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(54) **PACKAGING UNIT FOR ARTICLES WITH OPENING FEATURE**

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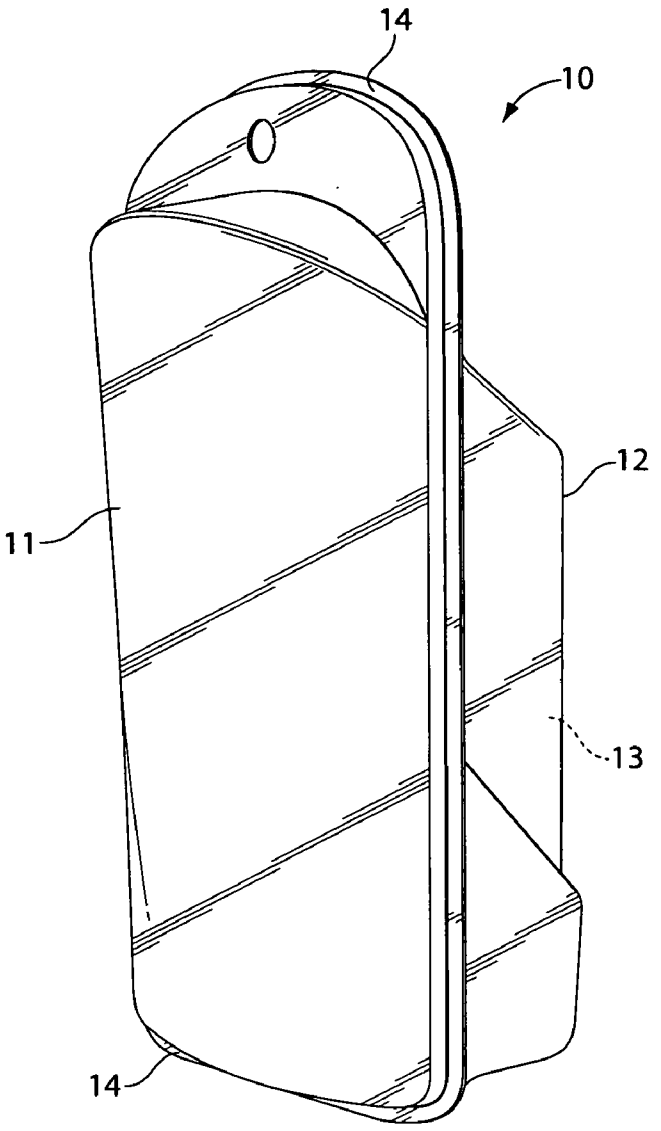
(57) **ABSTRACT**

A packaging unit having a front wall and a back wall sealed together at a peripheral joint. The front and back walls are formed of semi-rigid material. The front wall and back wall are spaced apart from one another to define an article-receiving region between them. A line of weakness is formed in the back wall. The line of weakness defines an opening flap to be at least partially separated from the remainder of the back wall. A raised opening tab is positioned on the opening flap along the line of weakness and extends away from the opening flap. The line of weakness is rupturable by a user by applying a manual force to the opening tab to at least partially separate the opening flap from the remainder of the back wall along the line of weakness in order to access the article-receiving region.



