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(54) Container for storage and transport of goods and elements for construction of such a container

(57) The invention describes a storage container, such as a wire netting container for storage and transport of goods, placed on a transportation pallet (1), with a bearing surface and pallet blocs under each corner where the container features two standing gable units (2) that can be attached on opposite sides of the pallet (1) and at least two side units (8) can be attached to the corner posts of the gable unit. In that way, it is possible to construct a storage container of more units which has the advantage that it is only necessary to replace worn-down or damaged parts of the container instead of the entire container. Furthermore, the container is easy to assemble and disassemble. The result is that when not in use, it can be disassembled so that it does not take up space e.g. when returned to the original sender or when placed in storage.

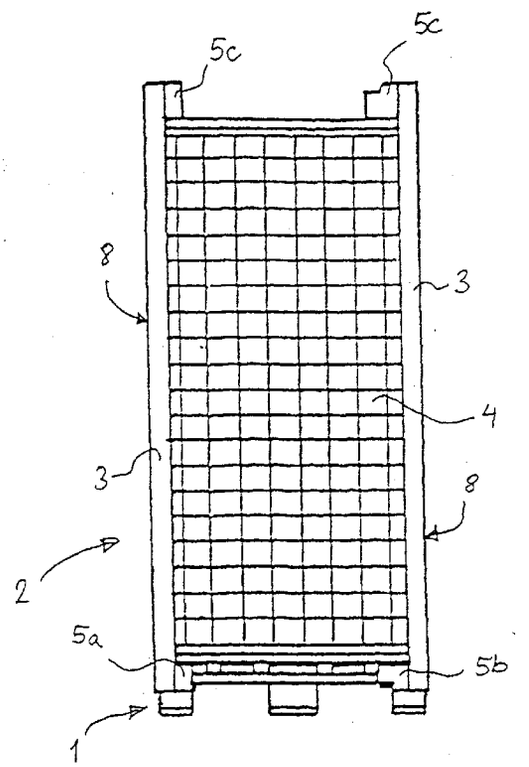

Fig. 1

EP 0 863 083 A1

Description

The present invention relates to a storage container of the kind mentioned in the preamble of claim 1.

Containers and other container constructions often placed on a transportation pallet - such as a standard EUR pallet - are commonly used for transportation and storage. The sides of such containers are often made of wire netting. The container, which is placed freely on the pallet, can thus be lifted up and transported by means of the usual equipment available for handling pallets in e.g. warehouses.

Another type of wire-netted container for storage and transportation of goods is equipped with wheels so that it can be moved manually.

Common for these two types of containers is that they are often exposed to quite rough handling. The result of this is that the containers are frequently discarded or replaced because the wire-netted containers are easily damaged, especially around the edges and corners that will be so worn-down after a certain period of time that the container must be replaced. The expenses of such necessary replacement of the containers with a short effective life can be significant.

Furthermore, the disadvantage of these familiar transportation and storage containers is that they take up a lot of space, also in empty condition. This may constitute a problem not only concerning the return of the containers to the original sender but also concerning the space they take up in a warehouse.

A collapsible container with two separate gables that can be assembled on a pallet is known from the Swedish Patent No SE-B-462 842. In this manner, it is possible to disassemble a container so that it takes up a minimum of space. Each gable is equipped with two posts, one on each side, with horizontal grooves in which the walls are installed when assembled. The rectangular side walls have connecting means in each corner that are inserted through an opening at the top and down through the grooves. However, this requires a certain amount of space around the container as the walls must be led through the opening in horizontal position which makes it difficult to assemble the container and results in a very uncomfortable working posture when doing so. The walls must thus be lifted to the top of the gables in horizontal position after which the connecting means are directed through the opening of each groove of the gables.

On the basis of this, the object of the invention is to provide a storage container that prevents the disadvantages mentioned above and which is inexpensive in use and also easy to handle.

The invention consists of a container of the initially-mentioned kind wherein each of the receiving means of the corner posts include at least two openings in the part of the post that faces the side unit having a shape corresponding to the shape of the connecting means of the side unit so that this unit can be attached to the corner posts.

With this invention, a storage and/or transportation container has been provided that is built up by modules which can be assembled on a standard pallet. This means that by a container according to the invention it is only necessary to replace the worn-down or damaged parts of the container and not the entire unit as has previously been necessary. The result is a significant reduction of costs for maintenance of transportation containers of goods.

Also, a container according to the invention does not require as much space around the transportation pallet in order to assemble the container since the side units can be secured to the corner posts and thus be fitted in a parallel manner between the gable units so that the connecting means situated at the top and the bottom of the side unit can be attached to the gable units simultaneously. The side units can basically be kept in vertical position throughout most of the assembly process which has several advantages, some of which are less space required for assembly and improved working posture for the workers assembling the containers.

By assembling the gables directly onto the pallet, e. g. a EUR pallet, and by placing the side units on the gable units, it is possible to take advantage of the fact that the container according to the invention can be handled by the usual equipment available such as fork-lift trucks. In addition, it is possible to cut back on the costs of material as the bearing surface of the pallet can be used as the bottom of the container.

Constructing the container according to the invention of several modular components has the advantage that it can easily be disassembled after use in order to save space when not used for storage of goods or when returned to the original sender or placed in temporary storage. It is possible to pack the gables, side walls or corner posts close together so that the container only takes up a minimum of space. Also, the weight of the container will be significantly reduced.

In a preferred embodiment of the container according to the invention the connecting means comprises a locking pawl with a locking plate and openings of the receiving means corresponding to the shape of that of the locking pawl and the locking plate and where inclined receiving surfaces are placed behind the openings for fastening a side unit between two corner posts in the gable units. With this form of construction, the container is easy to produce, assemble and handle.

In a preferred embodiment of a container according to the invention each gable unit comprises two corner posts between which a filling element such as a gable panel or a gable wire is placed together with two supporting shoes abutting the pallet. The corner posts could advantageously be angle profiles with a support plate so that the corner posts can rest on the bearing surface of the pallet and that the angle profile reaches down over the corner of the pallet and provides protection against blows etc.

In the preferred embodiment, the bearing surface is an integrated part of the supporting shoes that also comprise a tongue placed under the support plate for engagement under the bearing surface of the pallet. The tongue on the first supporting shoe constitutes a side lock placed there for engaging the side of the bearing surface and the tongue on the other supporting shoe makes up a gable lock which is placed for engagement under the gable side of the bearing surface of the pallet. Hereby it is ensured that the gable is firmly secured to the transportation pallet without requiring any particular design of the pallet apart from the standard shape.

The gable unit can be fitted onto the pallet by inserting the first corner section with the side lock in place. The next step is to turn the gable so that the other corner section with the gable lock slides into place. After this, the gable can stand on its own.

