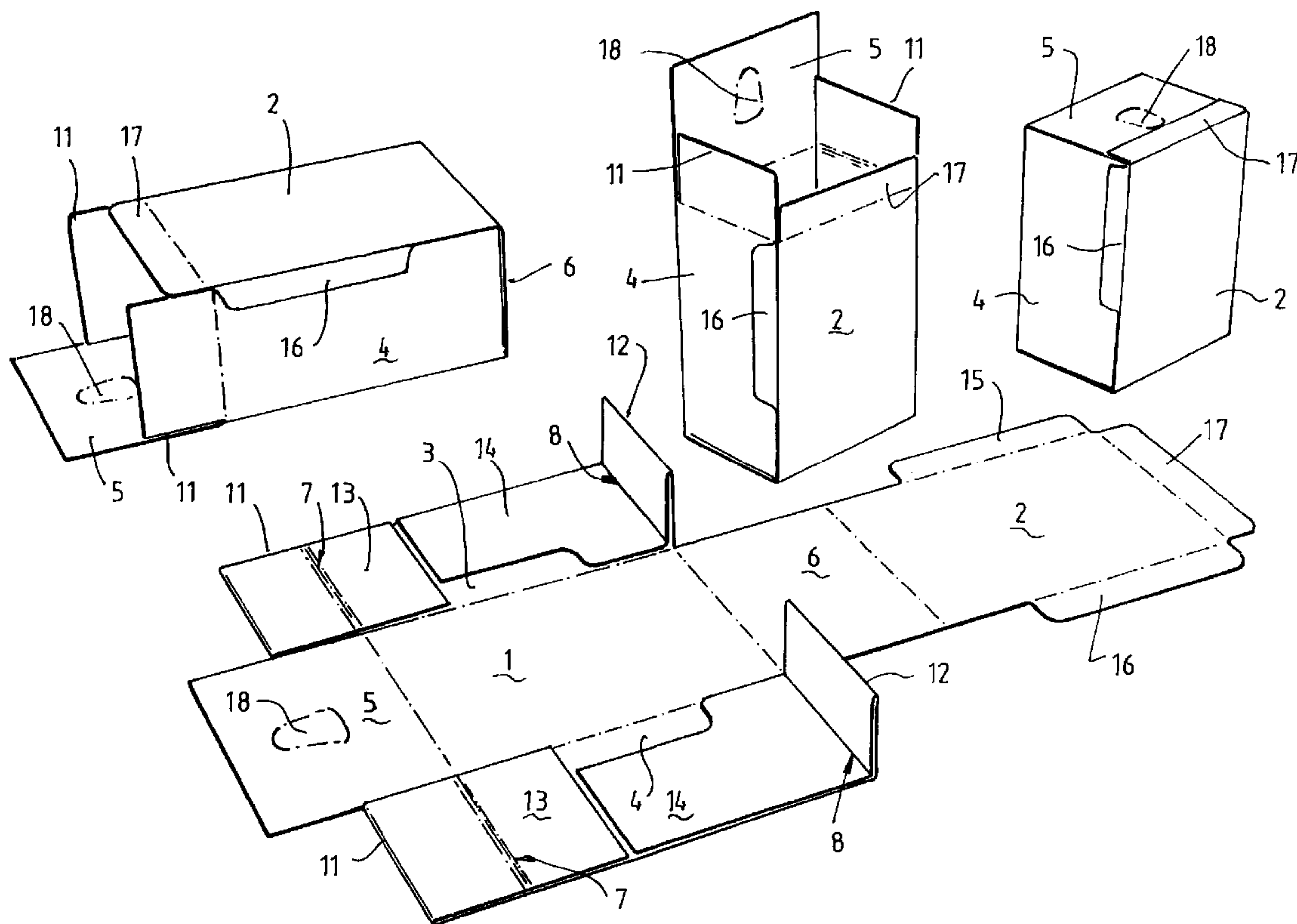




(86) Date de dépôt PCT/PCT Filing Date: 2000/10/06  
 (87) Date publication PCT/PCT Publication Date: 2001/09/13  
 (45) Date de délivrance/Issue Date: 2007/08/07  
 (85) Entrée phase nationale/National Entry: 2002/08/21  
 (86) N° demande PCT/PCT Application No.: AU 2000/001215  
 (87) N° publication PCT/PCT Publication No.: 2001/066423  
 (30) Priorité/Priority: 2000/03/09 (AUPQ 6182)

(51) Cl.Int./Int.Cl. *B65D 5/22* (2006.01),  
*B65D 21/032* (2006.01), *B65D 5/20* (2006.01),  
*B65D 5/44* (2006.01), *B65D 5/66* (2006.01),  
*B65D 77/06* (2006.01)  
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(54) Titre : CONTENANT A PANNEAUX LATERAUX ET DE BOUT RENFORCES  
 (54) Title: REINFORCED END AND SIDE PANEL CONTAINER



(57) **Abrégé/Abstract:**

A container formed from corrugated board or similar packaging materials, including a base panel (1), a top panel (2), side panels (3 and 4) and end panels (5 and 6) which together form a closed container, said side panels having extension portions (7 and 8) which are folded and secured to form double thickness end flaps which are foldable inside the end panels, the extension portions (7, 8) of at least one end of the side panels having a further portion (13, 14) which is secured to reinforce each side panel

## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

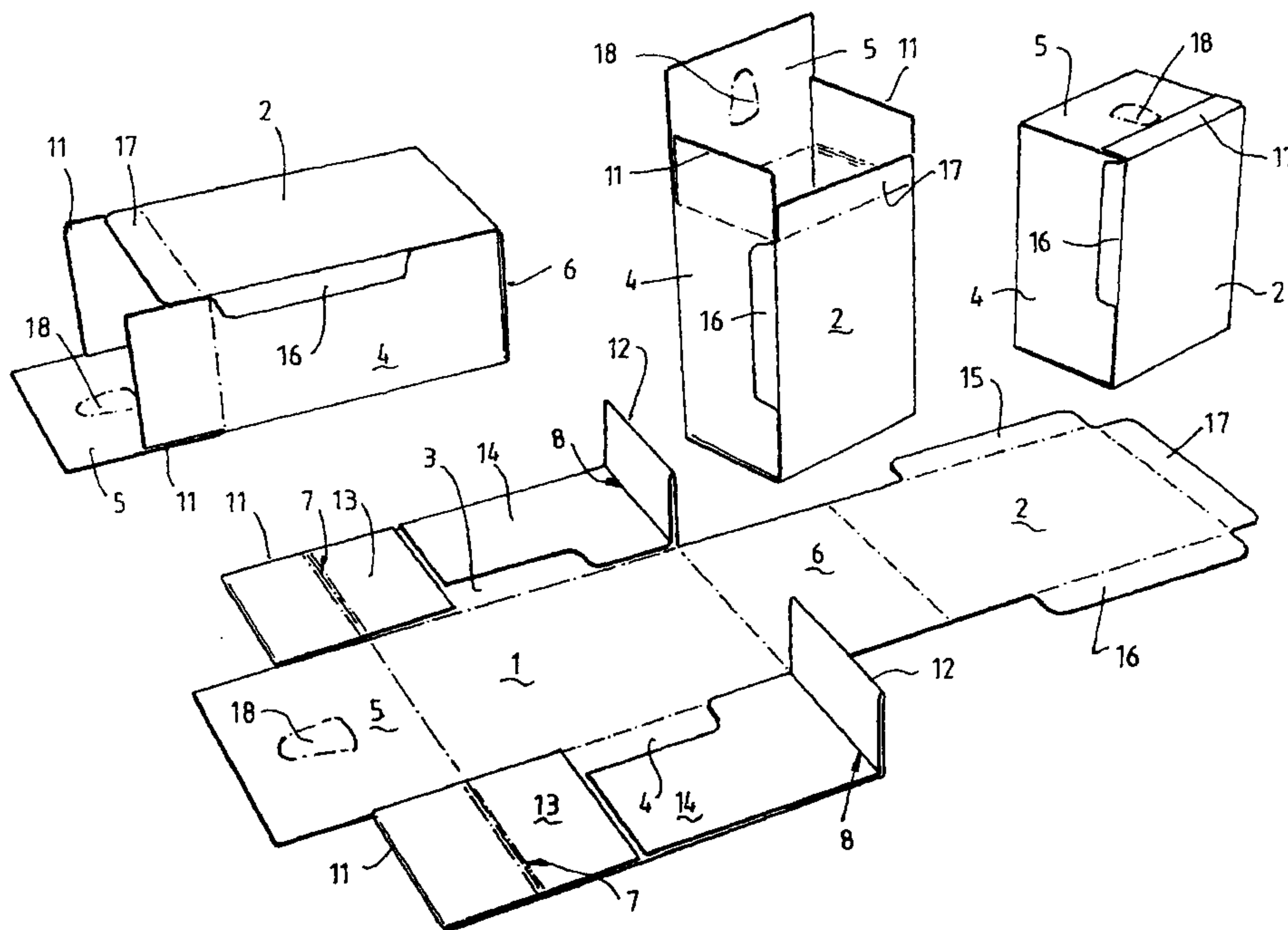
(19) World Intellectual Property Organization  
International Bureau(43) International Publication Date  
13 September 2001 (13.09.2001)

PCT

(10) International Publication Number  
WO 01/66423 A1

- (51) International Patent Classification<sup>7</sup>: B65D 5/22, 21/032, 77/06
- (74) Agent: FREEHILLS CARTER SMITH BEADLE; 101 Collins Street, Melbourne, Victoria 3000 (AU).
- (21) International Application Number: PCT/AU00/01215
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.
- (22) International Filing Date: 6 October 2000 (06.10.2000)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
PQ 6182 9 March 2000 (09.03.2000) AU
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).
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- Published:  
— with international search report
- (72) Inventor; and  
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- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: REINFORCED END AND SIDE PANEL CONTAINER



(57) Abstract: A container formed from corrugated board or similar packaging materials, including a base panel (1), a top panel (2), side panels (3 and 4) and end panels (5 and 6) which together form a closed container, said side panels having extension portions (7 and 8) which are folded and secured to form double thickness end flaps which are foldable inside the end panels, the extension portions (7, 8) of at least one end of the side panels having a further portion (13, 14) which is secured to reinforce each side panel.

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## REINFORCED END AND SIDE PANEL CONTAINER

### Field of the Invention

This invention relates to reinforced bag-in-box containers formed from corrugated board or similar packaging materials which are suitable for containing fluid filled bags, such as bags of mixer syrups for making beverages, and other products requiring extra packaging support or stacking strength.

### Background of the Invention

Syrups used for the production of soft drinks are packaged in flexible plastics bags which are in turn supported by a protective box for transportation and storage. Such syrups are heavy and the protective box must therefore be sufficiently strong to contain the bag during storage, handling and dispensing of the syrup through a closure attached to the bag and supported by one end of the box. Boxes suitable for such syrup bags must have a predetermined stacking strength and burst resistance, otherwise the sides of the box can bulge and rupture thereby risking loss or contamination of the contents.

In the past, boxes which have been used for the above purpose, and for other products requiring extra packaging support or stacking strength, have been formed from high strength, heavy weight corrugated board, such as Duo Arch board, which is therefore expensive.

The patent literature discloses numerous corner reinforced containers of standard top-filling configuration (see for example US Patent 5000377 and 5289970 McLure, 405223 Williams, 5673848 Garza and 5002224 Muise), but such containers are not suitable for use for end-filled bag-in-box containers and are not side reinforced in a manner which suits such containers.

### Summary of the Invention and Object

It is an object of the present invention to provide a reinforced corrugated bag-in-box board container having the necessary strength characteristics which can be made from a lower grade board than previously.

The invention therefore provides a bag-in-box container formed from corrugated board or similar packaging materials, including a base panel, a top

panel, side panels and end panels which together form a container which is closed by one of the end panels, said side panels having end flaps and extension portions at least one end which are folded over and secured to form double thickness end flaps which are foldable inside the end panels, the extension portions at least one end of the side panels having a further elongate portion which is folded over and secured to the side panels to reinforce substantially the entire length of each side panel.

A container of the above defined configuration has increased stacking strength and burst resistance using standard grade board thereby resulting in significant cost savings.

In a still further form of the invention, the extension portions at one end of the side panels include portions defining double thickness end flaps for one end of the container, side panel reinforcing portions and a portion forming double thickness end flaps with the extension portions at the other end of the side panels.

In each of the above embodiments, the corners and sides of the container are substantially reinforced by the folded and secured extension portions thereby creating a container having superior stacking strength and burst resistance than the prior art container using a lower grade less expensive board.

