Jan. 10, 1967 C. E. MEYERHOEFER 3,297,233

VACUUM CLEANER BAG WITH CLOSED TUBE

Filed June 10, 1965

FIG. 1.

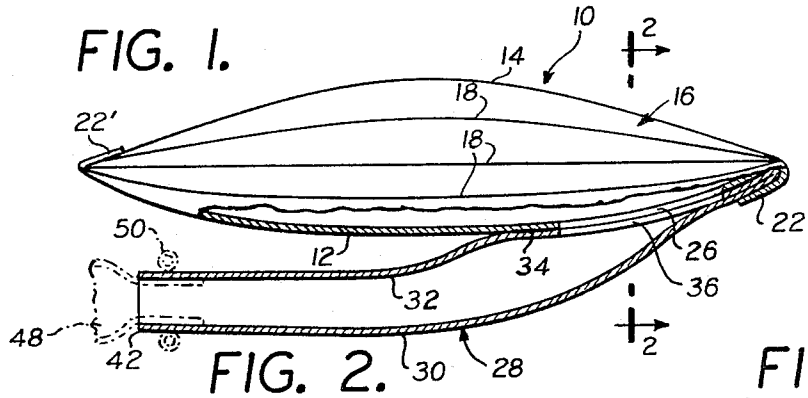


FIG. 2.

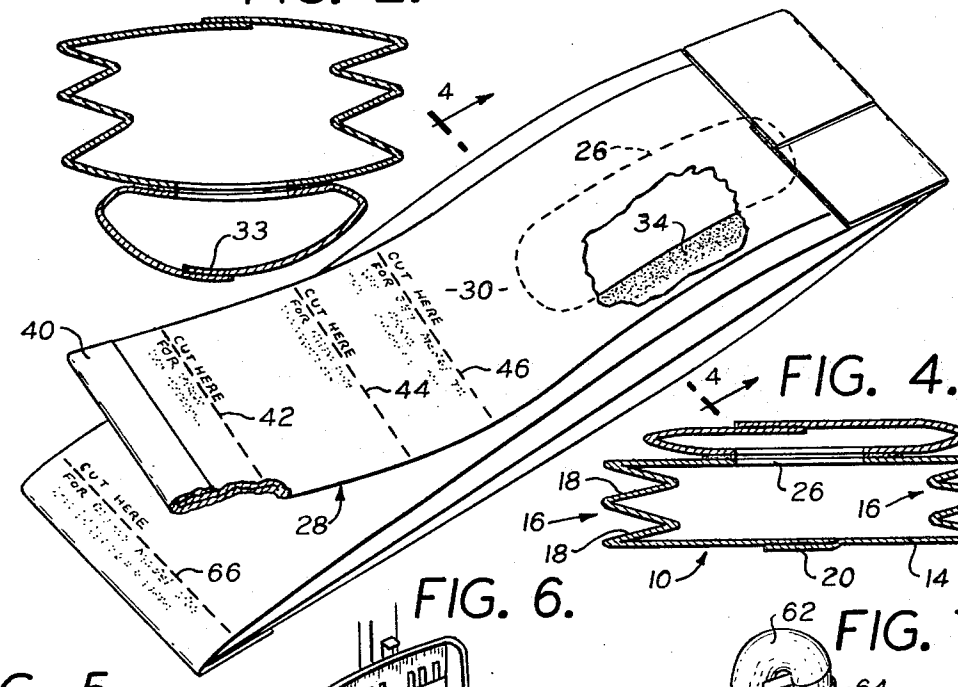


FIG. 3.

FIG. 4.

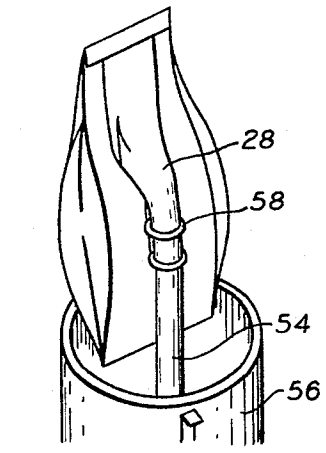


FIG. 5.

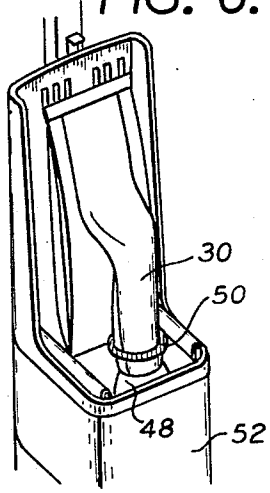


FIG. 6.

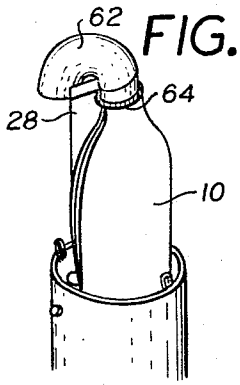


FIG. 7.

