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(54) Easy-opening box.

(57) Easy-opening box (1) comprising two opposite longitudinal lateral faces (3,5) and two opposite transverse lateral faces (7,9) binding both said longitudinal faces (3,5) the transverse faces (7,9) bearing each via a folding line (28,30,48,50) a transverse bottom flap (27, 29) and a transverse cover flap (47,49) the width of which substantially corresponds to the width of the corresponding transverse face (7,9), the longitudinal faces (3,5) bearing each via a folding line (24,26,44,46) a longitudinal bottom flap (23,25) and longitudinal cover flap (43,45) the width of which substantially corresponds to the width of the corresponding longitudinal face (3,5), at least two opposite cover flaps, called overlapping flaps, having a height such that said flaps overlap when the box (1) is closed, wherein at least the outer overlapping flap (43) is equipped with at least one partially precut line (41,42), the area of the outer overlapping flap (43) defined by the said partially precut line (41,42) and the side edges being assembled with underlying flap(s) (45). By using particular precut line design, the box is reclosable.

EP 0 483 444 A1

The present invention relates to a box which is easy to open, particularly to a box made of a sheet material, useful as a container.

Liquid products are generally contained in plastic bottles or containers when delivered to customers. Such bottles or containers may present suitable design but are generally difficult to store and stack. Moreover, there is a need to store such bottles or containers in an outer box and/or to combine more than one bottle or container in a single box which protects the content against undesirable external influences, e.g. direct sunlight, dust; and damages especially caused by shocks, falls, etc. .. and which further allows easier handling of several bottles or containers together and facilitates storage and stacking.

The "American style box" for instance, is quite often used for the above purposes. This type of box, generally made of cardboard, comprises four lateral faces, each bearing an upper flap and a lower flap having a width substantially of the same dimension as the width of the corresponding face. At least two opposite flaps, generally the flaps bound to the longitudinal faces, present a height of substantially half the width of the adjacent face in order to form a closed bottom face or cover face of the box when folded adequately along a folding line between the lateral face and the corresponding flap. The box may be kept closed by an adhesive tape binding together two opposite longitudinal flaps, by gluing together two superimposed flaps or by stapling together two superimposed and/or opposite longitudinal flaps.

The above known boxes are generally not customer-friendly or environmentally friendly. In fact, customers have to open the box respectively, by tearing off the adhesive tape, by using a cutting tool, for instance a knife, in order to cut the adhesive tape or means, e.g. a screwdriver, to remove the staples. Moreover, opening a box with glued flaps generally results in tearing up the box which can thus no more be used for further storage of the contents remaining after first partial use, since the glued assembly has to be strong and resistant, particularly in the case of heavy contents.

Also known in the package art are boxes, more particularly cardboard boxes, intended for the packaging of apparatus or devices of different kinds, comprising two opposite lateral longitudinal faces and two opposite lateral transverse faces binding both longitudinal faces, the transverse faces bearing each a transverse bottom flap and a transverse cover flap the width of which substantially corresponds to the width of the corresponding transverse face, the longitudinal faces bearing each a longitudinal bottom flap and a longitudinal cover flap the width of which substantially corresponds to the width of the corresponding longitudinal face, at least two opposite cover flaps having a height arranged to overlap when the box is closed. The overlapping flaps are generally glued together and/or held together by staples and/or an adhesive tape and/or by a tongue extending from the outer edge of the upper cover flap and arranged for entering into a slit made in a folding line between the opposite underlying cover flap and the corresponding longitudinal face.

The above type of box, however, has all the disadvantages recited in the case of the "American style box".

The aim of the present invention is to provide a box which is easy to open, and which may be used according to the above, but which does not present the disadvantages of the current boxes.

A further aim of the invention is to provide a box which is easy to open without requiring a special tool and without causing problems to the user.

Another aim of the invention is to provide a box which is reusable after first opening, since it is not damaged in any way which would inhibit or exclude further use.

A further aim of the invention is to provide a box which ensures a maximum of protection against dust or other undesirable external influences, even after a first opening.

The present invention provides such a box, responding to the needs and aims mentioned hereinbefore, which is easy to open. This box is referred to as "easy-opening box".

