

A ROLL CONTAINER

The present invention relates to a roll container such as is commonly used to transport goods around warehouses, retail outlets and the like.

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Roll containers usually comprise roll cages that are made with wire mesh sides and are typically used for the transportation of a wide variety of consumer and industrial goods. However, in many secure premises, conventional roll cages are inconvenient as their metal structure does not allow the contents to be security checked using x-ray equipment and other forms of security equipment that detect metal. This means that if security checks are to be carried out, a conventional metal roll cage must be unloaded so that its contents can be checked and then loaded again to transport the goods to the desired location. In addition, conventional roll containers such as roll cages are inconvenient to store when they are not in use as they occupy a comparatively large area of floor space. It is convenient, therefore, if such containers can be demounted or nested when not in use. However, demounted containers are themselves inconvenient as when it is desired to use them as they have to be reassembled from a plurality of separate components.

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The object of the present invention is therefore to provide a roll container that overcomes the aforementioned disadvantages.

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In addition to the foregoing, conventional roll cages do not provide an adequate degree of security for the goods they are intended to transport as their open, cage-like structure enables items to be covertly added to or extracted from their contents. This is equally undesirable in secure locations such as airports, docks and the like where, once security checked, the contents of the roll cage must be retained in a tamper-free environment.

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It is therefore a further object of at least one embodiment of the present invention to provide a roll cage that is capable of overcoming this additional disadvantage.

5 According to the present invention there is provided a roll container comprising a nestable chassis with wheels or castors attached, first and second plastics side panels connected to the chassis, and a base mounted such that in a first position it overlies the chassis and in a second position lies adjacent one of the side panels in order that the container can be nested
10 with another container with a similar chassis when not in use.

Preferably, the base is hingedly mounted to the chassis.

Preferably also, the first and second side panels which are parallel to
15 one another and located on opposite sides of the roll container.

Preferably also, third and fourth plastics side panels are provided that are moveable with respect to the first and second side panels and that each engage with one of the first and second side panels such that in a first
20 position the four side panels together with the base form a box-like structure capable of holding goods and in a second position the third and fourth side panels lie adjacent at least one of the first and second side panels in order that the container can be nested.

25 Preferably also, the third side panel forms a first door which can be opened to provide access to the interior of the roll container.

Preferably also, a plastics lid engageable with at least one side panel such that in a first position it forms a lid for the roll container and in a
30 second position lies adjacent one of the side panels in order that the container can be nested.

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Preferably also, the third and fourth side panels are each securable to the first or second side panels opposite to that to which it is hinged by means of one or more lugs provided on the third and fourth panels that engage respectively in one or more apertures defined in the respective opposite side panel.

Preferably also, the lugs are orientated vertically and the third and fourth side panels are movable vertically on their hinges so that the third and fourth panels can be raised to disconnect each lug from its aperture to enable the third and fourth panels to be rotated about their hinges.

Further preferred but non-essential features of the invention are described in the dependent claims.

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

Fig. 1 is a perspective view of a roll container according to the invention in a position ready for use in the transportation of goods;

Figs. 2 and 3 are respective side and front elevations of the roll container in the directions of the arrows II and III in Fig. 1;

Fig. 4 is a rear elevation of the roll container;

Fig. 5 is a transverse cross-section along the line V-V in Fig. 2;

Fig. 6 is a perspective view of the roll container shown in Figs. 1 to 4 when folded down ready for nesting with a similar container; and

Figs. 7 and 8 are each views similar to Fig. 6 but from opposite sides of the container.

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The embodiment of roll container 1 shown in the drawings comprises a chassis 2 to which are connected four wheels 3, preferably in the form of castors, and two side panels 4, 5. The chassis 2 has a 'Z' configuration, as shown in Figs. 6 to 8, with side arms 6, 7, to which the panels 4, 5 are respectively connected, and a connecting diagonal portion 8 in order that it can be nested with another similar chassis. The chassis 2 and appropriate parts of the wheels 3 can be made of metal to impart strength to the structure but it is important that the side panels 4, 5 and the major portion of the roll container 1, as described below, are non-metallic and, in particular, made of plastics materials such as polythene. This means that the roll container 1 can be rolled, when laden, through an x-ray machine and other similar security apparatus so that its contents can be scanned without adversely affecting the results of the scanning procedure. Hingedly mounted to the side arm 6 of the chassis 2 and inwardly of the side panel 4 is a base 9 such that in a first position, wherein the roll container is ready for use, it overlies the chassis 2. The base 9 is also preferably made of a plastics material but in some applications it could be made of metal. In either case, all parts of the chassis 2 and the wheels 3 lie below the level of any load supported by the base 9 within the container 1 so that no part of the load is obscured during scanning. As described in more detail below, the base 9 can be folded upwards on its hinges to lie adjacent the side panel 4 when it is desired to nest the roll container 1. A rotatable clip 10 (see Fig. 6) is mounted on the inner side of the panel 4 to hold the base 9 in this second position.

In the present example, the side panels 4, 5 are parallel to one another and located on opposite sides of the roll container as determined by the location of the side arms 6, 7 of the chassis 2. These comprise the fixed side panels of the roll container and conventionally they occupy this position. However, in a roll container such as the present example which is provided with four side panels (as further described below), the location of the fixed panels 4, 5 will be determined by the configuration of the chassis 2 to which they are connected. It may be possible, for example, for the fixed panels to be

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located adjacent one another at right angles or similar provided that the chassis 2 is capable of nesting with a similar chassis.

As indicated above, two additional side panels 11 and 12 are provided which are each hingedly mounted respectively to the side panels 4 and 5 so that all four side panels 4, 5, 11, 12 together with the base 9 define an box-like container in which goods can be located. The side panels 11 and 12 are hinged so that they can be folded to lie contiguous with the side panels 4 and 5 when it is desired to nest the roll container. Hence, although in the present example the side panels 11 and 12 are respectively hinged to the side panels 4 and 5, it will be appreciated that other configurations are possible dependent on the configuration of the chassis 2 and the location of the fixed side panels 4 and 5. For example, the two moveable panels 11, 12 could be hinged to one of the side panels and engageable with the other fixed side panel. In this case, the two panels 11, 12 would fold to lie contiguous on both sides of the fixed panel to allow the roll container to be nested.

