H. L. PETERS.

VACUUM CLEANER.

APPLICATION FILED APR. 5, 1916.

1,217,817.

Patented Feb. 27, 1917.

2 SHEETS—SHEET 1.

Fig. 2,

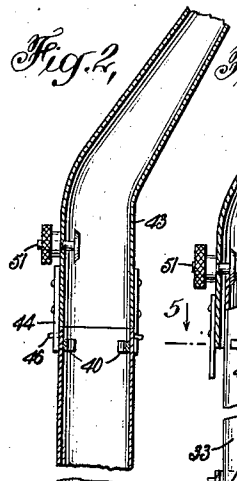


Fig. 3,

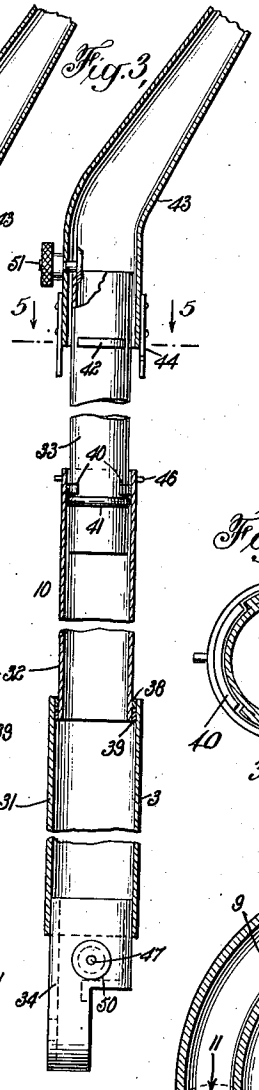


Fig. 4,

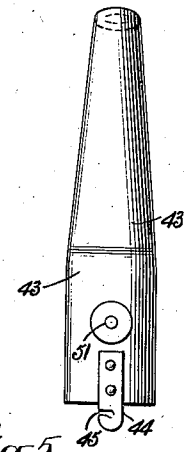


Fig. 5,

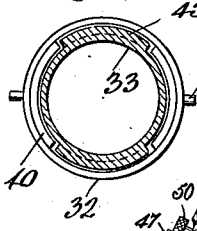


Fig. 1,

WITNESSES

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2 SHEETS—SHEET 2.

Fig. 6.

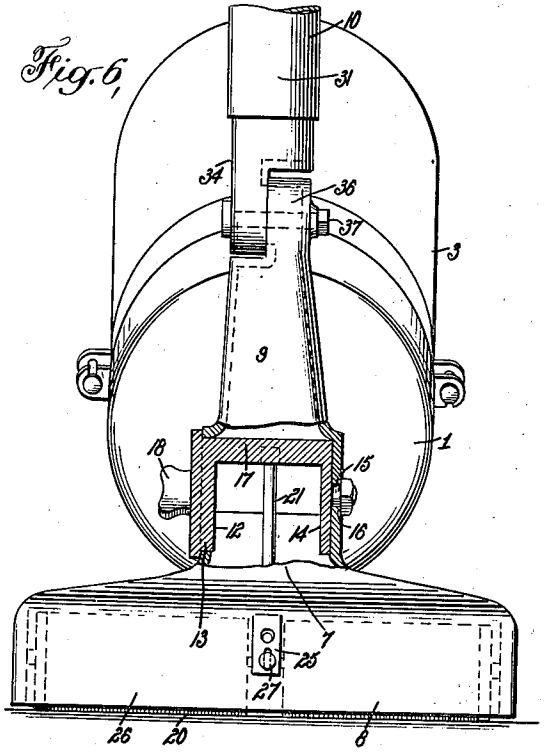
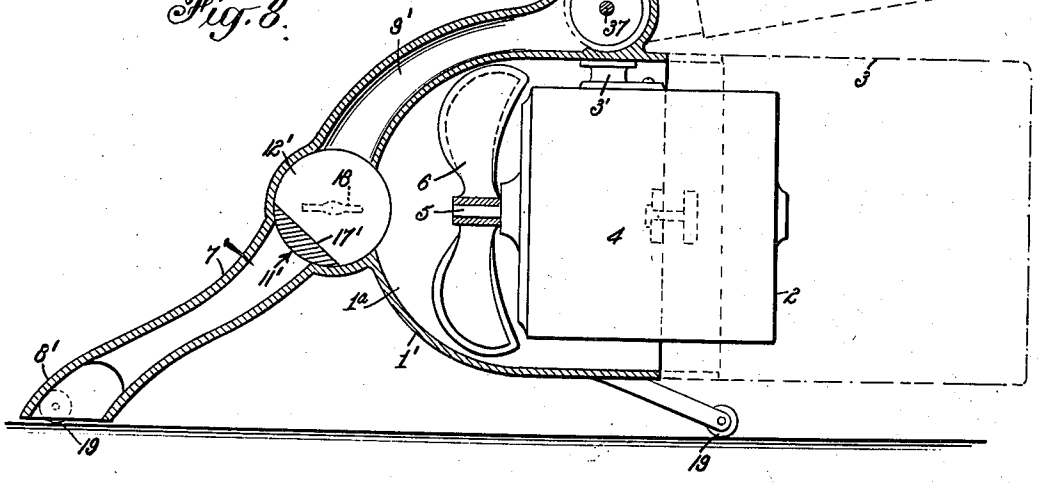


