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(54) **Stacking or nesting tray**

Aufeinander oder ineinander stapelbare Schale

Plateau d'empilage ou d'emboîtement

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GB-A- 1 148 535**

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Description

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention relates to a tray used for loading with a product. More particularly the present invention relates to a tray having legs that enable a number of trays to be stacked on top of each other.

2. Description of Related Art

[0002] Conventional trays that are typically made from wood, metal or plastic and can only be placed on top of each other in a stacked formation. The trays cannot usually be stored in a more space efficient manner and thus, when the trays are stored they take up large amounts of space leading to high transportation and storage costs.

[0003] There is a need for a tray that can be stacked on top of another tray when needed, i.e. when holding products, but which is also able to be stored in a more space efficient manner when not being used.

[0004] EP-A-0 726 206 describes an article for handling products comprising a base, a plurality of hollow legs arranged so as to allow nesting of a second tray. The apertures of the hollow legs are associated with a plurality of covers that are rotatable about an axis parallel to the base to cover the apertures.

[0005] DE 44 38 983 describes a container comprising a slidable element which can be arranged in a first position, in which the container is nestable, and a second position, in which the container is stackable.

SUMMARY OF THE INVENTION

[0006] The present invention has been made with the aim of solving the above problems.

[0007] In accordance with the invention, there is provided a tray as defined in the claims.

[0008] Preferred embodiments of the invention will now be described, by way of example only, with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009]

Figure 1 is a perspective view of a tray in accordance with a preferred embodiment of the invention.

Figure 2 is a perspective view of a number of trays stacked on top of one another in accordance with the preferred embodiment.

Figure 3 is a perspective view of the tray of the preferred embodiment with its tabs pushed inwards.

Figure 4 is a perspective view of a number of the trays stored in a nested fashion in accordance with the preferred embodiment.

Figures 5A and 5B are cross sectional views of the hollow legs in accordance with the preferred embodiment.

Figures 6A to 6C are perspective views of the underside of the tray in accordance with the preferred embodiment.

Figure 7 is a plan view of the underside of the tray showing the arrangement of a movable cover, tabs and apertures in accordance with the preferred embodiment.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0010] The embodiments described below are in relation to a typical arrangement for a nested tray, although it will be appreciated that other embodiments will fall within the scope of the appended claims.

[0011] Figure 1 shows a tray **1** that includes a deck **2** and a plurality of legs **10** attached thereto that project to one side of the deck **2**. The legs **10** are preferably tapered and are placed at the corners of the deck **2**. Although not shown, the legs are hollow. The tray **1** is typically made from a plastics material, although it may be made from any other suitable material, such as metal. The deck **1** and legs **10**, if made from a plastics material, may be formed by injection moulding. Alternatively, the deck **2** and legs **10** may be separately formed and the legs **10** affixed to the deck **2**. Although the tray **1** is shown having four legs **10**, the number of legs is not limited to this; there may typically be three or more legs. The tray **1** also includes at least one moveable tab **15**. The number of tabs **15** is shown as two, but it should be understood that it is not limited to this number, there may be one or more tabs, although there will usually be no more tabs than the number of legs. The tabs **15** are operable to move from a first, outer position, to a second, inner position. Changing the position of the tabs **15** allows the trays to either be stacked on top of each other or stored in a space saving manner. The operation of the tabs **15** will be described in more detail below.

[0012] Figure 2 shows the first tray **1** stacked on top of a second tray **1a** when the tabs **15** are in the first position. With reference to Fig. 6A, the deck **2** has a plurality of apertures **20** in its underside, one for each leg, and when the tabs **15** are in the first position, slideable covers **25** close the apertures. This allows the trays to be stacked on top of each other. Preferably the slideable cover **25** is indented from the underside surface of the deck **2** and forms an indentation in which the ends of the legs **10** may be accommodated. Such an arrangement allows the trays to be stacked more securely.

