

[54] **DUST RECEPTACLE FOR A VACUUM CLEANER**

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[51] Int. Cl..... B01d 46/02

[58] Field of Search..... 55/367, 381, 382; 229/62.5; 150/9

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[57] **ABSTRACT**

An open-ended paper bag of a self-sealing dust receptacle for a vacuum cleaner is closed by an end plate having an elastic membrane extending across an opening therein. An elongated tongue fixed to the end plate overlies a central portion of the membrane and covers an aperture therein which is smaller than the opening in the end plate. The tongue has a diagonally extending cut which is at an acute angle to its longitudinal axis and defines two fingers having overlapping outer pointed ends operable to move through the aperture and swing inward from the plane of the plate by force applied thereto. With cessation of such force the fingers are biased toward the plane of the plate by the elastic membrane and close the aperture in the membrane.

Two portions of the end plate are movable about a fold line between two positions in one of which they are in the same plane and in another of which they are in abutting relation at right angles to such plane. The diagonally extending cut in the tongue is at such fold line. The plate has two spaced apart slots at such fold line to receive lugs at the open end of a paper bag formed by tabs in the pleated end walls when the pleats are compressed and held together. The bag side walls have notched zones at the open end of the bag which extend between the lugs and are fixed to the inner faces of the two portions of the end plate by adhesive material when such portions are moved into abutting relation with the notched zones therebetween.

