Sept. 5, 1939. N. BERMAN 2,171,909

DUST BAG FOR VACUUM CLEANERS

Filed Oct. 25, 1938

Fig. 1.

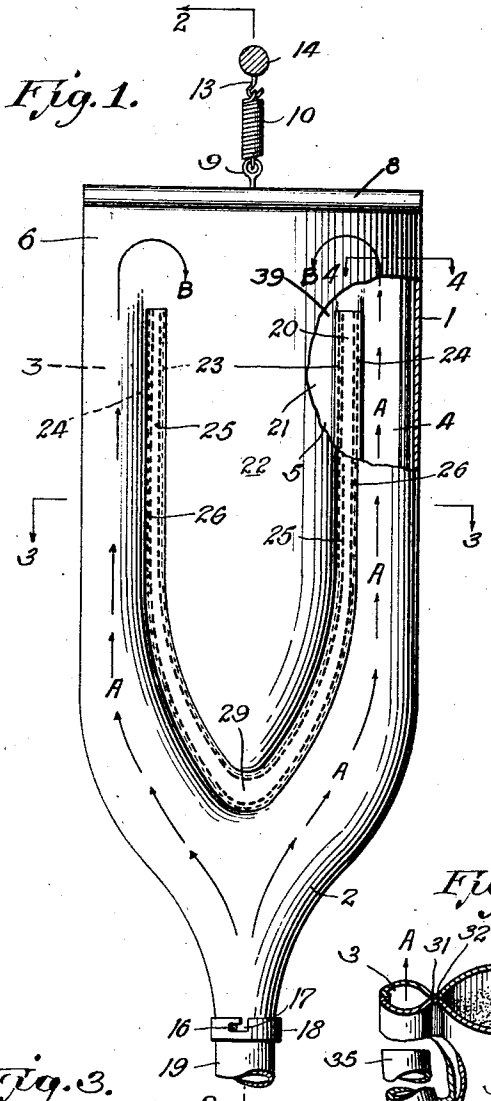


Fig. 2.

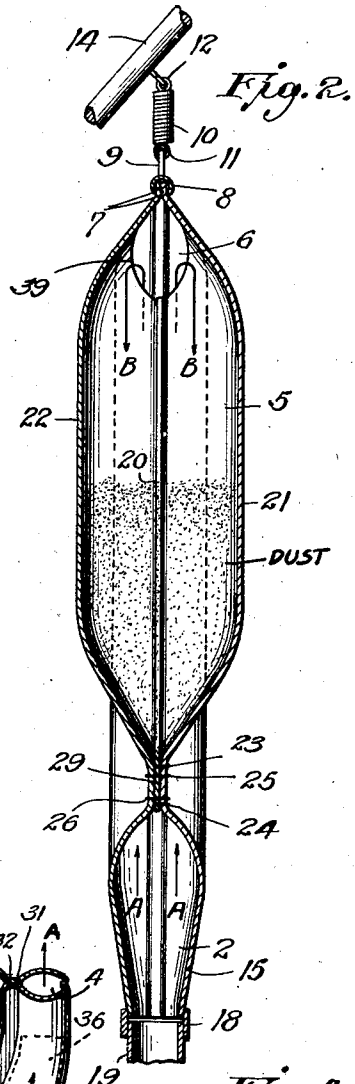


Fig. 3.

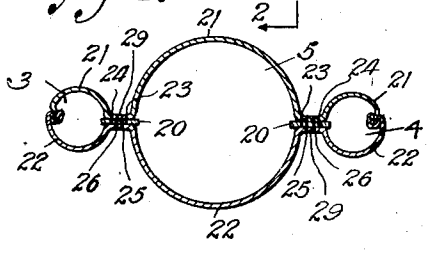


Fig. 5.

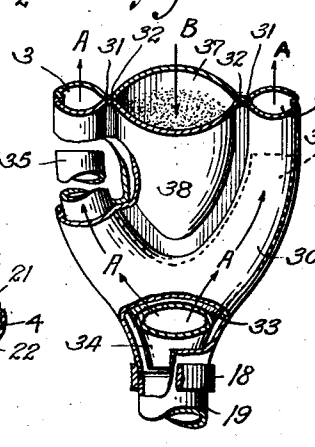
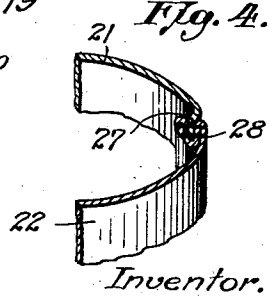


Fig. 4.



