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- (71) **Applicant:** WESTROCK PACKAGING SYSTEMS, LLC [US/US]; 504 Thrasher Street, Norcross, Georgia 30071 (US).
- (72) **Inventor:** HAYTER, Gregory P.; 29 South Davis Avenue, Richmond, Virginia 23220 (US).
- (74) **Agents:** COHEN, Neil G. et al.; WestRock Company, 501 South 5th Street, Richmond, Virginia 23219-0501 (US).
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(54) **Title:** ARTICLE CARRIER AND BLANK THEREFOR

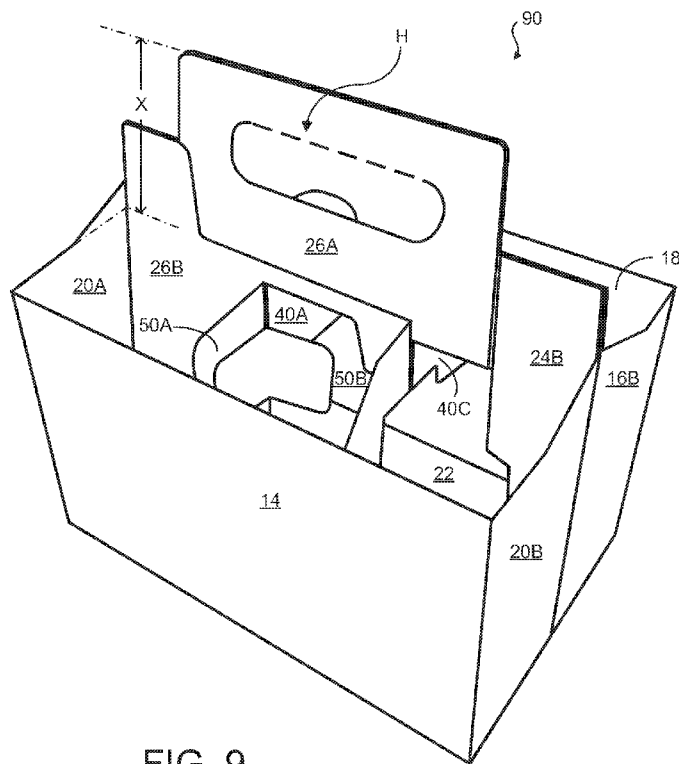


FIG. 9

(57) **Abstract:** The disclosure relates to an article carrier, comprising a tubular structure having a plurality of outer walls defining an interior volume for receiving one or more articles. A medial partition structure is formed from at least two medial panels (26A, 26B) hingedly connected to each other, the medial partition structure being coupled to the tubular structure. A carrying handle is formed in the medial partition structure, the carrying handle has an engagement edge (61, 65). The engagement edge is disposed at an elevation above the hinged connection between the at least two medial partition panels.



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## ARTICLE CARRIER AND BLANK THEREFOR

## TECHNICAL FIELD

The present invention relates to a carrier and to a blank for forming the carrier. More specifically, but not exclusively, the invention relates to a carrier of the basket-style wherein a medial partition divides the carrier into at least two cells, and wherein a carrying handle is provided which facilitates the transport of the carrier.

## BACKGROUND

10 In the field of packaging it is known to provide basket-style article carriers for carrying multiple articles. Basket-style article carriers are well known in the art and are useful for enabling consumers to transport, store and access a group of articles for consumption. These carriers typically have a handle on top, such that the carrier mimics a conventional basket, and typically include a riser or medial partition from which the handle is fashioned.

15 For cost and environmental considerations, such cartons or carriers need to be formed from as little material as possible and cause as little wastage in the materials from which they are formed as possible. Further considerations are the strength of the carrier; its suitability for holding and transporting large weights of articles; and the aesthetic appeal of the carrier which, if eye-catching and appealing to a consumer, may promote increased sales.

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The present invention seeks to provide an improvement in the field of basket-style article carriers, typically formed from paperboard or the like.

## SUMMARY

According to a first aspect of the present invention there is provided an article carrier, comprising:

- a tubular structure having a plurality of outer walls defining an interior volume for receiving one or more articles;

- a medial partition structure formed from at least two medial panels hingedly connected to each other, the medial partition structure being coupled to the tubular structure; and

- a carrying handle formed in the medial partition structure, the carrying handle having an engagement edge, the engagement edge being disposed at an elevation above the hinged connection between the at least two medial partition panels.

According to a second aspect of the present invention there is provided an article carrier, comprising:

a tubular structure having a plurality of outer walls defining an interior volume for receiving one or more articles; and

a medial partition structure formed from at least two medial panels hingedly connected to each other by a hinged connection, the medial partition structure being coupled to the tubular structure;

the hinged connection between the at least two medial panels being disposed at an elevation below the maximum height of the medial partition structure.

Optionally, a carrying handle is formed in the medial partition structure.

According to a third aspect of the present invention there is provided a blank for forming an article carrier, the blank comprising:

a plurality of panels for forming a plurality of outer walls of a tubular structure of the article carrier;

two or more panels for forming a medial partition structure, which two or more panels are configured and arranged such that once the blank is assembled into an article carrier, the medial partition structure is connected to the tubular structure;

a first one of the two or more panels for forming a medial partition structure being hingedly connected to a second one of the two or more panels for forming a medial partition structure by a hinged connection; and

in a set up carrier the hinged connection between the at least two medial panels being disposed at an elevation below the maximum height of the medial partition structure.

Optionally, the two or more panels for forming a medial partition structure comprise handle features for forming a carrying handle in the medial partition structure.

According to a fourth aspect of the present invention there is provided a blank for forming an article carrier, the blank comprising:

a first linear series of panels including:

a first side panel;

a first end panel; and

a first medial panel;

a second linear series of panels including:

a second side panel;

a second end panel; and

a second medial panel;

the first linear series of panels being hinged to the second linear series of panels by a hinged connection between the first and second medial panels; and

the first medial panel comprising a first handle panel integrally formed therewith, a portion of the first handle panel being struck from the second medial panel.

Optionally, the blank further comprises a second handle panel disposed at least in part between the first side panel and the second side panel, the second handle panel being hingedly connected to the first medial panel.

Optionally, the first side panel is disposed at a first maximum distance from the second side panel, the first distance being equal to the maximum height of the second handle panel.

Optionally, the first side panel is disposed at a first maximum distance from the second side panel, the first distance being equal to the maximum distance the first handle panel extends above an upper edge of one of the first and second side panels.

Optionally, the first medial panel comprises a handle reinforcing panel struck therefrom and hingedly connected thereto, the handle reinforcing panel being arranged to be foldable into overlapping relationship with the first handle panel.

According to a fifth aspect of the present invention there is provided a blank for forming an article carrier, the blank comprising:

a first linear series of panels including:

- a first medial panel;
- a first end panel hinged to the first medial panel;
- a first side panel hinged to the first end panel;
- a second end panel hinged to the first side panel; and
- a second medial panel hinged to the second end panel;

a second linear series of panels including:

- a third medial panel;
- a third end panel hinged to the third medial panel;
- a second side panel hinged to the third end panel;
- a fourth end panel hinged to the second side panel; and
- a fourth medial panel hinged to the fourth end panel;

the first linear series of panels being hinged to the second linear series of panels by a first hinged connection between the first and third medial panels and by a second hinged connection between the second and fourth medial panels; and

the first and second hinged connections being collinear and defining a notional line;  
and

the notional line extending through the second medial panel, such that the second medial panel is disposed on opposing sides of the notional line.

Optionally, the notional line is configured such that when the blank is folded about the notional line the first side panel is disposed in vertical registry with the second side panel.

Within the scope of this application it is envisaged and intended that the various aspects, embodiments, examples, features and alternatives set out in the preceding paragraphs, in the claims and/or in the following description and drawings may be taken independently or in any combination thereof. For example, features described in connection with one  
5 embodiment are applicable to all embodiments unless there is incompatibility of features.

#### BRIEF DESCRIPTION OF THE DRAWINGS

Exemplary embodiments of the invention will now be described with reference to the accompanying drawings, in which:

10 Figure 1 is a plan view from above of a blank for forming a carrier according to a first embodiment;

Figures 2 to 8 illustrate stages of construction of the blank of Figure 1 into a carrier;

Figure 9 is a perspective view from above of a carrier formed from the blank of Figure 1; and

15 Figure 10 is a plan view from above of a sheet of material from which a plurality of blanks as shown in Figure 1 can be formed.

#### DETAILED DESCRIPTION OF EMBODIMENTS

Detailed descriptions of specific embodiments of the package, blanks and carriers are  
20 disclosed herein. It will be understood that the disclosed embodiments are merely examples of the way in which certain aspects of the invention can be implemented and do not represent an exhaustive list of all of the ways the invention may be embodied. As used herein, the word "exemplary" is used expansively to refer to embodiments that serve as illustrations, specimens, models, or patterns. Indeed, it will be understood that the packages,  
25 blanks and carriers described herein may be embodied in various and alternative forms. The Figures are not necessarily to scale and some features may be exaggerated or minimised to show details of particular components. Well-known components, materials or methods are not necessarily described in great detail in order to avoid obscuring the present disclosure. Any specific structural and functional details disclosed herein are not to be interpreted as

limiting, but merely as a basis for the claims and as a representative basis for teaching one skilled in the art to variously employ the invention.