The invention further provides a blank for forming a reinforced bag-in-box container, including a central panel portion defining a base panel, a top panel and end panels, one such end panel being adapted to close the container when filled, side panel portions extending from said central panel portion defining side panels having end flaps and reinforcing extension portions which are foldable and securable to form double thickness end flaps, one extension portion having a further elongate portion which is securable to reinforce substantially the entire length of each side panel.

Typical embodiments of the blank are illustrated in Figures 1, 3, 4, 5 and 6 of the accompanying drawings, as described further below.

Brief Description of the Drawing

In order that the invention may be more readily understood, the embodiments of the invention will now be described with reference to the accompanying drawings in which:

5 In the following drawings the following conventions are adapted in relation to fold or crease lines. Where the fold or crease is represented by a broken line or a "dot dash" line, a standard fold or crease is intended but where a solid line is present, this represents a cut crease line.

10 Figure 1 illustrates a blank for forming a container embodying the invention;

Figure 2 illustrates some of the steps involved in converting the blanket Figure 1 to a container;

Figures 3, 4, 5 and 6 illustrate modified blanks for forming containers embodying the invention;

15 Description of Preferred Embodiments

Referring firstly to Figures 1 and 2 of the drawings, the blank from which the box or container embodying the invention is formed includes a base panel 1, a top panel 2, side panels 3 and 4, and end panels 5 and 6 which together form a closed container for a fluid-filled bag (not shown).

20 The side panels 3 and 4 are each formed with extension portions 7 and 8, which are adapted to be folded along lines 9 and 10 and glued to form double thickness end flaps 11 and 12 (Figure 2), said extension portions 7 and 8 having side wall reinforcing portions 13 and 14 extending therefrom and adapted to be adhesively secured to the side wall panels 3 and 4 as illustrated in Figure 2.

25 The top panel 2 include narrow securing flaps 15, 16 and 17 which are adapted to be folded against the side panels 3 and 4 and end panel 5 and adhesively secured thereto to square and close the container. It will be appreciated that the securing flap 17 is folded and glued to the end panel 5 only after the bag has been inserted into the box. It will also be noted that the end

- 4 -

panel 5 is formed with a push out portion 18 adapted to receive a known dispensing valve attached to the fluid-filled bag.

It will of course be appreciated that the end panels 5 and 6 are also adhesively secured to the double thickness end flaps 11 and 12 for further structural rigidity. The double thickness end flaps 11 and 12 and the side panel reinforcing portions 13 and 14 formed by folding and gluing the extension portions 7 and 8 provide substantial reinforcement of the closed box, particularly at the corners, to provide a significant improvement in stacking strength and bulge resistance. The blank illustrated in Figure 1 can be cut from standard grade corrugated board and the resulting box has strength characteristics which are superior to the prior art boxes for a lower overall cost.

In the embodiment of Figure 3 of the drawings, the same reference numerals identify similar parts, and it will be noted that extension portion 7 does not include portion 13, while extension portion 8 is dimensioned to extend from one end of side panels 3 and 4 to the other. When the box is assembled, the double thickness end flaps 11 tightly engage the free edge of the portion 14 to effectively eliminate any point of weakness at the respective corners of the box whereby the performance characteristics of this embodiment are similar to those of the embodiment of Figures 1 and 2.

In the embodiment of Figure 4, the same reference numerals identify similar parts, and it will be seen that the extension portion 7 defines only a single end flap 18 while the extension portion 8 includes an additional end flap 19 which overlies and is glued to the end flap 18 when the extension portion 7 is folded as defined above. It has been found that this blank is more easily machine erected since only one extension portion needs to be folded.

The embodiment of Figure 5 is similar to the embodiment of Figure 4 with the exception that the securing flaps 15 and 16 are centrally interrupted, as illustrated at 20, to increase the stacking strength provided by the side wall reinforcing portions 13 and 14. It will be appreciated that the embodiments of Figures 1 and 3 may be similarly modified.

- 5 -

In the embodiment of Figure 6, the additional end flap 19 overlies the end flap 18 and is glued thereto. The additional end flap 19 is shorter than the end flap 18 to allow for push in portion 18B which overlies push in portion 18A in the end panel 5 to facilitate access to the dispensing valve of the bag within the box. Otherwise, this embodiment is similar to the embodiment of Figure 4.

In the embodiment of Figures 7 and 8, the top panel 2 of the previous embodiments is centrally divided and securing flaps 15 and 16 are cut from the further flaps 14 as illustrated, and the side panels 3 and 4 have hand hold 22 cut therefrom. In this arrangement, the further panels 14 are secured to the side walls 3 and 4 with the intermediate panels 23 folded along the lines 10 to form double thickness end reinforcing portions as illustrated in Figure 8 of the drawings. It will be appreciated from Figure 8 that this embodiment of the invention has the advantage of being capable of being top filled rather than end filled in the case of the earlier embodiments.

While each of the above embodiments is designed to contain a fluid-filled bag, it will be appreciated that any one of the above described containers is equally useable for other flowable substances, such as powdered substances.

