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(54) Locking system for shelters or the like

(57) A locking system for transporting a shelter or the like comprising a parallelepiped structure (1) having at least four locking regions (2) obtained at each corner of the bottom portion of said parallelepiped structure (1), the system is characterised in that it comprises telescopic locking means (21,22,23,24) integrally mounted at each locking region of said at least four locking regions (2). The shelter further provides means (3,31,32) for hoisting and locking in position.

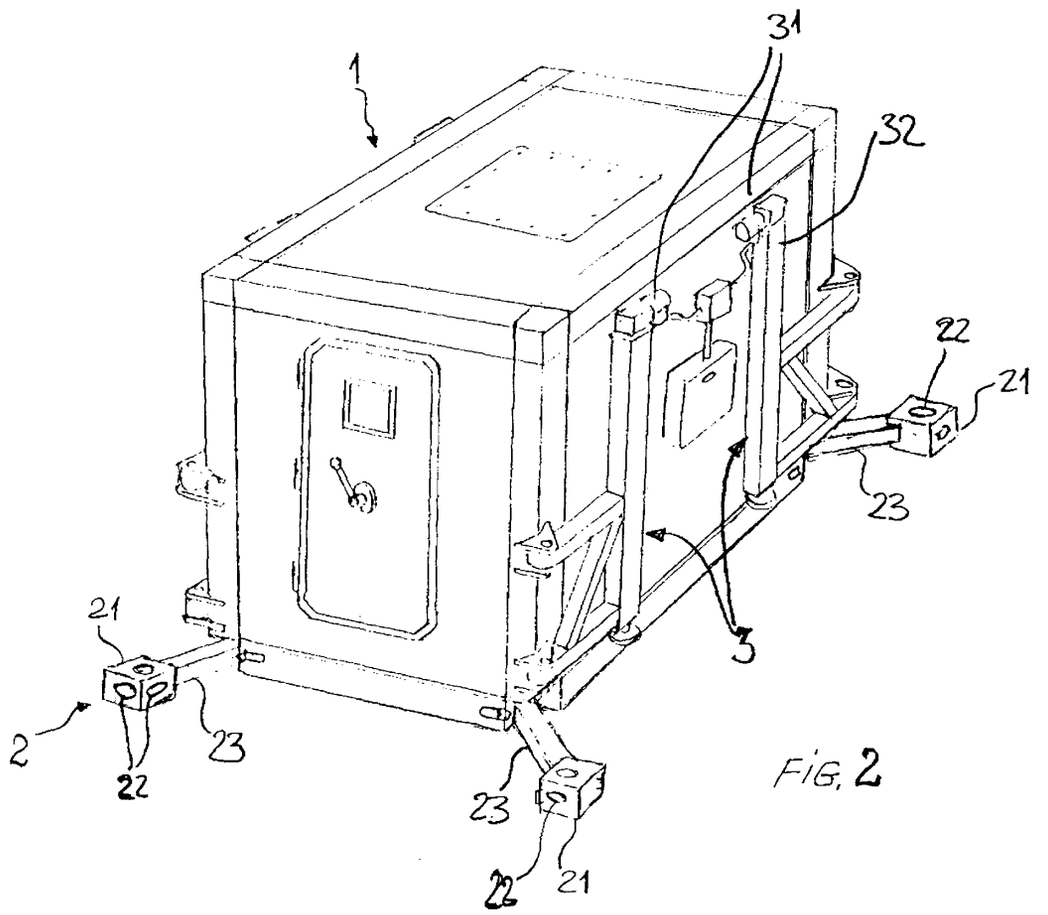


FIG. 2

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Description

[0001] The present invention refers to a locking system for the transporting of shelters or the like, and more precisely to a locking system for the transporting of shelters or the like having non-standard dimensions.

[0002] The use of shelters or containers for transporting military and/or civil equipments is already known. Typically, such shelters are shaped as a parallelepiped structure resembling those of freight containers, which have dimensions codified according to ISO standards in order to standardise their handling on vehicles and the like. Therefore, usually also the so-called shelters have the same ISO standard dimensions of the analogous freight containers, so as to make easy and codified the transport of the former on generic transporting vehicles.

[0003] However, a problem subsists in the fact that some of these kind of shelters do not show dimensions within the so called ISO codification, i.e. they have non-ISO standard dimensions. In these cases, there is provided the use of auxiliary locking systems provided onto the transporting vehicle.

