(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 225 134 A2

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
24.07.2002 Bulletin 2002/30

(51) Int Cl.[7]: **B65D 71/46**

(21) Application number: **02005077.9**

(22) Date of filing: **15.04.1998**

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI NL PT SE
Designated Extension States:
RO

(30) Priority: **30.04.1997 GB 9708771**

(62) Document number(s) of the earlier application(s) in accordance with Art. 76 EPC:
98918290.2 / 1 015 347

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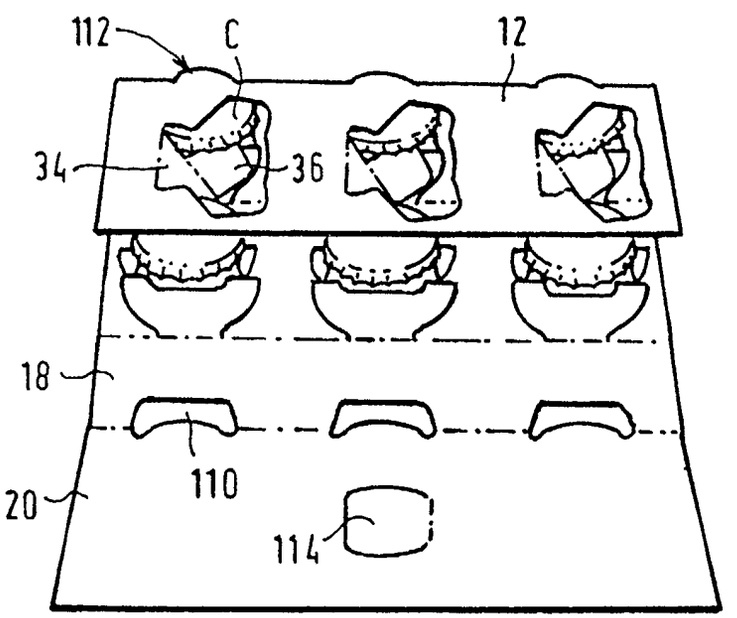
Remarks:
This application was filed on 06 - 03 - 2002 as a divisional application to the application mentioned under INID code 62.

(54) Article carrier and blank therefor

(57) A carton for accommodating at least one container, comprising a main panel having a container-receiving aperture, a retaining tab is formed from the material taken from the aperture and folded out of the plane of the main panel to engage a container. The tab has a notch along the distal edge thereof, and a second retaining member (34) having an engaging edge (36) received in the notch so as to reach the container.

FIG. 3



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Description

[0001] The invention relates to a carton produced for packaging a plurality of articles, for example, bottles. More particularly, the invention relates to a carton which attaches to the tops of the articles thereby securing the articles in an array.

[0002] It is known to provide top gripping cartons which comprise so called "sunburst" apertures having a series of circumferentially arranged tabs which enable a bottle top to pass through the aperture which tabs engage on the underside of a bottle top or on the flange of a bottle neck to prevent the removal of the bottle from the aperture. A problem arises when such sunburst type apertures are used for bottles sealed using so called "crown corks". In this case, the location in which the tab engages on the underside of the bottle top is by its location high up the bottle neck, which creates a carton that is unstable. Further, the tabs are weakened by the unstable nature of the bottles within the carton so reducing its effectiveness.

[0003] In US 3 772 945 there is shown a carrier with a top panel comprising support tabs to support the upper part of an article contained in the carrier.

[0004] A further problem associated with the prior art is that a top gripping carton needs to be of sufficient strength to support the bottles. A rigid structure would address this problem but produces its own difficulties. In particular, the top panel and or base panel does not provide requisite rigidity and sufficient strength to support the bottles.

[0005] The present invention and its preferred embodiments seek to overcome the difficulties by forming a box structure in which both the top and base are engaged on the bottle flanges. Additional support is provided to maintain the top and base panels in a spaced arrangement while additional strength is provided by multi-layering the panels. Therefore, the board can be reduced in thickness without reducing the strength needed to hold the bottles.

[0006] One aspect of the invention provides a carton for accommodating at least one container, comprising a main panel having a container-receiving aperture, a retaining tab formed from the material taken from the aperture and folded out of the plane of the main panel to engage a container. The tab has a notch along the distal edge thereof, and a second retaining member having an engaging edge received in the notch so as to engage the container. Preferably, a second panel is provided opposed and spaced from the main panel and the retaining member is hingedly connected to the second panel.