The side panels 11 and 12 are hinged along one vertical edge, as at 13, respectively to the side panels 4 and 5 and along their other vertical edge are provided with a series of spaced lugs 14, there being four such lugs in the present example along each edge of the panels 11, 12. These lugs 14 can each be engaged in an aperture or groove 15 formed along the vertical edge of the side panel 5, 4 opposite that to which the side panel 11 and 12 is hinged. The lugs 14 depend vertically and slide downwards into each aperture or slot 15, a upwardly extending nose 16 adjacent each slot 15 preventing the panels 11, 12 from being rotated about their hinges once the lugs 14 have been engaged in their respective slots 15. In this way, the side panels 4, 5, 11 and 12 form a rigid structure when in use. To enable the lugs 14 to be engaged in and disengaged from the slots 15, the panels 11 and 12 are movable vertically on their hinges for a distance sufficient to allow the lugs 14 to clear the top of the noses 16.

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Whilst the roll container 1 is suitable for use with only side panels 4, 5, 11 and 12 and the base 9, preferably the container 1 is made secure by the provision of a lid 17. The lid 17 is hinged, as at 18, along one edge to the interior side of one of the fixed side panels 4, 5 and in the present example to the side panel 4. Hence, in a similar way to the base 9, the lid 17 can be folded downwards to lie contiguous with the upper part of the inner side of the panel 4, immediately above the folded-up base 9, as shown in Fig. 6. Along the edge of the lid 17 opposite to its hinges 18 is an elongated projection 19 that can releasably engage in a complementarily shaped slot or groove 20 formed along the upper edge on the inner side of the side panel 5. The projection 19 engages in the slot 20 when the lid is folded upwards to lie substantially horizontal to close the container 1 and is thereby held in position. It should be appreciated that the lid 1 is not moved to provide access to the interior of the container 1 and is only folded downwards into the position shown in Figs. 6 to 8 when it is desired to nest the roll container 1 when it is not in use. Access to the interior of the container 1, as will now be described, is provided by hinging open the side panels 11, 12, which have been designed to comprise doors.

Both of the moveable side panels 11, 12 are designed as doors. Preferably, one of the side panels, the panel 11 in the present example, forms a door in its entirety so that when it is rotated about its hinges 13 outwardly of the container 1, access is provided to the whole of the container's interior. The other side panel 12 can be arranged to operate in a similar way. However, preferably, the panel 12 is split horizontally into two separate parts 21, 22, which each form independent doors and this arrangement is used along with the provision of a shelf or divider 23 that is used to divide the interior space of the container 1 into an upper and a lower separate compartment. The shelf 23 slides into horizontal runners or grooves 24 provided on the interior sides of the fixed side panels 4, 5 at a height which corresponds to the level of the horizontal split between the doors 21, 22. Hence, separate access is provided to each of the compartments via the doors 21, 22 or to the whole of the container 1 via the side panel 11. It will be

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appreciated, however, that the lower door 22 cannot be opened without also opening the upper door 21 as each door must move upwards on its hinges to disengage the its lugs 14 from their respective apertures 15. Hence, in practice, the contents of the container 1 must be arranged with this in mind.

5 Finger slots 25 are provided on each of the doors to facilitate the raising and opening of the doors 11, 21 and 22. Also, a pocket 26 can be provided on the exterior of one of the panels 4, 5, 11, 12 so that paperwork relating to the container's contents can be conveniently retained.

10 It will be appreciated that the interior of the roll container 1 can be divided into more than two compartments by the provision of as many shelves 23 as are required. The door configuration can, however, remain unchanged with the doors 21 and 22 provided appropriate access to one or more of the compartments.

15 As the roll container 1 has been primarily designed for use in a secure area, the doors comprising the panel 11 and the separate doors 21, 22 can each be provided with security seal arrangements 27 so that it can be seen when any of the doors has been opened to gain access to the interior. If the
20 container 1 is to hold two separate sets of goods, then those which it is desired to be extracted first must be located in the upper compartment in order that they can be accessed via the door 21, which can be opened without disturbing the lower door 22. Access to the lower compartment 22 can then be obtained either by opening door 22, which will also disengage the upper
25 door 21, or by opening the full-length door comprising the panel 11.

Whilst it is desirable for the container 1 to keep its contents secure and prevent items being added or extracted to or from its interior, in many circumstances it is also desirable for it to be possible to inspect the contents
30 of the container 1 without breaching the security seal arrangements 27. For this purpose, the side panels 4, 5, 11 and 12 may each be provided with a plurality of holes 28 through which the interior of the container 1 can be viewed from all directions. These holes 28 can be made too small to allow

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undesirable objects to be introduced into the container 1 but are large enough to provide an adequate view of the interior. Typically they are a few centimetres in diameter. The holes 28 also provide ventilation for the interior of the roll container 1 to reduce condensation and heat build-up within the container 1. However, it will be appreciated that the holes 28 do not need to be provided and that a transparent viewing window could be provided as an alternative.

When in use for the transportation of goods, the roll container 1 is assembled as shown in Figs. 1 to 5 with the base 9 located over the chassis 2, the lid secured in place between the side panels 4 and 5 and the moveable side panels 11, 12 arranged to act as doors. A shelf 23 may be employed and can effectively comprise a pallet on which goods to be transported can be stored prior to locating within the container 1. The shelf 23 along with the goods can then be slid into place into the container and the lower compartment also appropriately loaded, possibly by simply sliding another shelf over the top of the base 9. Security seals 27 can be set up as desired. Once loaded and sealed, the roll container 1 can then be rolled through security apparatus and transported as required. Access to the interior of the container is then possible by breaking the appropriate seals and by using the doors 11, 21 and 22 as appropriate. The shelf or shelves 23 can be removed, as appropriate along with the contents.