## We Claim:

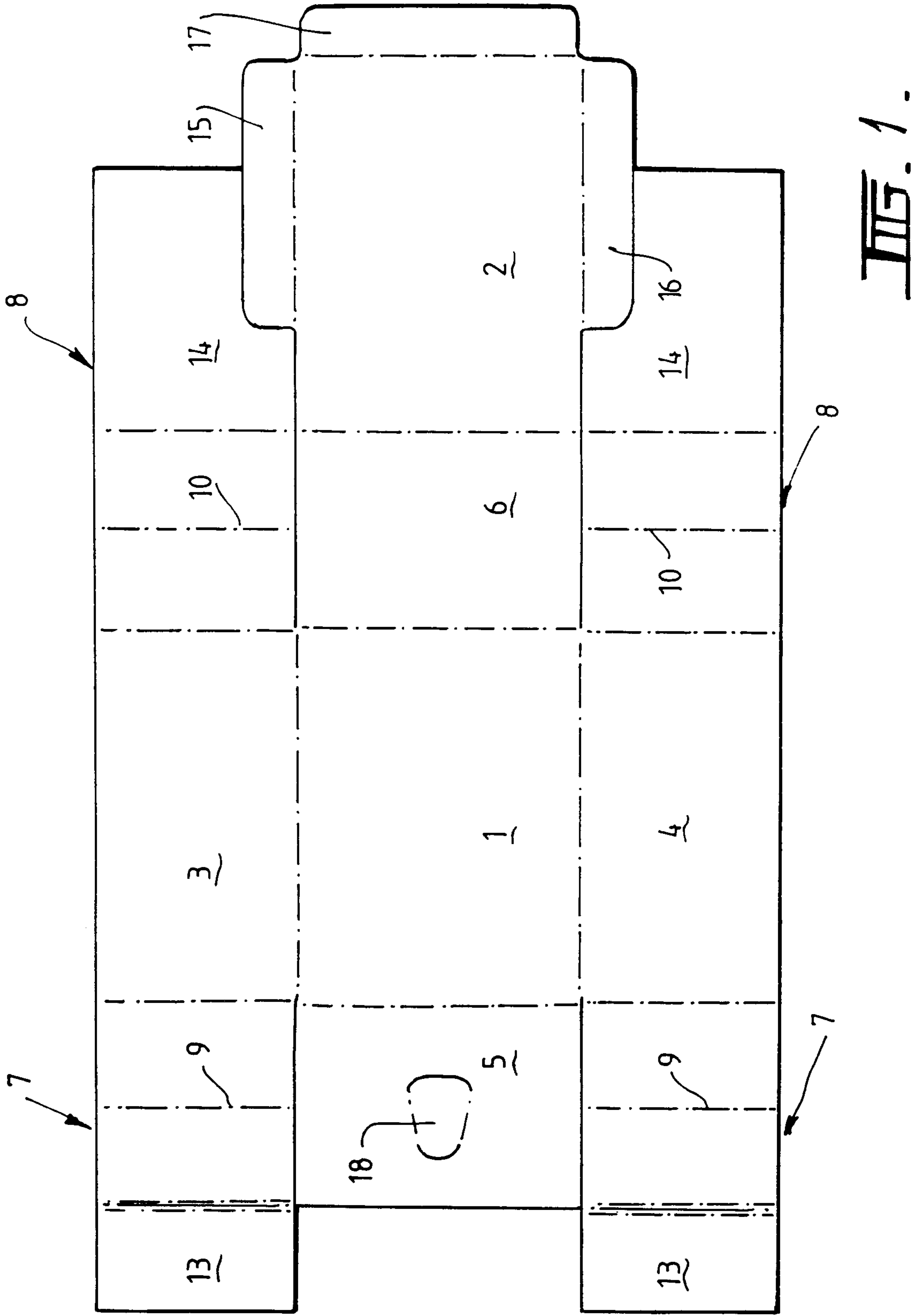
1. A bag-in-box container formed from corrugated board or similar packaging materials, including a base panel, a top panel, side panels and end panels which together form a container which is closed by one of the end panels, said side panels having end flaps and extension portions at least one end which are folded over and secured to form double thickness end flaps which are foldable inside the end panels, the extension portions at least one end of the side panels having a further elongate portion which is folded over and secured to the side panels to reinforce substantially the entire length of each side panel.  
5
2. The container of claim 1, wherein the side panels extend from first opposing sides of the base panel, the end panels extend from second opposing sides of the base panel, and the top panel extends from one of the end panels, and is adhesively secured to the other end panel to form a closed container.  
10
3. The container of claim 1 or 2, wherein the extension portions at one end of the side panels include portions which define double thickness end flaps for one end of the container, side panel reinforcing portions and a portion forming double thickness end flaps with the extension portions at the other end of the side panels.  
15
4. A blank for forming a reinforcing bag-in-box container, including a central panel portion defining a base panel, a top panel and end panels, one such end panel being adapted to close the container when filled, side panel portions extending from said central panel portion defining side panels having end flaps and reinforcing extension portions which are foldable and securable to form double thickness end flaps, one extension portion having a further elongate portion which is securable to reinforce substantially the entire length of each side panel.  
20  
25
5. The blank of claim 4, wherein the side panels extend from first opposing sides of the base panel, the end panels extend from second opposing sides of the base panel, and the top panel extends from one of the end panels and being adapted to be adhesively secure to the other end panel to close the container when filled.  
30
6. The blank of claim 4 or 5, wherein at least one further elongate portion has a foldable flap at its free end which overlies the end flap at the other end to form the double thickness end flap.  
35

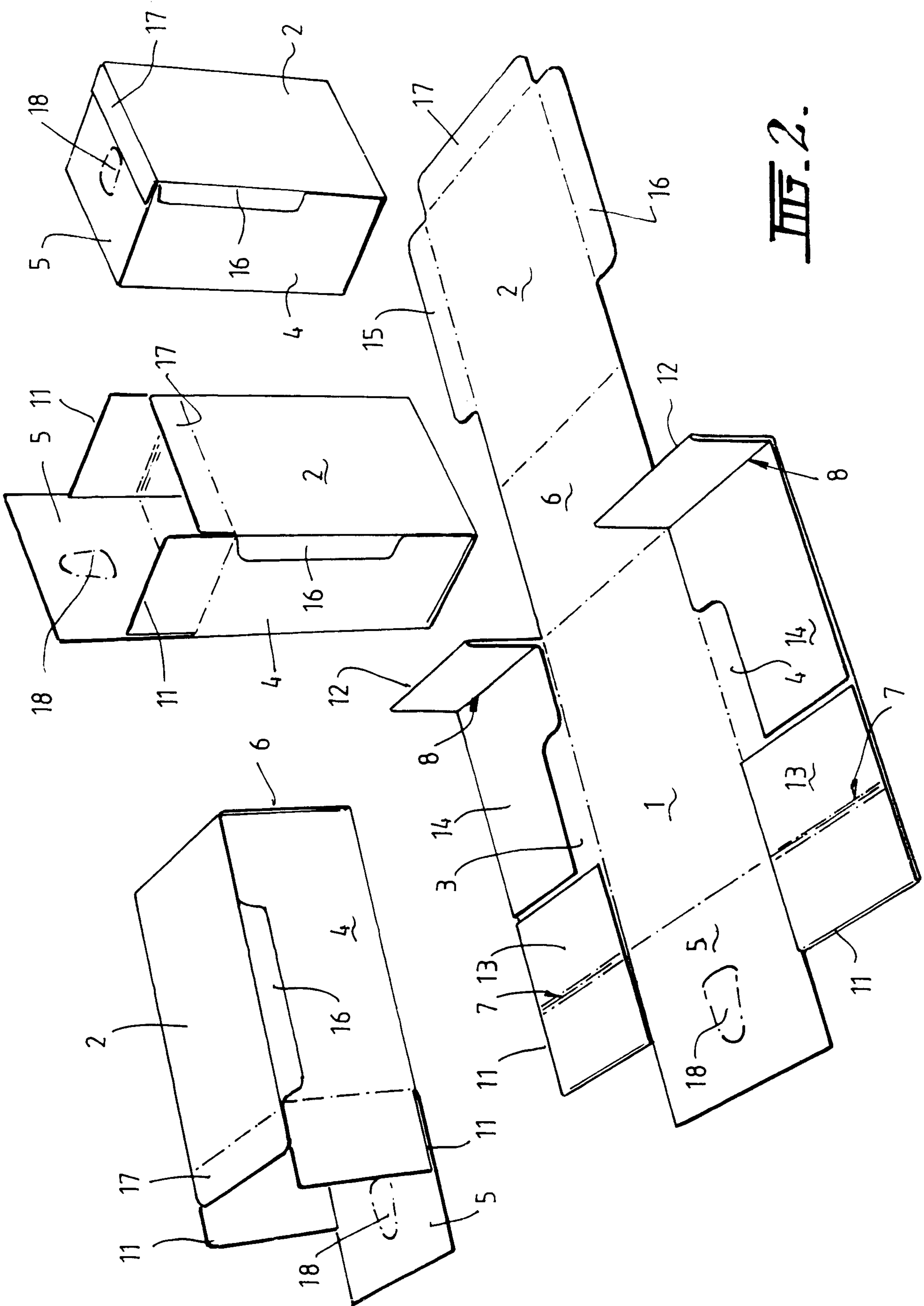
7. The blank of any one of claims 4, 5 or 6, wherein said further elongate portions have cut out portions which define flaps by means of which the top panel can be secured to the side panels.

