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(12) # EUROPEAN PATENT APPLICATION

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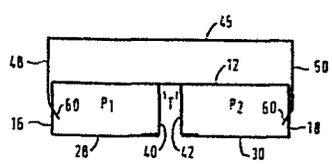
(54) **Article tray with carrying strap.**

(57) An article tray in which the tray (10) is in the form of a sleeve having a top (12), bottom (14) and side walls (16, 18) the top having openings (36, 38) into which containers ('c') may be received, and in which the sleeve comprises a pair of adjacent tubular parts (P_1, P_2). Securing means (32, 34 or 40*a*, 42*a*) are provided for holding the tubular parts in their relative positions to maintain the tray in its erected condition.

FIG. 4



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D-7176(X)

ARTICLE TRAY WITH CARRYING STRAP

This invention relates to an article tray for the packaging of a number of containers for storage, transport and eventual display and sale.

It is known, for example, from U S Patent No. 4,053,099 to provide a tray in the form of a flat carton with openings in thge top into which containers are inserted so that they stand upright on the bottom of the tray and project above the tray. The trays disclosed in U S Patent No. 4,053,099 takes the form of a sleeve of foldable sheet material, comprising top and bottom walls hingedly joined by a pair of opposite side walls, the sleeve being closed at its ends by panels hinged to the top and bottom walls forming end walls of the tray. One of the end wall panels at each end of the tray includes a series of tabs which are disposed in overlapping abutting engagement with the topside of the tray to hold the sleeve in its tray-like configuration.

Another known type of tray is disclosed in U K Patent Application No. 8102357 in which the end walls of the tray which are hinged to the top panel include integral locking tabs which are received in cooperating openings formed in the bottom wall of the tray.

The invention provides a tray for accomodating a plurality of articles which tray is in the form of a sleeve having a top, bottom and side walls, the top

having openings into which containers may be received characterized in that said sleeve comprises two adjacent tubular parts each tubular part comprising a part of said top, one of said side walls, a bottom panel and bottom panel and a series of upstanding flaps connecting together the top and bottom wall panel, said top and bottom panel of each tubular part being hingedly connected by said side wall and said connecting flaps so that the tray can be erected from a collapsed condition into an erected condition and in that means are provided for securing said tubular parts in their related positions to maintain the tray in its erected condition.

An embodiment of the invention will now be described, by way of example, with reference to the accompanying drawings, in which:-

Figure 1 is a plan view of an article tray suitable for use in the combination according to an aspect of the invention,

Figure 2 is a plan view of a lid for cooperation with the tray depicted in Figure 1,

Figure 3 is a schematic cross-section of the lid and the tray shown partially erected,

Figure 4 is a schematic cross-section of the lide and the tray connected together, and

Figure 4a is a cross-sectional view of a central part of a preferred embodiment of the tray.

Referring to the drawings, the tray 10 is made from a foldable sheet material such as paperboard and comprises a rectangular top 12, bottom 14 and two pairs of opposite side walls 16, 18 and 20, 22 respectively. The tray 10 is made in the form of a sleeve comprising the top and bottom and two side walls 16, 18. The other two side walls 20, 22 (herein referred to as end walls) are each formed from three panels 24, 26, 26a with outer outer end panel 24 hinged to the top and inner end panels 26, 26a hinged to the bottom. Panel 24 overlaps

panels 26, 26a to form a double wall construction at each end of the tray.

As shown in Figures 1, 3 and 4, the bottom 14 of the tray comprises two panels 28, 30 respectively. Panel 28 is hinged to side wall 16 and carries the integral end panels 26 whereas panel 30 is hinged to side wall 18 and carries the integral end panels 26a.

The outer panel 24 has at its free edge a pair of locking tabs 32 which lock in apertures 34 formed in the bottom wall panels 28, 30 respectively to secure the end walls and thereby hold the sleeve in its tray-like configuration. Possibly, the outer panel 24 is somewhat longer than the space between the opposite side walls 16 and 18 in order to strengthen the corners of the tray and afford better resistence to collapse in a vertical direction. It is envisaged that the inner panels 26, 26a are indeed all three panels 24 and 26, 26a, may be formed oversize to achieve this increase in strength at the tray ends.