According to the present invention, the easy-opening box comprises two opposite longitudinal lateral faces and two opposite transverse lateral faces binding both said longitudinal faces, the transverse faces each bearing via a folding line a transverse bottom flap and a transverse cover flap, the width of which substantially corresponds to the width of the corresponding transverse face, the longitudinal faces bearing each via a folding line a longitudinal bottom flap and a longitudinal cover flap the width of which substantially corresponds to the width of the corresponding longitudinal face, at least two opposite cover flaps, called overlapping flaps, having a height such that said flaps overlap at least partially when the box is closed; the box according to the invention is characterized in that the outer overlapping flap is equipped with at least one partially precut line, the area of the outer overlapping flap defined by the said partially precut line and the side edges being assembled with underlying flap(s).

The box according to the present invention is particularly convenient since the user may easily open and disclose the contents by opening the upper overlapping flap by tearing up the partially precut line. The portions of the outer overlapping

flap assembles with the underlying flap(s) thus remain on said underlying flap(s) and the portion defined by the said partially precut line (now torn up) and a folding line between flap and lateral face is rendered free by canting along said folding line.

Preferably at least the outer overlapping flap, more particularly a longitudinal flap, has a height substantially corresponding to the width of the adjacent lateral face.

According to another preferred embodiment, the outer overlapping flap is provided with two partially precut lines parallel to two opposite directions, defining two triangular areas assembled to the underlying flap(s), preferably arranged at the opposite side to the folding line.

According to another preferred embodiment, the area of the outer overlapping flap defined by the said partially precut line and a folding line between the said outer overlapping flap and the corresponding lateral face is provided with a handgrip known per se. Said handgrip facilitates the tearing of the partially precut lines.

Advantageously, the hand grip is then arranged between both triangular areas, preferably close to the outer zone, opposite the folding line.

This arrangement keeps to a minimum the power to be provided by the user in order to open the box by tearing up the precut line and ensures the best assembly strength of the closed box before the partially precut line is torn up.

In a preferred simple embodiment, the handgrip consists in an aperture or adequate area defined by a partially precut line, to be pushed in by the user. This last embodiment ensures a suitable protection against dust or other undesirable external influences since all box walls remain closed.

The box of the invention preferably comprises the above disclosed easy-opening system on the upper side face of the box. Further, the different flaps are preferably arranged such that the said overlapping flaps are two opposite flaps, most particularly two longitudinal flaps, and that the outer overlapping flap is assembled to the underlying opposite flap, preferably by gluing.

In order to facilitate handling by a user, the underlying flap may also be provided with a handgrip allowing the introduction of the user's hand. Said handgrip may also correspond to a known per se embodiment as described above. The user may thus develop a greater force when pulling the overlapping flap in order to tear along the precut line(s). This feature also permits easy handling when carrying the box.

When the partially precut line is interrupted by a section directed according to a direction crossing it, e.g. a sinusoidal section or zigzag section, the box may also be reclosable after a first use, i.e. after tearing along the precut lines. In fact, the only pressure acting on the outer overlapping flap between the precut line(s) and the folding line may avoid undesirable opening of said outer overlapping flap.

According to another embodiment of the present invention, the box may be reclosed and locked after first use by a tongue extending from the side edge of the outer cover flap, opposite to the folding line, by introduction of the tongue into a corresponding slit. Said slit may be arranged in the underlying flap or in the folding line between the opposite underlying cover flap and the corresponding lateral face depending on the length of the flap.

Obviously other equivalent means known per se may also be used for locking the reclosed easy-opening box, such as reusable adhesive tabs or e.g. bands equipped with noses to be introduced in perforations carried out in the outer overlapping flap and the opposite lateral face.

Further details will become apparent from the following description of preferred embodiments and from the attached drawings wherein

- Figure 1: represents an unfolded sheet material intended to constitute a box according to the invention;
- Figure 2: is a schematic perspective view of a box of the invention;
- Figure 3: is a schematic view of the upper face of said box.
- Figure 4: represents another embodiment of the upper cover flap; and
- Figure 5: represents a preferred form of precut line.

