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(54) Improvements introduced in foldable packages

(57) This folding packing-box, applicable to the transport of goods, is provided with a base (1) on which side panels (5, 6, 11 and 12), capable of being folded, are hinged, and an upper lid (16). The side panels (11 and 12) are provided in the vertical edges with profiles (13 or 13a) that serve as a limit for the other two panels (5 and 6), once unfolded. The panels (5 and 6) stand in vertical position owing to the action of interlocking mechanisms (14), or clips (21 or 29) acting on the sides (11 and 12) or the contours (13 or 13a). The lid (16) is coupled to the box by means of the contours (18, 18a o 18b) fastened on the periphery thereof.

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Description

OBJECT OF INVENTION

[0001] The present invention is related, as indicated in the title, to a folding packing-box for the storage and transport of goods and machinery, that is shaped in a parallelopipedic form defined by a series of vertical hinged panels, a lower base, and an upper lid. This box shows a means devised to lock the sides in the unfolded position and a means devised to allow the coupling of the lid on the packing.

BACKGROUND OF THE INVENTION

[0002] The boxes to be used for the packing and transport of goods or machinery are traditionally formed by joining wooden planks with staples or nails, in such a way to define a configuration usually prismatic. When they are intended to contain heavy burdens, they are laid on a platform the kind of a pallet, in order to make easier the hold and transport by means of a lift truck

[0003] The use of this kind of boxes is expensive, because when they are opened usually their components are broken in part, thus preventing the re-using of the boxes.

DESCRIPTION OF THE INVENTION

[0004] The dismountable packing-box proposed with the invention, has been devised and structured in order to solve this problem as it shows a series of construction peculiarities leading to solve the aforementioned problems.

[0005] The said dismountable packing-box shows, as already mentioned, a parallelopipedic shape and consists of a base or lower part, four hinged side panels, two internal panels and two external panels, that is, the vertical edges of the internal ones are arranged in such a form that they lean on the endings of the internal surfaces of the other two panels, and an upper lid.

[0006] One of the main features of the folding packing-box is that the sides are hinged towards the inside of the receptacle by means of hinges or the like, in such a way that the faced internal sides may show the bound in height where the hinges are arranged in the same horizontal plane in the event that the sum of the heights is shorter than the length of the base, and in the opposite case, the plane of one of them will be higher depending of the thickness of the sides, achieving this way that once the sides are folded these show an horizontal plane and parallel with regard to the base.

[0007] The other two external sides show as well the same features that the other sides, being different with regard to them in that the position of the hinge is placed on a slightly upper plane, gaining the thickness of the aforementioned so that once folded towards the inside of the receptacle they are also placed on an horizontal plane over the other two sides.

[0008] Another construction feature of this folding packing-box is that, in order to set the four sides in vertical position, the aforesaid external vertical panels are provided, in their vertical edges, with two contours, preferably of metal and L-shaped, the sides of which are amply thicker than the thickness of the panels, in such a way that when they are in vertical position they may serve as a limit for the internal panels. The said contours can be flat or show cross folds defining in the external surface thereof a series of swellings or protuberances equally distanced, thus increasing their strength to strain.

[0009] The internal panels are provided in their higher part with a mechanism for automatic interlocking, that is fastened when reaching the vertical position to a slit opened to this effect in the external panels or else in the corner contours of the external sides.

[0010] The means devised to secure the side panels in an unfolded position may be composed by elements arising perpendicularly from the internal sides and that are placed properly to be introduced by pressure into holes made on the corner contours of the external sides.

[0011] Said elements can be formed by pressure clips capable to be elastically deformed in order to facilitate their introduction in or extraction from the holes defined in the corner contours.

[0012] Optionally, the clip can be formed from a flat board, and show a frontal loop, the ends of which are extended respectively to an anchorage leg with an ending fold, and to a frontal section obliquely folded towards a rear area in order to form a second anchorage leg, which finished up in an ending fold faced and coplanar to that of the other leg.

[0013] In order to mount these clips on the internal sides of the box, they are to be provided with couples of grooves in which the anchorage legs of the respective clips are introduced, in such a way that the frontal loop remains in a projected position with regard to the external surface of the internal side, the frontal section remains leaning on said surface and the anchorage legs clamp the part of material between both grooves, thus exerting side pressure thereon.

[0014] The oblique leg of the clip, further to secure the mounting of the corresponding panel, allows elastic deformation of the loop when this is introduced in the hole of the corresponding contours, since the frontal section of the clip can be moved sideways owing to the play existing between the base of said leg and the part of material clamped by the clip.

[0015] Optionally, clips can be accompanied by accessory bolts intended to be introduced in part into the frontal loops, thus preventing the loops to be disengaged by chance from the holes defined in the contours associated to the external sides.

[0016] The upper lid of the whole is provided, at least in the corners, with L-shaped contours, the sides of which are projected in their vertical arrangement long

enough as to fasten the four sides.

[0017] The perimetric contour of the lid can show configurations devised to receive in the inside thereof projecting elements attached to the sides of the box or else to some of the swellings defined by the corner contours of the external panels, in the event that they are provided with them.

[0018] The upper lid in its lower surface can show limits separated from the side contours a length that is equal to the thickness of the panels, fixing the latter in order not to give way if an eventual accidental bump happens.

[0019] These projecting elements will be defined in the closeness of the upper end of some or all the sides, serving as a coupling for the lid in the unfolded position of the packing, and on the sides of the base or the lower strips to which the sides are hinged, these serving for the coupling of the lid in the folded position of the packing.

[0020] Perhaps, the most important feature apart from the possible indefinite re-using of the whole, is that, once folded, the box can be piled up and stored with the great advantage that the space it takes is minimum, precisely owing to the compactness and the saving of space, since there are no wasted internal volumes.

DESCRIPTION OF THE DRAWINGS

[0021]

- Figure 1 shows a perspective view of an instance of embodiment of the folding packing-box.
- Figure 2 shows a perspective view of the whole in unfolded position or mounted without the upper lid.
- Figure 3 shows a perspective view of the whole in the position that the internal sides are folded and with the external sides without the contours for a better reference.
- Figure 4 shows a perspective view of the whole in the folded position without the upper lid.
- Figure 5 shows the inside of the upper lid.
- Figure 6 shows a perspective view of the packing-box once folded with the upper lid.
- Figure 7 shows a variant of embodiment in a perspective view of an instance of embodiment for the packing with the improvements that are object of the invention and unfolded in part.
- Figure 8 shows one of the elements used to connect the internal and external sides in detail for the packing of the previous figure.
- Figure 9 shows an instance of embodiment of the lid, provided with a means appropriate for the coupling thereof to the packing of figure 1.
- Figure 10 shows a part view of a cross-split packing with the corresponding lid, in which a variant of embodiment of the means of coupling of both can be seen.
- Figure 11 shows a detail of the means of coupling for the lid and packing used in the previous figure.
- Figure 12 shows a perspective view of a folding packing provided with the improvements which are object of the invention; in this figure the packing is shown unfolded in part and the upper lid vertically distanced.
- Figure 13 shows a detail of one of the contours associated to the corresponding external side.
- Figure 14 shows a plan view of one of the clips mounted on one of the internal sides of the box, the said side being cross-split by a horizontal plane.
- Figure 15 shows a front view of one of the clips.
- Figure 16 shows a detail of the coupling of one of the internal sides to one of the external ones by means of the corresponding clip, the clip being locked in the coupling position by means of a bolt.
- Figure 17 shows a detail of the contour of the upper lid, vertically cross-split and mounted on the unfolded packing; the coupling thereof is observed, by means of a perimetric contour, on one of the folds of the contours associated to the external sides .

