



Europäisches Patentamt  
European Patent Office  
Office européen des brevets



(11) **EP 1 026 090 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:  
**09.08.2000 Bulletin 2000/32**

(51) Int. Cl.<sup>7</sup>: **B65D 21/02**

(21) Application number: **00200312.7**

(22) Date of filing: **31.01.2000**

(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: **Piacenza, Giuseppe**  
**20070 Muzza di Cornegiano Laudense (IT)**

(74) Representative:  
**Martegani, Franco**  
**Patent Attorney,**  
**Via Carlo Alberto, 41**  
**20052 Monza (Milano) (IT)**

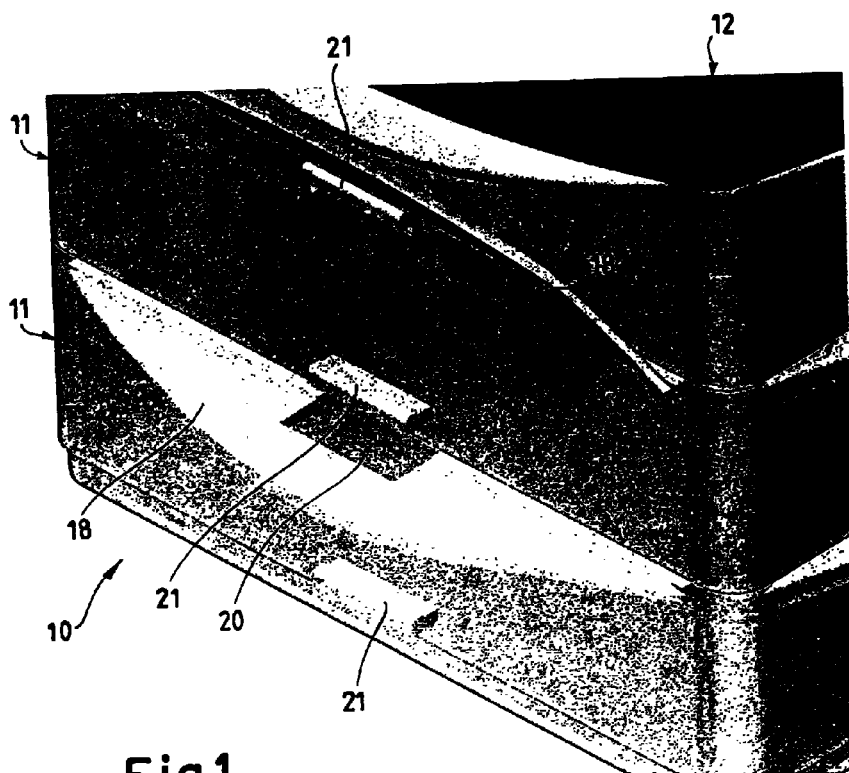
(30) Priority: **04.02.1999 IT MI990207**

(71) Applicant: **Snips S.r.l.**  
**20121 Milano (IT)**

(54) **System of identical modular containers which can be piled up on top of one another, in particular for foodstuffs.**

(57) A system of identical modular containers which can be piled up on top of one another, characterized in that between one container (11) and another, releasa-

ble means of reciprocal clamping are envisaged.



**Fig.1**

**EP 1 026 090 A1**

## Description

**[0001]** The present invention refers to a system of identical modular containers which can be piled up on top of one another, to be used particularly, but not exclusively, for the storage and transportation of foodstuffs.

**[0002]** In the sector of so-called "household goods", plastic containers for foodstuffs are known which are used for the storage and transportation of foodstuffs of various kinds.

**[0003]** For instance, it is well known that it is necessary to place, in refrigerators or freezers or in some other cold environment, fresh and/or cooked food for the purpose of storing it ready for use within relatively short periods.

**[0004]** Plastic containers for foodstuffs are also used to transport the aforesaid food from one place to another, for example, when transferring from one house to another or during trips or excursions, etc.

**[0005]** In order to meet the needs mentioned above, containers that can be piled up one on top of another have already been proposed. However, these containers present the drawback of not having a positive-seal means of closing between one container and another, a fact which may give rise to the problems referred to in what follows.

**[0006]** First of all, the containers are piled up without there being a real seal-type means of closing, and this can lead to the contents coming out and an inadequate storage with loss of the flavour of the food, and also an undesirable contamination of the refrigerator.

**[0007]** In addition, picking up and transporting the pile of containers is not easy or safe, in that a careless or clumsy operation could easily cause sudden and unexpected separation of the piled containers, and the contents could consequently get spilt.

**[0008]** Finally, it is difficult to separate a single container from the rest of the pile at a time, for example the one on the top or the one on the bottom.

**[0009]** The general purpose of the present invention is to overcome the above-mentioned drawbacks of the known art by creating a system of identical modular containers that can be piled up on top of one another, in which a safety seal is provided between one container and another, picking-up and transporting of the entire pile can be carried out safely, and it is also possible to separate one or more of the containers at a time easily from the rest of the pile.

