80 between the standards 19, said door or front being removable for the purpose of permitting access to be had to the compartment 20. A frame 24 is located in the compartment 20 adjacent to the inner surface of the door 23, 85 and carries a bag 25 which receives the dirt and dust brought through the union 26 which centrally pierces the door or front 23 and is connected to the suction hose 27. The compartment 20 is connected by the 90 opening 28 with the bellows 15, said opening being designed to permit the passage of the air from the compartment 20 into said bellows after the same has passed through the meshes of the bag 25. The compartment 21 95 is connected to the bellows or pneumatic 15 by a plurality of openings 29 which are covered by a spring plate 30 secured upon the platform or plate 13 upon the interior of the compartment 21 and constructed of 100 spring material, said plate, when not subjected to any outside pressure, being adapted to assume the position illustrated in Fig. 3. The plate 30 constitutes a flap valve and is designed to close the openings 24, as illustrated in Fig. 2.

Carried by the cover 18 adjacent to the rear terminal thereof, is a secondary bel-

lows 31, the stationary side thereof being constituted by the cover 18, while the movable side 32 is hinged to said cover. This bellows or pneumatic 31 is connected to the compartment 21 by the opening 33. In order to provide an exhaust chamber 34, the compartment 22 is divided by a partition 35, thereby creating said exhaust chamber which connects with the bellows or pneumatic 31 by means of the openings or ports 36. These openings 36 are covered by a spring metal plate 37 which is similar in construction to the plate 30 and is adapted to normally assume the position illustrated in Fig. 2. The exhaust chamber 34 is connected to the exterior atmosphere by means of the opening 38 formed in the forward terminal of said exhaust chamber which connects with a compartment 39, said compartment being provided with a hinged lid 40 pierced adjacent to the forward edge thereof by the openings 41. Disposed directly under these openings and to one side of the port 38 is a dust tray 42, while superposed above said dust tray and extending entirely across the compartment is a screen 43. It will clearly be seen that the air passing through the exhaust chamber 34 through the opening 38 must pass over the dust tray 42 prior to being exhausted through the openings 41.

In order to provide a means for actuating the present invention, a yoke 44 spans the entire device and is pivotally hinged to the side walls thereof interposed between the top 18, the plate or platform 13 and the standards 19. This yoke carries a rearwardly extending arm 45 which is provided with a bifurcated terminal 46. This bifurcated terminal 46 engages the roller 47 operating upon a bearing or bracket 48 mounted upon the rear terminal of the movable section 32 of the device.

From the foregoing it will clearly be understood that the operation of the present invention is as follows: Assuming the elements of the device in the position illustrated in Fig. 2, the pressure is applied to the handle 49 of the yoke 44 thereby moving the arm or lever 45 in an upward direction, thus causing the movable section 32 of the bellows or pneumatic 31 to be raised, which naturally creates a suction in the compartment 21. This movement of the yoke causes pressure to be exerted upon the plate or platform 13, thereby moving the same downwardly and compressing the bellows or pneumatic 15, as illustrated in Fig. 2. This naturally creates a suction on one side of the plate 13 and a pressure upon the opposite side of the plate 30 which causes said plate to be raised, permitting the air to pass from the compartment 20 through the bellows or pneumatic 15 into the compartment 21. The lever is then raised, causing the

elements to again assume the position illustrated in Fig. 2, creating a suction in the compartment 20, and a pressure in the bellows 31. This causes a transfer of the air from the compartment 21 and the bellows 31 through the ports 36, the pressure of said air releasing the plate or valve 37 and permitting the air to pass into the exhaust chamber 34. The air then leaves the exhaust chamber 34, owing to the continual pressure exerted thereon by the operation of the present invention and passes into the compartment 39 over the tray 42 through the screen 43 to the exterior atmosphere, leaving all fine particles of dust not retained in the bag 25, in said tray. This naturally creates a constant suction in the hose 27 through the bag 25 depositing the dirt therein and thence through the balance of the elements, as has been heretofore described.

Having thus fully described the present invention, what is claimed as new and desired to be secured by United States Letters Patent, is:

1. In a device of the character described, the combination with a base; of a platform movably connected therewith; a casing arranged on the upper side of said platform being divided into a number of compartments; bellows or pneumatics arranged above and below said platform; and means for the alternate compression and expansion of said bellows.

2. In a device of the character described, the combination with a base; of a platform movably connected thereto; a casing mounted on said platform divided into a plurality of compartments; a plurality of pneumatics constituting connections between said compartments; and means whereby said pneumatics may be alternately operated to create a constant discharge and suction pressure.

3. In a device of the character described, the combination with a base; of a platform movably connected thereto; a casing mounted on said platform divided into a plurality of compartments; a plurality of pneumatics constituting connections between said compartments; and means whereby said pneumatics may be alternately operated to create a constant suction and discharge pressure, and impart an oscillatory movement to said platform.

4. In a device of the character described, the combination with a base; of a platform resiliently hinged thereto; a casing formed upon said platform, said casing being divided into a suction compartment, a compression compartment, and a discharge compartment; a pneumatic connecting said suction compartment with said compression compartment; a similar pneumatic connecting said compression compartment with said discharge compartment; and means for op-

erating said device alternately to create a suction and compression therein.

5 5. In a device of the character described, the combination with a base; of a platform resiliently hinged thereto; a casing formed upon said platform, said casing being divided into a suction compartment, a compression compartment, and a discharge compartment; a pneumatic connecting said suction compartment with said compression compartment; a similar pneumatic connecting said compression compartment with said discharge compartment; links interposed between said base and said first named pneumatic for supporting the mechanism; valves arranged over the connections between said compartments and said pneumatics; and means coöperable with the discharge compartment for operating upon the air passing through the device a second time.

20 6. In a device of the character described, the combination with a base; of a platform resiliently hinged thereto; a casing formed upon said platform, said casing being divided into a suction compartment, a compression compartment, and a discharge compartment; a pneumatic connecting said

suction compartment with said compression compartment; a similar pneumatic connecting said compression compartment with said discharge compartment; links interposed between said base and said first named pneumatic for supporting the mechanism; valves arranged over the connections between said compartments and said pneumatics; means arranged in said suction compartment for primarily straining and cleaning the air passing through the machine; a chamber raised above the exhaust compartment adapted to receive the air therefrom; means arranged in said chamber for secondarily straining and cleansing of said air; and means whereby said pneumatics may be operated alternately for creating a constant suction and discharge pressure in the device.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM G. BETZ.

Witnesses:

ARTHUR A. OLSON,
JOSHUA R. H. POTTS.