PREFERABLY EMBODIMENT OF THE INVENTION

[0022] In the instance of embodiment shown if figures 1 to 6, the folding packing box is structured from a lower base (1) that is placed on a pallet (2) which is allowed to be lifted, moved and stored, the said base supporting on its upper perimeter two strips (3) and (4) placed perpendicularly sideways, with a variable height depending on the heights of the panels (5) and (6) attached thereto by means of the hinges (7) that allows the side panels to be folded towards the inside of the receptacle.

[0023] Two vertical panels (5) and (6) that will be called internal panels because they are placed in such way that, in vertical position, their edges (9) are leant against the vertical edges (10) of the internal parts of the other external panels (11) and (12) forming the whole.

[0024] The so-called external panels (11) and (12), are provided on the vertical edges with L-shaped contours, the section of which is notably longer that the

thickness of the side panels (11) and (12), in such a way that they serve as limits for the internal panels (5) and (6).

[0025] The internal panels (5) and (6) are provided in their upper part with a mechanism of automatic interlocking (14) that is locked when it reaches the vertical position to the grooves (15) pierced to that effect in the external panels.

[0026] The sum of the heights of each of the strips (3) and (4) and that of the adjacent sides (5) and (6) is to be equal to the heights of the other two sides (11) and (12) so that the upper lid of the whole of the packing-box rests on its upper edges (17), thus achieving an appropriate hermeticism and firmness.

[0027] The upper lid (16) is also provided on its external perimeter of L-shaped profiles (18) with a section long enough as to allow covering the upper perimeter shaped by the panels.

[0028] In order to be sure that the panels (5) and (6) are not disengaged from the mechanisms (14) and the packing box is not accidentally folded, it is envisaged the existence of internal limits (19) placed on the lower part of the slid (16) at a distance equal to that of the thickness of the side panels (5), (6), (11) and (12).

[0029] The operation of the whole is as follows:
in order to mount the packing box, first it is proceeded to remove the upper lid (16) putting it aside momentarily, then the external side panels (11) and (12) are lifted, followed by the internal sides (5) and (6) one after the other, in such a way that their edges (9) slide along the internal walls of the other panels, already placed in vertical, until they locate inside the grooves (15) corresponding to the interlocking mechanism (14), in addition to rest on the contours (13) placed on each of the vertical edges; the whole is completely mounted when the upper lid (16) is put on.

[0030] The unfolding operation is logically the inverse of folding one, since what have to be done for it is to smoothly knock on the internal panels (5) and (6) in order for them to be unlocked from the interlocking mechanisms and folded to the horizontal position to rest on the said panels the other sides (11) and (12) and finally the upper lid (16) is coupled, thus achieving an horizontality and compactness that allows the heaping up and storing in the smallest space for its next operation.

[0031] In the event that owing to construction necessities the side panels, once folded, do not show horizontal disposition, it has been envisaged that in the lower part of the upper lid (16) two heels (20) can be joined in order to add the required distance so that the said laid rests on horizontal disposition. This case may happen, for instance, when the strips (3) and (4) are of the same size.

[0032] As it can be seen from the instances of embodiment shown in figures 7, 8 and 9, the means devised for keeping all the sides of the box in vertical position can consist of clips (1) fastened to the internal sides (5 and 6) in a fixed or extractable way and projected perpendicularly therefrom, with the aim to be lodged in the holes (2) produced in the contours (13), when the packing is in unfolded position.

[0033] In said unfolded position, the lodging of the clips (21) in the holes (22) secures the vertical position both of the internal sides (5 and 6) and the external sides (11 and 12).

[0034] In this instance of embodiment the lid (16) will show, at least in its corners a contour (18a) provided with the notches (23) devised for clamping the clips (21) when the packing is unfolded.

[0035] So that the mentioned lid (16) can be coupled to the packing when all the sides (5, 6, 11 and 12) are folded over the base, the arrangement on the strips (3) of the clips (24), analogous to those fastened on the internal sides (5 and 6), has been envisaged.

[0036] The means used to fasten the lid (16) to the packing can show different configurations, for instance, in the variant of embodiment shown in figures 10 and 11, the perimetric contour (18b) of the lid (16) defines internally a longitudinal cavity (25) in the way of a canal, whilst the elements intended to be introduced therein consist of parts (26) provided with a projection (26a) complementary thereof.

[0037] These parts (26) will be fastened close to the upper end of any of the sides (5, 6, 11 and 12) in order to allow the coupling of the lid (16) on the unfolded packing, and fastened to the strips (3 and 4) in order to allow the coupling of the lid (16) on the packing when the sides are folded.

[0038] According to the instance shown in figure 12, the contours (13a) of the external panels (11 and 12) show a series of cross folds (27) equally distanced and which define in their external surface the corresponding swellings or protuberances.

[0039] So that the packing can be kept unfolded, that is, with the four panels (2 and 3) in vertical position, the contours (13a) will show grooves (28) for the coupling of pressure clips (29) mounted on the internal panels (5 and 6).

[0040] Clips (29) show a front loop (29a) the ends of which are projected to a anchorage leg (29b) with an ending fold (29c), and to a front section (29d) which is folded towards the rear area defining a second anchorage leg (29e), oblique, which finishes in an end fold (29f) facing and coplanar to the other ending fold (29c).

[0041] In order to facilitate the mounting of the clips (29) on the internal panels (5 and 6), these will show, as it can be seen from the figures 14 and 16, the grooves (6a) in which the legs (29b and 29e) of clip (29) will be introduced, in such a way that the front loop (29a) remains in a projecting position with regard to the external surface of the internal panel (5, 6), the front section (29d) remains leant on said surface and the anchorage legs (29b and 29e) clamp the portion (6b) of the panel (6) between the two grooves (6a), the leg (29e) exerting side pressure thereon.

[0042] In this instance of embodiment, when unfold-

ing the box or packing, placing all the panels (5, 6, 11 and 12) vertically, the loops (29d) of the clips (29) will be introduced in the grooves (28) of the contours (13a), they being capable to be locked in said position by means of the insertion in them of the bolts (30), as shown in figure 16.

[0043] Once the packing is mounted, these clips (29) are a tight fastening between the different side panels (2 and 3), thus preventing the deformation of the parallelopipedic configuration defined thereby.

[0044] As it can be noticed in the detail shown in figure 17; the folds (27) in addition to increase the strength to strain of the contours (13a), have the purpose of allowing the coupling of the upper lid (16) on the box or packing, once unfolded.