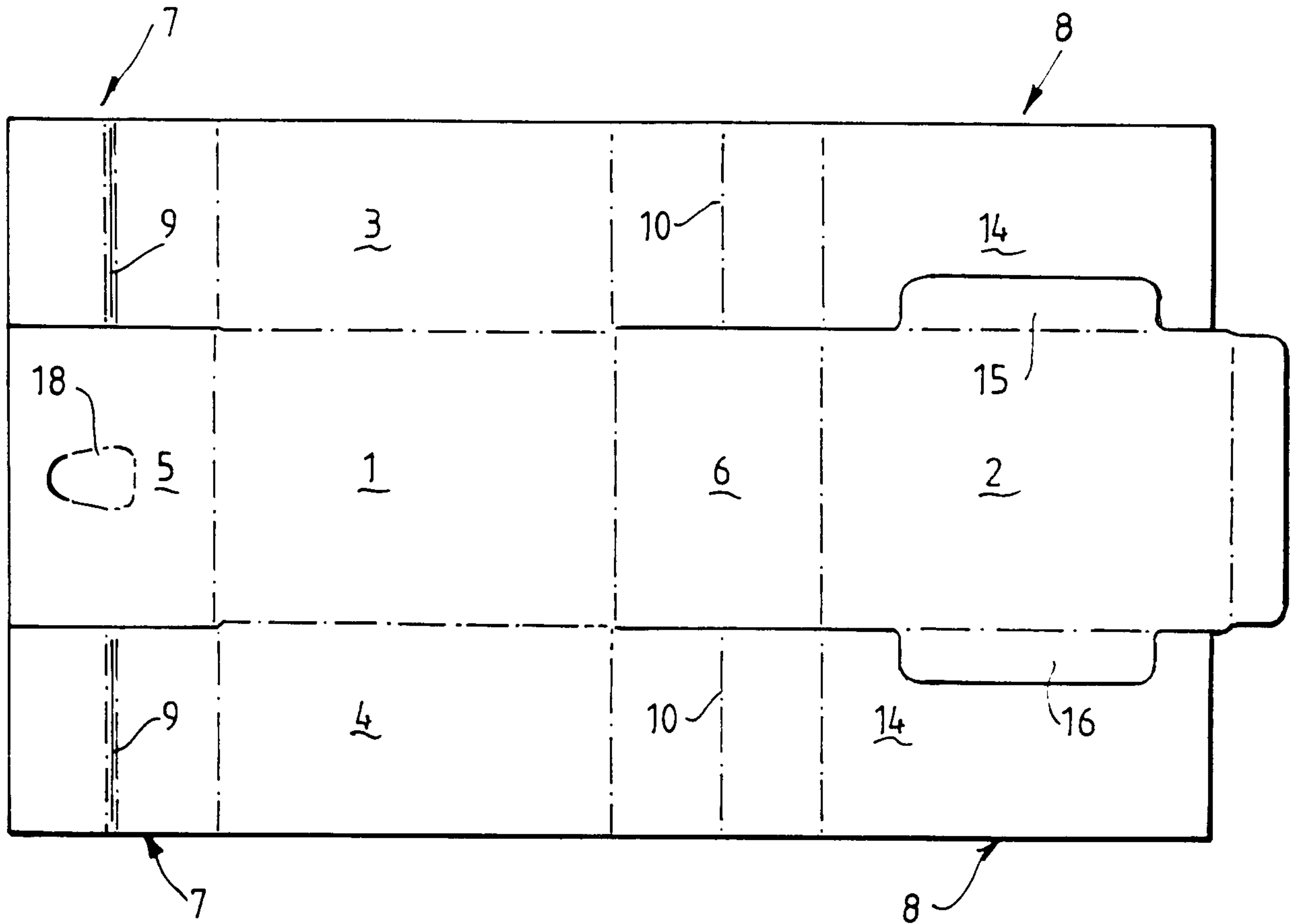
5 8. A container formed from the blank of any one of claims 4 to 6.

9. The container of any one of claims 1, 2, 3 or 8, wherein one end panel has means for receiving a dispensing valve of a bag to be positioned in the container.

