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EP-A- 1 199 259

Locking system for shelters or the like
System zum Sichern von Schutzräumen oder dergleichen
Système d’ancrage pour abri ou similaire

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The present invention refers to a locking system for the transportation of shelters or the like, and more precisely to a locking system for the transportation 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 non-standard shelters, a further drawback lies in that the above described locking operation on the airplane is particularly cumbersome, as well as complicated due to the scanty space available aboard.

0006 US-A-4,682,923 discloses a shelter wherein locking means according to the preamble of appended claim 1 project at the lower corners thereof, for engaging further locking members projecting from the supporting surface in close proximity of said corners.

0007 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.

0008 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.

0009 The above objects are met by a locking system for transporting a shelter or the like according to appended claim 1.

0010 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.

0011 With reference now to Figure 1, a shelter incorporating the locking system of the present invention is illustrated.

0012 According to the invention, a shelter incorporating a parallelepiped structure 1 is provided. At the bottom region thereof and onto each corner 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.

0013 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.

0014 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.

0015 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 with a complementary locking member set by ISO standards and provided onto the transporting vehicle (not shown in the figure and better illustrated...
However, it should be highlighted that the real-present shelter onto the vehicle with no need of extracting

Of course, such a structure allows the locking of the

specifically between the locking members.

distance among each of the locking regions, and more

in the following description, the excursion of the members allows to vary the

distance among each of the locking regions, and more specifically between the locking members.

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.

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, first the telescopic members are extracted from their housings until the locking members coincide with the respective complementary locking regions provided onto the transporting vehicle.

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

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 securedly 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.

In fact, with simply extracting the telescopic members from the structure 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.

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 for shelters of dedicated both standard or non-standard dimensions.

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 dedicated to the transportation of the same on a vehicle having a non-ISO standard loading deck.

Of course, such a structure allows the locking of the present shelter onto the vehicle with no need of extracting the telescopic members from their housings.

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

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 and internally thereto there are obtained housings for each telescopic member, each constituting a sliding guide for the relevant telescopic member housed therein.

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

As it is better illustrated in Figure 7, each guide housing is fixedly located between an external bottom surface and an internal bottom surface integral to the shelter structure. Typically, the external surface 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 encloses the locking system of the present invention and it constitutes the bottom surface inside of the shelter.

As it is apparent from the figures, the presence of the external bottom surface onto the shelter structure 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 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 which can enclose the locking system of the present invention, and making the shelter suitable to slide onto rolling tracks inside of the aircraft.

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 “long-eros” 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 having locking regions at each corner of the bottom portion thereof, further comprising telescopic locking means integrally mounted at each locking region, having a respective locking member cooperating with a complementary portion located on a transport vehicle, and an elongated member integrally connected to said

long-eros

ISO

standard dimensions.

EP 1 468 939 B1
locking member (21,22) and apt to telescopically slide to/from the inside of said parallelepiped structure (1) at the bottom portion thereof and onto guide means (24), characterised in that said locking member (21) has the shape of a box provided with slot shaped engaging regions (22).

2. The locking system according to claim 1, wherein said elongated member (23) is diagonally arranged inside said bottom portion of the parallelepedic structure (1).

3. The locking system according to claim 1 or 2, wherein said elongated member (23) has a box profile when observed in a cross section.

4. The locking system according to any of preceding claims, wherein said elongated member further comprises stopping means (25).

5. 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.

6. The locking system according to claim 5, wherein said bottom portion of said parallelepiped structure (1) further comprises an inner bottom surface (11) thereof, 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.

7. The locking system according to claim 6, wherein said guide means comprises each a member (24) for guiding and containing each elongated member (23) having a shape complementary to the latter.

8. The locking system according to any of claims 4 to 7, 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).

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

10. The shelter or the like according to claim 9, 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).

11. The shelter or the like according to claim 10, wherein each arm of said hoisting arms (3) comprises power means (31) and hoisting means (32).

12. The shelter or the like according to claim 11, wherein said power means are motors (31).

13. The shelter or the like according to claim 11 or 12, wherein said hoisting means are a hoisting cylinder (32).

Patentansprüche

1. Verriegelungssystem zum Transportieren einen Unterstand oder ähnlichen, umfassend einen quaderförmige Aufbau (1), der an jeder Ecke seiner Bodenseite Verriegelungsbereiche (2) aufweißt, weiter umfassend ausziehbaren, an Verriegelungsbereich (2) integral aufgebaute Verriegelungsmittel (21,22,23,24), die entsprechendes Verriegelungs- glied (21,22) zum Zusammenarbeiten mit einem komplementären Teil, der auf einen Kraftfahrzeug (4,5) gelegt ist, und ein verlängertes Glied (23) auf- weissen, das an besagtem Verriegelungsglied (21,22) integral verbunden ist und geeignet ist, an/von dem Inneren besagtes quaderförmigen Auf- baus (1) und auf Führungsmittel (24) ausziehbar zu schieben, dadurch gekennzeichnet, dass besagtes Verriegelungsglied (21) die Form eines mit schlitzzförmiger einhakender Bereiche (22) versehenen Kastens hat.