[0045] On placing the lid (16) on the box, the upper folds (27) of the contours (13a) will be lodged in the configuration (25) defined by the periferic contour (18b) thereof, it being necessary to exert pressure on the lid (16) in order to achieve the placing on the box or the extraction of it.

[0046] In order to achieve this coupling it is necessary that the upper fold (27) of each of the contours (13a) is placed at a fixed distance from the upper end of the side panels (6, 11 and 12), which will be taken into consideration when said contours (13a) are cut.

Claims

1. Folding packing-box, of the kind of that used for the storage and transport of goods, characterised in that it has a parallelopipedic shape and consists of side panels (5, 6, 11 and 12) hinged towards the inside in such a way that they are arranged in horizontal position and parallel with regard to the lower base (1), and of an upper lid (16) that overlaps perimetrically the whole both in the folded and unfolded situations.

2. Folding packing-box, as claimed in claim 1, characterised in that the base (1) of the whole can be formed in the way of a pallet (2), of the kind that are used for the lifting and transport and storage.

3. Packing-box, as claimed in the previous claims, characterised in that the lower base (1) has attached to its upper perimeter two strips (3 and 4) of variable height, that support by means of articulated mechanisms or hinges (7) the vertical or side panels (5, 6, 11 and 12).

4. Folding packing-box, as claimed in claim 3, characterised in that the sum of the heights of each strip (3, 4) and its adjacent panel (5, 6, 11, 12) is to be the same, in order to achieve in the top an horizontal base for the placing of the corresponding lid (16).

5. Folding packing-box, as claimed in the previous claims, characterised in that two of the confronted sides (5 and 6) are provided with a width noticeably shorter than that of the base, in such a way that their side edges (9) lean on the vertical internal part of the other two panels (11 and 12), that have the same width than the lower base (1).

6. Folding packing-box, as claimed in the previous claims, characterised in that the sides (11 and 12), the width of which is noticeably equal to that of the lower base (1), are provided in their vertical external edges of L-shaped contours (13) with a section noticeably longer than the thickness of the panels (11 and 12), so that they serve as a limit for the other two panels (5 and 6).

7. Folding packing-box, as claimed in the previous claims, characterised in that the internal panels (5 and 6) are provided in the upper part of their inside with mechanisms (14) for the interlocking between them and the other side ones (11 and 12).

8. Folding packing-box, as claimed in the previous claims, characterised in that the upper lid (16) of the whole shows in its upper perimeter a L-shaped contour (18), with a section noticeably longer than the thickness of the panels (5, 6, 11 and 12) in order to cover the upper part thereof.

9. Folding packing-box, as claimed in the previous claims, characterised for when the panels (5, 6, 11 and 12) are hinged towards the inside and are arranged in horizontal position, the upper lid (16) fits also in this folded position, thus remaining also in horizontal and compact position.

10. Folding packing-box, as claimed in the previous claims, characterised in that the side panels (5, 6, 11 and 12), once folded, can not show an horizontal or parallel position with regard to the base.

11. Folding packing-box, as claimed in the previous claims, characterised in that the upper lid (16) can show in the inside additional limits (20) that, in the folded position, supply with their thickness the distance to the bases of the folded sides (11 and 12), thus achieving the horizontality of the upper lid (16) with regard to the base (1).

12. Folding packing-box, as claimed in claim 1, the packings being of the kind of those showing a closing lid (16), a base (1) on which internal sides (5 and 6) and external sides (11 and 12) are hinged directly or by means of strips (3 and 4) of variable height, these sides being capable to stand in vertical position owing to the action of interlocking mechanisms and to be arranged in a folded position on

the base (1), the external sides (11 and 12) showing in addition end contours acting as a limit for the internal sides (5 and 6) in the unfolded position of the packing; characterised in that the means of interlocking devised to keep the sides (5 and 6) in vertical position consists of elements (21) associated to the internal sides (5 and 6) and projecting perpendicularly from the external surface in order to be lodged in the holes (22) defined in the corner contours (13) of the external sides (5 and 6) when the packing is in unfolded position; also they are characterised in that the lid (16) shows means devised to allow the coupling thereof on the packing both if the packing is folded or unfolded.

14. Folding packing box, as claimed in claims 1 and 13, characterised in that the elements (21) associated to the internal sides (5 and 6) consist of pressure clips, capable of being elastically deformed in order to allow their coupling and further decoupling to the holes (22) of the contours (13).

15. Folding packing-box, as claimed in claims 1 and 13, characterised in that the means of coupling for the lid (16) consist of notches (23) defined in a contour (18a) associated to it and devised to receive in their inside the ends of the clips (21) associated to the internal sides (5 and 6) or clips (24) analogous to the prior ones that are fastened to the strips (3 and 4), the coupling of ones or the others depending on the fact that the packing is folded or unfolded.

16. Folding packing-box, as claimed in claims 1 and 13, characterised in that the means of coupling of the lid (16) consists of a longitudinal cavity (25) defined by the internal side of a perimetric contour (18b) associated thereto; the aim of said cavity (25) being to receive in its inside the projections (26a) defined in the parts (26) fastened to the sides (5, 6, 11 and 12) or in the analogous parts (26) fastened to the strips (3 and 4), the coupling to ones or the others depending on the fact that the packing is unfolded or folded.

17. Folding packing-box, as claimed in claims 13 and 16, characterised in that the parts (26) fastened to the sides (5, 6, 11 and 12) are arranged close to the upper end of the latter.

18. Folding packing-box, as claimed in claim 1; the said packings being of the kind of those consisting of a base (19) on which panels (11 and 12) and (5 and 6) conforming the external sides and the internal sides of the packing are hinged, and an upper lid (16); the panels (11 and 12) being provided with contours with holes for the coupling of clips associated to the panels (5 and 6), and the lid (16) with a perimetric contour (18b) that defines an intermediate fold (25); characterised in that the contours (13a) show a series of cross folds (27) that define in their external surface swellings or protuberances for the coupling of the lid (16).

19. Folding packing-box, as claimed in claims 1 and 18, characterised in that the clips (29) associated to the internal panels (5 and 6) show a frontal loop (29a) the ends of which are projected to an anchorage leg (29b) with an ending fold (29c), and to a front section (29d) that is folded towards the upper area, defining a second anchorage leg (29e), oblique, that finishes in an ending fold (29f), facing and coplanar to the other ending fold (29c).

20. Folding packing-box, as claimed in claims 18 and 19, characterised in that the internal panels (5 and 6), show in the mounting are of the clips (29) a couple of parallel grooves (6a) for the introduction of the anchorage legs (29b and 29e) of the corresponding clip (29).

21. Folding packing-box, as claimed in claims 18, 19 and 20, characterised in that the front loop (29a) of the clips (29) stands in a projecting position with regard to the external surface of the internal panels (5 and 6).

22. Folding packing-box, as claimed in claims 18, 19 and 20, characterised in that the front sections (29d) of the clips (29) are leant on the external surface of the corresponding panels (5 and 6).

