

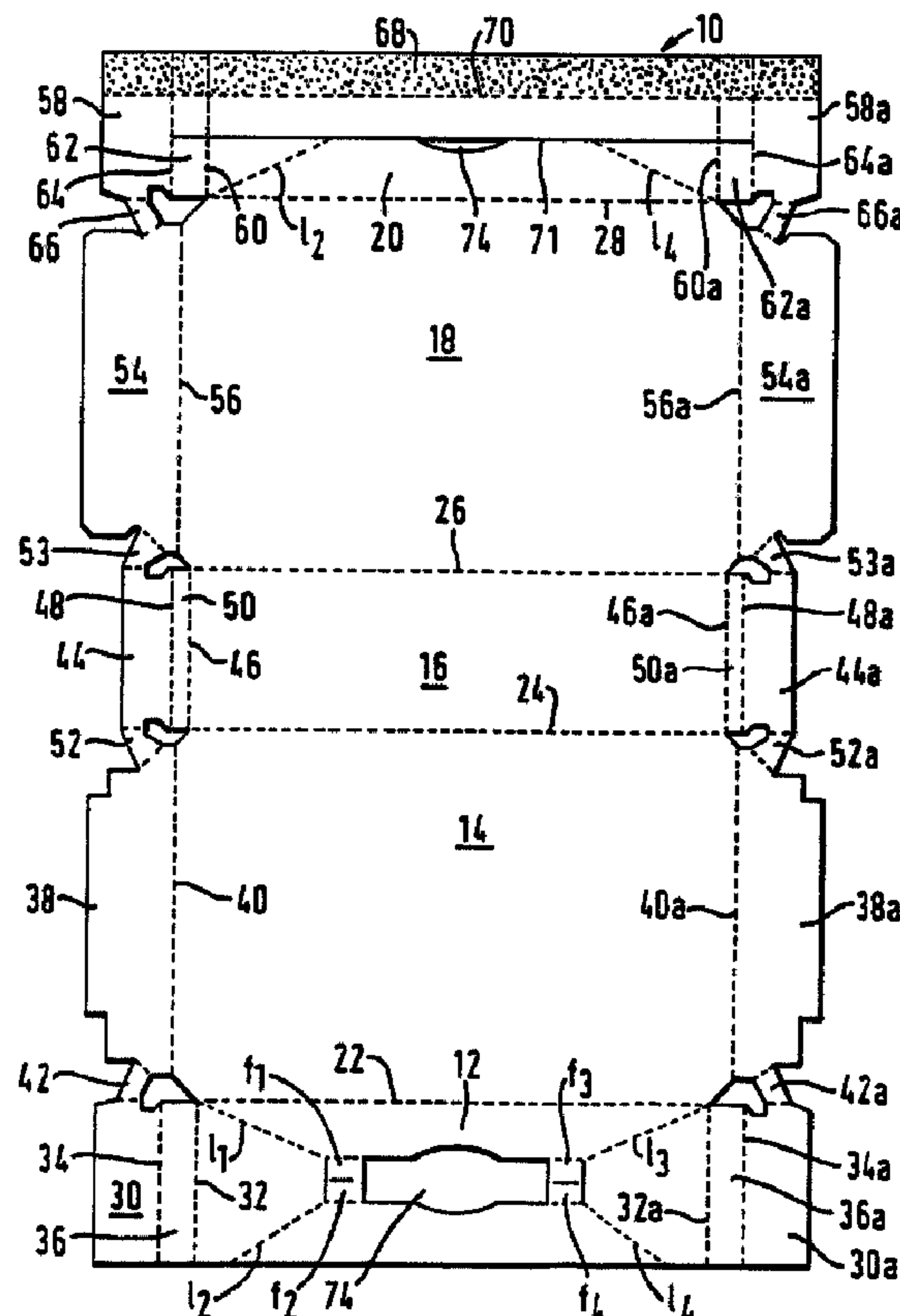


(86) Date de dépôt PCT/PCT Filing Date: 1995/07/07
(87) Date publication PCT/PCT Publication Date: 1996/01/25
(45) Date de délivrance/Issue Date: 2002/08/20
(85) Entrée phase nationale/National Entry: 1997/01/03
(86) N° demande PCT/PCT Application No.: US 1995/009430
(87) N° publication PCT/PCT Publication No.: 1996/001770
(30) Priorité/Priority: 1994/07/08 (9413862.5) GB

(51) Cl.Int.⁶/Int.Cl.⁶ B65D 71/28
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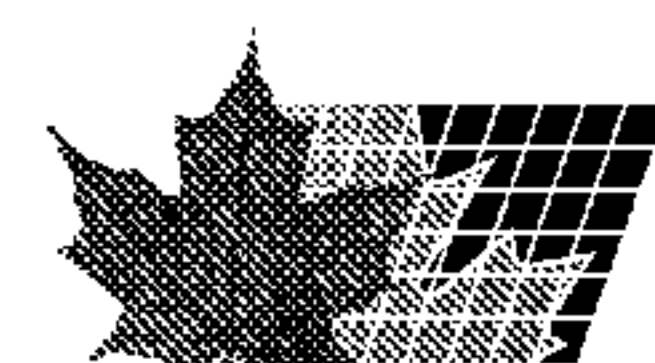
(54) Titre : EMBALLAGE EN CARTON POUR RECIPIENTS A BOISSON DOTE D'UN POIGNEE DE TRANSPORT DE TYPE COURROIE
TYPE COURROIE

(54) Title: CARTON FOR BEVERAGE CONTAINERS WITH STRAP TYPE CARRYING HANDLE



(57) Abrégé/Abstract:

A carton for beverage containers includes a series of hinged panels (12, 14, 16, 18, 20) forming a sleeve and end closure panels (58, 58a) hinged at least to one of the hinged panels for closing, at least in part, the opposite ends of the sleeve. The one panel (20) includes a handle strap (S) by which the carton can be carried. The handle strap (S) is disposed in a stowed



(57) **Abrégé(suite)/Abstract(continued):**

substantially coplanar relationship with the one panel (20) when the carton subsits as an open-ended sleeve and is automatically put into a position of use when the end closure panels (58, 58a) are hinged into their closed positions so that at least a user portion (H) of the handle panel stands proud of the one panel (20).