14 Claims, 8 Drawing Figures

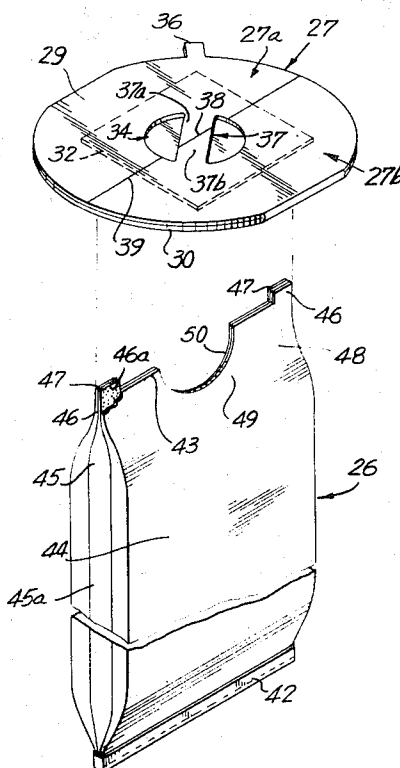


FIG. 1

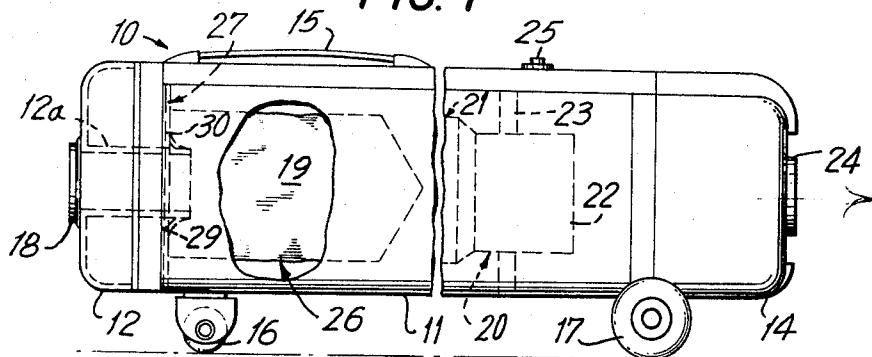


FIG. 2

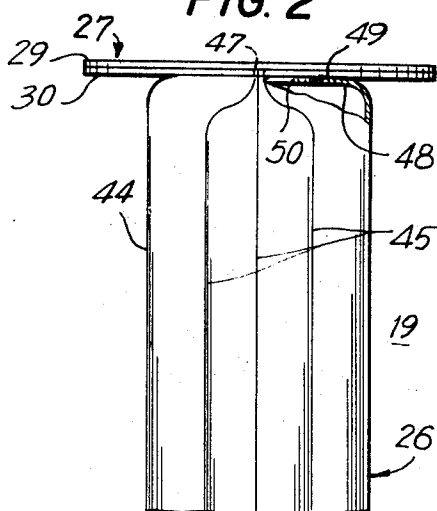


FIG. 3

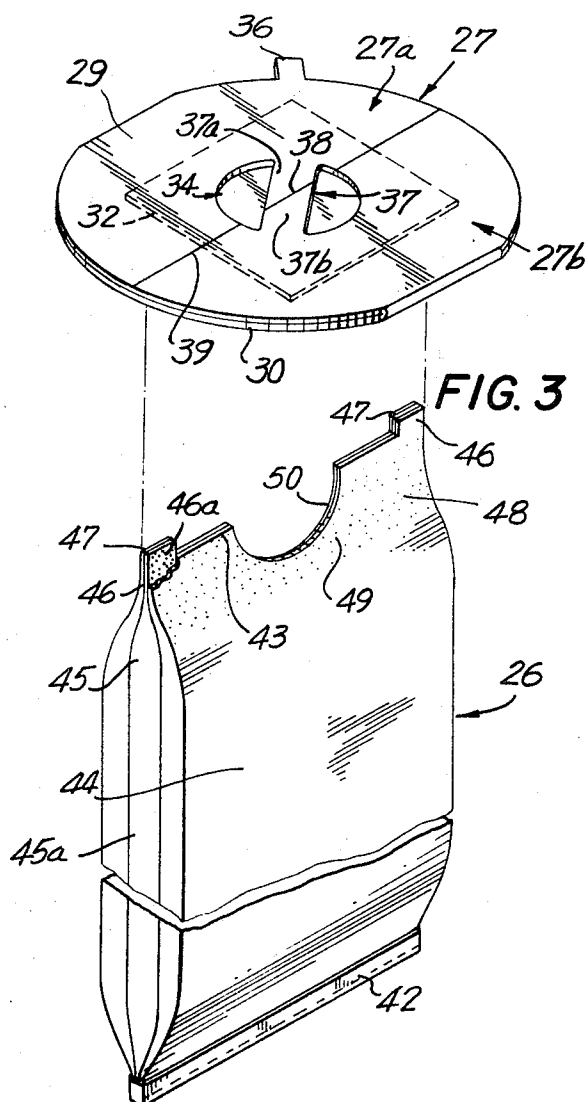