23. Folding packing-box, as claimed in claims 18, 19 and 20, characterised in that the anchorage legs (29b and 29e) of the clips (5) exert a side pressure on that portion (6b) of the panel (5, 6) between the grooves (6a).

24. Folding packing-box, as claimed in claims 18, 19 and 20, characterised in that the clips (29) are complemented with accessory bolts (30) devised to be introduced in the loops (29a), thus preventing the accidental loosening of the grooves (28) defined in the contours (13a).

25. Folding packing-box, as claimed in claims 1 and 18, characterised in that the upper fold (27) of each of the contours (13a) is at a fixed distance from the upper end of the panels (11 and 12).

26. Folding packing-box, as claimed in claims 1 and 18, characterised in that the upper fold (27) of each of the contours (13a), in the mounting position of the lid (16), is lodged in the fold (25) of the perimetric contour (18b) thereof, said elements forming pressure means of coupling.

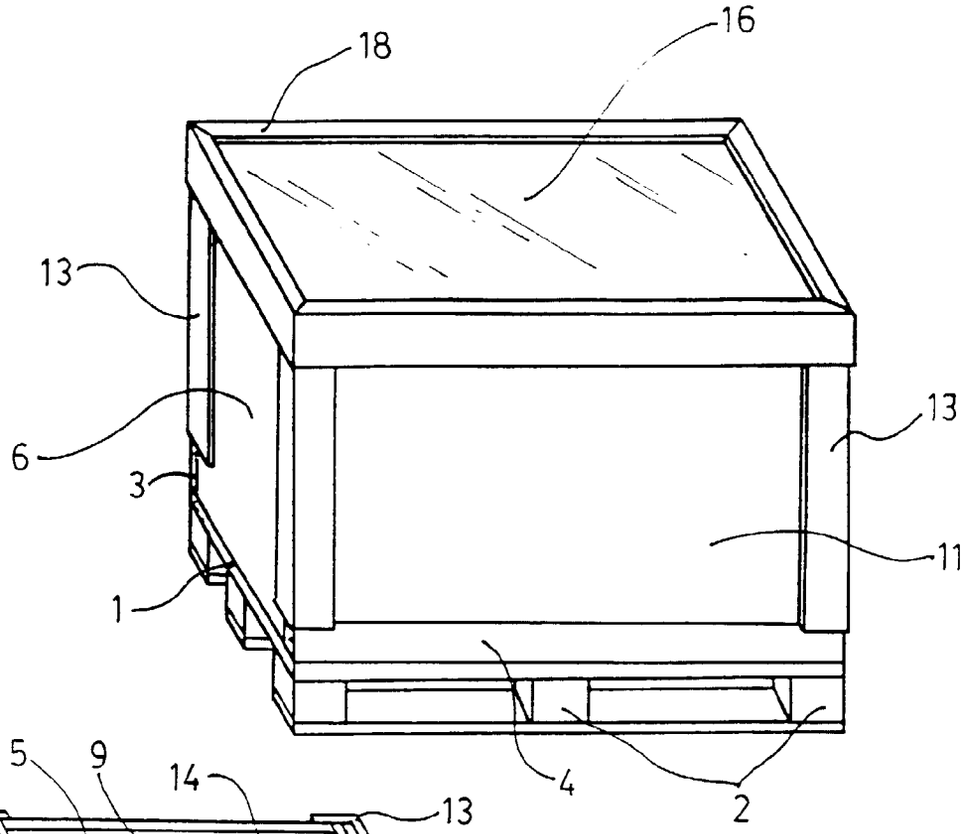

Fig.1

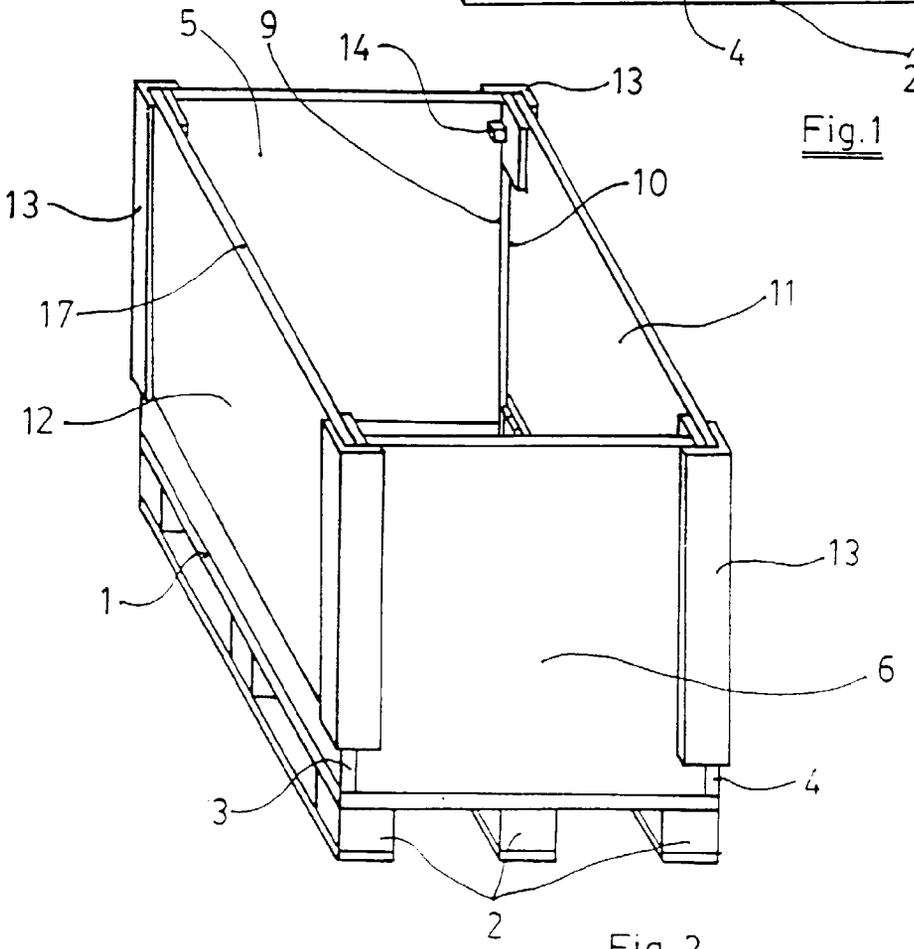

Fig. 2