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ :

B65D 71/00, 5/46

A1

(11) International Publication Number:

WO 96/01770

(43) International Publication Date:

25 January 1996 (25.01.96)

(21) International Application Number: PCT/US95/09430

(22) International Filing Date: 7 July 1995 (07.07.95)

(30) Priority Data:

9413862.5

8 July 1994 (08.07.94)

GB

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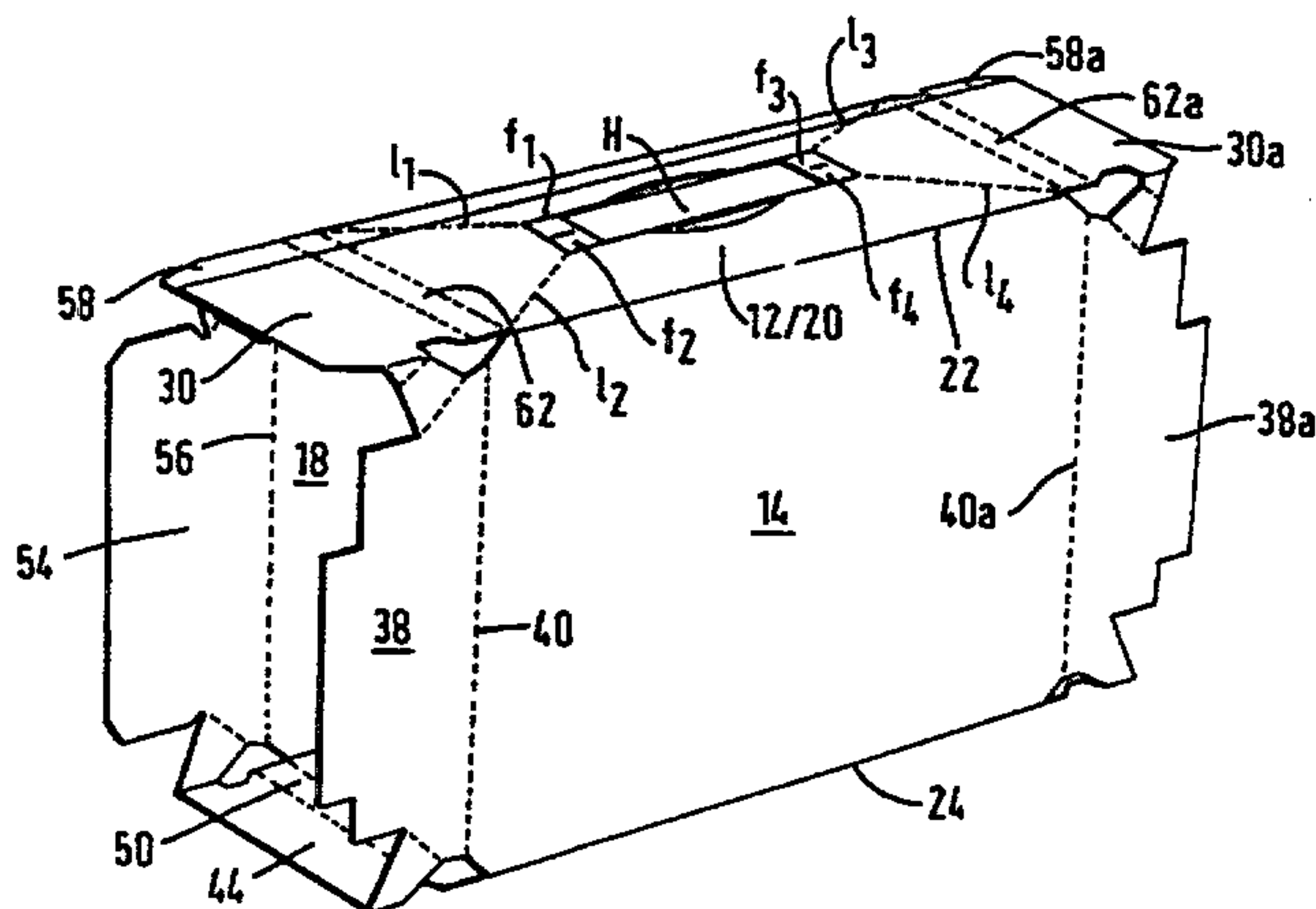
(81) Designated States: CA, CZ, FI, HU, JP, NO, PL, RU, SK, UA, US, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).

Published

With international search report.

2194384

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(57) Abstract

A carton for beverage containers includes a series of hinged panels (12, 14, 16, 18, 20) forming a sleeve and end closure panels (58, 58a) hinged at least to one of the hinged panels for closing, at least in part, the opposite ends of the sleeve. The one panel (20) includes a handle strap (S) by which the carton can be carried. The handle strap (S) is disposed in a stowed substantially coplanar relationship with the one panel (20) when the carton subsists as an open-ended sleeve and is automatically put into a position of use when the end closure panels (58, 58a) are hinged into their closed positions so that at least a user portion (H) of the handle panel stands proud of the one panel (20).

Carton for beverage containers with strap type carrying handle

Background of the Invention

This invention relates to a carton which is particularly but not only suitable for accommodating beverage containers such as cans and which incorporates a "strap-type" carrying handle which preferably is automatically set up into a position of use as the carton is being closed after having been loaded.

Beverage cartons which include carrying handles and, indeed, strap type carrying handles are known. U.S. Patent No. 2,889,104 (Caster) discloses a carton having an integral strap handle and a handle slot. The strap handle is formed from an inner top lap panel whereas the handle slot is formed in the outer top lap panel. A pair of end flaps is foldably joined to the opposite end edges of the inner lap panel to form parts of the carton end walls. The handle strap itself is relatively short and is formed solely from one of the main panels of the carton.