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United States Patent Office 3,297,233 Patented Jan. 10, 1967

3,297,233

VACUUM CLEANER BAG WITH CLOSED TUBE

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Filed June 10, 1965, Ser. No. 462,976
6 Claims. (Cl. 229—53)

This invention relates to disposable paper bags for use in vacuum cleaners.

The use of vacuum cleaner bags made of air-pervious paper and having inexpensive construction so that they can be thrown away when filled, has become popular for household use. Such bags may be purchased at hardware stores, markets, and other places dealing in household supplies. Because of the number of different makes of vacuum cleaners and the different models requiring different bags, it has been necessary for dealers to stock a large variety of different bags.

It is an object of this invention to provide a vacuum cleaner bag made of paper and constructed in such a way that it can be used with a greater variety of different vacuum cleaners than has been the case with bags of the prior art.

Another object is to provide a paper bag for vacuum cleaners with a tube communicating with the interior of the bag, and to have both ends of the bag closed, and the end of the tube remote from the bag also closed, both the bag and the tube having indicia thereon at predetermined locations, indicating places where the tube and the bag can be cut off to open the end of the bag or the tube at the right place to fit the bag to a particular make and model of vacuum cleaner. If the bag is used with a vacuum cleaner where the bag is cut off at one end to fit over the outlet of the suction pipe of the vacuum cleaner, then the tube is not used as a conduit, but since the end of the tube is closed, it does not permit the escape of dust from the bag and the tube does provide some additional capacity for air and dust.

Other objects, features and advantages of the invention will appear or be pointed out as the description proceeds.

In the drawing, forming a part hereof, in which like reference characters indicate corresponding parts in all the views:

FIGURE 1 is a side elevation, partly broken away and in section, showing a vacuum cleaner bag made in accordance with this invention and showing one way in which it is used;

FIGURE 2 is an enlarged sectional view taken on the line 2—2 of FIGURE 1;

FIGURE 3 is an enlarged isometric view of the bag shown in FIGURE 1 with the tube at the top of the bag and showing the tube in a flattened condition and before the end is cut off;

FIGURE 4 is a sectional view taken on the line 4—4 of FIGURE 3; and

FIGURES 5, 6 and 7 are diagrammatic isometric views showing how the bag is used on different models of vacuum cleaners.

A bag **10** includes a front panel **12** and a back panel **14** connected together by side panels **16** which have accordion pleats **18**. In the preferred construction, the bag **10** has the panels **12**, **14** and **16** of one-piece construction and is preferably a tube having a lap seam **20** extending lengthwise of the back panel **14**. The bag is made of air-pervious paper which acts as a filter to prevent the escape of dust from air which is blown into the bag, in accordance with the conventional operation of vacuum cleaners.

The bag **10** is closed at both ends. The pleats **18** are

folded flat between the front and back panels **12** and **14**, respectively, and the back panel **14** is folded across a portion of the front panel **12** as a flap **22** (FIGURE 1). The pleats **18** of the side panels **16** may also extend beyond the end of the front panel **12** and be folded across the front panel **12**, in the same manner as the flap **22**, though preferably with each pleat shorter than the next adjacent pleat to facilitate the adhesive connection of the folded parts to the front panel **12**. Details of this construction are not shown in FIGURE 1, in order to make the illustration clearer, but the construction is well understood in the art and its illustration in the drawing is unnecessary for a complete understanding of this invention.

The other end of the bag **10** is closed by a similar construction, but the front panel **12** is folded across a portion of the back panel **14** and the flap at the end of the panel **12** is indicated by the reference character **22'**.

There is an opening **26** through the front panel **12**. This opening **26** is preferably spaced from both sides of the bag and from both ends, though it is substantially nearer to one end than to the other. There is a tube **28** connected to the front panel **12**. This tube **28** is made as a flat tube with a front panel **30** and a back panel **32**. The tube **28** is preferably made with a lap seam **33**, extending in the direction of its length and this lap seam is preferably in the front panel **30**. The back panel **32** is secured to the front panel **12** of the bag by adhesive **34**; and there is an opening **36** in the back panel **32** of the tube in register with the opening **26** of the bag. Since the tube panel **32** is attached to the bag panel **12** by adhesive **34** extending all around the openings **26** and **36**, no air can escape around the edges of these openings **26** and **36** where the tube and bag are secured together. The panels **30** and **32** of the tube **28** are brought together and secured under the flap **22** to close the end of the tube **28** beyond its connection with the front panel **12**.