[0013] Figure 3 shows the first tray **1** with the tabs **15** in the second position. By pushing the tabs **15** in to their second position, the slideable covers **25** are moved so as to reveal the apertures **20** in the deck **2** (see Fig. 6C). The apertures **20** are arranged and positioned in the deck to correspond to the inside of the hollow legs **10**.

[0014] As shown in Figure 4, by moving the tabs 15 to their second position, thus opening the apertures 20 in the deck 2, the legs of a second tray 1a are able to be partly inserted into the inside of the legs of the first tray 1. Any number of trays can be nested and stored in this manner, as shown by a third tray 1b, the legs of which are partly accommodated by the legs of the second tray 1a.

[0015] Figure 5a shows in cross section the first tray 1 stacked on top of the second tray 1a. The tab 15 of the first tray 1 is in the first position so that the end of the leg 10 of the second tray 1a rests on the slideable cover 25 closing the aperture 20 in the deck 2 of the first tray 1. Figure 5b shows the situation when the tab 15 of the first tray 1 is in the second position and the leg of the second tray 1a is partly inserted into the inside of the leg 10 of the first tray 1.

[0016] Figure 6A shows a view of the underside of the tray 1, showing the aperture 20 in the deck 2 and the slideable cover 25 that closes the aperture 20 when the tab 15 is in the first position. As can be seen in Figure 6a the cover 25 is slightly below the underside surface of the deck 2 providing a small recess in which the end of a leg 10 of another tray may be located. However, it is not necessary for the cover 25 and aperture 20 to form a recess; the cover 25 may instead be flush with the surface of the deck 2.

[0017] Figure 6B is a similar view to figure 6A but shows the position of the cover 25 when the tab 15 is partly between the first and second position.

[0018] Figure 6C shows the exposed aperture 20 in the deck 2 with the cover 25 fully drawn back when the tab 15 is moved to the second position. By moving the cover 25 and exposing the aperture 20 the hollow inside of the leg 10 can be accessed. Figures 6B and 6C show that the covers 25 slide linearly so as to move in a plane parallel to the deck 2.

[0019] Figure 7 shows the underside of the deck 2 in plan view. The tab 15 is shown partly between the first position and the second position. As can be seen the slideable cover 25 has exposed part of the aperture 20 in the deck 2.

[0020] The embodiments described above provide the advantage that by allowing the legs of one tray to be partly accommodated inside the legs of another tray, the trays may be stacked in a nested fashion. In the nested fashion the space required for storage is greatly reduced. For example the space required for four trays stacked in a nested manner may be less than the space required for two trays in an un-nested stack. The space saving may be 30% and possibly 50% or more.

[0021] In addition because the tabs 15 may be pushed in it is easy to operate the opening of the apertures 20 in the deck 2 to allow nesting. It is also possible that only one tab 15 is provided that opens and closes all the apertures in the deck allowing easy operation and allowing the nesting operation to be carried out efficiently and quickly.

[0022] Although the present invention has been described in terms of preferred embodiments, it will be appreciable that various modifications and alterations might be made by those skilled in the art without departing from the scope of the invention. The invention should therefore be measured in terms of the claims which follow.

Claims

1. A tray (1) comprising
 - a deck (2),
 - a plurality of legs (10) projecting to one side of the deck (2),
 - a plurality of apertures (20) formed in the other side of the deck (2) and being arranged to allow passage of the legs of a second tray (1a, 1b) so that said trays may be stacked in a nested fashion, and
 - a plurality of movable covers (25) associated with the plurality of apertures (20), said covers being movable to selectively cover or open the plurality of apertures (20), **characterised in that** the covers (25) are slideable to selectively cover or open the plurality of apertures (20), the tray further comprising at least one tab (15) connected to the plurality of slideable covers (25), the at least one tab (15) being selectively movable from a first position to a second position, wherein in the first position of the at least one tab (15) the plurality of slideable covers (25) cover the plurality of apertures (20) and wherein in the second position of the at least one tab (15) the plurality of movable covers (25) do not cover the plurality of apertures (20).
2. A tray (1) according to claim 1, wherein the plurality of legs (10) are hollow to allow insertion of the legs of the second tray.
3. A tray (1) according to any preceding claim, wherein the plurality of legs (10) are tapered.
4. A tray according to any preceding claim, wherein the plurality of movable covers (25) and the deck (2) are arranged such that when the plurality of covers (25) cover the plurality of apertures (20) recesses are formed between the surface on said other side of the deck (2) and the plurality of moveable covers (25) to accept the ends of the plurality of legs of the second tray to allow un-nested stacking.
5. A tray according to any of claims 1 to 3, wherein the plurality of movable covers (25) and the deck (2) are constructed and arranged such that when the plurality of covers (25) cover the plurality of apertures (20) the plurality of covers (25) are flush with the surface on said other side of the deck (2) to allow un-nested stacking.