Referring to Figure 1, there is shown a plan view of a blank 10 capable of forming a carton or carrier 90 having a carrying handle 'H', as shown in Figure 9, for containing and carrying a group of primary products, such as, but not limited to, bottles or cans, hereinafter referred to as articles (not shown).

In the embodiments detailed herein, the terms "carton" and "carrier" refer, for the non-limiting purpose of illustrating the various features of the invention, to a container for engaging and carrying articles, such as product containers. It is contemplated that the teachings of the invention can be applied to various product containers, which may or may not be tapered and/or cylindrical. Exemplary containers include bottles (for example metallic, glass or plastics bottles), cans (for example aluminium cans), tins, pouches, packets and the like.

The blank 10 is formed from a sheet of suitable substrate. It is to be understood that, as used herein, the term "suitable substrate" includes all manner of foldable sheet material such as paperboard, corrugated board, cardboard, plastic, combinations thereof, and the like. It should be recognised that one or other numbers of blanks may be employed, where suitable, for example, to provide the carrier structure described in more detail below.

In the illustrated embodiment, the blank 10 is configured to form a carton or carrier 90 for packaging an exemplary arrangement of exemplary articles. In the illustrated embodiment, the arrangement is a 2 x 3 matrix or array and the articles are bottles. Alternatively, the blank 10 can be configured to form a carrier for packaging other types, number and size of articles and/or for packaging articles in a different arrangement or configuration.

Referring to Figure 1, the blank 10 comprises a plurality of main panels 16A, 14, 16B, 20A, 18, 20B for forming outer walls of a basket-style carrier 90 (see Figure 9). The plurality of main panels includes a first side panel 14 and a second side panel 18. The first side panel 14 is hinged at a first end to a first end panel 16A by a hinged connection such as a fold line 15A. The first side panel 14 is hinged at a second end to a second end panel 16B by a hinged connection such as a fold line 15B. The second side panel 18 is hinged at a first end to a third end panel 20A by a hinged connection such as a fold line 17A. The second side panel 18 is hinged at a second end to a fourth end panel 20B by a hinged connection such as a fold line 17B.

The blank 10 comprises a base panel 22, optionally hinged to the second side panel 18 by a hinged connection such as a fold line 19. A securing panel 12 is hinged to the first side panel 14 by a hinged connection such as a fold line 13.

- 5 The first end panel 16A and the third end panel 20A together form a first end wall 16A/20A of the carrier 90. The second end panel 16B and the fourth end panel 20B together form a second end wall 16B/20B of the carrier 90.

10 The blank 10 comprises a first riser panel 24A hinged to the second end panel 16B by a hinged connection such as a fold line 23A. The blank 10 comprises a second riser panel 24B hinged to the fourth end panel 20B by a hinged connection such as a fold line 23B. The first riser panel 24A is hinged to the second riser panel 24B by a hinged connection such as a fold line 33. Together the first and second riser panels 24A, 24B assist in coupling the second end panel 16B to the fourth end panel 20B to form the first composite end wall  
15 16B/20B when the blank 10 is assembled. The first riser panel 24A comprises a first recess R1 which is configured to form a hook-like projection on a side edge thereof. The second riser panel 24B comprises a second recess R2 which is configured to form a hook-like projection on a side edge thereof.

20 The base panel 22 comprises a hinged connection such as a fold line 21 which extends longitudinally thereacross so as to longitudinally divide the base panel 22. The base panel 22 comprises a further recess R3 struck from a first end edge thereof; the fold line 21 extends from the further recess R3. The further recess R3 is configured to form a notch for interlocking with the hook-like projections formed in the first riser panel 24A and the second  
25 riser panel 24B.

The first and second side panels 14, 18 are spaced apart; the first end panel 16A and the second end panel 20A are spaced apart; and between them, there is provided a second handle panel 30 which forms part of the carrying handle 'H'. The second handle panel 30 is  
30 hinged to a first partition panel 26A along a hinged connection such as a fold line 29.

The first partition panel 26A is hinged to the first end panel 16A along a hinged connection such as a fold line 25B.

35 A second partition panel 26B is hinged to the first partition panel 26A along a hinged connection such as a fold line 31. The second partition panel 26B is hinged to the third end panel 20A along a hinged connection such as a fold line 25A.

The first and second riser panels 24A, 24B and the first and second partition panels 26A, 26B each form a medial panel of the carrier 90.

5 The blank 10 further comprises a plurality of partition structures. The partition structures are provided to divide the interior of the basket carrier 90 into separate cells. The cells may or may not be of uniform size and, optionally in the present arrangement, the partition structures divide the interior of the basket carrier 90 into six cells arranged in two rows of three cells each.

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The first partition structure P1 comprises a first divider panel 40A that is struck from material that would otherwise form part of the first partition panel 26A and is hinged thereto by a hinged connection such as a fold line 41D. The first partition structure P1 comprises a first securing tab 40B that is hinged to the first divider panel 40A by a hinged connection such as a fold line 41A. A second divider panel 40C is hinged to the first securing tab 40B by a hinged connection such as a fold line 41C. The first securing tab 40B is provided to secure first ends of each of the first and second divider panels 40A, 40C to the first side panel 14. The second divider panel 40C is hinged to the first partition panel 26A by a hinged connection such as a fold line 41B.

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The second partition structure P2 comprises a third divider panel 50A that is struck from material that would otherwise form part of the second partition panel 26B and is hinged thereto by a hinged connection such as a fold line 51D. Fold line 51D is defined by, or interrupted by, at least one cut line. Fold line 51D is interrupted by a cut line 53 which defines in part a projection or tab integrally formed with the second partition panel 26B and struck from material that would otherwise form part of the third divider panel 50A. The second partition structure P2 comprises a second securing tab 52A that is hinged to the third divider panel 50A by a hinged connection such as a fold line 51A. The second securing tab 52A is struck from material that would otherwise form part of a fourth divider panel 50B and is provided to affix an end of third divider panel 50A to the second side panel 18. The second partition structure P2 comprises the fourth divider panel 50B which is hinged by the fold line 51C to the second partition panel 26B. The second partition structure P2 comprises a third securing tab 52B, which is hinged to the fourth divider panel 50B by a hinged connection such as a fold line 51B.

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The first and second partition panels 26A, 26B each form a longitudinal partition within the carrier 90. The first, second, third and fourth divider panels 40A, 40C, 50A, 50B each form a transverse partition within the carrier 90.

- 5 The second handle panel 30 comprises a first handle feature H1. The first handle feature H1 comprises a first handle opening defined in the second handle panel 30. The first handle opening is defined in part by a cut line 67. Optionally, the first handle opening is defined in part by a first handle aperture A2 struck from second handle panel 30. Optionally, the first handle opening is defined at least in part by a first cushioning flap 62 struck from the second  
10 handle panel 30 and hingedly connected thereto by a fold line 65.

- A portion of the first partition panel 26A forms a first handle panel 32. The portion of the first partition panel 26A which forms the first handle panel 32 comprises a second handle feature H2 defined therein. The second handle feature H2 comprises a second handle opening. The  
15 second handle opening is defined in part by a cut line 63. Optionally, the second handle opening is defined in part by a second handle aperture A3 struck from first partition panel 26A. Optionally, the second handle opening is defined at least in part by a second cushioning flap 60 struck from the first partition panel 26A and hingedly connected thereto by a fold line 61.

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- Optionally, the blank 10 comprises a first handle reinforcing panel 28. The first handle reinforcing panel 28 is struck from material that might otherwise form the first partition panel 26A. The first handle reinforcing panel 28 is hingedly connected to the first partition panel 26A by a fold line 27. The first handle reinforcing panel 28 comprises a third handle feature  
25 H3. The third handle feature H3 comprises a handle opening A1 defined in the first handle reinforcing panel 28.

The fold line 27 may be oriented to extend in a longitudinal direction in a set up carrier 90.

- 30 The fold line 27 may be substantially parallel to the bottom panel 22 in a setup carrier 90.

The fold line 27 may substantially perpendicular to the fold line 29 which hinges the second handle panel 30 to the first partition panel 26A.

- 35 The blank 10 is arranged so as to comprise a first row or linear series L1 of panels 24A, 16B, 14, 16A, 26A/28 and a second row or linear series L2 of panels 24B, 20B, 18, 20A, 26B. The first row L1 of panels is hinged to the second row L2 of panels by the fold line 33 between

the first and second riser panels 24A, 24B; and by the fold line 31 between the first and second partition panels 26A, 26B.

At least a portion of the first handle panel 32 which is integrally formed with the first partition panel 26A is struck from material which would otherwise form the second partition panel 26B.

