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(54) Box with protection elements for a bottle or the like housed in the box

(57) A box formed from a punched cardboard sheet in which bosses or depressions are provided forming yieldable projections which absorb and damp any impact transmitted to the box exterior, so protecting a bottle or the like housed therein.

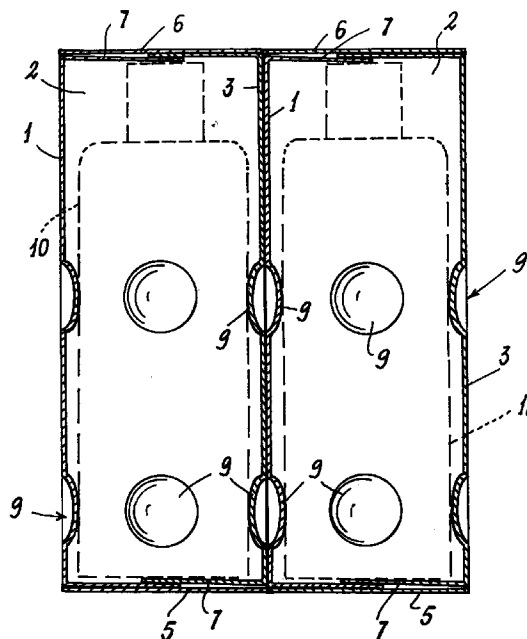


Fig. 3

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Description

This invention relates to a box provided with elements for protecting a bottle or the like housed therein against impact.

A considerable number of marketed products are contained in glass containers, bottles, jars or the like. Such bottles are inserted into boxes (one container per box) which are transported and stored in cases containing a plurality of boxes in direct contact with each other.

During their transport, handling and storage, these cases are subjected to considerable vibration and impact which can result in breakage of the bottles, which are separated from each other (in one and the same case) only by the thin walls of their respective boxes, which are pressed against each other.

If there is a high probability of considerable vibration or impact, or if the glass bottles or the like are very fragile, they are protected by a sheath of corrugated cardboard or other impact-damping material inserted into the boxes to surround the bottles. It is apparent that the use of these damping sheaths increases costs and slows down the bottle packaging process.

The main object of the present invention is to provide a box able to effectively protect fragile bottles or containers housed therein against impact and vibration, without using separate additional elements or structures to be inserted into the box about the bottle.

A further object is to provide a box of the stated type which can be prepared at low cost with considerable speed and simplicity from a punched and suitably shaped sheet of cardboard or the like.

These and further objects are attained by a box which is bounded by lateral panels, a base panel and a top panel or lid and is obtained from a sheet, the box being characterised in that from at least some of its lateral panels there project bosses, at which the cardboard sheet is deformed.

The invention also relates to the punched cardboard sheet or the like, at least some of the panels of which comprise a plurality of deformations each defined by a depression in one face of the cardboard sheet and a corresponding boss projecting from the other face of the cardboard sheet.

The structure and characteristics of the box according to the invention will be more apparent from the description of one embodiment thereof given hereinafter by way of non-limiting example with reference to the accompanying drawing, in which:

Figure 1 is a plan view of a punched and shaped cardboard sheet for forming the box;

Figure 2 is a perspective view of two side-by-side boxes each obtained from a punched cardboard sheet such as that shown in Figure 1; and

Figure 3 is a section on the line 3-3 through the two boxes of Figure 2, to an enlarged scale.

The punched sheet of Figure 1 is of any known type, and in particular can be totally similar to those illustrated in EP-B-0318750, US-A-4890789 and US-A-5207374, hence making its detailed description superfluous.

The punched sheet comprises four main panels 1, 2, 3 and 4 (intended to form the lateral panels of the box formed by it), a base panel 5, a top panel 6 (intended to form the box lid), flaps all indicated by the reference numeral 7, and a tab 8. The constituent parts of the said punched cardboard sheet are separated from each other by folding lines which are clearly visible on the drawing but are not indicated by reference numerals for simplicity.

As stated, the cardboard sheet structure described up to this point is conventional.

The fundamental characteristic of the present invention is that (in the embodiment shown on the drawings) the lateral panels 1, 2, 3, 4 comprise localized deformities, all indicated by the reference numeral 9, defined by a depression in one face of the cardboard sheet and a corresponding boss projecting from the other face of the cardboard sheet, as can be easily understood by examining Figure 3 in particular.

The bosses or deformations 9 are very easily and vary rapidly formed in the cardboard sheet simultaneously with the cardboard sheet punching. In practice it is necessary merely to fit dies to the punching machine to deform the cardboard sheet while it is being punched out and the folding lines made, this requiring no further explanation as it is apparent to an expert of the art.