[0007] A second aspect of the invention provides a carton for accommodating at least one container, comprising a main panel having a container-receiving aperture, a retaining tab formed from the material taken from the aperture and folded out of the plane of the main panel to engage a container. The tab engaged with the container, and support means disposed in contact with the retaining tab to hold the retaining tab in engagement with the container. Preferably a second panel is provided opposed and spaced from the main panel and the support means is hingedly connected to the second panel.

[0008] According to an optional feature of the second aspect of the invention the support means comprises a tab having a main portion hingedly connected to the second panel and a first shoulder portion hingedly connected to the main portion to engage the underside of a radially protruding part of the container.

[0009] In some embodiments, the support tab may further comprise a second shoulder portion for engaging the underside of a radially protruding part of a container adjacent to the container, the second shoulder portion being oppositely disposed the first shoulder portion.

[0010] Optionally, the carton is a tubular structure, and the main portion of the support tab is folded inwardly of the carton.

[0011] According to another optional feature of this aspect of the invention the main portion is disposed between one container and an adjacent container to minimise relative movement between the adjacent containers.

[0012] According to yet another optional feature of this aspect of the present invention the carton is of a top gripping type having a base panel opposed to the top panel, and the support means abuts the base panel to minimise relative movement between the top and base panels.

[0013] Each aperture may be defined by a pair of retaining tabs struck from the main panel, the retaining tabs being disposed in substantially opposed positions.

[0014] A third aspect of the invention provides a blank for accommodating at least one container, comprising a main panel having a container-receiving aperture, a retaining tab formed from the material taken from the aperture, the tab having a notch along the distal edge thereof, and a second retaining member having an engaging edge received in the notch so as to engage the container in a set up condition. Preferably the retaining member is hingedly connected to a second panel, which in turn is hingedly connected to the main panel.

[0015] A fourth aspect of the invention provides a blank for accommodating at least one container, comprising a main panel having a container-receiving aperture, a retaining tab formed from the material taken from the aperture, the tab is adapted to be engaged with a container in a set up condition, and supporting means hingedly connected to a second panel and adapted to be disposed in contact with the retaining tab to hold the tab in engagement with the container in a set up carton.

[0016] The support means may comprise a tab having a main portion hingedly connected to the second panel and a first shoulder portion hingedly connected to said main portion to engage the underside of a radially protruding part of the container.

[0017] Preferably, the support tab may further com-

prise a second shoulder portion, said second shoulder portion being oppositely disposed said first shoulder portion.

[0018] According to an optional feature of the third or fourth aspects of the invention each aperture is defined by a pair of retaining tabs struck from the main panel, the retaining tabs being disposed in substantially opposed positions.

[0019] According to a fifth aspect of the invention there is provided a unitary blank for forming a carton of a top gripping type which comprises a first panel having a plurality of apertures each defined by at least one foldable retaining tab hingedly connected to the first panel to be folded out of a general plane of the first panel, and a second panel spaced from the first panel by an intermediate panel and having a support tab struck therefrom, the support tab comprising a main portion and a shoulder portion, the support tab being displaceable out of a plane of the second panel so that an end edge of the main portion abuts the first panel and the shoulder portion is juxtaposed to one of the retaining tabs when the carton is set up.

[0020] According to an optional feature of this aspect of the present invention there is provided a package having a plurality of articles arranged in an array and carried by a carton.

[0021] Exemplary embodiments will now be described, by way of example only, with reference to the accompanying drawings in which :

FIGURE 1 is a plan view of an unfolded single paperboard blank from which a carton according to the invention is formed;

FIGURES 2 and 3 illustrate a carton in part formed condition from the carton blank shown in Figure 1; and

FIGURE 4 shows a carton formed from the blank shown in Figure 1.

[0022] Referring now to Figure 1, there is shown a carton blank 10 for forming a top gripping carton and made from paperboard or similar foldable sheet material. The blank 10 comprises an inner top panel 12, a first side panel 14, a base panel 16, a second side panel 18, and an outer top panel 20 hingably connected one to the next along fold lines 22, 24, 26 and 28 respectively.

[0023] Three support tabs 30 are struck from inner top panel 12 being laterally aligned and spaced intermediate the side edges of inner top panel 12. Each tab 30 is hingably connected to inner top panel 12 along a respective one of fold lines 32, being configured and longitudinally intermediate the end edge of panel 12 and fold line 22.

