

(19)



Europäisches Patentamt

European Patent Office

Office européen des brevets



(11)

EP 0 901 968 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
17.03.1999 Bulletin 1999/11

(51) Int. Cl.⁶: **B65D 5/48**

(21) Application number: **98116203.5**

(22) Date of filing: **27.08.1998**

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE**
Designated Extension States:
AL LT LV MK RO SI

(72) Inventor: **Taylor, John Richard
Wetherby, LS22 7YD (GB)**

(74) Representative: **Wood, Graham
Bailey Walsh & Co,
5 York Place
Leeds LS1 2SD (GB)**

(30) Priority: **09.09.1997 GB 9718990**

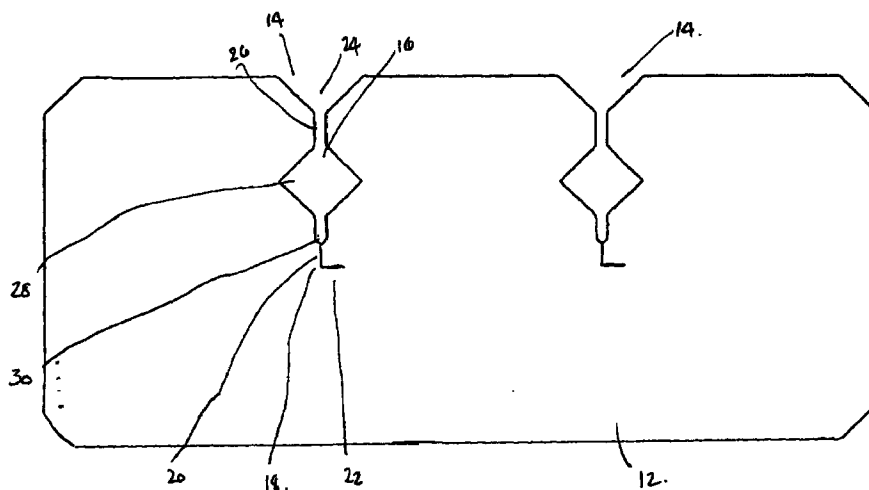
(71) Applicant: **Safepack Ltd
Wetherby LS22 7YD (GB)**

(54) Divider for packaging containers

(57) The invention which is the subject of this application relates to a divider (6) for use in the division of containers for articles such as cardboard boxes, plastic boxes or the like for glass articles such as bottles or any fragile article. The divider comprises a series of members (8) held in spaced parallel relationship and a second series of members (10) held in a spaced parallel

relationship but perpendicular to the first series by the engagement of respective engagement formations (14) comprising a slotted portion (16) leading to a cut portion (18) thereby providing a structurally improved and strengthened divider.

Figure 4.



EP 0 901 968 A1

Description

[0001] The invention which is the subject of this application relates to the provision of an item, known in the trade as a divider for use in packaging of articles in containers such as cardboard boxes and to divide the box into a plurality of areas, each for the reception of at least one of said articles.

[0002] Dividers are used extensively in the packaging industry and, in particular, in relation to boxes or containers for a plurality of articles. The divider is provided to be insertable into the container box to sub-divide the same and define a number of locations with at least one article to be located in each of the locations. The divider also acts to prevent direct contact between the articles, thereby minimising risk of damage during transit of the article and can also be used to effectively engage the articles, in conjunction with the other articles and the divider in position within the container or box. Dividers are therefore well known in the industry and are particularly used in relation to the packaging of relatively fragile articles such as, for example, glass bottles, ornaments and the like.

[0003] The divider is formed from a first set of elongate lengths of sheet material such as board. The first set of members are engaged at spaced intervals with members from a second set of the same material. When erected the members in the first set lie perpendicular to the members in the second set and are engaged to intersect one another at spaced intervals to form a matrix. The divider is also collapsible to lie in a substantially flattened condition. At the present time there are two types of dividers commonly available. The first type of divider consists of a number of said members and each of said members are provided with slots, formed to extend half way across the width of the same, at spaced intervals therealong. Typically a number of elongate members are provided of a first length and a second number of elongate members are provided of a second length and each have slots formed therein. Reference to the term "slots" should be taken to mean that a portion of the material is removed to form the slot. Typically the slot formed has a width slightly more than the thickness of the material.

