Jan. 17, 1967 R. WATTS, JR 3,298,515

PACKAGE

Filed July 31, 1962 2 Sheets-Sheet 1

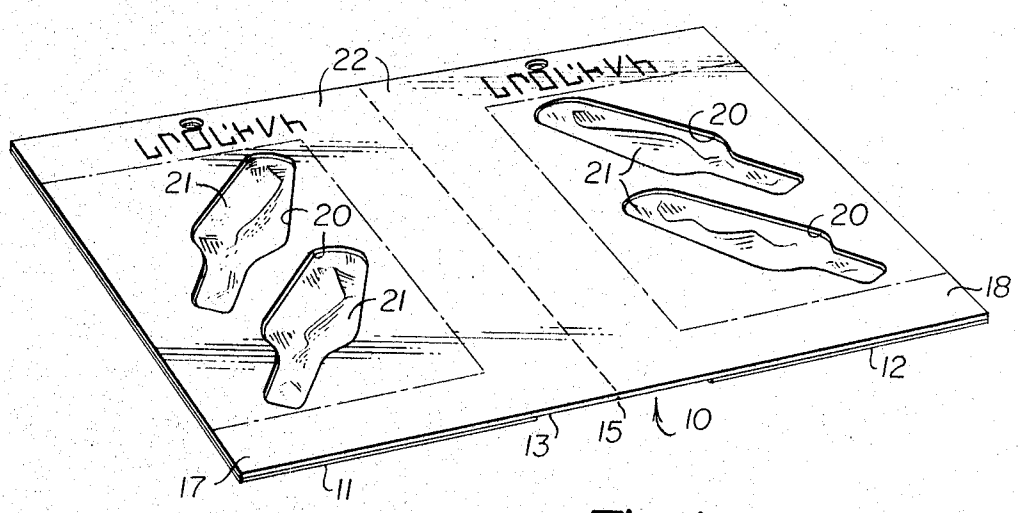


Fig. 1

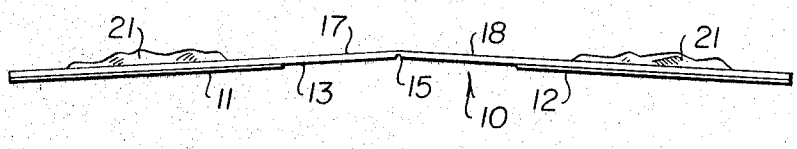


Fig. 2

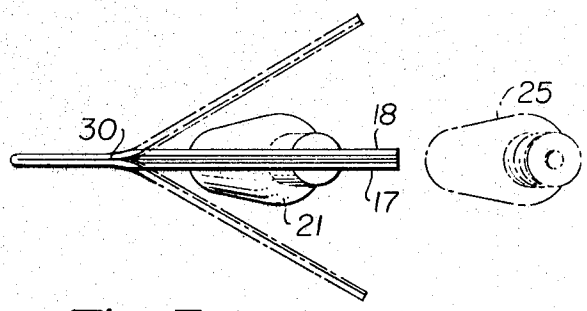


Fig. 3

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Jan. 17, 1967 R. WATTS, JR 3,298,515

