

(19)



(11)

EP 1 026 090 B2

(12)

NEW EUROPEAN PATENT SPECIFICATION

After opposition procedure

(45) Date of publication and mention
of the opposition decision:

13.08.2008 Bulletin 2008/33

(51) Int Cl.:

B65D 21/02 (2006.01)

(45) Mention of the grant of the patent:

09.04.2003 Bulletin 2003/15

(21) Application number: **00200312.7**

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

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

System von identischen modularen und aufeinander stapelbaren Behältern, insbesondere für Nahrungsmittel

Système de récipients modulaires identiques et empilables, en particulier pour produits alimentaires

(84) Designated Contracting States:

**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE**

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

(43) Date of publication of application:

09.08.2000 Bulletin 2000/32

(73) Proprietor: **Snips S.r.l.**

20121 Milano (IT)

(72) Inventor: **Piacenza, Giuseppe**

20070 Muzza di Cornegliano Laudense (IT)

(74) Representative: **Martegani, Franco**

**Patent Attorney,
Via Carlo Alberto, 41
20052 Monza (Milano) (IT)**

(56) References cited:

DE-A- 3 338 738	DE-B- 1 062 621
DE-B- 1 145 992	DE-U- 7 244 356
DE-U- 9 414 617	GB-A- 2 033 874
JP-A- 8 244 814	US-A- 3 811 559
US-A- 4 760 921	US-A- 5 337 913

EP 1 026 090 B2

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] DE 1 062 621 discloses a tooth positioned near the bottom of the containers to be piled up on top one of the other, the clamping means consist of a rigid and complex levers system (1, 2 and 3).

[0010] US 4,760,921 discloses a modular storage system made from at least two stackable storage receptacles of one piece moulded plastic construction. Each receptacle presents a plurality of T-shaped locking tabs formed integrally with the basket. Each tab is adapted to pivot from an as-moulded position to a position in which it releasably engages an over-head receptacle, as well as to a position in which it releasably engages an adjacent receptacle.

[0011] 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 sepa-

arate one or more of the containers at a time easily from the rest of the pile.

[0012] The above purpose is achieved by a system of containers as claimed in the main claim attached and in the subordinate claims.

[0013] 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.

[0014] 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.

[0015] 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.

[0016] 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.

[0017] 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.

[0018] The reference number 17 designates hand-grips which extend from the longitudinal top edges of each container 11.

[0019] 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.

[0020] 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.

[0021] 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.

[0022] 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.

[0023] 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.

[0024] 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.

[0025] 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.

[0026] 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.

[0027] 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.

[0028] 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.

[0029] 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 each container having an open top side which is closed by the bottom of another container when this other container is piled up on top of the container, between one container (11) and another, releasable means of reciprocal clamping being provided,
characterized in that the said clamping means are made up of a flap (18) hinged (19) at the top edge of the container (11), the said flap (18) having at its centre an opening (20) designed to clamp to retention means, which consists of a retention tooth (21) extending from the side of the container near the bottom (13), the said side of the container being designed such that the closing can be performed by exclusively rotating the flap (18) towards the retention tooth (21) and engaging the opening (20) with the retention tooth (21).
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 clamping means of a container set underneath clamp to the retention means of a container set above.
4. System according to Claim 1, **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).
5. 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).
6. 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.

Patentansprüche

1. System aus Behältern, die einer über dem anderen aufstapelbar sind, wobei jeder Behälter eine offene Oberseite aufweist, die durch den Boden eines anderen Behälters verschlossen wird, wenn dieser andere Container über den Container aufgestapelt wird, wobei zwischen einem Behälter (11) und einem anderen eine lösbare Einrichtung zum wechselseitigen Klemmen vorgesehen ist,

dadurch gekennzeichnet,

dass die Klemmeinrichtung aus einer Klappe (18) gebildet ist, die an einer Oberkante des Behälters (11) angelenkt ist (19), wobei die Klappe (18) in ihrer Mitte eine Öffnung (20) aufweist, die so gestaltet ist, dass sie an einer Halteeinrichtung klemmt, die aus einem Haltezahn (21) besteht, der sich von einer Seite des Behälters nahe des Bodens (13) erstreckt, wobei diese Seite des Containers so ausgebildet ist, dass das Schließen allein durch Rotieren der Klappe (18) in Richtung auf den Haltezahn (21) und Eingriffnahme der Öffnung (20) mit dem Haltezahn (21) ausgeführt werden kann.

