July 14, 1964 J. D. MAJESKY 3,140,815

OPENING AND RECLOSURE MEANS FOR BAGS

Filed Jan. 23, 1963 2 Sheets-Sheet 1

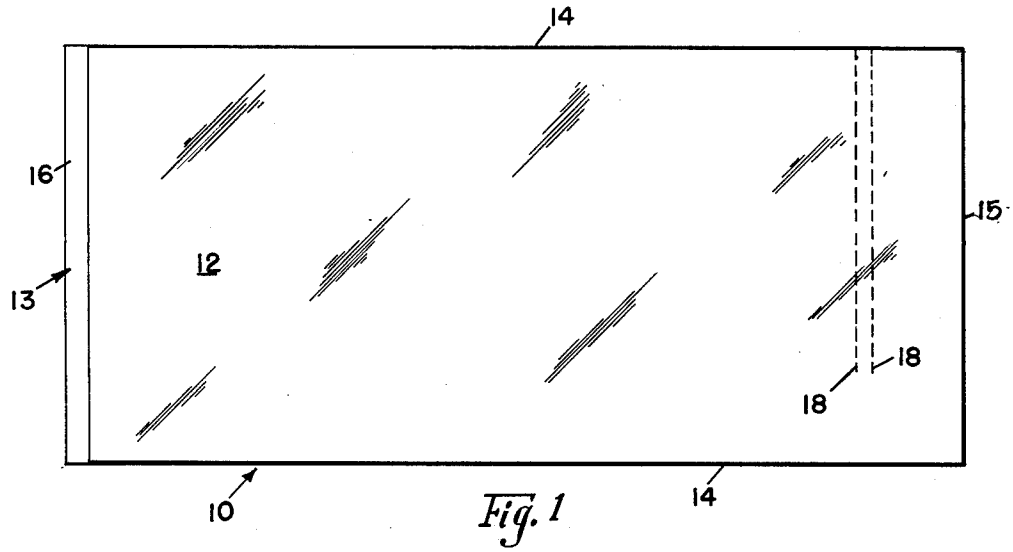


Fig. 1

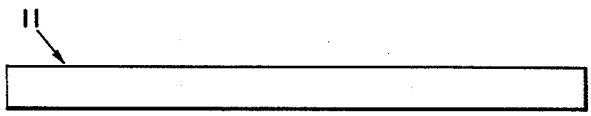


Fig. 2

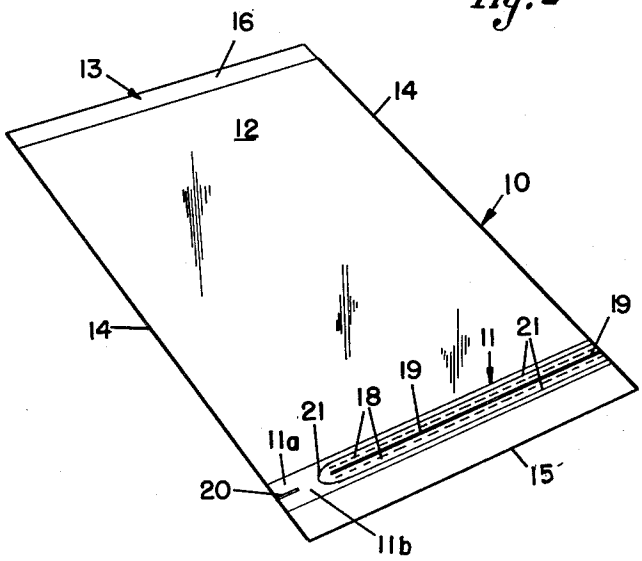


Fig. 3

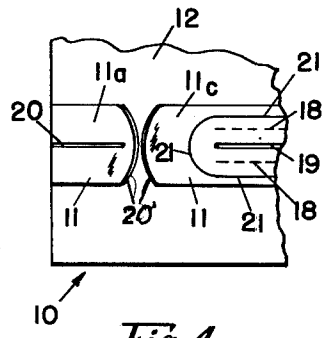


Fig. 4

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OPENING AND RECLOSURE MEANS FOR BAGS

