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3,432,998

END CLOSURE FOR DISPOSABLE VACUUM CLEANER DUST BAG

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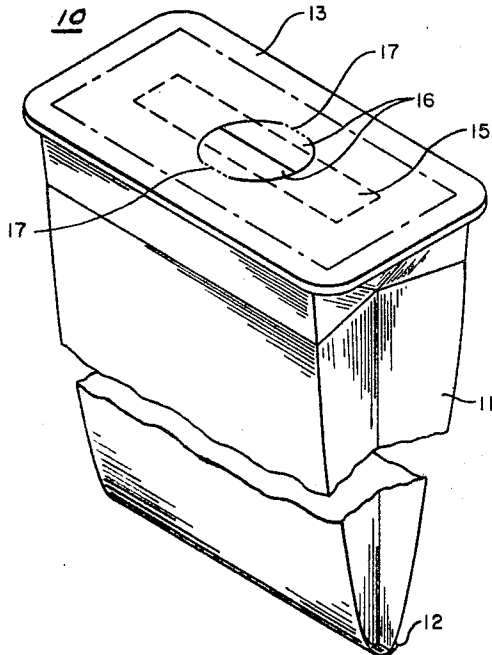


FIG. 1

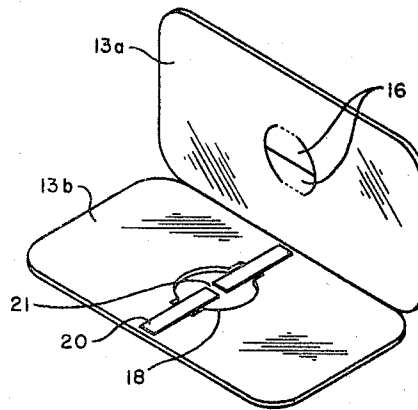


FIG. 2

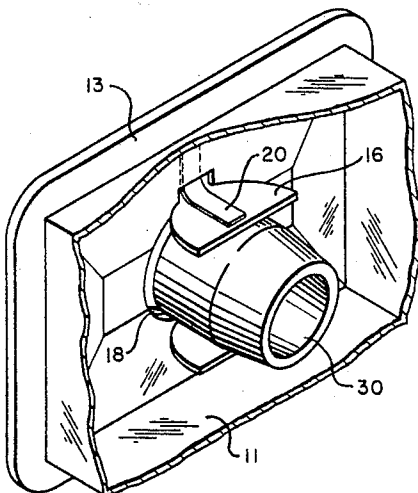


FIG. 4

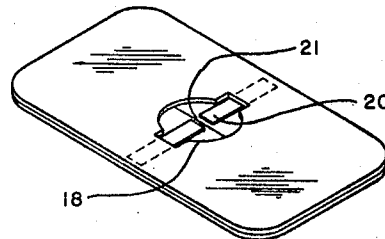


FIG. 3

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END CLOSURE FOR DISPOSABLE VACUUM
CLEANER DUST BAG

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Int. Cl. B01d 29/10

2 Claims

ABSTRACT OF THE DISCLOSURE

An end closure for a dust collector or filter bag having a plurality of flaps which are free to move from a closed to an open position relative to an entrance aperture opening into the associated dust bag. Each of the flaps are urged into their closed position by a resilient strip of spring steel or a resilient synthetic resin material associated with each flap and held in place by sandwiching the strips between two halves of the end closure which are folded upon one another and cemented together.

Background of the invention

Disposable vacuum cleaner dust collectors, or dust bags, are known from U.S. Patents 2,596,806, 2,596,807 and 2,596,808. They comprise a filter bag of porous paper for collecting dirt and dust entrained in the air passing through the bag and an end closure of relatively rigid material such as cardboard which is attached to the open end of the filter bag. The end closure serves to hold the bag in its operative position within the vacuum cleaner housing and, in addition, is provided with means for closing the bag when removed from the cleaner to prevent spillage of the bag's contents. The closure means of the above noted patents comprises one or more latex rubber sheets for this purpose and while this arrangement is entirely satisfactory it is expensive due to the requirement of a costly rubber formulation to prevent tear development at a point of excessive localized stress in the sheets when in use.

