

- [54] **CARTON**
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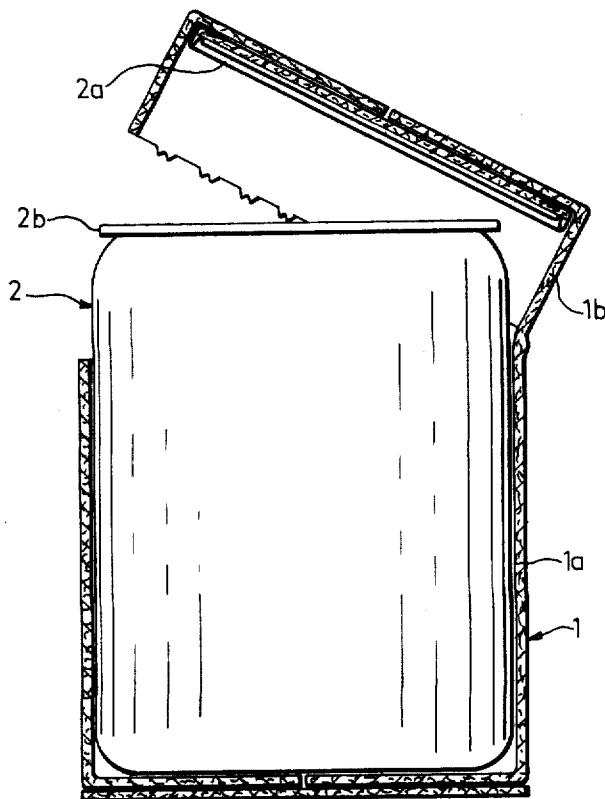
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[57] ABSTRACT

A carton having an outer cardboard box and an inner plastics container having a snap fitting lid which is secured to a lid hingedly connected to the box so that as the box lid is swung to open the box the snap fitting lid is removed from the container and as the box lid is shut the container lid snaps shut onto the container. The box lid is preferably formed integrally with the box and a tear-off strip is provided which leaves a hinge connection between the lid and the box so that the former can be swung to open the latter.

3 Claims, 3 Drawing Figures



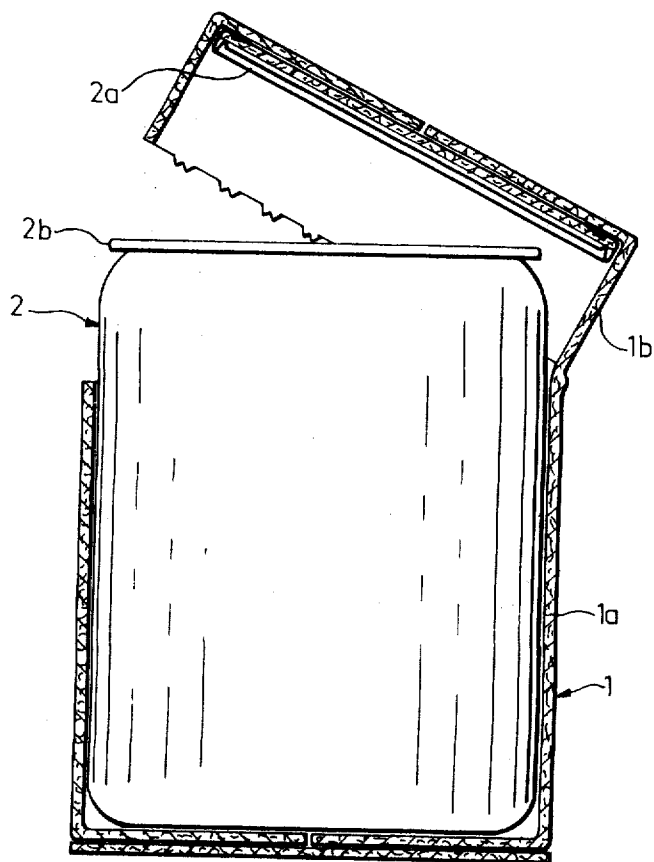


Fig. 1

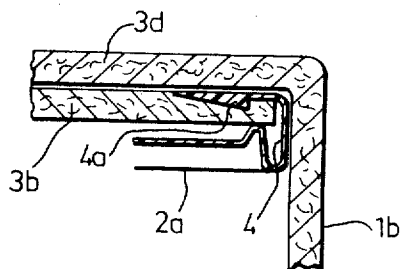


Fig. 2

CARTON

FIELD OF THE INVENTION

This invention relates to cartons.

