

Oct. 26, 1971

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3,615,005

TAMPERPROOF PACKAGE

Filed Feb. 12, 1969

FIG. 1

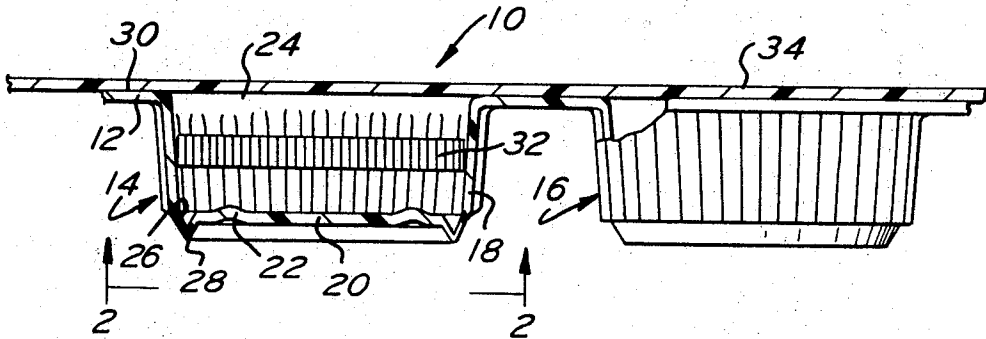


FIG. 2

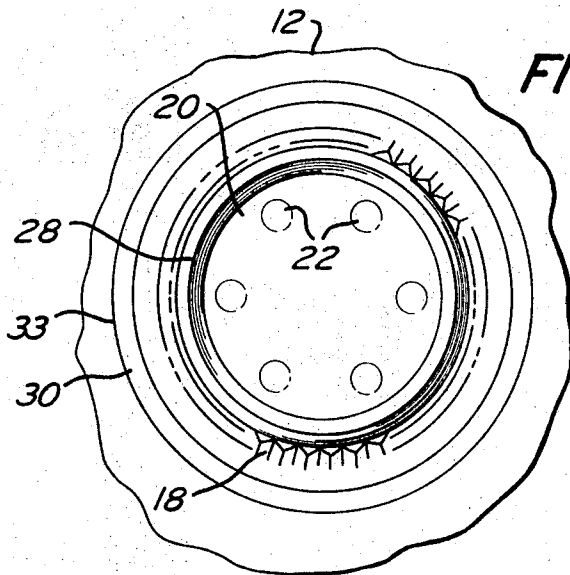


FIG. 4

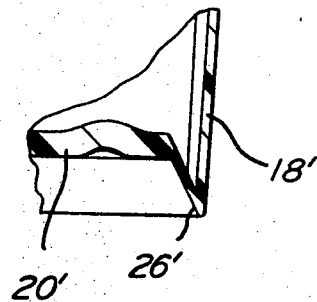
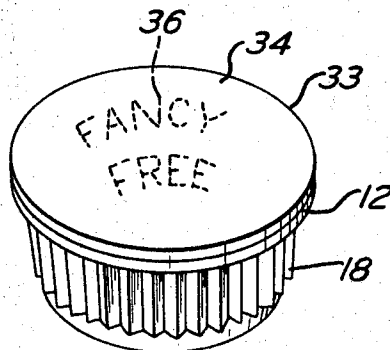


FIG. 3



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TAMPERPROOF PACKAGE

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Filed Feb. 12, 1969, Ser. No. 798,715

Int. Cl. B65d 83/00

U.S. Cl. 206—56

9 Claims

ABSTRACT OF THE DISCLOSURE

A tamperproof and easy-open package of polymeric plastic materials is disclosed wherein a base sheet is provided with specially designed receptacles integral therewith and defined by corrugated side walls with a sharp top edge and an end wall. A top sheet overlies the open end of the receptacle and is welded to a peripheral flange portion of the base sheet with the welds circumscribing the receptacles. When downward pressure is applied on the top of the receptacle, the end wall is pushed in, the receptacle ruptures at a weak section between the corrugated side wall and the end wall before the end wall makes contact with an article within the receptacle.

This invention relates to a tamperproof and easy-open package and a method of making the same. The package is designed so as to contain an article the specific identity of which is to remain anonymous. Any attempt to tamper with the package to ascertain the specific identity of the article will be readily ascertainable due to the construction of the receptacle within which the article is placed.