2. System gemäß Anspruch 1, **dadurch gekennzeichnet, dass** die lösbaren Einrichtungen für das wechselseitige Klemmen auf den gegenüberliegenden Seiten (15) jedes Behälters vorgesehen sind.

3. System nach Anspruch 2, **dadurch gekennzeichnet, dass** die Klemmeinrichtung eines Behälter, der unter einem darüber liegenden Behälter angeordnet ist, an die Halteeinrichtung des letzteren angeklemt ist.

4. System nach Anspruch 1, **dadurch gekennzeichnet, dass** die Klappe (18) aus weichem Material hergestellt ist und mittels eines Streifens (19) geringen Biege widerstandes an die Oberkante des Behälters (11) angelenkt ist.

5. System gemäß Anspruch 1, **dadurch gekennzeichnet, dass** es zumindest einen Deckel (22) aufweist, der mit einer lösbaren Einrichtung zum Anklemmen an einen Behälter (11) versehen ist.

6. System gemäß Anspruch 1, **dadurch gekennzeichnet, dass** die lösbare Einrichtung zum Anklemmen aus einem Haltezahn (23) gebildet ist, der sich an den Seiten (gegenüberliegenden Seiten) des genannten Deckels (22) erstreckt, wobei Öffnungen (20) von angelenkten Klappen (18) die auf dem darunter liegenden Behälter (11) angeordnet sind, anklemmen.

une ouverture (20) conçue pour s'emboîter dans un moyen de maintien, lequel est constitué d'une languette de maintien (21) s'étendant à partir du côté du récipient à proximité de la base (13), ledit côté du récipient étant conçu de telle sorte que la fermeture puisse être exécutée en faisant exclusivement tourner le rabat (18) vers la languette de maintien (21) et en engageant l'ouverture (20) avec la languette de maintien (21).

2. Système selon la revendication 1, **caractérisé en ce que** lesdits moyens détachables de fixation réciproque sont disposés sur les faces transversales (15) de chaque conteneur.

3. Système selon la revendication 2, **caractérisé en ce que** les moyens de fixation d'un conteneur sous-jacent s'emboîtent dans le moyen de maintien d'un conteneur susjacent.

4. Système selon la revendication 1, **caractérisé en ce que** ledit rabat (18) est fait d'une matière souple et est articulé sur le bord supérieur du conteneur (11) au moyen d'une ligne de moindre résistance (19).

5. Système selon la revendication 1, **caractérisé en ce qu'il** comprend au moins un couvercle (22) muni de moyens détachables de fixation à un conteneur (11).

6. Système selon la revendication 1, **caractérisé en ce que** lesdits moyens détachables de fixation sont constitués de languettes de maintien (23) s'étendant à partir des faces (faces transversales) dudit couvercle (22), sur lesquelles les ouvertures (20) des rabats articulés (18) fournies sur le conteneur (11) sous-jacent viennent s'emboîter.

Revendications

1. Système de récipients qui peuvent être empilés les uns sur les autres, chaque récipient ayant un côté supérieur ouvert, lequel est fermé par la base d'un autre récipient lorsque cet autre récipient est empilé sur le dessus du récipient, entre un récipient (11) et un autre récipient, des moyens de blocage réciproque libérables étant prévus, **caractérisé en ce que** lesdits moyens de blocage sont constitués d'un rabat (18) articulé (19) au niveau du bord supérieur du récipient (11), ledit rabat (18) ayant, en son centre,