[0024] Turning to the detail of one of the support tabs 30, it comprises a main portion 34 and a pair of shoulder portions 36, 38 hingably connected to opposing side edges of main portion 34 along fold lines 40, 42. Each shoulder portion, 36, 38 comprises a substantially linear upper edge 44 and 46 respectively each edge 44, 46 being in an angular relationship with main portion 34, and shaped to engage the underside of a radially protruding part of an article when the carton is in a set up condition. It is envisaged that the position and shape of these edges 44, 46 will vary according to the shape of the radially protruding part of the article. Optionally, the main portion 34 is approximately equal in length to side panels 14, 18. The two further support tabs 30 each comprise a main portion and shoulder portion being similar in shape and configuration to the support tab hereinbefore described and are therefore not described in any greater detail.

[0025] As illustrated in Figure 1, base panel 16 is formed with three pairs of retaining tabs 74, 75, 76 being struck from base panel 16 adjacent to fold line 24 and laterally spaced intermediate the side edges of base panel 16. Turning in detail to the configuration of one pair of retaining tabs 74, there comprises tab 48 is struck from and hingably connected to base panel 16 along fold line 24 with its distal edge 52 extending inwardly of base panel 16. Tab 48 comprises opposed side edges 54, 56 which curve outwardly to the distal edge 52, such that the distal edge 52 is longer than the edge 60 connect to base panel 16. A second tab 50 is hingably connected to base panel 16 along fold line 62 positioned in a central region of base panel 16. Tab 50 is oppositely disposed to tab 48 with its distal edge 64 juxtaposed the distal edge 52 of tab 48. Likewise, the side edges 66, 68 are curved outwardly towards its distal edge 64 to provide an distal edge 64 which is longer than fold line 62 connected to the base panel 16. The curved side edges 54, 56; 66, 68 of tabs 48 and 50 respectively define a substantially circular aperture 70, shown in Figure 2, when the tabs 48, 50 are in a set up condition. Preferably, an elongate aperture 72 is struck from the central portion of tabs 48 and 50 to provide a small notch along each of their respective distal edges 52, 64.

[0026] The other two pairs of retaining tabs 75, 76 are substantially identical to the first pair of retaining tabs 74 and are not therefore described in any greater detail.

[0027] Base panel 16 is also formed with three further pairs of retaining tabs 78, 80, 82 being struck from base panel 16 adjacent to fold line 26 and laterally spaced intermediate side edges of base panel 16. Turning in detail to the configuration of one pair of retaining tabs 78, there comprises tab 84 is struck from and hingably connected to base panel 16 along fold line 26 with its distal edge 86 extending inwardly. Tab 84 comprises opposed side edges 88, 90 which curve outwardly to the distal edge 86, such that the distal edge 86 is longer than the edge connecting to base panel 16. A second tab 92 is hingably connected to base panel 94 positioned in a central region of base panel 16. Tab 92 is oppositely disposed to tab 84 with its distal edge 96 juxtaposed the distal edge 86 of tab 48. Likewise, the side

edges 98, 100 are curved outwardly towards its distal edge 96 to provide an distal edge 96 which is longer than fold line 94 connected to the base panel 16. The curved side edges 88, 90; 98, 100 of tabs 84 and 92 respectively define a substantially circular aperture 102, shown in Figure 2, when the tabs 84, 92 are in a set up condition. Preferably, an elongate aperture 104 is struck from the central portion of tabs 84 and 92 to provide a small notch along each of their respective distal edges 86, 96.

[0028] The other two pairs of retaining tabs 80, 82 are substantially identical to the first pair of retaining tabs 48, 50 and are not therefore described in any greater detail.

[0029] Side panel 14 comprises three apertures 106 struck from fold line 22 being spaced one to next intermediate side edges of side panel 14. Each aperture 106 is "yoke" like in shape to define a portion 108 of panel 12 which extends into side panel 14. Likewise, side panel 18 comprise three apertures 110 struck from fold line 28 each being spaced one to next intermediate side edges of side panel 18. Each aperture 110 is "yoke" like in shape to define a portion 112 of panel 20 which extends into side panel 18.

[0030] As illustrated in Figure 1, a handle tab 114 is struck from and hingably connected to a central portion of outer top panel 20 along fold line 116. In this embodiment, handle tab 114 is substantially aligned with central support tab 30 of inner top panel 12 when the carton is in a set up condition.