Fig. 7.



Fig. 8.



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VACUUM-CLEANER.

1,217,817. Specification of Letters Patent. Patented Feb. 27, 1917.

Application filed April 5, 1916. Serial No. 89,099.

To all whom it may concern:

Be it known that I, HOMER L. PETERS, a citizen of the United States, and a resident of Salem, in the county of Columbiana and State of Ohio, have invented a new and Improved Vacuum-Cleaner, of which the following is a full, clear, and exact description.

This invention relates to a vacuum cleaner of the self-contained type, wherein an electric motor is employed for driving the suction-producing means or fan.

The invention has for its general objects to improve the construction and operation of apparatus of this character so as to be reliable and efficient in use, comparatively simple and inexpensive to manufacture, and so designed that the apparatus will have the maximum range of utility.

A more specific object of the invention is the provision of a vacuum cleaner having a plurality of nozzles or suction heads independently connectible by a valve with suction-producing means, whereby any one device may be used, one of the nozzles being in the form of a handle which, when not used as a nozzle, serves to move the vacuum cleaner over the floor or surface being cleaned.

A further object of the invention is the provision of a nozzle in the form of a handle which is longitudinally extensible and flexible so as to facilitate the cleaning of walls, windows, door frames, moldings, cornices and other high places.

The invention has as another specific object the provision of a brush in the floor nozzle, whereby the brush will agitate the dust and cause the same to be drawn into the vacuum cleaner, there being a novel adjusting means for the driving connection between the motor and brush, whereby the latter can be thrown out of use when not required.

With such objects in view, and others which will appear as the description proceeds, the invention comprises various novel features of construction and arrangement of parts which will be set forth with particularity in the following description and claims appended hereto.

In the accompanying drawings, which illustrate certain embodiments of the invention and wherein similar characters of reference indicate corresponding parts in all the views,

Figure 1 is a central vertical section of a vacuum cleaner with its parts set for use as in cleaning a floor or rug;

Fig. 2 is a longitudinal section of the combined handle and nozzle partially extended;

Fig. 3 is another view showing the handle fully extended;

Fig. 4 is a detail view of the handle grip;

Fig. 5 is a transverse section on the line 5—5, Fig. 3;

Fig. 6 is a front view of the vacuum cleaner with a portion in section;

Fig. 7 is a transverse section on the line 7—7, Fig. 1; and

Fig. 8 is a sectional view of a modified form of the invention.