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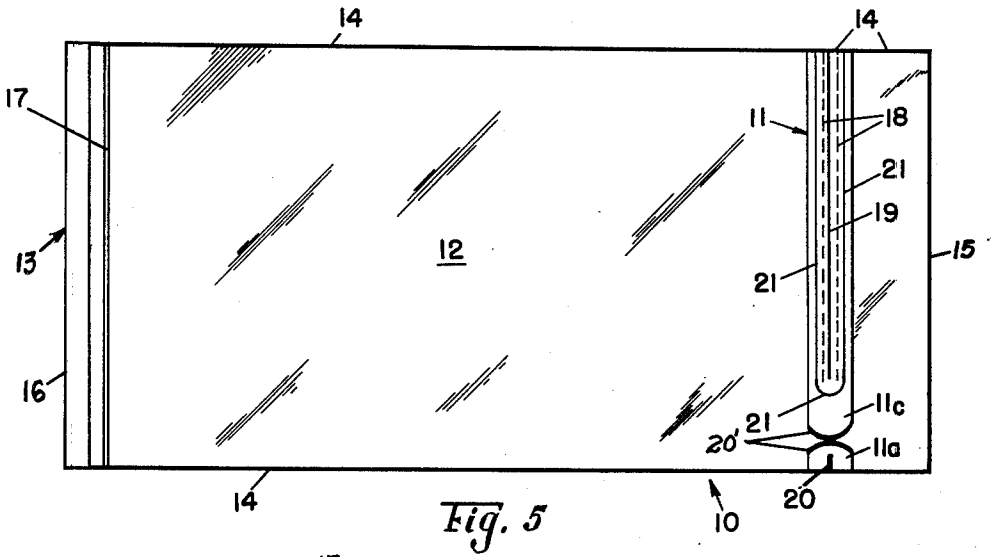


Fig. 5

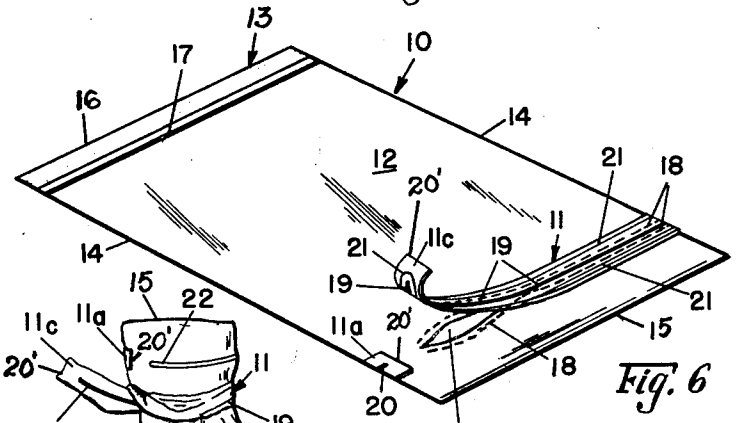


Fig. 6

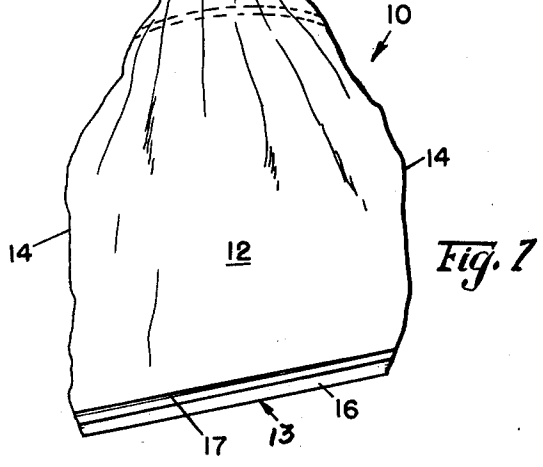


Fig. 7

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3,140,815

OPENING AND RECLOSURE MEANS FOR BAGS

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2 Claims. (Cl. 229—66)

This invention relates to opening and reclosure means for bags and it consists in the combinations, constructions and arrangements of parts herein described and claimed.