U.S. Patent No. 4,378,905 discloses a carton having a two-ply strap handle formed from the top lap panel of the carton. A score line is formed in the top lap panel and extends into both the end flaps associated with the top lap panel. A portion between the score line and the adjacent free side edge of the carton is folded double to form the handle joined at its opposite ends to the carton end walls. The strap handle extends completely across the top wall and load is transmitted from the handle into the end walls of the carton.

U.S. Patent No. 2,955,739 shows an integral strap handle similar to U.S. Patent No. 4,378,905 wherein a relatively wide slot is provided instead of a score line to define the strap handle.

European Patent No. 0 098 903 shows a handle slot having a pair of end tabs for partially covering a portion of the handle exposed in the slot. The handle strap itself is formed wholly from one of the end closure panels at one

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end of the carton.

German Patent DE 2,052 618 shows a strap handle formed from the top wall of a wrap-around carton and having opposite ends thereof extending into the carton side walls. The handle has no fold line co-linear with the fold lines between the top wall and the adjacent side walls and thus allows itself to "pop-up" when the side walls are folded downwardly.

Summary of the Invention

In the present invention in one of its various aspects, a "pop-up" strap carrying handle is provided in a top wall of the carton so that a central user portion of the strap is exposed to view in a handle access aperture. Intermediate and end portions of the handle strap are disposed internally of the carton, and the end portions are joined to each of the end closure panels which are hinged to the top wall. When the carton is lifted by the exposed part of the handle strap, load is transmitted from the handle strap to the top wall of the carton at each of the opposite ends of the handle access aperture and is distributed through the top wall.

One aspect of the present invention provides a carton for beverage containers which carton includes a series of hinged panels forming a sleeve and end closure panels hinged at least to one of the hinged panels for closing, at least in part, the opposite ends of the sleeve, wherein the one hinged panel includes a handle strap by which the carton can be carried, the handle strap being disposed in a stowed substantially coplanar relationship with the one hinged panel when the carton subsists as an open-ended sleeve and being put into a position of use when the end closure panels are hinged into their closed positions whereby at least a portion of the handle strap stands proud of the one panel.

According to a feature of this aspect of the invention, parts of the handle strap other than the proud portion may be disposed internally of the carton. The opposite ends of the handle strap may be joined respectively to the end closure

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panels and the proud portion of the strap may be exposed to view within a handle access aperture provided in another one of the hinged panels.

Another aspect of the present invention provides a carton for beverage containers which carton has a handle strap by which the carton can be carried. The handle strap may be integral with the carton and includes a central user portion exposed to view in a handle access aperture in the top wall of the carton, intermediate portions adjacent to the central user portion and disposed beneath the top wall, and end portions adjacent to the intermediate portions and joined to end closure panels which are hinged to the opposed ends of the top wall and wherein the handle strap may be formed from material provided at one end of a blank from which the carton is formed.

According to a feature of this aspect of the invention the intermediate and end portions may be disposed internally of the carton.

According to yet another feature of this aspect of the invention the central user portion may lie substantially coplanar with the top wall when the end closure panels also lie substantially coplanar with the top wall but automatically is deployed through the handle access aperture into a position of use, upstanding from the top wall, when the end closure panels are closed.

Yet another aspect of the invention provides a carton for beverage containers which carton includes a carrying handle strap in contact at spaced locations thereof with a first top panel of the carton and internally thereof. The handle strap includes a central user portion exposed to view within a handle access aperture in the first top panel having parts at opposite ends of the user portion, which parts are displaceable out of the plane of the first top panel when the carton is lifted by the handle strap so that load is transmitted from the handle to the first top panel.

According to a feature of this aspect of the invention, the displaceable parts may be hinged flap portions of the first top panel located at the opposed ends of the handle access aperture. Preferably a portion of the handle strap intermediate

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the spaced locations is disposed in its position of use within the handle access aperture. Preferably, the user portion of the handle strap stands proud of the plane of the first top panel.

5 According to another feature of this aspect of the invention the handle strap may be formed from the material which is integral with a second top panel which forms a composite top wall of the carton in cooperation with the first top panel.

10 According to yet another feature of this aspect of the invention the opposite ends of the carton may include end closure panels hinged to a second top panel and wherein the handle strap includes end portions joined to the end closure panels. Preferably, the handle strap is a multi-ply strap formed from the material which is integral with the second top panel and the end closure panels.

According to a still further feature of this aspect of the invention, stress relief scores or fold lines may be provided in the first top panel and extend from the handle access aperture to each corner of the first top panel.

15 A still further aspect of the invention provides a carton blank comprising a series of main panels hinged one to the next for forming an open ended sleeve and a series of end closure panels hinged along opposed edges of the main panels to close the ends of the sleeve and wherein the material to form a handle strap is an integral part of one end of the blank. The handle strap includes a central user
20 portion formed and separated from one of the main panels and end portions joined to the opposed end closure panels hinged to the one main panel.

25 According to a feature of this further aspect of the invention, the one main panel may be adapted to be secured in a flat face contacting relation to a main panel at the opposite end of the blank. The opposite main panel may be formed with a handle access aperture with which the central user portion is brought into register when the one and the opposite main panels are secured together.

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Brief Description of the Drawings

In the drawings,

Figure 1 is a plan view of a carton blank from which a carton according to
5 the invention is formed;

Figure 2 is a plan view of one end of the blank showing a double ply
carrying handle strap;

Figure 3 is a plan view of a blank folded upon itself during formation of the
carton in collapsed form;

10 Figure 4 shows the completed collapsed carton sleeve in a form in which it
is supplied to a customer thereafter to be set up and loaded;

Figure 5 is a perspective view of the carton sleeve put into a set up
condition ready for loading from either or both its open ends;

15 Figure 6 is a perspective view of the top wall of the carton with the end
panels of the carton open whereby the carrying handle strap is disposed in a
stowed position;

Figure 7 is a further perspective view of the top wall of the carton showing
the end panels associated with the top wall folded into a closed position thereby
putting the carrying handle strap into a position for use; and

20 Figure 8 is a perspective view of the completed carton with the carrying
handle disposed in a position of use upstanding from an aperture in the top wall
of the carton.