When the roll container 1 has been emptied and it is desired to store it to await reuse, then it can be nested with other similar containers 1 as follows. First, any internal shelf 23 should be removed and stored separately from the container 1. Then the moveable panels 11 and 12 should be disengaged from the panels 5 and 4 respectively by unhooking the lugs 14 from the apertures 15. The panels 11 and 12 can then be rotated about their hinges 13 so that lie contiguous with the exterior of the panels 4 and 5 respectively, as shown in Figs. 6 to 8. The base 9 of the container 1 should then be folded upwards and held in an upright position by the clip 10. Similarly, the lid 17 can be disengaged from the panel 5 by flexing the panels

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4 and 5 outwards slightly, which is now possible as both of the panels 11 and 12 are disengaged, and allowed to rotate downwards to lie contiguous with the inner surface of the panel 4 about the base 9. The roll container 1 now appears as shown in Figs. 6 to 8 and the configuration of the chassis 1 is such
5 that it can be nested with a similarly folded up roll container 1. Once it is desired to reuse the container 1, it can be readily be reassembled by reversing the folding up procedure.

Hence, it will be appreciated that a laden roll container 1 according to
10 the invention, which apart from its chassis 2 is made completely of non-metal and primarily plastics materials, can be readily scanned and checked using conventional security apparatus without its contents having to be unloaded. It can also be stored by nesting with other similar containers. Finally in embodiments similar to that described above, it can provide a
15 secure, transportable storage area for goods that can be readily folded up when not in use or reassembled when required without having to be reassembled from a plurality of separate parts. This is a considerable advantage over demountable roll containers.

CLAIMS

1. A roll container comprising a nestable chassis with wheels or castors attached, first and second plastics side panels connected to the chassis, and a plastics base mounted such that in a first position it overlies the chassis and in a second position lies adjacent one of the side panels in order that the container can be nested with another container with a similar chassis when not in use.
2. A roll container as claimed in Claim 1, wherein the base is hingedly mounted to the chassis.
3. A roll container as claimed in Claim 1 or Claim 2, wherein the base is comprised of a plastics material.
4. A roll container as claimed in any of Claims 1 to 3, wherein the first and second side panels are parallel to one another and located on opposite sides of the roll container.
5. A roll container as claimed in any of Claims 1 to 4, comprising third and fourth plastics side panels that are moveable with respect to the first and second side panels and that each engage with one of the first and second side panels such that in a first position the four side panels together with the base form a box-like structure capable of holding goods and in a second position the third and fourth side panels lie adjacent at least one of the first and second side panels in order that the container can be nested.
6. A roll contained as claimed in Claim 5, wherein the third and fourth side panels are hingedly mounted respectively to the first and second side panels.

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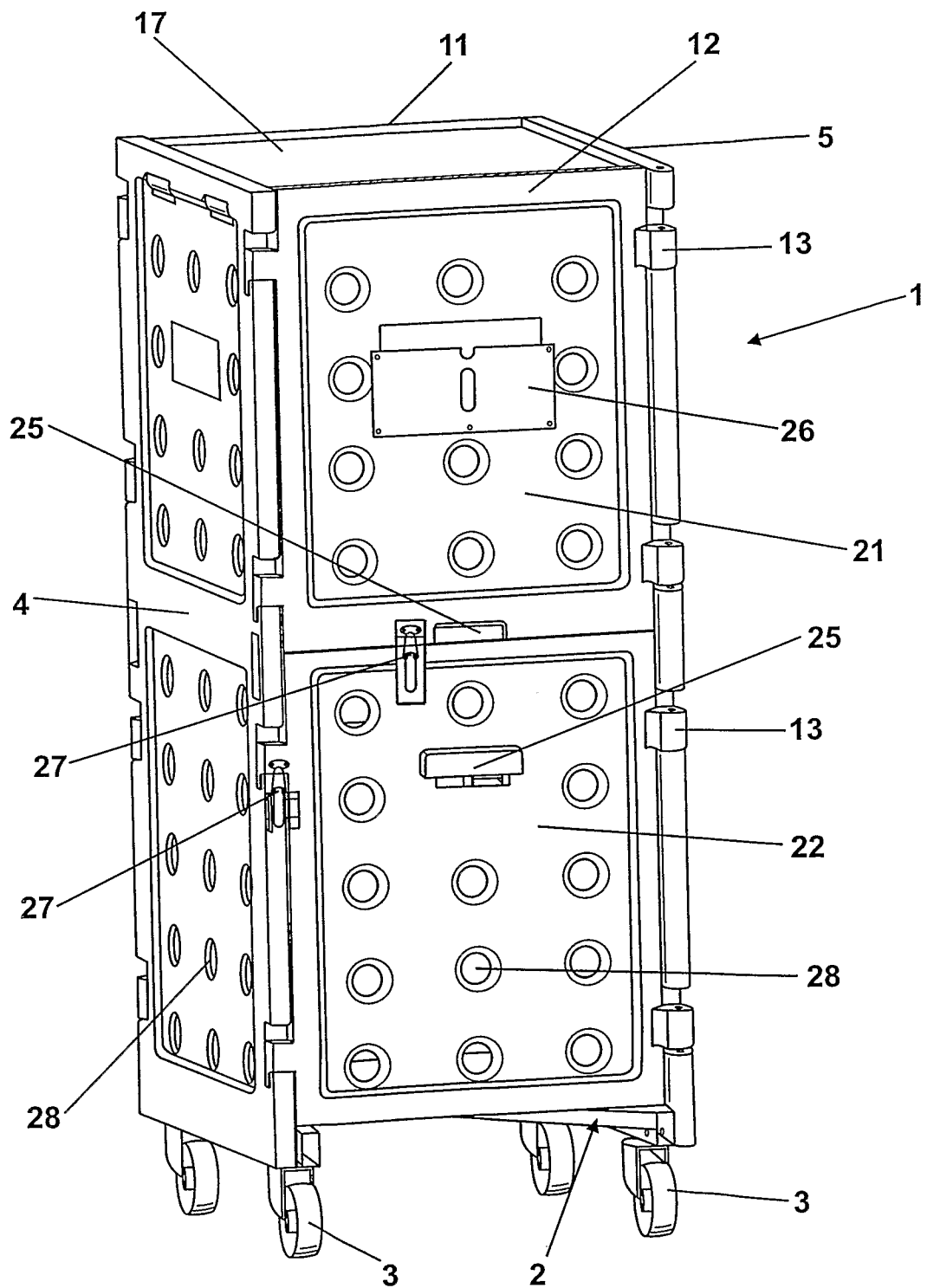
7. A roll container as claimed in Claim 5 or Claim 6, wherein the third side panel forms a first door which can be opened to provide access to the interior of the roll container.
- 5 8. A roll container as claimed as claimed in any of Claims 1 to 7, which is divided into two or more compartments by means of a shelf or shelves.
9. A roll container as claimed in Claim 8, wherein the shelf or shelves are
10 each removably located in two runners provided opposite one another in the first and second side panels.
10. A roll container as claimed in Claim 8 or Claim 9, wherein at least part of one of the side panels comprises a door which can be opened to
15 provide access to one or more of the compartments.
11. A roll contained as claimed in Claim 10, wherein the fourth side panel is divided into two parts which each form separate doors.
- 20 12. A roll container as claimed in any of Claims 5 to 11, wherein the third and fourth side panels are each securable to the first or second side panels opposite to that to which it is hinged by means of one or more lugs provided on the third and fourth panels that engage respectively in one or more apertures defined in the respective opposite side panel.
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13. A roll container as claimed in Claim 12, wherein the lugs are orientated vertically and the third and fourth side panels are movable vertically on their hinges so that the third and fourth panels can be raised to disconnect each lug from its aperture to enable the third and
30 fourth panels to be rotated about their hinges.
14. A roll container as claimed in any of Claims 1 to 13, comprising a plastics lid engageable with at least one side panel such that in a first