FIG. 4

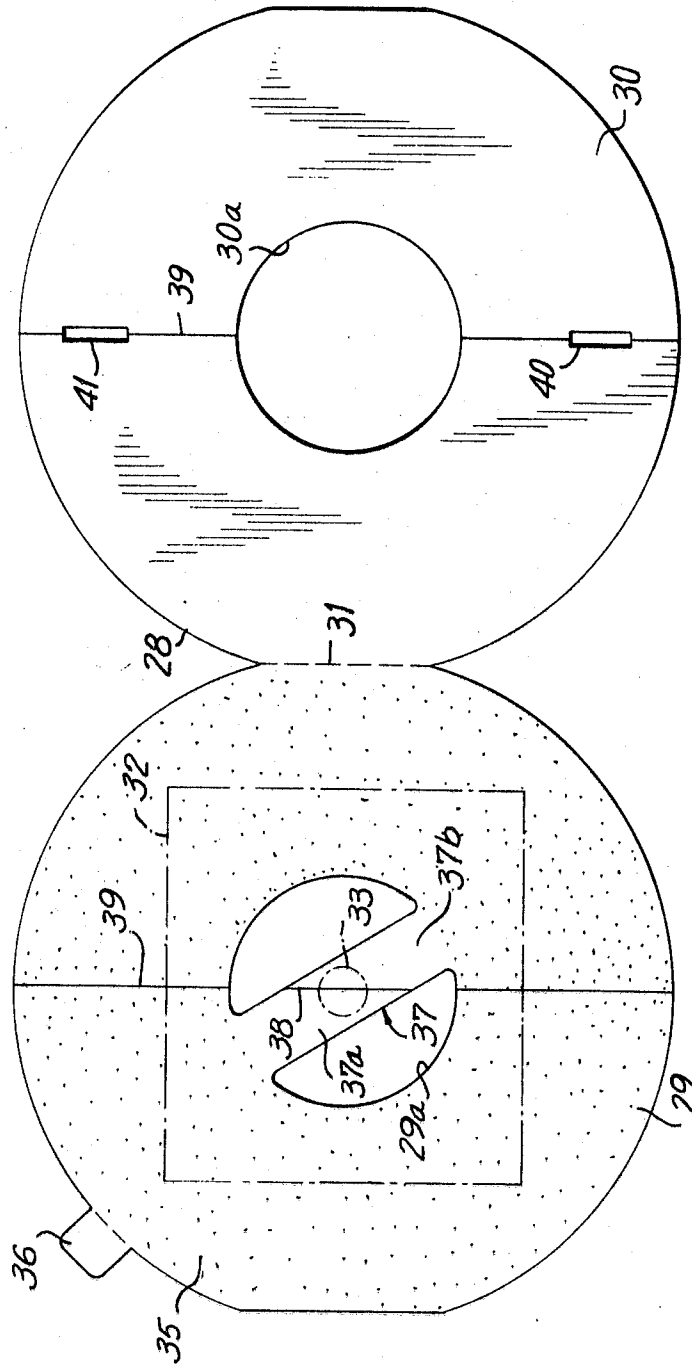
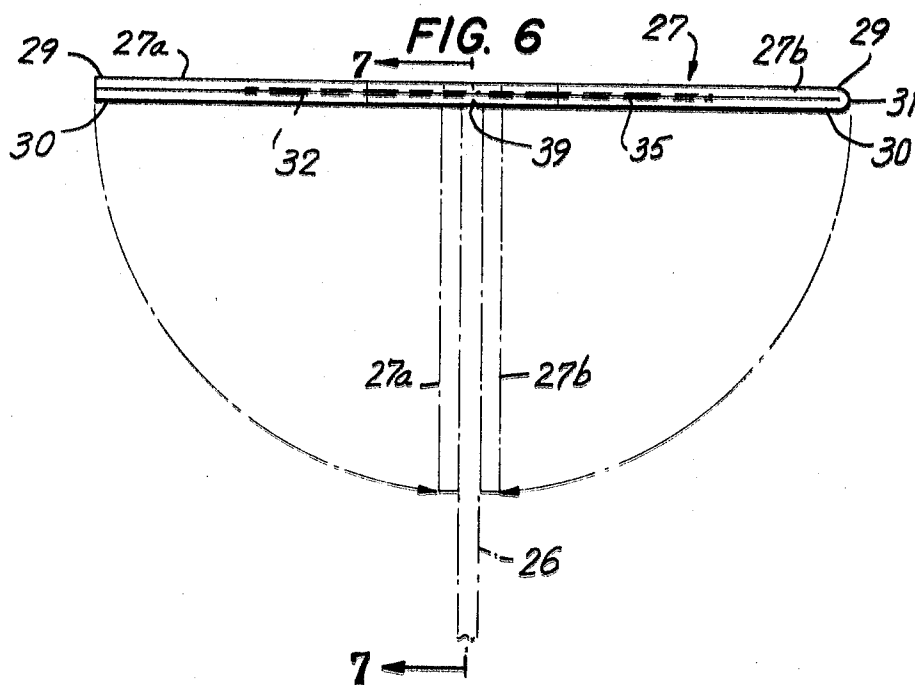
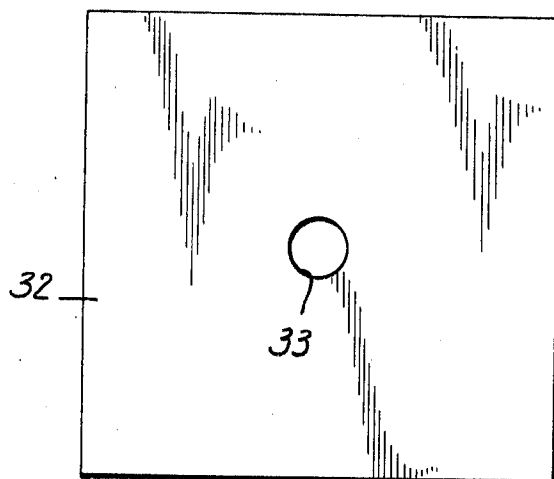
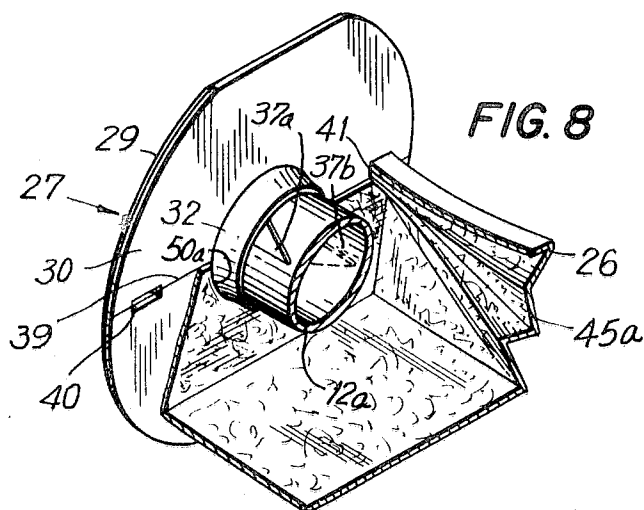
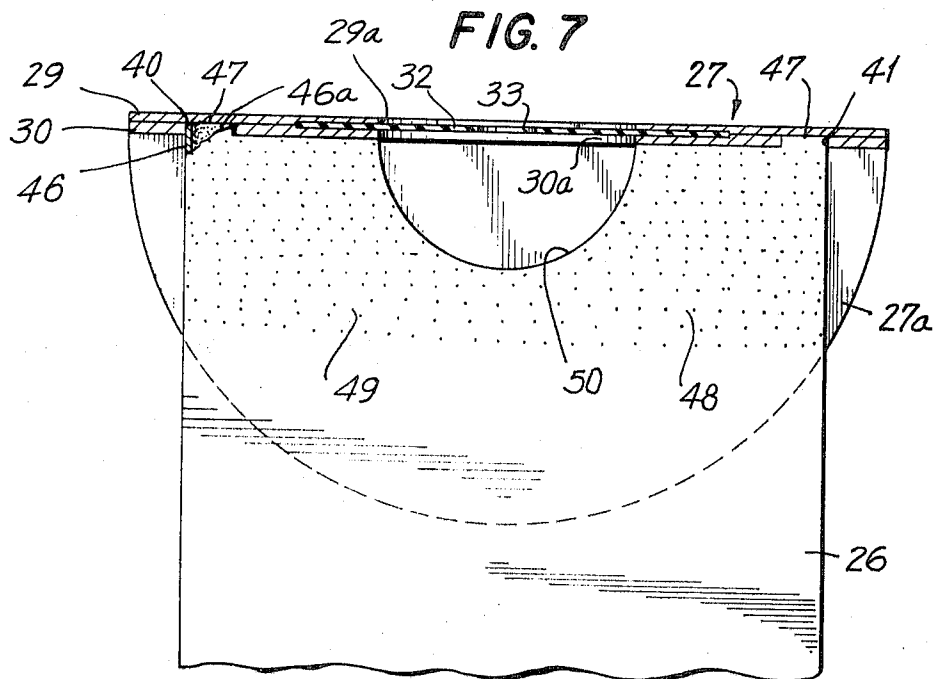


