

[54] **RECLOSABLE BAG**

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[52] **U.S. Cl.**..... 229/65, 229/78

[51] **Int. Cl.**..... B65d 33/16

[58] **Field of Search**..... 229/65, 78

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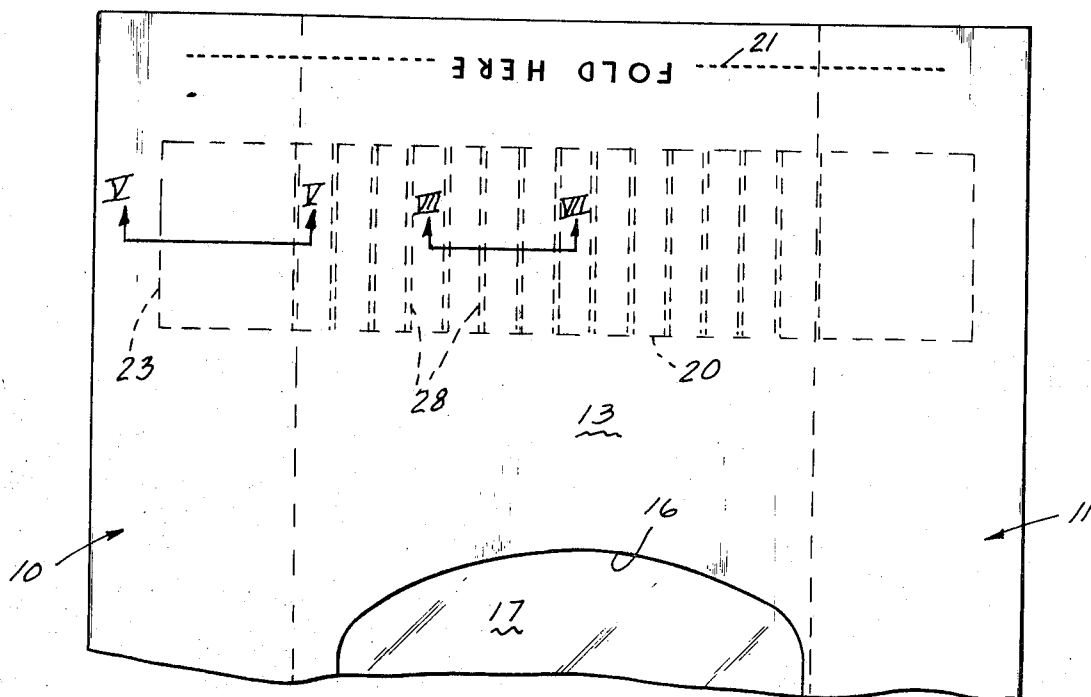