Generally there is provided a heat sealed bag formed of polyethylene or like sheet plastic material. A combined tear and tie strip is thermoplastically welded medially thereof along a tear line parallel to and relatively close to a closed end of the bag. The tear line desirably terminates short of a side edge of the bag and one end of the tear strip to provide a tab for grasping in initiating the tearing operation.

The tear line preferably parallels the direction of extrusion of the sheet plastic so that the molecular orientation thereof will promote easier and straighter tearing. The bag is also desirably provided with rows of perforations along each side of the tear line to guard against the bag tearing away from the tear line. The tear strip is additionally sealed along two lines parallel to and outside the perforated lines, but these seals are lightly made so as to be easily broken, their functions being only (1) to overcome the bag weakness created by the perforations and (2) to serve as moisture and/or air barriers where perforations would be objectionable, if used.

It is an object of the present invention to provide a bag having a combined tear and tie strip adhered thereto along a weakened tear line.

It is another object of the invention to provide a device of the character described in which the bag is formed of thermoplastic sheet material and the tear line is formed by heat sealing the tear strip thereto.

It is a further object of this invention to provide such a bag in which the tear line terminates short of an edge of the bag and an end of the tear strip to provide a tab for gripping in initiating the tearing operation.

It is yet another object of the invention to provide a bag of the type disclosed in which the tear line is optionally bordered by perforated lines to confine the tear therebetween and in which the tear slip is lightly sealed to the bag beyond and along the perforated lines to preserve the seal of the bag and/or to compensate for its weakening by the perforations.

Other and further objects of the invention will become apparent from a reading of the following specification taken in conjunction with the drawings, in which:

FIGURE 1 is a plan view of a completely formed bag before attachment of a tear strip thereto,

FIGURE 2 is a plan view of a tear strip before attachment thereof to the bag of FIGURE 1,

FIGURE 3 is a perspective view of the assembled parts of FIGURES 1 and 2 prior to severing of the tear strip to provide a grippable tab.

FIGURE 4 is an enlarged fragmentary plan view showing the tear strip transversely cut to provide a grip tab,

FIGURE 5 is a plan view of the bag of FIGURE 3 completed and sealed at its bottom end,

FIGURE 6 is a perspective view illustrating the tearing open operation, and

FIGURE 7 is a perspective view showing the tear strip used as a reclosing tie after the bag has been opened.

With reference now to the drawings, the numerals **10** and **11** designate, respectively, a bag and a tear strip thermoplastically adhered to the bag. The bag **10** is formed from a single sheet of die extruded thermoplastic sheet material, such as polyethylene or polypropylene,

folded to define the closed top (or bottom, if preferred) of the bag. The bag is produced by a machine of known construction and operation, which continuously forms bags by heat sealing the side seams of bags in sequence and severing the bags from each other along the seams and transversely of the continuously moving web of sheet material being formed into bags. Of course, the bag could be formed of seamless tubing, or of sheet material folded and having a heat sealed vertically and medially disposed lapped back seam, as alternative well known constructions.

As shown in FIGURES 1 and 3 the bag **10** has a front panel **12** and a rear panel **13** interconnected along their side edges by thermoplastically welded or heat sealed seams **14**. The top of the bag **10** is closed by a folded edge **15** of the sheet material. The rear panel may be made slightly longer than the top panel to provide an extended lip to facilitate manual opening and filling of the bag. The panels **12** and **13** are heat sealed to each other along a thermoplastic weld **17**.

It should here be noted that the top of the bag could be defined by a welded seam like the seam **16–17** with the bottom being a fold line, or both the top and bottom seams could be formed with welded seams; or both ends could be folds in a continuous plastic extrusion tube.