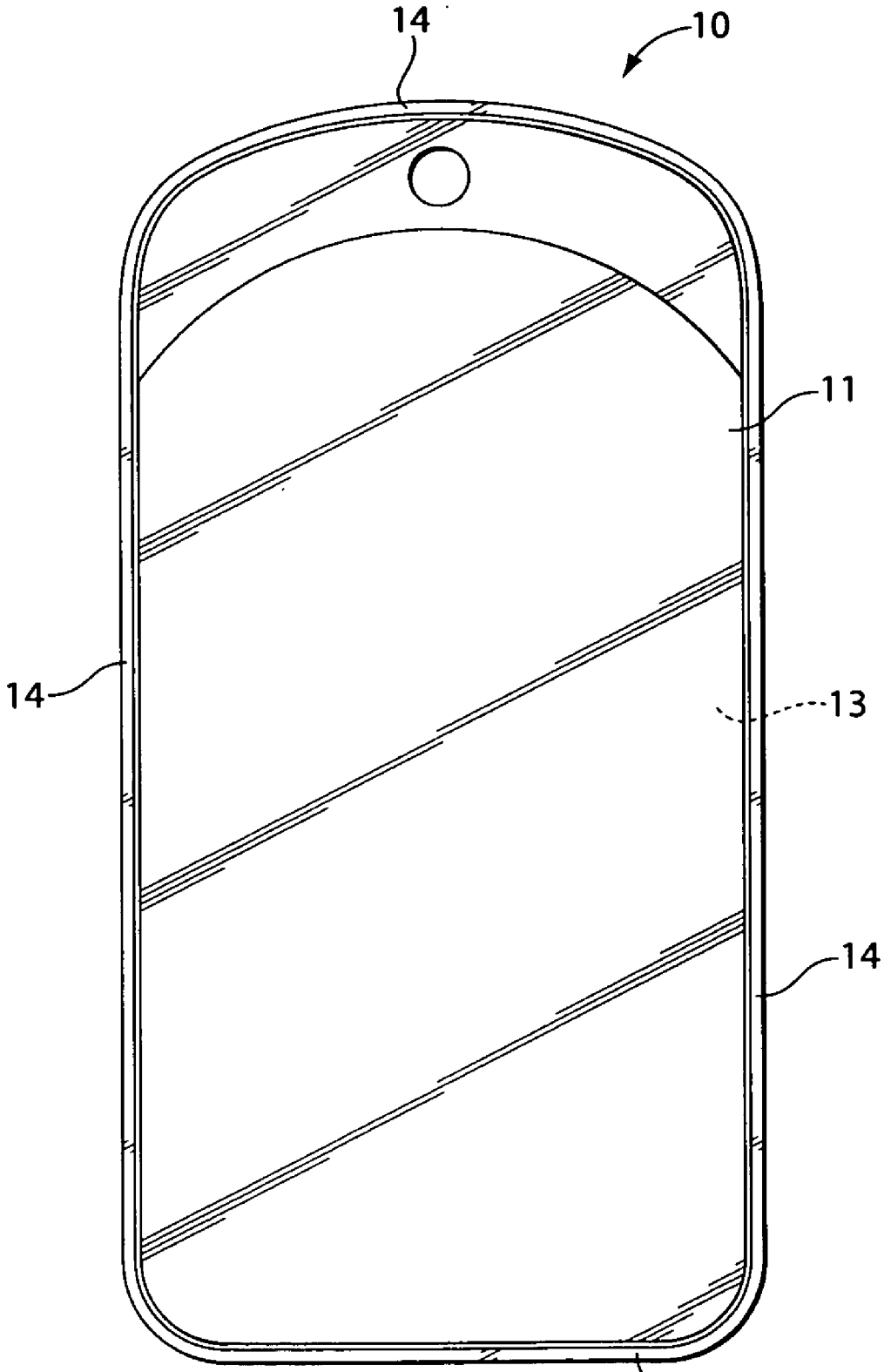



Fig. 1

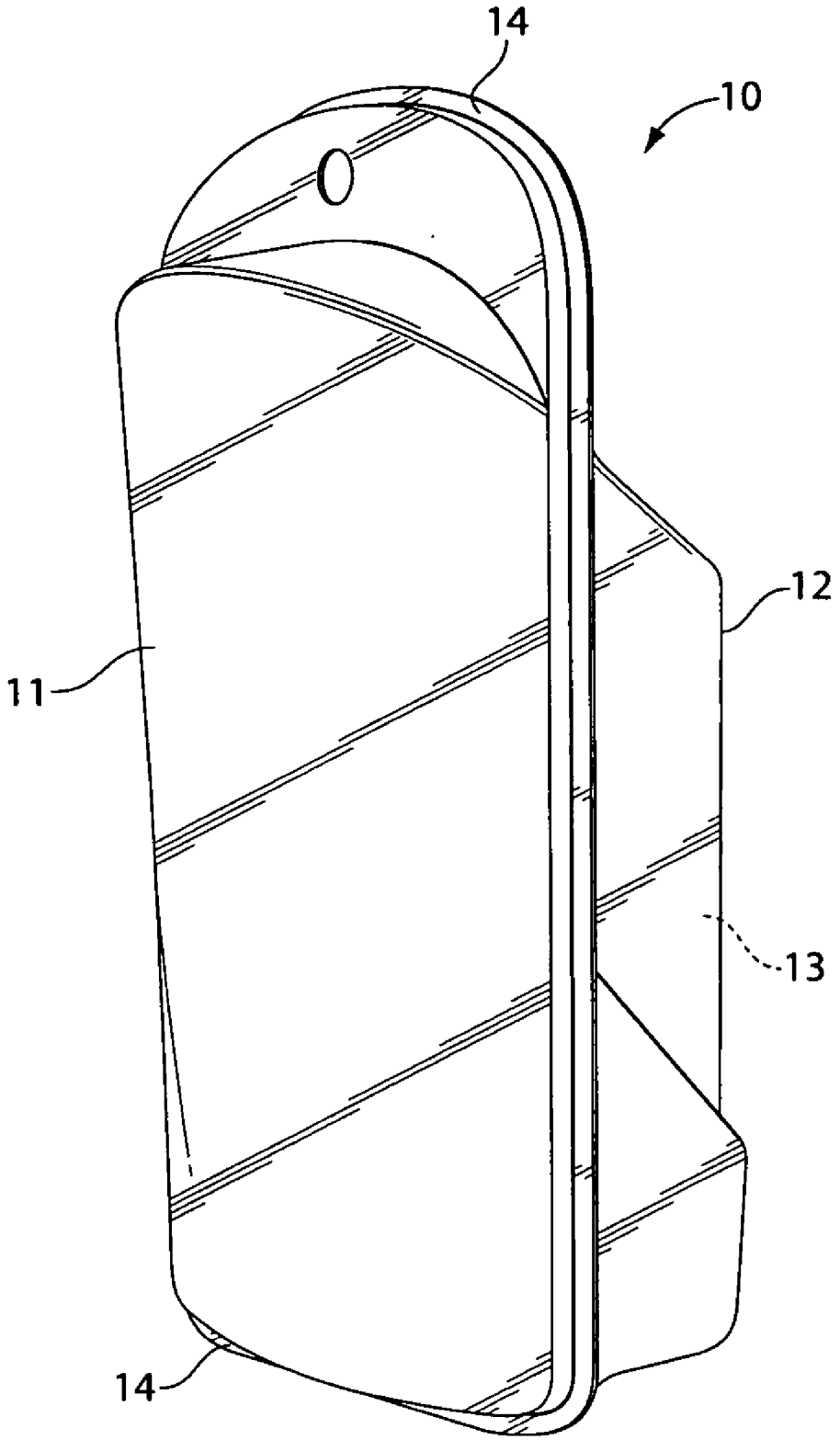



Fig. 2

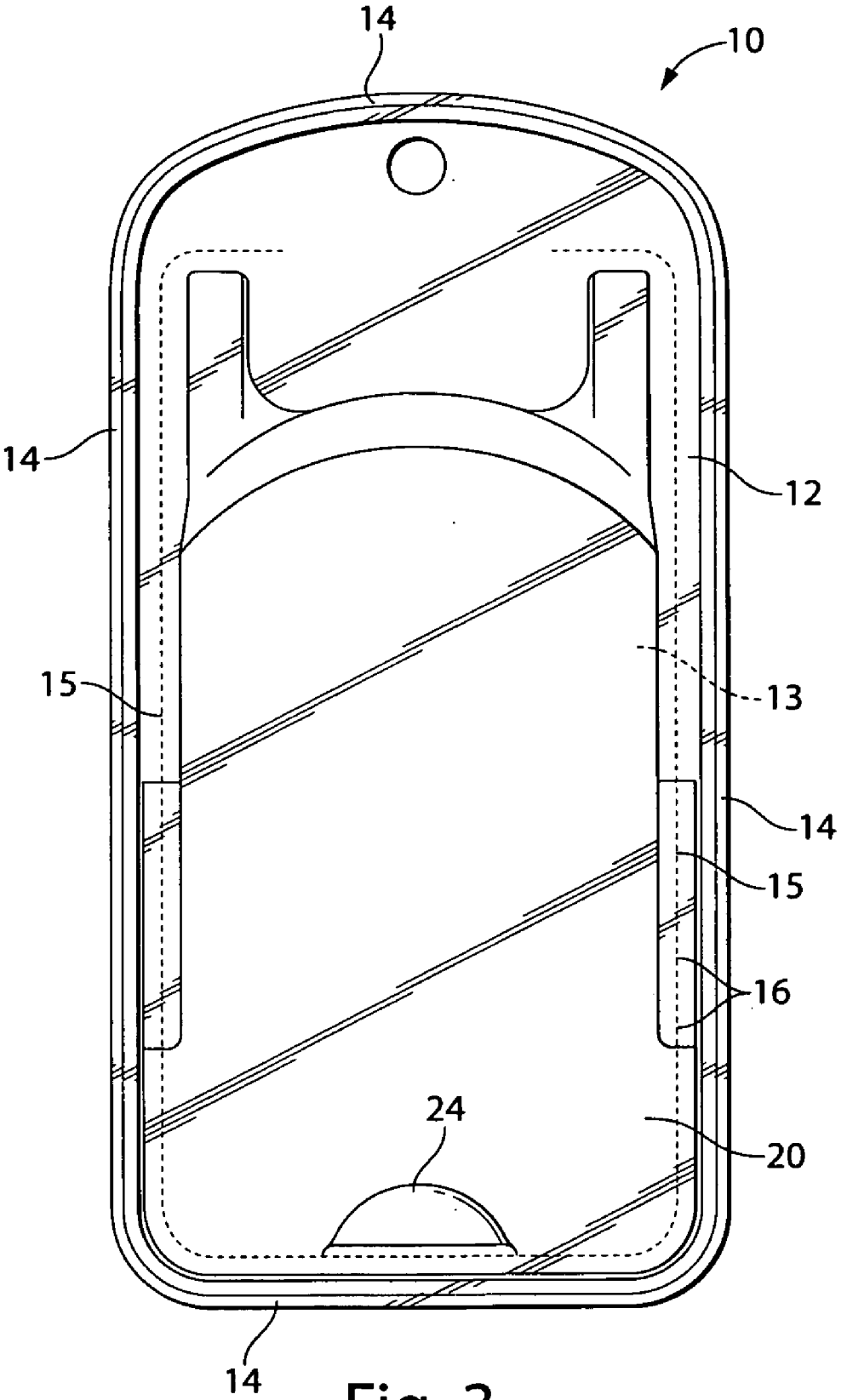



Fig. 3

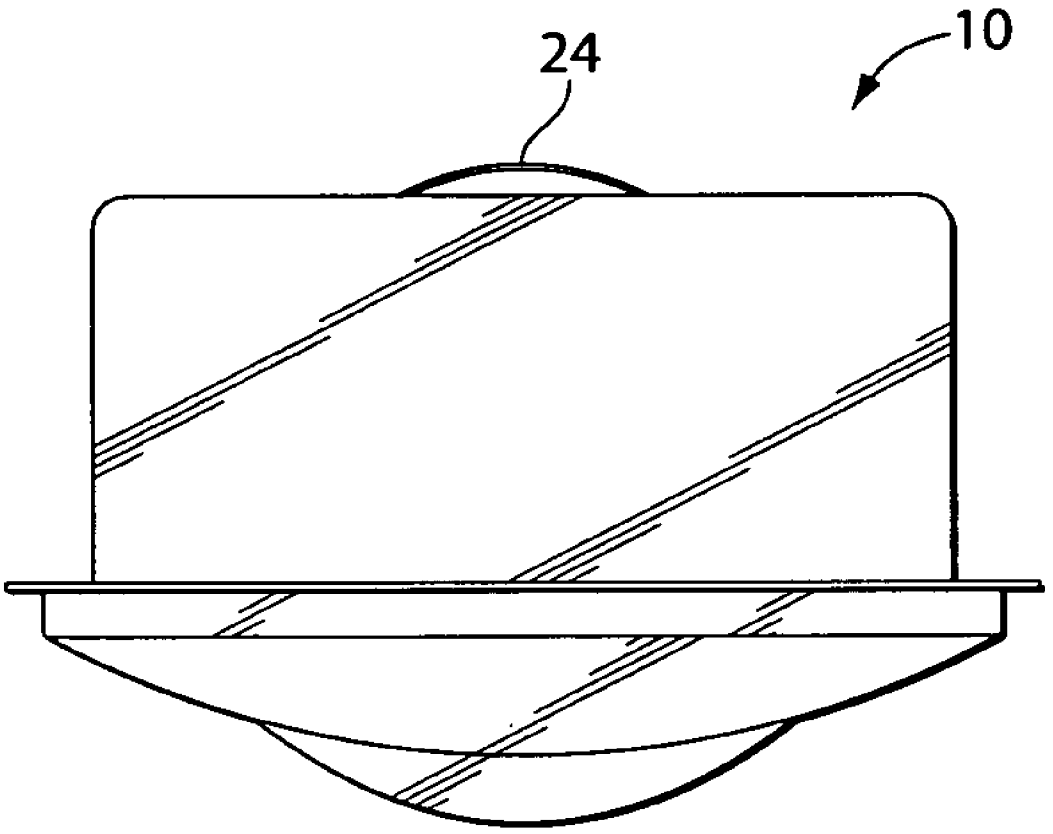



Fig. 4

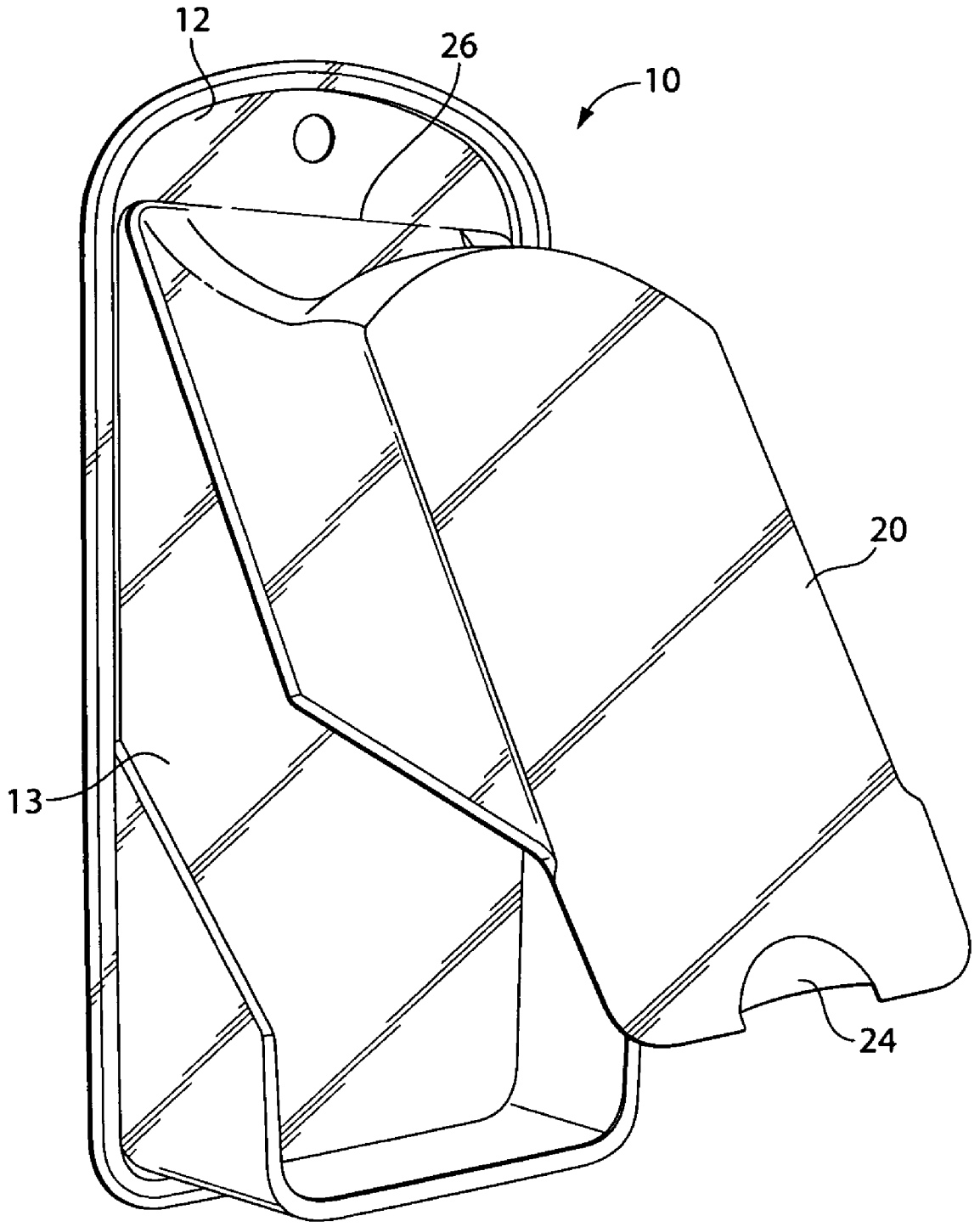



Fig. 5

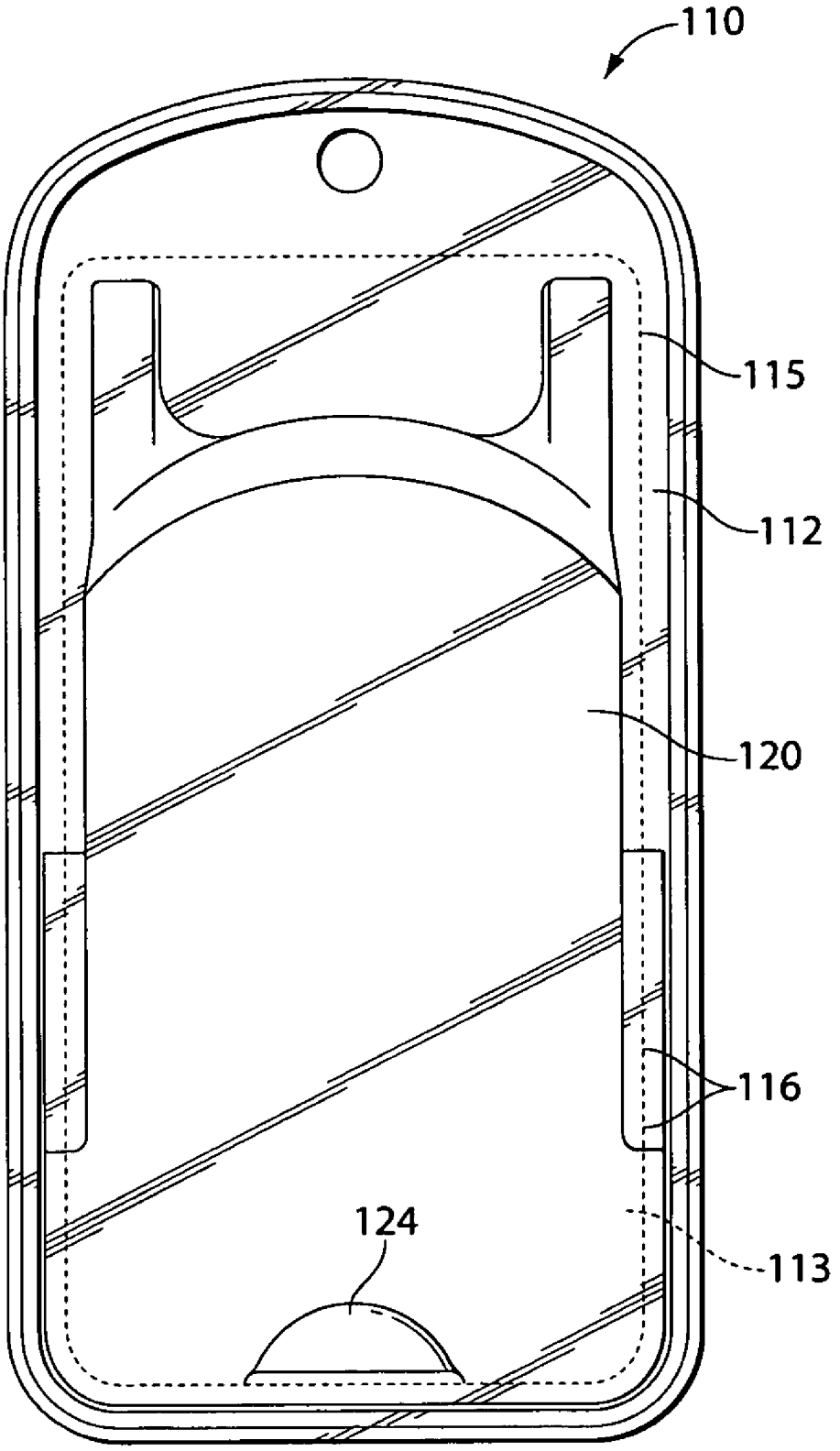



Fig. 6

# PACKAGING UNIT FOR ARTICLES WITH OPENING FEATURE

## FIELD OF THE INVENTION

**[0001]** The present invention is directed to a semi-rigid packaging unit for articles such as razors, articles of personal use and the like.

## BACKGROUND OF THE INVENTION

**[0002]** Conventional packaging units for articles are made from two walls secured to one another. The walls are relatively stiff with a heat seal weld along the peripheral edges or indeed surrounding the entire