

J. W. SHANAHAN.
VACUUM CLEANER.
APPLICATION FILED FEB. 28, 1916.

1,233,408.

Patented July 17, 1917.

2 SHEETS—SHEET 1.

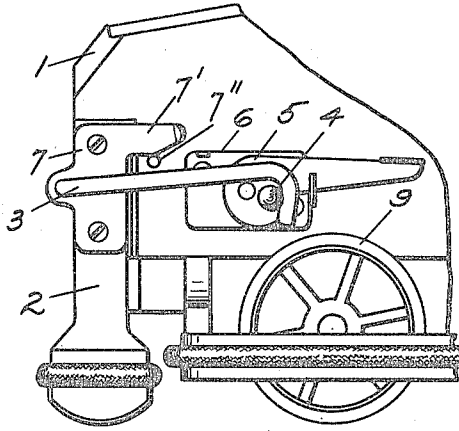


Fig. I.

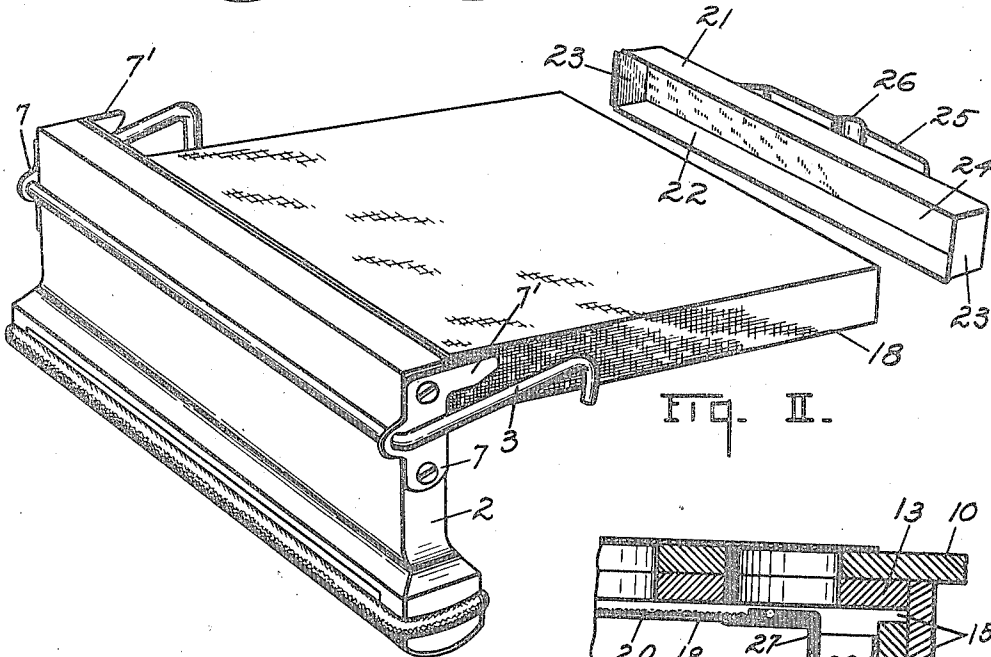


Fig. II.

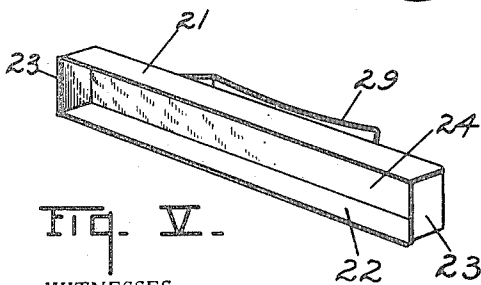


Fig. V.

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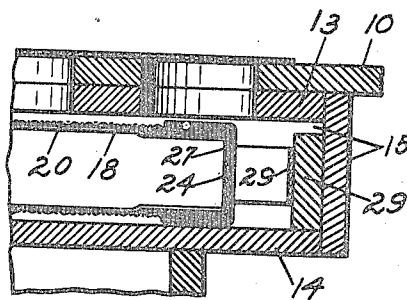


Fig. IV.