In a first embodiment according to the invention each side of the pallet features a side units, mostly made of wire netting. Alternatively, two side units are provided in opposite positions between two corner posts along one side of the container which makes it possible to construct a low or a tall model with either one or two side units on each side.

In another embodiment, where two side units are arranged on top of each other, at least one of the units will be equipped with a spacer, preferably the lower side unit, so that it is ensured that the lower side unit cannot be disassembled without disassembling the top unit first. Each of the side units will be removable independently of each other in order to fill up or empty out the storage container.

Yet another embodiment of a container according to the invention the corner posts are provided with supporting shoes in order for the container according to the invention to provide support for another container and make it possible to stack more containers on top of each other.

With reference to the accompanying drawings, the invention will be described in detail in the following:

Figure 1 shows a front view of a storage container according to the invention seen from the gable unit,

Figure 2 shows the first supporting shoe for the first corner post in a gable unit,

Figure 3 shows the other supporting shoe for the other corner post in a gable unit,

Figure 4 shows the upper supporting shoe on the corner posts,

Figure 5 shows a top view of the assembly of the gable unit onto a pallet from above,

Figure 6 shows a front view of the gable unit and the assembly of the side units,

Figure 7 shows a side unit for a container according to the invention,

Figure 8 shows a side view of the corner post with the receiving device for the side units,

Figure 9 shows a view from the gable of the corner post in figure 8,

Figure 10a shows a detailed view of the connecting means on the side units,

Figure 10b shows the locking pawl seen from above,

Figure 11 shows a detailed view of the assembly of the side units to the corner post seen from inside the boks,

Figure 12 shows a front view of a locking device in connection with a side unit, and

Figure 13 shows the same in perspective.

Figure 1 shows a gable unit 2 in a container which has been assembled on a pallet 1. The gable unit 2 consists of two corner posts 3 between which a wire netting 4 has been placed. The two corner posts 3 are equipped with supporting shoes 5a and 5b at the bottom. On top, the corner posts 3 have been equipped with supporting shoes 5c. A number of side units 8 have been installed on each side of the pallet 1 between the two gable units 2 (see figures 6 and 7).

The shape of the supporting shoes 5a, 5b, 5c are shown in figures 2, 3 and 4 respectively.

Figure 2 shows the first supporting shoe 5a that has been welded onto the corner section 3 depicted diagonally from below. The supporting shoe 5a has a support plate 6a that rests on the bearing surface of the pallet. The sides of the supporting device 5a and the corner section 3 are substantially perpendicular to the support plate 6a and to each other so that they reach down around the corner of the pallet 1 and protects it from damage. Furthermore, the lower part of the sides have been equipped with tentacles or guiding surfaces 18 which makes the positioning of the corner section over the one of the pallet easier. Moreover, the supporting device 5a has been provided with a tongue 7a at the end that acts as a side lock for the gable unit 2.

Figure 3 shows the other supporting shoe 5b that has also been welded onto a corner post and depicts a support plate 6b together with sides featuring tentacles or guiding surfaces 18b corresponding to those of the first supporting device 5a. A small difference is that the supporting shoe 5b has been provided with a tongue 7b situated at the bottom in such a manner that it acts as

a gable lock for the gable unit 2.

Seen diagonally from above, figure 4 shows the supporting shoes 5c welded onto the corner poles 3 in order to be able to carry the underside of another pallet - with or without another box or a container on it - for the purpose of stacking or receiving a lid to be placed on top of the container box in order to close it. It is similar to the other supporting shoes 5a but is, in addition, provided with a support plate 6c and tentacles or guiding surfaces 18c in order to ease the lowering of a pallet or a lid into supporting shoes 5c.

Figure 5 shows how the gable units 2 are secured onto the pallet 1. The first step is to place the side of the gable unit 2 with the first supporting shoe 5a and the side lock in the desired position as shown by arrow A. The second step is to turn the gable unit 2 as shown by arrow B so that the side with the gable lock (the other supporting shoe 5b) is put into a locking engagement under the bearing surface of the pallet. When gable unit 2 has been placed on the pallet, it is able to stand on its own. An identical gable unit 2 is then secured onto the pallet 1 in opposite position of the other gable unit as shown by arrows C and D.

Once the gable units 2 have been erected, the side units 8 can be placed between the gable units 2 at the corner posts 3 as shown in figure 6. The side units 8 are provided with connecting means 9 at the top and bottom that correspond to the receiving means in the corner posts 3 as shown in figures 8 and 9. The arrows E and F together with G and H illustrate how the attachment of the side units 8 is to be carried out.

In the illustrated example, two side units 8 have been arranged in opposite positions of each other on both sides. The container may, of course, also be assembled with only one side unit on each side in e.g. a low version (half size).

The purpose of a side unit 8 has been shown in figure 7. At each corner, the essentially rectangular side unit 8 has been provided with connecting means 9 which also features a dowel 11 (see figure 10). A spacer 10 is installed, preferably at the top, in the shape of a protrution which ensures that the side unit 8 cannot be removed as long as a side unit 8 is placed on top of it. In this way, an unwanted emptying of the container can be avoided. In case the lower containers in a stack were to be emptied out first, it might result in unfortunate consequences as the strength of the container would be significantly reduced by removing the side unit 8. In particular, heavy loads would present the risk that the lower container might possibly collapse.

By the invention, it has also been realised that it would be advantageous to be able to empty the container by opening up at the bottom in certain cases, e.g. when the goods are of relatively light-weight solid materials with the ability to flow in a constant stream similar of that of liquids e.g. grain, sugar etc.

Figures 8 and 9 show the construction of the corner posts. In figure 8, the corner section is seen from one side of the container. The corner section features a number of receiving means 13, preferably two per side unit 8 for receivning the connecting means 9 on the side units 8. Thus, a number of openings 14 have been made in the section wall whose shape fits with the dowel 11 as shown in figures 10a and 10b. A guiding plate 15 featuring an inclined locking plate 16 has been placed behind these openings 14 and this plate cooperates with the locking plate 12 of the dowel 11 for guiding the side unit 8 into place while unit 8 is pressed downwards. The main purpose of the locking surface 16 is to make the positioning of the dowel 11 as easy as possible and secondly to secure the dowel 11 between the gable units 2.

Preferably, the guiding plate 15 is welded onto the inner side of the angle section which makes up corner post 3, as shown in figure 9. Especially the lower guiding plates 15 can quite successfully be equipped with a baffle 17 on top in order to prevent any disturbances from penetrating into the receiving means 13 and thereby intervene in the securing of the side units.

Figure 11 shows the side units 8 when secured to the gable unit 2. The locking plate 12 on the dowel 11 has been forced down so that it no longer points at the inclined guiding plate 16.