6. A tray according to any preceding claim, wherein the deck (2) and the plurality of legs (10) are formed by injection moulding.

Patentansprüche

1. Schale (1), umfassend eine Platte (2), mehrere Beine (10), die zu einer Seite der Platte (2) vorstehen, mehrere Öffnungen (20), die in der anderen Seite der Platte (2) ausgebildet sind und derart zum Ermöglichen des Durchgangs der Beine einer zweiten Schale (1a, 1b) angeordnet sind, dass die Schalen ineinander stapelbar sind, und mehrere bewegliche Abdeckungen (25), die den mehreren Öffnungen (20) zugeordnet sind, wobei die Abdeckungen zum selektiven Abdecken oder Öffnen der mehreren Öffnungen (20) beweglich sind, **dadurch gekennzeichnet, dass** die Abdeckungen (25) zum selektiven Abdecken oder Öffnen der mehreren Öffnungen (20) verschiebbar sind, die Schale ferner umfassend zumindest eine Zunge (15), die mit den mehreren verschiebbaren Abdeckungen (25) verbunden ist, wobei die zumindest eine Zunge (15) selektiv aus einer ersten Position in eine zweite Position beweglich ist, wobei in der ersten Position der zumindest eine Zunge (15) die mehreren verschiebbaren Abdeckungen (25) die mehreren Öffnungen (20) abdecken, und wobei in der zweiten Position der zumindest eine Zunge (15) die mehreren beweglichen Abdeckungen (25) die mehreren Öffnungen (20) nicht abdecken.
2. Schale (1) nach Anspruch 1, wobei die mehreren Beine (10) zum Ermöglichen der Einfügung der Beine der zweiten Schale hohl sind.
3. Schale (1) nach einem der vorhergehenden Ansprüche, wobei die mehreren Beine (10) konisch zulau-
fen.
4. Schale (1) nach einem der vorhergehenden Ansprüche, wobei die mehreren beweglichen Abdeckungen (25) und die Platte (2) derart angeordnet sind, dass, wenn die mehreren Abdeckungen (25) die mehreren Öffnungen (20) abdecken, Aussparungen zwischen der Oberfläche auf der anderen Seite der Platte (2) und den mehreren beweglichen Abdeckungen (25) zum Annehmen der Enden der mehreren Beine der zweiten Schale zum Ermöglichen des nicht Ineinanderstapelns ausgebildet sind.
5. Schale nach einem der Ansprüche 1 bis 3, wobei die mehreren beweglichen Abdeckungen (25) und die Platte (2) derart gebaut und angeordnet sind, dass,

wenn die mehreren Abdeckungen (25) die mehreren Öffnungen (20) abdecken, die mehreren Abdeckungen (25) zum Ermöglichen des nicht Ineinanderstapelns mit der Oberfläche auf der anderen Seite der Platte (2) bündig sind.

6. Schale nach einem der vorhergehenden Ansprüche, wobei die Platte (2) und die mehreren Beine (10) durch Spritzgießen ausgebildet sind.