**[0010]** The above purpose is achieved by a system of containers as claimed in the main claim attached and in the subordinate claims.

**[0011]** The structural and functional characteristics of the invention and its advantages with respect to the known art will be more clearly understood from an examination of the following description referring to the attached drawings which illustrate a practical example of embodiment of the invention. In the drawings:

- Figure 1 is a perspective view illustrating the positive-seal item between one container and another in a system of modular containers made according to the principles of the invention;
- Figure 2 is a perspective view of a single container;
- Figure 3 is an exploded front view which illustrates, longitudinally and in cross section, two containers that can be piled up, one set on top of the other;
- Figure 4 is a view similar to that of Figure 3 illustrating the same containers in front view transversely and in cross section;
- Figure 5 is a view illustrating a container with corresponding lid in exploded view;
- Figure 6 is a view similar to that of Figure 5 illustrating the lid fitted onto the container but not clamped on it; and
- Figure 7 is a view similar to that of Figure 6 illustrating the lid positively fixed to the container.

**[0012]** With reference to Figure 1 of the drawings, the system of modular containers in question is designated, as a whole, by 10 and comprises a plurality of containers 11 that are identical to each other and can be piled on top of one another, and possibly also comprises a top lid 12.

**[0013]** The containers described in the embodiment provided as a non-limiting example are rectangular in plan view and have rounded edges, but could also have any other geometrical shape suitable for the purpose.

**[0014]** As is clearly shown in Figures 2-4, each container 11 is provided with a restricted bottom section 13, which, together with the longitudinal perimetral walls 14 and transverse perimetral walls 15, identifies a perimetral undercut 16.

**[0015]** In this way, a number of containers 11 can be piled on top of one another, as shown in Figure 1, by inserting - with a slight interference - the bottom section 13 of one container in the top of the container set underneath. For this purpose, the external dimensions of the bottom section 13 and the internal dimensions at the top of each container are complementary, and in any case such as to ensure a fit with a slight interference between the surfaces that come into in contact.

**[0016]** The reference number 17 designates hand-grips which extend from the longitudinal top edges of each container 11.

**[0017]** According to the present invention, on the sides of each container 11 (transverse sides) there is provided a positive clamping system between one container and another.

**[0018]** More precisely, the said clamping system consists of a flap 18 hinged in 19 - for example by means of a line of less resistance - to the top edge of the container.

**[0019]** Each flap 18 presents, at its centre, an opening 20 designed for clamping, as shown in Figure 1, onto a tooth 21 protruding, in vertical alignment, from the container above, in the vicinity of the bottom section

13.

**[0020]** In this way, it is evident how a plurality of piled containers, for example as shown in Figure 1, can be positively sealed together by simply clamping the opening 20 of a flap 18 of a container 11 set underneath onto the tooth 21 of a container 11 set on top.

**[0021]** For the above purpose, the operation of piling one container on top of another (after the contents have been placed inside) is performed with the flaps 18 lowered or open in the position shown in Figure 2, whilst the positive closing of one container on top of another is performed by rotating the flaps upwards about the hinge line 19 and engaging, as mentioned above, the opening 20 with the tooth 21.

**[0022]** The flap 18 may, for instance, be made of a relatively pliant or soft thermoplastic material, either the same as or different from the rigid thermoplastic material of which the containers are made.

**[0023]** The top container of a pile or the single container can be provided with a closing lid 22 (Figures 5-7) which has on its sides a tooth 23 for clamping by means of the flap 18 of the container 11 beneath, as clearly illustrated in the drawings.

**[0024]** In this way, the purpose mentioned in the preliminary part of the description is achieved of making a system of identical modular containers which may be piled on top of one another, where the containers making up the pile are interconnected positively by means of a chain-type closing system, which, however, does not involve all the containers at the same time but enables separation of one or more containers at a time from the rest of the pile in conditions of absolute safety, i.e., without any danger of the pile being overturned.

**[0025]** The system proposed by the invention moreover ensures a sealed means of closing between the containers, which is able to prevent any food of a fluid nature accidentally getting spilt out of the containers either during storage or during transportation, so that the flavour of the food is preserved perfectly without any pollution of the surrounding environment.

**[0026]** Of course each container may be subdivided into a number of compartments; i.e., it may comprise a number of modules that can be fitted together when the pile is formed.

**[0027]** The scope of the invention is defined by the ensuing claims.

## Claims

1. System of containers which can be piled up on top of one another, characterized in that between one container (11) and another, releasable means of reciprocal clamping are envisaged.
2. System according to Claim 1, characterized in that the said releasable means of reciprocal clamping are provided on the transverse sides (15) of each container.