One specific use of the package of the present invention is in connection with promotional games. In connection with such games, it is essential that distributors, dealers, recipients, and the like be unable to ascertain the identity of the contents of the various packages which are given away as part of the promotional game. The package of the present invention is designed so as to prevent the packages from being tampered with in a manner other than that which will be readily ascertainable. Thus, the package of the present invention will rupture before any tampering with the package can be successful in ascertaining the identity of the contents of the package. Also, normal access to the article is easily attained by rupturing the receptacle.

In providing the tamperproof package, it is necessary to take into consideration that the denomination of articles within the receptacle should not be ascertainable by subjecting the receptacle to strong light, the receptacle should not be capable of being sealed and unsealed in a manner which does not destroy the receptacle, and the walls of the receptacle adjacent the sides of the article should not come in contact with the same so as to permit someone to trace the contour of the side of the article through the adjacent walls of the receptacle. The package of the present invention accomplishes all of these objectives so that any tampering with the receptacle is immediately noticeable.

In accordance with the present invention, the receptacle is provided with a corrugated side wall substantially higher than the thickness of the article. The corrugated side wall is joined to an end wall by means of a weak section. The corrugated side wall resists inward pressure applied to the end wall to a sufficient extent so as to rupture the section therebetween before the end wall may contact the article.

It is an object of the present invention to provide a novel tamperproof package.

It is another object of the present invention to provide a package containing an article whose identity is to remain unknown and wherein any tampering with the pack-

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age to ascertain the identity of the article will cause a rupture of the package.

It is another object of the present invention to provide a novel method for packaging articles such as coins.

It is another object of the present invention to provide a novel package and method for packaging coins used in a promotional game.

Other objects will appear hereinafter.

For the purpose of illustrating the invention, there are shown in the drawings forms which are presently preferred; it being understood, however, that this invention is not limited to the precise arrangements and instrumentalities shown.

FIG. 1 is a partial sectional view through a plurality of packages before they are separated into individual units.

FIG. 2 is a view taken along the line 2—2 in FIG. 1.

FIG. 3 is a perspective view of a package in accordance with the present invention.

FIG. 4 is a partial sectional view of a receptacle in accordance with another embodiment of the present invention.

Referring to the drawing in detail, wherein like numerals indicate like elements, there is shown in FIG. 1 a plurality of packages in accordance with the present invention designated generally as 10.

In practicing the present invention, the first step is to take a base sheet 12 and deform the same so as to provide a plurality of spaced receptacles 14 and 16 in the base sheet, but integral therewith. One suitable way of forming the receptacles 14 and 16 is to vacuum form the base sheet 12. During such vacuum forming step, a greater number of receptacles than that shown in FIG. 1 will be provided. Since each of the receptacles 14 and 16 are identical, only receptacle 14 will be described in detail.

The receptacle 14 includes a corrugated side wall 18 which may be slightly tapered in a direction away from the base sheet 12 by an angle of approximately 3° to 5°. For purposes of illustration, the base sheet 12 may have a thickness of approximately .016 inch while the wall 18 has a thickness of approximately .008 inch.

A bottom wall 20 which is circular in periphery is joined to the side wall 18 by a V-shaped weak portion 26. Portion 26 is defined by a ridge 28 on its lower surface. Bottom wall 20 may be provided with a plurality of projections 22 which rigidify the bottom wall 20 and prevent the full surface of bottom wall 20 from contacting an article disposed within the chamber 24. Bottom wall 20 has a thickness which is approximately the same as sheet 12. The ridge 28 is a built-in stress raiser and defines the area at which the receptacle 14 will rupture when the end wall 20 is pushed inwardly. The corrugations of side wall 18 give strength to the side wall and hinder collapsing of the same as the end wall 20 is pushed in.

The second step of the method of the present invention is to introduce articles into the chamber 24 of each receptacle. As illustrated in FIG. 1, the article is a coin 32. It will be noted that the height of wall 18 is substantially greater than the thickness of the coin 32. FIG. 1 is not drawn to scale; however, the relative height of wall 18 and thickness of coin 32 are substantially accurate as illustrated. The height of wall 18 must be such that compression of wall 20 toward coin 32 will result in rupture of the receptacle before wall 20 contacts the coin 32. The slight taper of wall 18 also results in locating the coin 32 intermediate the height of the chamber 24. Projections 22 will contact coin 32 before the full surface of wall 20 may contact coin 32.