In the drawings the same reference numerals are used for designation of the same or similar means.

Figure 1 shows an unfolded sheet material, for instance cardboard, arranged in order to form a box 1 when suitably folded and assembled.

There are foreseen two longitudinal lateral faces 3 and 5 and two transverse lateral faces 7 and 9. Furthermore the transverse lateral face 9 bears a lip 11 to be assembled, preferably stapled or glued, with the adjacent longitudinal lateral face 3. Instead of a lip 11 fitted to the lateral face 9, an analogous lip could also be provided on lateral face 3 for assembly with face 9. Similarly, a lip 11 extending only on a portion of the height of the lateral face may also be used. Faces 3, 7, 5, 9 and lip 11 are separated by folding lines 4, 8, 6, 10.

Each transverse lateral face 7, 9 bears a bottom flap 27 and 29 respectively, and a cover flap 47, 49 respectively. The flaps 27, 29, 47, 49 are separated from the lateral transverse faces by folding lines 28, 30, 48 and 50 respectively. As shown in the figures and particularly in figure 1, the width

of the transverse flaps 27, 47, 29, 49 corresponds substantially to the width of the transverse lateral faces.

The longitudinal lateral faces 3, 5 bear longitudinal bottom flaps 23 and 25 respectively, separated from the lateral face by a folding line referred to as 24 and 26, respectively.

The bottom flaps are arranged to form an "American style" bottom, known per se, when the box is formed. In fact, the height of the transverse bottom flaps corresponds to a portion of the width of the adjacent longitudinal face as well as to the height of the longitudinal bottom flaps, which corresponds substantially to half the width of the transverse face. Thus, in order to form a box, when the lateral faces are already assembled by means of the lip 11, the transverse bottom flaps are first folded along the folding line and the longitudinal bottom flaps are folded afterwards. The thus formed box bottom is maintained by assembly means like an adhesive tape applied along the outer edges of both longitudinal flaps or glue applied to the transverse flaps by means of staples in such a manner that a resistant bottom is obtained.

It is to be noted that another type of bottom system may be used which offers at least the same strength, defined in view of the contents of the formed box.

Both longitudinal lateral faces also bear longitudinal cover flaps 43 and 45, respectively, separated from the lateral faces by a folding line 44 and 46, respectively.

Advantageously the transverse cover flaps have about the same size as the transverse bottom flaps. The longitudinal cover flaps 43 and 45, however, present a width corresponding to the width of the longitudinal lateral face and a height corresponding substantially to the width of the adjacent transverse lateral face.

The upper longitudinal cover flap 43 intended to be on the top when the box is closed is provided with two partially precut lines 41 and 42 substantially parallel to two opposite or symmetric diagonal directions, defining two triangular areas 41' and 42', with the outer edges of the flap, opposite to the folding line 44.

Said triangular areas are suitably assembled to the underlying flap, preferably the other longitudinal cover flap 45, by means known per se, preferably a glue, more particularly a hot melt glue.

While the height of the upper longitudinal overlapping flap 43 is essential for the practice of the invention in order to obtain an adequate overlapping and assembly with the underlying flap, here the opposite longitudinal cover flap 45, the height of the latter is not essential but preferably of approximately the same dimension as the upper flap 43.

It is a further feature of the present invention that a handgrip 51 is foreseen in the upper cover flap. In case said handgrip is in the form of an aperture made in the said flap 43 or of a delimited area to be pushed out by the user, a second aperture 52 is advantageously also provided, in register with the first one, in the underlying overlapping flap 45. Aperture 52 may also be pushed out. As already mentioned earlier, the handgrip is provided between the triangular areas in order to facilitate the opening of the box.

When the box is to be closed, after assembly, both transverse flaps 47 and 49 are folded first; then flap 45 is folded and afterwards upper cover flap 43, glue being applied in order to have the upper longitudinal flap glued to the underlying flap only via the triangular area 41' and 42' defined by the precut line 41, 42 and the outer edge of the flap.

When a user has to first open a closed box according to the invention, he pushes the precut handgrip in and introduces his hand through the aperture thus formed. By pulling the upper cover flap, the latter tears up along the partially precut lines 41, 42 and the contents of the box becomes so easily accessible.