[0004] Such locking systems typically comprise pallet-like slings providing the use of rope-shaped members or chains disposed over the whole length and the width of the shelter in order to lock the latter onto the base of the vehicle which provides locking members thereto. Such locking operation entails the drawback of being particularly complicated, entailing a remarkable waste of time and therefore high costs.

[0005] Further, in case of air transportation of such a non-standard shelters, a further drawback lies in that the abovedescribed locking operation on the airplane is particularly cumbersome, as well as complicated due to the scanty space available aboard.

[0006] Hence, object of the present invention is to solve the abovementioned drawbacks by providing a locking system for the transportation of non-ISO shelters or containers which is integral to the shelter in order to allow the locking of the latter on a transporting vehicle for ISO standard shelters without any need of auxiliary locking systems.

[0007] Another object of the present invention is to provide a locking system for the transportation of non-ISO standard shelters or containers of simple manufacturing, sturdy and low-cost.

[0008] Hereinafter, the detailed description of a preferred embodiment of the shelter locking system of the present invention will be given, by way of example and without limitative purposes, making reference to the annexed drawings, wherein:

Figure 1 is a perspective view of a shelter incorporating the locking system of the present invention shown in a closed condition;
Figure 2 is a perspective view of the shelter of Figure 1 incorporating the locking system of the present invention shown in an extended condition;
Figure 3 is a side elevational view showing a shelter incorporating the locking system of the present invention and mounted on a transporting vehicle for shelters or the like having ISO standard dimensions;
Figure 4 is a top plan view of the shelter of Figure 3;
Figure 5 is a side elevational view showing the shelter incorporating the locking system of the present invention mounted on a vehicle transporting shelters having non-ISO standard dimensions;
Figure 6 is a bottom plan view partially and illustrating the locking system for shelter according to the present invention; and
Figure 7 is a partial cross-sectional view of a portion of the locking system of the present invention.

[0009] With reference now to Figure 1, a shelter incorporating the locking system of the present invention is illustrated.

[0010] According to the invention, a shelter incorporating a parallelepiped structure 1 is provided. At the bottom region thereof and onto each comer of the parallelepiped structure 1 there are provided locking regions 2 apt to cooperate with respective complementary locking regions mounted onto the transporting vehicle and being part of the state of the art.

[0011] Moreover, the shelter incorporates four hoisting arms 3, each mounted on a hinge means at the edge region of the structure 1. The hoisting arms 3 can perform an angular excursion of about 270°, from a closed position to a fully opened position. The hoisting arms 3 comprise each a motor 31 and a hoisting cylinder 32 autonomously operating by an externally operated and controlled control unit.

[0012] The function of the hoisting arms 3 is to render the shelter self-loadable and self-movable during the handling steps thereof, in a totally independent manner and with no need of the usual handling vehicles, i.e. truck lifter or the like. In the present application, the structure, the operation and the control of the hoisting arms 3 will not be given a detailed explanation thereof, as being subject matter of EP 1 199 259 A1 of the present applicant and not constituting subject of the present invention.

[0013] With reference now to Figure 2, the locking system of the present invention, in an opened or extended position, is illustrated. According to the invention, at each locking region there is provided a telescopic device which comprises a square box-shaped locking member 21 apt to cooperate to with a complementary locking member set by ISO standards and provided onto the transporting vehicle (not shown in the figure and better illustrated hereinafter).

[0014] The locking member 21 has several slot-shaped regions 22 for the locking of the same on the transporting vehicle in a already known manner. The locking member 21 is fixedly mounted on an elongate

member 23 that which is slidable housed inside of the bottom region of the shelter structure 1 and being apt to telescopically slide to/fro the latter (better illustrated hereinafter). As it will be apparent from the following description, the excursion of the members 23 allows to vary the distance among each of the locking regions 2, and more specifically between the locking members 21.

[0015] With reference now to Figures 3, 4 and 5, known-art mounting and locking modes of the shelter incorporating the locking system of the present invention on a transporting vehicle for shelters, containers or the like are illustrated.

[0016] More precisely, and with particular reference to Figures 3 and 4, upon having positioned a shelter equipped with the locking system of the present invention on a transporting vehicle 4, first the telescopic members 23 are extracted from their housings until let coinciding the locking members 21 with the respective complementary locking regions provided onto the transporting vehicle 4.