In the embodiment shown on the drawing, the deformations 9 are made such that the bosses or reliefs defined thereby project into the interior of the box formed from the described cardboard sheet (Figures 2 and 3). The size of the bosses 9 must be such that when a bottle (shown by dashed lines in Figure 3 and indicated by the reference numeral 10) is inserted into the box, the bottle is securely retained between the bosses, the lateral surface of the bottle 10 being spaced from the flat opposing surfaces of the box lateral panels.

From Figure 3 it can be clearly seen that when two boxes are in side-by-side contact (as happens when the boxes are inserted into a case for their transport and storage), the two bottles 10 contained therein remain separated from each other not merely by a distance depending on the thickness of the cardboard, but also, and mainly, by twice the extent of projection of each boss 9.

The result is that the bottles are protected very effectively against the impact and vibration to which they may be subjected during their transport and storage.

It is also apparent that the depressions present in the box outer surface enable the boxes to be gripped much more safely and securely with one hand, making it more difficult for the boxes to slip from the hand when gripped with one hand, even if the bottles contained in them are heavy.

The depressions or bosses can be provided at the most suitable points and in the most suitable number in each box. For example they can also be provided in the box base or lid, ie in the flaps 7.

It is apparent that the bosses can also project out-
wards from the bottle, although it has been found of
greater interest to make them as illustrated on the
accompanying drawing.

Claims

1. A box with protection elements for a bottle or the
like housed in the box, said box being bounded by
lateral panels, a base panel and a top panel
obtained from a punched sheet or the like, charac-
terised in that from at least some of its lateral pan-
els there project bosses, at which the cardboard
sheet is deformed.
2. A punched cardboard sheet or the like comprising a
plurality of panels intended to form the lateral pan-
els and the base and top panels of a box, character-
ised in that at least some of the panels forming said
box lateral panels are deformed in such a manner
as to form depressions in one face of the sheet and
corresponding bosses projecting from the other
face of said sheet.