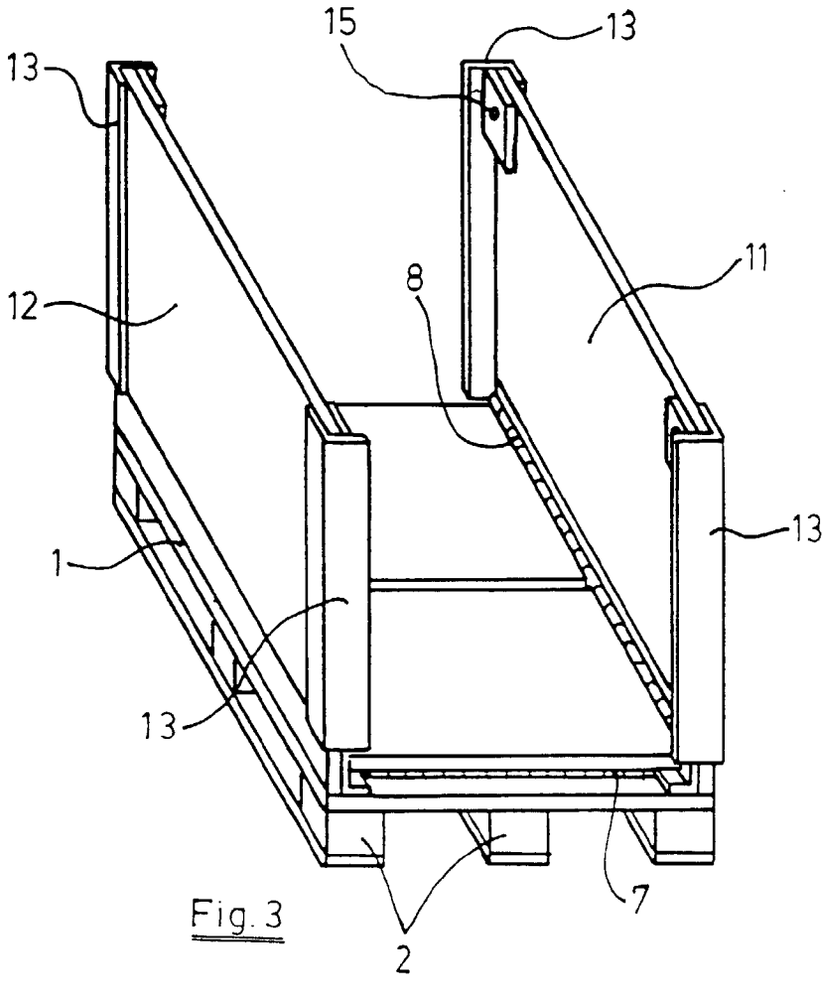

Fig. 3

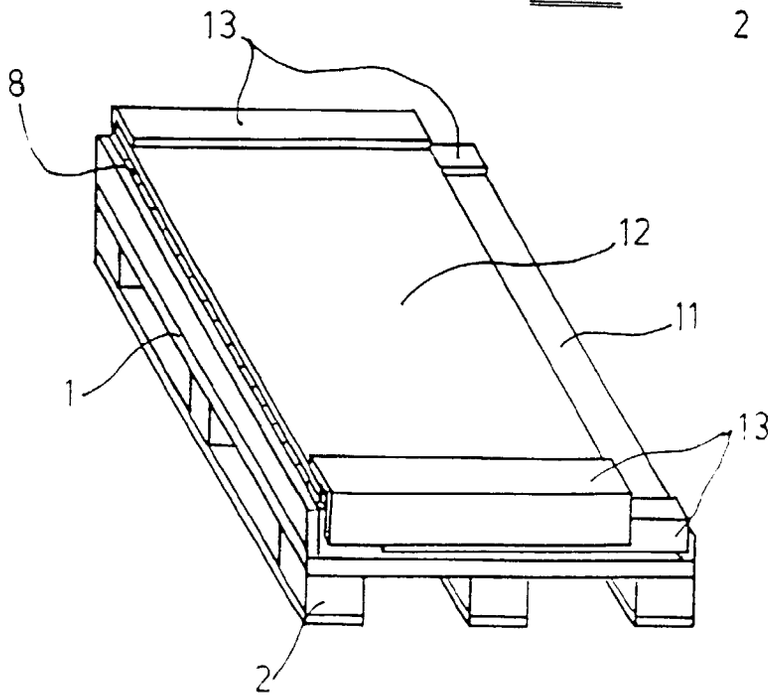

Fig. 4

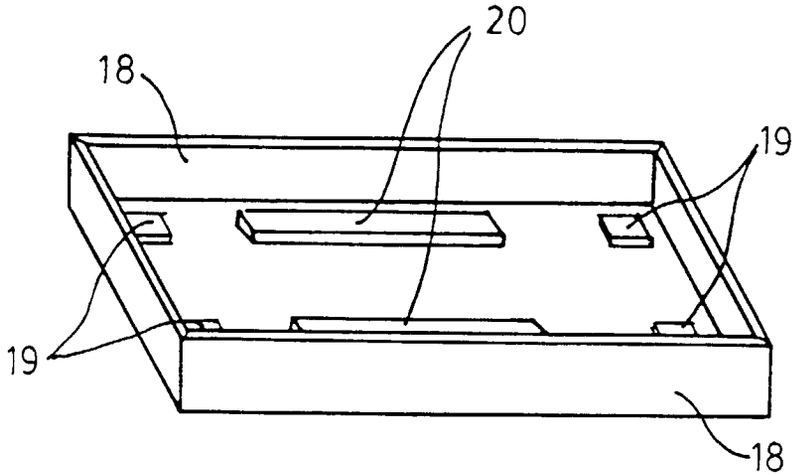

Fig. 5

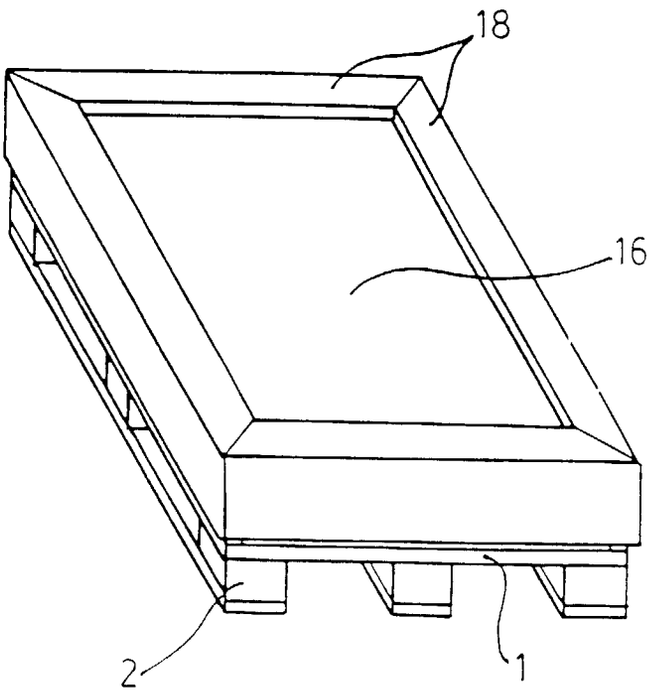

Fig. 6

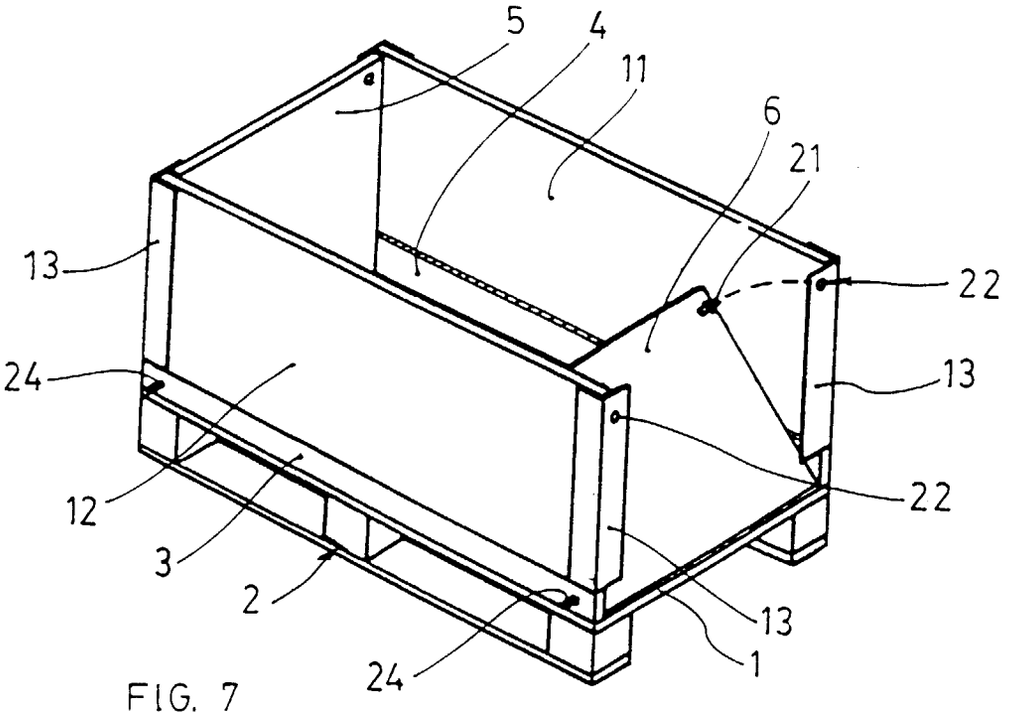

FIG. 7

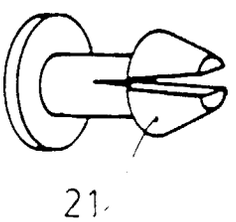

FIG.8

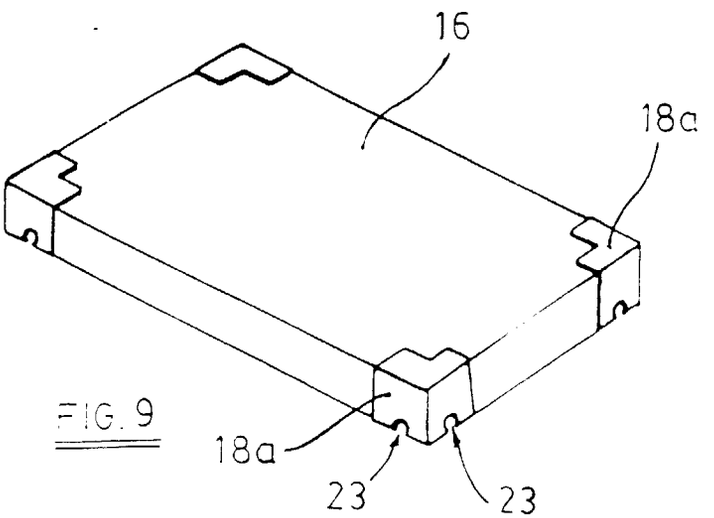

FIG. 9

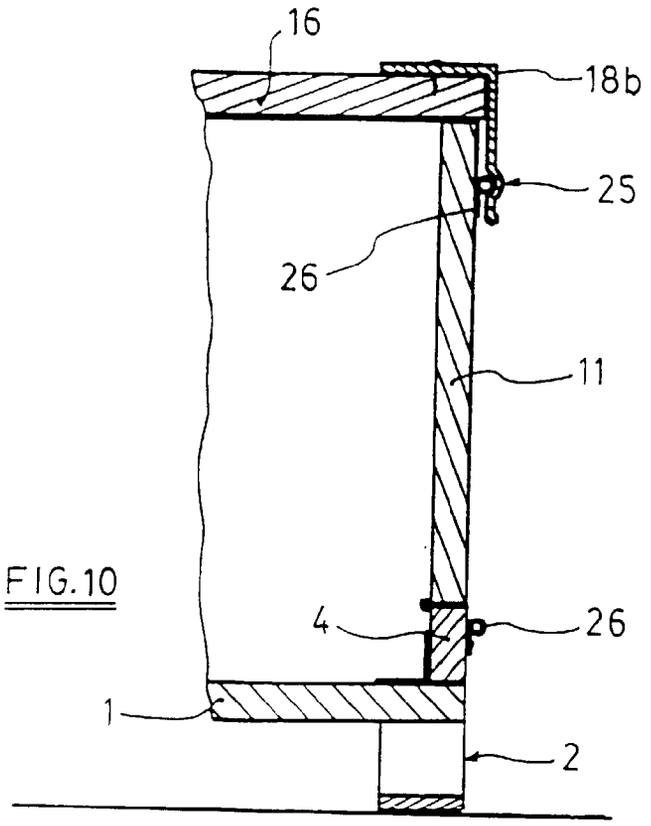