In other words a portion of the first handle panel 32 extends from the first row  $L_1$  beyond the fold lines 31, 33 so as to be disposed side by side with (longitudinally adjacent to) at least one of the panels forming the second row  $L_2$  of panels.

A portion of the first handle panel 32 is formed from material on opposing sides of the fold lines 33, 31. That is to say a portion of the first handle panel 32 is formed from material provided in the first row  $L_1$  and a portion of the first handle panel 32 is formed from material provided in the second row  $L_2$ .

A portion of the second handle panel 30 is formed from material on opposing sides of the fold lines 33, 31. That is to say a portion of the second handle panel 30 is formed from material provided in the first row  $L_1$  and a portion of the second handle panel 30 is formed from material provided in the second row  $L_2$ .

The first and second handle panels 30, 32 are disposed side by side with (longitudinally adjacent to) each other.

The second handle panel 30 comprises a first linear dimension 'x' which defines the maximum distance the above the first and second side panels 14, 18 which the second handle panel 30 extends in a set up carrier 90 see Figure 9.

In the blank 10, the linear dimension x defines the maximum spacing between the first and second side panels 14, 18, between the first and third end panels 16A, 20A and between the second and fourth end panels 16B, 20B.

The blank 10 is arranged such that the first side panel 14, the second end panel 16B and the first riser panel 24A are hingedly connected to the second side panel 18, the fourth end panel 20B and the second riser panel 24B by the fold line 33.

The blank 10 is arranged such that the first side panel 14, the first end panel 16B and the first partition panel 26A are hingedly connected to the second side panel 18, the third end panel 20A and the second partition panel 26B by the fold line 31.

5 The fold line 31 is collinear with the fold line 33.

In this way the first side panel 14 is coupled to the second side panel 18 by at least two of the end panels 16A, 16B, 20A, 20B and either of the first and second riser panel 24A, 24B or the first and second partition panels 26A, 26B or both the first and second riser panel 24A,  
10 24B and the first and second partition panels 26A, 26B.

The first row of panels  $L_1$  has a first height dimension  $z_1$ , the second row of panels  $L_2$  has a second height dimension  $z_2$ . The first and second height dimensions  $z_1$ ,  $z_2$  are each less than the height dimension 'y' of the carrier 90.

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The first row of panels  $L_1$  is hingedly connected to the second row of panels  $L_2$  by at least one fold line 31, 33 which is disposed at an elevation below the upper periphery or edge of the handle panels 30, 28, 32 which define an uppermost elevation of a set up carrier 90.

20 The first row of panels  $L_1$  is hingedly connected to the second row of panels  $L_2$  by at least one fold line 31, 33 which is disposed below an uppermost elevation of the carrier 90 and optionally above an uppermost edge of the first side panel 14 or second side panel 18 or both the first side panel 14 and second side panel 18 in a set up carrier 90.

25 The fold lines 31, 33 which hingedly connect the first row of panels  $L_1$  to the second row of panels  $L_2$  may be disposed at an elevation above an uppermost edge of the first side panel 14 or second side panel 18 or both the first side panel 14 and second side panel 18 in a set up carrier 90.

30 Turning to the construction of the carrier 90 from the blank 10 the carrier 90 may be formed by a series of sequential folding operations in a straight line machine so that the carrier 90 may not required to be inverted to complete its construction.

35 Glue G or other adhesive treatment is applied to the first partition panel 26A in the region of the first handle panel 32 as shown in Figure 2.

The blank 10 is then folded about the fold line 27, in the direction as indicated by arrow D1 in Figure 3, to bring the handle reinforcing panel 28 into face contacting relationship with the first handle panel 32.

- 5     Glue G or other adhesive treatment is applied to the first securing tab 40B. Glue G or other adhesive treatment is applied to the second securing tab 52A. Glue G or other adhesive treatment is applied to the third securing tab 52B. Glue G or other adhesive treatment is applied to the second handle panel 30 (see Figure 3).
- 10    The blank 10 is then folded, as shown by direction arrow D2 in Figure 4, about the fold lines 25A, 25B so as to bring the handle reinforcing panel 28 into face contacting relationship with the second handle panel 30 and to secure the handle reinforcing panel 28 thereto. The first securing tab 40B is brought into face contacting relationship with the first side panel 14 and is secured thereto. The second and third securing tabs 52A, 52B are brought into face
- 15    contacting relationship with the second side panel 18 and are secured thereto.

Glue G or other adhesive treatment is applied an exposed portion of the handle reinforcing panel 28 (see Figure 4).

- 20    Referring now to Figure 5, the blank 10 is conveyed in a packaging machine in a forward direction (as indicated by direction arrow F1), such that the securing panel 12 defines a leading edge, the blank 10 is folded about fold lines 23A, 23B, as indicated by direction
- 25    narrow D3, such that a portion of the first riser panel 24A is brought into face contacting relationship with the handle reinforcing panel 28 and is secured thereto. The second end panel 16B and a portion of the first riser panel 24A are brought into overlapping relationship with the first side panel 14. The fourth end panel 20B and a portion of the second riser panel 24B are brought into overlapping relationship with the second side panel 18.

- 30    The blank 10 may then be rotated such that fold lines 23A, 23B define a leading edge of the blank 10 being conveyed in a packaging machine; direction arrow F2 indicates the new direction of travel of the blank 10.

Glue or other adhesive treatment is then applied to the second riser panel 24B and to the second partition panel 26B (as shown in Figure 5).

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The blank 10 is then folded about fold lines 31, 33 as shown in Figure 6, the first partition panel 26A is brought into face contacting relationship with the second partition panel 26B

and is secured thereto. The first riser panel 24A is brought into face contacting relationship with the second riser panel 24B and is secured thereto.

As shown in Figure 6 in order to effect the fold a portion of the blank 10 comprising the  
5 handle panels 30, 28, 32 folds downwardly as the remaining folded portion folds upwardly.

Glue or other adhesive treatment is then applied to base panel 22, in alternative embodiments glue may be applied to the securing panel 12 (see Figure 7).

10 To complete the construction of the blank 10, the base panel 22 is folded about fold line 21, as shown in Figure 8 such that the securing panel 12 is secured to the base panel 22. A flat collapsed carrier is thereby formed, the flat collapsed carrier can be opened into a basket-style article carrier 90, as shown in Figure 9, by separating the first and second side panels 14, 18. The partition structures are automatically erected when the flat collapsed carrier is  
15 opened out.

Once the carrier 90 is erected, the first and second handle panels 30, 32 and the handle reinforcing panel 28, first and second partition panels 26A, 26B (along with first and second riser panels 24A, 24B) form a medial partition that is disposed medially and substantially  
20 within the interior of the carrier 90 defined by the outer wall panels 18, 20B, 16B, 14, 16A, 20A. The medial partition divides the interior of the carrier 90 into two separate cells.

The first and second partition panels 26A, 26B form a first shoulder portion defined in part by fold line 31. The first shoulder portion is disposed on a first side of a carrying handle H.  
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The first and second riser panels 26A, 26B form a second shoulder portion defined in part by fold line 33. The second shoulder portion is disposed on a second side of the carrying handle H.

30 The carrying handle H of the carrier 90 comprises an engagement or load bearing edge, which is defined by the fold lines 61, 65 in the illustrated embodiment. In other embodiments the engagement or load bearing edge may be defined by an upper edge of a handle opening.

35 The engagement edge of the carrying handle H is disposed above the hinged connection, fold line 31, 33 between the medial panels 26A, 26B, 24A, 24B respectively.

Figure 10 illustrates a sheet of material S from which eight blanks B1, B2, B3, B4, B5, B6, B7, B8 of the form illustrated in Figure 1 are formed. Figure 10 illustrates the nested arrangement of the blanks B1, B2, B3, B4, B5, B6, B7, B8. The blank 10 is an efficient economical and ecologically friendly structure for producing a carrier of a given dimension.

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It can be appreciated that various changes may be made within the scope of the present invention. For example, the size and shape of the panels and apertures may be adjusted to accommodate articles of differing size or shape. The carrier may be configured and arranged to package a different number of articles. In such embodiments the carrier may comprise an alternative number of partition structures so as to separate adjacent articles. In the first illustrated embodiment, the side and end walls 20, 22, 16/18, 24/26 are substantially of the same height as the bottles contained within the carrier. In other embodiments, a top cover may additionally be applied to the carrier to more fully enclose the tops of the articles, albeit utilising the recess for accessing the carrying handle. In yet other embodiments, the side and end walls 20, 22, 16/18, 24/26 are not substantially of the same height as the bottles contained within the carrier.

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It will be recognised that as used herein, directional references such as "top", "bottom", "base", "front", "back", "end", "side", "inner", "outer", "upper" and "lower" do not necessarily limit the respective panels to such orientation, but may merely serve to distinguish these panels from one another.