PACKAGE

Filed July 31, 1962 2 Sheets-Sheet 2

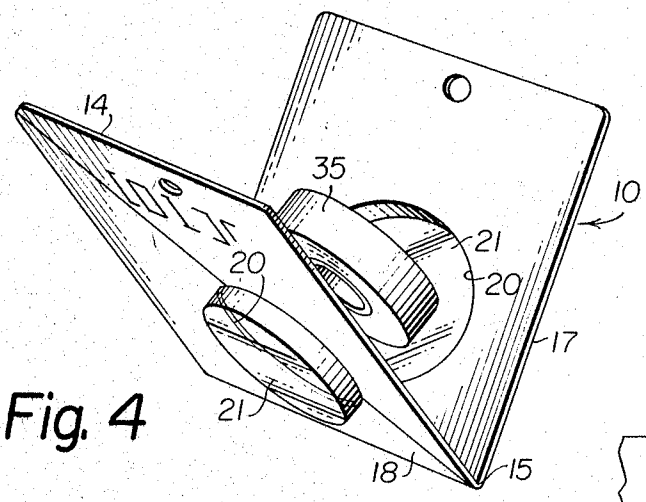


Fig. 4

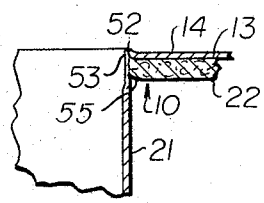


Fig. 7

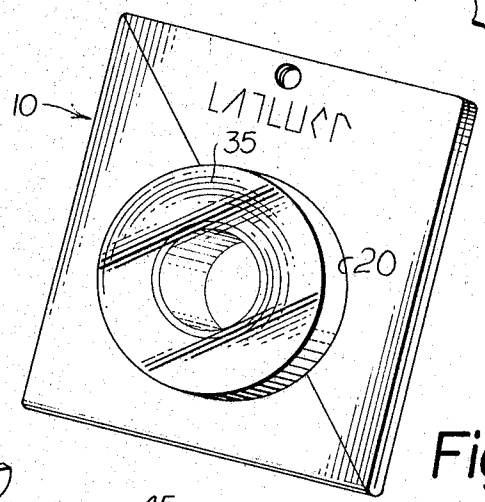


Fig. 5

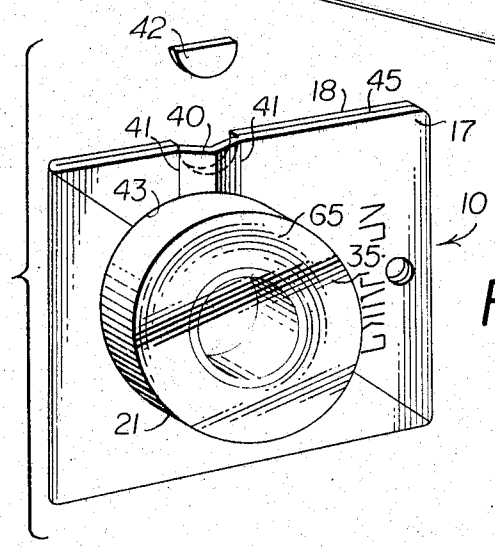


Fig. 6

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United States Patent Office 3,298,515 Patented Jan. 17, 1967

3,298,515

PACKAGE

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Filed July 31, 1962, Ser. No. 213,804
10 Claims. (Cl. 206—78)

This invention pertains to packaging articles and more particularly to a display package. This application is a continuation-in-part of copending application Serial Number 97,907, filed March 23, 1961, entitled, "Package and Method of Making Same," now Patent Number 3,053,023, issued September 11, 1962.

In present day merchandising, many articles are packaged in separate units. Retail products are often packaged in separate units in order to show the products attractively against a display background, which can contain artwork, illustrations of use, trademark, and price. Packages for separate units facilitate self service sales, serve as protection in shipment and deter pilferage.

In packages which accomplish this type of display, each unit of articles to be sold is mounted on an individual display card. This unit is covered with a transparent plastic material which fixes it to the display card. A number of types of packages have been developed which fall in this general class of display package. Presently, the two most popular types are known as "skin" packaging and "bubble" packaging (sometimes referred to as "blister" packaging). Shrink packages are another type falling within this general class.

In "bubble" packaging a cup, contoured to the shape of the product, is molded from relatively heavy plastic film. This cup, known as a bubble or blister, provides a cavity of sufficient size to receive the product to be displayed. The bubble is formed with a peripheral flange so that it can be attached to a display card, either by heat sealing to the face of an adhesive treated card or by being held within a folding card containing an aperture which permits the bubble to protrude from the face of the card while gripping it by its flange.

Bubble packaging is costly for several reasons. One of these is that a rather high-grade and heavy gauge transparent plastic material is required because the bubble must be relatively rigid. Another reason is that bubbles are bulky and, thus expensive to ship and store because of the excessive space required. In addition, the process of packaging a product in a bubble package is relatively slow and time-consuming.

Bubble packaging is further limited because the bubble must be large enough to accommodate the largest product within a tolerance range. Thus, for example, one cannot package light bulbs because the smallest bulbs falling within the permissible tolerance range will not be supported in a manner which will protect the product against excessive breakage.