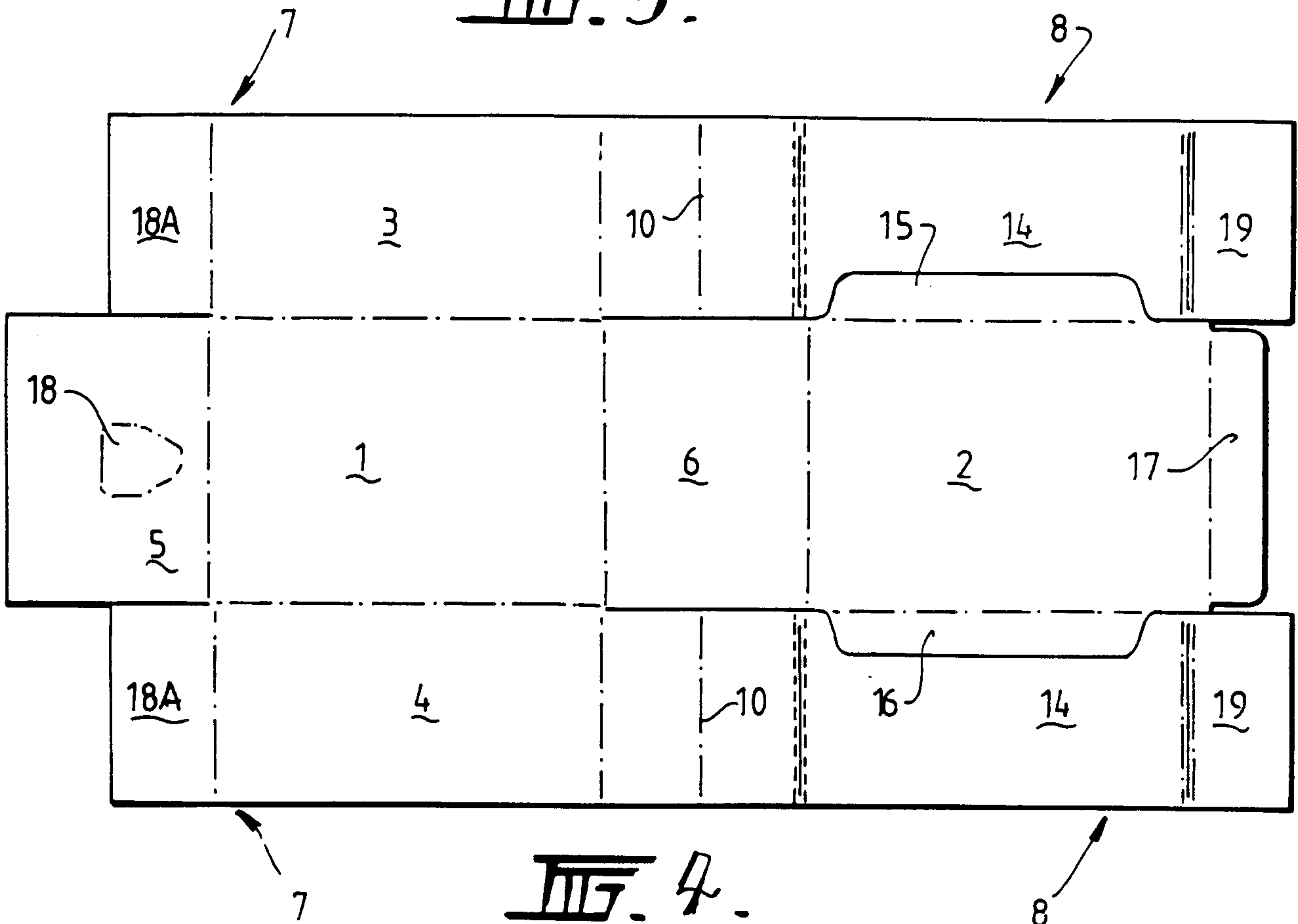
10 10. The blank of any one of claims 4 to 7, wherein one end panel has means for receiving a dispensing valve of a bag to be positioned in the container formed from the blank.