3. System according to Claim 2, characterized in that the said releasable means of reciprocal clamping consist of clamping means provided near the top edge of a container and of means of retention provided near the bottom (13) of the said container, whereby the clamping means of a container set underneath clamp to the retention means of a container set above.

4. System according to Claim 3, characterized in that the said clamping means are made up of flap (18) hinged in (19) at the top edge of the container (11), the said flap (18) having at its centre an opening (20) designed to clamp to said retention means, which consists of a retention tooth (21) extending from the side of the container near the bottom (13).

5. System according to Claim 4, characterized in that the said flap (18) is made of soft material and is hinged to the top edge of the container (11) by means of a line of less resistance (19).

6. System according to Claim 1, characterized in that it comprises at least one lid (22) provided with releasable means of clamping to a container (11).

7. System according to Claim 1, characterized in that the said releasable means of clamping are made up of retention teeth (23) extending from the sides (transverse sides) of the said lid (22), onto which openings (20) of hinged flaps (18) provided on the container (11) underneath clamp.

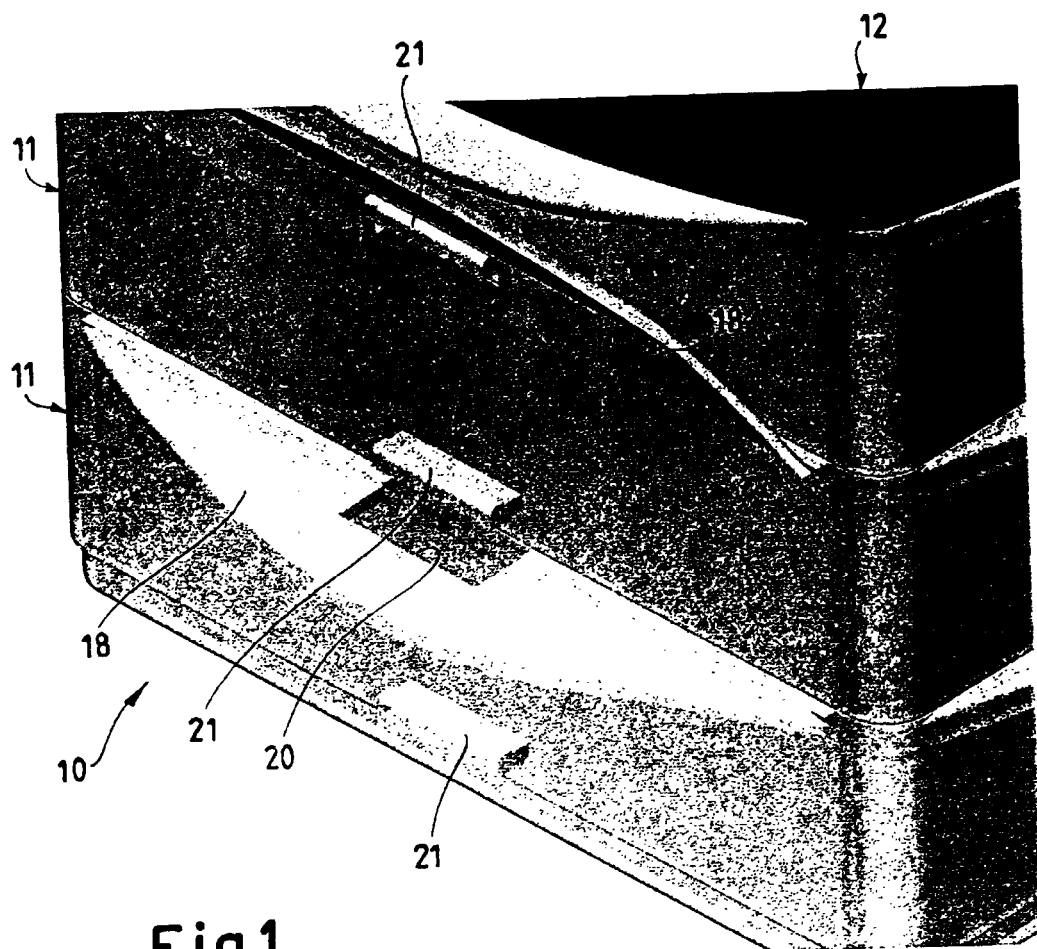


Fig.1

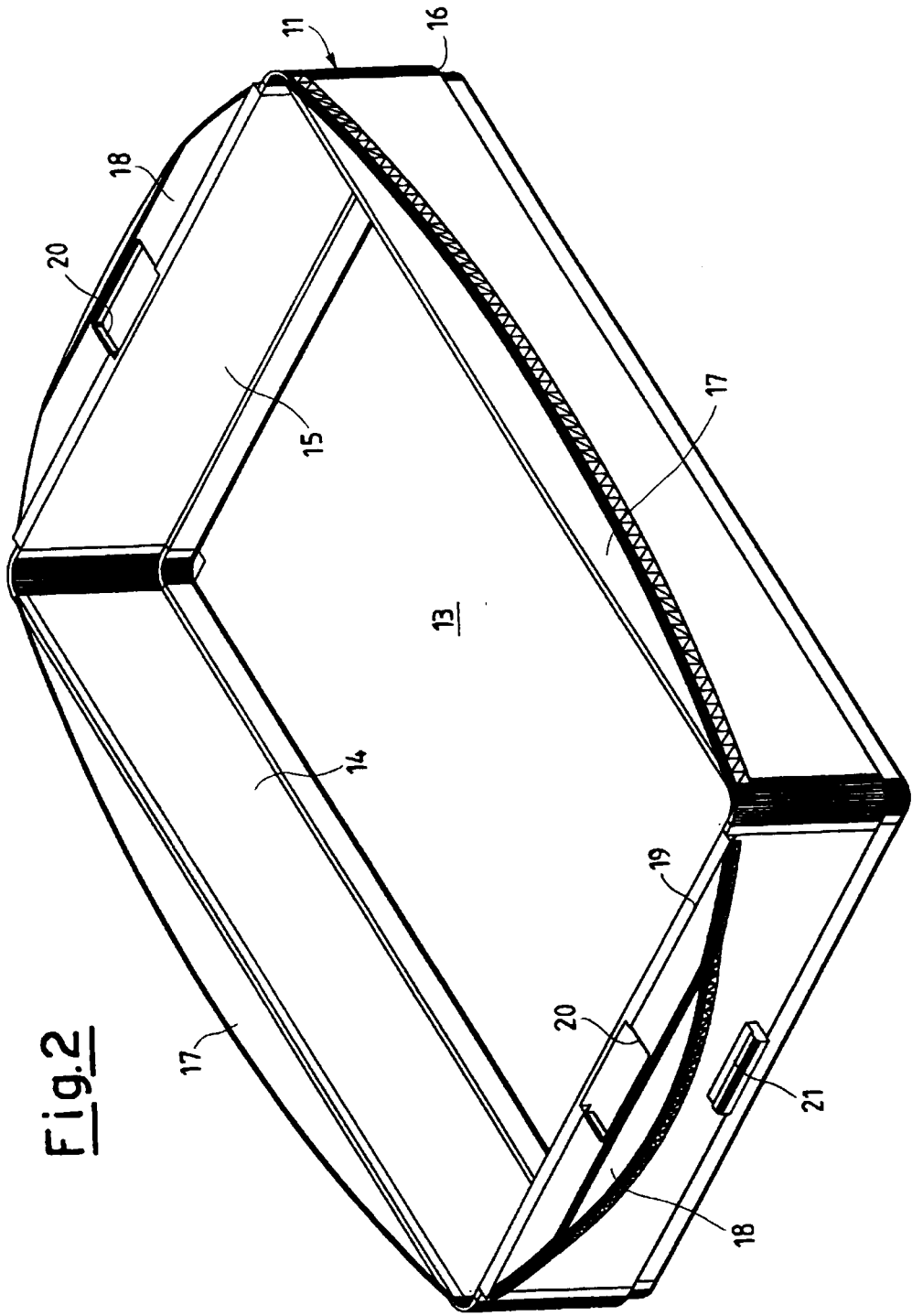
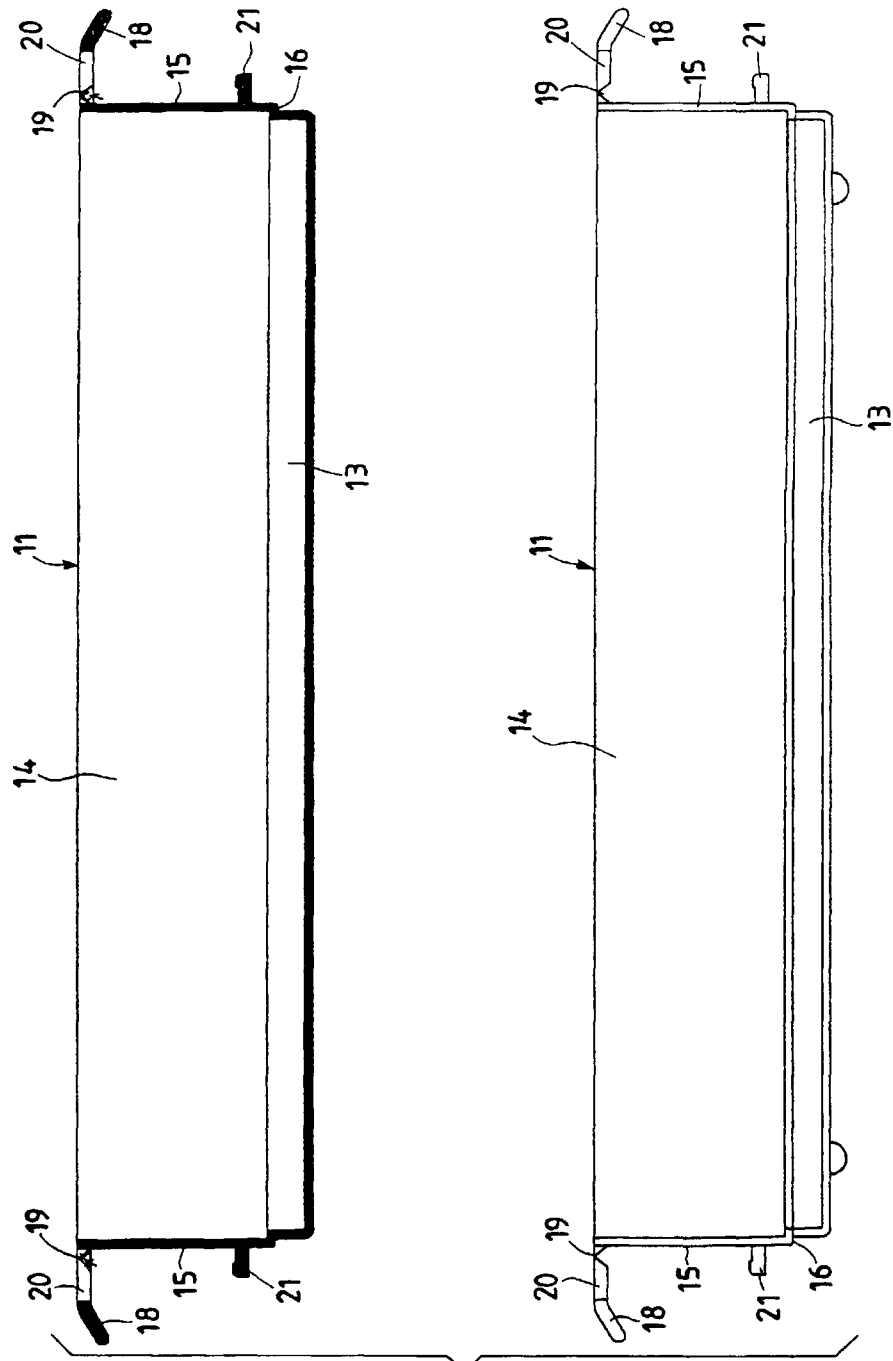