INVENTOR.

John W. Shanahan

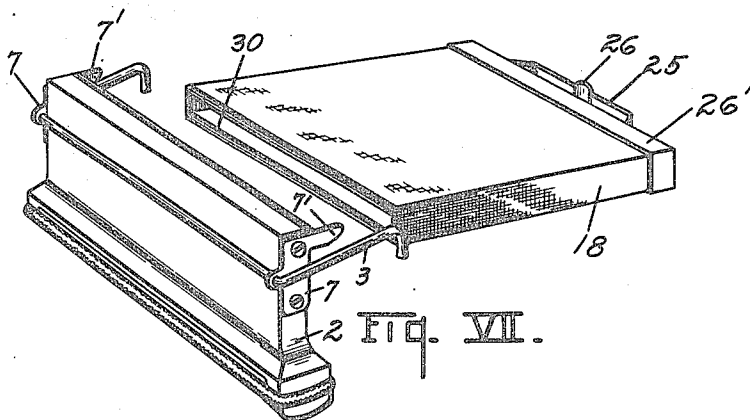
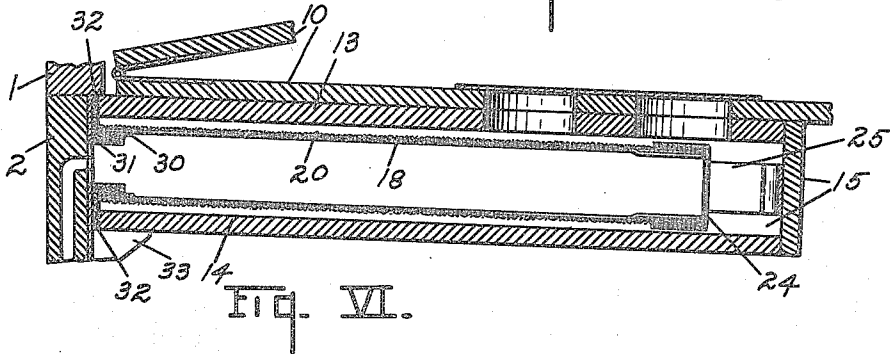
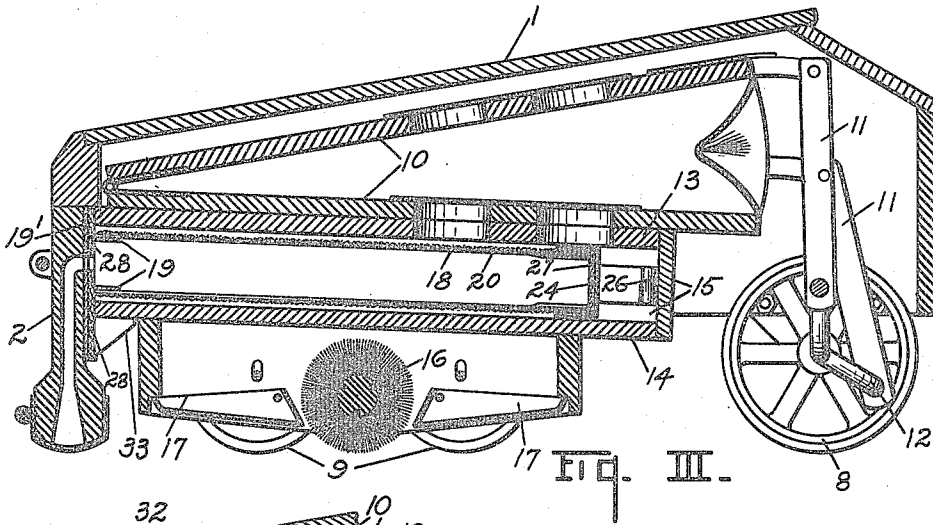
BY

Chappell & Co.
ATTORNEYS.

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2 SHEETS—SHEET 2.



WITNESSES:
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UNITED STATES PATENT OFFICE.

JOHN W. SHANAHAN, OF GRAND RAPIDS, MICHIGAN, ASSIGNOR TO BISSELL CARPET SWEEPER COMPANY, OF GRAND RAPIDS, MICHIGAN.