Figures 12 and 13 show a locking device placed on a supporting shoe 5c whose purpose it is to lock and secure side unit 8. The locking device consists of a locking pawl 18 that can be turned as it is attached to an axis 19 in the gable unit 2 via a supporting shoe 5c. The locking pawl 18 is shaped with a bending 20 so that the locking pawl 18, when in vertical position, prevents a side unit from slipping out of the securing and ensures that the connecting mechanisms 9 remain in engagement with the receiving means 13 of the corner posts 3. As will be apparent from figure 12, the locking pawl 18 easily swings open in an almost horizontal position 18a so that the side unit 8 can be disassembled. The shape of the locking pawl 18 may be identical with that of the tongues 7a and 7b in order to be able to secure the locking of the side and gable units 2.

With this locking device, used in connection with the fittings 13 on the corner posts 3, the risk of a side unit falling out during handling of the container is eliminated without complicating the process of removing the side units as the locking pawl can easily be swung open by a finger in connection with the assembly or disassembly of a side unit 8.

Claims

1. A container, such as a wire container for storage and transport of goods, placeable on a transport pallet (1) with a bearing surface and corner blocs in each corner, including two gable units (2) attachable to the pallet (1) and secured on opposite sides of the pallet (1) between which side units (8) are placed between the corner posts (3) of the gable

units (2) and provided with connecting means (8) that cooperate with the receiving means (13) in the corner posts (3) for securing the side units (8) **characterised** in that each of the receiving means (13) of the corner posts (3) include at least two openings (14) in the part of the post (3) that faces the side unit (8) the shape of which corresponds to the shape of the connecting means (9) of the side unit (8) so that a side unit can be attached to the corner posts (3).

2. A container, according to claim 1, wherein the connecting means (9) comprise a locking pawl (11) with a locking plate (12) and openings (14) of the receiving means (13) corresponding to the shape of that of the locking pawl (11) and the locking plate (12) and where inclined receiving surfaces (16) are placed behind the openings (14) for fastening a side unit (8) between two corner posts (3) in the gable units (2).

3. A container, according to claim 1 or 2, wherein each gable unit (2) comprises two corner posts (3) between which a filling element (4) is provided, such as a gable plate or gable wire, and a first and second supporting shoe (5a, 5b) that are fitted with means (6a, 6b) for abutting the pallet (1).

4. A container, according to claim 3, wherein angle profiles constitute the corner posts (3) and are provided with a support plate (6a, 6b) so that the corner post (3) may rest on the bearing surface of the pallet (1).

5. A container, according to claim 3 or 4, wherein the supporting shoes (5a, 5b) include a support plate (6a, 6b) and a tongue (7a, 7b) placed under the support plate (6a, 6b) for engagement under the bearing surface of the pallet (1).

6. A container, according to claims 3 to 5, wherein the placing of the tongue (7a) of the first supporting shoe (5a) is positioned for engagement under the first side of the bearing surface and the tongue (7b) of the second support shoe (5b) is positioned for engagement under the gable side of the bearing surface of the pallet (1), of which the first side is adjacent to the gable side.

7. A container, according to any of the previous claims, wherein the top of the corner posts (3) are provided with supporting shoes (5c).

8. A container, according to any of the previous claims, wherein one side unit (8) is placed alongside each side of the container, preferably in wire netting.

9. A container, according to any of the previous claims, wherein two side units (8) are positioned on top of each other between the corner posts (3) alongside one side of the container where preferably the bottom side unit is provided with at least one spacer (10) on its upper side.

10. A gable unit (2) for a container, according to any previous claims, comprising two corner posts (3) and mounting means for attaching the gable unit (2) onto a transportation pallet (1) **characterized** in that each of the corner posts (3) have receiving means (13) comprising at least two openings (14) in the side facing part of the post (3) for receiving connecting means (9) and that the shape of the openings (14) corresponds to that of these connecting means (9).

11. A gable unit (2), according to claim 10, wherein inclined receiving surfaces (16) are provided in connection with the openings (14) for fixation of the connecting means (9) inserted in the openings (14).

12. A side unit (8) for attachment between two gable units (2), according to claim 10 or 11, for construction of a box according to claims 1 to 9.