Prior to the folding of the panel **12** over the panel **13**, or at least prior to the placement of the tear strip **11** along the upper margin of the bag **10**, two parallel rows **18** of spaced slits or perforations are made in the front panel **12** (FIG. 1 to provide weakened lines alon geach side of the tear seam to confine any tearing action to the area between the rows of perforations in the event that the line of tear should deviate from the tear seam (as it will sometimes do).

The tear and tie strip **11** is then laid over and along the perforated lines **18** and is heavily heat welded thereto medially and longitudinally of the strip and between the lines **18** to form a tear line **19** extending across most of the top margin of the bag from one side edge thereof almost to the other side edge thereof. The tear line **19** terminates adjacent those ends of the perforated lines **18** which do not reach a side edge of the panel **12** (FIGS. 3 and 4). The weld line **19** continues as line **20** to the other side edge of the bag **10** to anchor the short portion **11***a* of the strip **11** to its side of the bag. This facilitates severing the strip **11** transversely along a severance line **20'** by a knife (not shown) insertable between the panel **12** and the unattached portion **11***b* of the strip **11** (FIG. 3). The transverse cutting of the portion **11***b* provides a tab **11***c* which is easily gripped between a thumb and finger to initiate the tearing operation illustrated in FIG. 6.

To compensate for the weakening of the panel **12** by the perforated lines **18** and/or to serve as moisture or air barriers where perforations in the bag would be objectionable, a hairpin shaped light heat seal **21** is provided to completely surround the tear and perforated lines **19** and **18** by extending to and joining the side seal **14**. The light seal **21** is, of course, too weak to tear the panel **12**, and permits easy peeling of the strip **11** away from said panel.

In opening the bag **10**, the tab **11***c* is gripped and pulled, as shown in FIG. 6. Since the seam **19** is stronger than the sheet material of the panel **12**, the bag **10** is torn open along a transverse slit **22**, which may extend all the way across the bag from where the seam **19** terminates short of the near side seam **14** in FIG. 6 to the far side seam **14**. The far side seam **14** firmly anchors the far end of the tear strip **11** so that it can be repeatedly used as a tie strip. For the latter use the bag top is gathered shut, as shown in FIG. 7, and the strip **11** is wrapped around the gathered neck of the bag and is

looped through itself and pulled tight. While a single loop usually provides sufficient friction for holding the bag tied shut, the end of the strip **11** can be passed twice through itself for effecting a more secure closure.

While but one form of the invention has been shown and described herein, it will be readily apparent to those skilled in the art that many minor modifications may be made without departing from the spirit of the invention or the scope of the appended claims.

What is claimed is:

1. A commodity container comprising in combination: superimposed sheets of flexible material joined together along marginal edge portions to define a bag having a front face and a rear face; said bag having two parallel lines of perforations in spaced parallel relation to one end thereof and extending from one side edge of one face of said bag to a point in adjacent spaced relation to the other side edge, a flexible combined tear and tie strip heavily heat welded to said bag medially and longitudinally between said perforations, said strip extending laterally over and beyond said perforations and longitudinally from said one side edge the length of said lines of perforations, and a tab formed integrally with said strip and extending to a point immediately beyond said lines of perforations, said strip and tab being lightly heat sealed to said bag at its peripheral portion.

2. A commodity container comprising in combination: superimposed sheets of flexible material joined together along marginal edge portions to define a bag having a front face and a rear face; said bag having two parallel lines of perforations in spaced parallel relation to one end thereof and extending from one side edge of one face of said bag to a point in adjacent spaced relation to the other side edge, a flexible combined tear and tie strip heavily heat welded to said bag medially and longitudinally between said perforations, said strip extending laterally over and beyond said perforations and longitudinally from said one side edge the length of said lines of perforations, and a tab formed integrally with said strip and extending to a point immediately beyond said lines of perforations, said strip being lightly heat sealed to said bag at its peripheral portion.

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