[0004] To form the divider, the first set of elongate members of the first length are placed to lie in a common direction and the second set of elongate members are provided to lie in a perpendicular direction to the first set and, the same are engaged by sliding the respective slots in the first and second sets of members together to form the divider of a number of said elongate members. However, a problem with this type of divider is that the elongate members are prone to sliding apart as the slots do not provide any locking means to lock the elongate members in position with respect to the vertical plane so that the same can slide apart.

[0005] A second type of divider is provided to attempt to overcome this problem and this divider comprises a

number of elongate members as previously and with slots formed as previously but, in this case, along the edge of the elongate member onto which the slots open, there is provided a hook portion. At the other edge of the elongate member, in line with and spaced as the slots, there are provided recessed portions which are located and formed so as to be engageable with the hook portions when the members, and hence slots, are engaged and thereby serve to at least partially locate the elongate members and prevent the same from sliding apart.

[0006] However, the problem with this type of divider is that the same is still relatively flexible when formed and there is still a substantial degree of movement between respective elongate members which makes the forming of the divider and the insertion of the same into the container or box difficult during manufacturing.

[0007] The aim of the present invention is therefore to provide a divider which is of a form to allow the respective elongate members to be held in engagement and prevent the same from slipping apart and further, add rigidity to the divider and prevent any substantial movement between the elongate members when the divider is formed.

[0008] In a first aspect of the invention, there is provided a divider formed of a series of elongate members, each of said elongate members provided with at least one engagement formation formed therealong to engage with further elongate members, characterised in that said engagement formation comprises a slotted portion leading to a cut portion and said respective elongate members are engaged to form the divider by locating respective cut portions in engagement.

[0009] In one embodiment, the cut portion comprises a cut which leads from the slotted portion in the same plane as the slotted portion and leads to a second cut perpendicular to the first cut.

[0010] In whichever embodiment the width of the cut is the same or less than the thickness of the sheet material from which the members are formed. Preferably, substantially no material is removed when the cut is formed so that the cut width is substantially less than the thickness of the sheet material.

[0011] Preferably the engagement of the cut portions is such as to create a friction fit of the elongate members when two cut portions are brought together, and engaged with the elongate members movable between and erected condition in which said members at each point of engagement lie perpendicularly with respect to one another, and a collapsed condition in which said members lie substantially in line. Typically said members are moved between collapsed and erected conditions by relative pivotal movement about said engaged cut portions.

[0012] In one preferred embodiment the slotted portion is formed so as to decrease in width towards the cut portion, thereby aiding the formation and relative engagement of the cut portions of respective elongate

members.

[0013] In one preferred form, the slot comprises a V-shaped opening from the edge of the opening leading to a first neck portion which in turn leads to a diamond shaped portion and then leads to a second neck portion which in turn leads to the cut portion.

[0014] In a further aspect of the invention there is provided an elongate member of sheet material for use in forming a divider in conjunction with other elongate members characterised in that said elongate member has a plurality of engagement formations at spaced intervals therealong to allow engagement with matching engagement formations provided in the other elongate members and characterised in that each of said engagement formations comprises a slotted portion leading to a cut portion.

[0015] Typically the slotted portion is formed so as to enable the introduction of the engagement formation of another member towards the cut portion so as to complete engagement of the respective cut portions of the engagement formations.

[0016] Typically each of said engagement formations is formed to depend inwardly to substantially half the width of the member from one of the elongate edges of the member.

[0017] Typically the sheet material used to form the elongate member will be any suitable material such as cardboard, and corrugated cardboard material in particular.

[0018] Specific embodiments of the invention will now be described with reference to the accompanying drawings, wherein:-

Figure 1 illustrates a box including a divider according to the invention;

Figure 2 illustrates a divider according to the invention;

Figure 3 illustrates a detail of one join of the elongate members of the divider according to the invention; and

Figure 4 illustrates a plan view of an elongate member formed according to the invention.

[0019] Referring firstly to Figure 1, there is shown a box 2 which is provided for containing articles such as glass bottles and said articles are to be positioned within each of a plurality of location areas 4. The location areas 4 are defined by a divider 6 which is shown in an erected condition positioned within the box 2. The divider is formed of a series of elongate members and is shown in more detail in Figure 2. In this embodiment there are provided a first set of elongate members 8 of a first length and a second set of elongate members 10 of a second length. As is shown, with the divider in an erected condition, the first set of elongate members 8

are engaged at spaced intervals along and with each of the second set of elongate lengths 10 and lie perpendicular thereto so as to form the location areas 4 therebetween. The divider can also be moved to a substantially flat collapsed condition by relative pivotal movement between the first and second sets of elongate members respectively.