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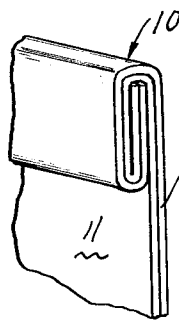
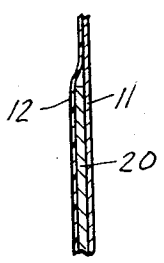
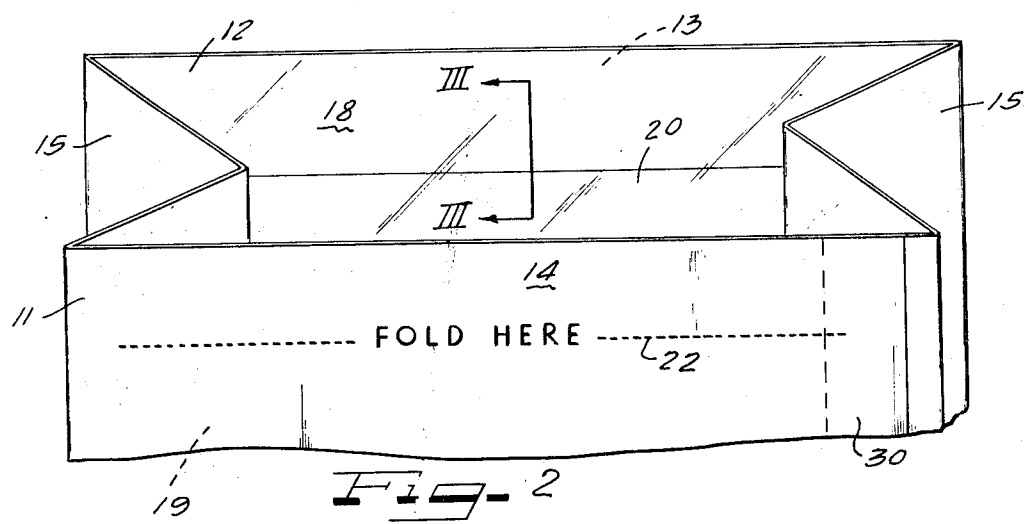
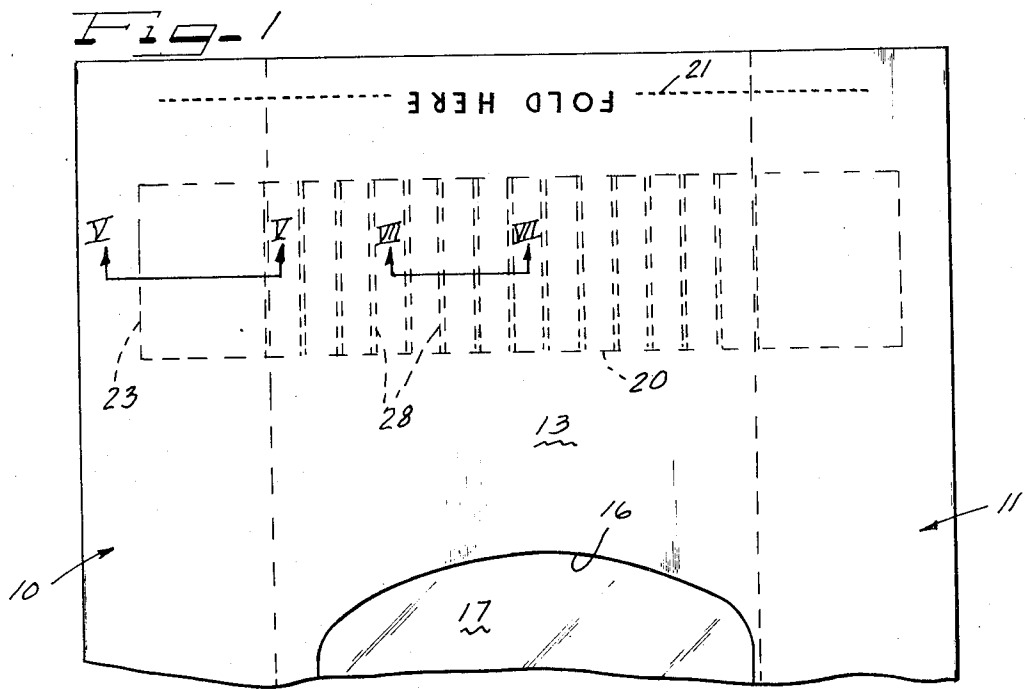
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[57] **ABSTRACT**