Fig. 2



**Fig. 3**

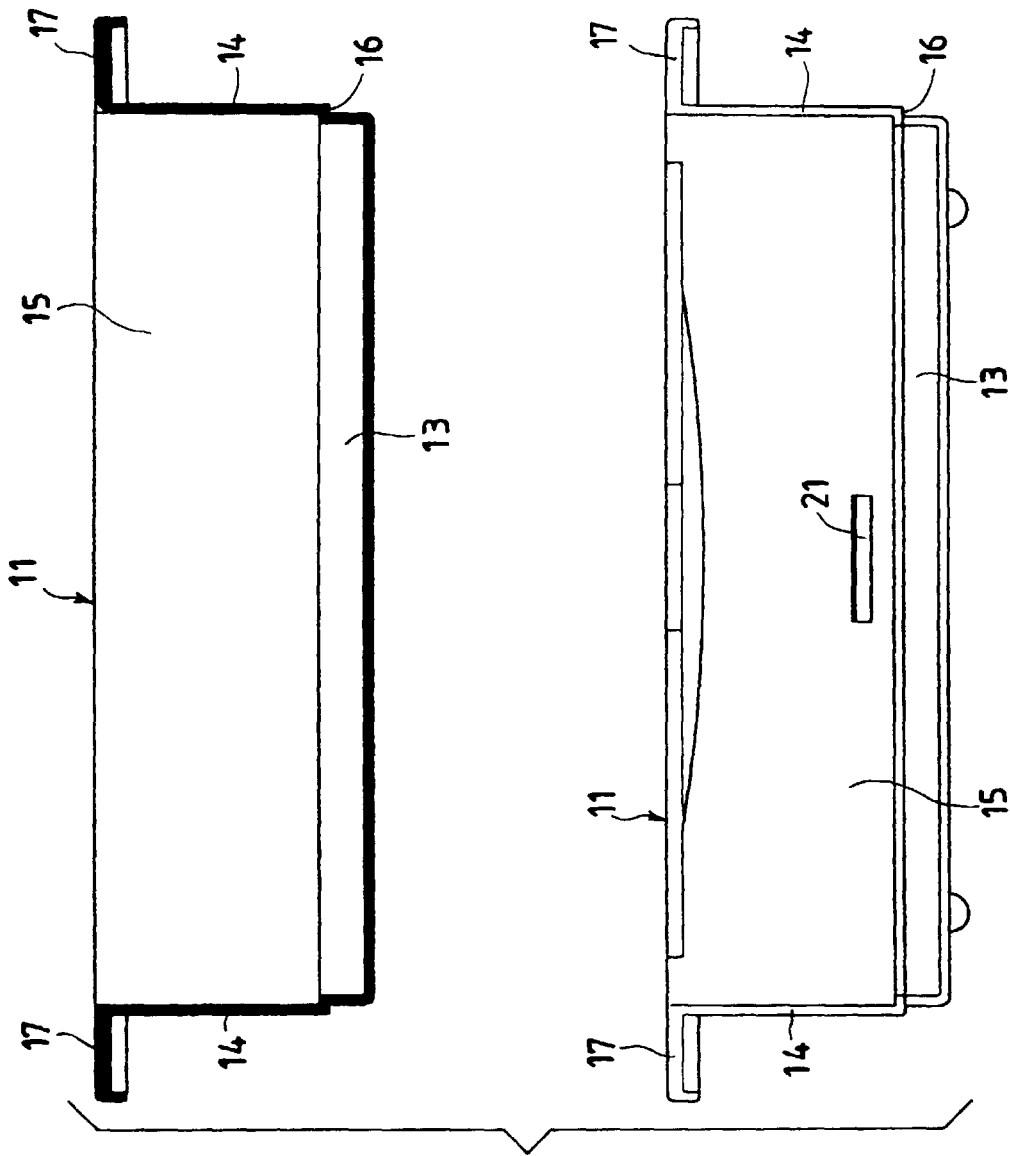