FIG.10

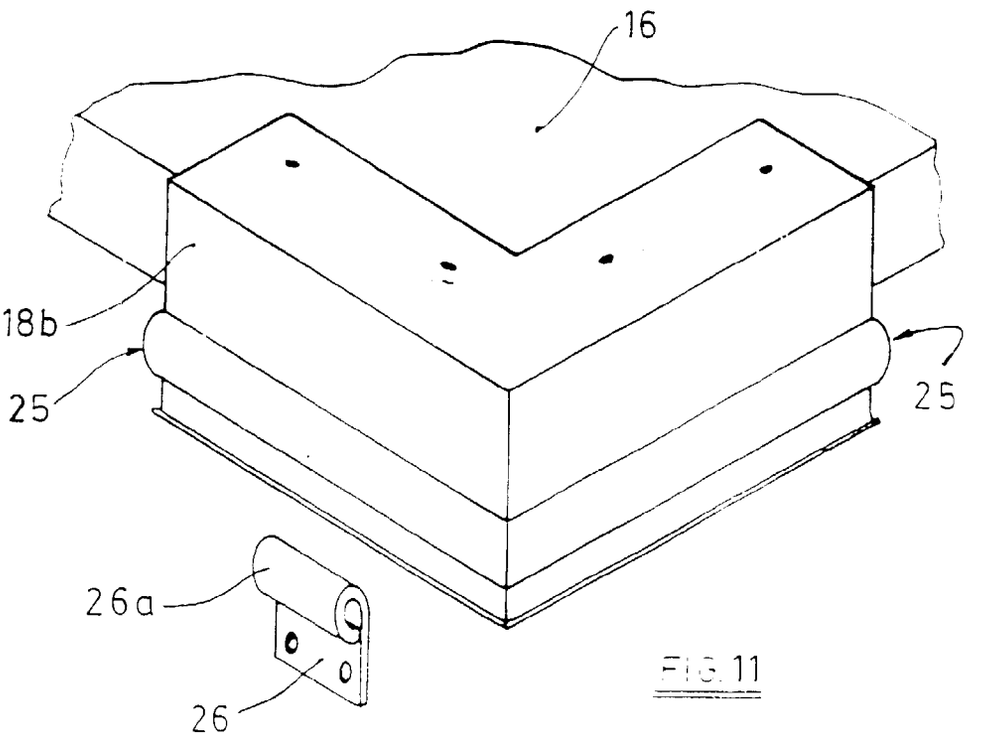

FIG.11

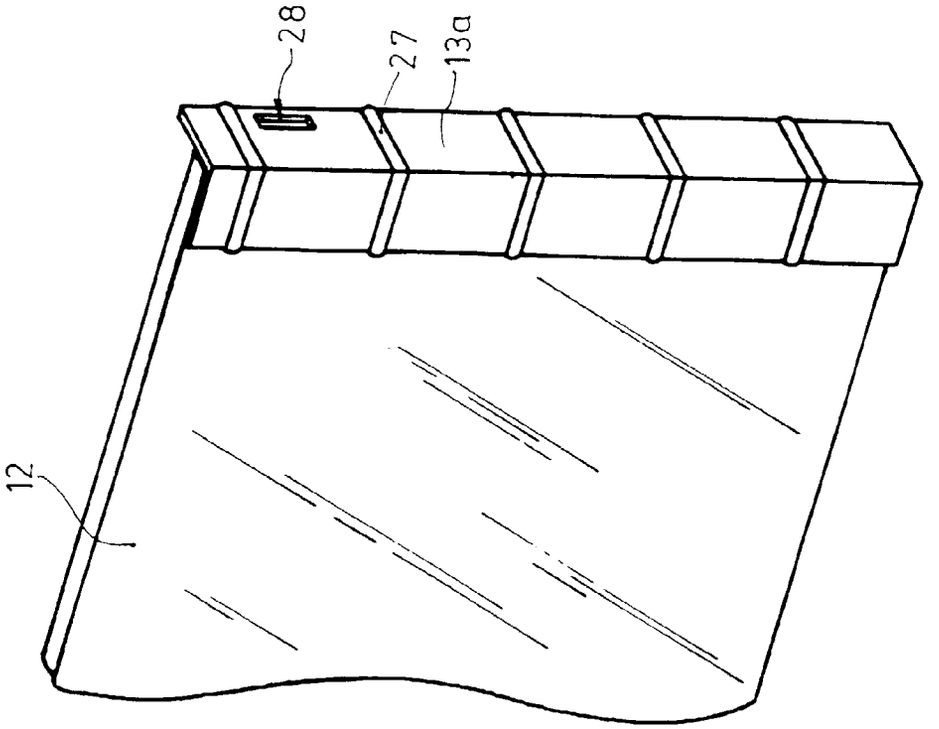

Fig.13

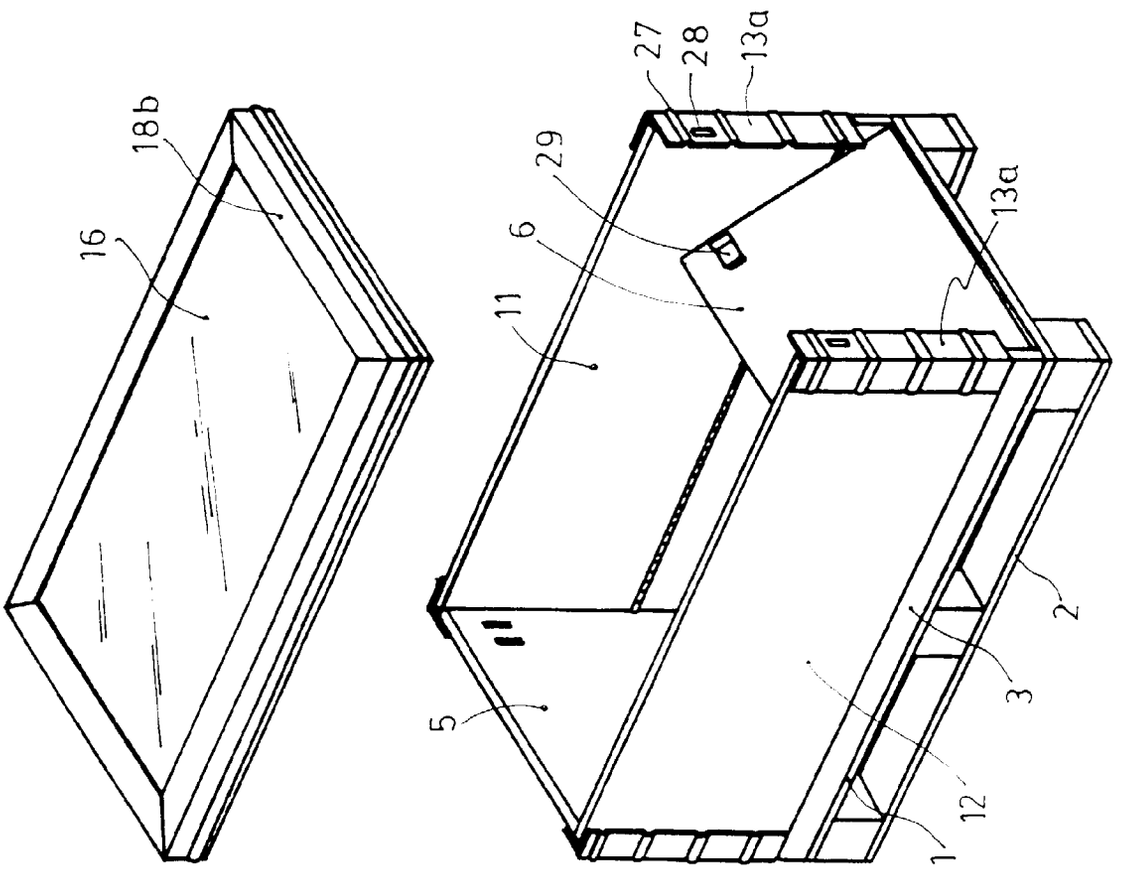

Fig.12

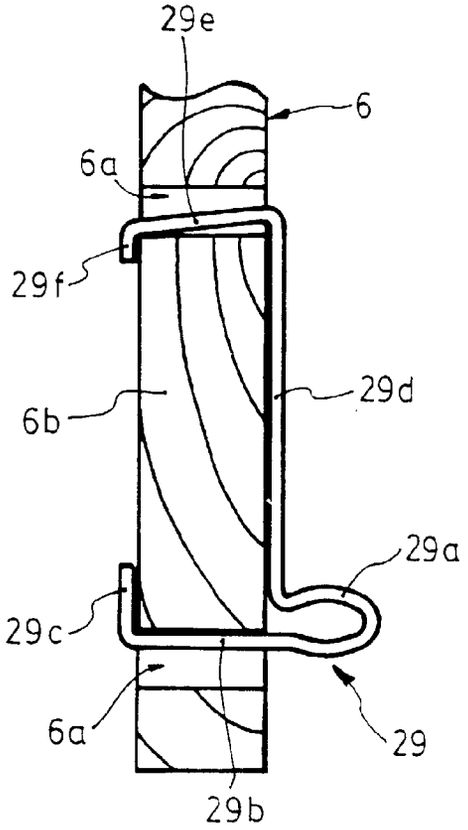

Fig.14

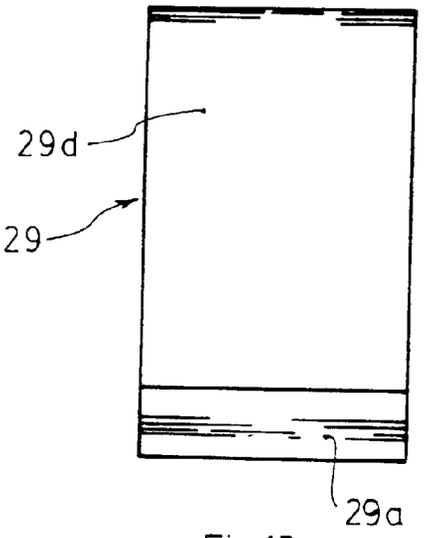

Fig.15

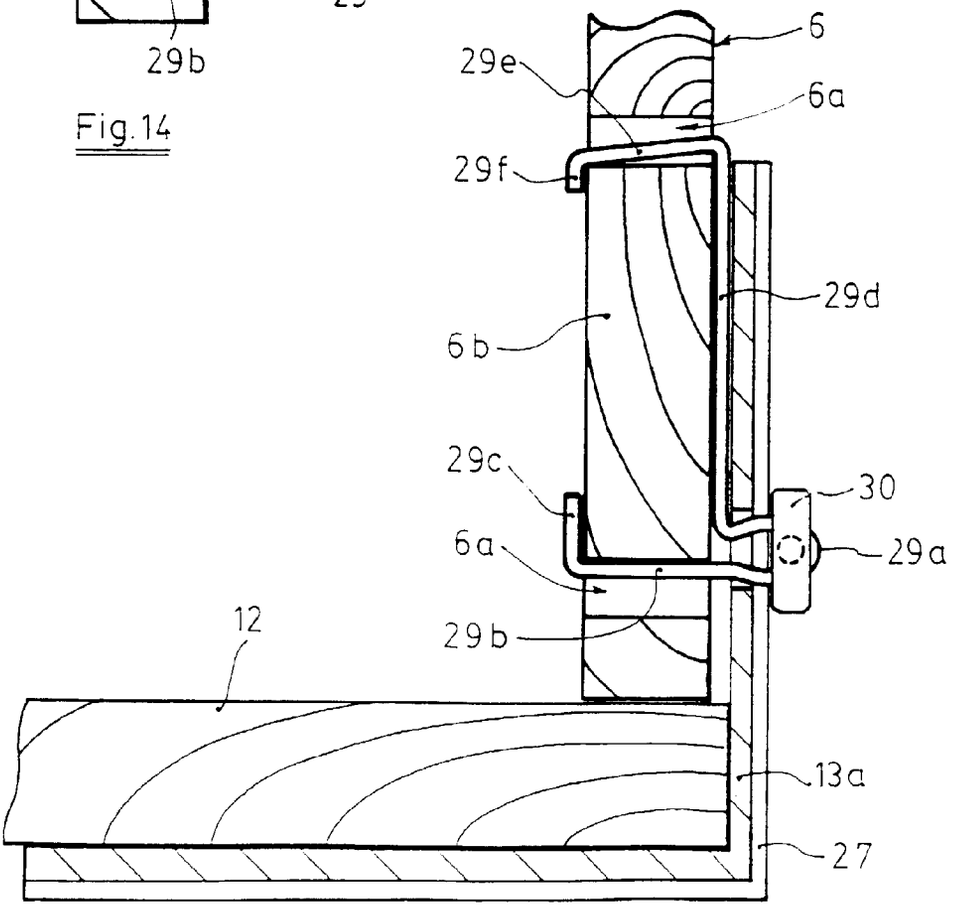

Fig. 16

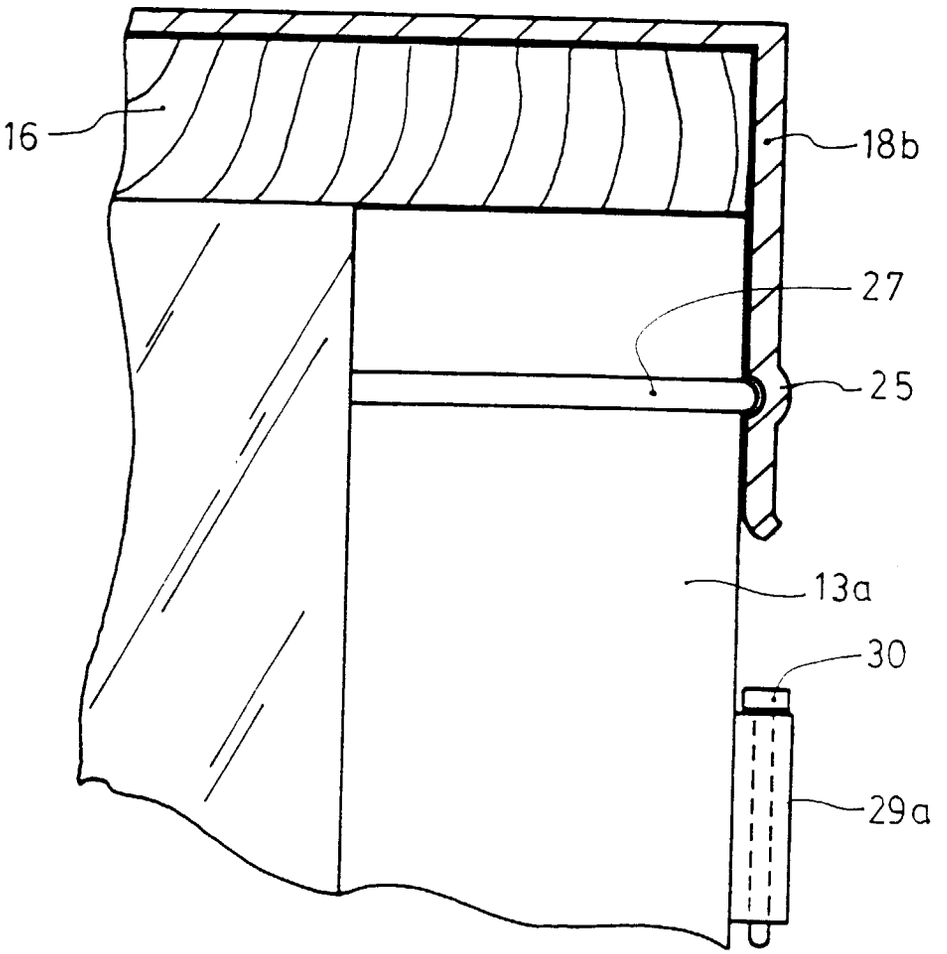

Fig. 17