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position it its forms a lid for the roll container and in a second position lies adjacent one of the side panels in order that the container can be nested.

- 5 15. A roll container as claimed in Claim 14, wherein the lid is hingedly mounted to one of the side panels and is adapted to be releasably secured to another side panel in order that it can be retained in its first position.
- 10 16. A roll container as claimed in Claim 15, wherein the lid and the side panel to which it can be releasably secured comprise inter-engaging yet releasable complementarily shaped formations.

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*Fig. 1*

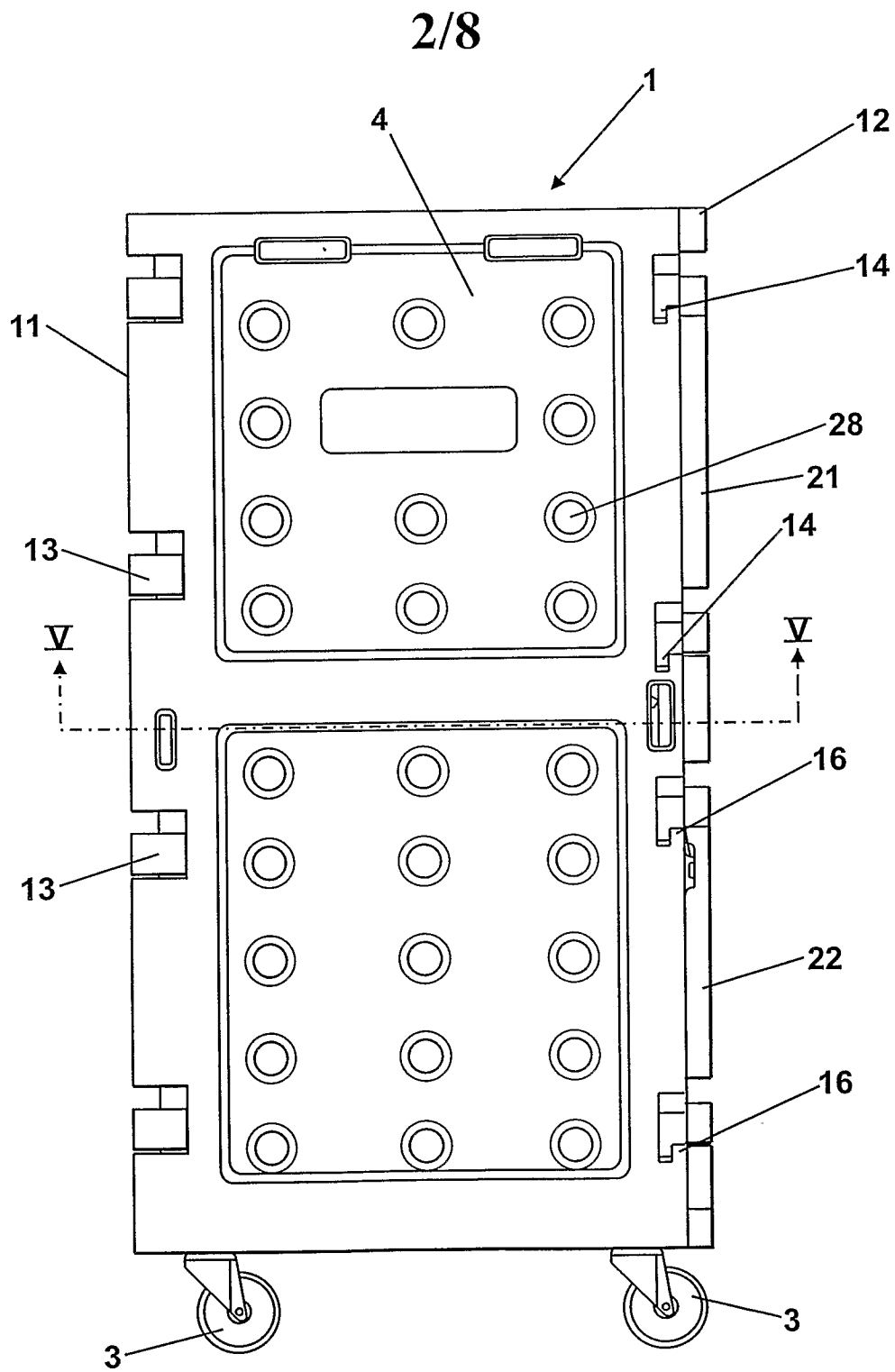


Fig. 2

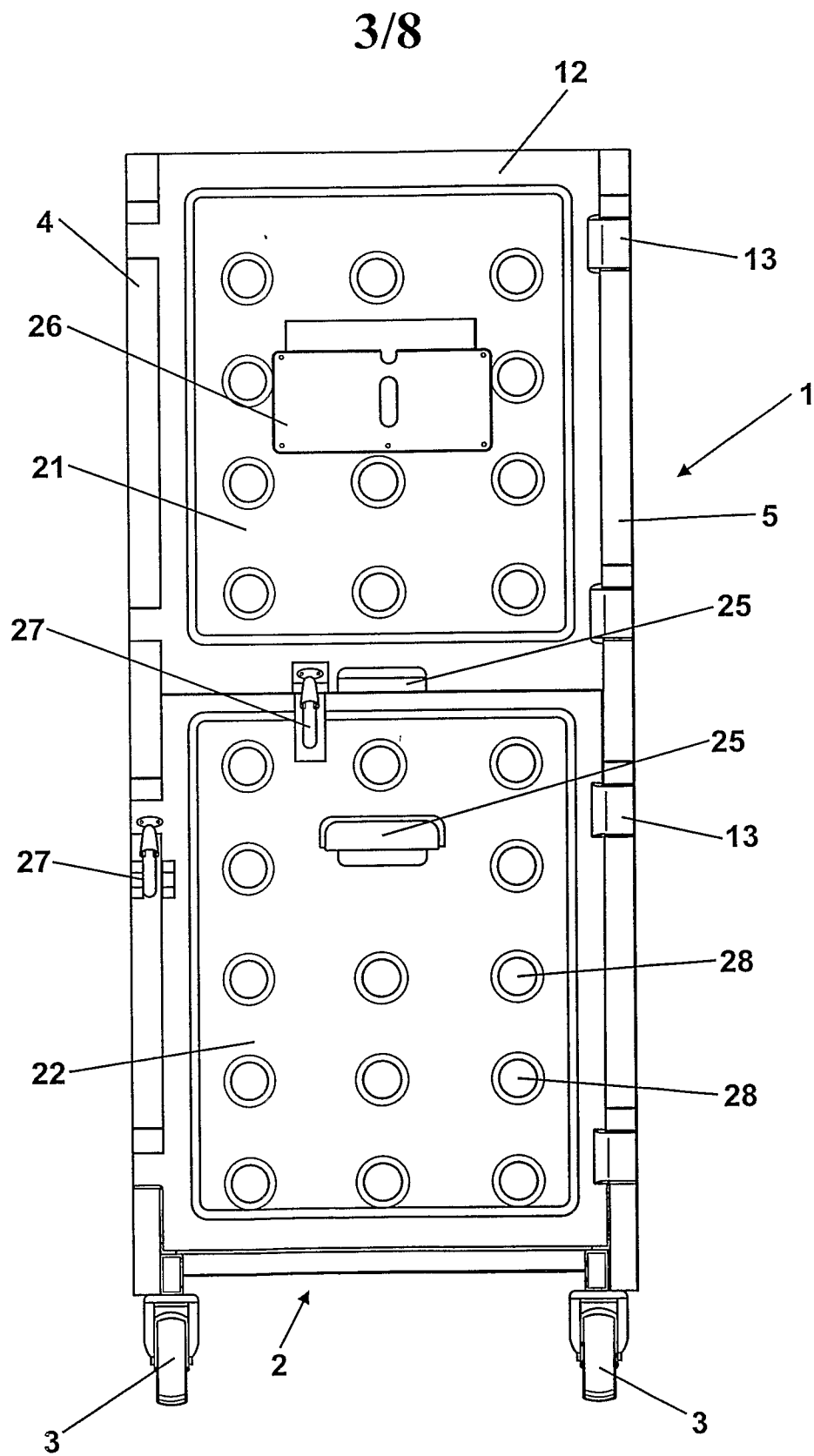


Fig. 3

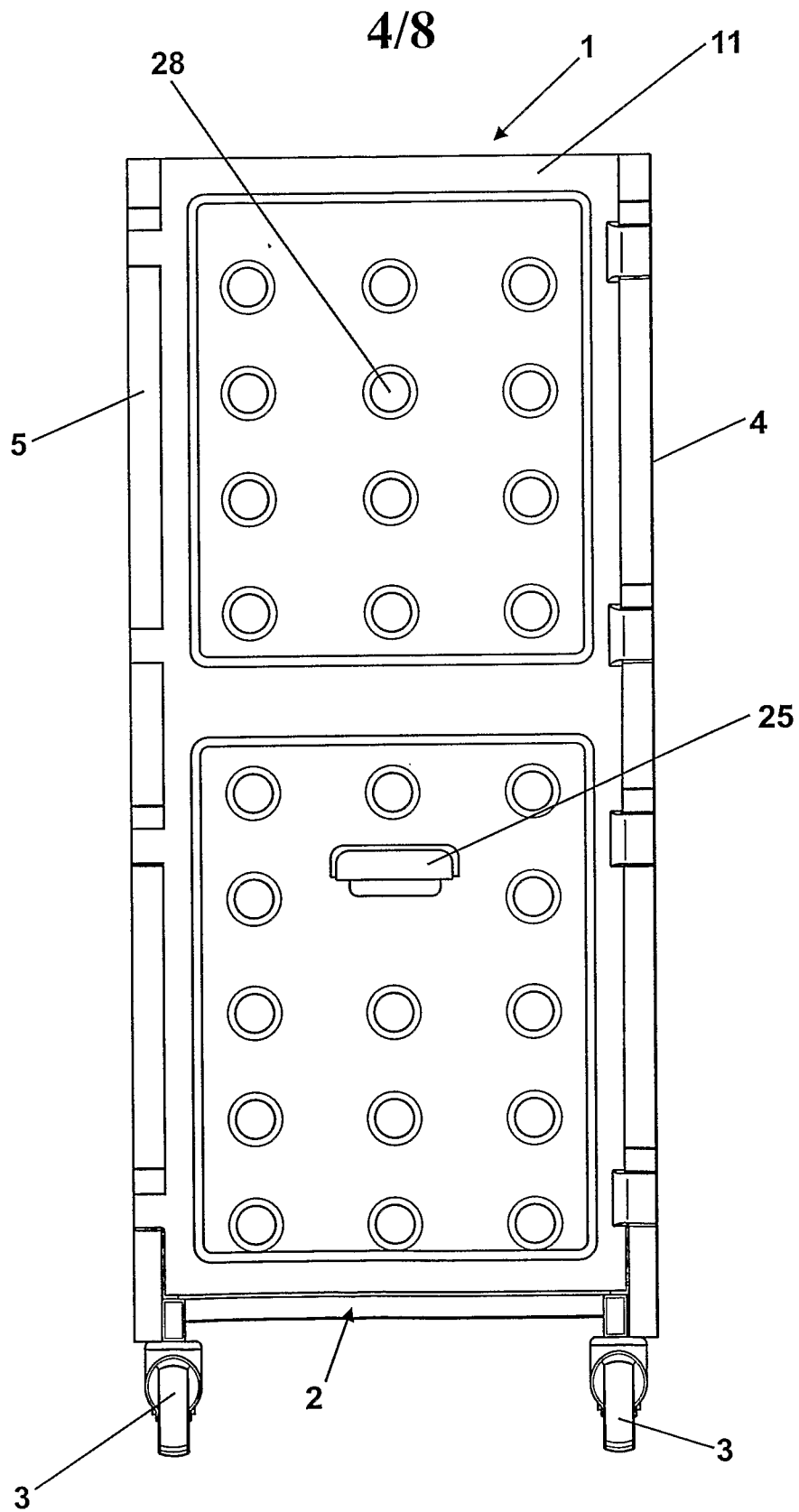


Fig. 4

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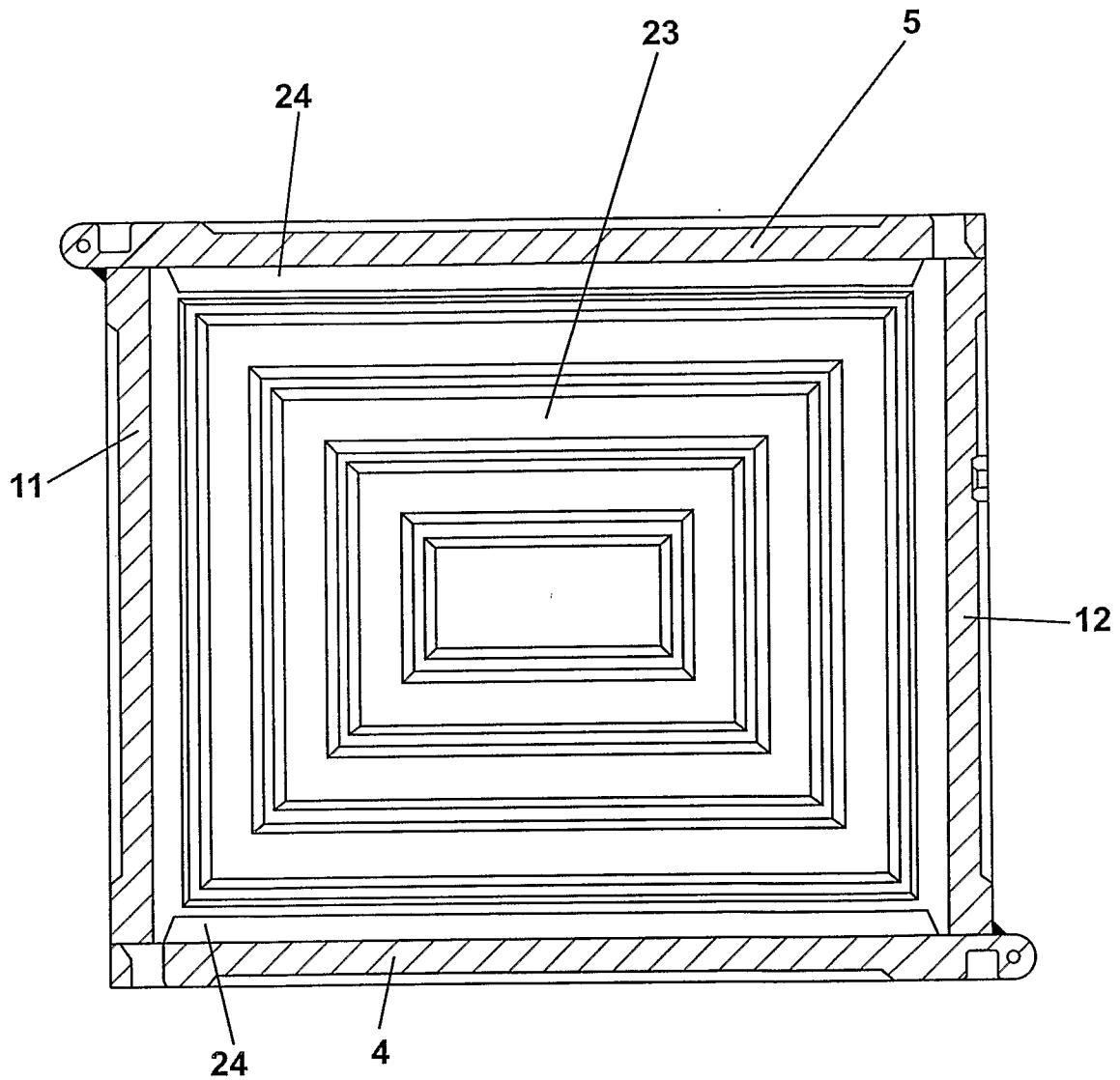
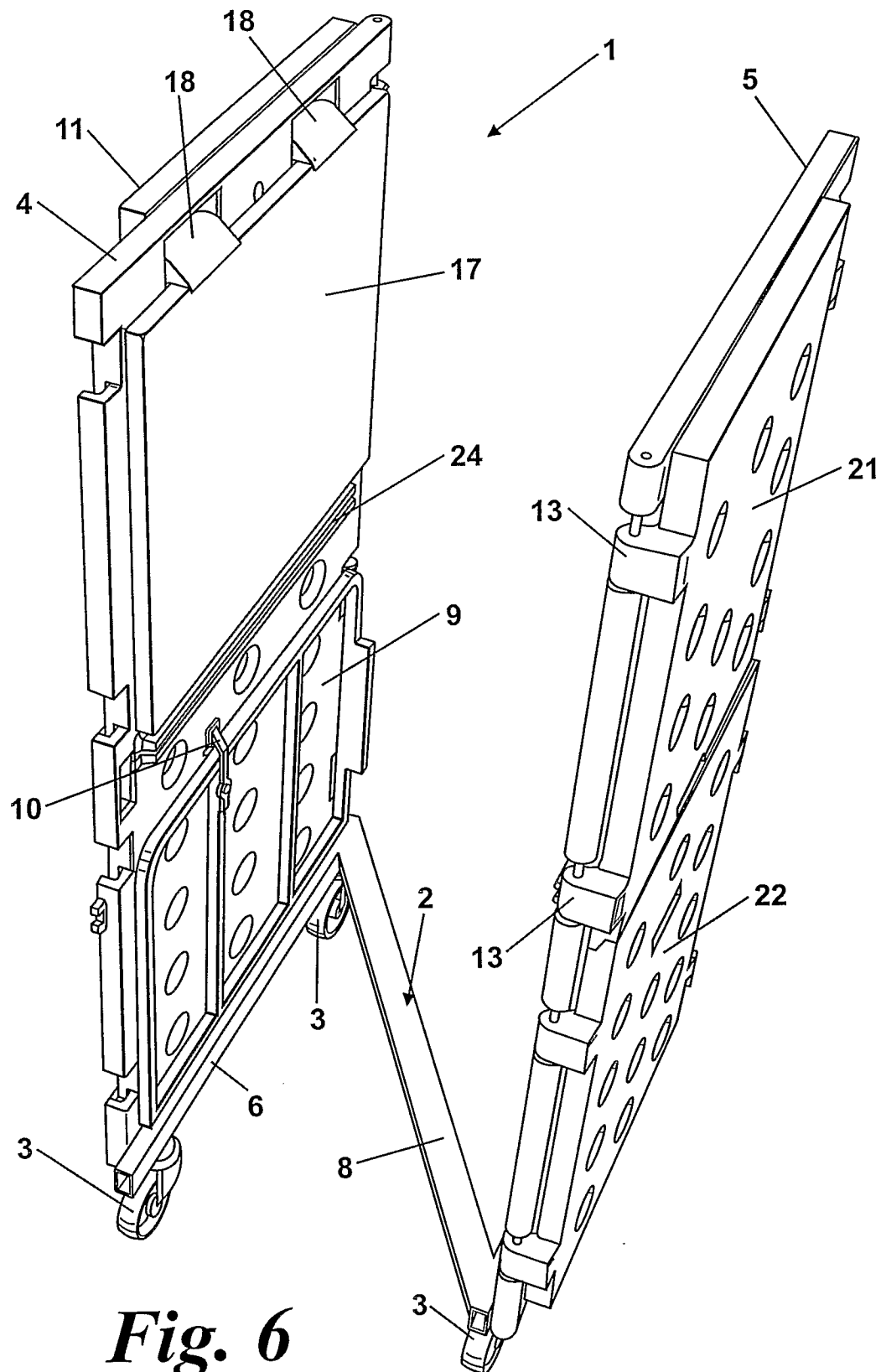