The more recently developed skin packaging is more economical than bubble packaging for many products but it, too, has certain inherent drawbacks. With the most common form of skin packaging, an adhesive is applied to the front of a card. The adhesive, after it has dried, is perforated. The article to be packaged is then positioned on the card. A heat softened plastic film is then vacuum drawn down over the article and onto the card to simultaneously form a protective covering over the article and bond the plastic sheet to the face of the display card.

Since, in skin packaging, the heat softened film is drawn down over the article itself, an article which has sharp corners, projections, or undercuts will cause the film to puncture. For this reason it is only possible to skin package relatively smoothly contoured products.

Another disadvantage of skin packaging is that a rather substantial amount of processing equipment is required. A manufacturer wishing to skin package its product must either make an inordinate investment in packaging equipment or he must ship his products to a custom packager.

Skin packaging is also a difficult operation. Slight variations in temperature, humidity, porosity of board, oven heat, and film can cause package failures. Many manufacturers have abandoned skin packaging or refused to use it because of the difficulty of making dependable packages.

Shrink packaging is accomplished by streatching a shrinkable plastic film, while heat softened into an oversized mold to form a product pouch. This pouch cannot be preformed because of the inherent tendency of the plastic used to return to its original flattened condition. Accordingly, the article is positioned in the pouch immediately after the pouch is formed and the card is folded and sealed. The film is then heated to shrink it into tight abutment with the product. Cost, the complexity of manufacturing and complex equipment required, loading, and assembly are all drawbacks which limit the use of shrink packages.

In addition, shrink packages are highly susceptible to warpage and puncturing because the film will continue to shrink whenever it becomes warm. Shipping in hot weather, display under a light and other everyday situations can cause this warpage and puncture.

The products which can be packaged with skin and shrink packages are limited because the product is contacted, in each case, by the film when it is hot and soft. Both are not suitable for soft deformable products because in both the plastic is drawn and stretched over the product with sufficient force to distort the product. The product must, then, be composition which will neither be bonded to the film nor distorted under these conditions. For example, attempts have been made to manufacture skin packages with polyethylene film. The use of polyethylene films has been limited because of its highly adhesive characteristics. Many products cannot be skin packaged with polyethylene because the polyethylene would become bonded to the product itself. There are other reasons why these attempts to use polyethylene have never been fully satisfactory. One is that polyethylene tends to cause the display board to curl. Another is that polyethylene film is relatively highly susceptible to tearing when heat softened and drawn over a product.

The present invention provides a new package in which the advantage of skin, bubble, and shrink packaging are incorporated into a single package. In addition, several very positive and additional advantages not provided in any prior package are obtained. With this invention the simplicity and economies even greater than those of skin packaging are obtained. As in bubble packaging, the product manufacturer can package his own merchandise without first making a substantial investment in packaging equipment. In addition, a package of superior appearance is obtained.

This package is one in which the product may selectively project from and be visible from either one or both faces of the finished package and yet covered completely by a protective pocket of plastic film. The product is snugly gripped peripherally by the card for support additive to the pocket or pockets. A double-face package is obtained in which both faces are firmly united together over the interface to obtain a stronger and more durable package.

With the package in which the product projects from both faces, each face can be the front. With this arrangement and the product offset to one side of the centerline,

it is possible to nest the packages on display fixtures and thereby realize substantial space savings.

Another advantage of the present invention is that it is possible for the first time to utilize polyethylene film in a manner which overcomes all of the previous drawbacks and in a manner which obtains the advantages of this film. These advantages include cost of the film itself and its dimensional stability. In addition, it readily lends itself to a novel construction that facilitates removal of the packaged unit. Further, it is free of plasticizers which react with products.

The package of this invention normally uses a display card of fold-over type. A fold-over card is one which is usually printed on its outer face. It is scored for folding. When finished it is folded along the score so that the printed outer face forms both the front and the back faces of the finished package.

In the double pocket arrangement of this invention a product-receiving aperture is formed in each half of the foldable card. A heat softenable plastic film is bonded to the card. The card is positioned in a mold with each of the product-receiving apertures positioned over a mold cavity. These cavities are each shaped to define a portion of the contour of a product to be packaged. Portions of the plastic film are brought against the surfaces of the mold cavities. The portions of the film brought against the surfaces of the cavities form pockets which together define a chamber of the contour of the product to be packaged.