periphery. Examples of these packaging units are shown in U.S. Pat. No. 5,429,241 issued to Althaus and U.S. Pat. No. 5,407,066 issued to Grange.

**[0003]** Blister packs are known to have a plastic blister front and a cardboard rear wall, the plastic front being glued to the cardboard, which is opened when the user peels the two halves away from one another or pulls back a perforated flap or panel on the cardboard back wall. Examples of these packs are shown in U.S. Pat. No. 4,095,691 issued to Iten; U.S. Pat. No. 3,972,417 issued to Iten et al.; U.S. Pat. No. 3,970,194 issued to Iten; and U.S. Pat. No. 3,933,245 issued to Mullen.

**[0004]** It is recognized that various disadvantages of these known packs include they are frequently difficult to open, usually requiring scissors or considerable force, or do not allow easy access to the article within, which is inconvenient for the user.

## SUMMARY OF THE INVENTION

**[0005]** The present invention comprises a packaging unit. The packaging unit comprises a front wall and a back wall sealed together at a peripheral joint. The front wall and the back wall are formed of semi-rigid material and are spaced apart from one another to define an article-receiving region between them. A line of weakness is formed in the back wall. The line of weakness defines an opening flap to be at least partially separated from the remainder of the back wall. A raised opening tab is positioned on the opening flap along the line of weakness. The raised opening tab extends away from the opening flap. The line of weakness