FIG. 5





DUST RECEPTACLE FOR A VACUUM CLEANER

BACKGROUND OF THE INVENTION

1. Field of the Invention

Disposable vacuum cleaner dust receptacles usually comprise a paper bag and an end cover formed of cardboard, for example, having a hole into which a tubular member can be inserted for flowing dust-laden air into the paper bag. The hole can be provided with a seal that automatically closes when the tubular member is removed from the paper bag, such seal being of the "self-sealing" type.

2. Description of the Prior Art

In self-sealing dust receptacles of the type heretofore provided an elastic membrane extends across an opening in a stiff end plate formed of cardboard, for example. A narrow strip or tongue is fixed to the end plate and overlies a central portion of the membrane and covers an aperture therein which is smaller than the opening in the end plate. The tongue or strip usually is in one piece and its opposite ends are integrally united to the end plate at diametrically opposite peripheral edge portions of the opening. A tubular member for flowing dust-laden air into the dust receptacle is adapted to be moved through the opening in the end plate, the tubular member functioning to stretch the membrane and enlarge the aperture therein.

It has been the practice heretofore to provide a narrow strip or tongue with a weakened zone at one end thereof at the region it is integrally united to the end plate at the periphery of the opening. When the tubular member is moved through the opening in the end plate it severs and cuts the tongue at the weakened zone at one end thereof to form a single finger which extends completely across the opening at its widest part. Movement is imparted to the single finger through the aperture in the membrane by force applied thereto by the tubular member and the finger swings inward from the plane of the end plate. When the tubular member is withdrawn from the end plate and force no longer is applied to the finger, the elastic membrane functions to bias the finger toward the plane of the plate and cover the aperture in the membrane.

It has been proposed to employ end plates for dust receptacles in which two portions thereof are movable about a fold line between two positions in one of which the portions are in the same plane and in another of which they are at right angles to such plane and abut one another. End plates of this type possess the advantage that pleated paper bags can be conveniently attached to them when the end plates are folded. This lends itself to automatic fabrication of the dust receptacles which reduces manufacturing costs.

End plates, which do not have two portions movable about a fold line and employ a tongue providing a single finger extending completely across the opening in the plate, cannot be used with pleated paper bags of the kind just referred to which is objectionable. This is so because, if such an end plate were scored to provide a fold line which bisects the end plate opening and the two portions of the plate were moved toward and from one another, the single finger extending across the fold line would be damaged and its ability to provide a self-sealing closure would be impaired.

BRIEF SUMMARY OF THE INVENTION

It is an object of my invention to provide a self-

sealing dust receptacle for a vacuum cleaner which is inexpensive to manufacture and lends itself to automatic fabrication and provides a substantially airtight seal when the tubular member for flowing dust-laden air therein is withdrawn from the inlet of the dust receptacle end plate.

I accomplish this by providing a dust receptacle having an open-ended paper bag closed by an end plate provided with an elastic membrane extending across an opening therein. An elongated tongue fixed to the end plate overlies a central portion of the membrane and covers an aperture therein which is smaller than the opening in the end plate. The tongue has a diagonally extending cut which is at an acute angle to its longitudinal axis and defines two fingers having overlapping outer pointed ends operable to move through the aperture and swing inward from the plane of the plate by force applied thereto by the tubular member. When the tubular member is withdrawn from the air inlet the fingers are biased toward the plane of the plate by the elastic membrane and close the aperture in the membrane.

Another object is to provide a dust receptacle in which the end plate has two portions which are movable about a fold line between two positions in one of which they are in the same plane and in another of which they are in abutting relation at right angles to such plane. The diagonally extending cut in the tongue is at such fold line. The plate has two spaced apart slots at such fold line to receive lugs at the open end of a paper bag formed by tabs in the pleated end walls when the pleats are compressed and held together. The bag side walls have notched zones at the open end of the bag which extend between the lugs and are conveniently fixed to the inner faces of the two portions of the end plate when such portions are moved into abutting relation with the notched zones therebetween. When the two portions of the end cover are moved into the same plane the notched zones at the flat sides of the bag and the end cover, to the inner face of which such zones are fixed, define the closed end of the dust receptacle with the notches in the opposing side walls forming an opening which is in alignment with the inlet in the end cover. Since the fingers defined by the tongue extend toward one another and their outer free ends terminate at the fold line about which the two portions of the end plate are movable with respect to one another, the fingers cannot be injured or damaged when the portions of the end plate are moved about the fold line.