[0017] Then, the locking members 21 are secured onto the locking regions in a standardised manner, thereby making the shelter structure 1 fixedly locked onto the transporting vehicle 4 according to the required standards.

[0018] It has to be pointed out that, according to the locking system of the present invention, a shelter incorporating such a locking system can advantageously be securely locked and transported according to the standard requirements onto a generic transporting vehicle, both when the shelter shows non-standard dimensions, therefore being not compatible with the standardised transporting vehicles, and when is available a transporting vehicle with different dimensions to those of the present shelter.

[0019] In fact, with simply extracting the telescopic members 23 from the structure 1 of the shelter after positioning the same onto the transporting vehicle, the former will be locked onto the latter for any dimension and position among locking regions is available on board.

[0020] Moreover, as it is apparent from Figure 5, the shelter incorporating the locking system of the present invention is likewise apt to be transported on a transporting vehicle 5 for shelters of dedicated both standard or non-standard dimensions.

[0021] More precisely, in case of a shelter incorporating the locking system of the present invention be non-standard sized, there may also be provided an "interface" structure 51 dedicated to the transportation of the same on a vehicle having a non-ISO standard loading deck 5. Of course, such a structure 51 allows the locking of the present shelter onto the vehicle with no need of extracting the telescopic members 23 from their housings.

[0022] However, it should be highlighted that the realisation and the operation of such an interface structure 51 is subject matter of another patent application of the same applicant, hence its detailed description will be herewith omitted.

[0023] With reference now to Figures 6 and 7, the locking system of the present invention is illustrated in detail. As it is apparent from the figures, at the bottom region of the shelter structure 1 and internally thereto there are obtained housings 24 for each telescopic member 23, each constituting a sliding guide for the relevant telescopic member 23 housed therein.

[0024] Each housing 24 is integrally mounted internally to the shelter structure 1, so as to be preset the excursion and the tilt of the sliding direction of each telescopic member 23. Moreover, on each telescopic member 23 there are provided stopping means 25 such a flange or the like, in order to accurately set the excursion length.

[0025] As it is better illustrated in Figure 7, each guide housing 24 is fixedly located between an external bottom surface 10 and an internal bottom surface 11 integral to the shelter structure 1. Typically, the external surface 10 is the surface which contacts the deck floor and it should meet the requirements of the ISO standards on shelter transportation. On the other hand, the internal surface 11 encloses the locking system of the present invention and it constitutes the bottom surface inside of the shelter.

[0026] As it is apparent from the figures, the presence of the external bottom surface 10 onto the shelter structure 1 is related to the use thereof, since the operation of the locking system of the present invention is not constrained by the presence or the absence of such an external bottom surface 10 thereon. In fact, in case the shelter of the present invention has to be transported on a transporting aircraft, there is required the presence of a flat bottom surface 10 which can enclose the locking system of the present invention, and making the shelter suitable to slide onto rolling tracks inside of the aircraft.

[0027] Moreover, according to the locking system of the present invention, there still may be provided the application of further external fittings for specific locking on suitable transporting means, i.e. the so-called "longerons" which are applicable on the edges of the shelter to secure the latter inside of an aircraft with no need to use pull ropes, and without having such fittings interfere with the locking system of the present invention.

Claims

1. A locking system for transporting a shelter or the like comprising a parallelepiped structure (1) having at least four locking regions (2) at each comer of the bottom portion of said parallelepiped structure (1), the system being **characterised in that** it comprises telescopic locking means (21,22,23,24) integrally mounted at each locking region of said at least four locking regions (2).

2. The locking system according to the preceding claim, wherein said telescopic means comprises a locking member (21,22) for cooperating with a complementary portion located on a transport vehicle (4,5), and an elongated member (23) integrally connected to said locking member (21,22) and apt to telescopically slide to/fro the inside of said parallelepiped structure (1) at the bottom portion thereof and onto guide means (24).

3. The locking system according to the preceding claim, wherein said locking member (21) has the shape of a box provided with a slot shaped engaging regions (22).

4. The locking system according to claim 2 or 3, wherein said elongated member (23) has a box profile when observed in a cross section.

5. The locking system according to the preceding claim, wherein said elongated member further comprises stopping means (25).