is rupturable by a user by applying a manual force to the opening tab to at least partially separate the opening flap from the remainder of the back wall along the line of weakness in order to access the article-receiving region.

**[0006]** The front and back walls may be formed of plastic or cardboard.

**[0007]** The line of weakness comprises perforations.

**[0008]** The peripheral joint may comprises a heat-sealed seam, a radio frequency sealed seam a ultrasonic sealed seam or an adhesively sealed seam.

**[0009]** The packaging unit may further comprise a hinge in the back wall to facilitate separation of the opening flap from the back wall.

**[0010]** The opening flap may be completely separable from said back wall.

## BRIEF DESCRIPTION OF THE DRAWINGS

**[0011]** While the specification concludes with claims particularly pointing out and distinctly claiming the subject matter which is regarded as forming the present invention, it is believed that the invention will be better understood from the following description taken in conjunction with the accompanying drawings.

**[0012]** FIG. **1** is a front view of a packaging unit of the present invention.

**[0013]** FIG. **2** is a front isometric view of the packaging unit of FIG. **1**.

**[0014]** FIG. **3** is a rear view of the packaging unit of FIG. **1**.

**[0015]** FIG. **4** is a bottom view of the packaging unit of FIG. **1**.

**[0016]** FIG. **5** is a rear isometric view of the packaging unit of FIG. **1** with the opening flap partially separated from the back wall.