The described process and resulting product provide several outstanding advantages. One advantage is that some products which cannot be packaged in skin or shrink packages are readily packageable by a package made in accordance with this invention. Products which would become adhered to the package film if skin or shrink packaged fall in this category. So, too, do products which have sharp projections or corners which are apt to puncture a skin or shrink packaging film.

In addition, some products, such as flashlight batteries, are difficult to skin or shrink package because each such product has a relatively high surface which projects from the supporting card. A film drawn over a dry cell battery during packaging may be stretched past the breaking point. With the double pocket package of this invention, on the other hand, it is possible to package a product which is substantially twice as thick as the maximum size which can be accommodated with skin packaging. This is true because the product projects from both sides of the supporting card and is encased within two pockets, each of which may be made of film drawn to the maximum safe amount.

Sharp corners, projections, and the like, may be further accommodated in this invention by modifying the mold so that the cavities do not exactly conform to the shape of the product to be packaged. Rather, the cavities are rounded at all sharp corners, and the like, so that the product will, in the area of protrusions or sharp corners, be loosely accommodated in the pockets. With the pocket shaped in this manner, punctures caused by difficult shapes are avoided.

It should also be noted that in the described product and process the product is characterized by effecting a final seal without the addition of adhesives. This is obtained by utilizing a film, such as polyethylene, which will bond both directly to the supporting card and to itself. It is possible to use this package with a wide variety of products because the film never contacts the product when the film is in a hot and heat softened condition. It is also possible to do this and still provide a superior package because a folded card is used which overcomes the tendency a film of this nature might have to cause curling or buckling of the supporting card.

After the film has been applied to the board, the pockets have been formed, and the card stripped from the mold, the package is usually shipped to a product packager. Subsequently, the product is placed in one of the pockets, and finally, whether the card has been made in two separate halves or in one foldable unit composed of two halves, the inside faces of the two halves are then brought together and heat sealed to one another to complete the package.

Another feature of this package is obtained when the package is prepared for receiving the product. The package can be folded along the score and a partial seal is effected adjacent the score. This maintains the card in a folded condition for storage and shipment. When the product is to be inserted the unsealed portions of the card are spread and the product is inserted. When the spread portions are released they tend to return to their original position thereby maintaining the product in the pocket until a complete seal is effected.

One of the unique features of this invention resides in the provision of a product removal feature. This is done either by constructing the pockets for a "pop out" of the product or providing a tear strip to facilitate removal of the product from the package. The two may be combined in a single package. This is not possible with any of the described prior packages. With the tear strip the card has parallel perforations from one side edge of one face of the card to the aperture. The interface between the card halves is not sealed in the region of the tear strip. To remove the product one simply grasps the tear strip and pulls, simultaneously removing the tear strip and tearing the film. The tearing of the film is continued until the pocket is sufficiently separated to release the product.

With the "pop out" feature the film is intentionally thinned preferably in the area where it contacts the perimeter of the aperture. The cards are die cut from the face to the back to provide a shear edge around the perimeter of the aperture on the back of the card. When one presses outwardly on the product the thin portion of the pocket is tensioned against this shear edge and the pocket is severed to permit the product to "pop out."

As suggested above "pop out" construction of providing a shear edge and thin portion of the film may be combined with the tear strip. When so combined the tearing of the film effected when the tear strip is pulled is confined to the area around the perimeter of the pocket to expedite the removal of the product.

This new package has a number of advantages in addition to those which have been described. The manufacturer of a product to be packaged can purchase a complete package which is ready for enclosure of this product. The printed card and the plastic cavity, or pocket, for receiving the product are one integral unit. There is no complicated packaging assembly and no requirement for complex sealing equipment. The loading of the package is simplified as is the sealing to facilitate efficient packaging. The packages can be stored compactly and neatly in a minimum amount of space. They require a minimum amount of handling.