A paper bag, such as of the gusset type, has a liner, and an elongated strip of metal foil is trapped between the liner bag and the outer bag. The flexible foil has sufficient stiffness to resist bending and extends into the gussets, the liner bag also serving as a window pane for an opening in the outer bag, the configuration of the flexible metal foil strip being such as to augment the resistance to bending of a particular thickness of such strip.

6 Claims, 7 Drawing Figures





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2 Sheets-Sheet 2

Fig. 5

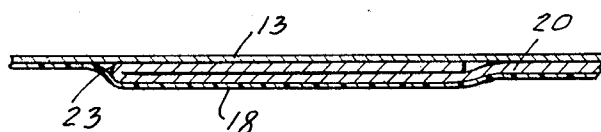


Fig. 6

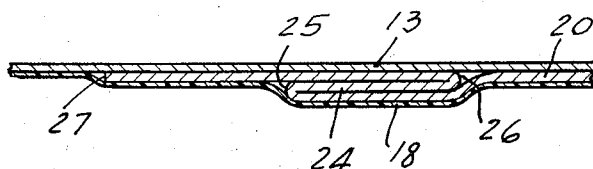
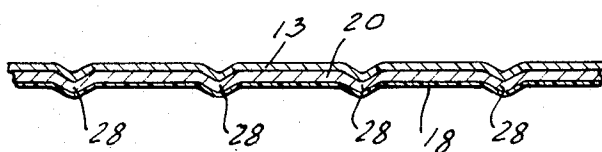


Fig. 7



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RECLOSABLE BAG

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to paper bags, and more specifically to a bag of the gusset type having means adjacent the mouth by which the bag is rendered reclosable.

2. Prior Art

Reclosable bags per se are known in the art. Bags used in bakeries for many types of baked goods require a virtually air-tight seal, while bags used with crispy crust breads do not need to be air-tight but need to provide a sanitary container that will prevent the product from falling out and keep out flies and dust. In some instances, it is known that local Boards of Health have required that a bakery bag be folded closed to protect the bag not only against flies, but against customers who like to pinch the product. The folded closed end also serves to retain the product therein.

Most constructions of reclosable bags that are on the market include what is called a "tin-tie" which includes a metal wire encased in paper or plastic. This type of closure during manufacture of a bag involves separate handling of the tin-tie. For instance, the tin-tie may be fed manually to a bag making machine, or else a semi-finished bag must go through a separate operation involving an automatic machine for attaching tin-ties thereto. Frequently, the labor cost for such separate handling and/or processing exceeds half of the total labor and material cost for producing the bag. In addition, bags that have such closures after they are filled must be closed by hand, thereby adding to the cost of the first user of the bag.

It has been known that dishonest shoppers in a retail establishment will open a bag having such a closure, remove and/or eat some of the contents, and reclose the same. Other dishonesty involves the insertion of some small item within such bag so as to escape the attention of the store's sales personnel. Thus for security reasons, it has been common heretofore to further utilize a heat-seal to prevent unauthorized pre-sale access to the interior of the bag. Opening a bag having a heat-seal usually causes the liner to tear, and where the liner is used to provide air-tightness, the bag can no longer be closed as well.

SUMMARY OF THE INVENTION

According to this invention, a construction of bag assembly is provided which can be readily machine made on existing types of bag machines, fitted with a suitable attachment for handling a strip of foil, and yet the end of the bag is so adapted as to make the same machine-closable when the first user is filling the same. Further, such user can apply a small amount of glue to a fold during such machine-closing which will serve adequately to protect against unauthorized entry, and which will eliminate the need for heat-sealing equipment, and which will eliminate the relative difficulty with which a heat-sealed bag is opened, and which will further eliminate ensuing damage that normally takes place to a heat-sealed bag upon its being opened. Nevertheless, with this invention, the end of the bag is so adapted as to make the same reclosable tightly, not only after the initial opening but after a number of openings thereof. To this end, there is provided a rectangular strip of thin metal or foil which is not particularly resilient, but which is flexible. The strip is trapped

between an outer bag and a liner bag, and preferably is provided with a supplemental configuration in the direction of its thickness that augments the natural resistance of the metal to bending.

Accordingly, it is an object of the present invention to provide a reclosable bag that can be manufactured automatically on a single machine without the expense of feeding a closing element manually and without the expense of a separate operation for attaching the reclosing means.

A further object of the present invention is to provide a bag that can be opened and reclosed numerous times.