Revendications

1. Plateau (1) comprenant :
une surface plane (2),
une pluralité de jambes (10) faisant saillie sur un côté de la surface plane (2),
une pluralité d'ouvertures (20) formées dans l'autre côté de la surface plane (2) et agencées pour permettre le passage des jambes d'un second plateau (1a, 1b) de façon à ce que lesdits plateaux puissent être empilés selon un procédé d'emboîtement, et
une pluralité de couvercles mobiles (25) associée à la pluralité des ouvertures (20), lesdits couvercles étant mobiles afin de couvrir ou d'ouvrir, de façon sélective, la pluralité des ouvertures (20), **caractérisé en ce que** les couvercles (25) peuvent coulisser pour couvrir ou ouvrir, de façon sélective, la pluralité des ouvertures (20), le plateau comprenant, de plus, au moins une patte (15) raccordée à la pluralité de couvercles coulissants (25), la, au moins une, patte(15) pouvant se déplacer, de façon sélective, d'une première position jusqu'à une seconde position, dans lequel dans la première position de la, au moins une, patte (15), la pluralité de couvercles coulissants (25) couvre la pluralité des ouvertures (20) et dans lequel, dans la seconde position de la, au moins une, patte (15), la pluralité des couvercles mobiles (25) ne couvre pas la pluralité des ouvertures (20).
2. Plateau (1) selon la revendication 1, dans lequel la pluralité de jambes (10) est creuse afin de permettre l'insertion des jambes du second plateau.
3. Plateau selon l'une quelconque des revendications précédentes, dans lequel la pluralité de jambes (10) est de forme conique.
4. Plateau selon l'une quelconque des revendications précédentes, dans lequel la pluralité des couvercles mobiles (25) et la surface plane (2) sont agencées de telle sorte que, lorsque la pluralité de couvercles (25) couvre la pluralité des ouvertures (20), des évidements sont formés entre la surface sur ledit autre

côté de la surface plane (2) et la pluralité des couvercles mobiles (25) afin de recevoir les extrémités de la pluralité de jambes du second plateau pour permettre un empilement sans emboîtement.

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5. Plateau selon l'une quelconque des revendications 1 à 3, dans lequel la pluralité de couvercles mobiles (25) et la surface plane (2) sont construites et agencées de telle sorte que, lorsque la pluralité des couvercles (25) couvre la pluralité des ouvertures (20), la pluralité des couvercles (25) se trouve de niveau avec la surface sur ledit autre côté de la surface plane (2) afin de permettre un empilement sans emboîtement.

10

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6. Plateau selon l'une quelconque des revendications précédentes, dans lequel la surface plane (2) et la pluralité de jambes (10) sont formées par moulage par injection.