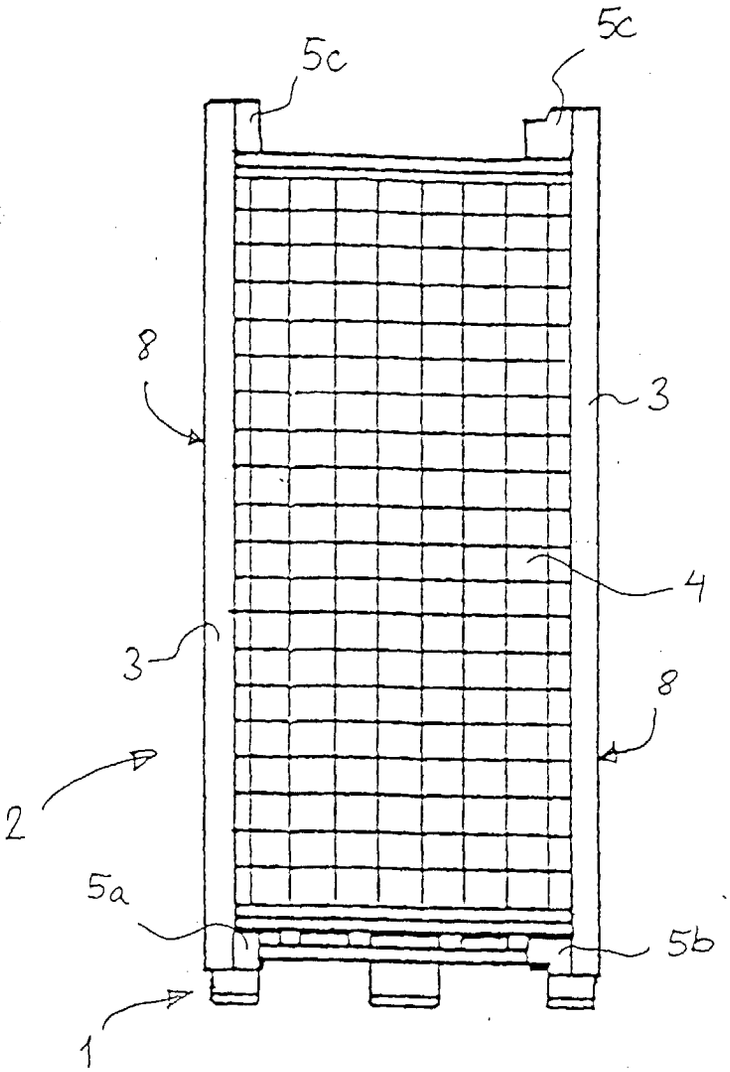

Fig. 1

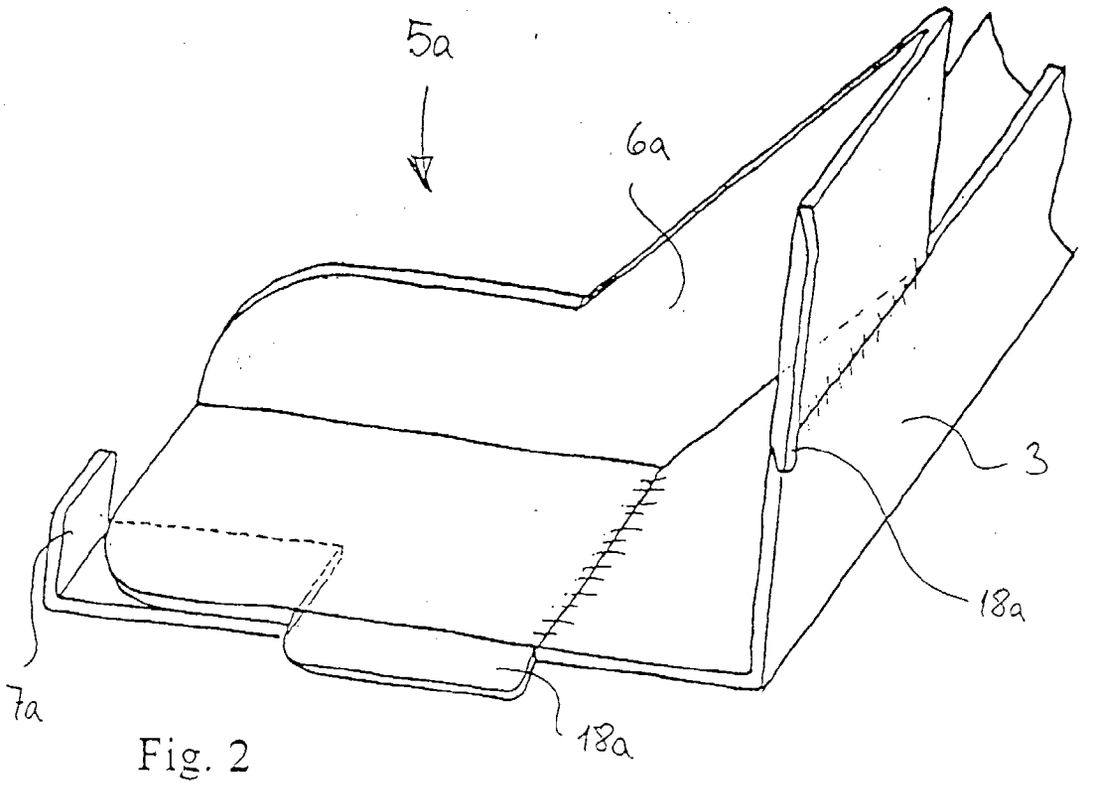

Fig. 2

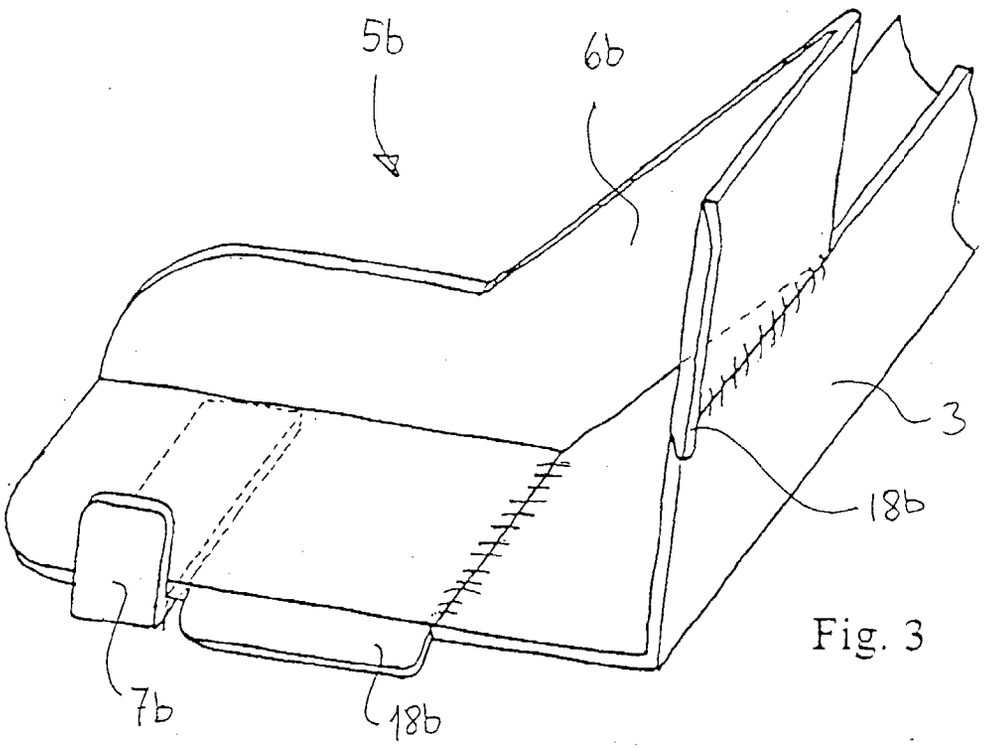

Fig. 3

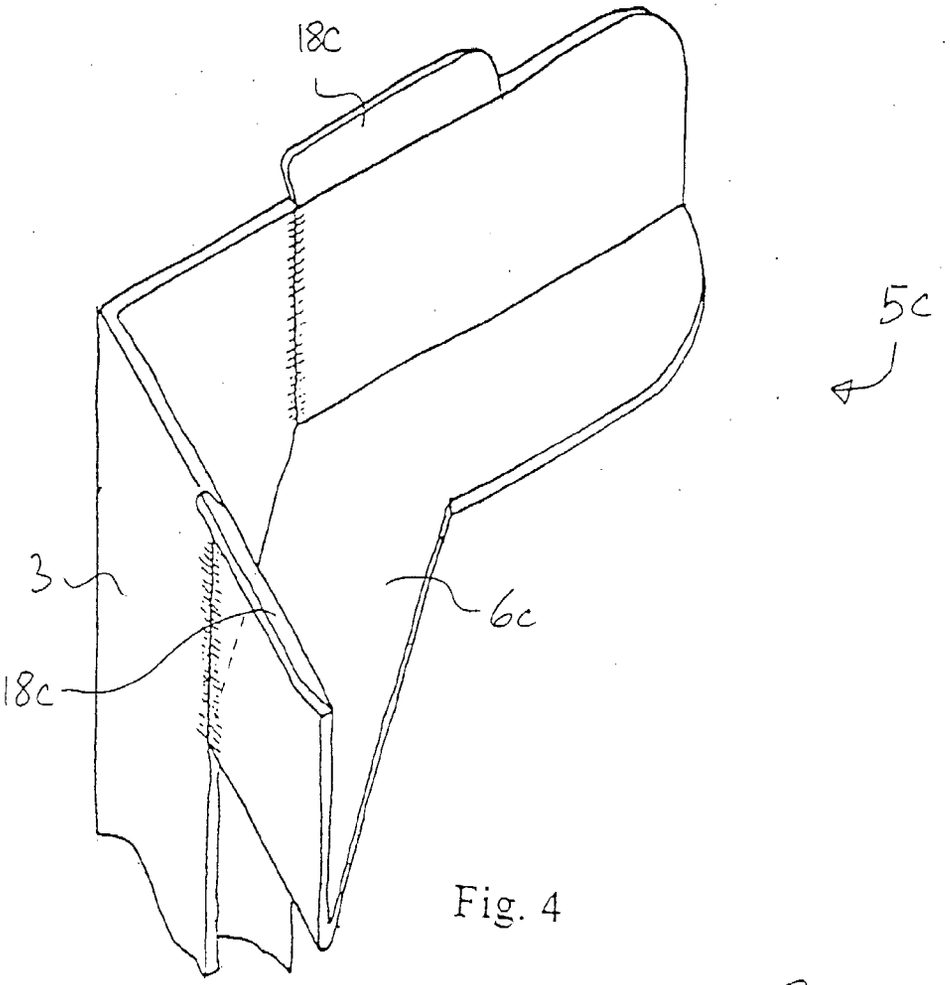