The top 12 of the tray is formed with two rows of apertures 36, 38 respectively each to receive a container 'c' such that the base of each container in row 36 is seated on the bottom panel 28 and each container in row 38 is seated on the bottom panel 30. The top of each container stands proud of the top 12. The containers in question normally comprise injection moulded plastics cuplike bodies having top flange 'f'. At the top of each container 'c' is applied a peelable lid, the cup containing, for example, some kind of foodstuff. The top 12 may be formed with two spaced slots 's' each to receive one end of a strap type handle (not shown). The ends of the handle strap may have an 'arrow-head' or like configuration to facilitate locking into the slots 's'.

In order to prevent bowing of the central region

of the top and to bring together the bottom panels 28, 30 portions of the material from the apertures 36 and 38 are left hinged to the top to provide two series of connecting flaps 40, 42. Each of flaps 40 is folded downwardly into an aperture 36 and secured to the bottom panel 28 and maintain the correct spacing between the top 12 and the bottom 14. Similarly, each of flaps 42 is folded downwardly into an aperture 38 and secured to the inner edge of bottom panel 30. Thus the bottom panels 28, 30 are hinged to the top 12 of the tray by means of connecting flaps 40, 42 respectively. However, this is only one reinforcing arrangement and other modifications as mentioned herein also are suitable.

A plan view of a lid 44 suitable for use with the tray 10 is shown in Figure 2 of the drawings. The lid is optional however and normally would not be needed with a carrying handle. The lid also is formed from a foldable sheet material such as paperboard and comprises a rectangular centre panel 46 and a pair of side panels 48, 50 hinged to opposed side edges of the central panel 46 along longitudinal fold lines 52, 54 respectively.

The central panel 46 of the lid is formed with two rows of apertures 56, 58 respectively. The lid 44 and the rows of apertures 56, 58 is sized and arranged such that when the lid is placed into position over the top of the tray 10 each of the apertures 56 and 58 is located in register with one of the containers 'c' accommodated in the tray.

In order to load the tray and complete the package, first the tray 10 is erected. This is achieved by applying an inward force at the junction between side walls 16, 18 and bottom wall panels 28, 30 respectively in the direction of arrows 'A' (Figures 1 and 3).

Thus, the inner longitudinal edges of base panels 28 and 30 are moved towards one another so that the connecting flaps in each of the rows 40 and 42 are hinged into an upright position at which time the locking apertures 34 formed in the bottom wall panels 28 and 30 are positioned for cooperation with the locking tabs 32. Hence the tray can be seen to comprise a pair of adjacent tubular parts P_1, P_2 each comprising a portion of the tray top 12, a side wall (16 or 18), a bottom panel (28 or 30) and one series of connecting flaps (40 or 42). The inner end panels 26 and 26a at each end of the tray are then folded upwardly whereafter the outer end panel 24 at each end of the tray is folded downwardly into overlapping relationship with the inner end panels and the locking tabs 32 driven into the cooperating locking apertures 34 in known manner. The tray is then fully erected and held in its tray like configuration.

In this condition the tray may be loaded by suitable means so that a container 'c' is received in each of the apertures of rows 36 and 38. The handle strap may then be applied by inserting each of its ends into respective ones of the slots 's'.

Alternatively, the lid 44 may then be fitted to the tray by causing the side panels 48 and 50 to be folded downwardly about fold lines 52 and 54 and the centre panel 46 brought into overlying relationship with the tops of the loaded containers.

As shown in Figure 2 of the drawings, each of the side panels 48 and 50 is provided with a pair of spaced locking tabs 60 adapted for cooperation in locking apertures 62 provided in the side walls 16 and 18 of the tray 10. The locking tabs 60 are merely shown schematically and may be suitably shaped (for example, similar

to the locking tabs 32) for locking cooperation in the locking aperture 62. Once the locking tabs 60 have been received within the corresponding locking apertures in the tray the tray is completed as shown in Figures 4 and 5 of the drawings and ready for shipment.