A still further object of the present invention is to provide a reclosable bag structure wherein the bag is held closed along the entire length of the mouth of the bag.

Yet another object of the present invention is to provide a reclosable bag structure of such configuration that it can be automatically closed by machine at the end of the filling process.

Another object of the present invention is to provide a reclosable bag structure which can be initially glued closed, readily opened, and reclosed without damage to a liner bag made of air-tight material.

A still further object of the present invention is to provide a reclosable bag structure wherein a metal element is so disposed and arranged that it cannot scratch the user or come in contact with the contents during use, opening and/or closing of the bag.

Yet another object of the present invention is to provide a reclosable bag structure wherein the means that makes it reclosable is virtually invisible.

Many other advantages, features and additional objects of the present invention will become manifest to those versed in the art upon making reference to the detailed description of the accompanying drawings in which preferred structural embodiments incorporating the principles of the present invention are shown by way of illustrative example.

ON THE DRAWING

FIG. 1 is a fragmentary front elevational view of the mouth-end of a bag, provided in accordance with the principles of the present invention;

FIG. 2 is a rear perspective view of the mouth end of the bag of FIG. 1;

FIG. 3 is a fragmentary cross-sectional view taken along line III—III of FIG. 2;

FIG. 4 is a perspective view of one end of the mouth of the bag of FIG. 1 showing one way in which it can be closed;

FIG. 5 is a fragmentary cross-sectional view taken along line V—V of FIG. 1;

FIG. 6 is a fragmentary cross-sectional view showing a modification of the structure of FIG. 5; and

FIG. 7 is a cross-sectional view taken along line VII—VII of FIG. 1.

The thickness of the bag materials and foil shown herein are exaggerated for purpose of clarity of illustration.

AS SHOWN ON THE DRAWINGS

The principles of the present invention are particularly useful when embodied in a reclosable bag assembly, such as fragmentarily shown in FIG. 1 and generally indicated by the numeral 10. The bag assembly 10, as best seen in FIG. 2, includes an outer bag 11 and an

inner or liner bag 12. The material of the outer bag preferably is opaque and may, for example comprise bleached Kraft, sulfite, or a paper-plastic laminate. The outer bag 11 has a front panel 13 and a rear panel 14 which are joined together at their longitudinal and bottom edges, such joining being here provided by a pair of gussets 15. The fourth or upper edges of the panels jointly define the mouth of the bag which is to be opened and closed. The front panel 13 includes a window 16 which enables viewing of the contents of the bag assembly 10.

The liner bag 12 preferably comprises polypropylene or Cellophane, or similar transparent material, which serves as a window pane 17 enclosing the window 16. Where the window 16 is omitted, the liner bag 12 may comprise other materials, for example glassine, or other single or laminated liner materials. Thus the inner bag or liner bag 12 also has front and back panels 18, 19 also joined together at their longitudinal edges and bottom, as by a gusset construction, with their fourth edges coinciding with the mouth of the bag.

In accordance with the present invention, there is provided a rectangular strip 20 of flexible metal, such as aluminum foil which is secured to the inside of the front panel 13 with the ends thereof projecting into the gussets 15, 15. The longitudinal edges of the strip 20 extend parallel to the fourth edges which make up the bag mouth, and the longitudinal extent of the strip 20 preferably is in excess of 80 percent of the width of the bag assembly so that the length of the strip of foil is nearly the full width of the bag. The strip 20 is enclosed and trapped by the liner bag. To this end, the strip is glued or similarly bonded to the inner surface of the front panel 13 of the outer bag 11. Alternatively, glue or bonding can be provided between the front panel 13 of the outer bag and the front panel 18 of the inner bag in an area surrounding the strip 20 so as to trap the same. The strip preferably comprises aluminum having a thickness between 0.003 and 0.006 inch. If steel is used, owing to its greater stiffness, a thickness under 0.003 inch is utilized. From FIG. 1 it can be noted that the strip 20 is disposed centrally in the space between the mouth of the bag and the window 16. In the space between the strip and the mouth of the bag, there are indicia provided to indicate a prospective fold line. To this end, on the front panel 13, there are indicia 21 which are fairly close to the mouth of the bag, while on the rear panel 14 there are indicia 22 that are disposed along the length of the bag between the location of the indicia 21 and the adjacent edge of the strip 20.