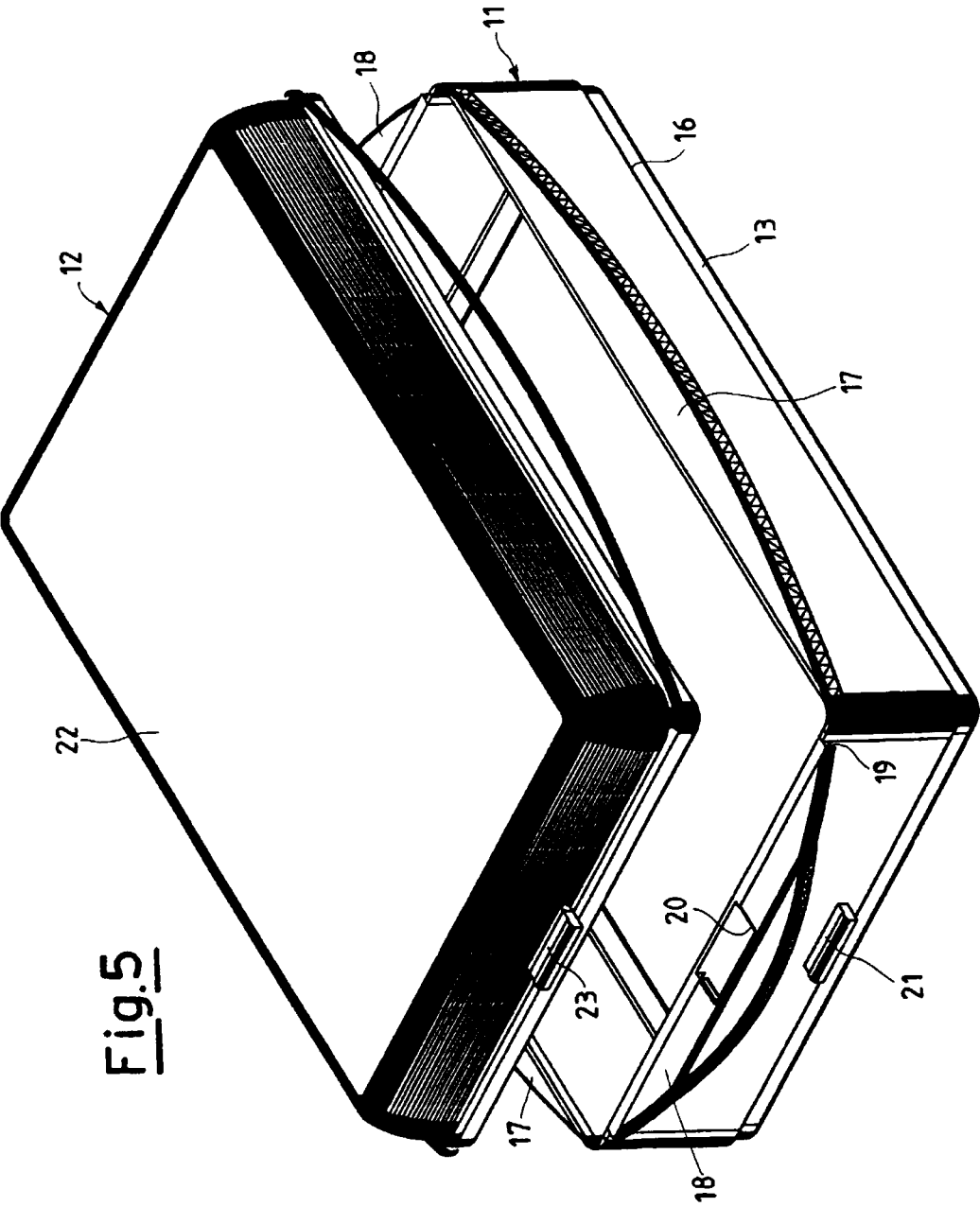