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DUST BAG FOR VACUUM CLEANERS

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Application October 25, 1938, Serial No. 236,907

8 Claims. (Cl. 183—51)

This invention relates to vacuum cleaner bags and has as its primary object the production of a bag wherein the particles already sucked into the bag will not interfere with those which are subsequently drawn into the bag.

This invention has as an additional object the production of a vacuum cleaner bag wherein the particles drawn into the bag are not subject to violent agitation after they are deposited within the bag.

Still another object of this invention is the production of a vacuum cleaner bag of the type hereinabove described which will be comparatively easy to manufacture and comparatively inexpensive to produce.

I accomplish each of the foregoing as well as other objects by forming the vacuum cleaner bag with a particle receiving pocket positioned intermediate a pair of particle carrying ducts and with a chamber which communicates with said pocket and each of said ducts. Each of these ducts also communicates with the particle intake end of said bag. The particle intake end of the bag is preferably in the form of a chamber terminating in a bottle neck which is attached to the vacuum cleaner neck.

For the purpose of illustrating my invention, I have shown in the drawing which forms a part hereof, and will now describe, vacuum cleaner bags made in accordance with my novel concepts.

In said drawing, Figure 1 is a front view of the novel vacuum cleaner bag in the attach d position or operative position. A fragment of the vacuum cleaner handle to which the vacuum cleaner bag supporting spring is attached and a fragment of the vacuum cleaner neck to which the lower end of the vacuum cleaner bag is attached is also shown. The remaining parts of the vacuum cleaner have been broken away to permit the showing of the vacuum cleaner bag on as large a scale as possible. Portions of the vacuum cleaner bag have also been broken away to show otherwise hidden parts.

Figure 2 is a section on the line 2—2 of Figure 1.

Figure 3 is a section on the line 3—3 of Figure 1.

Figure 4 is an enlarged fragment of that portion of one of the duct walls containing the outside seam.

Figure 5 is a front view of the lower end of a modification of the vacuum cleaner shown in Figure 1. Portions of this fragment have been broken away to show otherwise hidden parts.

Referring more particularly to the drawing wherein similar reference numerals denote similar parts, reference numeral 1 designates the vacuum cleaner bag as a unit. This bag comprises the intake chamber 2, the particle carrying ducts 3 and 4, the particle receiving pocket 5, and the duct and pocket communicating chamber 6.

The free edges 7 of the upper end of the duct and pocket communicating chamber 6 are encompassed by the channel like spring closure member 8. The closure member 8 has attached thereto the eye 9 which serves as a point of attachment for one end 11 of the spring 10. The other end 12 of said spring 10 is attached to a hook 13 which depends from the vacuum cleaner handle 14.

The lower end 15 of the intake chamber 2 has extending therefrom the pin 16 which is received within the bayonet slot 17 formed in the collar 18 which is attached to the vacuum cleaner neck 19.

The particle carrying ducts 3 and 4 and the particle receiving pocket 5 are formed by placing a U-shaped strip of tape 20 intermediate each of the walls 21 and 22 of the vacuum cleaner bag 1 and then by connecting the walls 21 and 22 with the tape 20 by means of the lines of stitching 23, 24, 25, and 26. This attachment may be made in any manner desired. One of the methods which I have used is to attach the tape 20 to the wall 21 by means of the lines of stitching 23 and 24. Thereafter, the walls 21 and 22 are joined together along their respective edge by the lines of stitching 27 and 28. Thereafter, the wall 21 and the tape 20 attached thereto are joined to the wall 22 by the lines of stitching 25 and 26 which are placed within the lines of stitching 23 and 24. The lines of stitching 23 and 24 serve as a guide to the operator in making the lines of stitching 25 and 26. This structure results in the formation of a substantially air tight wall or baffle 29 which separates the pocket 5 from the ducts 3 and 4.

It is not necessary that the wall 29 separating the pocket 5 from the ducts 3 and 4 be absolutely air tight. I have found that I can secure good results by omitting the tape 20 and forming the baffle such as 29 by merely stitching together the bag walls 21 and 22 by lines of stitching such as 23, 24, 25, and 26.