**[0017]** FIG. **6** is a rear view of another packaging unit of the present invention.

## DETAILED DESCRIPTION OF THE INVENTION

**[0018]** Referring to FIGS. **1** through **3**, there is shown a packaging unit **10** for articles. The packaging unit **10** is comprised of two spaced-apart walls, front wall **11** and back wall **12** that have been formed to define an article-receiving region **13** between them commonly referred to as a blister, pouch, pocket or cavity. The walls can be referred to as a sheet, foil or panel. The article-receiving pouch shape can be formed into one wall and the other be flat, but it is preferred that both front wall **11** and back wall **12** define parts of the article-receiving pouch. The packaging unit **10** may have a plurality of shapes, including rectangular, circular or oval; preferably, in general, having a rectangular shape. The front wall **11** and back wall **12** are formed of semi-rigid material, which generally retains a shape, e.g. the blister shape, into which it is formed, and is relatively stiff. Preferably the front wall **11** and back wall **12** are formed of plastic material, preferably transparent plastic, to permit viewing of the article contained therein prior to purchase. However, other non-transparent materials may be used.

**[0019]** The semi-rigid plastic material walls **11**, **12** can be thermally formed from plastic materials, preferably polyester materials. Suitable materials also include, without limitation, PVC, PET G (extra glycol polyester), PET, PETGAG and PP. In the case of walls **11**, **12** being made of plastic, suitable forming techniques include vacuum forming and deep drawing, whereby a sheet of material is drawn down with the assistance of pressure over an aluminum tool corresponding in shape to the article-receiving region **13** to be formed, then cooled and set. Alternatively, although presently less preferred, one wall could be made of plastic and another wall of cardboard or paperboard. The use of an all-plastic packaging unit has the advantage that it may be recyclable without having to separate dissimilar materials, is strong and provides a good opportunity to view the contained article. It is understood that the materials can be chosen with regard to the weight of the article to be packed therein, the desired resistance to package crushing or deformation, material cost, and environmental matters such as ease of recycling a package made of a homogenous material rather than dissimilar materials.

**[0020]** The packaging unit **10** is sealed along a peripheral joint **14**. The packaging unit **10** is preferably sealed around all peripheral edges. The sealed packaging unit **10** defines a semi-rigid assembly which has a good degree of stiffness to protect an article contained therein and resists accidental opening.

**[0021]** The peripheral joint **14** may be achieved by use of such convenient techniques as adhesives, ultrasonic, heat-sealing, radio-frequency (RF) sealing (also referred to as "high frequency" HF sealing), or firm mechanical interlock. It is preferred that the joint be strong enough such that it is not easily peeled apart (i.e., resists delamination), since it is not necessary for the consumer to separate the layers of the joint itself. The type of joint chosen depends on the material of which walls **11**, **12** are made, as is understood in the art. A heat seal or RF seal is understood in the art to form a firm, "welded" joint in the classes of preferred plastics such as above mentioned, as is commonly used in blister packs and well understood in the art. A suitable RF seal is about 2.5 mm wide in plan view. Adhesives of the isocyanate type would also "weld" these kinds of plastics, although rubber based adhesives are not preferred since they are less resistant to being peeled open. Also alternatively, if one wall were made of plastic and the other of cardboard, a suitable adhesive can form the joint, as is well understood in the art.

**[0022]** Referring to FIGS. **3-5**, along and inward of the peripheral joint **14** is a line of weakness or weakened region **15** formed in back wall **12**. Preferably, the line of weakness **15** is approximately parallel and coextensive with portions of the peripheral joint **14**, and formed by perforations **16**. The line of weakness **15** defines an opening flap **20**. A raised opening tab **24** is positioned on the opening flap **20** along the line of weakness **15**. The raised opening tab **24** extends away from the opening flap **20**. By extending away from the opening flap **20**, the raised tab **24** provides a convenient location for a user to grasp when opening the packaging unit **10**. When the perforations **16** of the line of weakness **15** are ruptured, which can be done upon application of a moderate manual force of, more or less, about 2 pounds (in the range of about 1 kg), to the opening tab **24** the opening flap **20** can be at least partially separated from the remainder of the back wall **12** allowing for easy access to the article-receiving region **13**. The opening flap **20** separates from the remainder of back wall **12** by pivoting about hinge **26**.

**[0023]** An advantage of the invention has been determined to exist in that users intuitively understand to grasp opening tab **24** to open the packaging unit **10**, thus eliminating the need for extensive opening instructions to be printed on the package, which permits more of the finite surface area of the package to be available for viewing the article and communicating substantive information about vended article itself.