2. Verriegelungssystem gemäß Anspruch 1, wobei be- sagtes verlängertes Glied (23) innerhalb besagter Bodenseite des quaderförmigen Aufbaus (1) diagonal angeordnet ist.

3. Verriegelungssystem gemäß Anspruch 1 oder 2, wo- bei besagtes verlängertes Glied (23) ein Kastenprofil im Querschnitt aufweißt.


5. Verriegelungssystem gemäß einer der vorherge- henden Ansprüche, wobei die Bodenseite besagtes quaderförmigen Aufbaus (1) eine äußere, ebene Bodenfläche (10) hat.

6. Verriegelungssystem gemäß Anspruch 5, wobei be- sagte Bodenseite besagtes quaderförmigen Auf- baus (1) eine innere Bodenfläche (10) weiter um- fasst, die im Abstand von besagter äußeren, ebenen Bodenfläche (10) liegt, wobei die Anordnung dersel- ben derart ist, dass besagte Führungsmittel (24) zwi- schen besagter Bodenfläche (11) und besagter äu- ßeren, ebenen Bodenfläche (10) untergebracht sind.

7. Verriegelungssystem gemäß Anspruch 6, wobei je- des besagtes Führungsmittel ein Glied zum Führen
und Enthalten jedes verlängertes Glied (23) umfasst, das eine zu letzterem ergänzenden Form hat.


10. Unterstand oder ähnlichen gemäß Anspruch 9, wobei besagtes Hebemittel mindestens vier ausziehbare Arme (3) umfasst, wobei jeder an der vier Eckbereiche besagtes quaderförmigen Aufbaus (1) aufgebaut ist.


12. Unterstand oder ähnlichen gemäß Anspruch 11, wobei besagte Leistungsmittel Motoren (31) sind.

13. Unterstand oder ähnlichen gemäß Anspruch 11 oder 12, wobei besagte Hebemittel ein Hebezylinder (32) sind.

Revendications

1. Système de verrouillage pour transporter un abri ou similaire, comportant une structure parallélépipédique (1) ayant des régions (2) de verrouillage à chaque coin de sa portion de fond, comportant ultérieurement des moyens (21,22,23,24) télescopiques de verrouillage, montés de façon solidaire à une région (2) de verrouillage, ayant une pièce (21,22) de verrouillage respective, pour coopérer avec une portion complémentaire placée dans un véhicule de transport (4,5), et une pièce allongée (23) intégralement connectée avec ladite pièce de verrouillage (21,22) et apte à glisser vers/de la portion de fond intérieure de ladite structure parallélépipédique (1) et sur des moyens de guidage (24), caractérisé en ce que ladite pièce de verrouillage (21) présente la forme d’une boîte fournie de régions (22) d’embrayage à forme de fissure.

2. Système de verrouillage selon la revendication 1, où ladite pièce allongée (23) est agencée en diagonale dans ladite portion de fond de la structure parallélépipédique (1).

3. Système de verrouillage selon la revendication 1 ou 2, où ladite pièce allongée (23) présente un profile de boîte quand elle est observée en coupe transversale.

4. Système de verrouillage selon une quelconque des revendications précédentes, où ladite pièce allongée comporte ultérieurement des moyens d’arrêt (25).

5. Système de verrouillage selon une quelconque des revendications précédentes, où la portion de fond de ladite structure parallélépipédique (1) présente une surface (10) extérieure de fond qui est plate.

6. Système de verrouillage selon la revendication 5, où ladite portion de fond de ladite structure parallélépipédique (1) comporte ultérieurement une surface (11) intérieure de fond, espacée de ladite surface (10) extérieure de fond, l’arrangement étant tel que ledits moyens (24) de guidage sont logés entre ladite surface (11) de fond et ladite surface (10) extérieure de fond.

7. Système de verrouillage selon la revendication 6, où chacun desdits moyens de guidage comporte une pièce (24) pour guider et contenir chaque pièce allongée (23), ayant une forme complémentaire à cette dernière.

8. Système de verrouillage selon une quelconque des revendications 4 à 7, où ledits moyens d’arrêt comprennent une bride (25) monté à l’extrémité extérieure dudit membre allongé (23) pour coopérer avec ladite région (24) de guidage.

9. Abri ou similaire comprenant une structure essentiellement parallélépipédique (1), caractérisé en ce qu’il comprend ultérieurement le système de verrouillage selon une quelconque des revendications précédentes, et des moyens (3,31,32) pour le soulever et le verrouiller en position.

10. Abri ou similaire selon la revendication 10, où ledits moyens de soulèvement comprennent au moins quatre bras télescopiques (3), chacun monté sur des moyens à charnière aux quatre régions de bord de ladite structure parallélépipédique (1).

11. Abri ou similaire selon la revendication 11, où chaque bras desdits bras (3) de soulèvement comprend des moyens d’alimentation (31) et des moyens (32) de soulèvement.

12. Abri ou similaire selon la revendication 11, où ledits moyens d’alimentation sont des moteurs (31).

13. Abri ou similaire selon la revendication 11 ou 12, où
lesdits moyens de soulèvement sont constitués par un cylindre (32) de soulèvement.