One of the greatest practical advantages of this invention is that the inventory of the products to be packaged can be reduced. With prior packaging techniques, because of the complex equipment required, it was important to package large numbers of products at one time to obtain economies and efficiencies. The present package, on the other hand, readily lends itself well to both the packaging of a few units at a time or equally well to packaging large numbers of units with a completely automated packaging line. If products are packaged differently for different channels of distribution, they can be packaged quickly and efficiently as orders are received as opposed to the prior practice of prepacking relatively large numbers of units for each channel of market distribution. Similarly, since there is no need to ship products to a custom packager, the inventory requirements are further reduced. The ability to package in small quantities just prior to shipment is also very important in the case of products with poor shelf life. Such products

often cannot be run in large quantities and held for several weeks or months.

As the preceding discussion suggests, the object of this invention is to provide a novel and improved package.

Other objects and a fuller understanding of the invention may be had by referring to the following description and claims taken in conjunction with the accompanying drawings, in which:

FIGURE 1 is a perspective view of a package prior to insertion of a product;

FIGURE 2 is a side elevational view of the card of FIGURE 1;

FIGURE 3 is a side elevational view of the package of FIGURES 1 and 2 with the product positioned in it and showing in phantom the position of the package when spaced to receive the product;

FIGURE 4 is a perspective view of the completed card showing the product being inserted;

FIGURE 5 is a perspective view of a finished package;

FIGURE 6 is a perspective view of a package with a tear strip; and,

FIGURE 7 is an enlarged fragmentary sectional view of portions of a card and pocket.

In the parent and copending applications processes and apparatuses for making the package are described in detail. Here the description will be confined substantially to the package itself.

In the drawings, a card is shown at **10**. The card has, in the package of FIGURES 1–3, two strips of plastic **11, 12** adhered to its back **13**. In the card of FIGURES 4–7 a single film of plastic **14** is adhered to the entire back face **13** of the card.

The card **10** is scored at **15** dividing the card into relatively foldable parts **17, 18**. Alternately separate parts are used and the scoring is eliminated. In the manufacturing process, the film **11, 12, 14** is adhered to back or inner face **13** of the card. Apertures **20** contoured to the shape of the article to be packaged are formed in the card **10**. In the package of FIGURES 1–3 two apertures **20** are formed in each part **17, 18**, in FIGURES 4 and 5 one aperture **20** is formed in each part, while in FIGURE 6 only one part **17** is apertured. Pockets **21** are formed in the film. These pockets each project through an adjacent aperture **20**.

The pockets **21** are formed of soft, pliable, and flexible and dimensionally stable film. As shown plainly in FIGURES 1–2, these pockets are partially flattened after formation. They are redistended by the unit being packaged when it is inserted in the pocket or pockets. The pockets are maintained slightly in tension over the unit in the finished package. The unit being packaged, then, is utilized to maintain the pocket in its desired finished condition. The pockets are, of course, preferably transparent to permit the product to serve as its own display.

In FIGURES 1–3 the package is designed for a pair of small light bulbs **25**. The bulbs are both positioned to one side of the centerline of the package. This is done both to expedite "score sealing" which will be described below and to expedite nesting of the filled packages in shipment and on a display rack. To obtain these latter features, both faces **22** of the package are designed to be the front. The filled packages are positioned with the product alternately to the left and the right of the centerline for shipment and display in a nested fashion.

After the film has been adhered to the card and the pockets have been formed the card is folded along the score **15**. In the one arrangement, a partial seal, known as a "score seal," is then effected at **30**, FIGURE 3. This seal is between the score and the pockets so that the card may be spread adjacent one edge as suggested in the phantom lines of FIGURE 3.

As his first step in packaging, the product manufacturer will spread the halves of the card as depicted in FIGURE 3. Next, a unit consisting of one or more products to be sold is pressed into the pockets **21**. The units are a pair

of light bulbs **25** only one of whch is visible in FIGURE 3 and a roll of tape designated by the numeral **35**, in FIGURES 4–6.

The spread halves are then released so that the card will return to the shape shown in solid lines in FIGURE 3 to retain the unit in the pockets. The abutting inner faces of the two halves are then heated and pressed to seal the two together. This heat seal will be over the entire interface between the abutting two halves of the film so that the card is firmly and integrally bonded together. When the heat seal of the film to itself is performed, the seal of the film to the card will be improved simultaneously and any defects along the film-card interface will be corrected. In addition, where the film is narrower than the card, the adhesive is bonded to itself on either side of the film so that a complete edge to edge adhesion is effected.