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As used herein, the terms "hinged connection" and "fold line" refer to all manner of lines that define hinge features of the blank, facilitate folding portions of the blank with respect to one another, or otherwise indicate optimal panel folding locations for the blank. Any reference to "hinged connection" should not be construed as necessarily referring to a single fold line only; indeed, a hinged connection can be formed from two or more fold lines wherein each of the two or more fold lines may be either straight/linear or curved/curvilinear in shape. When linear fold lines form a hinged connection, they may be disposed parallel with each other or slightly angled with respect to each other. When curvilinear fold lines form a hinged connection, they may intersect each other to define a shaped panel within the area surrounded by the curvilinear fold lines. A typical example of such a hinged connection may comprise a pair of arched or arcuate fold lines intersecting at two points such that they define an elliptical panel therebetween. A hinged connection may be formed from one or more linear fold lines and one or more curvilinear fold lines. A typical example of such a hinged connection may comprise a combination of a linear fold line and an arched or arcuate

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fold line which intersect at two points such that they define a half moon-shaped panel therebetween.

As used herein, the term “fold line” may refer to one of the following: a scored line, an embossed line, a debossed line, a line of perforations, a line of short slits, a line of half-cuts, a single half-cut, an interrupted cut line, a line of aligned slits, a line of scores and any combination of the aforesaid options.

It should be understood that hinged connections and fold lines can each include elements that are formed in the substrate of the blank including perforations, a line of perforations, a line of short slits, a line of half-cuts, a single half-cut, a cut line, an interrupted cut line, slits, scores, any combination thereof, and the like. The elements can be dimensioned and arranged to provide the desired functionality. For example, a line of perforations can be dimensioned or designed with degrees of weakness to define a fold line and/or a severance line. The line of perforations can be designed to facilitate folding and resist breaking, to facilitate folding and facilitate breaking with more effort, or to facilitate breaking with little effort.

## CLAIMS

1. An article carrier, comprising:
  - a tubular structure having a plurality of outer walls defining an interior volume for receiving one or more articles; and
  - a medial partition structure formed from at least two medial panels hingedly connected to each other by a hinged connection, the medial partition structure being coupled to the tubular structure;
  - the hinged connection between the at least two medial panels being disposed at an elevation below the maximum height of the medial partition structure.
2. The article carrier according to claim 2 wherein a handle feature is formed in the medial partition structure.
3. The article carrier according to claim 3 wherein the handle feature has an engagement edge, the engagement edge being disposed at an elevation above the hinged connection.
4. A blank for forming an article carrier, the blank comprising:
  - a plurality of panels for forming a plurality of outer walls of a tubular structure of the article carrier; and
  - two or more panels for forming a medial partition structure, the two or more panels being configured and arranged such that once the blank is assembled into a carrier, the medial partition structure is connected to the tubular structure; and
  - a first one of the two or more panels being hingedly connected to a second one of the two or more panels by a hinged connection; and
  - in a set up carrier the hinged connection being disposed at an elevation below the maximum height of the medial partition structure.
5. The blank according to claim 4 wherein the medial partition structure comprise a handle feature for forming a carrying handle.
6. A blank for forming an article carrier, the blank comprising:
  - a first linear series of panels including:
    - a first side panel;
    - a first end panel; and
    - a first medial panel;

a second linear series of panels including;

a second side panel;

a second end panel; and

a second medial panel;

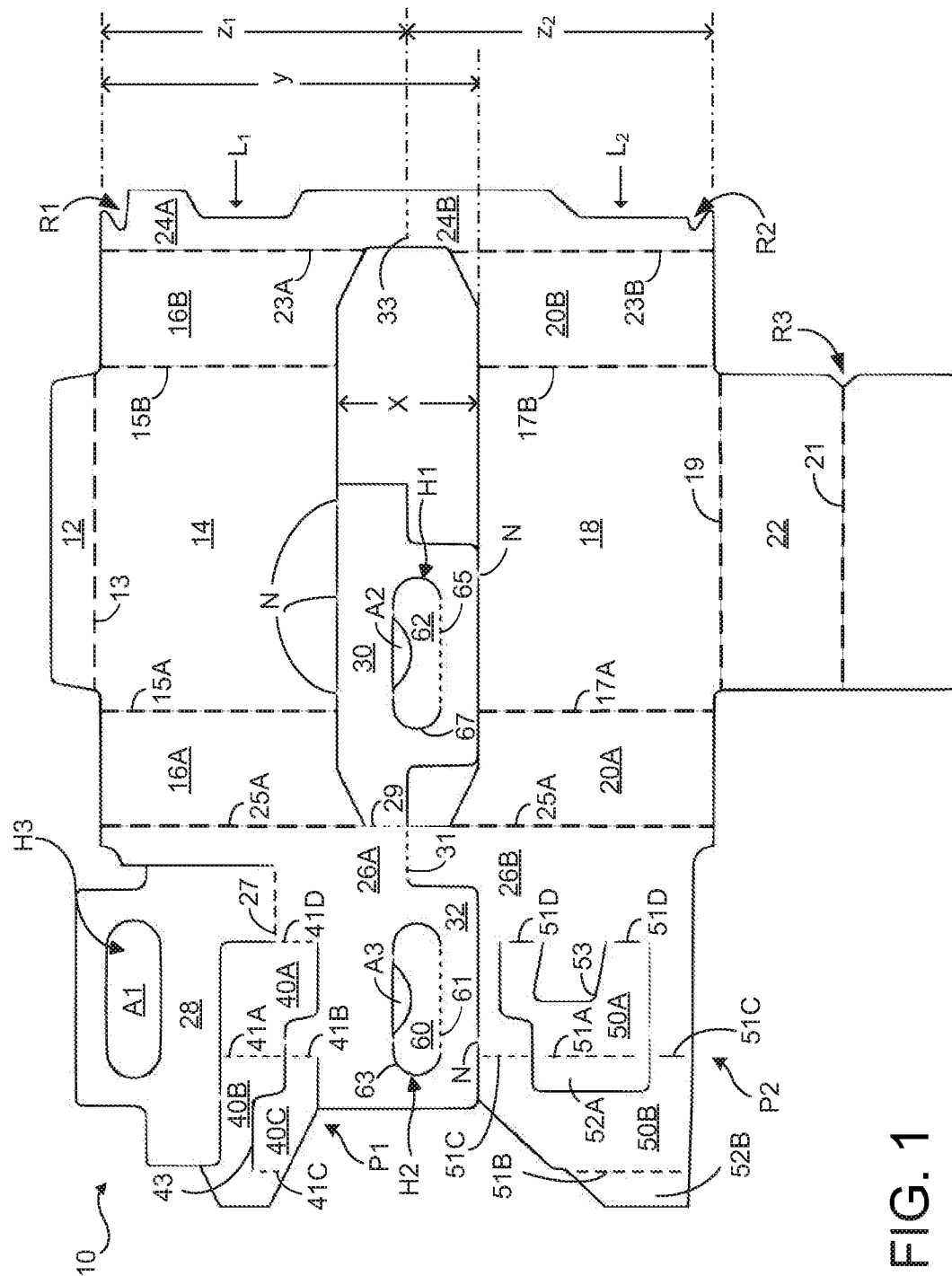
the first linear series of panels being hinged to the second linear series of panels by a hinged connection between the first and second medial panels; and

the first medial panel comprising a first handle panel integrally formed therewith, a portion of the first handle panel being struck from the second medial panel.

7. The blank according to claim 6 further comprising a second handle panel disposed at least in part between the first side panel and the second side panel, the second handle panel being hingedly connected to the first medial panel.
8. The blank according to claim 7 wherein the first side panel is disposed at a first maximum distance from the second side panel, the first distance being equal to the maximum height of the second handle panel.
9. The blank according to claim 6 wherein the first side panel is disposed at a first maximum distance from the second side panel, the first distance being equal to the maximum distance the first handle panel extends above an upper edge of one of the first and second side panels.
10. The blank according to claim 6 wherein the first medial panel comprises a handle reinforcing panel struck therefrom and hingedly connected thereto, the handle reinforcing panel being arranged to be foldable into overlapping relationship with the first handle panel.
11. A blank for forming an article carrier, the blank comprising:
  - a first linear series of panels including:
    - a first medial panel;
    - a first end panel hinged to the first medial panel;
    - a first side panel hinged to the first end panel;
    - a second end panel hinged to the first side panel; and
    - a second medial panel hinged to the second end panel;
  - a second linear series of panels including:
    - a third medial panel;
    - a third end panel hinged to the third medial panel;

a second side panel hinged to the third end panel;  
a fourth end panel hinged to the second side panel; and  
a fourth medial panel hinged to the fourth end panel;  
the first linear series of panels being hinged to the second linear series of panels by a first hinged connection between the first and third medial panels and by a second hinged connection between the second and fourth medial panels;  
the first and second hinged connections being collinear and defining a notional line;  
the notional line extending through the second medial panel, such that the second medial panel is disposed on opposing sides of the notional line.