6. The locking system according to any one of the preceding claims, wherein the bottom portion of said parallelepiped structure (1) has an external bottom surface (10) that is flat.

7. The locking system according to the preceding claim, wherein said bottom portion of said parallelepiped structure (1) further comprises an inner bottom surface (11) therein, and spaced from said external bottom surface (10), the arrangement being such that between said bottom surface (11) and said external bottom surface (10) said guide means (24) are housed.

8. The locking system according to the preceding claim, wherein said guide means comprises each a member (24) for guiding and containing each elongated member (23) having a shape complementary to the latter.

9. Locking system according to claims 5-8, wherein said stopping means comprises a flange (25) mounted at the internal end of said elongated member (23) for cooperating with said guide region (24).

10. A shelter or the like comprising a substantially parallelepiped structure (1), **characterised in that** it further comprises the locking system according to the preceding claims, and means (3,31,32) for hoisting and locking in position.

11. The shelter or the like according to the preceding claim, wherein said hoisting means comprises at least four telescopic arms (3) each mounted on hinge means at the four edge regions of said parallelepiped structure (1).

12. The shelter or the like according to the preceding claim, wherein each arm of said hoisting arms (3) comprises power means (31) and hoisting means (32).

13. The shelter or the like according to the preceding claim, wherein said power means are motors (31).

14. The shelter or the like according to claim 12 or 13, wherein said hoisting means are a hoisting cylinder (32).

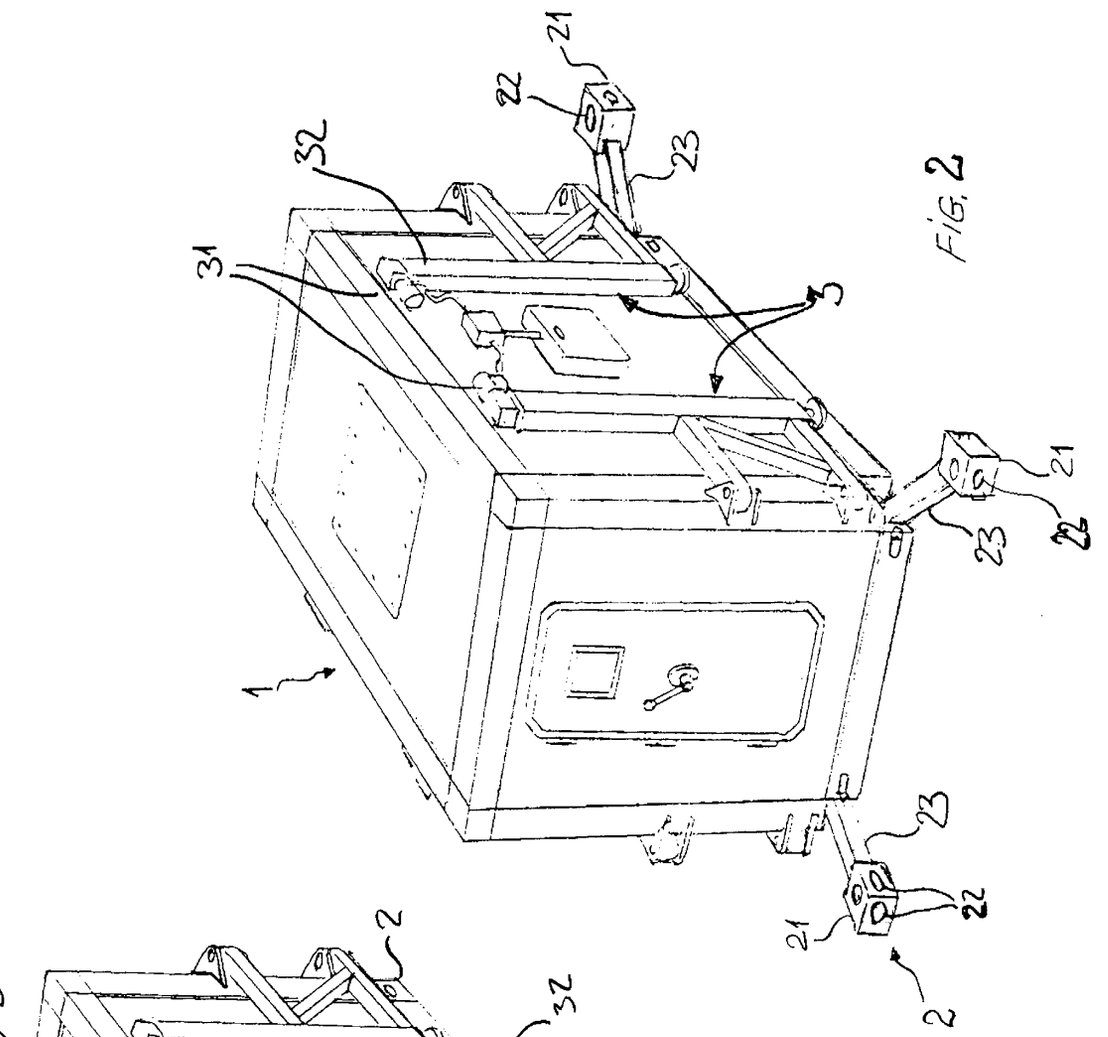


FIG. 2

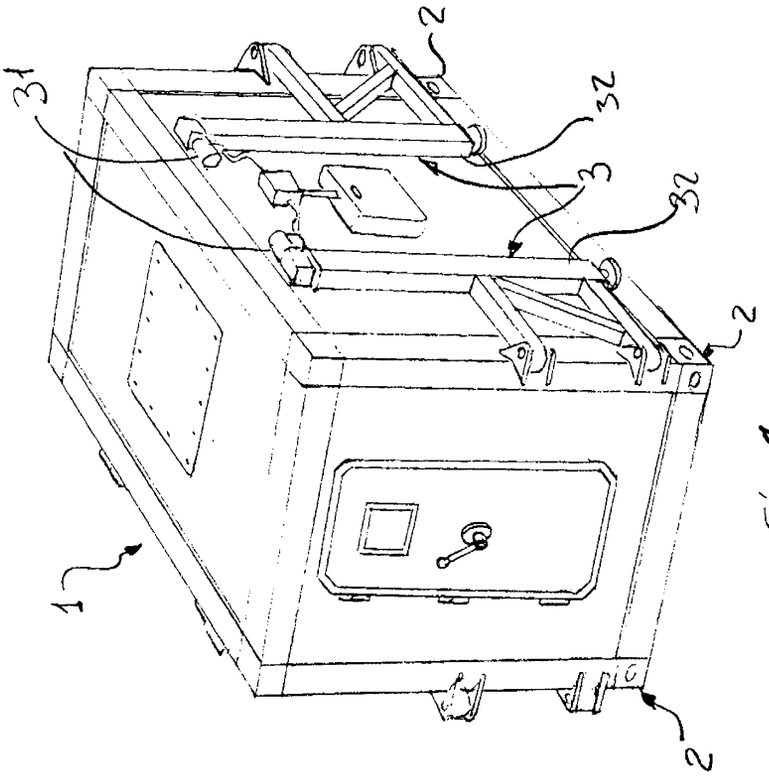


FIG. 1

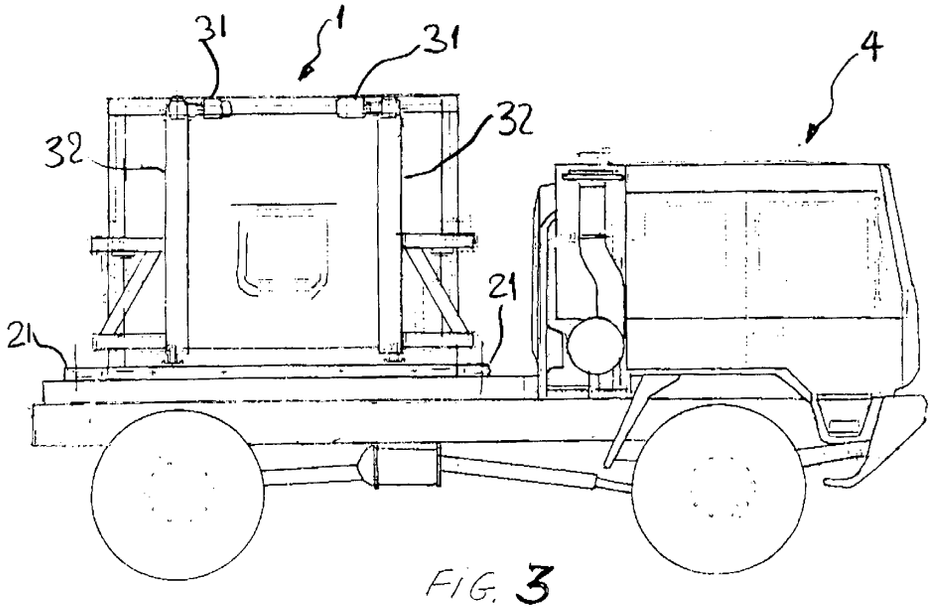


FIG. 3

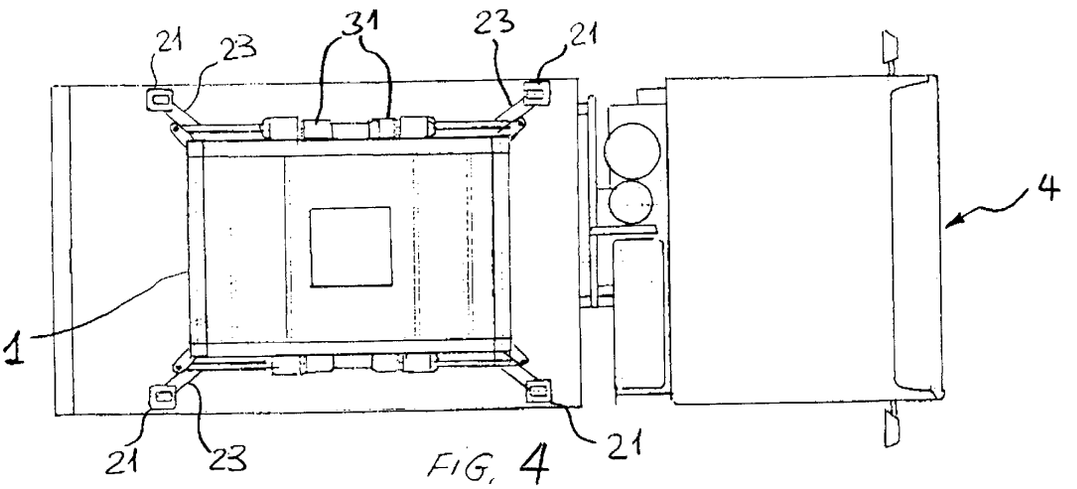


FIG. 4

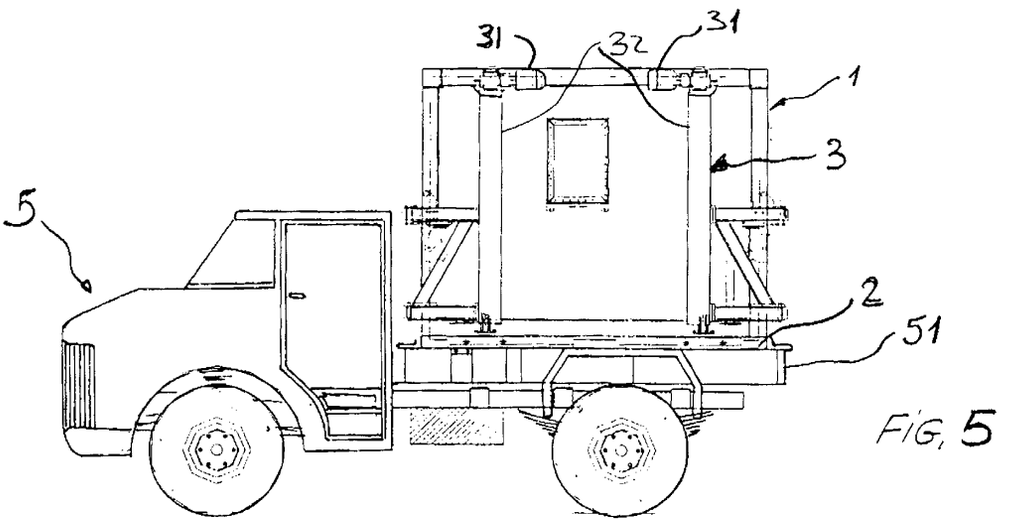