20

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FIG. 1

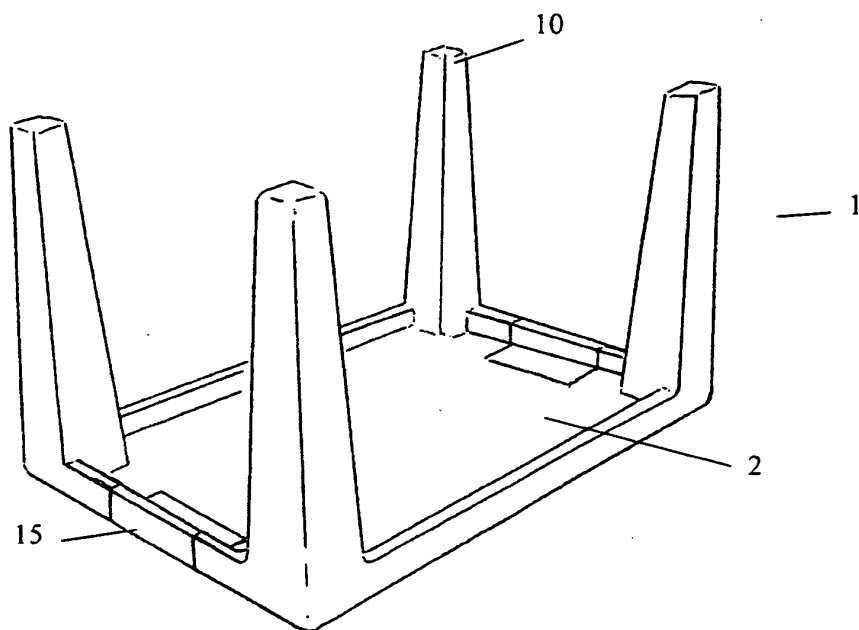


FIG. 2

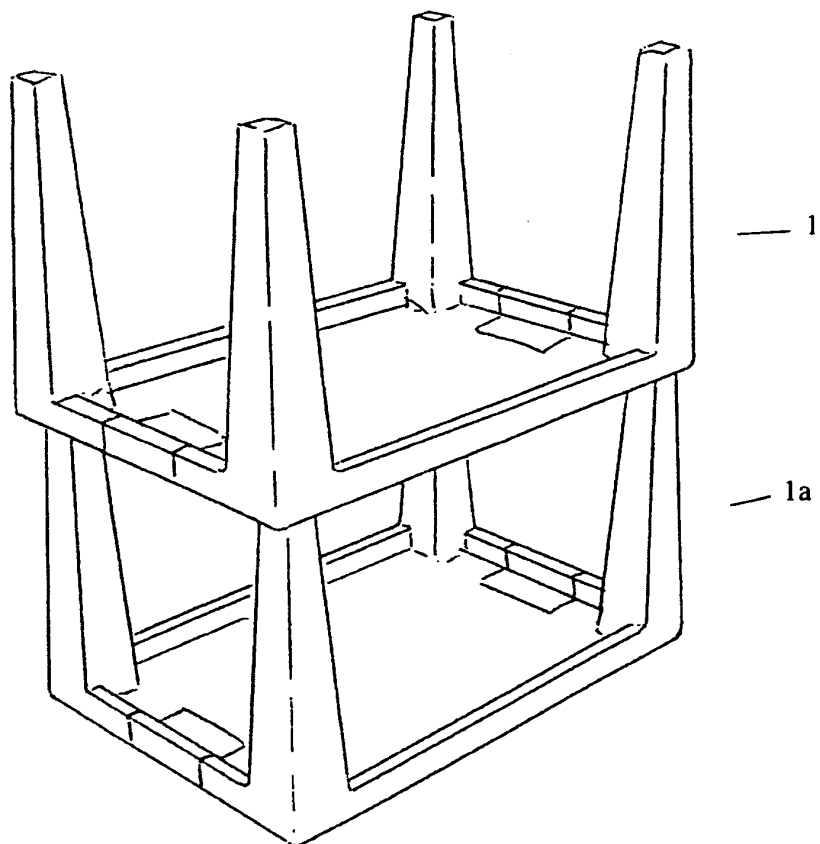


FIG. 3