12. The blank according to claim 11 wherein the notional line is configured such that when the blank is folded about the notional line, the first side panel is disposed in vertical registry with the second side panel.



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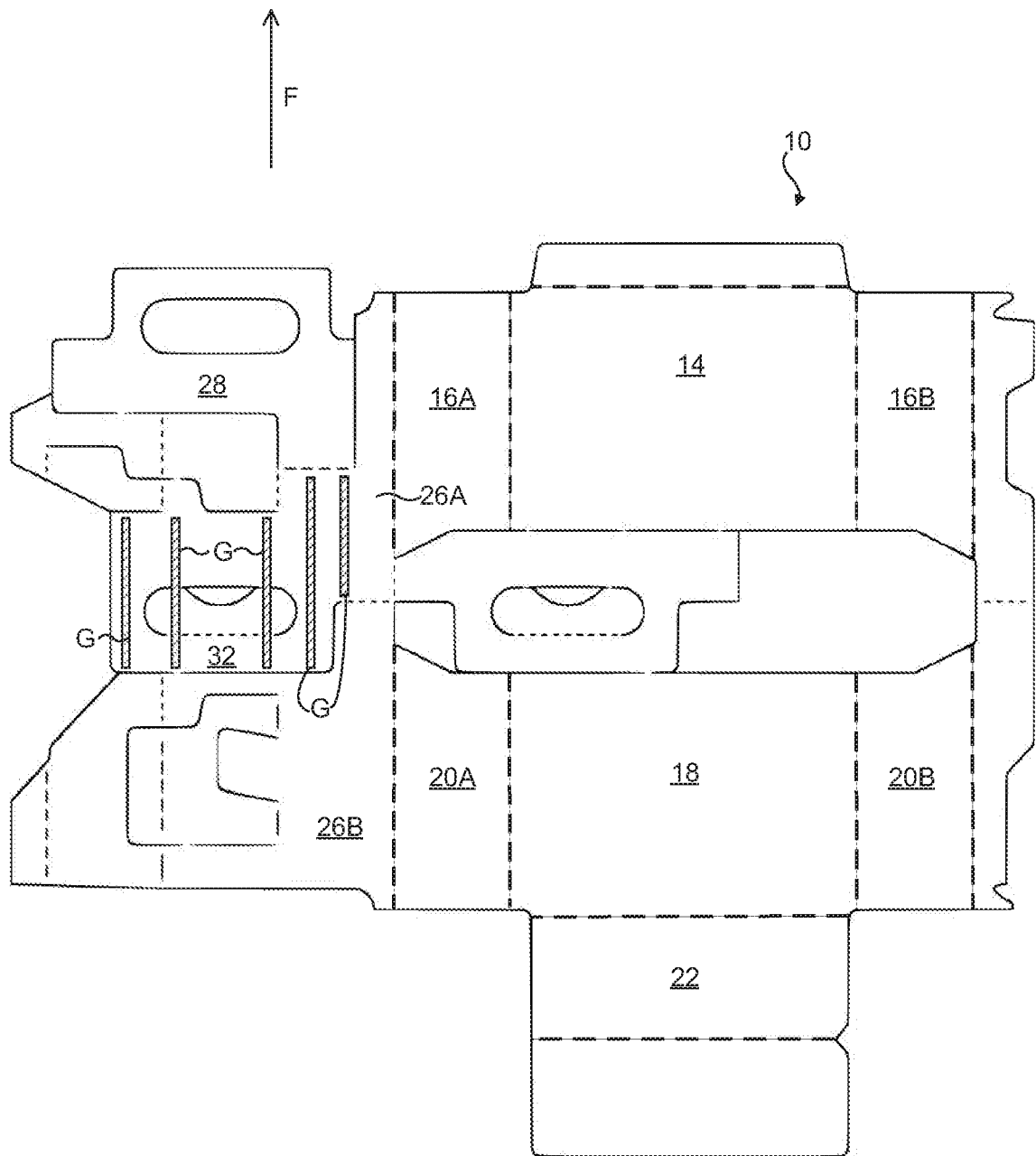


FIG. 2

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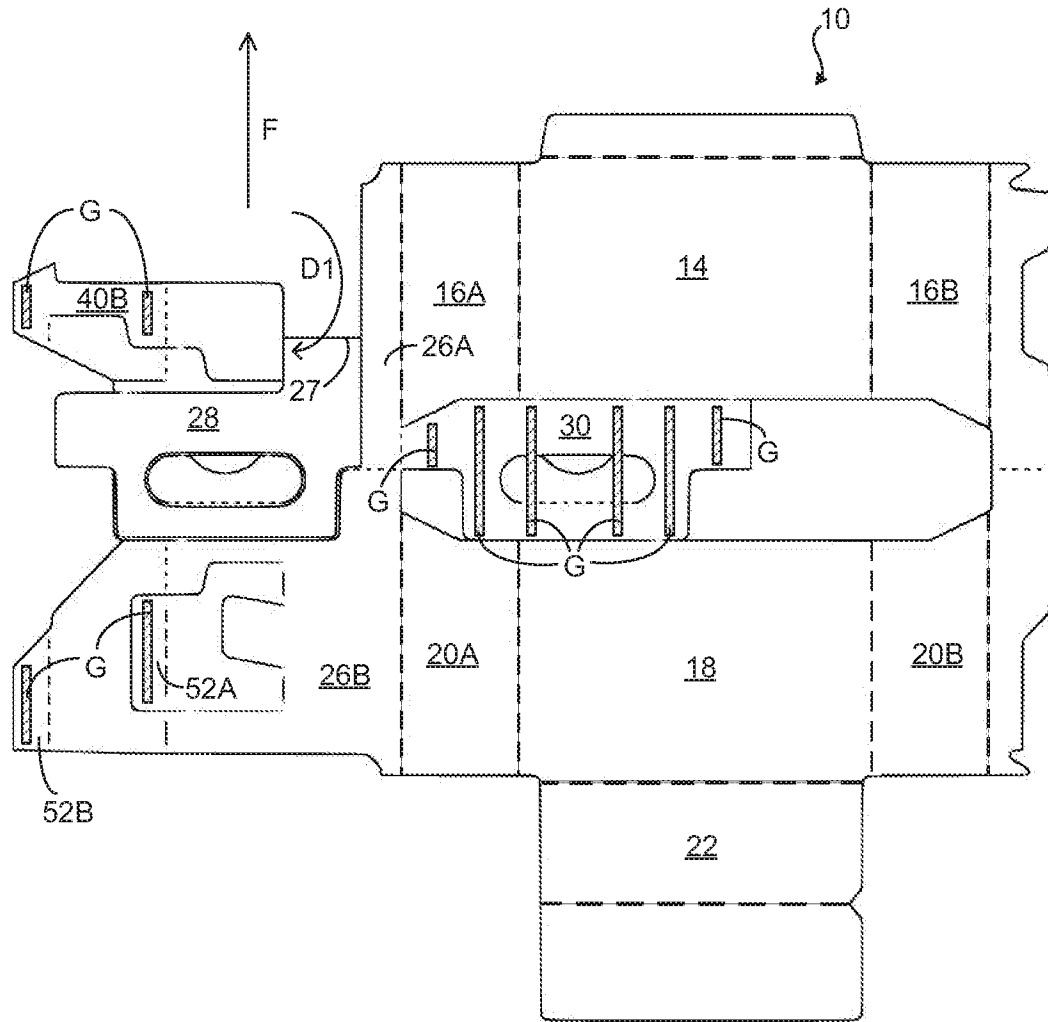