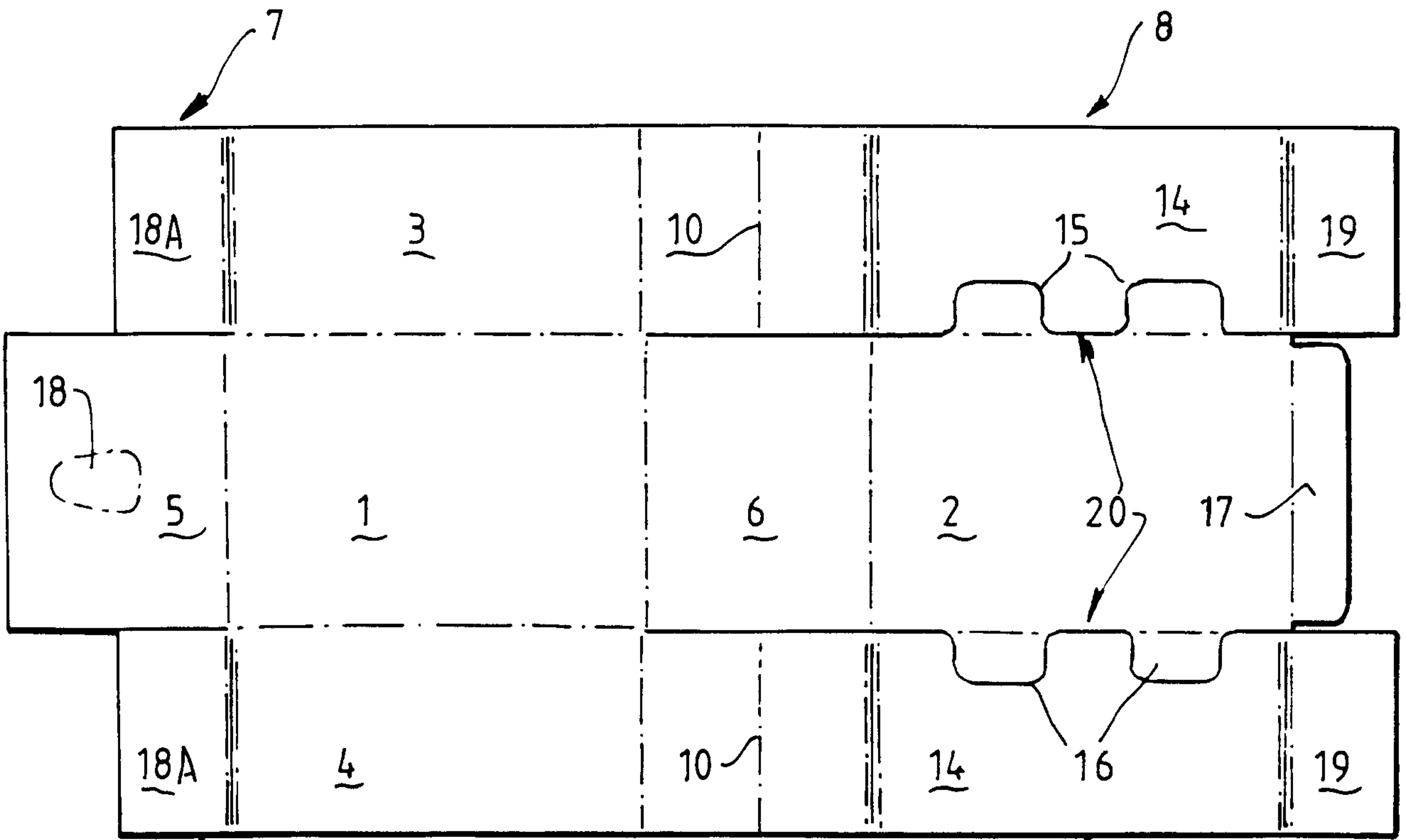




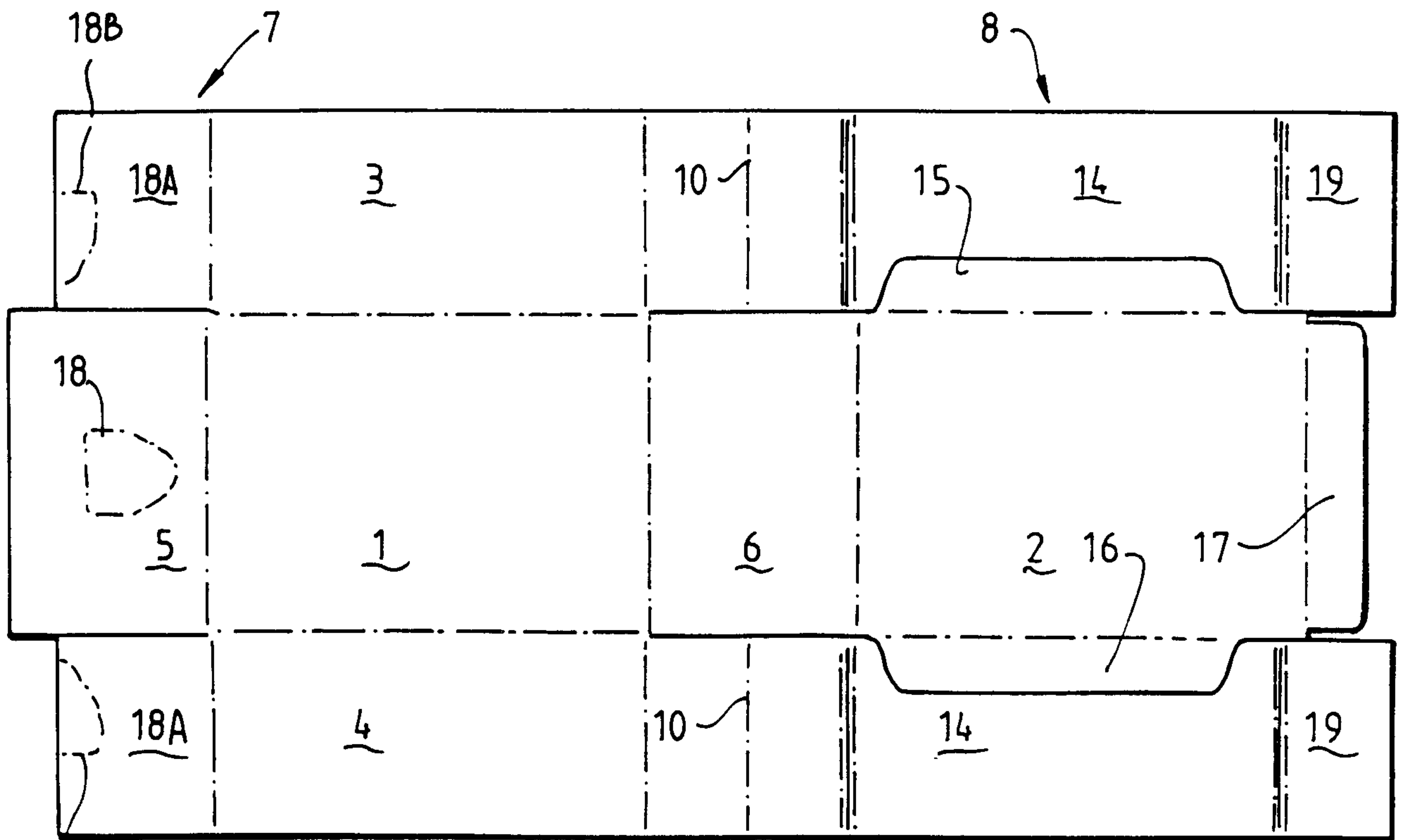
**FIG. 3.**



**FIG. 4.**



**FIG. 5.