When originally supplied to the user, the tube **28** is closed, at its end remote from the bag, by a fold **40** (FIGURE 3) in which the folded panels are secured together by adhesive. The tube **28** is narrower than the bag and it is of substantially less circumferential extent, when opened up, because it has no side panels. When the bag is to be used in a vacuum cleaner requiring a tube, the folded end **40** of the tube **28** is cut off. The cut is made at whatever location will make the tube **28** the proper length for the particular vacuum cleaner in which the bag is to be used. For example, the front panel **30** of the tube has indicia **42**, **44** and **46** at different distances from the end showing where the tube is to be cut for a particular model vacuum cleaner. The information identifying the different indicia **42**, **44** and **46** with particular models of vacuum cleaners may be printed on the tube itself, or may be on a direction sheet supplied with the bag.

FIGURE 1 shows the tube **28** cut off at the station of indicia **42**, and shows the tube placed over an air inlet or suction pipe **48** of a vacuum cleaner. The tube **28** is held on the suction pipe **48** by clamping means **50**; such clamping means being different on different models of vacuum cleaners. FIGURE 6 shows the tube **28** connected with the suction pipe **48** of a vacuum cleaner **52** by the clamping means **50**.

If the bag is to be used with a vacuum cleaner having a longer suction pipe, such as the pipe **54** (FIGURE 5) of a vacuum cleaner **56**, then the tube **28** is cut off at one of the other indicia lines **44** or **46** and is held on the suction pipe by clamping means **58**.

The bag of this invention can also be used with vacuum cleaners in which the bag is directly connected with a suction pipe. FIGURE 7 shows such a construction.

A suction pipe **62** extends into an open end of the bag **10** and the bag is held on the suction pipe by clamping means such as a retainer coil spring **64**. In order to make such a connection of the bag to the suction pipe **62**, the end of the bag is cut along a line indicated by indicia **66** and the bag is then opened up sufficiently to extend around the suction pipe **62**. Because of the pleated sides **16**, the bag **10** accommodates itself to suction pipes of different diameter.

When the bag **10** is connected directly to a suction pipe **62**, as shown in FIGURE 7, it will be understood that the tube **28** is not cut and the end of the tube remains closed so that no air can escape from the tube except such air as passes through the air-pervious paper of which the tube is preferably constructed. When the tube is not used as a conduit connected with the suction pipe of the cleaner, it serves the purpose of providing additional capacity for air and dust in the bag. In FIGURE 7 the tube **28** is on the far side of the bag and part of the outline of the tube is indicated.

The bag **10** is made long enough for vacuum cleaners of the make and model requiring the longest bag of any of the group with which the bag is intended to be used. For other vacuum cleaners, which have less bag space, the end portion of the bag remote from its connection with the tube **28**, is creased and folded back under the tube, effectively to shorten the bag, as necessary.

The preferred embodiment of the invention has been illustrated and described, but changes and modifications can be made and some features can be used in different combinations without departing from the invention as defined in the claims.

What is claimed is:

1. A vacuum cleaner bag construction comprising a bag made of air-pervious paper, the bag having front and back panels, and being closed at both ends, a tube having an interior that connects with the interior of the bag through an opening in the front panel of the bag, the sides of the tube being secured to the front panel around the entire periphery of the opening for preventing leakage of air between the sides of the tube and the front panel of the bag around the periphery of said opening, the tube being closed at both ends, and a portion of the length of the tube for a substantial distance from one end being free of any connection with the bag around the entire periphery of the tube corresponding end portions of the bag and tube, where the bag and tube are not connected with one another, being adapted to be cut off to leave the end of the bag or tube open, the periphery of the end of the bag being different from that of the end of the tube for fitting different vacuum cleaners with which the bag is intended to be used.

2. The vacuum cleaner bag construction described in claim **1** characterized by the connection of the tube to the bag and the opening from the tube into the bag being nearer one end of the bag than the other, and the portion of the tube length that is free of the bag being approximately at least half of the length of the tube.

3. The vacuum cleaner bag described in claim **2** characterized by the bag having accordion-pleated side panels connected with the front and back panels along both sides of the bag for increasing the capacity of the bag when the front and back panels are moved apart, the pleats extending lengthwise of the tube and being gathered into the connection of the front and back panels of the bag with one another at the end of the bag remote from the opening of the tube into the bag, and the gathered pleats being part of the periphery of the open end of the bag when the end portion of the bag is cut to open it to fit the vacuum cleaner for which it is intended, and the periphery of the end of the bag when open being substantially larger than the periphery of the tube.

4. The vacuum cleaner bag described in claim **3** characterized by the tube being made of paper and having a plurality of cutting zones indicated thereon at different distances along its length corresponding to different vacuum cleaner sizes with which it is intended to be used.

5. The vacuum cleaner bag described in claim **4** characterized by other indications on the bag near the end where the front and back panels are connected together remote from the connection of the bag and the tube for indicating a location where the bag is to be cut off to open one end of the bag for connection with an air inlet of a particular vacuum cleaner.

6. The vacuum cleaner bag described in claim **5** characterized by the tube being made of air-pervious paper and providing added filter area for the combined bag and tube.

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