FIG. 3

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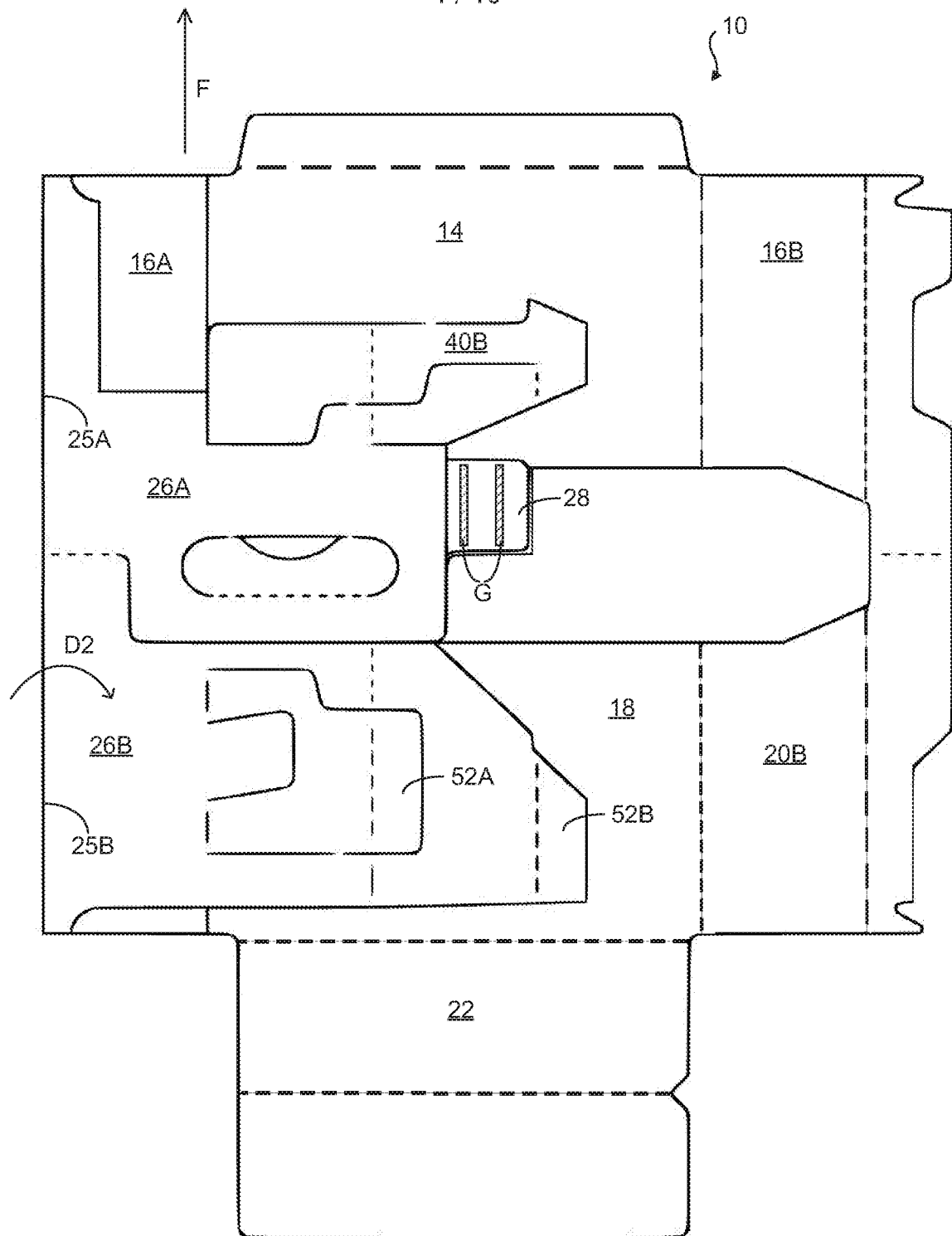