In order to provide a reclosable box the upper longitudinal cover flap may be equipped with a small tongue 53 extending from the outer edge of said flap, and arranged for entering into a suitably adapted slit 55 made in the folding line 46 between the underlying cover flap and the corresponding longitudinal lateral face.

Reclosing may also be obtained by pushing the top cover back into place; the precut lines and their form will then keep said cover in place. Figure 5 shows a particularly preferred embodiment of partially precut line. According to the latter, the partially cut line is interrupted by a substantial sinusoidal section.

Obviously, the box may also be equipped with lateral handgrips 2, 2' performed in the lateral transverse faces, to facilitate the carrying of heavy boxes.

According to a different embodiment, the tongue may be provided within the upper flap area, not extending outwards of the height of the said flap in order to avoid expensive use of cardboard or similar material. A possible design is given in Figure 4.

From the above it is understandable that the box is easy to open without requiring a special tool. Moreover cumbersome synthetic adhesive tapes or staples which can harm the user are no longer necessary.

The arrangement of the different flaps also provides for strength of the base and cover faces allowing easy storage and stacking and protection against impacts and other outer influences.

The easy-opening box according to the invention may be made of a sheet material like cardboard, single wall or double wall corrugated possibly reinforced by mineral or synthetic fibres, plastic materials or similar materials suitable for making boxes and known per se in the art.

The box according to the invention may be used to contain several plastic bottles or containers filled with liquid or dry materials. It may also be used for one or more bags containing for instance powdered materials or for dry materials in any form or it may contain other boxes or cartons.

Claims

1. Easy-opening box (1) comprising two opposite longitudinal lateral faces (3,5) and two opposite transverse lateral faces (7,9) binding both said longitudinal faces (3,5) the transverse faces (7,9) bearing each via a folding line (28, 30, 48, 50) a transverse bottom flap (27, 29) and a transverse cover flap (47,49) the width of which substantially corresponds to the width of the corresponding transverse face (7,9), the longitudinal faces (3,5) bearing each via a folding line (24,26,44,46) a longitudinal bottom flap (23,25) and longitudinal cover flap (43,45) the width of which substantially corresponds to the width of the corresponding longitudinal face (3,5), at least two opposite cover flaps, called overlapping flaps, having a height such that said flaps overlap when the box (1) is closed, characterized in that at least the outer overlapping flap (43) is equipped with at least one partially precut line (41,42), the area of the outer overlapping flap (43) defined by the said partially precut line (41,42) and the side edges being assembled with underlying flap(s) (45).

2. Easy-opening box according to Claim 1 characterized in that at least the outer overlapping flap (43) has a height substantially corresponding to the width of the adjacent lateral face.

3. Easy-opening box according to Claims 1 or 2 characterized in that the outer overlapping flap is a longitudinal upper cover flap (43) and the underlying flap(s) is the opposite longitudinal cover flap (45).

4. Easy-opening box according to any of Claims 1 to 2 characterized in that the outer overlapping flap (43) is provided with two partially precut lines (41,42) parallel to two opposite diagonal directions, defining two triangular areas (41',42') assembled to the underlying flap(s) (45), preferably arranged at the opposite side of the folding line (44).

5. Easy-opening box according to any of the preceding claims characterized in that the area of the outer overlapping flap (43) defined by the said partially precut line(s) (41,42) and a folding line (44) between the said outer overlapping flap (43) and the corresponding lateral face (3) is provided with a handgrip (51) known per se.

6. Easy-opening box according to Claims 5 and 4, characterized in that the handgrip (51) is arranged between both triangular areas (41,42) preferably at the outer zone, opposite to the folding line (44).