Detailed Description of the Preferred Embodiment

25 Referring to the drawings, an elongate carton blank 10 formed from
paperboard or other suitable foldable sheet material comprises a series of main
panels hinged one to the next. The main panels comprise, in series, a first top
panel 12, a first side wall panel 14, a base panel 16, a second side wall panel 18,
and a second top panel 20 hinged one to the next along transverse fold lines 22,

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24, 26 and 28, respectively. The first and second top panels 12 and 20 together form a single composite top wall in the completed carton when they are secured together in overlapping relationship.

5 In order to close the ends of the carton, a series of end closure panels are hinged along the opposed longitudinal edges of the main panels. Since the carton blank is symmetrical about its longitudinal center line, reference is now made to one set of end closure panels, it being understood that the opposite set of end closure panels are identical and designated by like reference numerals with the addition of the suffix 'a'. Thus, a top end closure panel 30 is hinged to the top
10 panel 12 along a longitudinal hinge line 32. A further hinge line 34 spaced from and parallel to the hinge line 32 is formed in the top end closure panel 30 to provide a so called 'bevelled' corner panel 36, as is best seen, for example, in Figure 7 and 8 of the drawings. A side wall end closure panel 38 is hinged to the first side wall panel 14 along a longitudinal fold line 40. The top end closure panel
15 30 and the side wall end closure panel 38 are hinged together by means of a web 42. A bottom end closure panel 44 is hinged to the bottom panel 16 along a longitudinal fold line 46 and a further bevelled panel 50 is created by the provision of a further longitudinal fold line 48 disposed in the end closure panel 44 spaced outwardly of and parallel to the fold line 46.

20 The bottom end closure panel 44 is hinged to the side end closure panel 38 by means of a mutually hinged web 52. A further side wall end closure panel 54 is hinged to the second side panel 18 along longitudinal fold line 56. The side wall end closure panel 54 is hinged to the bottom end closure panel 44 by a web 53. An end closure panel 58 is hinged to the second top panel 20 along a longitudinal
25 fold line 60. A corner bevelled panel 62 is created by virtue of the provision of a further longitudinal fold line 64 formed in the top end closure panel 58 spaced outwardly of and parallel to the fold line 60. Top end closure panel 58 is hinged to the side end closure panel 54 by means of a mutually hinged web 66. A similar set of end closure panels and webs are provided at the opposite ends of the various

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main panels.

At one extreme end of the blank, integral with end closure panels 58 and 58a, there is provided a handle panel 68 which is provided with a central fold line 70 extending into each of the top end closure panels 58 and 58a. Handle panel 68 is separated from top wall panel 20 by transverse slit 71. Thus, glue is applied to the extreme end of the blank as indicated by the stippling in Figure 1, and then as best seen in Figure 2, the handle panel 68 is folded double about fold line 70 to produce a two-ply handle strap S which is free of the second top panel 20 but joined at its opposite ends respectively with the end closure panels 58 and 58a.

At the opposite end of the blank, the first top panel 12 is formed with a handle access aperture 74, the opposite ends of which are provided with hinged flaps f1, f2 and f3, f4 which are connected to the top panel 12 by means of perforate but frangible fold lines. A set of stress relieving score lines 1₁-1₄ extend from each of the corners of the handle access opening to the adjacent corners of the top panel 12. However, since the top wall of the carton as a whole is in part provided by the second top panel 20, a portion of the handle access aperture 74 and stress relief score lines are formed also in the second top panel 20. These are brought into registry with their complementary features in the first top panel 12 when the first and second top panels 12 and 20 are secured together. In a modified arrangement it is envisaged that a single hinged flap is provided at each end of the handle access aperture.

In order to create a sleeve in flat folded condition from the blank, after the handle panel 68 has been put into its two-ply form S, the blank is folded about fold line 26 so that the side wall panel 18, the second top wall panel 20 together with the double-ply handle strap S are folded together through 180° and brought into face to face contacting relationship with the bottom panel 16 and the first side wall panel 14 as shown in Figure 3. Thereafter, in order to complete the sleeve, glue is applied to the first top panel 12 as indicated by the stippling in Figure 3, and then the first top panel 12 is folded through 180° about the fold line 22. By this

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means, the first top panel 12 is secured in face to face contacting relationship and in registry with the second top panel 20 to provide a complete sleeve in flat collapsed condition, as shown in Figure 4 of the drawings. It will be readily recognized that glue may be applied to the second top panel 20 instead of the first top panel 12.

As can be seen in Figure 5, the handle strap S has a central user portion H exposed to view in the handle access aperture 74 but is otherwise disposed internally of the carton. The handle strap S as a whole is generally coplanar with the composite top wall 12, 20 and with the associated end closure panels 58 and 58a.

The carton can then be set up from the flat collapsed condition shown in Figure 4 to the erected position shown in Figure 5 ready for loading through each or both of its open ends. Once loading has taken place, the end closure panels are closed and secured together at each of the ends of the carton as is well known in the art.

The end closure panel closing has an effect on the disposition of the handle strap S. When the top panels 12 and 20 are brought into registry with each other, it will be seen by reference to Figure 6 that the central user portion H of the handle strap S is exposed to view in the handle access aperture 74. While the top end closure panels 58, 58a, 30 and 30a are generally in the plane of the composite top wall 12/20, the handle strap S also remains generally coplanar with the top wall. However, as best shown in Figure 7 of the drawings, as the top end closure panels are folded into their closing positions, the tautness of the handle strap S across the composite top wall is reduced so that in effect the handle strap S which is free of restraint of the top panels 12 and 20 becomes slack and the central user portion H of the handle strap S bows upwardly and protrudes through the handle access aperture 74 as shown in Figure 7. Thus the central user portion H of the handle strap S is bowed upwardly proud of the top wall into a position for ready use. To encourage bowing of the central user portion H, the fold lines 60 and 60a may be omitted from the handle panel 68.