FIG. 4

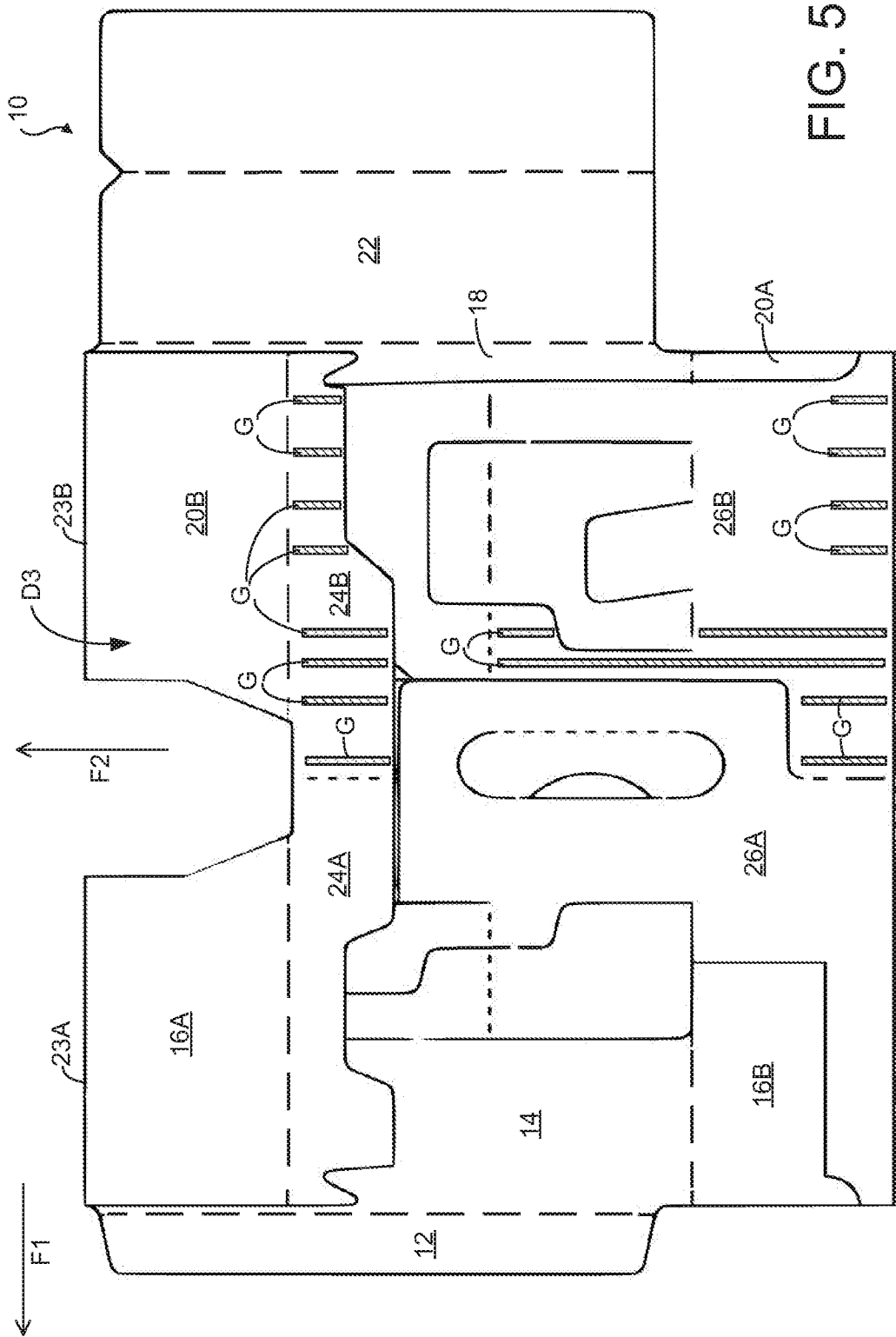


FIG. 5

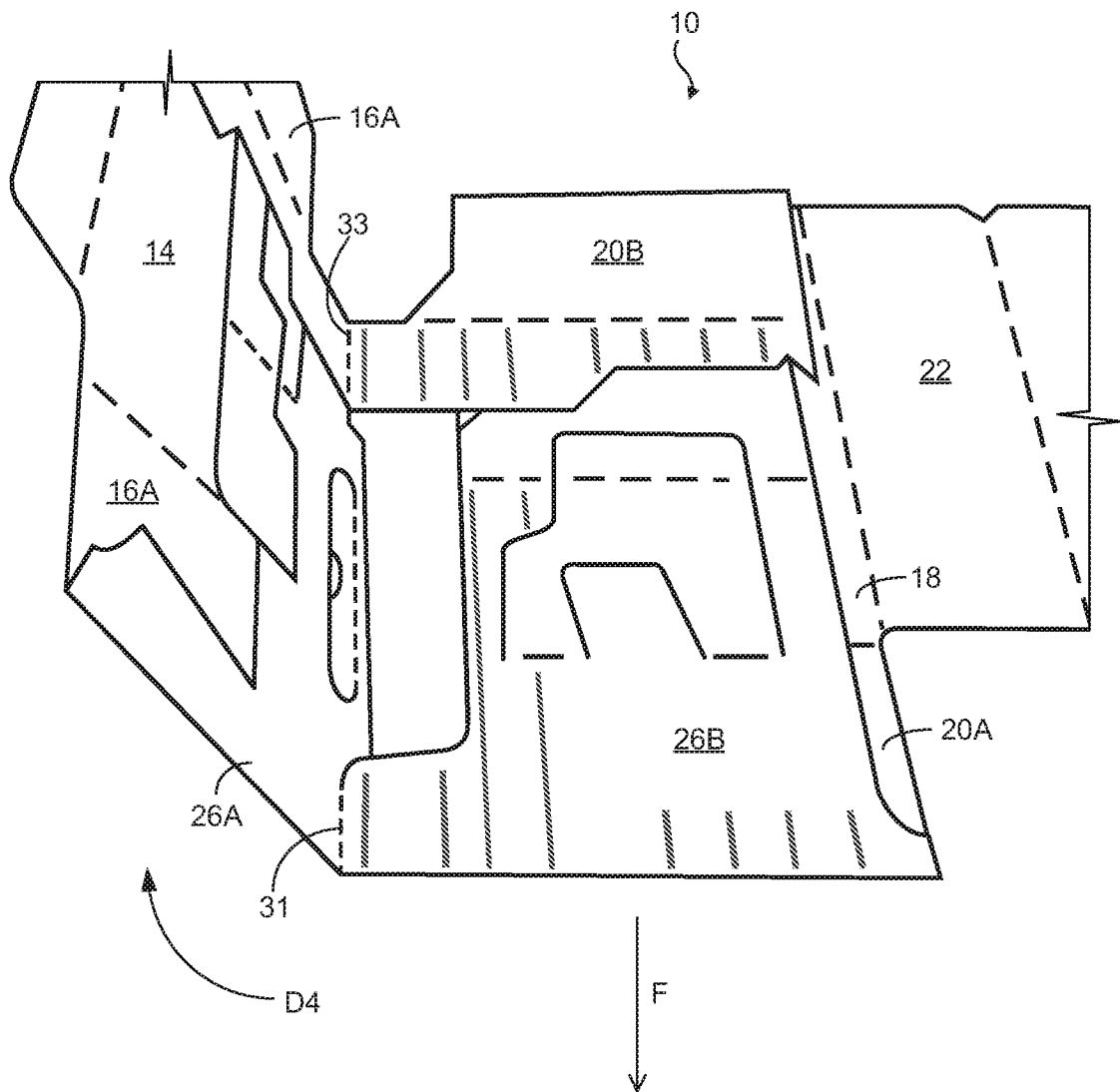
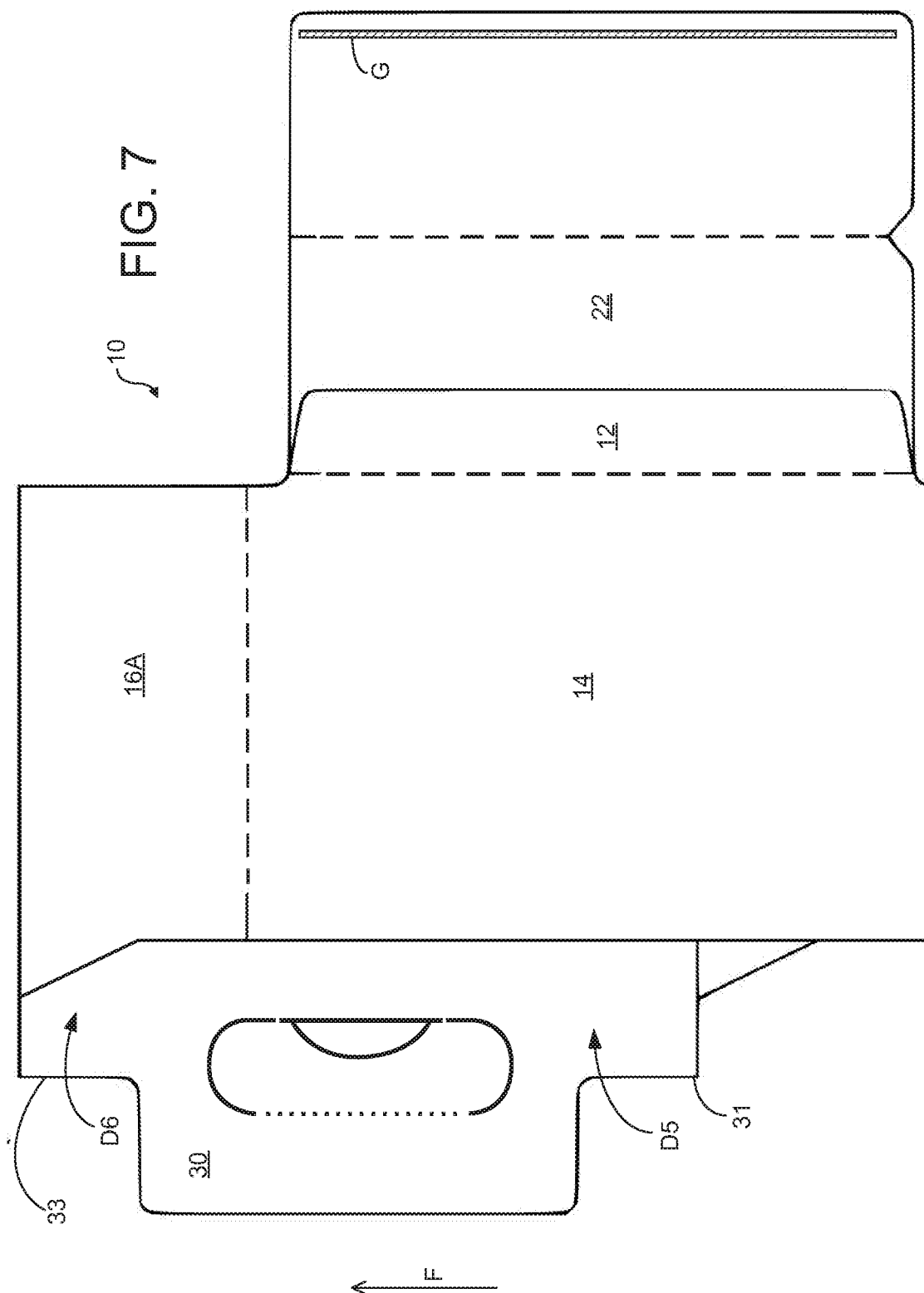