Chemicals, more particularly dyes in powder form, are today marketed mainly in disposable cartons. It should be possible for cartons of this kind to be used for a large number of different chemicals and to have adequate mechanical strength. In addition they should be as light as possible and cheap for economic reasons. Furthermore, these disposable cartons should be very simple to handle by the consumer, and, in particular, care must be taken to ensure that the carton can be repeatedly opened and closed without the closure becoming leaky.

PRIOR ART

Plastics containers satisfy practically all these requirements to a large degree. They are resistant to most chemicals and relatively light. Furthermore, snap lids for plastics containers can be made without difficulty and such lids do not lose their sealing properties even after repeated opening and closing. The only disadvantage making plastics containers unsuitable for such disposable cartons is that they must have relatively thick walls for adequate strength and are hence expensive. In addition, there is considerable difficulty in destroying plastics containers which is undesirable in view of modern efforts to protect the environment. Research has therefore been carried out into other forms of disposable cartons.

For example, a container has been disclosed which consists of a cardboard box whose insides are coated with a plastics coating. The cardboard box imparts mechanical stability to the container while the plastics coating is chemically resistant and provides a sealing function. The top part of the box is constructed as a detachable or swing-open lid which fits on the correspondingly constructed edge of the bottom part and thus closes the container.

Although a plastics coated cardboard container of this kind is light cheap and adequately strong, experience has shown that its other properties are nowhere near as good as those of self-supporting plastics containers. More particularly, the sealing properties of the lid after the box has been opened for the first time do not satisfy the stringent requirements of a number of chemicals, so that such a container can be used only where the effectiveness of the sealing properties of the closure is not of decisive importance.

Another possibility of constructing a disposable carton satisfying all the above requirements consists in packing a plastics container in a sufficiently stable box. A carton of this kind consisting of a separate box and container satisfies all the physical, chemical and economic requirements but is relatively impracticable as regards handling. For example, to remove the goods, two lids always have to be opened and then closed. This is usually found to be a disadvantage and may result in the carton being closed with inadequate care.

SUMMARY OF THE INVENTION

The object of the invention, therefore, is to provide a carton which provides an effective seal for the inner container, is chemically resistance, is of maximum mechanical strength, light in weight, and cheap and easy to handle.

We therefore provide a carton of the above type, in which the snap lid is so coupled to the box lid that when the latter is swung open it is lifted away from the plastics container and when the box lid is swung down it is replaced in tight sealing relationship with the plastics container.

BRIEF DESCRIPTION OF THE DRAWINGS

An embodiment of the invention will be explained in detail hereinafter with reference to the accompanying drawings, in which:

FIG. 1 is a vertical section through an open carton constructed in accordance with this invention.

FIG. 2 is a detail of FIG. 1 and

FIG. 3 shows a carton in an intermediate stage of its manufacture.

DETAILED DESCRIPTION OF AN EMBODIMENT OF THE INVENTION

Referring to FIG. 1, the carton comprises a square cardboard box 1 having a bottom part 1a and a lid 1b, and a plastics container 2, which fits snugly in the cardboard box and is adapted to be tightly sealed by a plastics lid 2a. The lip 2b of the throat of the container 2, and the lid 2a, are so constructed in a manner known per se as to form a snap closure with one another so that the lid can be repeatedly removed and replaced without the closure losing its sealing properties. The plastics lid 2a is so coupled to the box lid 1b that when the latter is swung up or down it is lifted away from and replaced in tight sealing relationship with the lip 2b of the throat of the plastics container 2.

As will be apparent more particularly from FIG. 3, initially the lid 1b of the cardboard box is formed integrally with the bottom part 1a of the box. The boundary between the bottom part 1a and the lid 1b is formed by perforations 5 on three sides of the box. On the fourth side of the box there are no perforations along the boundary line, instead a corrugation 5a is provided which forms a hinge between the lid and the bottom part of the box. This integral construction of the box 1 gives high mechanical strength. To open the carton for the first time it is only necessary to tear off the strip 5b formed between the perforations 5. The lid can then be swung up with the corrugation 5a forming the hinge.