Referring to the drawing, 1 designates the casing or body of the vacuum cleaner, which has an open side 2 to which is applied a dust-holding bag 3, and in the casing 1 and supported on a bracket 3′ is an electric motor 4, to the shaft 5 of which is fastened a fan 6, or equivalent suction-producing means. The body 1 has a forward tubular extension or neck 7 which terminates in a transversely enlarged hollow head 8, forming the floor nozzle. The casing 1 has an upwardly extending conduit 9 leading from the inner end of the neck 7 to the top of the casing, and at this point the conduit 9 is hingedly connected and communicates with a tubular handle 10 that also forms a nozzle but is not used while the floor nozzle is employed, since communication with the suction chamber 1^a of the casing 1 is controlled by a valve 11 located at the juncture of the neck 7 and conduit 9 with the chamber 1^a. The valve is of the rotary type and has a head 12 journaled in an opening 13 in the neck, and a head 14 provided with a threaded journal stud 15 disposed in an opening 16 in the wall of the neck. Between the heads is the gate portion 17 of the valve for controlling communication between the suction chamber and the dust-collecting devices. On the head 12 is a wing 18 adapted to be gripped by the thumb and finger for turning the valve from one position to the other. The casing or body of the vacuum cleaner is adapted to run on suitably arranged rollers 19. The foregoing describes generally the structural features of both forms of the invention shown in Figs. 1 and 8. In Fig. 1 an agitating device is associated with the floor nozzle, whereas in Fig. 8 this device is omitted. The parts 1′, 7′, 8′, 9′, 11′, 12′ and 17′ are modifications of the

parts 1, 7, 8, 9, 11, 12 and 17 previously described.

A brush 20 is mounted in the head 8, Figs. 1 and 6 and is adapted to be rotated by the motor so as to stir up the dust on the floor to facilitate the collection of the dust. A shaft 21 extends through the neck 7 and is flexibly connected by a suitable joint with the motor shaft 5, and the forward end of the shaft 21 is connected by a worm or other gearing with the brush 20. In Fig. 1 the worm 23 is shown raised out of engagement with the worm-wheel 24 so that the brush would not be rotated by the motor, but when the brush is to be used, the shaft 21 is lowered to engage the worm with the worm-wheel. To effect this engagement and disengagement of the worm and worm-wheel the forward end of the shaft 21 is journaled in a bearing 25 slidably mounted on the front wall 26 of the head 8, the bearing being clamped by a set-screw or equivalent means 27 in any desired position. The shaft 21 is also journaled in a bearing 28 in the neck 7, there being in the bearing a rubber or other yielding bushing 29 for permitting the shaft 21 to be raised or lowered. The portion 17 of the valve has a notch 30, so that the shaft will not prevent the valve from being thrown to a position to cut out the floor nozzle.

In order to make use of the handle 10 as a nozzle, the handle is made extensible and flexible, and accordingly comprises three telescoping sections 31, 32, 33, the first two of which are flexible, while the latter is stiff or rigid. A hollow hinge bracket 34 is pivotally connected and clamped to the hollow hinge knuckle 36 on the upper end of the conduit 9 by a pivot bolt 37. The outer handle section 31 is fastened around the hinge bracket or coupling 34. The upper end of the outer section 31 has a fixed stop ring 38, and the intermediate section 32 has at its lower end an external stop ring 39 for preventing the intermediate section 32 from being pulled out of the outer section. In the upper end of the intermediate section are oppositely disposed stop flanges or lugs 40 which are adapted to be engaged by an external stop ring 41 on the lower end of the inner section 33 when the latter is fully drawn out, as shown in Fig. 3. On the upper end of the inner section 33 are oppositely disposed flanges 42 so disposed that they pass between the stop flanges 40 when the intermediate section is drawn out while the inner section is not in use. The flanges or arcuate lugs 42 enable the handle grip 43 to be fitted on the inner section either when the handle is contracted or extended to its limits, as shown in Figs. 1 and 3. The handle grip 43 has clips 44 formed with slots 45 which are engageable with pins 46 on the upper extremity of the intermediate section 32, as shown in Figs. 1 and 2. When the inner section 33 is not in use, as shown in Fig. 2, it is held in the lower part of the handle by means of a clamping bolt 47 which extends through an opening 48 in the part 34, and between the head 49 and the adjacent wall of the part 34 the wall of the tube 33 is clamped as shown in Fig. 2 by the tightening of the nut 50 on the bolt 47. A similar clamping bolt 51 is arranged in the handle grip 43 for clamping the handle grip to the upper end of the inner section when the handle is fully extended, as shown in Fig. 3. The bolts 47 and 51 can grip the edges of the section 33 at any point around such edges, so that no special care need be exercised.