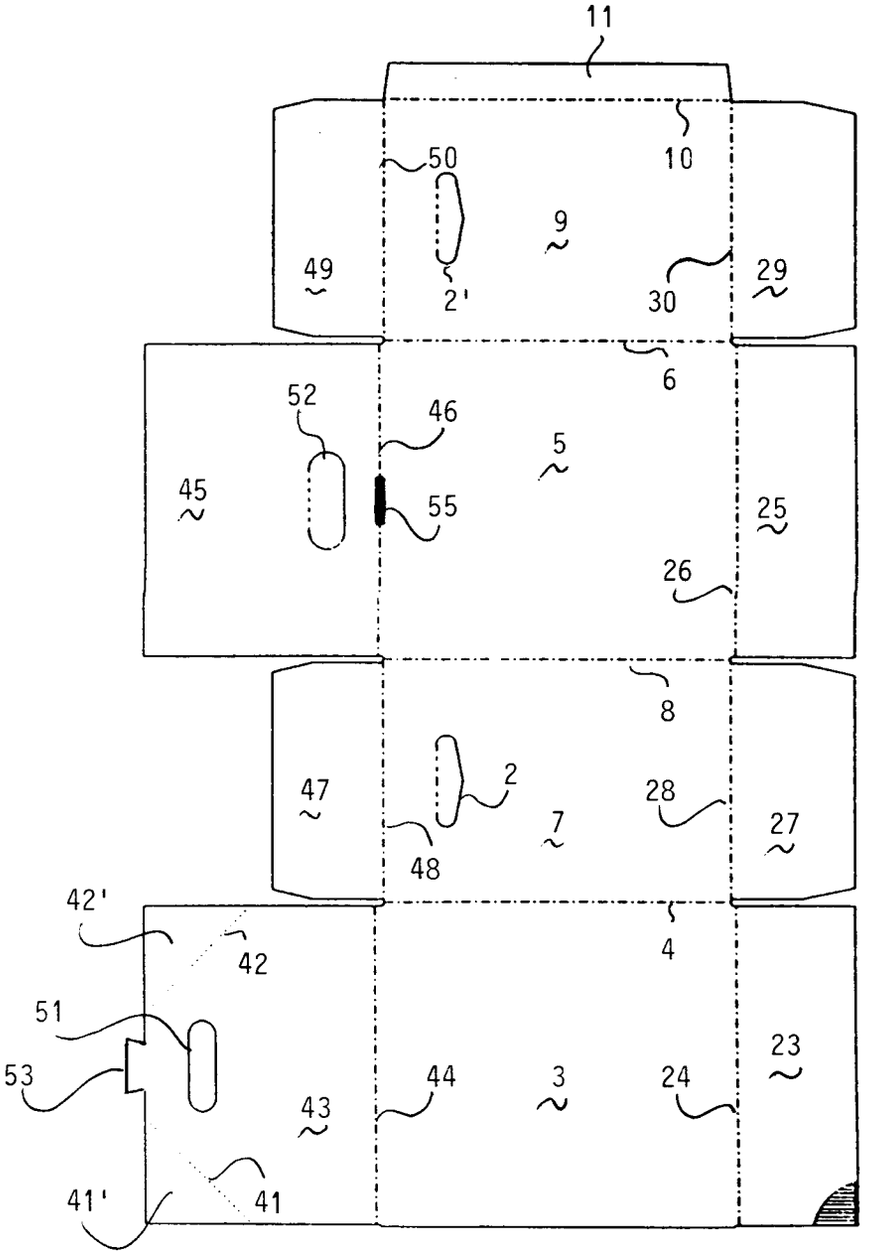
7. Easy-opening box according to any of the preceding claims characterized in that the handgrip consists in an aperture or adequate area defined by a partially precut line, to be pushed in by the user.

8. Easy-opening box according to Claim 7 characterized in that the underying flap (45) assembled with the outer overlapping flap (43) is also provided with a handgrip (52), preferably an aperture or adequate area defined by a partially precut line, in register with the handgrip (51) of the outer overlapping flap (43).

9. Easy-opening box according to any of the preceding claims characterized in that the outer overlapping flap (43) is equipped with a tongue (53) extending from the side edge of the said outer cover flap (43), opposite to the folding line (44), intended for introduction into a slit (55) carried out in a folding line (46) arranged between the opposite underlying cover flap (45) and the corresponding lateral face (5).