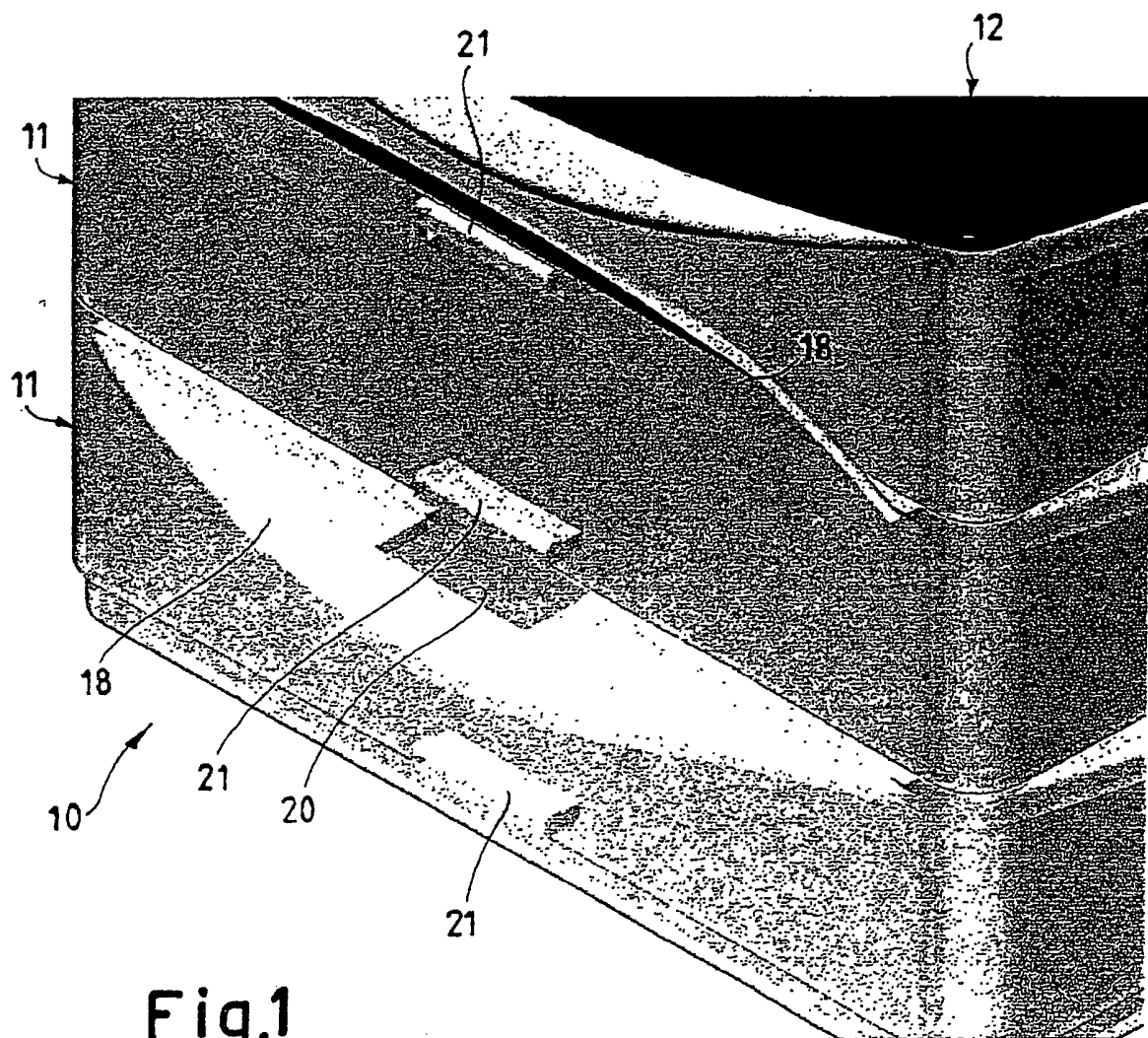


Fig.1