BRIEF DESCRIPTION OF THE DRAWING

In the drawing, FIG. 1 is a side elevational view, partly broken away and in section, of a vacuum cleaner within which is diagrammatically illustrated a disposable dust receptacle embodying my invention;

FIG. 2 is an enlarged side elevational view of the disposable dust receptacle diagrammatically shown in FIG. 1;

FIG. 3 is an exploded perspective view of the several components of the disposable dust receptacle shown in FIG. 2;

FIG. 4 illustrates the end plate of the dust receptacle shown in FIGS. 2 and 3 in which two superimposed sheets thereof are unfolded;

FIG. 5 is a plan view of a thin apertured elastic membrane which is sandwiched between the sheets of the end plate shown in FIGS. 2, 3 and 4;

FIG. 6 is an end view of the end plate shown in FIGS. 2 and 3 with the sheets superimposed, the opposing halves of the end plate being movable about a fold line between a normal solid line position in which they are in the same plane to a dot and dash position in which they are in abutting relation at right angles to the normal solid line position;

FIG. 7 is a sectional view taken at lines 7—7 of FIG. 6 with the opposing halves of the end plate of the dust receptacle depending vertically downward and in abutting relation; and

FIG. 8 is a fragmentary perspective view, partly broken away and in section, of the dust receptacle shown in FIGS. 2 and 3 with the tubular member at the air inlet end of the vacuum cleaner of FIG. 1 extending through the apertured end plate of the dust receptacle.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIG. 1 of the drawing, the invention is shown in connection with a horizontal type vacuum cleaner 10 comprising a casing 11, a front end cover 12 and a rear end cover 14. Casing 11 is provided with a handle 15 and wheels 16 and 17 to facilitate movement thereof on a supporting surface, the signal wheel 16 at the front of the casing being centrally disposed and mounted to turn about a vertical axis as a caster wheel as well as rotate about a horizontal axis.

The front end cover 12 is removably secured to the casing in any suitable manner and formed with an inlet opening 18 through which dust-laden air flows into the casing. A dust receptacle 19 is located in the casing 11 adjacent the front end cover 12 and functions to separate dirt from air.

Flow of air through the casing is effected by a motor and fan unit 20 which includes a centrifugal fan 21 arranged at one end of an electric motor 22 resiliently mounted within the casing 11 at 23 in any suitable manner. The fan 21 receives the air which has passed through the dust receptacle 19 and is substantially free of dust and dirt. The air is discharged from the fan through the motor 22 and eventually passes through the outlet opening 24 in the rear end cover 14. The motor 22 is adapted to be controlled in any suitable manner by a switch 25 mounted on the top of the casing 11.

The dust receptacle 19 includes a bag 26 and an end plate 27. As illustrated in FIGS. 4, 5 and 6, the end plate 27 is fabricated from a blank 28 which is formed from suitable sheet-like material like cardboard, for example, which is generally stiff and yet is flexible to some extent. As seen in FIGS. 4 and 6, the blank 28 is divided into two integral sheets 29 and 30 by a scored line 31. When the two sheets 29 and 30 are folded on the scored line 31, these sheets form plies which are superimposed and form the end plate 27. It will be understood that the end plate embodying my invention may, if desired, be formed from a single sheet of material.

A relatively thin elastic membrane 32, which is formed of an elastomeric material like rubber, for example, has an aperture 33 therein, is sandwiched between the sheets 29 and 30. The membrane 32 extends across an air inlet 34 which is defined by aligned openings 29a and 30a in the sheets 29 and 30, respectively,

the openings 29a and 30a being larger than the aperture 33 in the membrane 32. The sheets 29 and 30 may be fixed to one another in any suitable manner. As shown in FIGS. 4 and 6, the sheets 29 and 30 are held together by an adhesive, as indicated at 35, with the membrane 32 disposed therebetween. The sheet 29 is formed with a locating tab 36 to facilitate insertion and removal of the dust receptacle 19 into and from the interior of the casing 11.

The removable front end cover 12 is provided with an inward extending tubular member or air inlet conduit 12a which, when the cover 12 is in its closed position and the end plate 27 of the dust receptacle 19 is in place in the casing 11, projects through the inlet 34 of the end plate. When this occurs the tubular member 12a engages the membrane 32 and stretches it with the result that the aperture 33 becomes enlarged and the tubular member penetrates the membrane and passes through the enlarged aperture 34. In its stretched condition the membrane 32 hugs and envelops the outer surface of the tubular member 12a in an airtight sealing relation therewith, as shown in FIG. 8.