The bag 30 shown in Figure 5 differs from that shown in Figures 1 to 4 inclusive only in the following respects:

(a) The tape 20 has been omitted.

(b) Lines of stitching 31 and 32 have been

substituted for the lines of stitching 23, 24, 25, and 26.

(c) A Y-shaped air- tight tube 33 has been inserted in the lower portion of the bag 1, thereby making the lower part of the pocket 37 air-tight. The lower or vertical portion 34 of the Y is positioned within and wholly occupies the intake chamber. It therefore functions as the intake chamber of the modification of the bag shown in Figure 5. The arms 35 and 36 of the Y extend into the ducts 3 and 4 a short distance beyond the bottom 38 of the pocket 37.

The vacuum bag shown in Figure 5 can be made by any one of a number of methods. I made it by forming the body of the bag 30 by joining together the two walls 20 and 21 along their edges in the manner now followed in producing vacuum cleaner bags. Thereafter, I inserted the Y-shaped tube 33 in said bag in the position shown in Figure 5. Then by stitching together the walls 20 and 21 by means of the U-shaped line of stitches 31 and 32. These stitches anchor the tube 33 in place and form the ducts 35—3, 36—4, and the pocket 37.

It is to be noted that the bags herein disclosed differ from bags now on the market only in the fact that the U-shaped line of stitches (elements 23, 24, 25, and 26 in Figures 1 to 4; elements 31 and 32 in Figure 5), join together the walls 21 and 22 in such a manner as to form the intake chamber (element 2 in Figures 1 to 4; element 34 in Figure 5), the particle carrying ducts (elements 3 and 4 in Figures 1 to 4; elements 35—3 and 36—4 in Figure 5), the particle receiving pocket (element 5 in Figures 1 to 4; element 37 in Figure 5), and the duct and pocket communicating chamber (element 6 in Figures 1 to 5). In the embodiments here shown, the intake chamber and the two ducts combine to form a Y-shaped chamber, the particle receiving pocket is positioned between the arms of the Y, and the duct and pocket communicating chamber is positioned on top of the Y.

The vacuum cleaner bags shown in the drawing function in exactly the same manner. When attached to the vacuum cleaner and when the mechanism which is drawing the particles into the vacuum cleaner is in operation, the particles pass from the neck 19 of the vacuum cleaner into the intake chamber (element 2 of Figures 1 to 4; element 33 in Figure 5) of the vacuum cleaner bag, whence they are carried in the direction of the arrows A into the particle carrying ducts (elements 3 and 4 in Figures 1 to 4; elements 35—3 and 36—4 in Figure 5), whence they are carried into the duct and pocket communicating chamber 6, whence they fall in the direction of the arrows B through the mouth 39 of the particle receiving pocket (element 5 in Figures 1 to 4; element 37 in Figure 5) into said pocket. Once in the pocket, the dust is removed from the zone of comparative violent air agitation and flow, and therefore remains at rest. As a result the dust which is already in the bag does not impede either the flow or entry of new particles into the bag. This obviously increases the efficiency of the vacuum cleaner. When one desires to remove the dust from the bag, it is only necessary to remove the spring closure member and empty the dust through the now open mouth of the bag.

The foregoing disclosure is to be understood as being by the way of illustration only and not by the way of limitation, since many changes may be made in the structures herein disclosed without departing from the spirit of my invention.

Having described my invention, what I claim as new and useful is:

I claim:

1. A vacuum cleaner bag comprising a body member having means formed thereon for attaching said bag to the particle intake member of the vacuum cleaner; a pair of particle carrying ducts formed in said body member, each of said ducts communicating at one of its ends with said particle intake member; a particle receiving pocket formed in said body member intermediate said ducts; and communicating means formed in said body member and connecting said particle receiving pocket with each of said particle carrying ducts.

2. A vacuum cleaner bag comprising a body member having means formed thereon for attaching said bag to the particle intake member of the vacuum cleaner; a particle intake chamber formed in said body member; a pair of particle carrying ducts formed in said body member, each of said ducts communicating at one of its ends with said particle intake chamber; a particle receiving pocket formed in said body member intermediate said ducts; and a duct and pocket communicating chamber formed in said body member, said duct and pocket communicating chamber being in communication with each of said particle carrying ducts and with the mouth of said particle receiving pocket.