The next step in the process of the present invention is to place a top sheet 34 so that it overlies each of the

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receptacles. Top sheet 34 has a thickness which is substantially the same as the thickness of base sheet 12. The sheets 12 and 34 are preferably of the same material or similar materials capable of being welded. In a preferred embodiment of the present invention, the sheets 12 and 34 are of styrene-based plastic whose composition has been chosen so as to render the polymeric plastic material brittle at high stress zones while remaining generally flexible in other zones. The selection of appropriate plastics for this purpose is within the ability of those skilled in the art. Each of the sheets 12 and 34 are opaque.

The next step in the process of the present invention is to provide welds 30 which circumscribe the receptacles. Thereafter, the receptacles are separated from the sheets 12 and 34 by a cutting operation resulting in a peripheral flange on the receptacle welded to the adjacent surface of the top sheet 34.

The top sheet 34 may be preprinted with indicia 36 before the welding step or after the welding step. The indicia may take a wide variety of forms and performs the function of obscuring the contour of the juxtaposed surface of coin 32 when the top sheet 34 is subjected to a strong light. The projections 22 also perform the function of obscuring the juxtaposed surface of coin 32 when the bottom wall 20 is subjected to a strong light.

The package of the present invention is illustrated in FIG. 3. While the peripheral edge 33 is circular as shown, it could be square, hexagonal, octagonal, etc. Any attempt to cause the bottom wall 20 to contact the coin 32 will rupture the receptacle in the area of the ridge 28. The projections 22 and indicia 36 prevent ascertaining the surface contour of coin 32 by subjecting the package to strong light. The weld 30 cannot be separated without destroying the receptacle. Hence, the package cannot be opened and then resealed. Any attempt to tamper with the package will be immediately ascertainable.

In FIG. 4, there is partially illustrated a receptacle in accordance with another invention wherein the bottom wall 20 is provided with a downwardly extending peripheral flange portion 26' joined directly to the lower peripheral edge of wall 18'. When bottom wall 20' is pushed inwardly, the receptacle will rupture at the portion 26'. Otherwise, the embodiment in FIG. 4 is identical with that described above.

Normal access to the article in the receptacle is attained by pushing on walls 20 and 20' until the receptacle ruptures. While the article has been referred to as a coin, it will be appreciated that other items such as charms, stamps, unit doses of medicines, unit doses of ingredients to be added to a mixture, etc. may be packaged in accordance with the present invention.

The side wall 18 may be provided with a flexible annular portion about which the receptacles may collapse in such a manner so as to facilitate the desired rupture of the receptacle. Such flexible portion should be nearer the end wall 20 than the base sheet 12 so as to induce tensile stresses in the weak section.

Portions 26 and 26' are illustrative of stress raising portions, which may include any sharp change in thickness or direction.

The present invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof.

It is claimed:

1. A package comprising a cup-shaped receptacle con-

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taining an article therein, said receptacle having a peripheral flange welded to a top sheet overlying the open end of the receptacle, said receptacle having a corrugated side wall joined to a bottom wall by a weak joint so that pressure applied to the bottom wall will rupture the joint to permit access to said article, said top sheet and receptacle being made from polymeric plastic materials capable of being welded together, and said bottom wall being thicker than the side wall.

2. A package in accordance with claim 1 wherein said corrugated side wall converges from said flange to said bottom wall.

3. A package in accordance with claim 1 wherein said bottom wall constitutes means for attaining access to the article in the receptacle.

4. A package comprising a cup-shaped receptacle containing an article therein, said receptacle having a peripheral flange welded to a top sheet, said top sheet overlying the open end of the receptacle, said receptacle having a side wall converging from the flange to a bottom wall, means rendering the receptacle tamperproof, said tamperproof means including a weak section at the juncture of the side wall and the bottom wall so that pressure applied to the bottom wall will rupture the receptacle before the bottom wall contacts the article, the height of said side wall being greater than the thickness of the article, and said top sheet and receptacle being made from opaque polymeric plastic material capable of being welded together.

5. A package in accordance with claim 4 wherein said bottom wall is thicker than the side wall.

6. A package in accordance with claim 4 wherein said side wall is corrugated and thinner than the top sheet, and said polymeric plastic materials being the same material.

7. A package in accordance with claim 4 wherein said receptacle and top sheet are made from styrene.

8. A package in accordance with claim 4 wherein said top sheet is provided with indicia, said bottom wall being provided with projections on its inner surface, and said side wall being corrugated.

9. A package in accordance with claim 4 wherein said section is defined by a V-shaped portion having a ridge on its outer peripheral surface with the sides of said portion converging away from the plane of said top sheet.

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U.S. Cl. X.R.

206—82; 220—27; 229—43, 51; 249—74; 273—139