The recessed portions 64 in each of the side walls 48, 50 of the lid are produced due to the staggered configuration of the locking tabs 60 when the lid 44 is struck from a web of paperboard material. This arrangement reduces the amount of material wastage. The lid assists in the retention of the containers 'c' within the tray in that the outermost edges of the apertures 56 and 58 in the lid engage beneath a peripheral portion of each container flange 'f'.

Furthermore, as best appreciated from Figure 4 of the drawings, the two part construction of the tray base i.e., tubular portions P and P provides an elongate tunnel 'T' between the rows of connecting flaps 40 and 42 respectively. This tunnel 'T' facilitates good circulation of a coolant between the rows of containers 'c' so that the contents of the containers may be maintained in a chilled condition.

A number of modifications to the tray within the scope of the invention are envisaged, each of which may incorporate the carrying strap.

Referring to Figure 4a a further and preferred embodiment is shown in which the feet portions 40a, 42a of connecting flaps 40, 42, respectively, are secured together. In this modified construction foot portion 40a is secured to bottom wall panel 28 as before, and foot portion 42a is secured to the exposed undersurface of foot portion 40a. A part of the upper (internal) surface of bottom wall panel 30 is then secured to the undersurface of foot portion 42a as shown. Preferably,

the bottom wall panel 30 has its free longitudinal edge scalloped so as to form a series of tabs each for attachment to a respective foot portion 42a. It is envisaged also that each foot portion 42a may be secured directly to the bottom wall panel 28 rather than attached thereto by way of foot portion 40a.

In the construction of the preferred embodiment it may be necessary to shift the position of locking tabs 32 and the associated apertures (see e.g., Figure 1) outwardly away from one another closer to the side walls of the tray.

It is also envisaged that small tabs may be struck from the top of the tray adjacent the side walls thereof and brought into an upstanding position to enable a series of trays to be stacked one on the other with a small space therebetween to facilitate the flow of coolant.

It is also not necessary for the apertures in rows 56 and 58 of the lid to have their outer edges which engage the flanges 'f' struck from portions of the side walls 48 and 50. It is envisaged, for example, that the apertures in rows 56 and 58 may be located wholly within the central panel 46 and separate apertures to receive the flange portions 'f' of the containers struck from the side panels 48 and 50 in the vicinity of longitudinal fold lines 52 and 54.

CLAIMS

1. A tray for accommodating a plurality of articles which tray is in the form of a sleeve having a top (12), bottom (14) and side walls (16,18), the top having openings (36,38) into which containers ('c') may be received characterized in that said sleeve comprises two adjacent tubular parts (P_1 ,P_2) each tubular part comprising a part of said top, one of said side walls, a bottom panel (28, 30) and a series of upstanding flaps (40,42) connecting together the top and bottom wall panel, said top and bottom panel of each tubular part being hingedly connected by said side wall and said connecting flaps so that the tray can be erected from a collapsed condition into an erected condition and in that means (32, 34 or 40a, 42a) are provided for securing said tubular parts in their relative positions to maintain the tray in its erected condition.

2. A tray according to claim 1, further characterized in that said securing means comprises spaced locking tabs (32) carried by and end wall panel (24) attached to said top and cooperating locking apertures (34) provided in said bottom (14).

3. A tray according to claim 2, further characterized in that a locking aperture (34) is formed in each of said bottom panels (28, 30).

4. A tray according to claim 1, further characterized in that said securing means comprises a foot portion (40a, 42a) carried by respective ones of said connecting flaps (40,42), each foot portion (40a) of one series of connecting flaps (40) being secured to the adjacent bottom panel (28) and each foot portion (42a) of the other series of connecting flaps (42) being secured to respective ones of the first mentioned foot portions (40a) or to said adjacent bottom wall (28) thereby connecting together said tubular parts.