Figure 8 shows the completed carton as it would be presented to a user.

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Thus in order to lift the carton, a user would grasp the handle strap S whereby upward force on the handle strap S causes the frangible parts of the hinged flaps f1-f4 at opposite ends of the handle access aperture 74 to break so that load exerted by the carton on the handle strap is transmitted at the ends of the handle access aperture to the carton top wall. The stress distribution score lines allow the top wall of the carton to "give" somewhat so that the stresses transferred to the carton panels are more evenly distributed whereby that tearing is inhibited.

CLAIMS

1. A carton for beverage containers, which carton has a handle strap (S) by which the carton can be carried, said handle strap (S) being integral with said carton and including a central user portion (H) exposed to view in a handle access aperture (74) formed in a top wall (12/20) of the carton, intermediate portions adjacent to said central user portion (H) and disposed beneath said top wall (12/20), and end portions adjacent to said intermediate portions and joined to end closure panels (58, 58a) hinged to opposite ends of said top wall (12/20), and wherein said handle strap (S) incorporates a reinforcing strip (68) integral with the handle strap and formed from material at one end of blank from which the carton is formed.
2. A carton according to claim 1 wherein said intermediate and end portions are disposed internally of said carton.
3. A carton according to claim 1 wherein said central user portion (H) lies substantially coplanar with said top wall (12/20) when said end closure panels (58, 58a) also lie substantially coplanar with respect to the top wall (12/20) but automatically is deployed through said handle access aperture (74) into a position of use, upstanding from the top wall (12/20), when the end closure panels (58, 58a) are closed.
4. A carton according to any one of claims 1 to 3 wherein said handle strap (S) is in contact at spaced locations to an inside surface of the top wall (12/20) of the carton, said central user portion (H) being exposed to view within the handle access aperture (74) in the top wall (12/20) having parts (F1, F2, F3, F4) at opposite ends of said central user portion (H), said parts (F1, F2, F3, F4) being displaceable out of the plane of said top wall (12/20) when the carton is lifted by the handle strap (S) so that load is transmitted from the handle strap (S) to said top wall (12/20).

5. A carton according to claim 4 wherein said displace able parts (F1, F2, F3, F4) are hinged flap portions of said top wall (12/20) located at opposed ends of said handle access aperture (74).
6. A carton according to claim 5 wherein a portion of said handle strap (S) intermediate said spaced locations is disposed in the position of use within said handle access aperture (74).
7. A carton according to claim 6 wherein said central user portion (H) of said handle strap stands proud of the plane of said top wall (12/20).
8. A carton according to claim 4 wherein said handle strap (S) is formed from material which is integral with said top wall (12/20).
9. A carton according to claim 4 wherein opposite ends of the carton include end closure panels (58, 58a) hinged to said top wall (12/20) and wherein said handle strap (S) includes end portions joined to said end closure panels (58, 58a).
10. A carton according to claim 9 wherein said handle strap (S) is a multi-ply strap formed from material (68) which is integral with said top wall and said end closure panels.
11. A carton according to claim 4 wherein stress relief score lines (L1, L2, L3, L4) are provided in said top wall (12/20) and extend from said handle access aperture (74) to each corner of said top wall (12/20).
12. A carton blank comprising a series of main panels (12, 14, 16, 18, 20) hinged one to the next for forming an open ended sleeve and a series of end closure panels (58, 58a) hinged along opposed edges of said main panels (12, 14, 16, 18, 20) to close

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opposite ends of the sleeve, a handle strap (S) by which a carton formed from the blank can be carried, the handle strap (S) being integrally formed with the blank adjacent one end thereof and including a central user portion (H) formed and separated from one of said main panels (20), the handle strap (S) further having intermediate portions adjacent to said central user portion (H) and opposite end portions adjacent to said intermediate portions and joined to opposed end closure panels (58, 58a), said handle strap (S) incorporating a reinforcing strip (68) integral with the handle strap (S) and formed from material at said one end of the blank, wherein, in a carton formed from the blank, the central user portion (H) is exposed to view in a handle access aperture (74) formed in a top wall (12/20) of the carton with said intermediate portions disposed beneath the top wall (12/20).

13. A carton blank according to claim 12 wherein said one main panel (20) is adapted to be secured to a main panel (12) at the opposite end of the blank, said opposite main panel (12) being formed with the handle access aperture (74) with which said central user portion (H) is brought into register when said one and said opposite main panels (12/20) are secured together in an overlapping relationship.