Fig.4





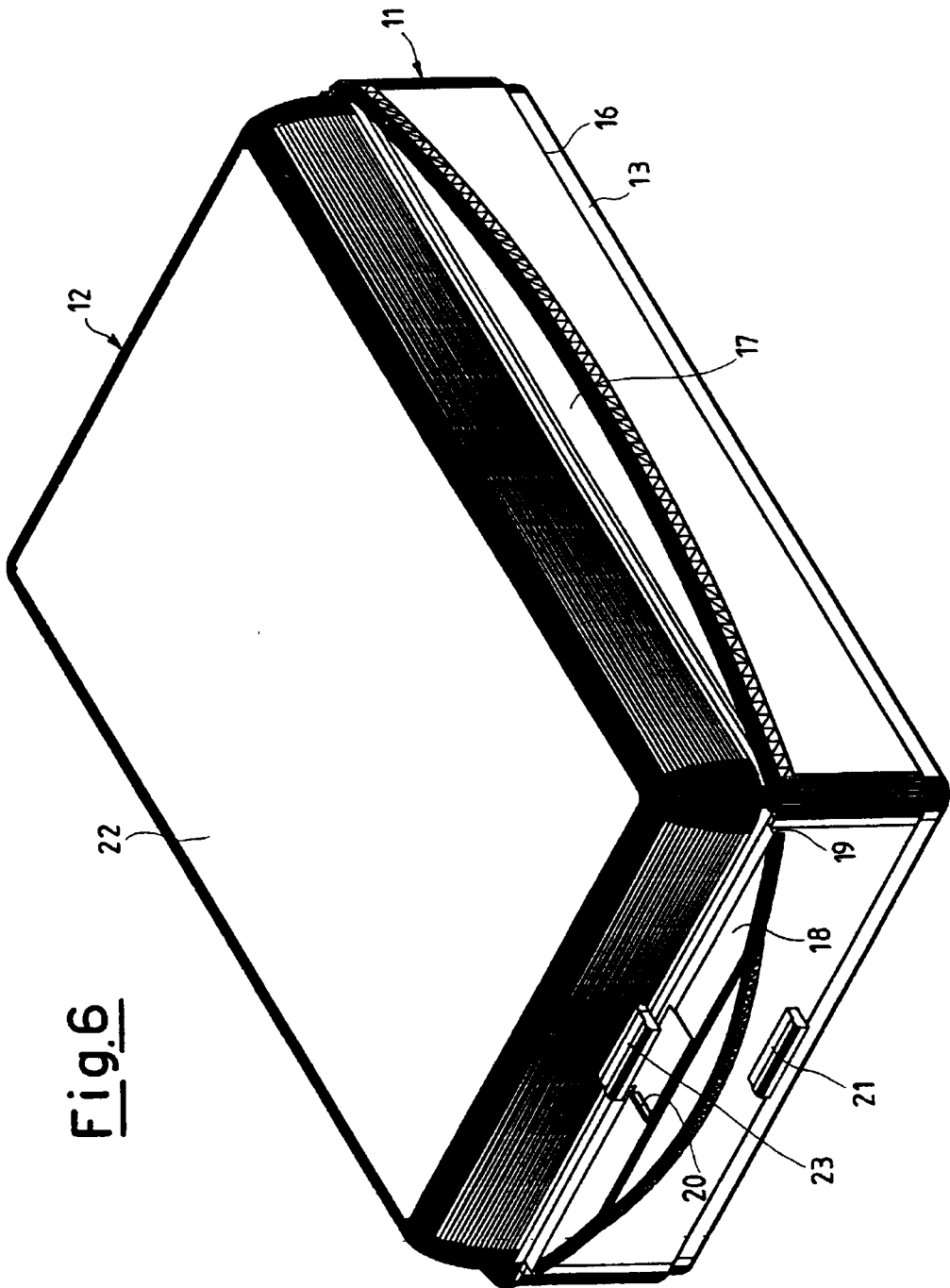
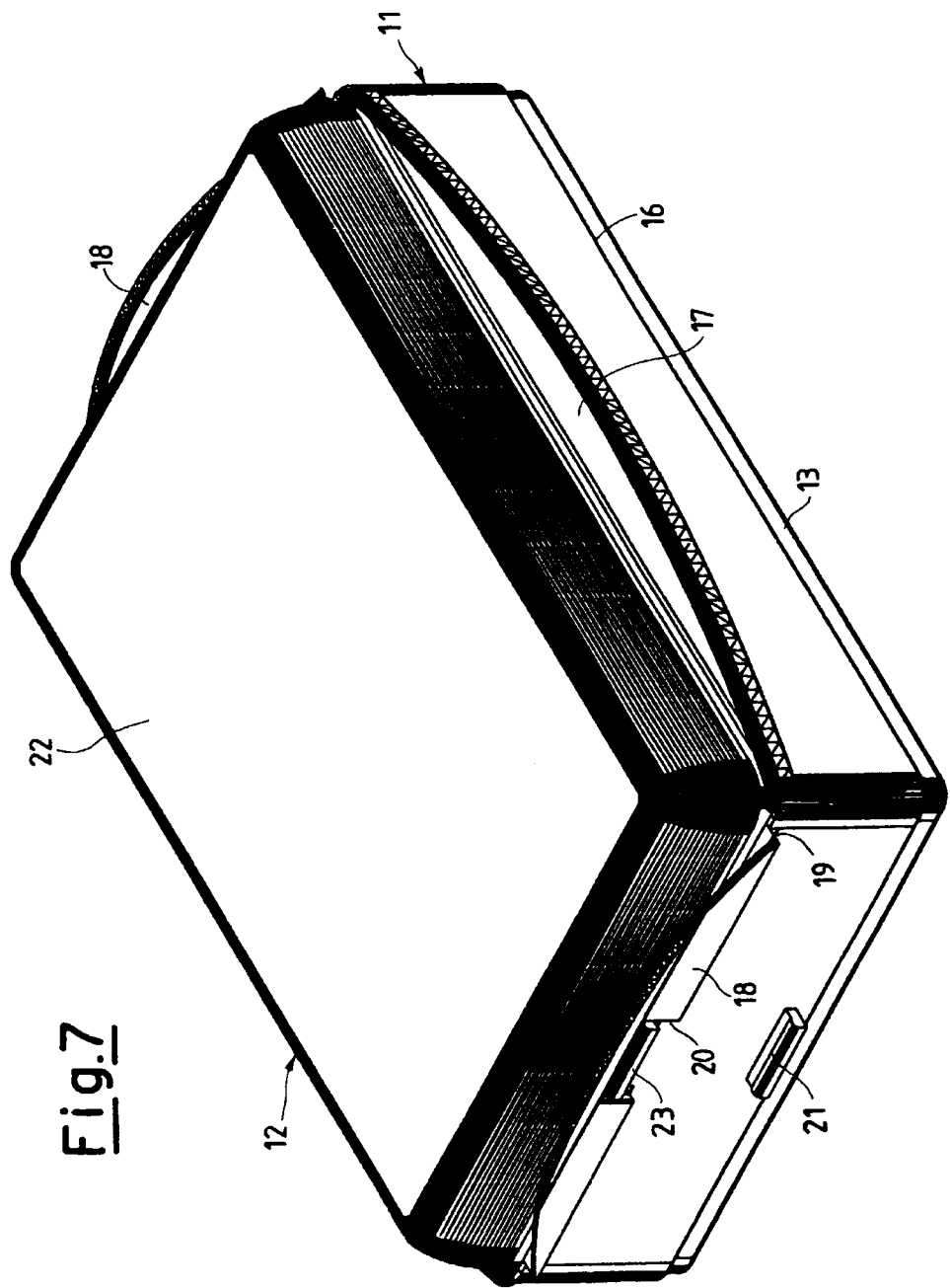


Fig. 6





European Patent  
Office

# EUROPEAN SEARCH REPORT

Application Number  
EP 00 20 0312

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.7)
X	DE 11 45 992 B (BELLINO) * the whole document *	1-3,6	B65D21/02
X	DE 10 62 621 B (STANDARD ELEKTRIK LORENZ) * the whole document *	1-3,6	
X	DE 94 14 617 U (NAUDERER) 3 November 1994 (1994-11-03) * page 3, line 16 - page 5, line 19 *	1,6	
A	* page 6, line 1 - line 12; figures 1,6 *	3-5,7	
X	US 4 760 921 A (LICARI) 2 August 1988 (1988-08-02) * figures 1-6 *	1	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			B65D
Place of search		Date of completion of the search	Examiner
THE HAGUE		11 May 2000	Martens, L
<p>CATEGORY OF CITED DOCUMENTS</p> <p>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</p> <p>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</p> <p>&amp; : member of the same patent family, corresponding document</p>			

EPO FORM 1503 03 82 (P04C01)

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

EP 00 20 0312

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.

11-05-2000

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
DE 1145992	B		NONE	
DE 1062621	B		NONE	
DE 9414617	U	03-11-1994	NONE	
US 4760921	A	02-08-1988	NONE	