One of the outstanding advantages of the invention is best understood when one considers that polyethylene film may be used without any of its prior drawbacks. The package produced is stronger, more attractive and more versatile than previous packages and yet less expensive and simpler to make. In addition, the packaging of products is obtained more economically and expeditiously than with prior packaging techniques. Further, because the film is preformed in a mold rather than against the product, it is possible to package soft products.

Because the product never comes into contact with the film when the film is hot, it is possible to utilize a film which has heat bonding characteristics. The preferred film is a transparent, flexible, inexpensive thermoplastic film, capable of bonding both to itself and to the card without any adhesive. It also has relatively low tear strength. Polyethylene film has all of these and the other desirable characteristics.

In FIGURE 6, the tear strip of the invention is shown with a single pocket card. There are two halves of the card **17, 18** shown bonded together but only in a selected area. The cards are not bonded together in the area of a tear strip **40**.

In the example shown in FIGURE 6, only a single pocket **21** is provided. The package may be one in which the product projects from both faces of the card into a pair of complemental pockets corresponding to the pockets **21** of the other figures.

The tear strip **40** is defined by a pair of perforation lines **41**. These perforation lines **41** extend from one edge, the upper edge in FIGURE 6, to the product aperture designated by the numeral **43** in FIGURE 6. The perforations **41** are formed in one half of the card, the half designated by the numeral **17** in FIGURE 6.

When one wishes to remove the tape **35** from the package, a thumb piece **42** is removed and the tab **40** is grasped and torn free from the remainder of the card. This simultaneously separates the tab **40** from the card and tears the plastic film. A continued pulling of the tab **40** will separate the pocket, allowing the product **35** (a roll of tape) to be readily removed from the package.

In FIGURE 7 there is an exaggerated showing of this "tear area." The card **10** has been cut from the outer face **22** to the inner face **13**. This provides a projecting shear edge at **52**. Through control of the pocket forming heat and pressure differential a thin ring of plastic is provided at **53**. The variance of film thickness is exaggerated in this view for clarity of detail. This thinness creates a weakness so that when one presses on the product through one pocket substantially the entire opposite pocket will break away allowing the product to "pop-out." Conversely, one may strengthen the product by maintaining a heavy film thickness in the area **52**. This may be desirable where, for example, the product is a heavy one. When this is done the card will be cut in the opposite direction so that rounded surface **55** will abut the film rather than the shear edge **52**. Where, the "pop-out" and tear strip features are used together, it provides a very

dependable and simple construction for removing a packaged product.

Although the invention has been described in its preferred form with a certain degree of particularity, it is understood that the present disclosure of the preferred form has been made only by way of example and that numerous changes in the details of construction and the combination and arrangement of parts may be resorted to without departing from the spirit and the scope of the invention as hereinafter claimed.

What is claimed is:

1. In combination, a package comprising:
(a) a card having first and second portions in back to back abutment with one another;
(b) said first portion having a wall defining an aperture therethrough;
(c) a flexible film of plastic bonded to the back of the first portion around the aperture;
(d) said plastic film including a pocket projecting through the aperture;
(e) a unit in said aperture and snugly retained within the pocket and maintaining the pocket in a distended condition;
(f) a tear strip delineated by spaced weakened parts of one of the portions, each part extending from one edge of said one portion to the pocket;
(g) said portions being bonded together in areas other than said tear strip; and
(h) said plastic film being bonded to the tear strip.

2. A product for receiving a unit to be packaged comprising:
(a) a card having first and second portions each with an outer face and an inner face;
(b) said portions having surfaces oriented toward one another;
(c) said first portion including at least one aperture therein;
(d) a film of plastic bonded to the first portion and including a product receiving pocket projectable through the aperture; and
(e) said card inner face portions having one area of each between the aperture and one edge bonded to one another and the remainder of the portions between the aperture and opposite edge being separated from one another whereby the card is maintained in a folded condition separable for the insertion of a unit to be packaged.