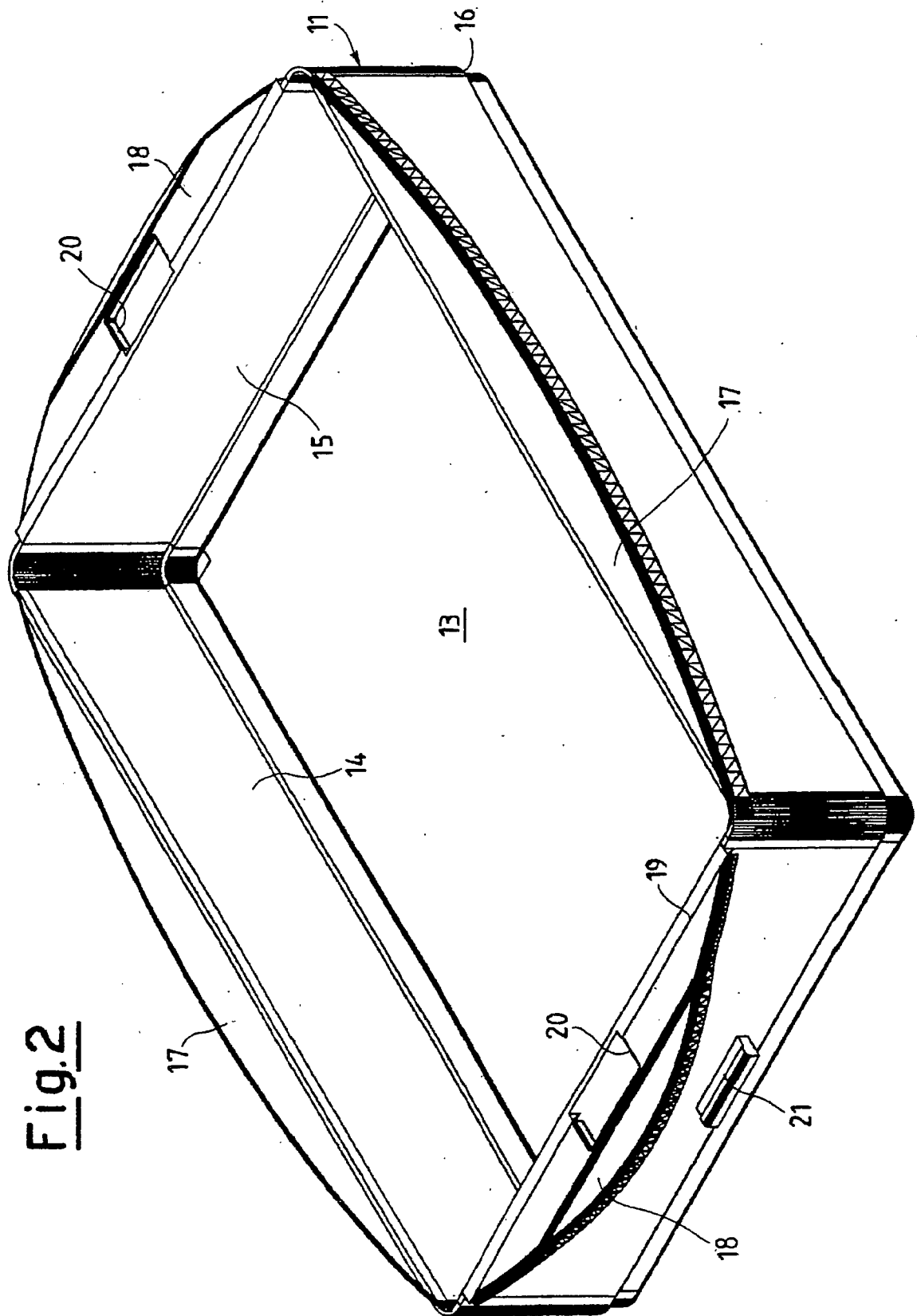


Fig.2