Summary of the invention

The relatively large size latex rubber membranes or patches utilized as dust bag closure means heretofore are expensive due to the rubber formulation required for overcoming localized stresses produced in use. Additionally the membranes of the prior art are thin and readily deformable thus creating problems in handling the membranes during manufacture of the end closure which is time consuming. As a result more time and expense is required in the manufacture of the known end closure than would be necessary if the membrane is replaced by a relatively rigid, inexpensive means for closing the aperture of the dust bag end closure.

In accordance with the present invention a strip of spring steel or resilient plastic material is utilized in conjunction with a plurality of flaps which are die cut from the end closure, whereby the flaps are snapped closed and spillage is prevented as reliably as heretofore with a less expensive closure means.

An object of this invention therefore is to provide a disposable dust bag for a vacuum cleaner which is less expensive than the known dust bags of this type.

Another object of the invention is to provide a dust bag having an end closure provided with a plurality of flaps which are urged into their closed position by strips of resilient material.

Further objects, advantages and features of the present invention will become apparent from the following description of the drawing illustrating the invention.

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Brief description of the drawing

FIG. 1 is a perspective view of a disposable paper dust bag or collector having an end closure according to the invention;

FIG. 2 is a perspective view of the end closure showing details of construction;

FIG. 3 is a perspective view showing the end closure of FIG. 2 in a folded position;

FIG. 4 is a partial sectional view showing a suction tube of a vacuum cleaner protruding through the end closure of the dust bag shown in FIG. 1.

Detailed description of drawing

Illustrated in FIG. 1 is a disposable dust collector according to the invention, generally designated 10. The collector 10 comprises a porous paper filter bag 11 closed at one end by a fold 12. The bag is attached to the end closure 13 at its other end by cementing or other suitable means. The end of the filter bag attached to the end closure has an opening 15 which registers with the aperture 18 of the end closure (FIG. 2). In FIG. 1 the aperture 15 is closed by flaps 16 which are hinged by a score line 17 for pivotal movement into the bag 11 through an aperture 18 as shown in FIGS. 2 and 3.

As seen in FIGS. 2 and 3 the end closure is preferably composed of a pair of discs 13a and 13b. One disc, for example 13a, has the flaps 16 formed therein by die cutting as is well known. The other disc 13b has aperture 18 die cut therein and when the disc 13a is folded over onto the disc 13b and cemented in this position the aperture defined by the flaps 16 is coaxial with aperture 18. Since the flaps move into the aperture 18 when open, the aperture 18 is enlarged to receive the flaps 16. A spring 20 is sandwiched between the discs 13a, 13b and severed at 21. When the flaps 16 are moved to open the end closure and admit a suction tube 30 of a vacuum cleaner into the bag 11, (FIG. 4) the flaps 16 bear against the severed portions of spring 20 which urge the flaps to snap shut as soon as the vacuum cleaner suction tube is removed from the dust collector 10.

It will be apparent from the foregoing that a strip of resilient plastic material may be substituted for the spring steel strip. Also it is contemplated that each of the discs 13a and 13b may be die cut to provide each disc with a pair of flaps which are cemented together with the ends of spring 20 sandwiched therebetween.

The foregoing description of a presently preferred embodiment of the invention is given by way of example and it is not intended that the invention be limited to the exact details noted above.

What is claimed is:

1. An article of manufacture comprising an end closure for a filter bag wherein the improvement comprises; an end closure having a pair of disc members juxtaposed one upon the other, one of said disc members having an aperture therein and the other of said disc members having said plurality of flaps integral therewith; said flaps being defined by die cut lines and hingedly connected on said other disc by score lines, a strip of spring steel operatively associated with each said flap, each of said spring steel strips having one end portion freely overlying the associated flap and having its remaining portion sandwiched between said disc members.

2. An article of manufacture according to claim 1 with the addition of a filter bag connected to the surface of said disc having said aperture whereby said flaps in open position extend through said aperture and into said bag.

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55—377, 378, 381; 229—62.5; 137—512.5; 285—7;
 15 251—149.2; 150—3; 220—24

Notice of Adverse Decision in Interference

In Interference No. 97,682 involving Patent No. 3,432,998, D. F. Downey,
END CLOSURE FOR DISPOSABLE VACUUM CLEANER DUST BAG,
final judgment adverse to the patentee was rendered May 23, 1973, as to claim 1.
[*Official Gazette February 26, 1974.*]