[0031] Turning to the construction of carton, as illustrated in Figures 2, 3 and 4, the blank requires a series of sequential folding and gluing operations which can be performed in a straight line machine so that the carton is not required to be rotated or inverted to complete its construction. The folding process is not limited to that described below and can be altered according to particular manufacturing requirements. Thus, bottles B are grouped together in two rows of three bottles B and the blank 10 is introduced to the group from above by relative vertical movement between the bottles B and the blank 10 during forward feed movement well known in the art.

[0032] Each pair of retaining tabs 74, 75, 76 and 78, 80, 82 are folded along their respective fold lines 24, 62; 26, 94 and out of their general plane with respect to base panel 16 to create article receiving apertures 70, 102 shown in Figure 2. The upper portions or neck portions of the bottles enter their respective apertures until the distal edges 52, 64; 86, 96 of the retaining tabs come into contact with the radially protruding parts, e.g., the respective crown corks, of the bottles B associated within each of the apertures. Optionally, the edge of each article receiving apertures are in contact with the neck portion of each of the respective bottles B to provide additional support.

[0033] In this embodiment, the notch formed in the distal edge of each of the tabs 48, 50; 84, 92 engages the underside of the respective crown cork C. It is advantageous to incorporate such notches for more accurate alignment of the tabs and/or to provide a tab which comes into contact with more of the underside of the crown cork than conventional tabs.

[0034] Thereafter, side panel 14 is folded about fold line 24 and inner top panel 12 is folded about fold line 22 so that inner top panel 12 is disposed over the crown corks C and in a substantially parallel and spaced relationship with base panel 16. Support tabs 30 are folded along fold lines 32 out of their general plane and towards base panel 16. In this embodiment, the distal edge of main portions 34 abut base panel 16 to maintain the spacing between panels 12 and 16 thereby to minimize relative movement between bottles and/or base panel 16 and top panels 12, 20. Shoulder panels 36 and 38 are folded out of alignment with main portion 34 of each tab 30 along fold lines 40, 42 respectively. By this means, the upper edge 44, 46 of each shoulder portion 36, 38 is received in the notch along the distal edge of the respective retaining tab and is thereby allowed to reach the crown cork C of the adjacent bottle to engage the underside of the crown cork C, as shown in figure 3 Thus, the main portion 34 is maintained in an angular relationship with respect to top panel 12. In addition, the tabs 50, 92 formed from base panel 16 are also held in place by being in a face to face relationship with respective ones of the shoulder panels 36, 38, as shown in Figure 3.

[0035] Side panel 18 is folded about fold line 26 and outer top panel 20 is folded about fold line 28 such that outer top panel 20 is placed in a face to face relationship with inner top panel 12. Inner and outer top panels 12, 20 are secured together by glue or other means known in the art. The carton is in a set up condition as shown in Figure 4.

[0036] By folding inner and outer base panels 12, 20 out of alignment with respective ones of the side walls 14, 18, the extended portions 108, 112 protrude beyond fold lines 22 and 26 respectively. In this embodiment, part of the crown corks C of each bottle protrude through apertures 106, 110 with the extended portions 108, 112 of panels 12 and 20 respectively being in registry with the top of the protruding portions of each respective bottle. Optionally, side panels 14 and 18 are juxtaposed to respective retaining tabs 48, 84 of base panel 16 to assist in maintaining their engagement with the underside of the crown corks.

[0037] In use, handle tab 114 is folded inwardly along fold line 116 to create a hand aperture to receive a user's finger to enable the carton to be carried. Because the retaining tabs 74, 75, 76, 78, 80 and 82 engage the crown corks C of the packaged bottles, the load of the bottles is transferred directly to the top wall when the carton is lifted by the hand aperture.

[0038] The present invention and its preferred embodiment relate to an article carrier which is shaped to provide satisfactory strength to hold bottles securely but

with a degree of flexibility so that load transferred to the handle is absorbed by the carrier. The shape of the blank minimizes the amount of paperboard required and the carrier can be applied to an array of bottles by hand or automatic machinery. It is anticipated that the invention can be applied to a variety of carrier and not limited to those of the top gripping sort.

Claims

1. A carton for accommodating at least one container, comprising a main panel having a container-receiving aperture, a retaining tab formed from the material taken from the aperture and folded out of the plane of the main panel to engage a container, the tab having a notch along the distal edge thereof, and a second retaining member having an engaging edge received in the notch so as to engage the container.