In accordance with a further feature of the present invention, the stiffness of the strip 20 is augmented by its configuration. Such augmentation becomes more important when heavier bag materials are utilized, particularly where the bag is of the gusset type so that there are eight thicknesses to bend over in the first fold. One construction for augmenting the stiffness of the strip is shown at the left end of the strip 20 in FIG. 1 and in FIG. 5. In this form, the end of the strip 20 is folded back upon itself so that the end 23 of the strip is a folded edge. The folded over portion thus is disposed within the gusset 15 to provide a greater holding force against the natural tendency for the greater number of layers to open up.

In FIG. 6, there is shown a modification of the stiffness augmentation construction of FIG. 5 where again the strip is folded on itself, but in this embodiment, the

strip 20 is provided with a Z-fold 24 so that there are two folded edges 25, 26 within the gusset while the extreme end edge 27 is not a fold in this embodiment. This construction provides even greater stiffening than does the form of FIG. 5, and is useful for the heaviest duty paper bags, such as flour and sugar sacks.

In FIG. 7 there is shown a stiffness augmentation that may be used in the central portion of the strip 20 as shown in FIG. 1, and which may comprise the sole augmentation for the more flexible bags. In this form, the strip 20 is provided with various embossed portions that extend transversely to the longitudinal edges of the strip 20 and thus transversely to the prospective fold lines, the embossed portions here comprising parallel ridges 28 about which the front panels 13, 18 readily fit.

When the bag assembly 10 has been filled or otherwise provided with contents, the bag may be folded first along the indicia 21 and then along the indicia 22 and then once more along the center of the strip 20. If desired, such folding may be varied. For example, it may be folded first along the indicia 22 and thence along the center of the strip 20 as shown in FIG. 4.

If a user wishes, the first fold may extend along the strip 20. Also, if the bag is not too full, the first fold may be applied to the area between the strip 20 and the bottom or window 16 of the bag and thereafter folded along the length of the strip 20. Wherever the bag is folded or refolded, the strip 20 serves to keep the bag closed to prevent entry of flies, dust, unauthorized fingers, and the like, and the entire construction that holds the bag closed is invisible to the user and yet is so entrapped as not to be likely to scratch the user or to come in contact with the contents.

In some instances, it may be desirable to omit the liner bag 12, where the possibility of scratching and the fact of visibility are not problems.

Outer and liner bags 11, 12 typically have a longitudinal seam. In the embodiment, the seam 30 is placed in the rear panel of each bag, thus remotely from the strip 20, and so as not to be a part of the same panel to which the strip 20 is secured.

Although various minor modifications may be suggested by those versed in the art, it should be understood that I wish to embody within the scope of the patent warranted hereon, all such embodiments as reasonably and properly come within the scope of my contribution to the art.

I claim as my invention:

1. A reclosable bag assembly, comprising:

- a. an outer bag of opaque material having front and back panels peripherally joined at three edges, the fourth edges jointly defining a mouth, there being a window opening in one of said panels;
- b. a liner bag of transparent material disposed within said outer bag and having front and back panels peripherally joined at three edges, the fourth edges jointly defining a second mouth coinciding with the first named mouth, said liner bag serving also as a window pane closing said opening; and
- c. a strip of metal foil disposed between and engaging only said front panels of said bags centrally in the space between said mouth and said window, the elongated edges of said strip extending parallel to the fourth edges of said front panels, and extending for nearly the full width of said front panels, said strip being fully enclosed by said panels and secured in a fixed position.