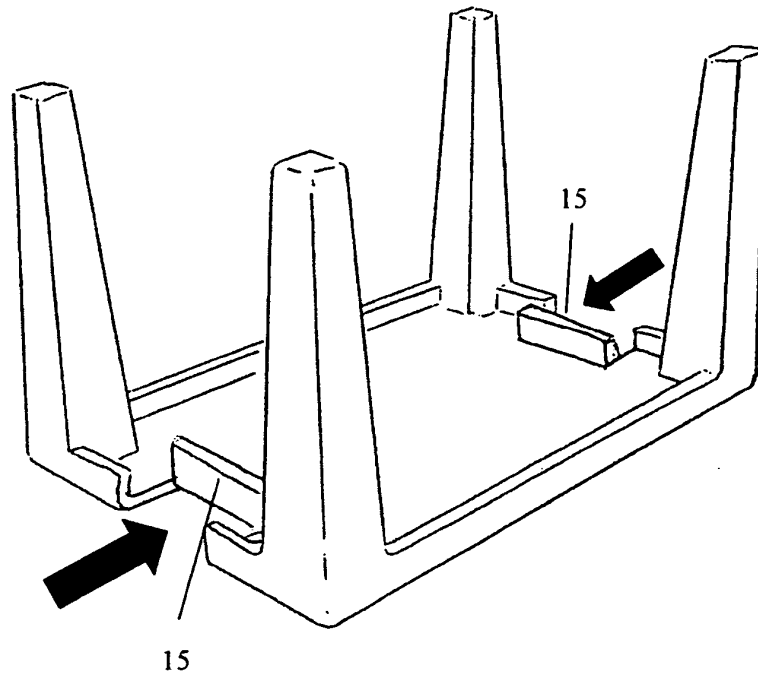


FIG. 4

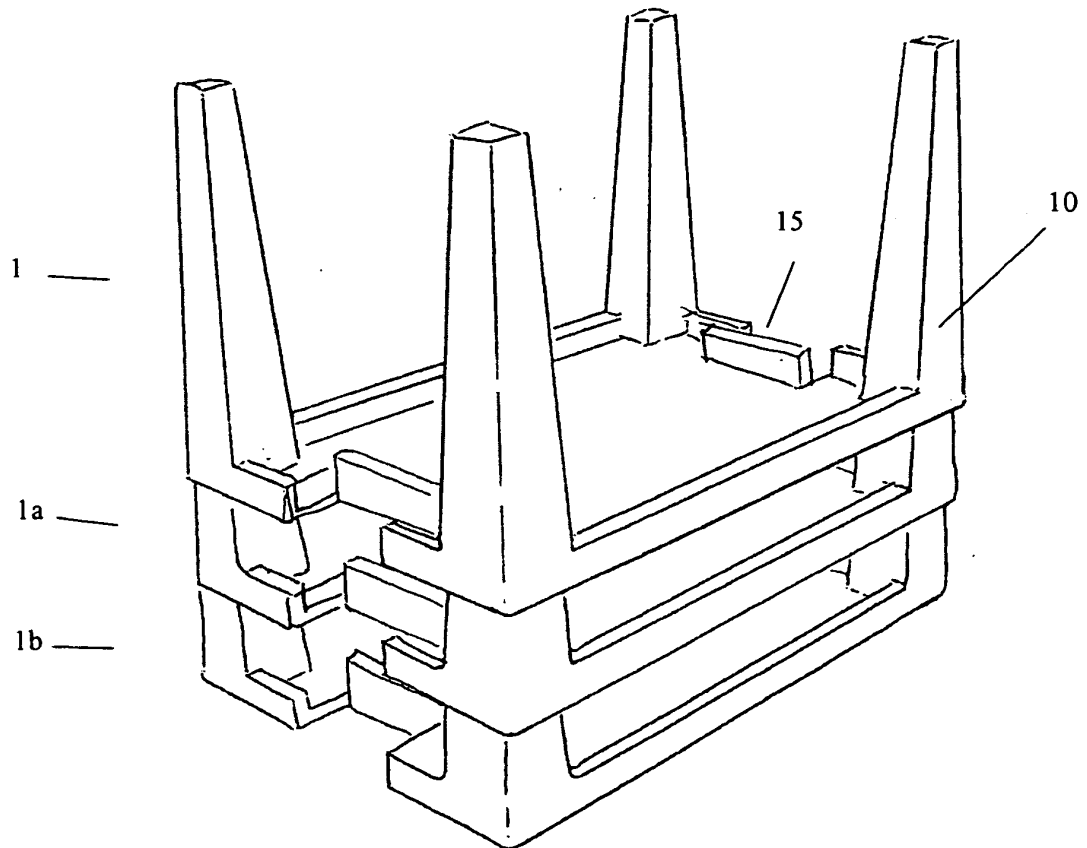


FIG. 5A

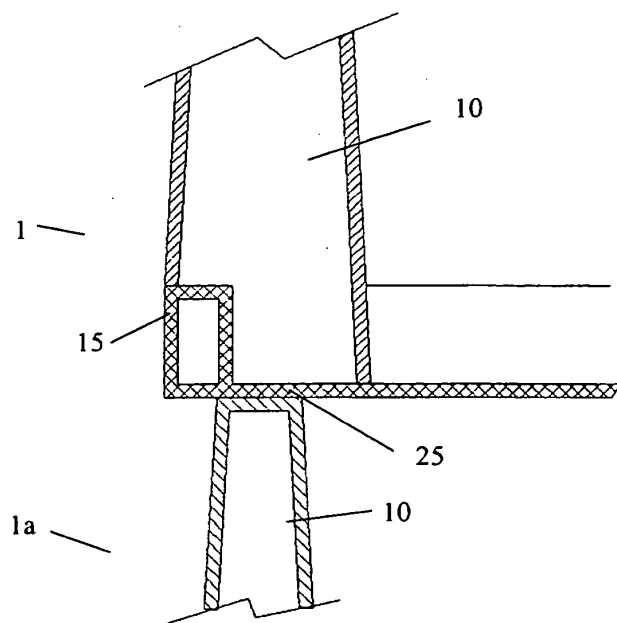


FIG. 5B