VACUUM-CLEANER.

1,233,408.

Specification of Letters Patent.

Patented July 17, 1917.

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To all whom it may concern:

Be it known that I, JOHN W. SHANAHAN, a citizen of the United States, residing at Grand Rapids, Michigan, have invented certain new and useful Improvements in Vacuum-Cleaners, of which the following is a specification.

This invention relates to improvements in vacuum sweepers, and particularly to the nozzle and dust bag structures thereof.

The main object of this invention is to provide in a vacuum sweeper an improved construction of dust bag and cap or cover therefor, with improved means of retaining the same in place.

Further objects, and objects relating to details and economies of construction and operation, will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification. The invention is clearly defined and pointed out in the claims.

A structure, which is a preferred embodiment of my invention, is clearly illustrated in the accompanying drawing, forming a part of this specification, in which:

Figure I is a partial side elevation of a vacuum sweeper embodying the features of my invention, showing the nozzle and attaching means.

Fig. II is an enlarged detail perspective view of the nozzle block of my vacuum sweeper with the dust bag withdrawn from the sweeper, with the dust bag cap separated therefrom.

Fig. III is a detail longitudinal section through the vacuum sweeper having my improved nozzle and dust bag structure.

Fig. IV is an enlarged detail vertical section through the dust bag and chamber of my vacuum sweeper showing a modification of the dust bag cap and the manner in which the same is fitted and retained to the dust bag.

Fig. V is a perspective view of the modified form of my dust bag cap seen in Fig. IV.

Fig. VI is an enlarged detail longitudinal section through my vacuum sweeper showing a modified structure of the dust bag closure.

Fig. VII is a detail perspective view, similar to Fig. II, of the modified form.

In the drawing, similar reference characters

refer to similar parts throughout the several views.

Referring to the numbered parts of the drawing, my vacuum cleaner consists of the casing 1 having the detachable nozzle 2 at the front end thereof, which is secured to the same by the hooks 3 engaging the pins 4, which pins are each eccentrically located on a locking handle 5 at each side. Each locking handle is suitably pivoted to the corresponding plate 6 which is secured to the side of the casing 1. The pair of hooks 3 are pivotally mounted in the nozzle plates 7 by a connecting integral rock-shaft, as shown.

My invention is shown as applied to a combined carpet sweeper and vacuum cleaner, although it is adapted for use on suction cleaners which do not have the sweeper attachment.

The casing 1 is mounted on the rear driving wheel 8 and on the carpet sweeper wheels 9 toward the front, the carpet sweeper being provided with the usual brush 16 and dumping dust pans 17. Within the casing are located the suction bellows 10, which are connected by the pitman 11 to the rear driving wheel crank shaft 12, as is usual in this type of sweeper.

Beneath the bellows is located the dust bag chamber formed by the upper wall 13 and lower wall 14 and rear and side walls 15. Within the dust bag chamber is located the dust bag, which comprises the rigid frame 18 open at its inner end, and also provided with an open forward end embracing the nozzle opening. This is carried by plate 19' and nozzle flange 19 on the nozzle 2. The frame 18 is covered by a suitable porous fabric 20. The inner end is provided with a cap formed of sheet metal having a top portion 24, side flanges 21, 22 and end flanges 23, 23 formed from the metal by cutting away the corners and bending the flanges in the usual way of forming such a box-like structure. Within the cap is disposed a gasket 27 of felt or other suitable material. A spring handle 25, with a rearwardly-projecting portion 26 at its center, is secured to the top of the cap, and the dust bag frame is of such dimension that when the nozzle is clamped in position at the front, the central portion 26 of the spring handle will strike the rear wall of the dust bag

chamber and hold the same firmly in place with a yielding pressure, thus avoiding the necessity of accurately fitting the parts.