Fig. 4

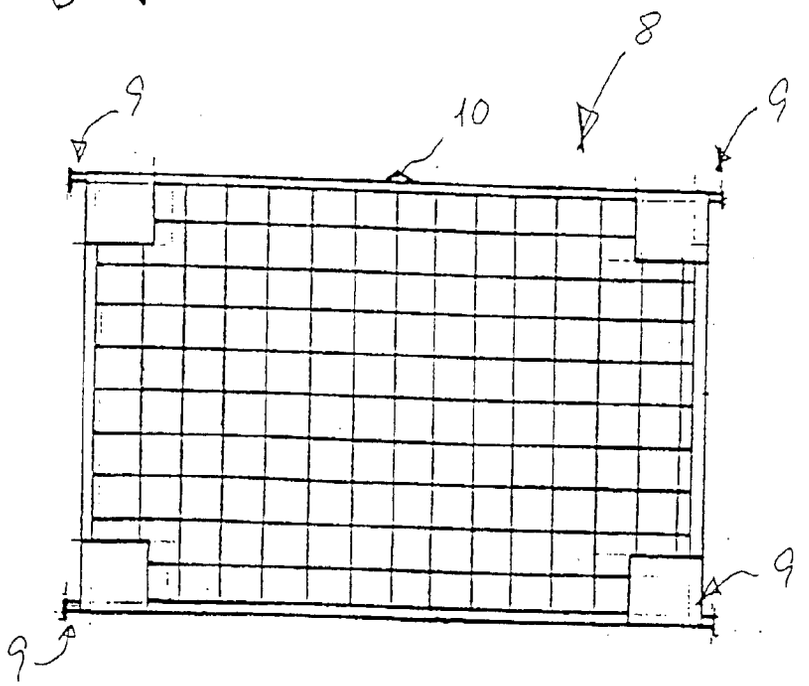

Fig. 7

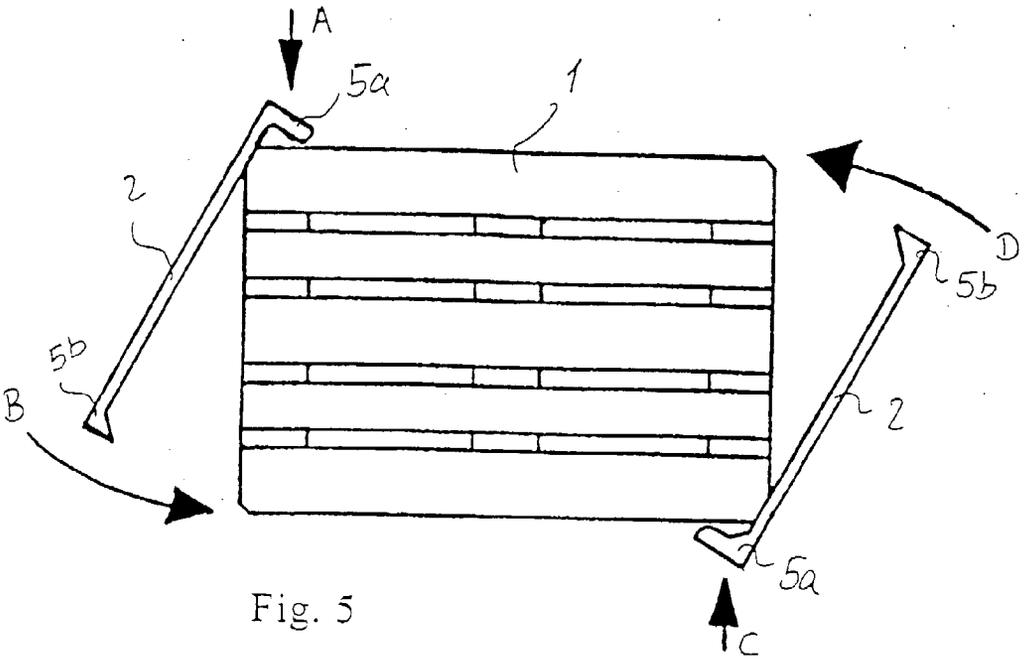

Fig. 5

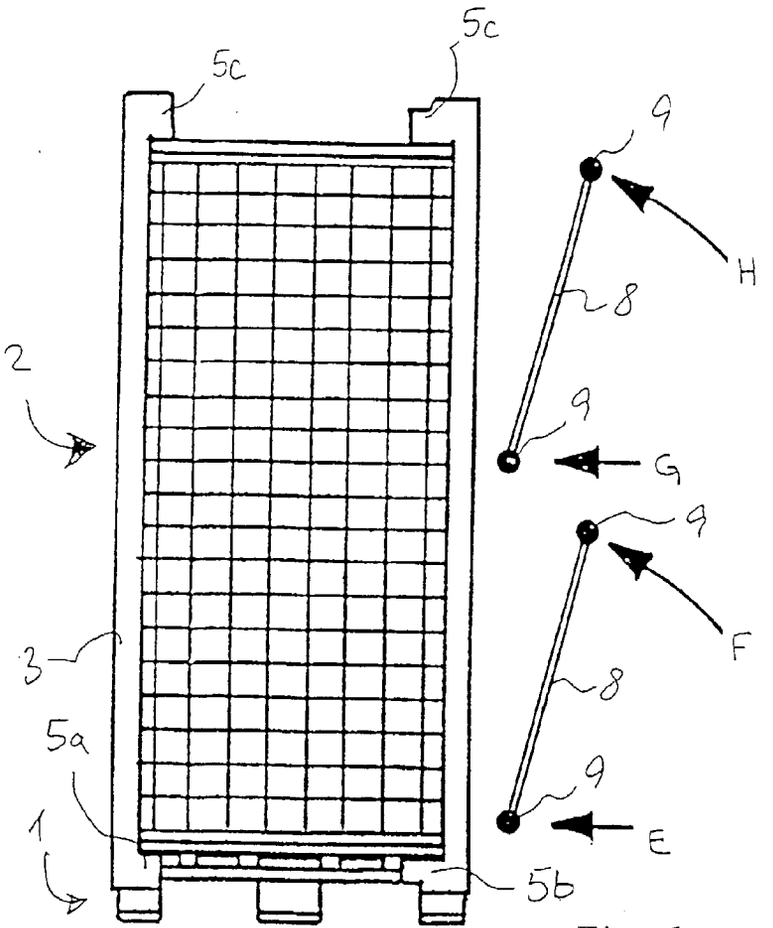

Fig. 6.