The sheets 29a and 30a of the end plate 27 may be referred to as outer and inner sheets, respectively. As seen in FIGS. 3 and 4, the outer sheet 29a has an elongated tongue or narrow strip 37 which extends across the opening 29a therein and at its opposite ends is integrally joined thereto. The tongue 37 overlies only a central portion of the membrane 32 and extends across the aperture 33 therein. The portion of the tongue 37 overlying the aperture 33 is at least as wide as the dimension thereof normal to the longitudinal axis of the tongue.

In accordance with my invention I provide a cut 38 in the tongue 37 which is intermediate its ends and extends diagonally along a line at an acute angle to the longitudinal axis of the tongue. Although I do not wish to be limited thereto, the cut 38 desirably extends diagonally along a line at an acute angle to the longitudinal axis of the tongue 37 which is in a range of between 20° and 40°. In the preferred embodiment illustrated in FIGS. 3 and 4 the cut 38 is at an acute angle of approximately 30° to the longitudinal axis of the tongue 37.

The tongue 37 at opposite sides of the cut 38 defines tapered fingers 37a and 37b extending inward toward one another from diametrically opposite peripheral edge portions of the opening 29a in the outer sheet 29. Further, the fingers 37a and 37b have pointed outer ends which abut one another at the cut 38 and overlap longitudinally of the tongue, as shown in FIG. 3.

The pointed outer ends of the fingers 37a and 37b move through the aperture 33 in the membrane 32 when forcibly swung inward from the plane of the outer sheet 29a by the tubular member 12a. When this occurs the pointed outer ends of the fingers 37a and 37b will bear against the outer surface of the tubular member 12a, as shown in FIG. 8. When the tubular member 12a is withdrawn from the inlet 34 of the end plate 27, the membrane 32 functions to bias the portions of the fingers 37a and 37b at the outer surface of the membrane 32 and overlying the latter to urge the fingers into the plane of the end plate 27 and render the pointed outer ends thereof, which are now at the inner face of the membrane, operable to substantially close the aperture 33 in the membrane.

The diagonally extending cut 38 can be formed in the tongue 37 so that it extends completely therethrough or

only part way therethrough and break when the pointed outer ends of the fingers 37a and 37b move through the aperture 33 in the membrane by being forcibly swung inward from the plane of the outer sheet 29 by the tubular member 12a.

As seen in FIG. 4, the pointed outer ends of the fingers 37a and 37b extend completely across the aperture 33 in the membrane 32 and their outermost portions overlap the outer surface of the membrane at the far sides of the aperture. When the hollow member 12a is withdrawn from the inlet 34 to the end plate 27, the membrane then functions to urge the outermost portions of the fingers, after being moved through the aperture 33 by the tubular member 12a, toward the inner surface of the membrane and into the plane of the end plate 27.

As best seen in FIGS. 3 and 4, the diagonally extending cut 38 bisects the tongue 37 and extends axially thereof to form the fingers 37a and 37b which are in alignment. Each of the fingers extends inward from a first region at its outer end toward a second region which is nearer to its inner end. The first and second regions of each of the fingers extend radially away from the aperture 33 in the membrane 32 at diametrically opposite peripheral edge portions thereof.

As best seen in FIG. 4, each of the pointed ends of the fingers 37a and 37b has an inner portion which overlies a different part of the aperture 33 in the membrane 32 and a second outer portion. The outer portions of the pointed fingers 37a and 37b respectively are disposed at regions of the membrane 32 at diametrically opposite peripheral edges of the aperture 33 therein.

In accordance with my invention the end plate 27 has two portions 27a and 27b which move about a fold line 39 between a first position in which the portions are in the same plane and a second position in which the portions are transverse to the first position and at right angles thereto, as shown in FIG. 6. By way of example, the inner sheet 30 can be scored to define the fold line 39 and the outer sheet 29 can be cut at the fold line 39 to facilitate moving the two portions 27a and 27b between the first and second positions. Further, the end plate 27 has a pair of slots 40 and 41 at the fold line 39 which are spaced from one another at the opposite sides of the air inlet 34 in the end plate.

The bag 26, which is collapsible and expansible and of an air permeable type, is formed of porous sheet material like paper, for example. The bag 26 is closed at one end at 42 and open at its opposite end at 43. As best shown in FIGS. 2 and 3, the bag 26 comprises a pair of side walls 44,44 and a pair of connecting end walls 45,45 transverse to the side walls. The side walls 44,44 are substantially flat and the end walls 45,45 are pleated.

The pleats 45a of the end walls 45 have tabs 46 at their outer ends which project from the open end 43 of the bag 26 and are in alignment and form lugs 47 when the pleats 45a are compressed and bundled together. The side walls 44,44 have semicircular notches 50 at the open end 43 of the bag 26, as best seen in FIG. 3.