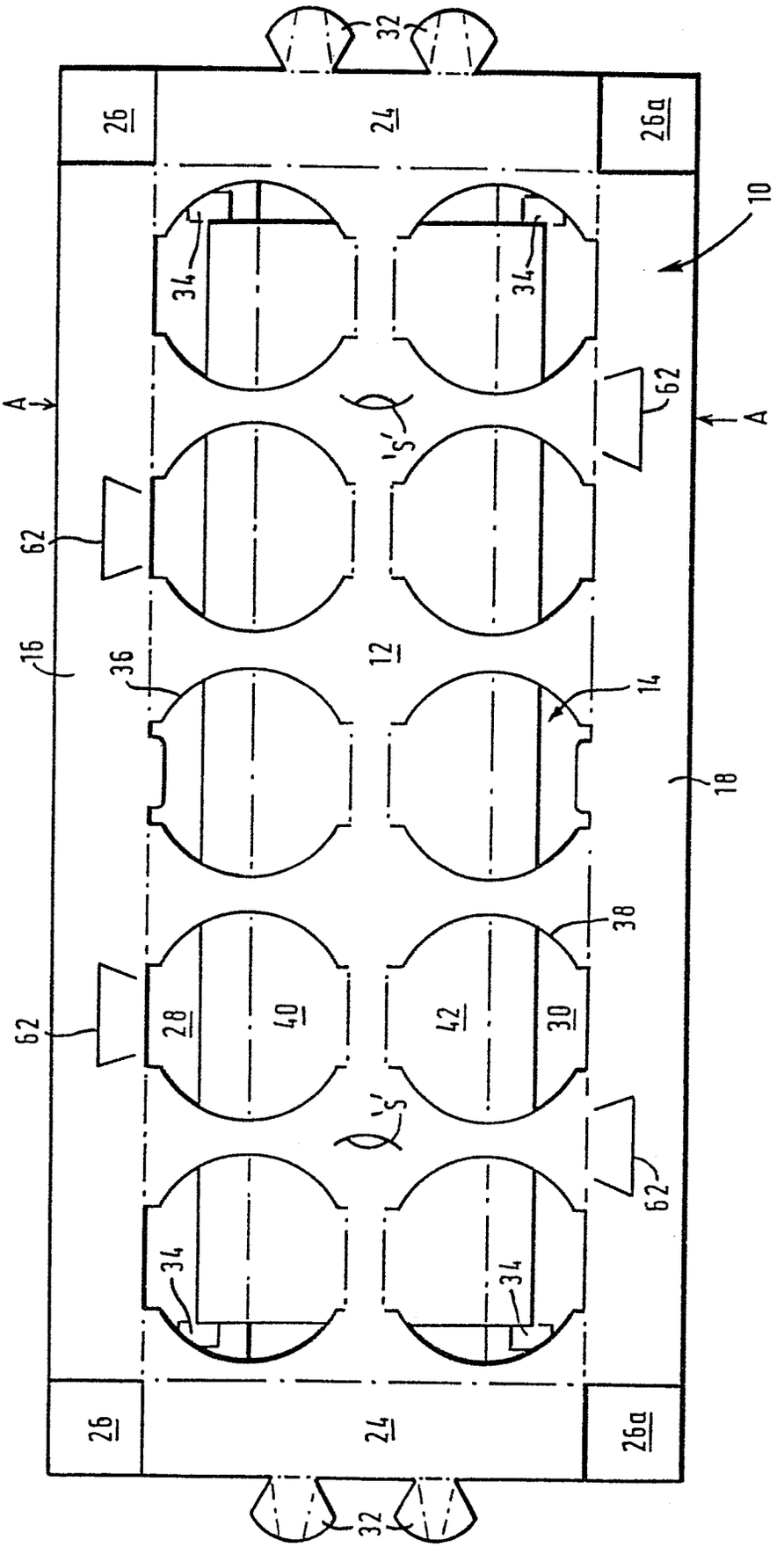
5. A tray according to any of the preceding claims, further characterized in that each of said connecting flaps is provided by material struck from said top in forming said openings.

6. A tray according to any of the preceding claims, further characterized in that the series of connecting flaps of each tubular portion define between them a tunnel ('T') extending longitudinally of the tray.