[0020] According to the invention the elongate members are engaged by means of engagement formations and one of said engagements between elongate members is shown in more detail in Figure 3.

[0021] Each of said elongate members comprises a number of engagement formations at spaced intervals and one elongate member 12 is shown in Figure 4 with two engagement formations 14. Each of the engagement formations 14 is provided for the mutual engagement with an engagement formation formed in another elongate member which, when the divider is formed and erected will lie perpendicular to the elongate length 12. The engagement formation comprises a slotted portion 16 and a cut portion 18. The cut portion 18 is formed of a first cut 20 leading to a second cut 22 which lies perpendicular to the first cut 20. The slotted portion 16 comprises a V-shaped opening 24 leading to a first necked portion 26 which in turn leads into a diamond shaped portion 28 and in turn leads to a second neck portion 30 which leads into the cut portion 18. Although the shapes of the slotted portion shown are particularly advantageous for formation and erection of the divider it should be appreciated that any suitable slot shape can be utilised.

[0022] Returning now to Figure 3, two respective engagement formations as described in Figure 4 are shown in two respective elongate members 8 and 10. It can be seen that the members are arranged such that one member 8 has the engagement formation depending from the top edge, in use, and the other member 10 has the engagement formation depending from the bottom edge in use and so each of the slotted portions of the engagement formations receives sheet material of the other elongate member and the cut portions 18 are engaged to form a friction fit by sliding the engagement formations towards each other and in line as shown by arrows 34, 36. The friction fit between cut portions serves to engage and effectively lock the two elongate lengths in position and prevent the same from being easily removed or displaced. A further feature is that the first necked portions 26 of the slotted portions 16 serves to contact and locate with the sheet material of the elongate member lying in the slotted portion so as to add rigidity to the divider which is formed. The V-shaped opening 24 improves the ease of bringing the elongate members into the respective engagement formations by machine or hand and the provision of the diamond shape portion improves the formation of the slotted and cut portions.

[0023] Thus it will be appreciated that there is formed according to this invention a divider comprising a

number of elongate members held is a fixed spaced relationship and, when erected, in a perpendicular arrangement to form a matrix of walls defining therebetween a plurality of location areas for articles. The provision of the engagement formations according to this invention allows the elongate members, when brought together, to form a divider which has substantially improved rigidity in comparison to the prior art and also allows the elongate members to be held in engagement thereby preventing the same from moving apart.

Claims

1. A divider formed from a series of elongate members, each of said elongate members provided with at least one engagement formation, formed therealong, to engage with further elongate members, characterised in that said engagement formation comprises a slotted portion leading to a cut portion and said respective elongate members are engaged to form the divider by locating respective cut portions in engagement.
2. A divider according to Claim 1 characterised in that the cut portion comprises a cut portion which leads from the slotted portion in the same plane as the slotted portion and leads to a second cut perpendicular to the first cut.
3. A divider according to Claim 1 characterised in that the width of the cut is the same or less than the thickness of the sheet material from which the members are formed.
4. A divider according to Claim 3 characterised in that substantially no material is removed when the cut is formed so that the cut width is substantially less than the thickness of the sheet material.
5. A divider according to Claim 1 characterised in that engagement of the cut portions is such as to create a friction fit of the elongate members when two cut portions are brought together and engaged with the elongate members movable between an erected condition in which said members at each point of engagement lie perpendicular with respect to one another, and a collapsed condition in which said members lie substantially in-line.
6. A divider according to Claim 5 characterised in that said members are moved between collapsed and erected conditions by relative pivotal movement about said engaged cut portions.
7. A divider according to Claim 1 characterised in that the slotted portion is formed so as to decrease in width towards the cut portion, thereby aiding the formation and relative engagement of the cut por-

tions of respective elongate members.

8. A divider according to Claim 1 characterised in that the slot comprises a V-shaped opening leading to a first neck portion which, in turn leads to a diamond shaped portion and then leads to a second neck portion which in turn leads to the cut portion.
9. An elongate member of sheet material for use in forming a divider in conjunction with other elongate members, characterised in that said elongate member has a plurality of engagement formations at spaced intervals therealong to allow engagement with matching engagement formations provided in other elongate members and characterised in that each of said engagement formations comprises a slotted portion leading to a cut portion.
10. An elongate member according to Claim 9 characterised in that the slotted portion is formed so as to enable the introduction of the engagement formation of another member towards the cut portion so as to complete engagement of the respective cut portions of the engagement formations.
11. A member according to Claim 9 characterised in that each of said engagement formations is formed to depend inwardly to substantially half the width of the member from one of the edges of the member.
12. A member according to Claim 9 characterised in that the sheet material used to form the same is any suitable material such as cardboard or corrugated cardboard material in particular.