2. A carton as claimed in claim 1 wherein a second panel is provided opposed and spaced from the main panel and the retaining member is hingedly connected to the second panel.

3. A carton for accommodating at least one container, comprising a main panel having a container-receiving aperture, a retaining tab formed from the material taken from the aperture and folded out of the plane of the main panel to engage a container, the tab engaged with the container, and support means disposed in contact with the retaining tab to hold the retaining tab in engagement with the container.

4. A carton as claimed in claim 3 wherein a second panel is provided opposed and spaced from the main panel and the support means is hingedly connected to the second panel.

5. A carton as claimed in claim 3 or claim 4 wherein said support means comprises a tab having a main portion hingedly connected to the second panel and a first shoulder portion hingedly connected to said main portion to engage the underside of a radially protruding part of the container.

6. A carton as claimed in claim 5 wherein the support tab further comprises a second shoulder portion for engaging the underside of a radially protruding part of a container adjacent to said one container, said second shoulder portion being oppositely disposed said first shoulder portion.

7. A carton as claimed in claim 5 or claim 6 wherein the carton is a tubular structure, and the main portion of the support tab is folded inwardly of the carton.

8. A carton as claimed in any of claims 5 to 7 wherein the main portion is disposed between said one container and an adjacent container to minimise relative movement between said one and adjacent containers.

9. A carton as claimed in any of claims 3 to 8 wherein said carton is of a top gripping type having a base panel opposed to said top panel, and said support means abuts the base panel to minimise relative movement between said top and base panels.

10. A carton as claimed in any preceding claim wherein each said aperture is defined by a pair of said retaining tabs struck from the main panel, said retaining tabs being disposed in substantially opposed positions.

11. A blank for accommodating at least one container, comprising a main panel having a container-receiving aperture, a retaining tab formed from the material taken from the aperture, the tab having a notch along the distal edge thereof, and a second retaining member having an engaging edge received in the notch so as to engage the container in a set up condition.

12. A blank as claimed in claim 11 wherein the retaining member is hingedly connected to a second panel, which in turn is hingedly connected to the main panel.

13. A blank for accommodating at least one container, comprising a main panel having a container-receiving aperture, a retaining tab formed from the material taken from the aperture, the tab is adapted to be engaged with a container in a set up condition, and supporting means hingedly connected to a second panel and adapted to be disposed in contact with the retaining tab to hold the tab in engagement with the container in a set up carton.

14. A blank as claimed in claim 13 wherein said support means comprises a tab having a main portion hingedly connected to the second panel and a first shoulder portion hingedly connected to said main portion to engage the underside of a radially protruding part of the container.

15. A blank as claimed in claim 14 wherein the support tab further comprises a second shoulder portion, said second shoulder portion being oppositely disposed said first shoulder portion.

16. A blank as claimed in any of claims 11 to 15 wherein each said aperture is defined by a pair of said retaining tabs struck from the main panel, said retaining tabs being disposed in substantially opposed

positions.

17. A unitary blank for forming a carton of a top gripping type which comprises a first panel having a plurality of apertures each defined by at least one foldable retaining tab hingedly connected to said first panel to be folded out of a general plane of said first panel, and a second panel spaced from said first panel by an intermediate panel and having a support tab struck therefrom, said support tab comprising a main portion and a shoulder portion, said support tab being displaceable out of a plane of said second panel so that an end edge of said main portion abuts said first panel and said shoulder portion is juxtaposed to one of said retaining tabs when said carton is set up.

18. A package having a plurality of articles arranged in an array and carried by a carton as claimed in any of claims 1 to 10.