**



**FIG. 6.**

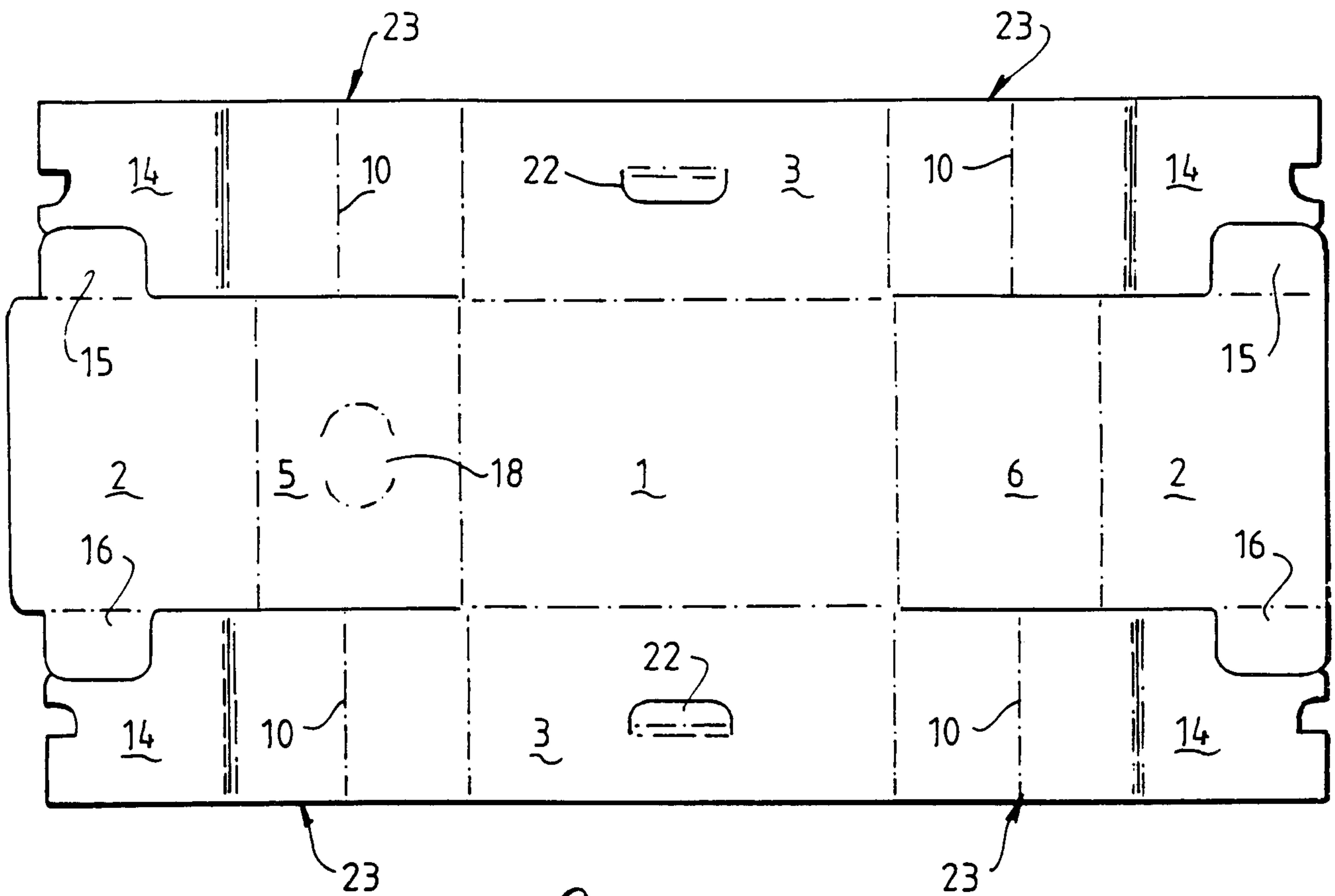


FIG. 7.

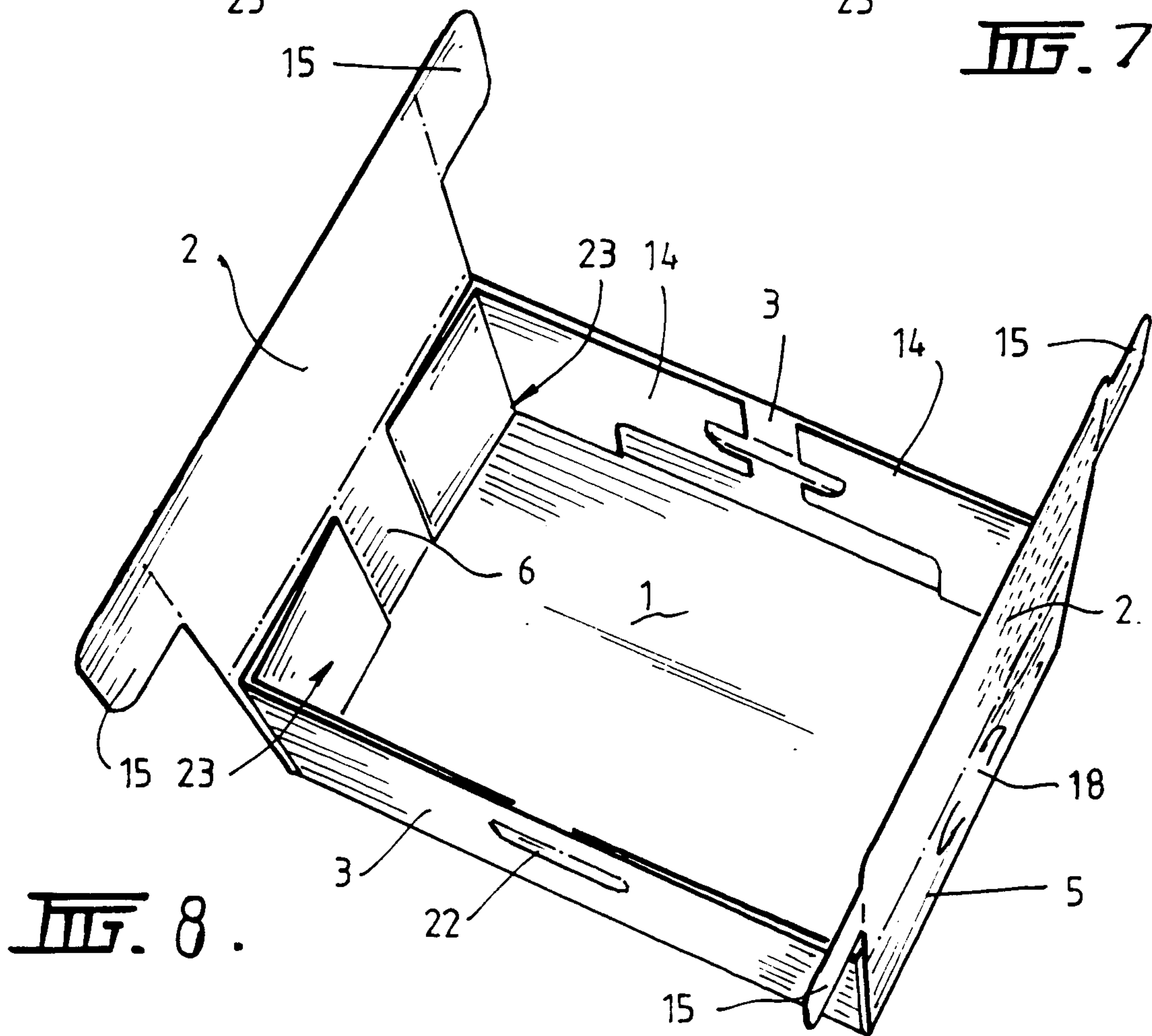


FIG. 8.