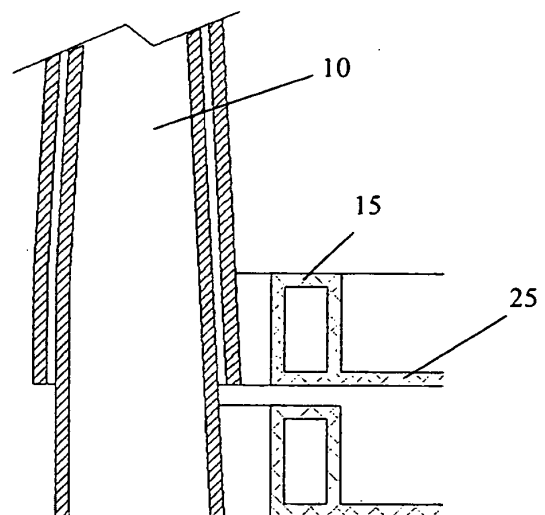


FIG. 6A

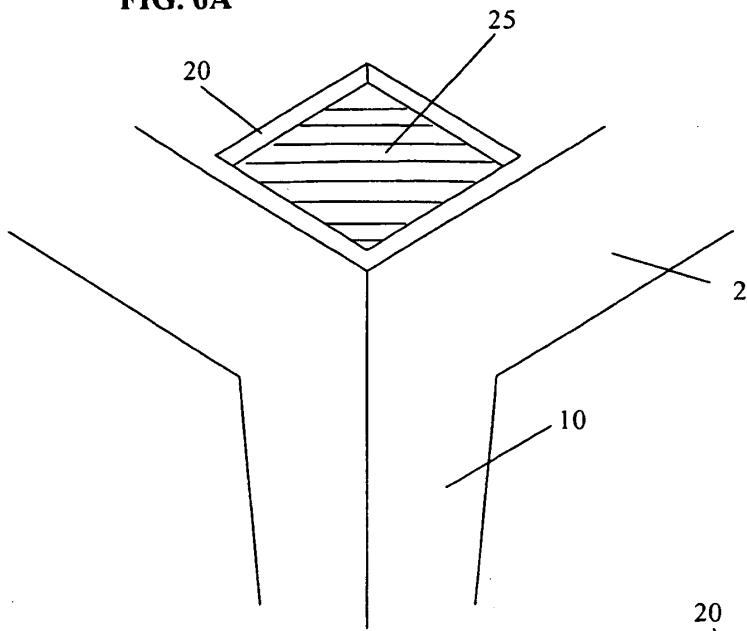


FIG. 6B

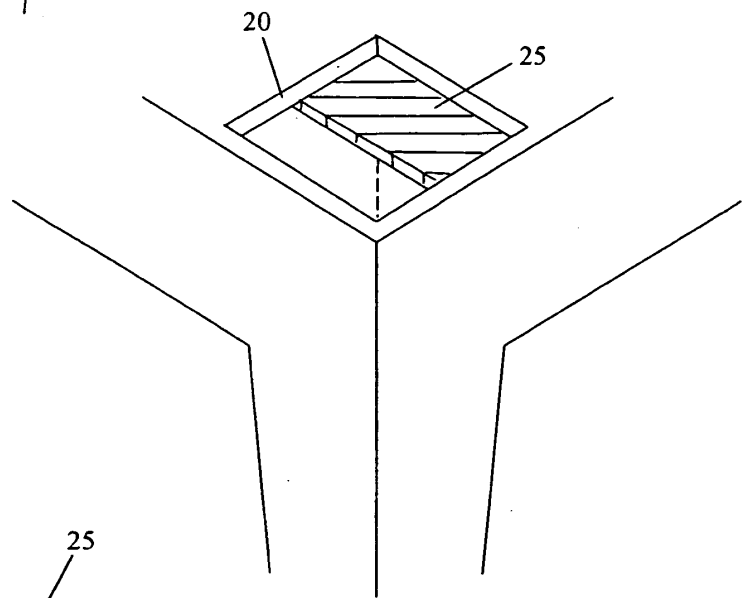
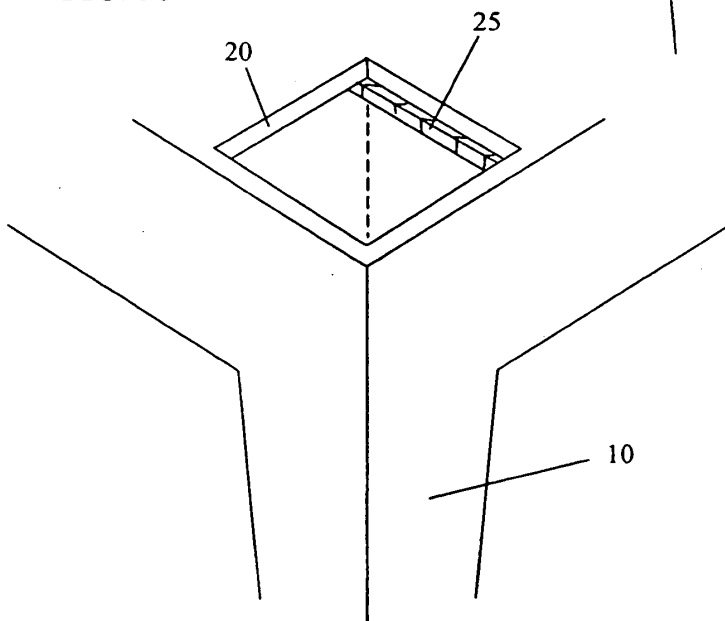
