

Sept. 29, 1970

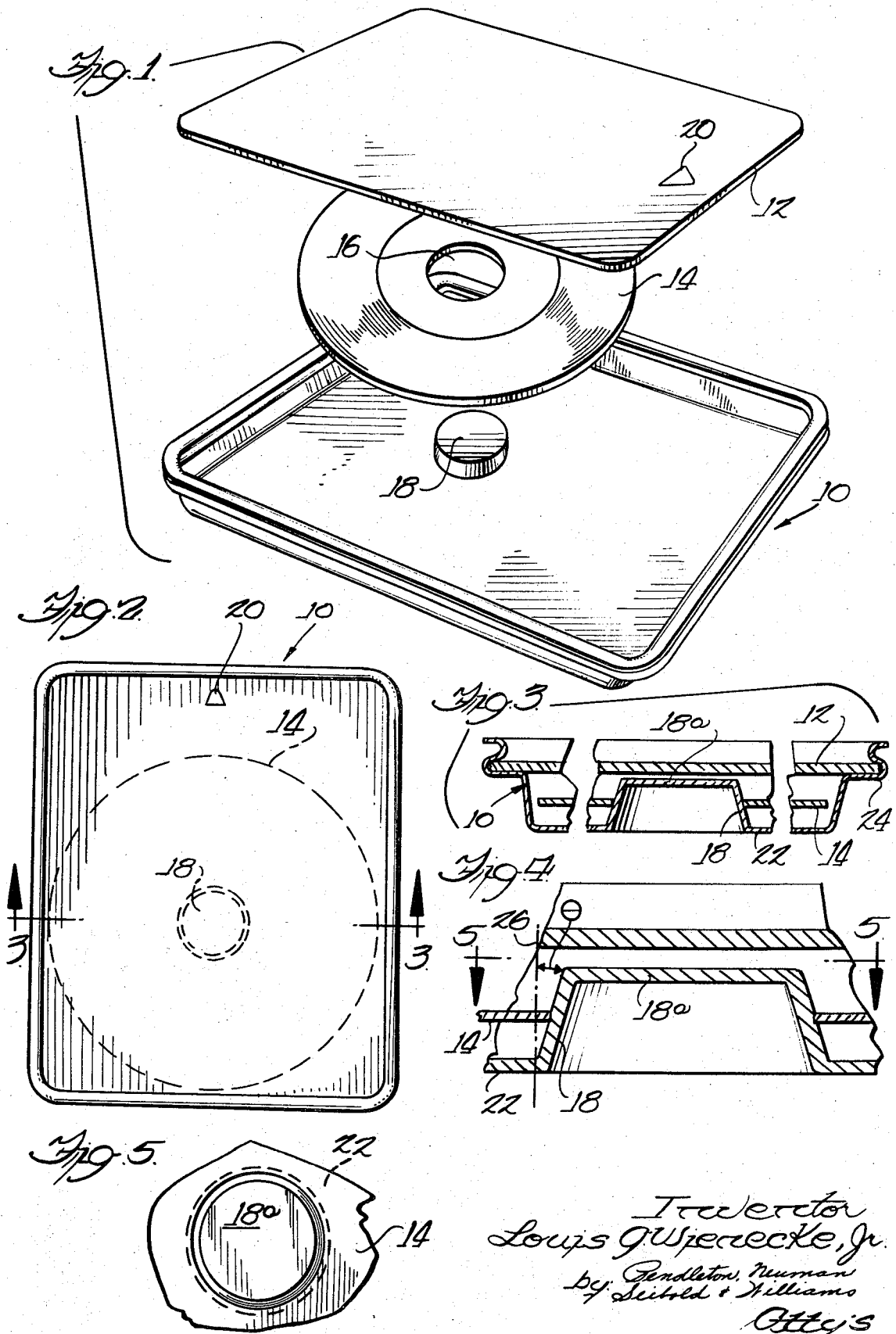
L. G. WIENECKE, JR

3,530,981

RECORD MAILER

Filed Dec. 26, 1968

2 Sheets-Sheet 1



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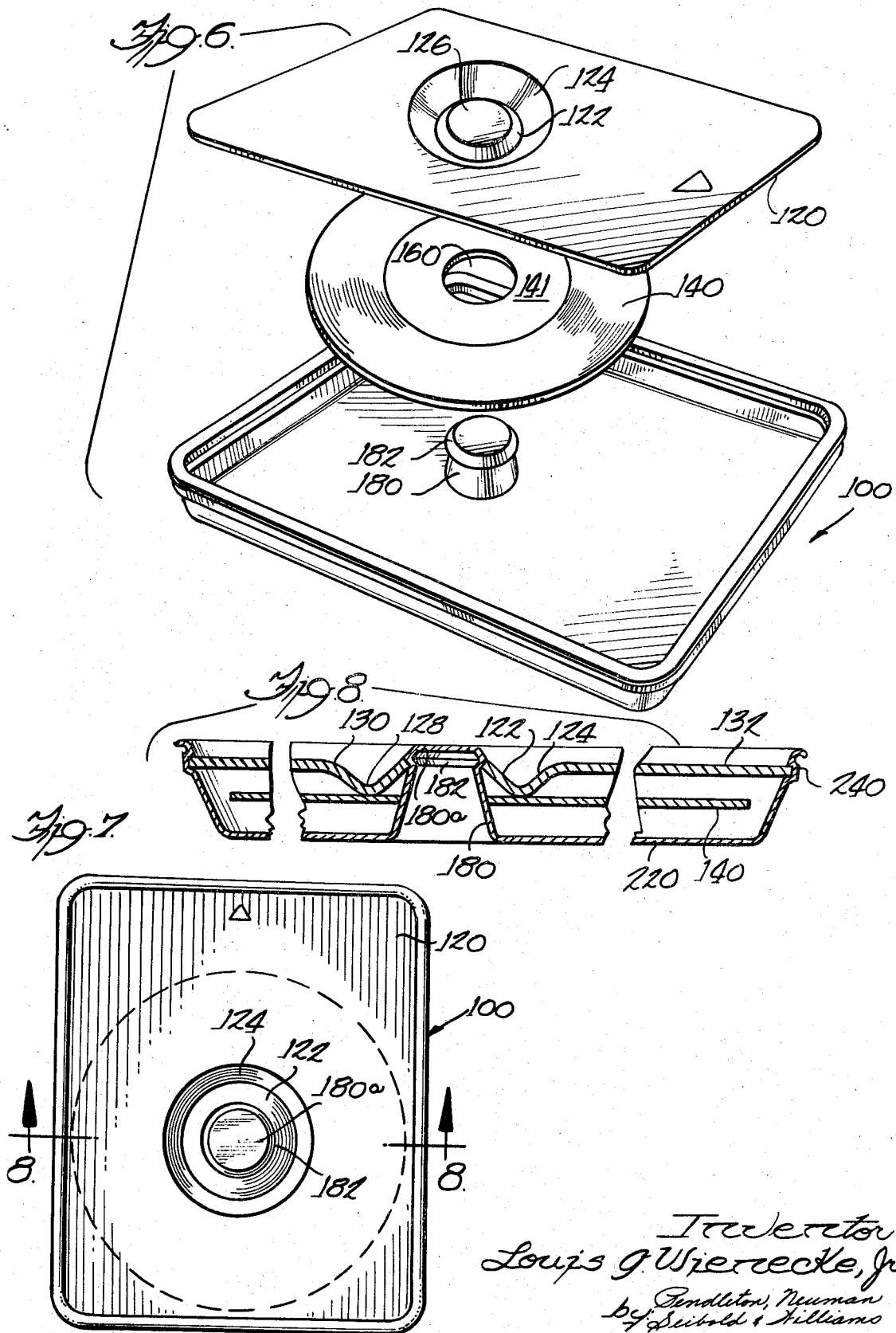
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2 Sheets-Sheet 2



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9 Claims

ABSTRACT OF THE DISCLOSURE

A container having a tapered spindle inside on which a fragile flat article such as a phonograph record may be impaled and held securely by the friction between the article and the wall of the spindle.

BACKGROUND OF THE INVENTION

In the field of packaging thin, flat and relatively fragile articles, most containers heretofore have been constructed to give the container substantial strength. Even when the article to be packaged possessed a great degree of suppleness the container was constructed to cooperate with that property to form a unitary strong package. Those types of packaging, however, either involved an amount of extra weight occasioned by the use of strong carton materials or involved placing the contents of the carton in contact with the walls of the carton in such a manner as to lend the requisite strength to the entire package. The former type of packaging was undesirable from both the weight and cost of materials standpoints, and the latter type of packaging was undesirable from the point of view of protecting the contents from abrasion on the inside of the carton.

SUMMARY OF THE INVENTION

In the invention described herein, a container is provided which holds its contents in place by means of a frictional engagement between the contents and a tapered spindle inside the container on which the contents are impaled. The remaining surfaces of the contents are spaced apart from the inside surfaces of the container, thus eliminating abrasion of the contents on the container walls while at the same time protecting the contents by a space cushion.