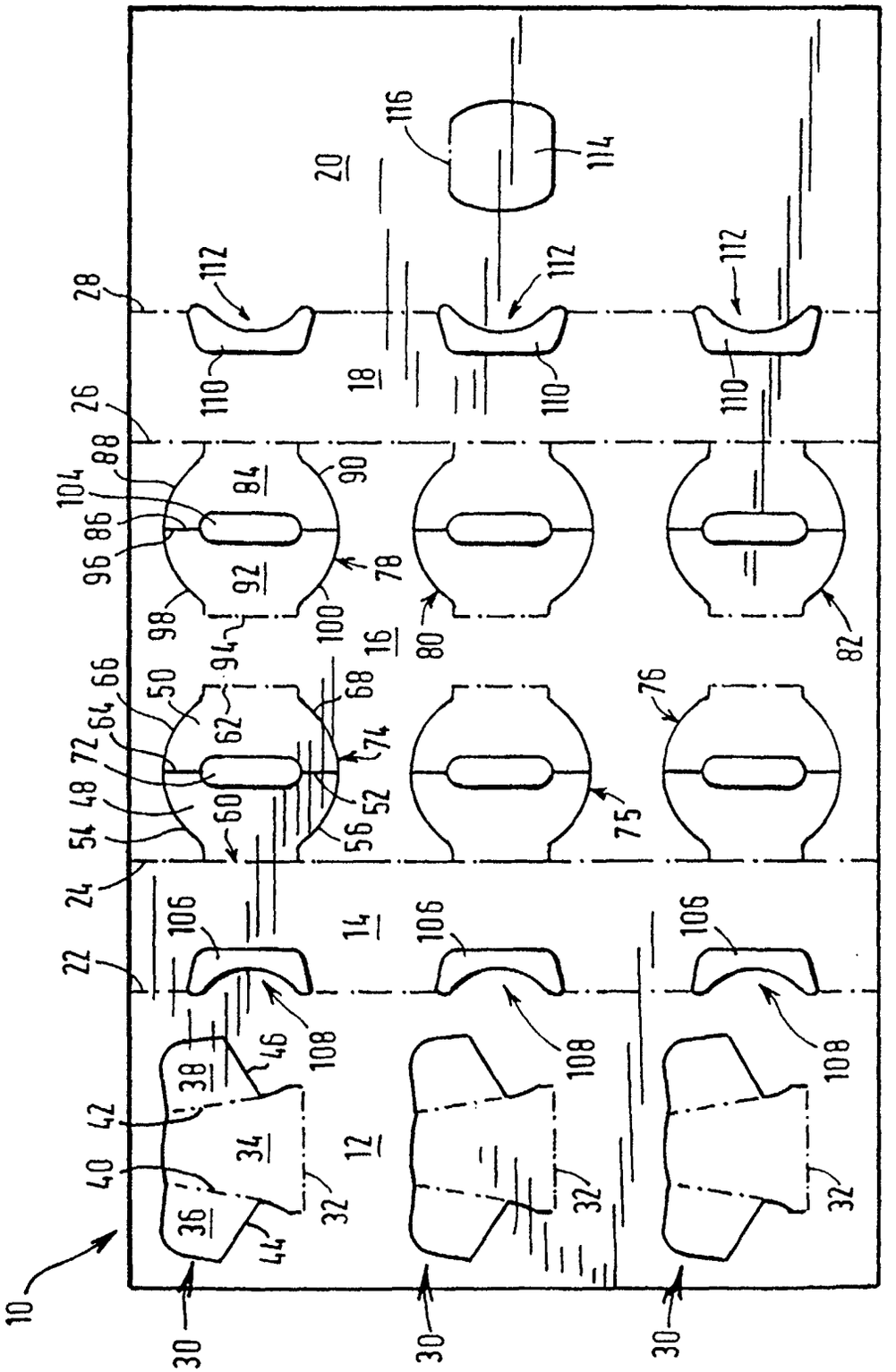
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FIG. 1