As best illustrated in FIGS. 2 and 3, the slots 40 and 41 receive the lugs 47 at the open end 43 of the bag, thereby locating and positioning the bag on the end plate. Before this is done a suitable adhesive is applied to the open end 43 of the bag at the region of the tabs 46, as indicated at 46a, to seal the gussets between the

pleats 45a. A suitable adhesive also is applied to the outer surfaces of the flat side walls 44,44 of the bag at zones 48 adjacent to the notched open end 43 of the bag, as indicated at 49 in FIG. 3.

The two portions 27a and 27b of the end cover 27 are then clamped over the open end 43 of the bag with the inner faces of the two portions bearing against the zones 48 of the side walls 44,44 to which the adhesive has been applied at 49. When the portions 27a and 27b on the end cover 27 now are moved into the same plane, as seen in FIG. 2, the zones 48 of the bag side walls 44,44 and the end cover 27, to the inner face of which the zones 48 are fixed, define the closed end of the dust receptacle 19. Further, when the portions 27a and 27b of the end cover 27 are moved into the same plane, as seen in FIG. 2, the semi-circular notches 50 in the side walls define an opening 50a which is in alignment with the inlet 34 of the end cover, as shown in FIG. 8.

As seen in FIG. 3, the diagonally extending cut 38 in the tongue 37 coincides with the fold line 39 in the end plate 27. Accordingly, the fingers 37a and 37b at their outer ends terminate at the fold line 39 about which the two portions 27a and 27b of the end plate 27 are movable with respect to one another. With this construction the fingers 37a and 37b cannot be injured or damaged when the portions 27a and 27b of the end plate are moved about the fold line.

I claim:

1. The combination with a dust receptacle including a collapsible and expansible air permeable bag having an open end, of an end closure for such open end comprising

- a. a plate having an opening defining an inlet through which a tubular member is adapted to extend for introducing air therein,
- b. an elastic membrane which is fixed to said plate and extends across the opening therein, said membrane being stretchable and having a centrally disposed aperture of smaller size than the opening in said plate,
- c. said plate having an elongated tongue which forms a unitary part thereof and extends across the opening therein and at its opposite ends is fixed thereto, said tongue overlying only a central portion of said membrane and extending across the aperture therein, the portion of said tongue overlying the aperture being at least as wide as the dimension of the aperture normal to the longitudinal axis of said tongue,
- d. said tongue having a diagonally extending cut intermediate its ends along a line at an acute angle to its longitudinal axis,
- e. said tongue at opposite sides of said cut defining tapered fingers extending inward toward one another from diametrically opposite peripheral edge portions of the opening in said plate, said fingers having pointed outer ends which overlap longitudinally of said tongue and abut one another along the cut,
- f. said plate having two portions which are movable about a fold line between a first position in which said portions are in the same plane and a second position in which said portions are transverse to the first position,
- g. the diagonally extending cut of said tongue being disposed at said fold line,

- h. the pointed outer ends of said tapered fingers, with the two portions of said plate in the same plane and in their first position, moving through the aperture in said membrane when forcibly swung inward from said plane of said plate by the tubular member, and
 - i. said membrane, when the tubular member is withdrawn from the inlet of said end closure, biasing the portions of said tapered fingers at the outer surface of said membrane and overlying the latter to urge the portions of said tapered fingers at the inner surface of said membrane into said plane of said plate and render the pointed outer ends thereof operable to close the aperture in said membrane.
2. The combination with a dust receptacle including a collapsible and expansible air permeable dust bag having an open end, of an end closure for such open end comprising
- a. a plate including a pair of superimposed outer and inner sheets having aligned openings defining an inlet through which a tubular member is adapted to extend for introducing air therein,
 - b. an elastic membrane which is disposed between said sheets and extends across the inlet, said membrane being stretchable and having a centrally disposed aperture of smaller size than the openings in said sheets,
 - c. said outer sheet having an elongated tongue which extends across the opening therein and at its opposite ends is integrally joined thereto, said tongue overlying only a central portion of said membrane and extending across the aperture therein, the portion of said tongue overlying the aperture being at least as wide as the dimension of the aperture normal to the longitudinal axis of said tongue,
 - d. said tongue having a diagonally extending cut intermediate its end along a line at an acute angle to its longitudinal axis,
 - e. said tongue at opposite sides of said cut defining tapered fingers extending inward toward one another from diametrically opposite peripheral edge portions of the opening in said outer sheet, said fingers having pointed outer ends which overlap longitudinally of said tongue and abut one another along the cut,
 - f. said plate having two portions which are movable about a fold line between a first position in which said portions are in the same plane and a second position in which said portions are transverse to the first position,
 - g. the diagonally extending cut of said tongue being disposed at said fold line,
 - h. the pointed outer ends of said tapered fingers, with the two portions of said plate in the same plane and in their first position, moving through the aperture in said membrane when forcibly swung inward from said outer sheet by the tubular member, and
 - i. said membrane, when the tubular member is withdrawn from the inlet of said plate, biasing the portions of said tapered fingers at the outer surface of said membrane and overlying the latter to urge said fingers into said plane of said plate and render the pointed outer ends thereof operable to close the aperture in said membrane.