7. A tray according to any of the preceding claims, further characterized in that a detachable lid (44) is secured to the tray, said lid having a centre panel (46) overlying the tops of the containers when present in the tray.

8. A tray according to claim 7, further characterized in that said lid includes side panels (48,50) hinged to said central panel, each of the side panels including locking tabs (60) which cooperate with locking apertures (62) provided in the side walls (16,18) of the tray to secure the lid to the tray.

FIG. 1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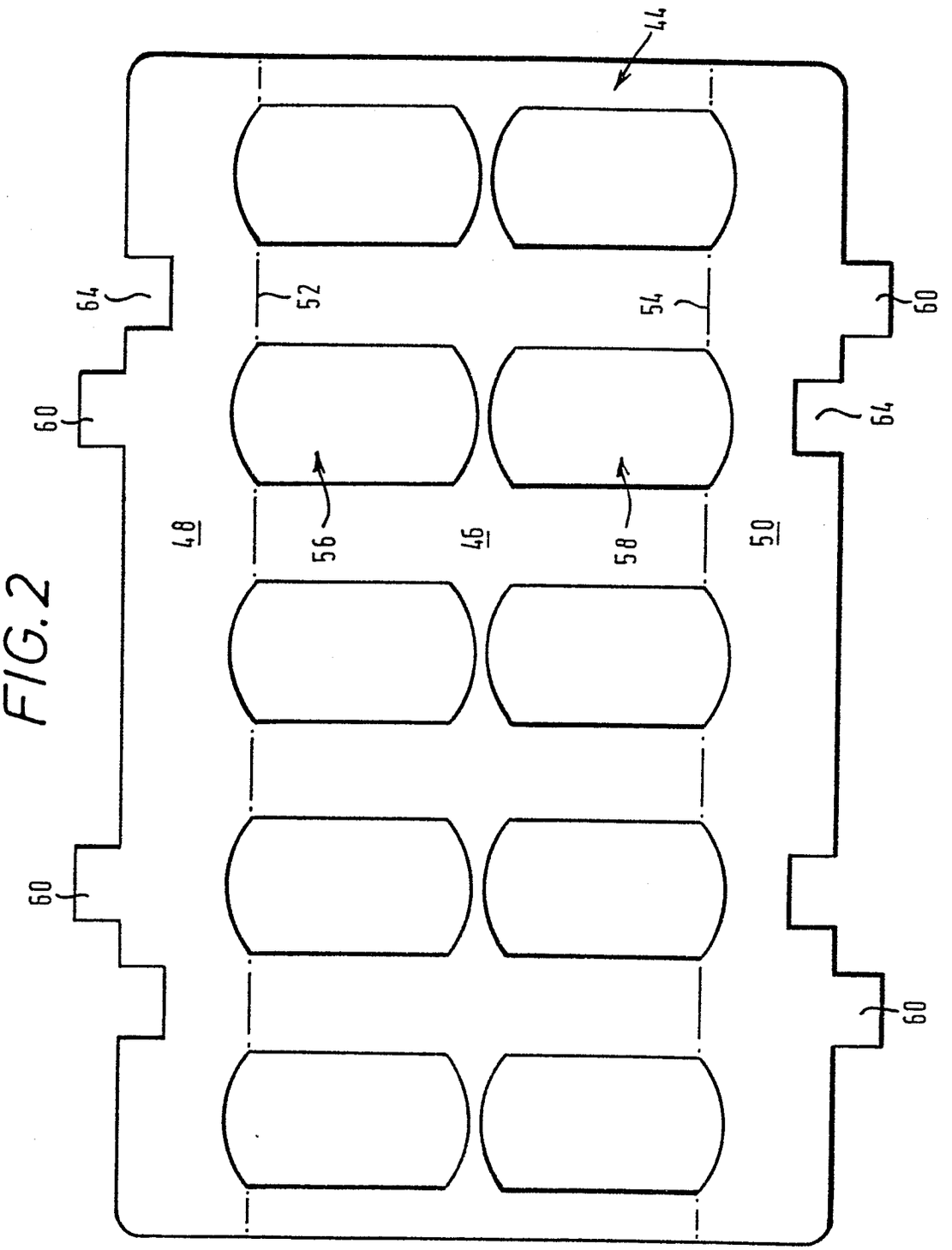