It is one of the objects of this invention to provide a container having a tapered spindle on which the contents of the container are held in place by frictional engagement upon the spindle.

Another object of the present invention is to provide a container in which the contents are protected by a cushion of space from abrasion on the inner surfaces of the container.

A further object of the invention is to provide a container in which the walls of the container may be constructed of lightweight materials without dependency upon the strength of the contents for additional support.

Accordingly, a container is provided having a cup-shaped member terminating in an open end. A groove is formed along the inside walls of the cup-shaped member adjacent the open end, and a spindle is disposed inside and extending from the bottom of the cup-shaped member. The spindle is tapered along the height of the spindle to secure by frictional engagement articles impaled on the spindle. A lid for the container is adapted to be snapped over the spindle and into the groove along the walls of the cup-shaped member.

DESCRIPTION OF THE DRAWINGS

Other objects and advantages of the present invention will become apparent from an examination of the accompanying drawings, in which:

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FIG. 1 is an exploded view in perspective of an embodiment of the invention showing a cup-shaped member, a lid usable therewith and a phonograph record to be packaged therein;

FIG. 2 is a top plan view of the embodiment shown in FIG. 1 showing the elements in assembled relationship;

FIG. 3 is a sectional view of the embodiment shown in FIGS. 1-2 taken along the line 3—3 in FIG. 2 with parts broken away to show the center and outer portions of this sectional view;

FIG. 4 is an enlarged fragmentary sectional view of the center portion of the embodiment shown in FIG. 3;

FIG. 5 is a top plan view of the fragmentary sectional view of the embodiment shown in FIG. 4 taken along the line 5—5 in FIG. 4;

FIG. 6 is an exploded view in perspective of a modified form of the embodiment of the invention shown in FIG. 1;

FIG. 7 is a top plan view of the modified embodiment shown in FIG. 6 showing the elements in assembled relationship; and

FIG. 8 is a sectional view of the modified embodiment shown in FIGS. 7-8 taken along the line 8—8 in FIG. 7 with parts broken away to show the center and outer portions of this sectional view.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring more particularly to the drawings, there is shown in FIG. 1 a cup-shaped tray 10 having a lid 12. A phonograph record 14 is shown disposed for being packaged within the tray by positioning the centrally located aperture 16 in the record over a tapered spindle 18 on the tray. It will be apparent that the particular embodiment illustrated in FIG. 1 is especially adapted to package 45 r.p.m. records which typically have large diameter spindle-receiving apertures.

The sizes of the tray 10 and lid 12 are determined by the article to be packaged. As shown in FIG. 2, the record 14 is positioned within tray 10 so that it does not rub against the walls of the tray. A die-cut tab 20 is formed in lid 12 outside the diameter of the record so that the lid can safely be removed without risk of scratching the record when the tab is punched in or lifted up during the course of separating the lid from the tray.

As shown particularly in FIGS. 3-5, the record 14 in the tray 10 is pressed onto spindle 18, the walls of the spindle being tapered so that the diameter of spindle-receiving aperture 16 in the record requires a frictional engagement of the record on the spindle. Thus the record is positioned on the spindle intermediate the outer end 18a of the spindle and the bottom 22 of tray 10, and a protective space cushion is accordingly provided between the record and the bottom of the tray. A groove 24 is provided in the walls of tray 10 adjacent the open end of the tray above the height of spindle 18. Once the record 14 is positioned on the spindle 18, lid 12 may be snapped over the outer end of the spindle and into groove 22, thus providing a protective space cushion over the record.

The spindle 18 may be formed integrally with the bottom of the tray in manners well known to those familiar with the packaging art. Preferably the tray 10 is formed by thermoforming, although other forming methods such as blow molding and injection molding may be used. Materials which can be used advantageously for the tray are polymers such as polyethylene, polypropylene, homopolymers and copolymers of ethylene and butene, acrylonitrile butadiene styrene polymers, homopolymers and copolymers of styrene, vinyl polymers and copolymers, polybutene and homopolymers and copolymers of 4-methyl-1-butene. The polymers may be

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foamed or unfoamed. The lid 12 for the tray 10 may be made of any of the foregoing polymers, of paperboard laminated with one or more of the foregoing polymers, of paperboard alone or of metal-foil-paperboard laminates.