FIG. 5

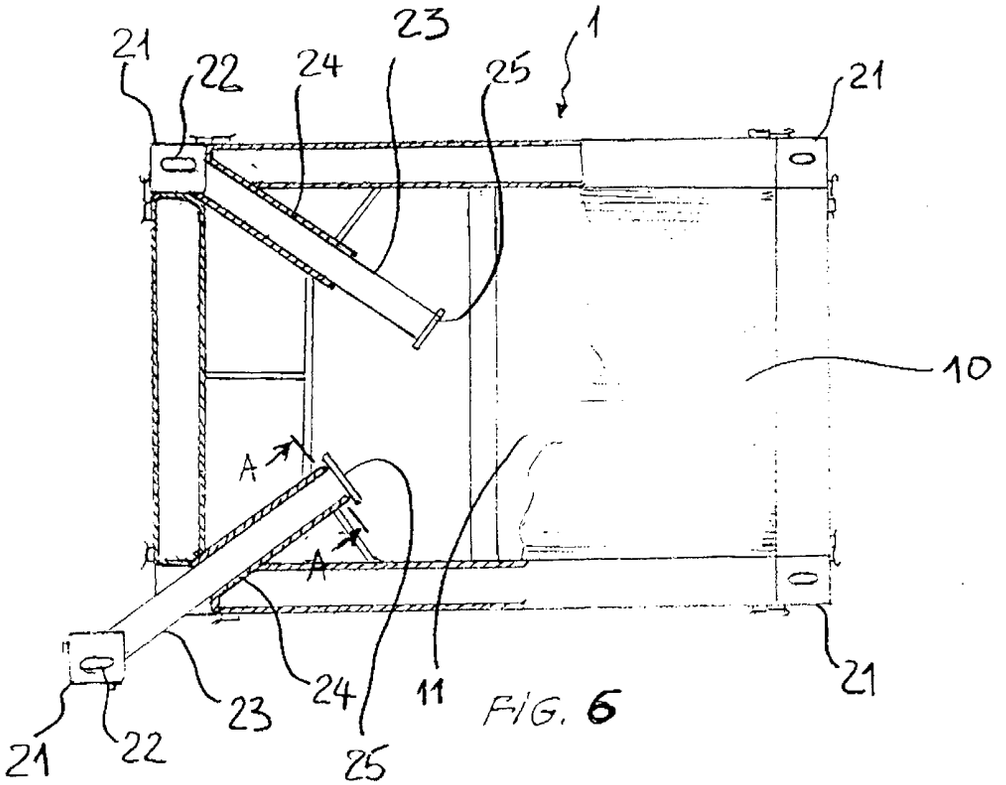


FIG. 6

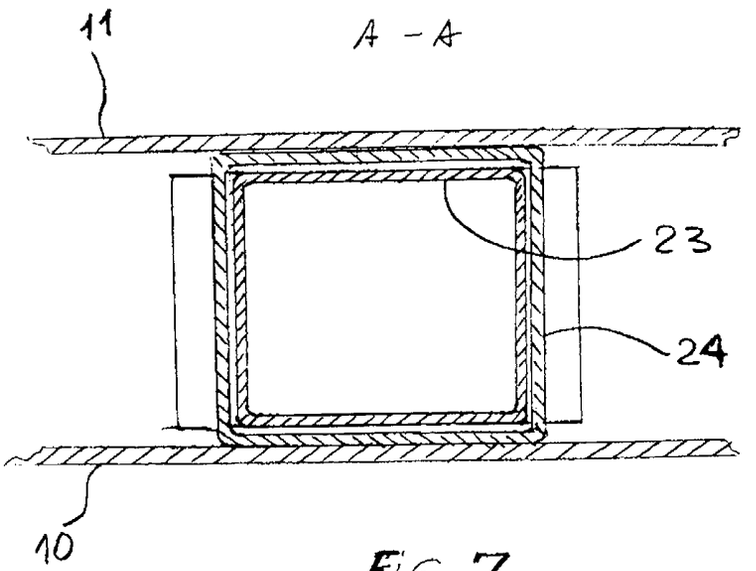


FIG. 7

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EUROPEAN SEARCH REPORT

Application Number
EP 03 42 5236

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X Y	US 4 682 923 A (GERHARD HELMUT) 28 July 1987 (1987-07-28) * column 1, line 40 - line 44; claim 1; figures 3-6 *	1,2,5 10-14	B65D88/02 E04H1/12 B65D90/14
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TECHNICAL FIELDS SEARCHED (Int.Cl.7)
B65D E04H E04B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	16 September 2003	Bridault, A

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