10. Easy-opening box according to any of the preceding claims characterized in that the partial precut lines are interrupted by a section of partially precut line directed according to a direction crossing it, preferably a substantially sinusoidal section or zigzag section.

Fig. 1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41

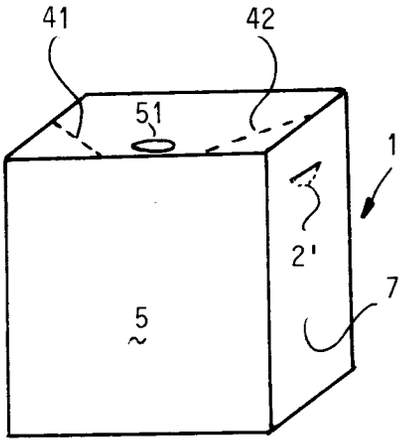

Fig. 2

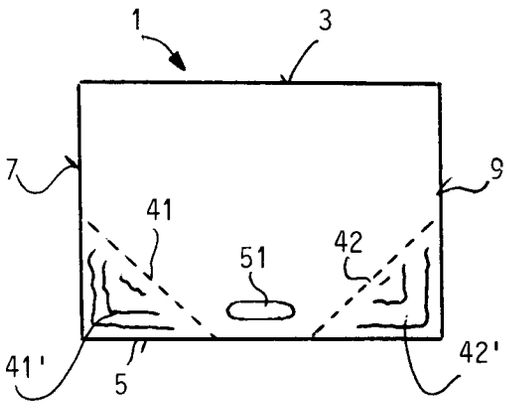

Fig. 3

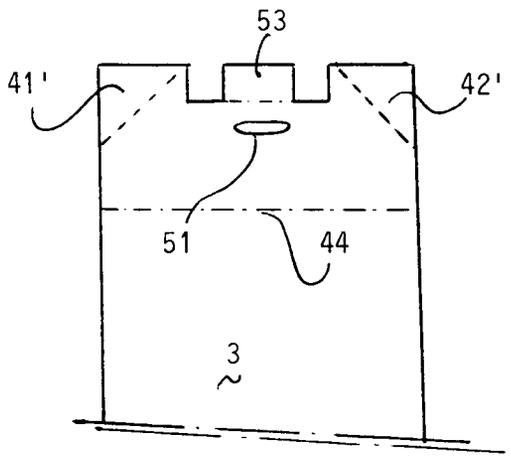

Fig. 4

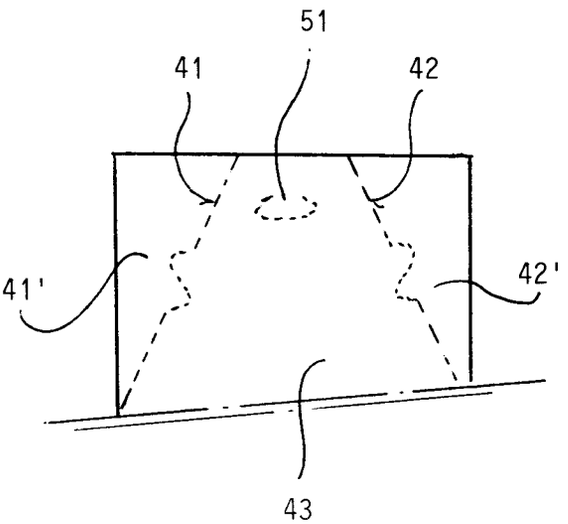

Fig. 5

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EUROPEAN SEARCH REPORT

Application Number

EP 90 87 0203

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X Y	GB-A-1 346 110 (VIBIXA) * Page 2, lines 35-80; figures 1,2 *	1-4 5-8	B 65 D 5/54 B 65 D 5/46
Y	US-A-3 368 739 (ROCCAFORTE) * Column 2, lines 45-72; figures 1-5 *	5-8	
A	FR-A-2 267 943 (BERICOL NATIONAL) * Page 3, line 32 - page 4, line 13; figures 1-3 *	5-8	

TECHNICAL FIELDS SEARCHED (Int. Cl.5)

B 65 D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	20-06-1991	VANTOMME M.A.

CATEGORY OF CITED DOCUMENTS

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