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2. A reclosable bag assembly, comprising:
 - a. an outer bag having front and back panels peripherally joined at three edges, the fourth edges jointly defining a mouth;
 - b. a liner bag disposed within said outer bag and having front and back panels peripherally joined at three edges, the fourth edges jointly defining a second mouth coinciding with the first-named mouth;
 - c. a strip of flexible metal foil disposed between and engaging only said front panels of said bags, the elongated edges of said strip extending parallel to the fourth edges of said front panels, and extending for nearly the full width of said front panels, said strip being fully enclosed by said panels and secured in a fixed position; and
 - d. indicia carried on at least one of said first-named panels for indicating at least one prospective fold line between said mouth and the nearer edge of said strip.
3. A reclosable bag assembly, comprising:
 - a. an outer bag having front and back panels peripherally joined at three edges, the fourth edges jointly defining a mouth;
 - b. a liner bag disposed within said outer bag and having front and back panels peripherally joined at three edges, the fourth edges jointly defining a second mouth coinciding with the first-named mouth; and
 - c. a strip of flexible metal foil disposed between and engaging only said front panels of said bags, the elongated edges of said strip extending parallel to the fourth edge of said front panels, and extending for nearly the full width of said front panels, said strip being fully enclosed by said panels and secured in a fixed position, at least one end portion of said strip having been folded over upon itself between said bags to provide a configuration which augments the resistance to bending of the foil with one end of the strip being a folded edge.
4. A reclosable bag assembly, comprising:
 - a. an outer bag having front and back panels peripherally joined at three edges, the fourth edges jointly defining a mouth;
 - b. a liner bag disposed within said outer bag and having front and back panels peripherally joined at three edges, the fourth edges jointly defining a second mouth coinciding with the first-named mouth; and
 - c. a strip of flexible metal foil disposed between and engaging only said front panels of said bags, the elongated edges of said strip extending parallel to the fourth edges of said front panels, and extending

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- for nearly the full width of said front panels, said strip being fully enclosed by said panels and secured in a fixed position, a central portion of said strip having a Z-fold so as to provide a portion having three foil thicknesses between said bags which augments the resistance to bending of the foil.
5. A reclosable bag assembly, comprising:
 - a. an outer bag having front and back panels peripherally joined at three edges, such joining being provided at opposite longitudinal edges by a pair of gussets, the fourth edges jointly defining a mouth;
 - b. a liner bag disposed within said outer bag and having front and back panels peripherally joined at three edges, such joining being provided at opposite longitudinal edges by a pair of gussets, the fourth edges jointly defining a second mouth coinciding with the first-named mouth; and
 - c. a strip of flexible metal foil disposed between and engaging only said front panels of said bags, a portion of said strip having been folded over upon itself between said bags to provide a configuration which augments the resistance to bending of the foil, the elongated edges of said strip extending parallel to the fourth edges of said front panels, said strip being fully enclosed by said panels and secured in a fixed position, the ends of said strip extending for nearly the full width of said front panels to be in juxtaposition with said gussets when the gussets are inwardly folded.
 6. A reclosable bag assembly, comprising:
 - a. an outer bag having front and back panels peripherally joined at three edges, the fourth edges jointly defining a mouth;
 - b. a liner bag disposed within said outer bag and having front and back panels peripherally joined at three edges, the fourth edges jointly defining a second mouth coinciding with the first-named mouth; and
 - c. a strip of flexible metal foil disposed between and engaging only said front panels of said bags, the elongated edges of said strip extending parallel to the fourth edges of said front panels, and extending for nearly the full width of said front panels, said strip being fully enclosed by said panels and secured in a fixed position, said strip having a number of embossed portions formed as a series of parallel ridges extending transversely to the length of said strip and hence transversely across a prospective fold line for augmenting the resistance to bending of the foil along such fold line.

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