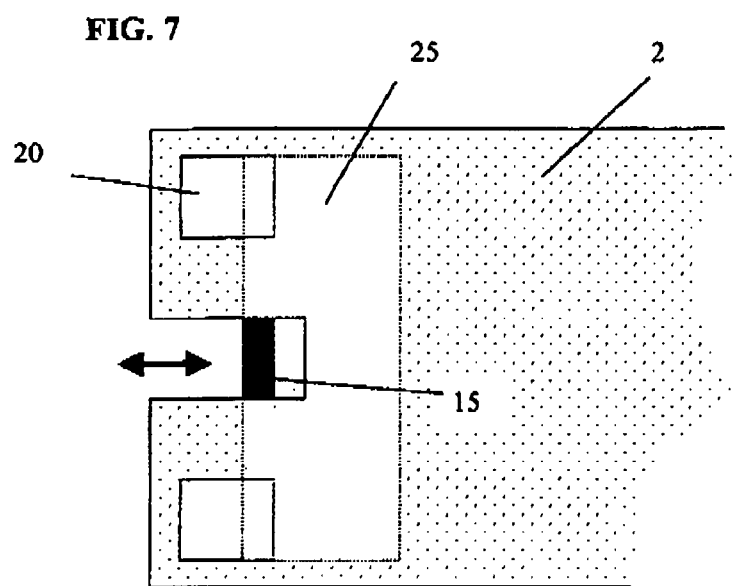


FIG. 6C





REFERENCES CITED IN THE DESCRIPTION

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