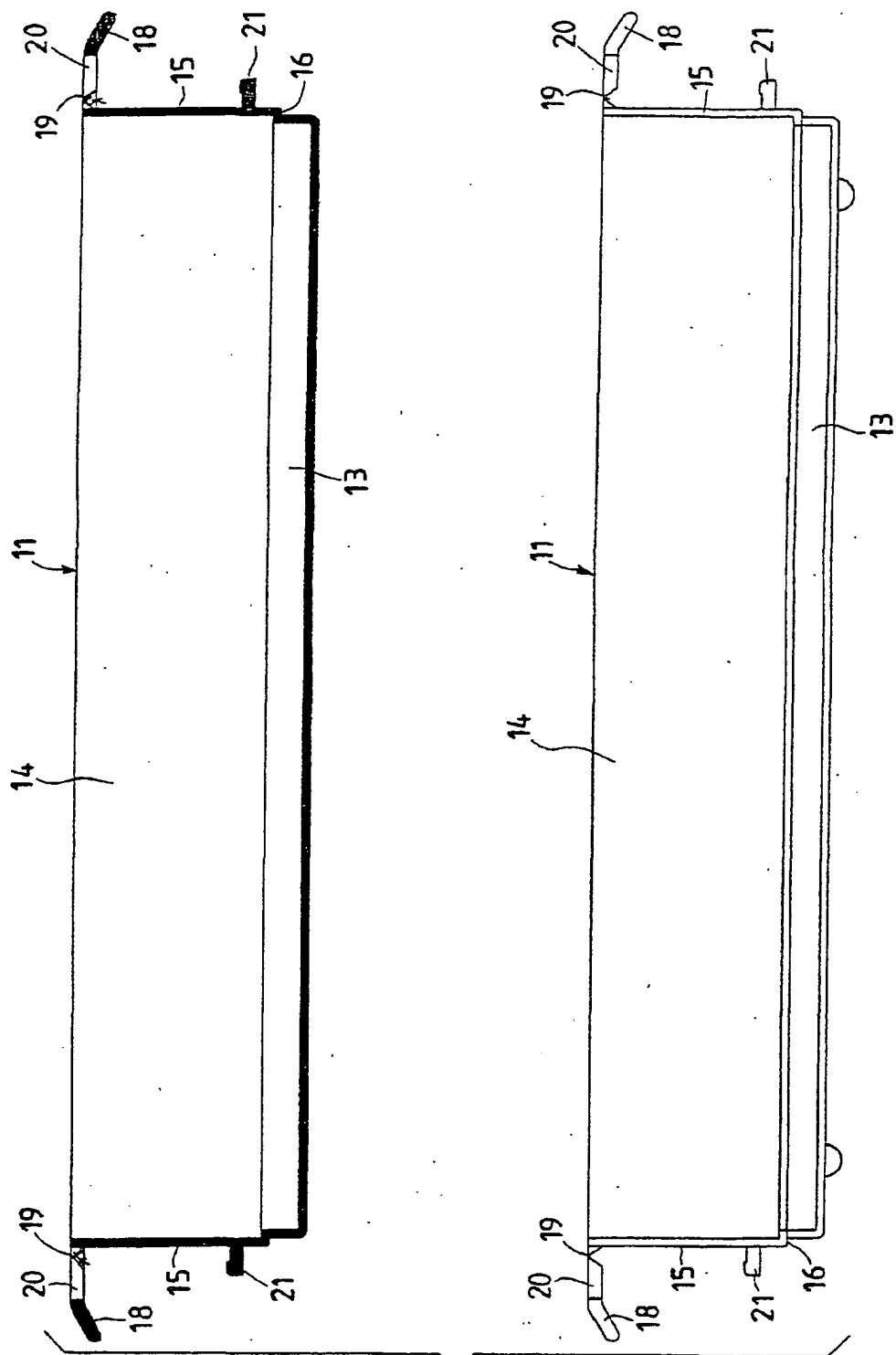


Fig.3

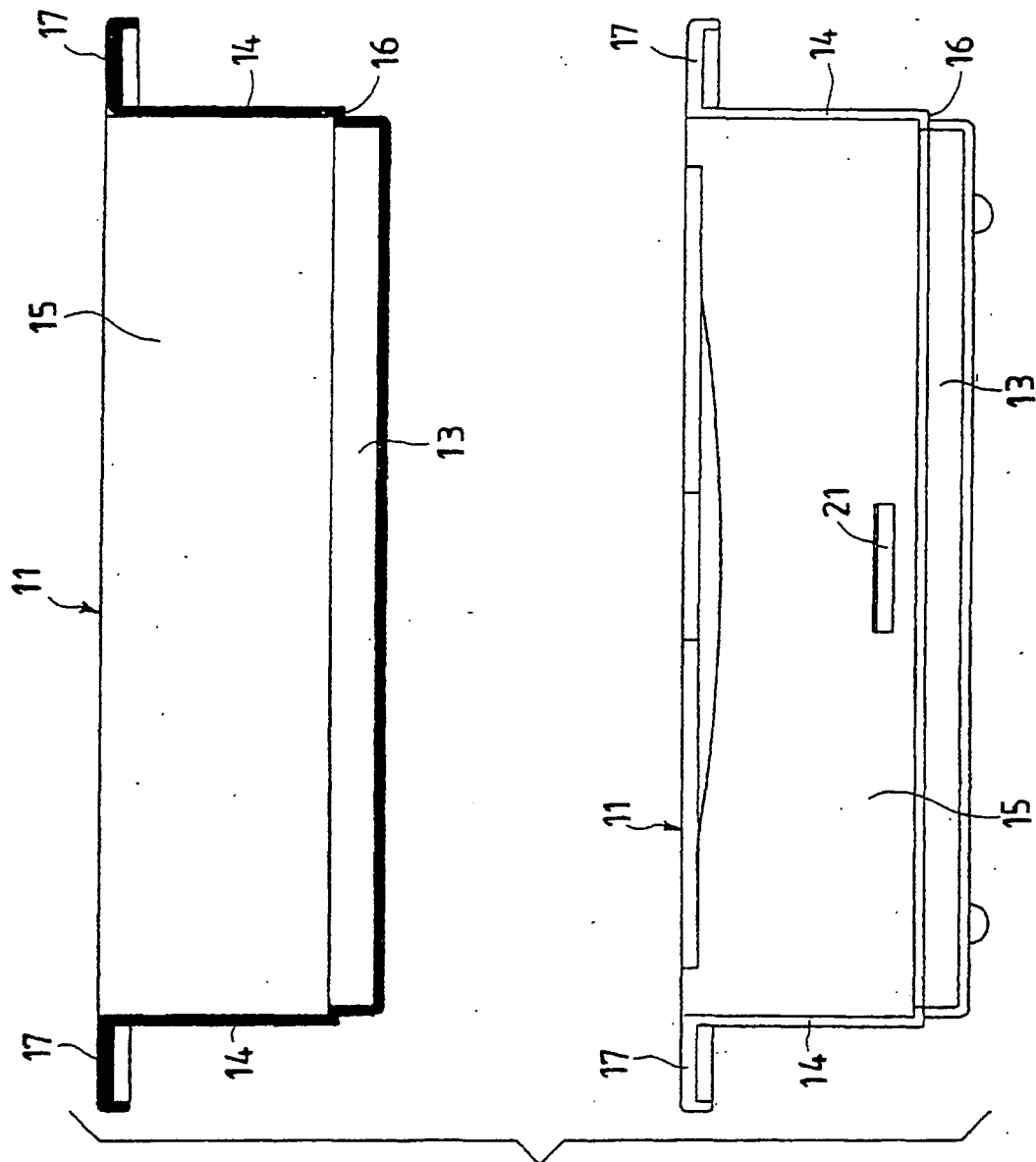