In the preferred form I show the dust bag 5 secured at its forward end to a flange 19 surrounding the nozzle opening and forming an extension thereof into the dust bag. The flange 19 is secured to the back plate 19' of the nozzle, and a suitable packing 28 may 10 be interposed between these parts to make them dust tight. The nozzle is guided to place by the projecting fingers 7' contacting with the pin 7'' on the side of the case, and by the projecting finger 33 engaging be- 15 neath the bottom wall of the dust bag chamber.

In place of providing the contacting projection 26 to secure the elasticity of the handle, the handle can be made straight, as seen 20 in Fig. V at 29, and may be urged in place by contacting with the centrally disposed block 29' within the dust chamber, as seen in Fig. IV.

In the modified form, seen in Figs. VI 25 and VII, the cap is permanently attached to the dust bag and the same is made separable at its forward end by engaging the flange 31, which is provided with a gasket 32 which is engaged by the frame 30 around the 30 mouth of the bag at that point. The flange 31 extends far enough in to insure the removal of the dust bag with the nozzle, and the same can be separated from the nozzle by use of the handle 25, as in the first in- 35 stance, the handle not being in any way changed. This enables the entire dust bag to be handled independent of the nozzle, which is sometimes an advantage.

In Figs. VI and VII I have shown the cap 40 removable, as well as the bag separable at the nozzle end. Of course, in that structure, the cap could be permanently attached, and it is desirable that the structure be enforced by this flange cap whether it is per- 45 manently attached or not, as it gives rigidity to the entire structure. There is a slight advantage in having the bag and its frame separable at both ends.

It will thus be seen that my invention 50 is capable of considerable modification. Springs of various kinds might be disposed at the point indicated and secure very satisfactory results in holding the dust cap in place, or in holding the dust bag closed. I 55 have shown the structure a loop spring handle, however, which is most efficient and which I desire to claim specifically. The eccentric means for holding the nozzle in place is desirable, as it exerts a strong pres- 60 sure on the dust bag and cap. I am aware, however, that the structure can be quite effectively used with a simple fastening that does not use the eccentric. I desire to claim

the broad features of the invention, and also the specific form in which I have shown the 65 same.

Having thus described my invention, what I claim as new and desire to secure by Let- 70 ters Patent is:

1. In a vacuum cleaner, the combination 70 of the casing provided with a dust bag chamber, a closure, a dust bag open at its inner end, and having a rigid frame sup- 75 porting the same from end to end and around said opening, secured to the closure, a cap with flanges embracing the open end of said dust bag and frame, a gasket within 80 the cap, a spring handle for the cap with a central projecting portion to contact with the inner wall of the dust bag chamber, and 80 attaching means for the said closure for retaining the dust bag mouth against the gas- ket in the cap, as specified.

2. In a vacuum cleaner, the combination 85 of the casing provided with a dust bag chamber, a closure, a dust bag open at its inner end, and having a rigid frame supporting the same from end to end and around said 90 opening, secured to the closure, a cap with flanges embracing the open end of said dust bag and frame, a gasket within the cap, a 95 spring handle for the cap to contact with the inner wall of the dust bag chamber, and attaching means for said closure for retain- ing the dust bag mouth against the gasket 95 in the cap, as specified.

3. In a vacuum cleaner, the combination of the casing provided with a dust bag 100 chamber, a closure, a dust bag open at its inner end, and having a rigid frame sup- 100 porting the same from end to end and around said opening, secured to the closure, a cap with flanges embracing the open end of said dust bag and frame, a spring handle 105 for the cap to contact with the inner wall of the dust bag chamber, and attaching means for said closure for retaining the dust bag 105 mouth in the cap, as specified.

4. In a vacuum cleaner, the combination 110 of the casing provided with a dust bag chamber, a closure, a dust bag having a rigid frame supporting the same from end 110 to end with an opening surrounded by the said frame, a gasket cooperating with the said open end, and a spring handle disposed 115 at the inner end for holding the said parts together by yielding pressure, and an at- taching means for the closure for maintain- ing the parts in such relation, as specified.

In witness whereof, I have hereunto set 120 my hand and seal in the presence of two wit- nesses.

JOHN W. SHANAHAN. [L. S.]

Witnesses:

JOHN M. BENNETT,

JOHN A. COLLINS.