Fig. 5

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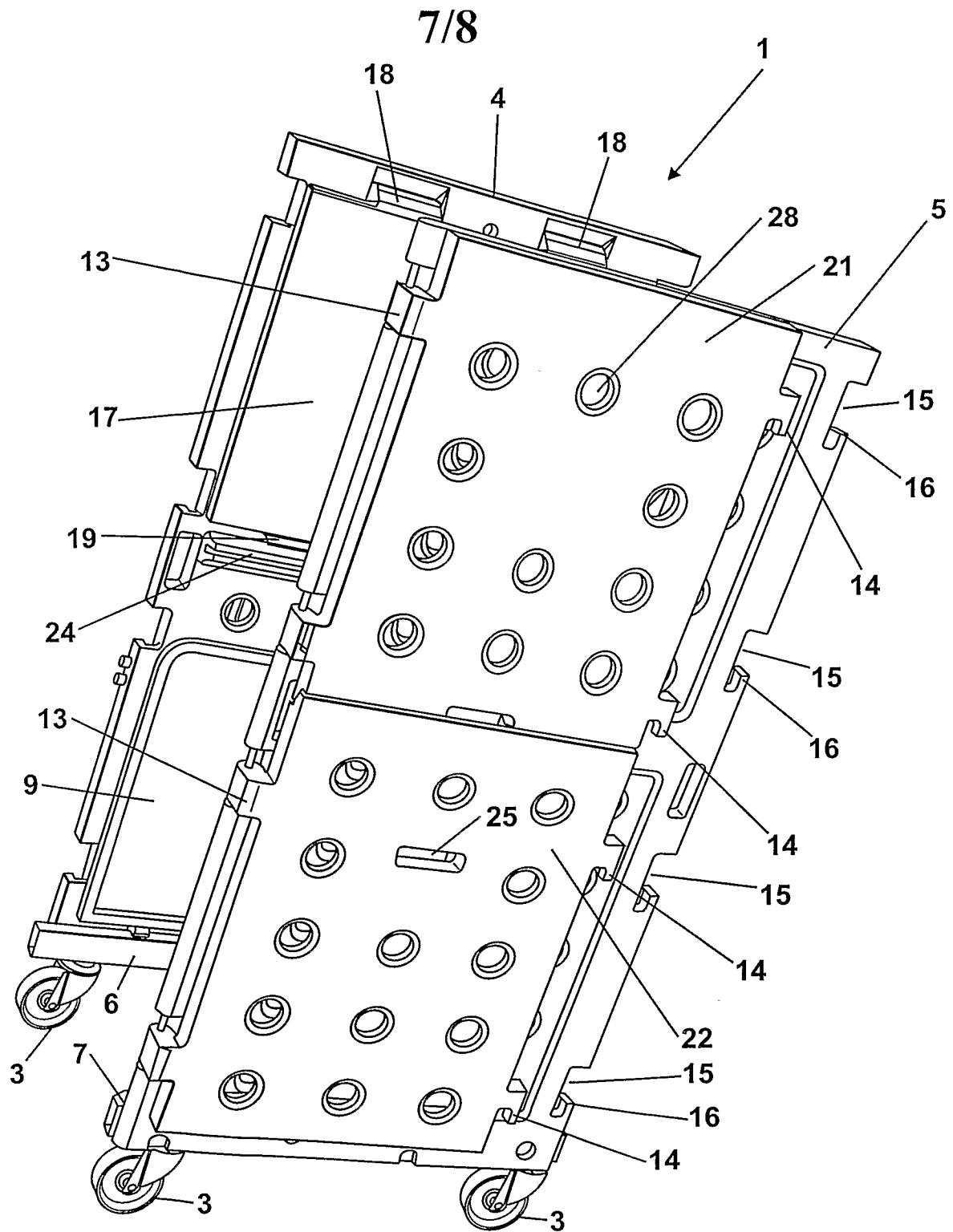
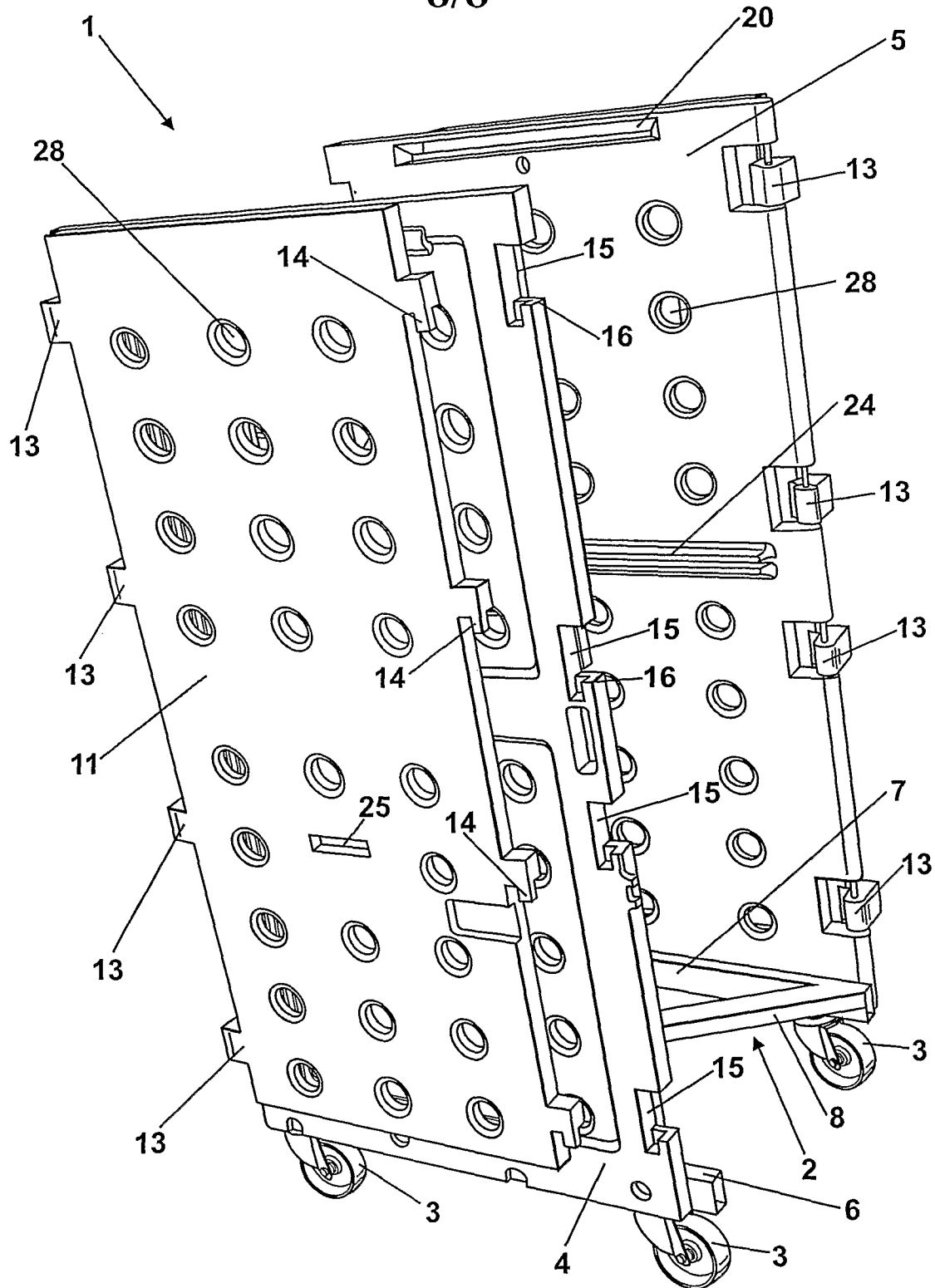


Fig. 7

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**Fig. 8**

INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2008/003809

A. CLASSIFICATION OF SUBJECT MATTER
INV. B62B3/00 B62B3/18

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
B62B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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Y	page 2, line 33 - page 4, line 12; figures 1-3	8-16
X	GB 2 421 479 A (LIMPAC MOULDINGS LTD [GB]; LIMPAC MATERIALS HANDLING LTD [GB]) 28 June 2006 (2006-06-28) abstract; figures 1-3	1-8, 10, 14
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☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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9 February 2009

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INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2008/003809

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/GB2008/003809

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