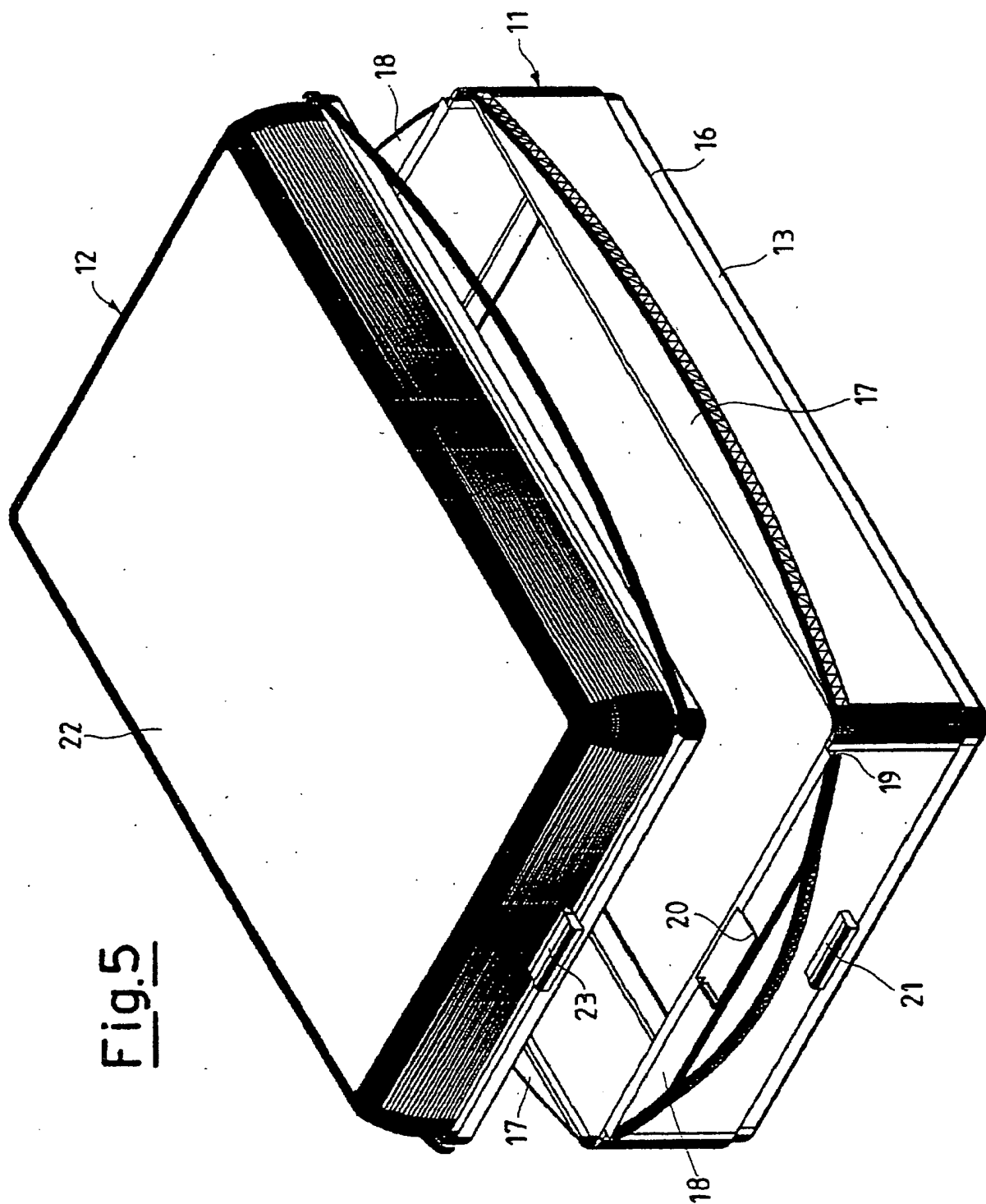