The lid 1b of the box is cup-shaped and accordingly has side walls and a top. The latter is formed by four lid flaps 3a, 3b, 3c, 3d, each of which is hingedly connected to one of the side walls and projects from the latter at a right-angle. Each lid flap covers half of the lid top so that the two opposite flaps 3a and 3b are completely overlapped by the other two flaps 3c and 3d. In the drawing, however, the lid flaps are shown in a different position.

The connection of the snap lid 2a to the box lid 1b proceeds as follows: The box 1 is initially not completely closed, but is left open at the top. The lid flaps are then all in the position shown in respect of flaps 3b and 3c in FIG. 3. The plastics container 2 which has in the meantime been filled and closed by means of the snap lid 2a is then fitted into the cardboard box through the open lid top.

The plastics lid 2a has two retaining tabs 4 on each of two opposite edges and after insertion into the box they project from the box as will be apparent from FIG. 3. The two lid flaps whose bending edges extend in parallel relationship to those edges of the lid which are not

provided with the retaining tabs 4 i.e., in this case, the two flaps 3a and 3b, are now bent over into a horizontal plane. The other two lid flaps 3c and 3d are then folded over to clamp between the first two and the last two flaps the four retaining tabs 4. The lid flaps are then glued together, so that on the one hand the cardboard box is closed and on the other hand the connection is made between the box lid and the plastics lid.

The retaining tabs 4 are clamped firmly between two lid flaps in each case and securely hold the plastics lid 2a fast. To increase the durability of this connection, the retaining tabs may also have a saw-tooth-like embossing 4a, which can penetrate into the soft cardboard and engage therein as shown on a larger scale in FIG. 2.

This type of assembly of the carton and the connection between the two lids has the advantage that only a minimum time is required for filling and closing the carton, since the connection between the two lids is effected automatically during the closing of the cardboard box.

Corrugated board or any other wet-strength cardboard may be used as cardboard material for the box. Polyethylene is best suited for the plastics container. The wall thickness of the plastics container depends upon its size. For economic reasons it should be kept as small as possible but nevertheless give the container at least a mechanical strength such that it has sufficient shape stability on its own during the filling process and can be handled without any special precautions. It need not withstand rough mechanical handling, however, since this is the function of the cardboard box.

A carton of the above type which has already proved satisfactory in practice has substantially the following dimensions:

Cardboard box:

Corrugated board, double corrugations, approximately 6 mm thick,

Length 34 cm, width 30 cm, height 40 cm, volume

occupied about 40 litres. Plastics container:

Polyethylene, blown

Wall thickness about 1 mm, capacity about 35 litres.

Lid:

5 Polystyrene, deep-drawn, with injection-moulded seal.

A carton corresponding to the above specification satisfies all the above-mentioned requirements. More particularly, it has the same properties as all-plastics containers, but without their disadvantages. It is light in weight, sufficiently strong and of stable shape, cheap to manufacture and last but not least easy to destroy due to its low plastics content. The connection between the two lids greatly simplifies handling of the carton and avoids the carton being incorrectly closed.

What is claimed is:

1. A carton comprising an outer cardboard box having an inner plastics container fitting snugly inside said cardboard box, said cardboard box having a swing lid comprising a side wall and a top of overlapping flaps connected to said side wall, said container having a snap fitting lid with two projecting therefrom, said tabs being clamped between said overlapping flaps thereby coupling said snap fitting lid to said swing lid to remove the former from said container when the swing lid is moved to open the box and to seal the box.

2. A carton according to claim 1 wherein said cardboard box and said swing lid are joined together by a strip which is removable to leave a hinge connection between the side wall of said top and said cardboard box.

3. A carton according to claim 2 wherein said cardboard box and said swing lid are rectangular, said swing lid having two pairs of flaps, one pair of flaps on opposing edges of said side wall overlapping the pair of flaps on the other edges of said side wall, and said snap fitting lid has two pairs of tabs on opposite sides thereof.

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