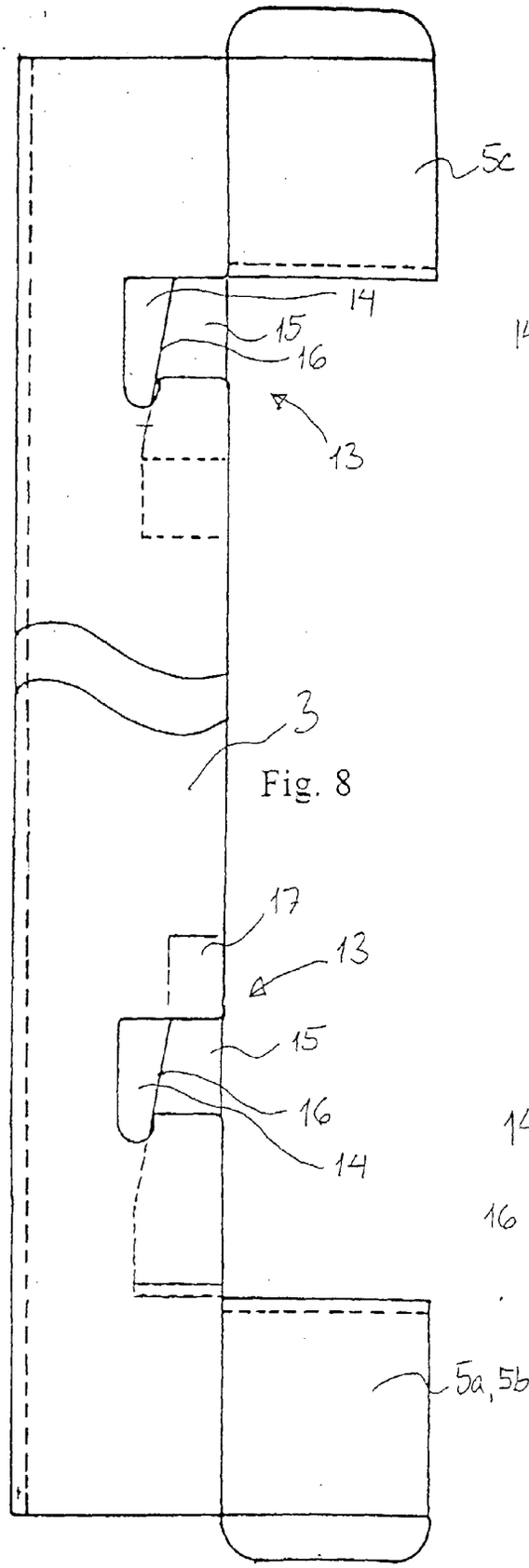

Fig. 8

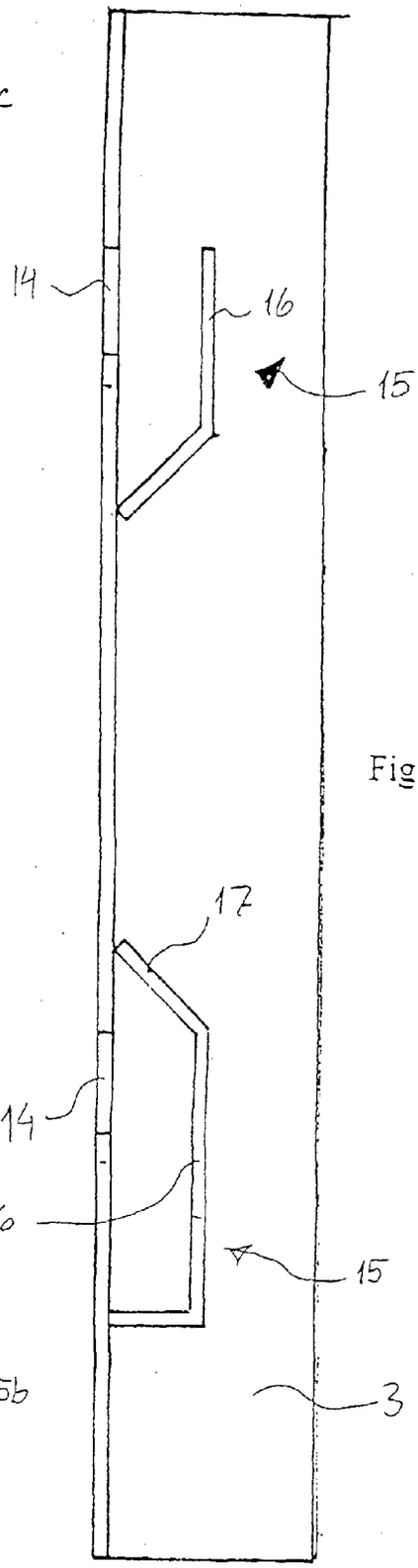

Fig. 9

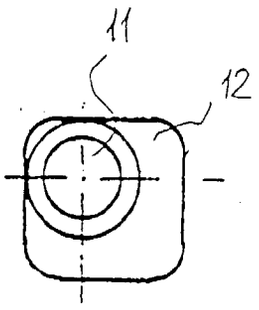

Fig. 10b

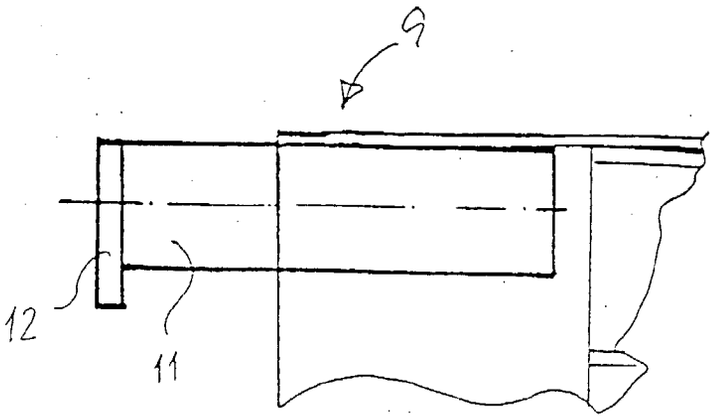

Fig. 10a

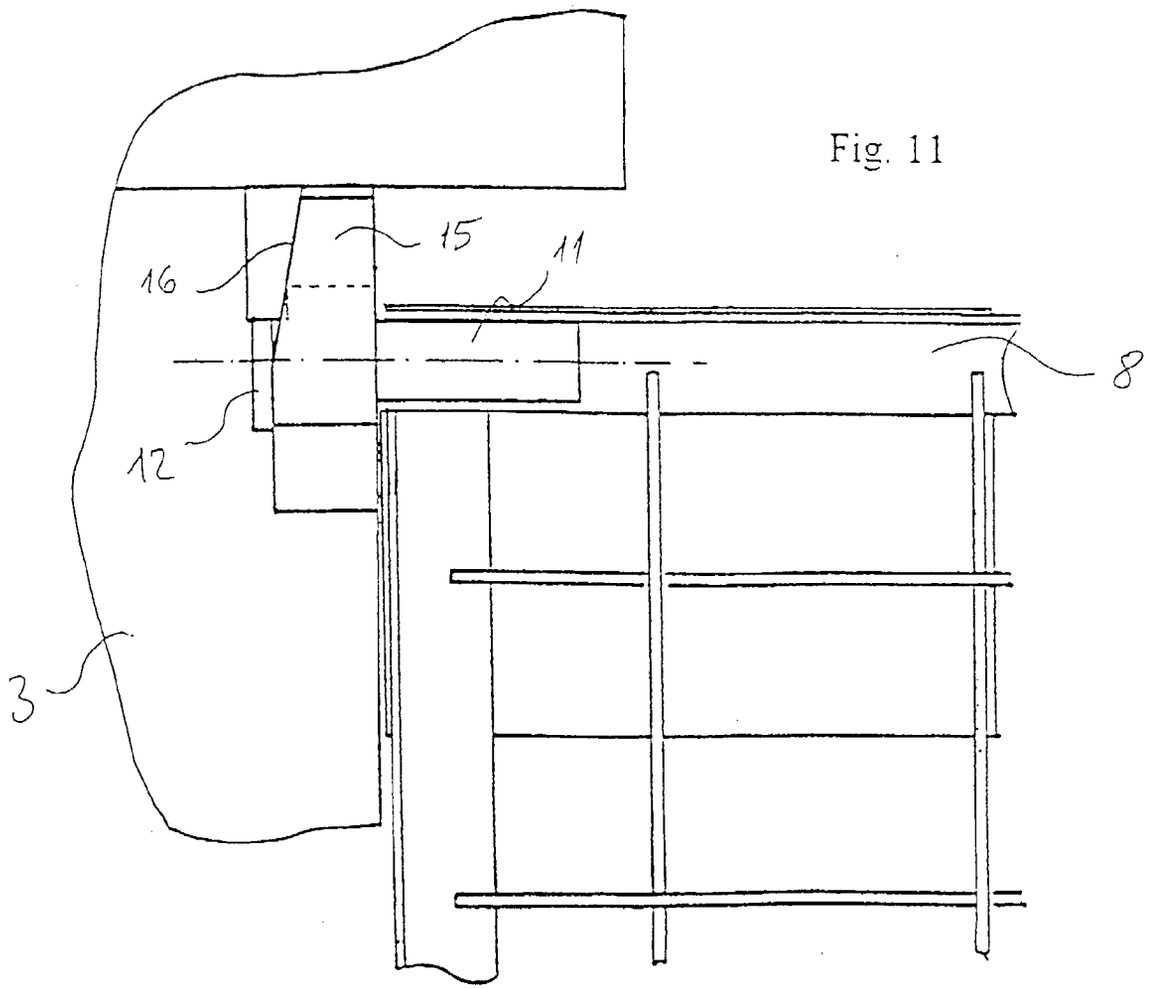

Fig. 11

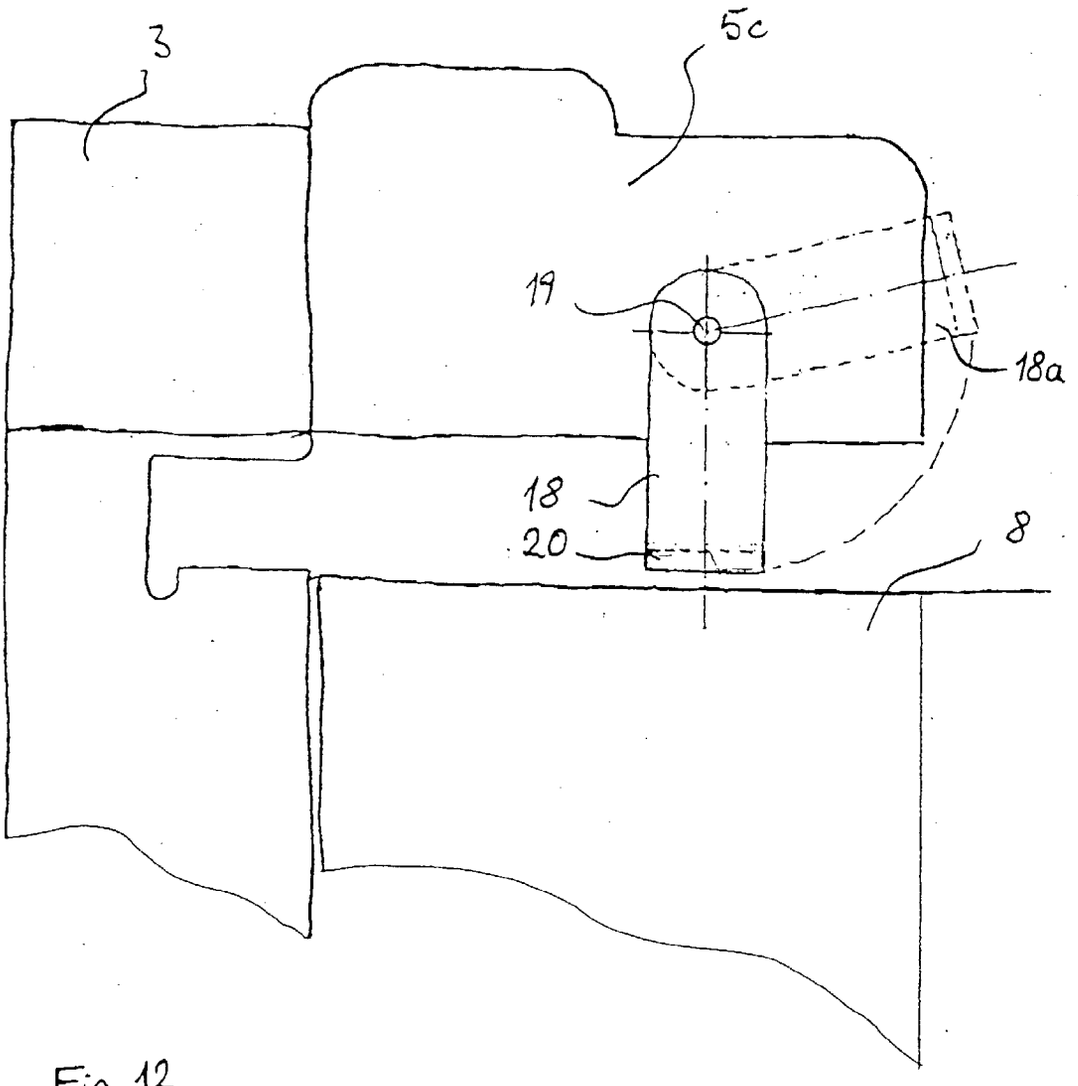

Fig. 12

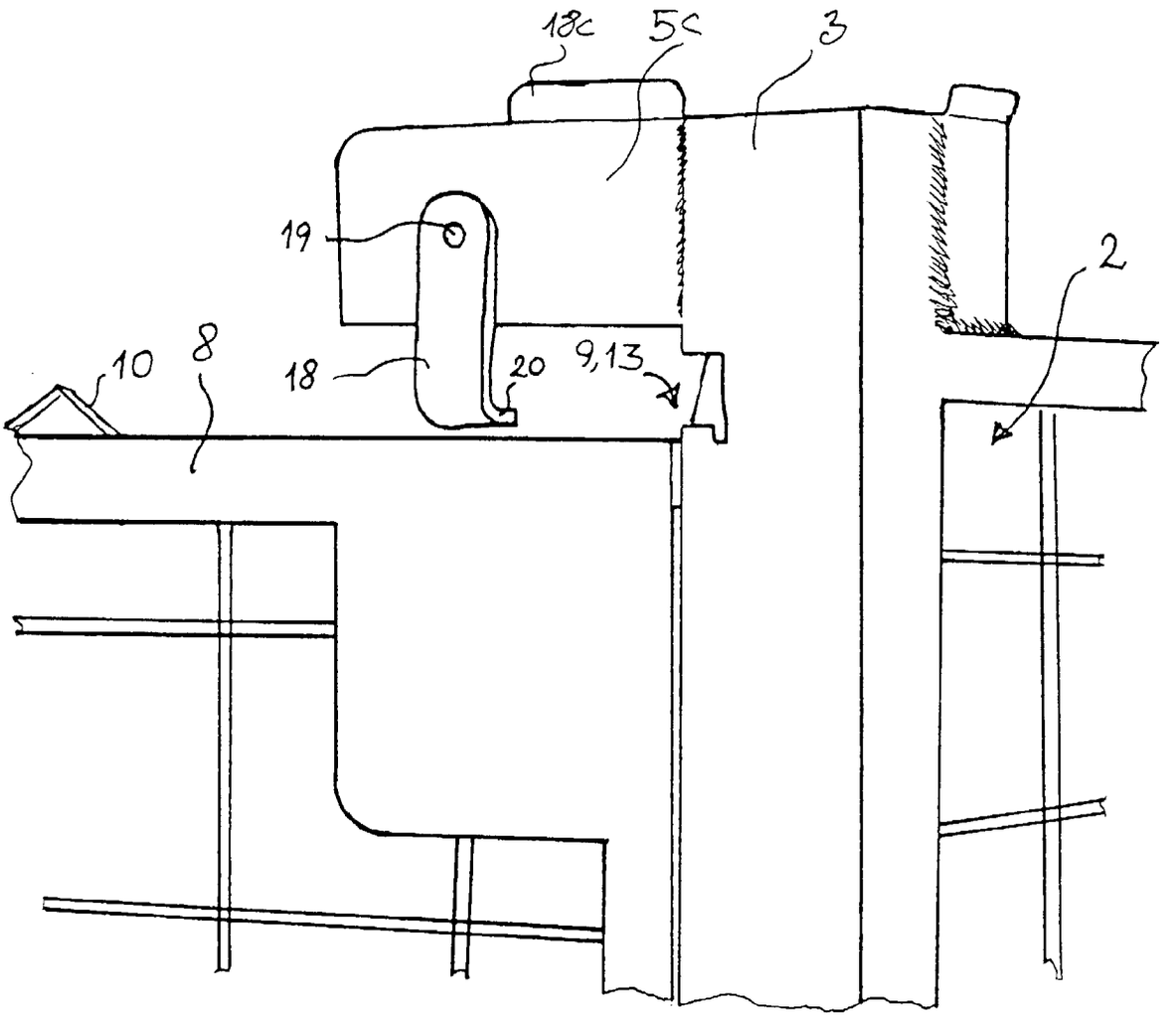

Fig. 13

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 98 61 0005

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	FR 2 377 542 A (AMROGOWICZ) 11 August 1978 * the whole document *	1,2,7, 10,12	B65D19/12 B65D19/38
A	GB 975 851 A (FINSPA ENGINEERING) * the whole document *	1,3-6	
A	DE 77 32 613 U (ASPA-FÖRDERGERÄTE) 9 March 1978 * figures *	1,3-6	
A	NL 9 500 208 A (PASINI & CIA) 2 October 1995 * figures 7,8 *	1,2	
A	FR 2 317 174 A (ATELIERS REUNIS) 4 February 1977 * the whole document *	1,2,8-12	

TECHNICAL FIELDS SEARCHED (Int.Cl.6)

B65D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	8 June 1998	Gino, C

CATEGORY OF CITED DOCUMENTS

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