Fig. 4



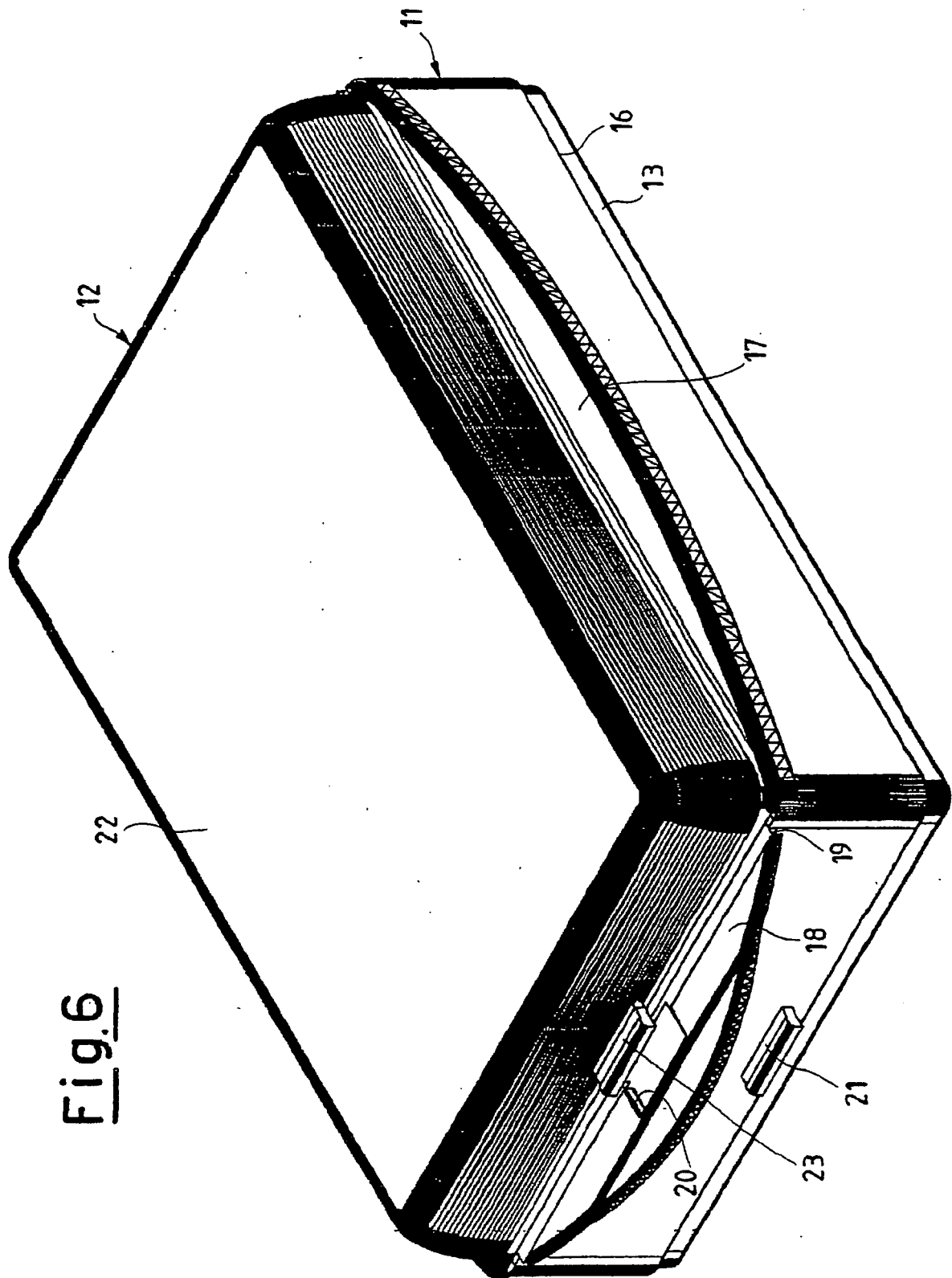


Fig. 6

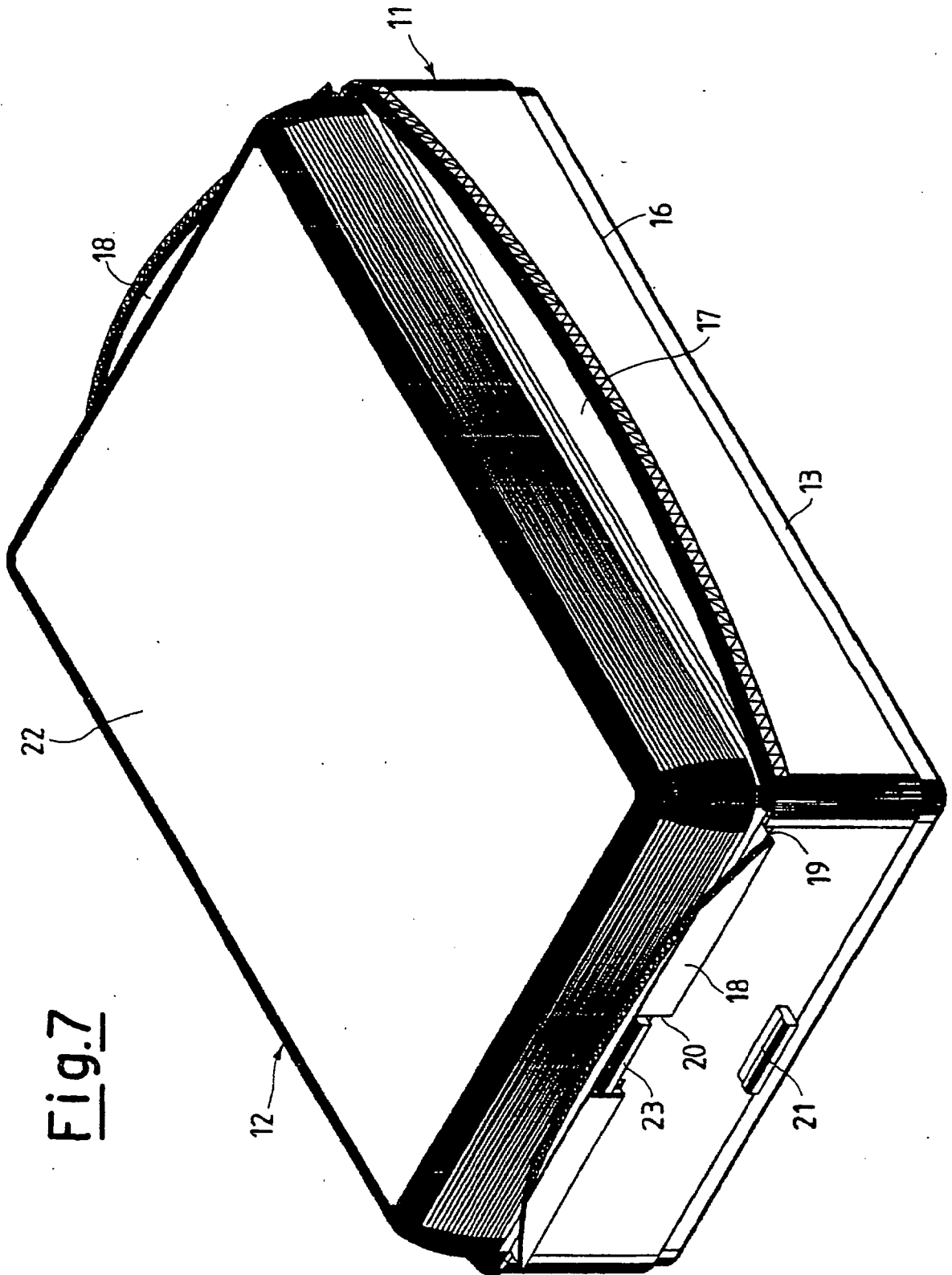


Fig. 7

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- DE 1062621 [0009]
- US 4760921 A [0010]