FIG.2

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FIG. 3

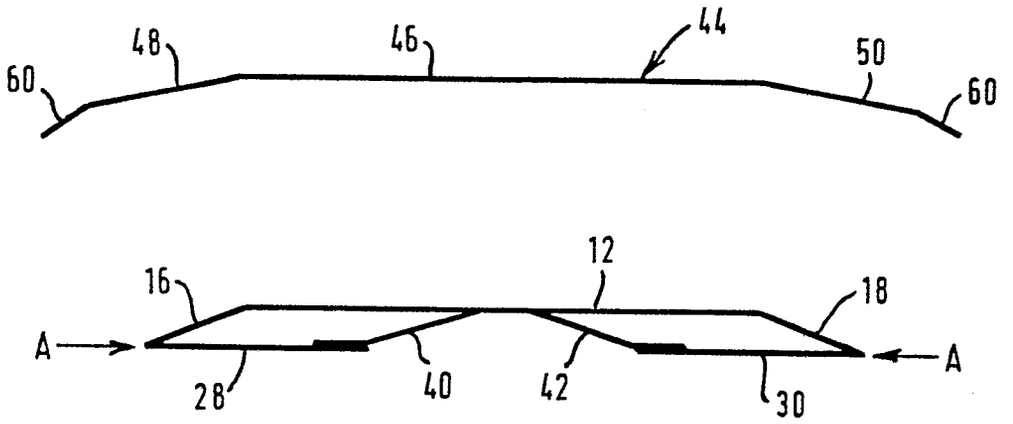


FIG. 4

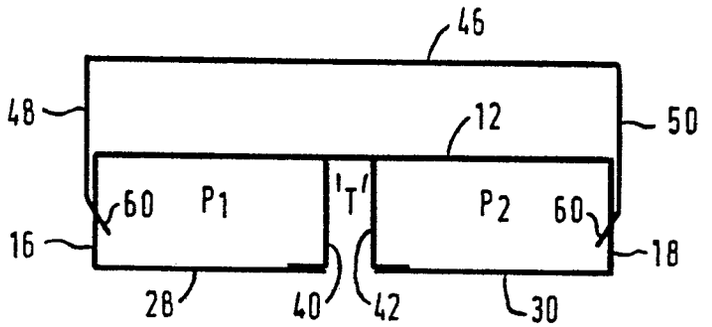
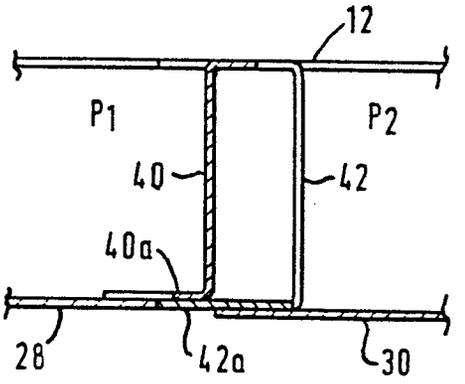


FIG. 4a



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EUROPEAN SEARCH REPORT

0096537
Application number

EP 83 30 3164

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. ³)
Y	FR-A-2 195 967 (EUROPEENNE DE CONDIMENTS) * Figures 1-3 *	1-5,7,8	B 65 D 71/00 B 65 D 5/68
A		6	
P,Y D	GB-A-2 096 970 (THE MEAD CO.) * Figures 1,2 *	1-3,5,7,8	
A		4	
Y	US-A-3 366 305 (FOLDING BOX CO.) * Figures 1,4,5 *	4	
Y	US-A-3 337 116 (NOWAK) * Figures 1,2 *	7,8	TECHNICAL FIELDS SEARCHED (Int. Cl. ³) B 65 D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	05-09-1983	ARGENTINI A.

CATEGORY OF CITED DOCUMENTS

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