3. The product of claim 2 wherein the plastic film is bonded to the inner face of said first portion and said bond is effected at least in part by said plastic.

4. The product of claim 2 wherein the plastic film is bonded to the inner face of said first portion and a means including the plastic is on the unbonded portions of the inner face portions for effecting a heat seal therebetween after a unit has been inserted in the pocket.

5. In combination a package comprising:
(a) a card having first and second portions in back to back abutment with one another;
(b) said first portion having a wall defining an aperture therethrough;
(c) a flexible film of plastic bonded to the back of the first portion around the aperture;
(d) said plastic film forming a pocket having a shape when distended generally conforming to a portion of the contour of the article to be packaged, said pocket being projectable through the aperture and being of an area greater than the aperture, said pocket being soft, pliable, flexible, and capable of being partially flattened while maintaining substantially its formed dimensions;
(e) an article in said aperture and snugly retained within the pocket and maintaining the pocket in a distended condition;
(f) a tear strip delineated by spaced weakened parts of one of the portions extending from one edge of said one portion to the pocket;
(g) said portions being bonded together in areas other than said tear strip; and
(h) said plastic film being bonded to the tear strip.

6. In combination, a package comprising:
(a) a card having first and second portions in back-to-back abutment with one another;
(b) said first portion having a wall defining an aperture therethrough;
(c) a flexible film of plastic bonded to the back of the first portion around the aperture;
(d) said plastic film forming a pocket having a shape when distended generally conforming to a portion of the contour of the article to be packaged, said pocket being projectable through the aperture and being of an area greater than the aperture, said pocket being soft, pliable, flexible, and capable of being partially flattened while maintaining substantially its formed dimensions;
(e) an article in said aperture and snugly retained within the pocket and maintaining the pocket in a distended condition; and,
(f) said pocket including a thin, weakened, endless portion conforming to the configuration of said aperture and being formed adjacent to its perimeter so that when pressure is exerted on said article to tension the plastic film forming said pocket substantially the entire pocket will break away in the area of said endless portion to allow the article to pop out of said package.

7. The device of claim 6, wherein the said film is bonded to the inner face of the card projecting through the aperture and the inner face has a shear edge surrounding the aperture.

8. An article for packaging a product comprising:
(a) a card having an aperture therethrough;
(b) a plastic film bonded to one face of the card around the aperture and including a molded portion providing a pocket having a shape when molded and in use generally conforming to a portion of the contour of an article to be packaged, said pocket being projectable through the aperture and of an area greater than the aperture;
(c) said pocket being soft, pliable, flexible, and partially flattened while maintaining substantially its molded dimensions;
(d) the portion of the film forming said pocket being thinner than the remainder of the film;
(e) said pocket being capable of return to the general contour of its molded shape without substantially stretching the film upon insertion of a product into the pocket; and,
(f) said pocket being of sufficient dimensional stability to maintain its molded dimensions at room temperatures.

9. An article for packaging a product comprising:
(a) first and second card portions each with inner and outer faces;
(b) said first portion having an aperture therein, a plastic film bonded to one face of the first portion around the aperture and including a molded portion providing a pocket projectable through the aperture and of an area greater than the aperture, said pocket having a shape when molded and when in use generally conforming to a portion of the contour of a product to be packaged;
(c) said pocket being soft, pliable, flexible, and partially flattened while maintaining substantially its molded dimensions;
(d) said pocket being of sufficient dimensional stability to maintain its molded dimensions at room temperatures;
(e) said pocket being capable of return to the general contour of its molded shape without substantially stretching the film upon insertion of a unit into the pocket;

(f) said card portion inner faces being connectable together to retain a product in the pocket; and,

(g) the portion of the film forming said pocket being thinner than the remainder of the film.

10. In the device of claim **9** wherein:

(a) each card portion is apertured;

(b) a plastic film is bonded to each portion around its aperture;

(c) each film has a formed pocket projectable through the aperture in the portion to which it is bonded and the pocket is of an area greater than its aperture; and,

(d) the card has a score connecting the card portions and disposed with the apertures symmetrical to it whereby the pockets are in alignment when the two card portions are folded along the score and connected together.

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