FIG. 2

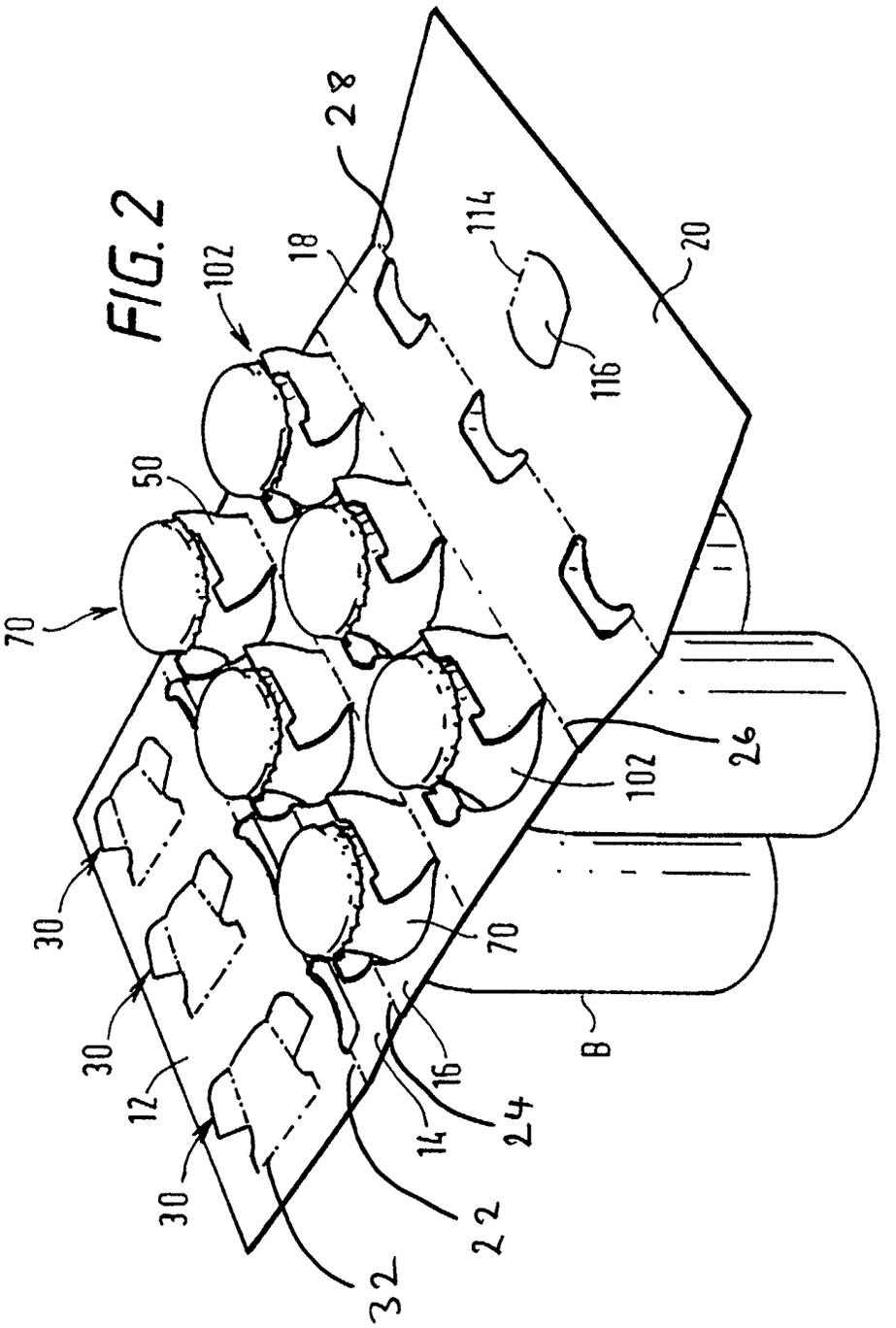

FIG. 3

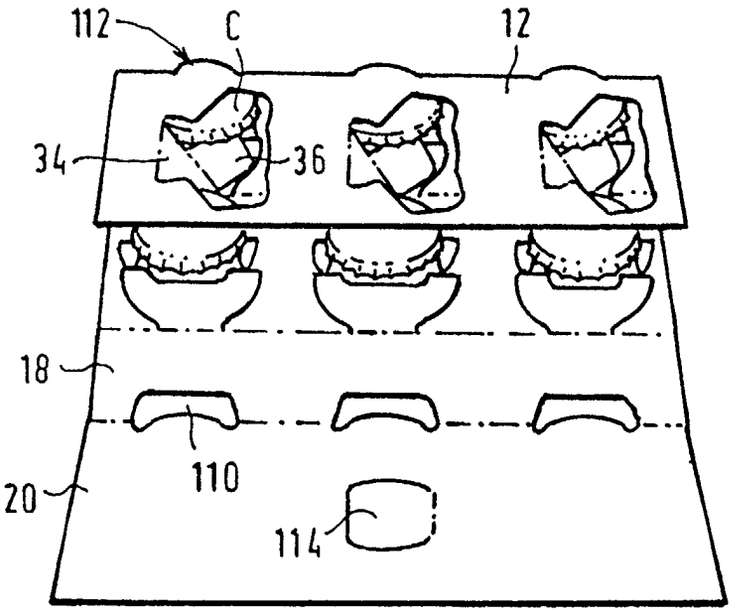

FIG.4