As shown particularly in the enlarged fragmentary view, FIG. 4, the walls of spindle 18 are tapered at an appropriate angle θ to provide a frictional engagement between the walls of the spindle and record 14 intermediate the outer end of the spindle and the bottom 22 of the tray.

For example, when the container is formed of high density polyethylene and the record is of a typical vinyl material, the angle θ should be less than twelve degrees from the vertical plane represented by line 26 which is normal to the plane of tray bottom 22. The tangent of the angle θ is therefore less than the static coefficient of friction between the material of the record and the container material. In such case, however, considering production variations in the diameter of aperture 16 of the record and the taper of the spindle, the angle θ should be greater than about three degrees from the vertical plane represented by line 26 so that the record will engage the walls of the spindle 18 within a reasonably predictable distance below the outer end of the spindle.

In the modified form of the invention shown in FIGS. 6-8, tray 100 and lid 120 are arranged to accommodate a phonograph record 140. A centrally disposed aperture 160 in the record permits the record to be placed over a tapered spindle 180 on the bottom 220 of the tray. Spindle 180, adjacent its outer end, is provided with a rim 182 spaced from the bottom of the tray, and lid 120 is provided with a pair of flaps 122 and 124. The flaps may be developed by deforming the material of the lid or by affixing a preformed set of flaps to the lid. The flaps define an aperture 126 in registry with the tapered spindle.

As shown in FIG. 8, the record 140 is pressed onto spindle 180, the walls of which are tapered, so that the record frictionally engages the walls of the spindle intermediate the outer end 180a of the spindle and the bottom 220 of the tray. A groove 240 is provided in the walls of the tray adjacent the open end of the tray at approximately the same height from the bottom 220 as the rim 182 on the spindle. Once the record 140 is positioned on spindle 180, lid 120 may be snapped into the groove 240 and the flap 122 which defines aperture 126 in the lid snapped over the spindle 180 and into engagement on rim 182. Resilient hinges 128 and 130 which integrally connect flaps 122 and 124 with the body portion 132 of the lid exert a force on flap 122 to place it under a stress against the spindle and maintain the flaps in position about the spindle. In the package thus assembled, hinge 128 is disposed against the label portion 141 of record 140 adjacent spindle-receiving aperture 160 and serves to guard against vertical displacement or tipping of the record on the spindle without abrasion of the record grooves.

Reasonable variations and modifications of the preferred form of the invention disclosed and described hereinabove may be made.

What is claimed is:

1. A container comprising
 - a cup-shaped member terminating in an open end,
 - a groove formed along the inside of the walls of said cup-shaped member adjacent the open end,

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a spindle inside and extending from the bottom of the cup-shaped member,

said spindle being tapered along its length to secure by frictional engagement articles impaled on said spindle intermediate the outer end of the spindle and the bottom of the cup-shaped member,

said spindle also having a rim disposed adjacent the outer end of the spindle spaced from the bottom of the cup member, and

a lid having an aperture defined therein in registry with said rim,

said lid being adapted to be snapped over said spindle into engagement on said rim and into the groove along the walls of the cup-shaped member.

2. The container of claim 1 wherein the spindle is cone shaped having its greater diameter adjacent the bottom of the cup-shaped member.

3. The container of claim 1 wherein the spindle is integrally formed with the bottom of the cup-shaped member.

4. The container of claim 1 wherein a flap portion for engaging the rim is disposed about said aperture in the lid.

5. A package comprising

a cup-shaped member terminating in an open end,

a groove formed along the inside of the walls of said cup-shaped member adjacent the open end,

a spindle inside and extending from the bottom of the cup-shaped member,

a disk-shaped member disposed in the cup-shaped member and impaled on the spindle, the walls of said spindle being tapered along the height of the spindle and securing said disk on the spindle by frictional engagement intermediate the outer end of the spindle and the bottom of the cup-shaped member, and

a lid snapped over said spindle and into the groove along the walls of the cup-shaped member.

6. The package of claim 5 wherein the height of the spindle above the bottom of the cup-shaped member is less than the distance from said bottom to the lid.

7. The package of claim 5 wherein a flap attached to the lid defines an aperture in the lid in registry with the spindle, said spindle having a rim at its outer end and said flap being disposed under stress between the disk member impaled on the spindle and the rim.

8. The package of claim 7 wherein said lid includes first and second flap portions and a body portion, the first flap portion being disposed under stress between the rim and the disk member, the second flap portion immediately connecting the first flap portion to the body portion, and the first and second flap portions being hingedly and resiliently connected to said body portion.

9. The package of claim 5 wherein the disk member is a phonograph record.

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