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FIG. 2

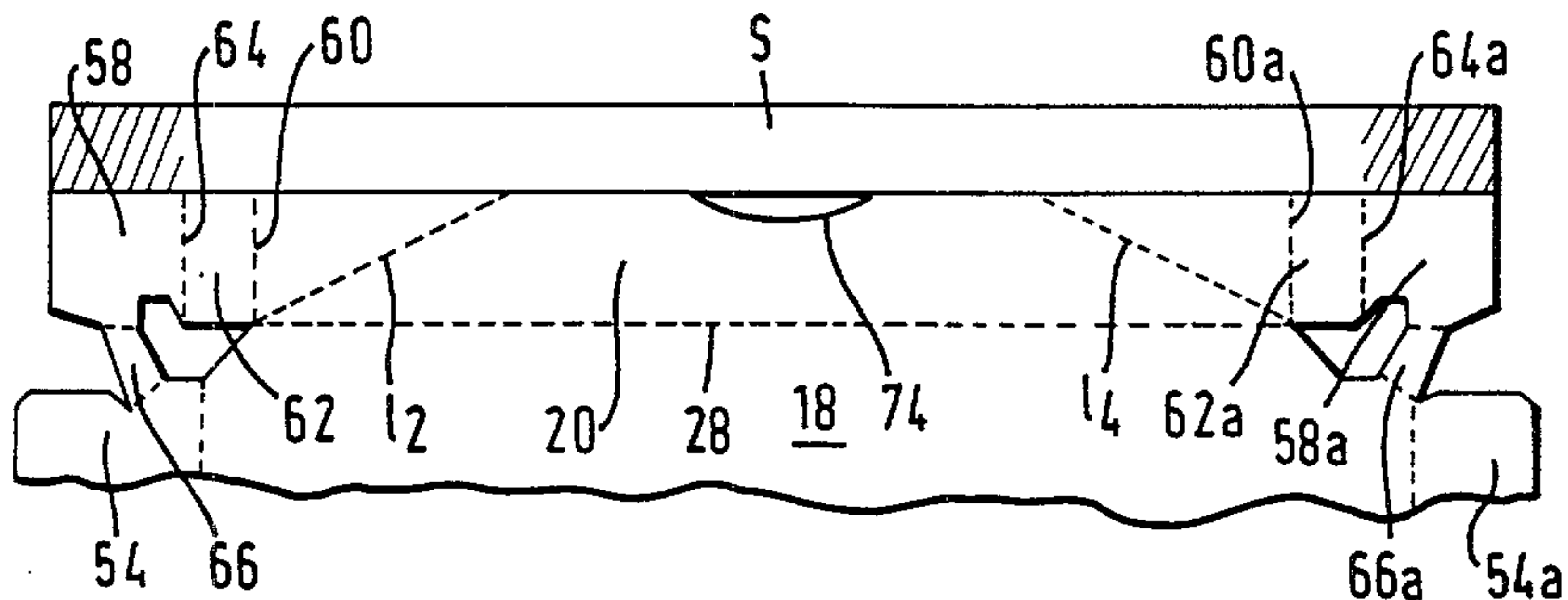
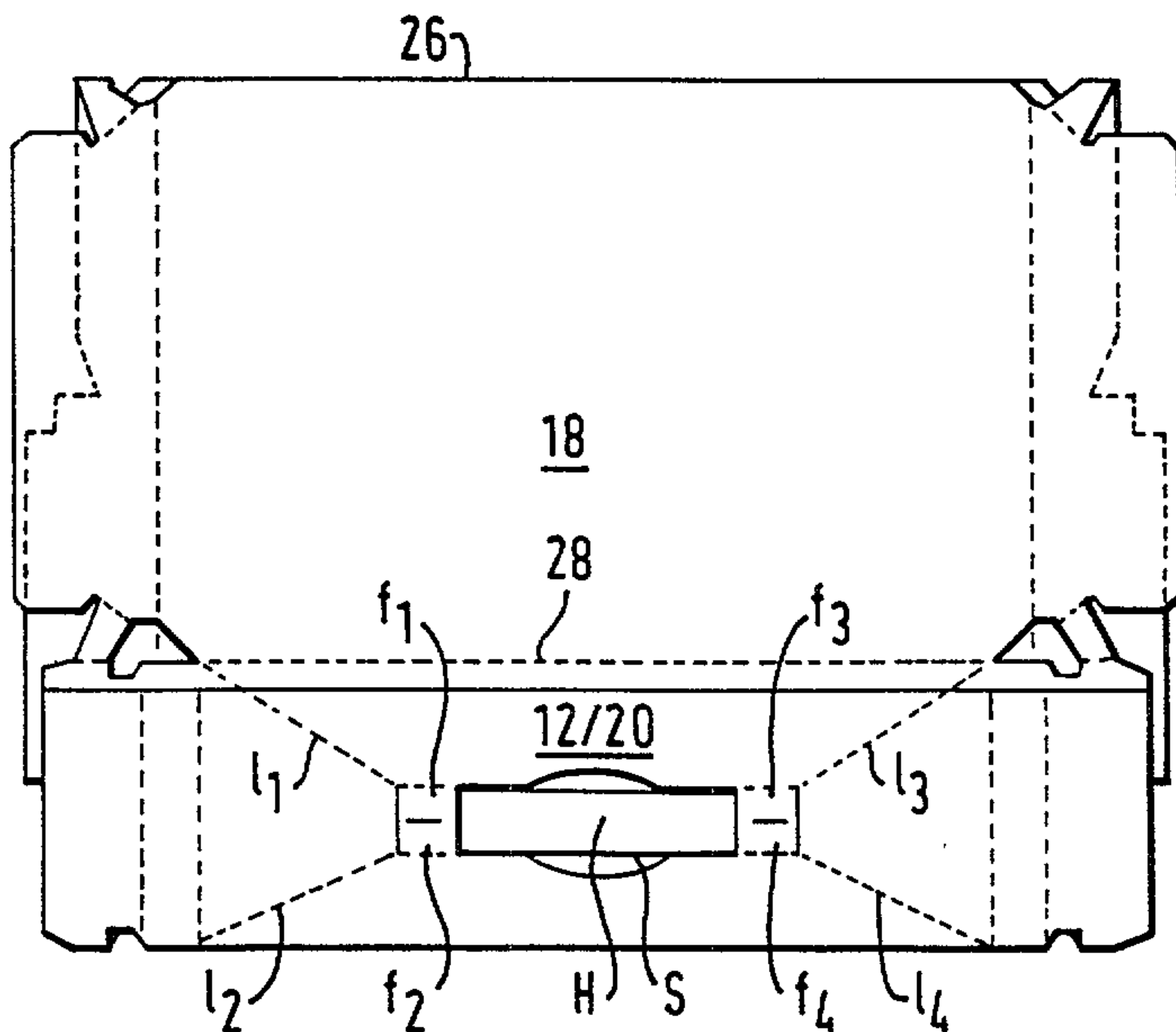