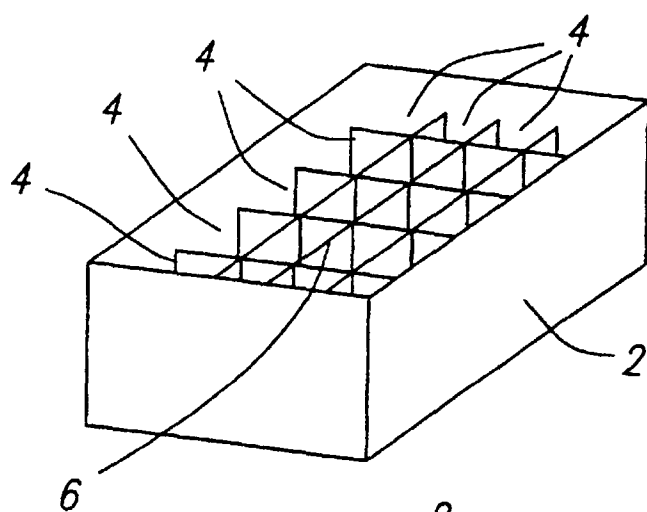


FIG. 1

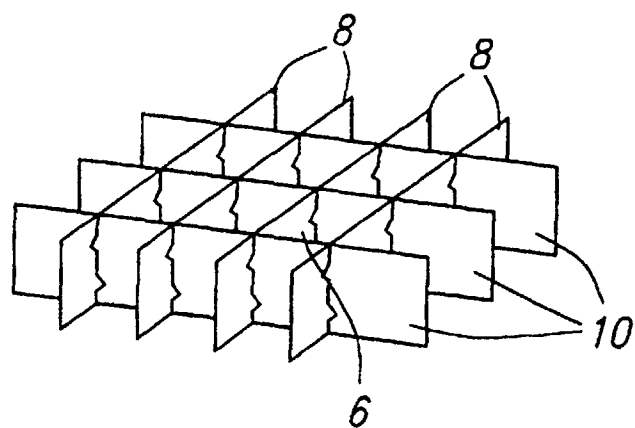


FIG. 2

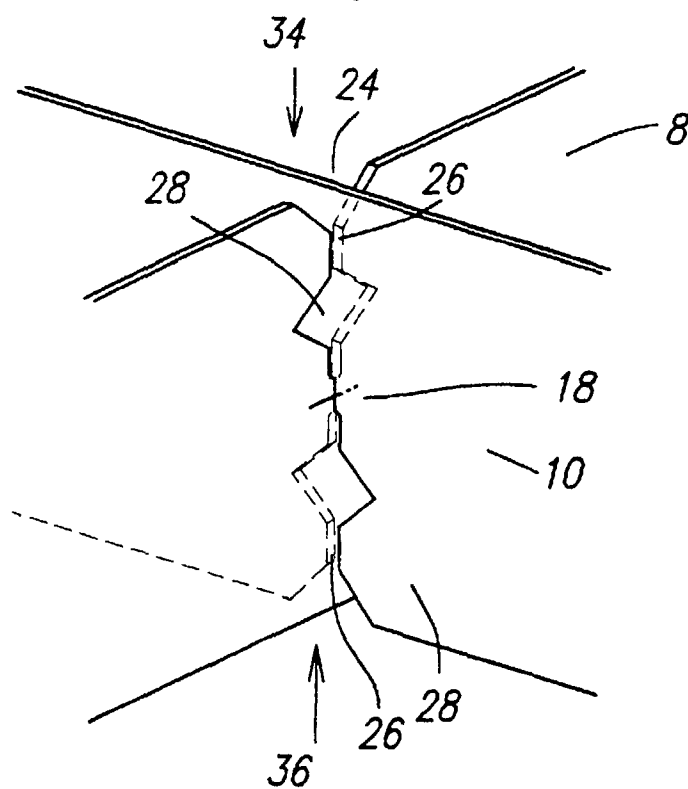


FIG. 3

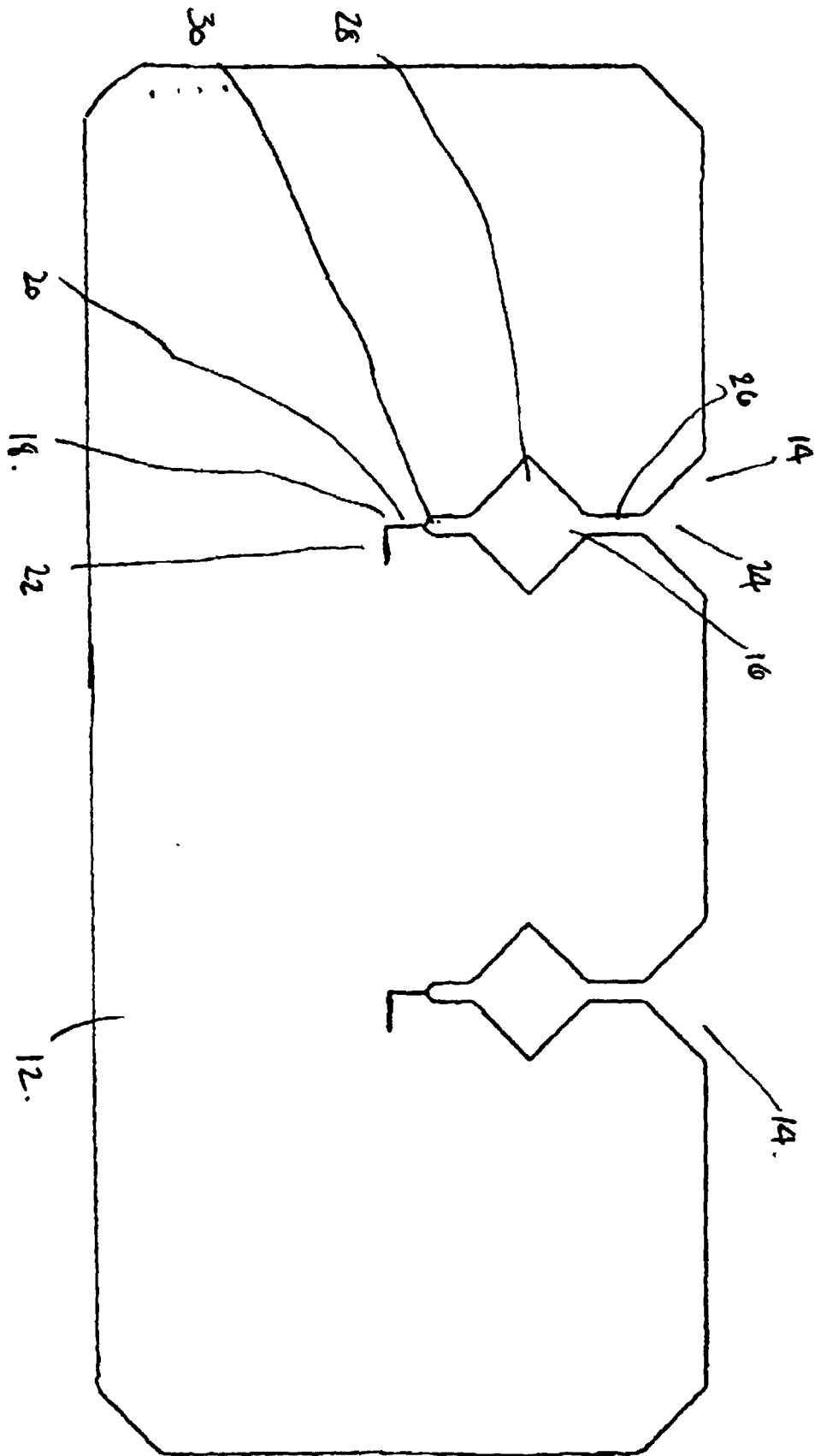


Figure 4.



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 98 11 6203

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.6)
X	CH 272 125 A (KARTONNAGEN AG) 16 February 1951 * page 1, line 45 - page 2, line 20 * * figures 1-5 *	1,3-7, 9-12	B65D5/48
A	FR 1 208 872 A (RENTZ, M. P.) 26 February 1960 * figure 4 *	8	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			B65D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 20 November 1998	Examiner Wennborg, J
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 98 11 6203

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

20-11-1998

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
CH 272125 A		NONE	
FR 1208872 A	26-02-1960	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82