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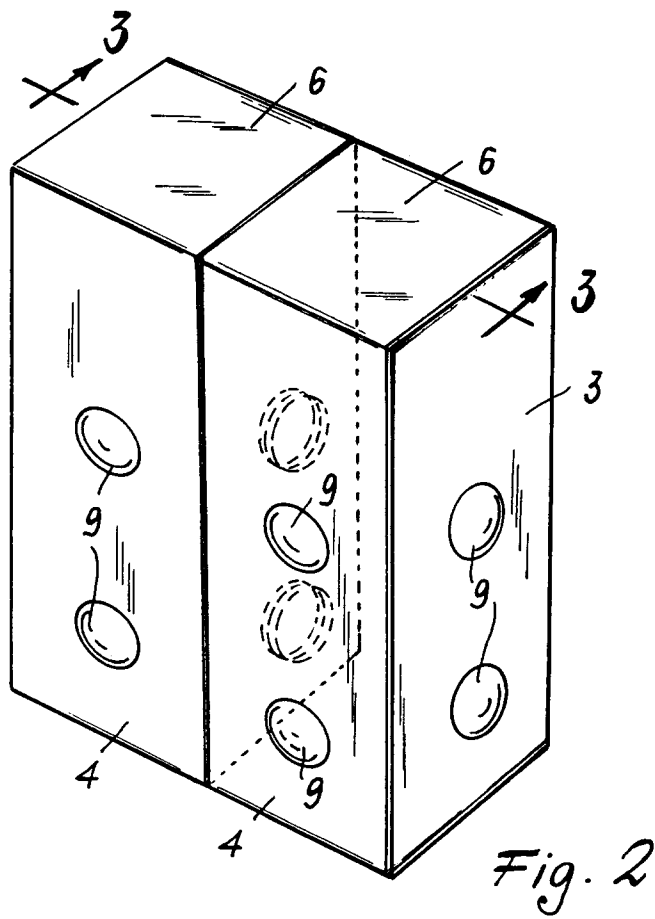
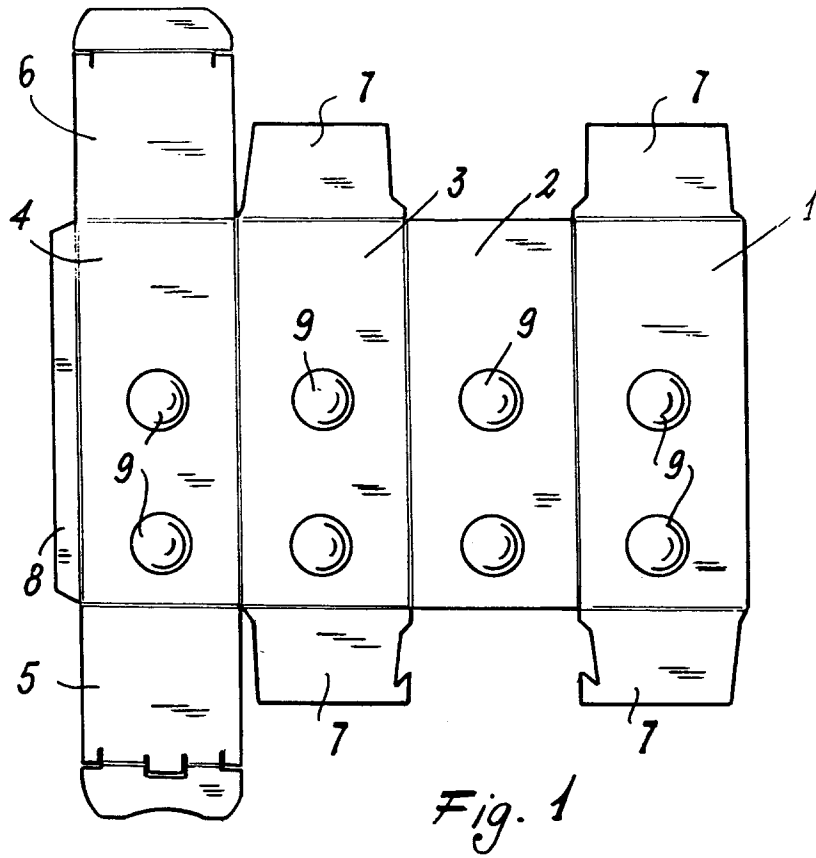
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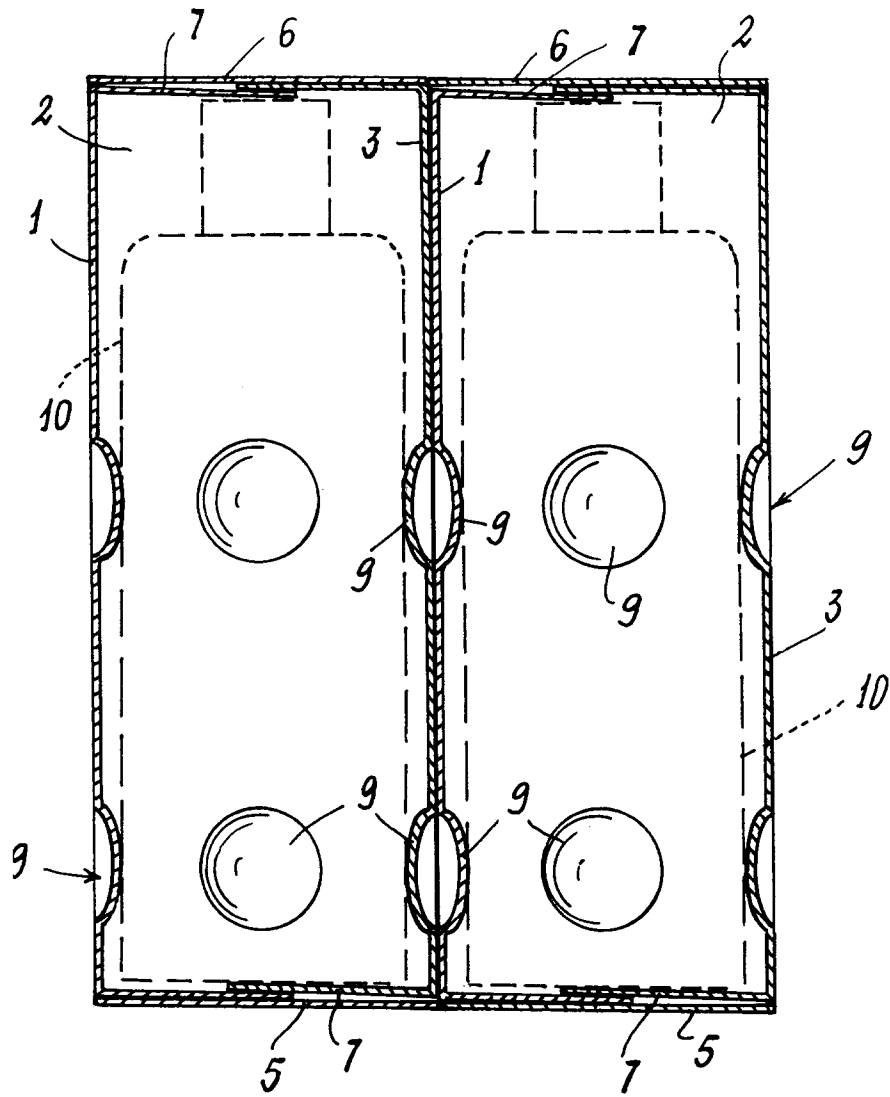


Fig. 3