**[0024]** Perforations **16** can be any convenient weakening and/or stress-concentrating features such as made by mechanical die cutting or slitting. The perforations **16** can be formed to extend through back wall **12** as might conveniently be done with die cutting or slitting. Depending on the material, as understood in the art 100 percent cuts (slits extending through 100% of the thickness) could be sufficient. Perforations **16** are formed to completely extend through back wall **12**, such as by cutting fully through the material's thickness, as is presently preferred. It is presently preferred to form the perforations as 10 mm long running slits with 1 mm of un-slit portion ("land") between the slits when using PVC, PET G, PET, PETGAG, or PP sheets of about 0.4 mm thickness, it being understood that the choice of dimensions would be made by one of skill in the art in light of the thickness and stiffness of the wall material. The perforations **16** can be formed subsequent the formation of the plastic material back wall **12**. It is preferred that perforations **16** be done in the blank for back wall **12** before the front and back walls **11**, **12** are heat-welded together, since then the wall forming step can be done in one operation; otherwise, if the perforations **16** were formed after the walls are heat-welded, that would require an additional processing step.

**[0025]** The article within packaging unit **10** may be an article of personal use, such as a razor, a razor blade unit, a shaving unit, a shaving head, a toothbrush, a battery, an energy or other fuel cell for an electric or gas powered appliance, or the like.

**[0026]** Referring now to FIG. **6**, there is shown another packaging unit **110** of the present invention. Packaging unit **110** is identical to packaging unit **10** of FIGS. **1-5**, with one distinction. The one distinction is that line of weakness **115** allows opening flap **120** to be completely removed or separated from the remainder of back wall **112**.

**[0027]** The line of weakness **115** defines an opening flap **120**. A raised opening tab **124** is positioned on the opening flap **120** along the line of weakness **115**. The raised opening tab **124** extends away from the opening flap **120**. By extending away from the opening flap **120**, the raised tab **124** provides a convenient location for a user to grasp when opening the packaging unit **110**. When the perforations **116** of the line of weakness **115** are ruptured, which can be done upon application of a moderate manual force to the opening tab **124**, the opening flap **120** can be completely separated from the remainder of the back wall **112** allowing for easy access to the article-receiving region **113**.

**[0028]** The dimensions and values disclosed herein are not to be understood as being strictly limited to the exact numerical values recited. Instead, unless otherwise specified, each such dimension is intended to mean both the recited value and a functionally equivalent range surrounding that value. For example, a dimension disclosed as "40 mm" is intended to mean "about 40 mm."

**[0029]** All documents cited in the Detailed Description of the Invention are, in relevant part, incorporated herein by reference; the citation of any document is not to be construed as an admission that it is prior art with respect to the present invention. To the extent that any meaning or definition of a term in this document conflicts with any meaning or definition of the same term in a document incorporated by reference, the meaning or definition assigned to that term in this document shall govern.

**[0030]** While particular embodiments of the present invention have been illustrated and described, it would be obvious to those skilled in the art that various other changes and modifications can be made without departing from the spirit and scope of the invention. It is therefore intended to cover in the appended claims all such changes and modifications that are within the scope of this invention.

What is claimed is:

**1**. A packaging unit comprising:

a front wall and a back wall sealed together at a peripheral joint, said front wall and said back being formed of semi-rigid material and being spaced apart from one another to define an article-receiving region between them;

a line of weakness formed in said back wall, said line of weakness defining an opening flap to be at least partially separated from the remainder of said back wall;

a raised opening tab positioned on said opening flap along said line of weakness, said raised opening tab extending away from said opening flap;

said line of weakness is rupturable by a user by applying a manual force to said opening tab to at least partially separate said opening flap from the remainder of said back wall along said line of weakness in order to access said article-receiving region.

**2**. The packaging unit according to claim **1** wherein said front and back walls are formed of plastic.

**3**. The packaging unit according to claim **1** wherein said front and back walls are formed of cardboard.

**4**. The packaging unit according to claim **1** wherein said line of weakness comprises perforations.

**5**. The packaging unit according to claim **1** wherein said peripheral joint comprises a heat-sealed seam.

**6**. The packaging unit according to claim **1** wherein said peripheral joint comprises a radio frequency sealed seam.

**7**. The packaging unit according to claim **1** further comprising a hinge in said back wall to facilitate separation of said opening flap from said back wall.

**8**. A packaging unit comprising:

a front wall and a back wall sealed together at a peripheral joint, said front wall and said back being formed of semi-rigid material and being spaced apart from one another to define an article-receiving region between them;

a line of weakness formed in said back wall, said line of weakness defining an opening flap to be completely separated from the remainder of said back wall;

a raised opening tab positioned on said opening flap along said line of weakness, said raised opening tab extending away from said opening flap;

said line of weakness is rupturable by a user by applying a manual force to said opening tab to separate said opening flap from the remainder of said back wall along said line of weakness in order to access said article-receiving region.

**9**. The packaging unit according to claim **8** wherein said front and back walls are formed of plastic.

**10**. The packaging unit according to claim **8** wherein said front and back walls are formed of cardboard.

**11**. The packaging unit according to claim **8** wherein said line of weakness comprises perforations.

**12**. The packaging unit according to claim **8** wherein said peripheral joint comprises a heat-sealed seam.

**13**. The packaging unit according to claim **8** wherein said peripheral joint comprises a radio frequency sealed seam.

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