FIG. 4



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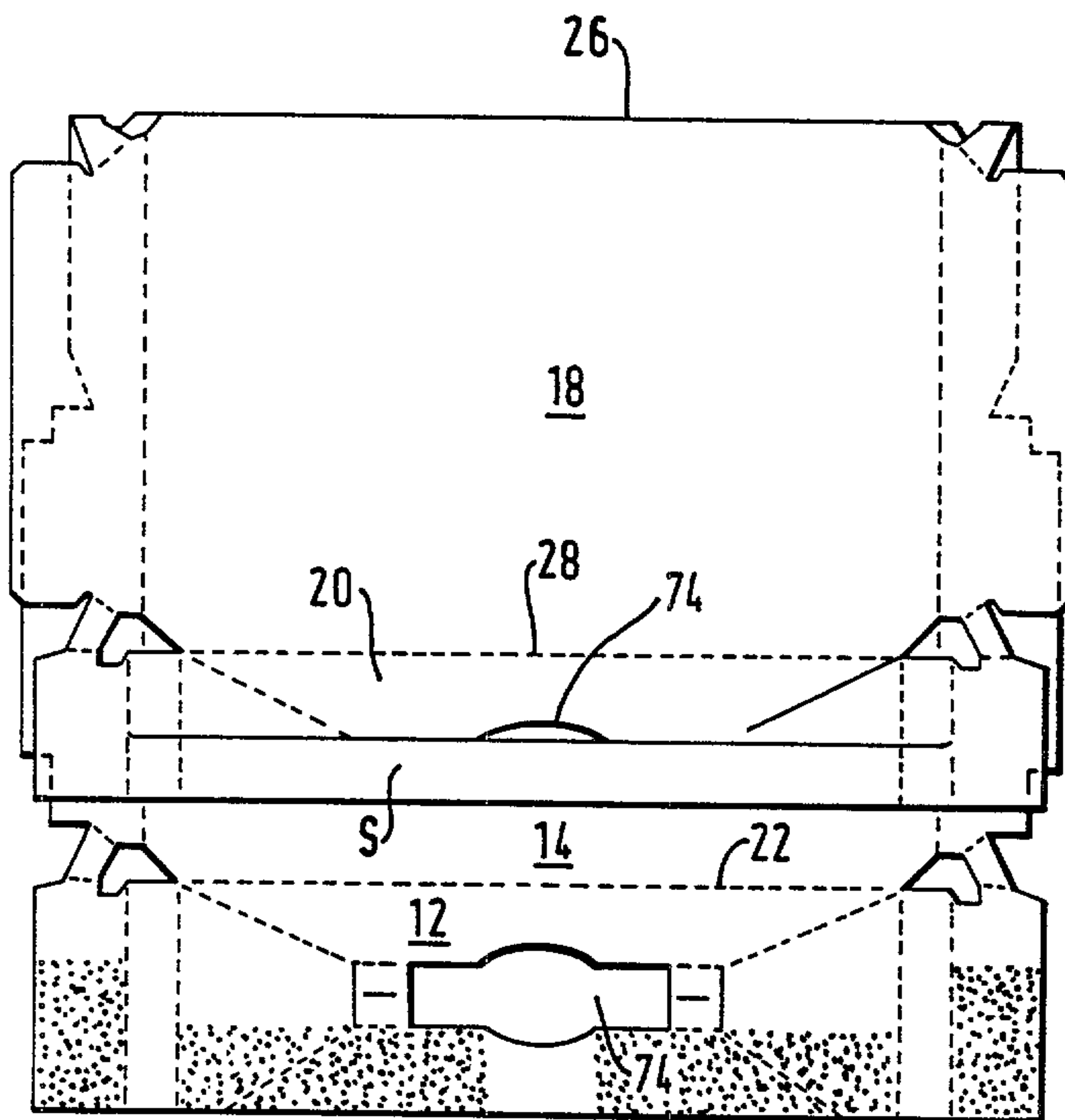