3. A vacuum cleaner bag comprising a body member having formed therein two spaced apart openings, one of said openings serving as a particle intake opening for said bag and the other of said openings serving as the outlet opening of said bag; means carried by said body member at said particle intake opening for attaching said body member to the neck of the vacuum cleaner; a particle intake chamber formed in said body member and communicating with said particle intake opening; a pair of particle carrying ducts formed in said body member, each of said ducts communicating at one of its ends with said particle intake chamber; a particle receiving pocket formed in said body member intermediate said ducts; and a duct and pocket communicating chamber formed in said body member, said duct and pocket communicating chamber being in communication with each of said ducts, with the outlet of said particle receiving pocket, and with said mouth opening of said bag.

4. A vacuum cleaner bag comprising a body member having formed therein a particle intake chamber and a duct and pocket communicating chamber spaced from said particle intake chamber; a pair of spaced apart particle carrying ducts formed in said body member, one of the ends of each of said ducts communicating with said particle intake chamber and the other of the ends of each of said ducts communicating with said duct and pocket communicating chamber; and a particle receiving pocket formed in said body member intermediate said particle carrying ducts, said particle intake chamber and said duct and pocket communicating chamber with the mouth of said particle receiving pocket communicating with said duct and pocket communicating chamber.

5. A vacuum cleaner bag comprising a body member having a Y-shaped chamber formed therein, the stem of said Y-shaped chamber serving as the particle intake chamber of said bag and each of the arms of said Y-shaped chamber serving as a particle carrying duct for said bag; a particle receiving pocket formed in said bag between the arms of said Y-shaped chamber; and

a duct and pocket communicating chamber formed in said bag connecting the upper end of each of said arms of said Y-shaped chamber with the mouth of said particle receiving pocket.

6. A vacuum cleaner bag comprising a hollow body member; at least one U-shaped line of stitches extending through and uniting the walls of said body member at a point intermediate the edges of said body member, said stitches dividing said body member into a Y-shaped chamber and forming a pocket positioned between the arms of said Y-shaped chamber; and a third chamber positioned above said Y-shaped chamber and said pocket; the stem of said Y-shaped chamber serving as the particle intake chamber of said bag, each of the arms of said Y-shaped chamber serving as a particle carrying duct of said bag, said pocket serving as the particle receiving chamber of said bag, and said third chamber serving as the communicating means between each of said particle carrying ducts and said particle receiving pocket.

7. A vacuum cleaner bag comprising a hollow body member having a particle intake opening formed therein; a Y-shaped tube positioned in said body member with the mouth of the stem of said Y-shaped tube in communication with said particle intake opening at least one U-shaped line of stitches extending through and connecting the walls of said body member at a point intermediate the edges of said body member with the lower portion of said U falling within, following the outline of, and being contiguous to the inner edges of the arms of said Y-shaped tube, said stitches combining with said Y-shaped tube to divide said body member into a Y-shaped chamber and to form a pocket positioned between the arms of said Y-shaped chamber; and a third chamber positioned above said Y-shaped chamber and said pocket; the stem of said Y-shaped chamber serving as the particle receiving chamber of the bag, each of the arms of said Y-shaped chamber serving as a particle carrying duct of said bag, and said third chamber serving as the communicating means between each of said particle carrying ducts and said particle receiving pocket.

8. A vacuum cleaner bag comprising a hollow body member having two spaced apart openings formed therein, one of said openings serving as the particle intake opening for said bag and the other of said openings serving as the outlet opening of said bag; means associated with said outlet opening for closing said opening; a U-shaped strip positioned between the walls of said body member at a point intermediate the edges of said body member; at least one line of stitches extending through and connecting said U-shaped strip with the walls of said body member, said stitches combining with said U-shaped strip to divide said body member into a Y-shaped chamber and to form a pocket positioned between the arms of said Y-shaped chamber; and a third chamber positioned above said Y-shaped chamber and said pocket; the stem of said Y-shaped chamber serving as the particle receiving chamber of the bag, each of the arms of said Y-shaped chamber serving as a particle carrying duct of said bag, and said third chamber serving as the communicating means between each of said particle carrying ducts, said particle receiving pocket, and with said outlet opening.

NATHAN BERMAN.