3. Structure as set forth in claim 2 in which said outer and inner sheets are formed from a single blank and integrally united to one another.

4. Structure as set forth in claim 2 in which the diagonally extending cut of said tongue only extends part way therethrough and breaks when the pointed outer ends of said tapered fingers, with the two portions of said plate in the same plane and in their first position, move through the aperture in said membrane when forcibly swung inward from said outer sheet by the tubular member.

5. Structure as set forth in claim 2 in which the diagonally extending cut of said tongue extends completely therethrough.

6. Structure as set forth in claim 2 in which the pointed outer ends of said tapered fingers extend completely across the aperture in said membrane and their outermost portions overlap the outer surface of said membrane at the far sides of the aperture, said membrane, when the tubular member is withdrawn from the inlet of said plate, biasing said fingers to urge the outermost portions thereof toward the inner surface of said membrane and into said plane of said plate.

7. Structure as set forth in claim 2 in which said diagonally extending cut bisects said tongue and extends longitudinally thereof to form said pointed fingers which are in alignment, each of said fingers extending inward from a first region at its outer end toward a second region which is nearer to its inner end, said first and second regions of each of said fingers extending radially from the aperture in said membrane at diametrically opposite peripheral edge portions thereof.

8. Structure as set forth in claim 2 in which each of the pointed ends of said fingers has an inner portion overlying a different part of the aperture in said membrane and a second outer portion, said outer portions of the pointed ends of said fingers respectively being disposed at regions of said membrane at diametrically opposite peripheral edges of the aperture therein.

9. Structure as set forth in claim 2 in which said diagonally extending cut of said tongue extends along a line at an acute angle to its longitudinal axis which is in a range of between 20° and 40°.

10. Structure as set forth in claim 2 in which said diagonally extending cut of said tongue extends along a line at an acute angle of approximately 30° to its longitudinal axis.

11. In combination, a dust receptacle comprising

- a. a collapsible and expansible air permeable bag formed of porous sheet material, said bag being closed at one end and open at its opposite end and comprising a pair of opposing side walls and a pair of connecting end walls transverse to said side walls,

- b. said end walls being pleated and said opposing side walls being substantially flat and having notches at the open end of said bag,

- c. the pleats of said end walls having tabs at the outer ends thereof which project from the open end of said bag and are in alignment and form lugs when said pleats are bundled together,

- d. said opposing side walls having zones which extend from said notches at the open end of said bag,

- e. an end closure for said bag comprising a mounting plate having an opening defining an inlet through which a tubular member is adapted to extend for introducing air therein,

- f. an elastic membrane which is fixed to said plate and extends across the opening therein, said membrane being stretchable and having a centrally disposed aperture of smaller size than the opening in said plate,
- g. said plate having an elongated tongue which extends across the opening therein and at its opposite ends is fixed thereto, said tongue overlying only a central portion of said membrane and extending across the aperture therein, the portion of said tongue overlying the aperture being at least as wide as the dimension of the aperture normal to the longitudinal axis of said tongue,
- h. said tongue having a diagonally extending cut intermediate its ends along a line at an acute angle to its longitudinal axis,
- i. said tongue at opposite sides of said cut defining tapered fingers extending inward toward one another from diametrically opposite peripheral edge portions of the opening in said plate, said fingers having pointed outer ends which overlap longitudinally of said tongue and abut one another along the cut,
- j. said plate having two portions which are movable about a fold line between a first position in which said portions are in the same plane and a second position in which said portions are transverse to the first position,
- k. said plate having a pair of slots at said fold line which are spaced from one another at opposite sides of the opening in said plate,
- l. said slots receiving said lugs at the open end of said bag,
- m. means for respectively fixing said zones of said opposing side walls to the inner faces of the two portions of said plate, said notches defining an opening

in alignment with the inlet of said plate when said two portions of said plate are in said first position in the same plane, and

- n. the diagonally extending cut of said tongue being disposed at said fold line.

12. Structure as set forth in claim 11 in which said means for fixing said zones of said side walls at the open end of said bag to the inner faces of the two portions of said plate comprises an adhesive-like material which is rendered operable when the two portions of said plate are in their second position with said zones clamped therebetween.

13. Structure as set forth in claim 11 in which the pointed outer ends of said tapered fingers at the fold line of said plate, with the two portions thereof in the same plane and in their first position, move through the aperture in said membrane when forcibly swung inward from said plane of said plate by the tubular member, and said membrane being operable, when the tubular member is withdrawn from the inlet of said plate, to bias the portions of said tapered fingers at the outer surface of said membrane and overlying the latter to urge the portions of said fingers at the inner surface of said membrane into said plane of said plate and render the pointed outer ends thereof operable to close the aperture in said membrane.

14. Structure as set forth in claim 13 in which said plate comprises a pair of superimposed outer and inner sheets and said apertured elastic membrane is disposed between said sheets, said inner sheet being scored to define said fold line and said outer sheet being cut at the fold line to facilitate moving the two portions of said plate between their first and second positions.

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