FIG. 3

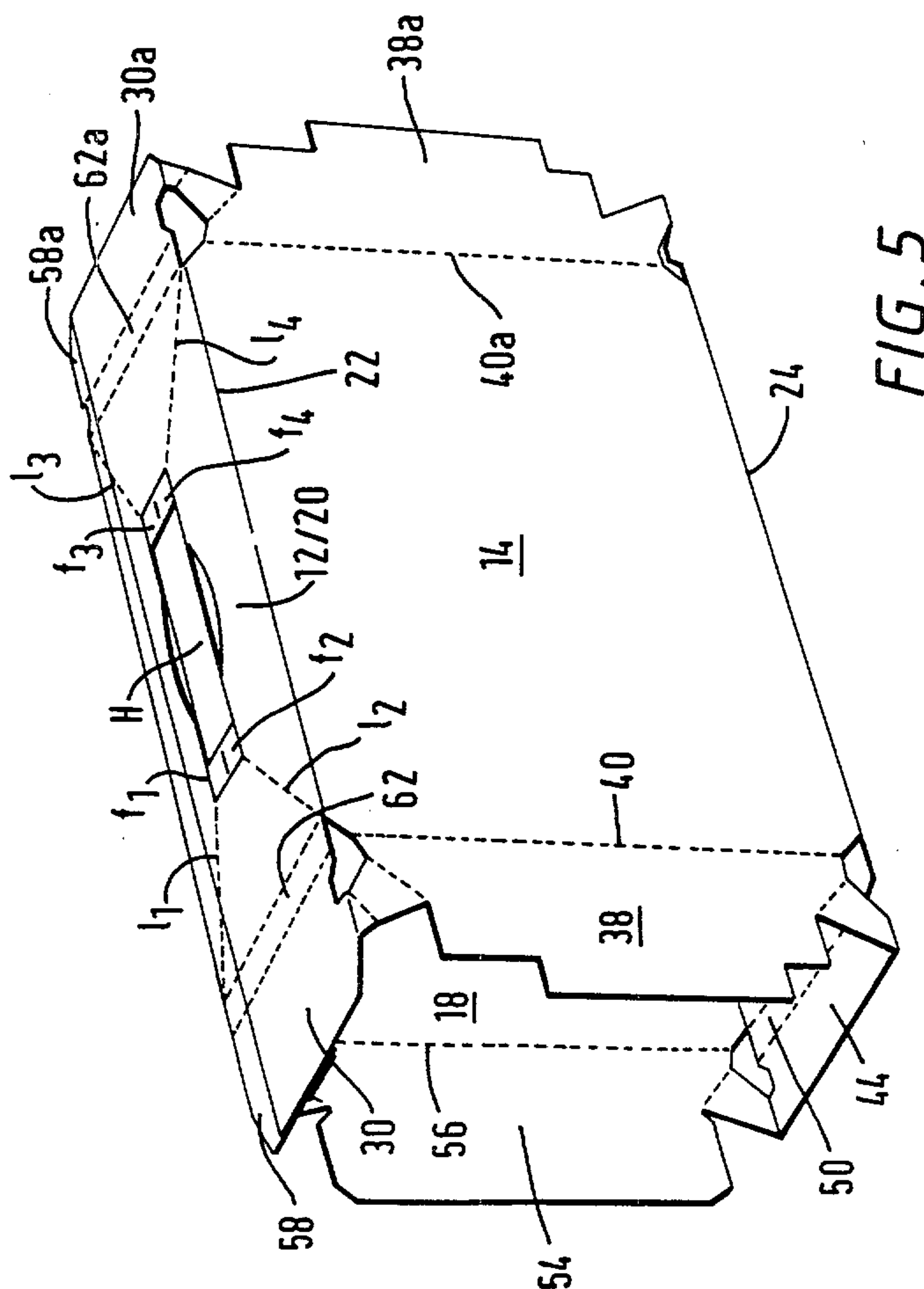


FIG. 5

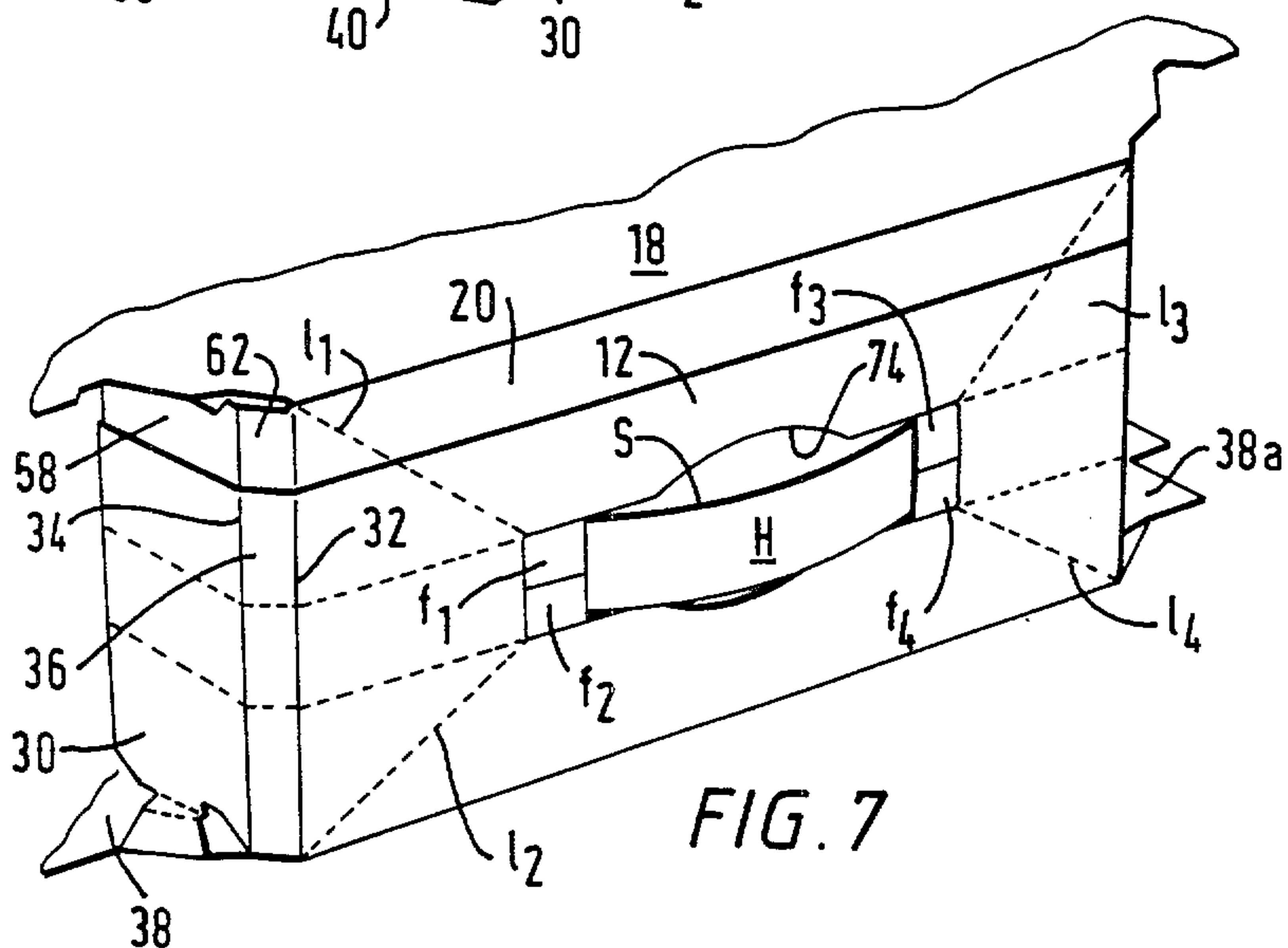


FIG. 7