FIG. 6



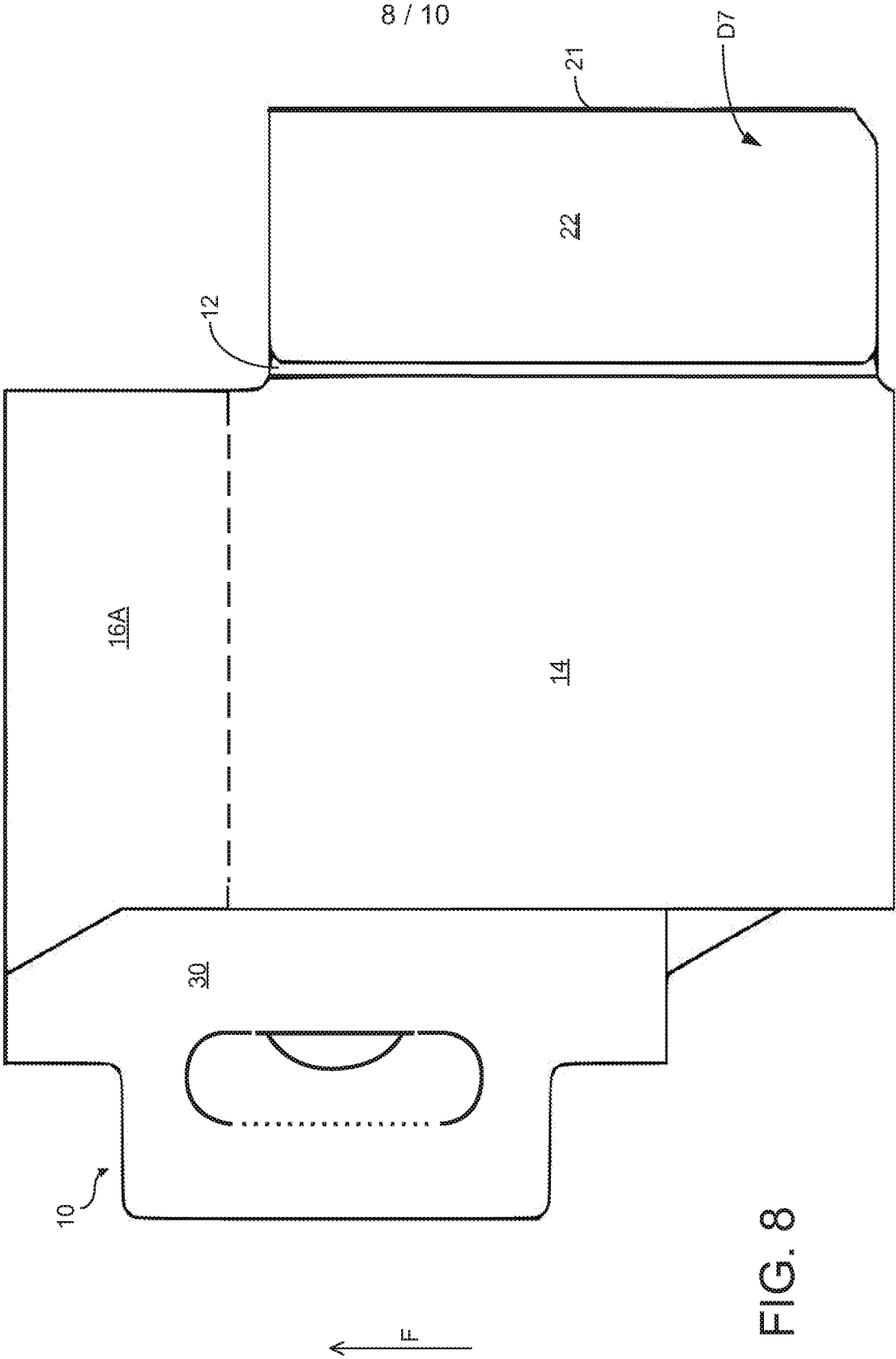


FIG. 8

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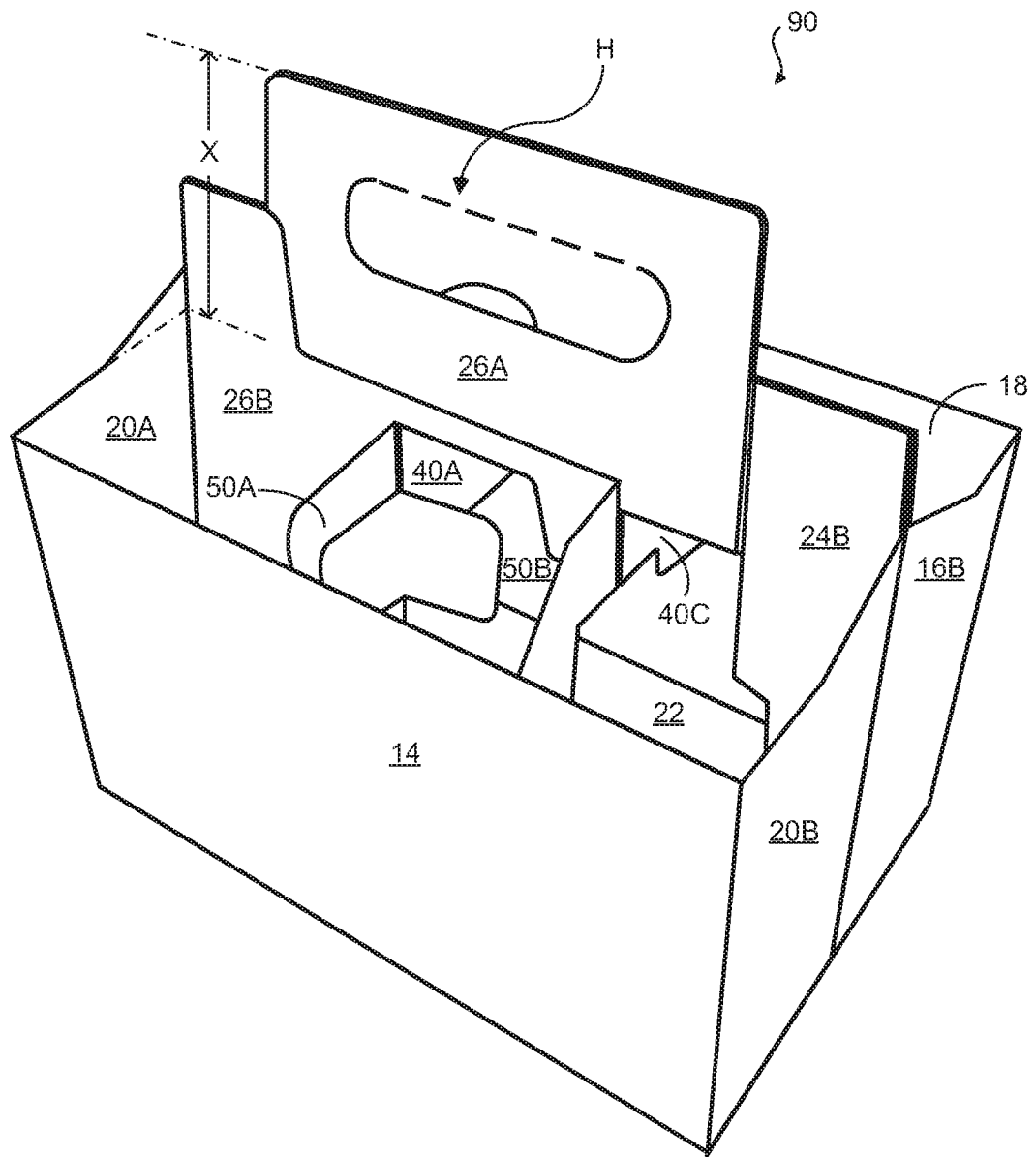


FIG. 9

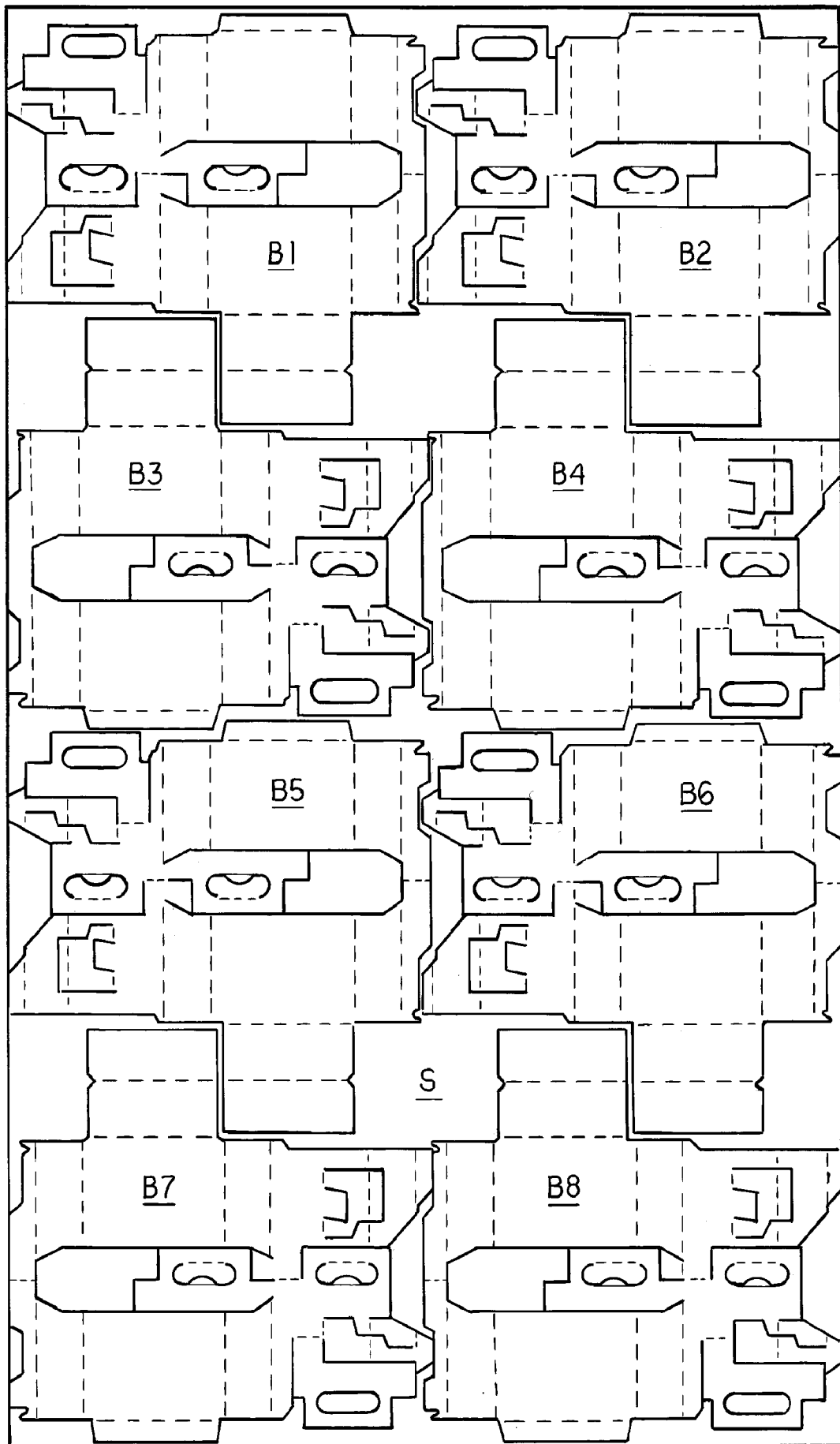


FIG. 10

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## INTERNATIONAL SEARCH REPORT

International application No  
PCT/US2016/062678A. CLASSIFICATION OF SUBJECT MATTER  
INV. B65D71/58  
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages      | Relevant to claim No. |
|-----------|-----------------------------------------------------------------------------------------|-----------------------|
| X<br>A    | US 3 351 230 A (SCHUSTER RICHARD L)<br>7 November 1967 (1967-11-07)<br>figures<br>----- | 1-5<br>6,11           |



Further documents are listed in the continuation of Box C.



See patent family annex.

## \* Special categories of cited documents :

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Date of the actual completion of the international search

26 January 2017

Date of mailing of the international search report

03/02/2017

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European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040,  
Fax: (+31-70) 340-3016

Authorized officer

Bridault, Alain

## INTERNATIONAL SEARCH REPORT

### Information on patent family members

International application No

PCT/US2016/062678

| Patent document<br>cited in search report | Publication<br>date | Patent family<br>member(s) | Publication<br>date |
|-------------------------------------------|---------------------|----------------------------|---------------------|
| US 3351230                                | A                   | 07-11-1967                 | NONE                |
| -----                                     |                     |                            |                     |