From the foregoing description taken in connection with the accompanying drawings, the advantages of the construction and method of operation will be readily understood by those skilled in the art to which the invention appertains, and while I have described the principle of operation, together with the device which I now consider to be the best embodiment thereof, I desire to have it understood that the device shown is merely illustrative and that such changes may be made when desired as fall within the scope of the appended claims.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. A vacuum cleaner comprising a body, a suction-producing means therein, a floor nozzle device connected with the body, a second nozzle device flexibly connected with the body for cleaning walls and the like and forming a handle for moving the vacuum cleaner when the first device is to be used, and a valve for throwing either dust-collecting device into communication with the suction-producing means.

2. A vacuum cleaner comprising a suction-producing means, and a handle connected with the said means for moving the vacuum cleaner back and forth over a floor or other surface, said handle comprising extensibly connected parts forming a suction conduit.

3. A vacuum cleaner comprising a movable body, a suction-producing means therein, a floor nozzle device communicating with the body, a tubular handle connected with the body for moving the same and forming a suction conduit, and a valve for throwing either suction conduit or floor nozzle device into or out of operation, said handle being composed of telescopically connected sections, some of which are flexible.

4. A vacuum cleaner comprising a casing, a suction-producing device therein, a motor for driving the said device, a floor nozzle, a brush associated therewith, a motion transmitting means between the motor and brush

and adapted to be connected with or disconnected from the brush, a second nozzle connected with the body, and a valve for throwing either nozzle into or out of operation.

5. A vacuum cleaner comprising a body, a suction-producing means therein, a motor for driving the said means, a floor nozzle connected with the body, a rotary brush in the said floor nozzle, a shaft having a flexible connection with the motor, and means for connecting or disconnecting the shaft and brush.

6. A vacuum cleaner comprising a body, a suction-producing means therein, a motor for driving the said means, a floor nozzle connected with the body, a rotary brush in the said floor nozzle, a shaft having a flexible connection with the motor, a movable bearing for the shaft, and a gearing element between the shaft and brush adapted to be engaged or disengaged by the adjustment of the shaft bearing.

7. A vacuum cleaner comprising a body, a suction-producing means therein, a motor connected with the said means for driving the same, a tubular neck connected with the body, a floor nozzle carried by the neck, a brush in the floor nozzle, a shaft extending through the neck and operatively connected with the motor, an adjustable bearing on the dust floor nozzle for the outer extremity of the shaft, gearing elements on the shaft and motor and adapted to be engaged or disengaged by the adjustment of the bearing, a bearing in the neck for the inner portion of the shaft, and a yielding bushing in the last-mentioned bearing for permitting the shaft to be transversely moved.

8. A vacuum cleaner comprising a body, a suction producing means therein, a plurality of telescoping tubular members forming a suction conduit, and means for hingedly connecting one of the members to the body, whereby the members constitute an operating handle for the vacuum cleaner when the members are not used as a suction conduit.

9. A vacuum cleaner comprising a body, a suction producing means therein, a plurality of telescoping tubular members forming a suction conduit, means for hingedly connecting one of the members to the body, whereby the members constitute an operating handle for the vacuum cleaner when the members are not used as a suction conduit, and a valve at the juncture of the handle members with the body.

10. A suction conduit adapted to be used as a handle for a vacuum cleaner, comprising three telescoping sections, the outer and intermediate section being flexible and the inner section stiff, stops on the sections for preventing the same from being pulled out of each other, and a handle grip attachable to the inner or intermediate section and foming a dust-suction nozzle.

11. A suction conduit adapted to be used as a handle for a vacuum cleaner, comprising three telescoping sections, the outer and intermediate section being flexible and the inner section stiff, stops on the sections for preventing the same from being pulled out of each other, a handle grip attachable to the inner or intermediate section and forming a dust-suction nozzle, and means for clamping the sections in different relative positions.

12. A suction conduit adapted to be used as a handle for a vacuum cleaner, comprising three telescoping sections, the outer and intermediate section being flexible and the inner section stiff, stops on the sections for preventing the same from being pulled out of each other, a handle grip attachable to the inner or intermediate section and forming a dust-suction nozzle, means for clamping the sections in different relative positions, pins on the outer end of the intermediate section, and clips on the handle grip for engagement with the pins.

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

HOMER L. PETERS.

Witnesses:
W. W. NORTH,
L. B. SAUER.