

SPECIFICATION

Containers, primarily for transporting freight by air

- 5 The invention concerns freight containers, primarily for transporting freight by air, having a floor and a structural frame of bars defining a load-carrying space. This frame is generally, at least in part, covered with sheeting, fabric or the like.
- 10 Such freight containers are known in connection with the transportation of items which are stacked inside the container. Often however, there is a need to transport items of clothing in a hanging position inside such containers. In the containers available up to now, this has been possible only by placing special strands in the container and hanging the items on these. The stands however have the disadvantage that they must be returned in the container with the result that the latter can not be used on the return trip for the transportation of goods, i.e. it is returned almost empty. Collapsible stands have not proved of much value either, as the assembling and dismantling, and the special unpacking and re-packing, are very inconvenient, and parts are often lost during transit.

In view of this, the inventor set himself the task of developing a freight container of the kind described at the beginning, which can be used both for the transportation of stackable items and for items of clothing or the like which are transported hanging, and such that the said container does not require a great deal of alteration.

This object is achieved by way of the invention, in a freight container having a floor, and a structural frame of bars defining a load-carrying space, in that at least one of the bars, running transversely in a roof portion of the frame, carries a rail section from which supports for hanging items of freight are suspended via sliders, and at least one supporting bar has its lower end releasably fixed to the floor and its upper end hinged to the frame, and the supporting bar can be swung upwards and secured to the roof portion of the frame.

In accordance with a preferred feature the supporting bar is secured to the roof portion in such a way that the slidable supports which have been hanging down from the roof are caught by the bar and held safely in a region where they are out of the load-carrying space during transit.

Designing the container this way has the result that the supporting bar and the bar carrying the rail section form a closable space for the supports, the supporting bar usefully being in the form of a channel-shaped section with the open side facing the interior of the container when not being used to form the said space.

As a result of this design, the items of clothing can be hung up in a very simple manner inside the container - the transverse bar on which the items of clothing are supported is securely held in place at both ends. The end of the transverse bar can rest on or near the supporting bar. When goods which are normally stacked have to be transported, the supporting bar, which is not necessary because of the low load on the roof, can be swung out of the way

when the loading side of the container is opened, and held in place below the roof portion where it encloses the supports, keeping them out of the load-bearing space of the container.

- 70 Since this construction finds application mainly with containers with flexible covering, it has been found useful to design the supporting bar such that its length can vary if, on encountering "bumps" on flight, the container begins to distort. This change in length takes place preferably by means of a locking facility, which is provided on the axis of the supporting bar, connecting the supporting bar to the floor of the container when in its vertical load-bearing position, and can be moved by a pre-loaded facility.
- 80 This locking facility can also be employed for securing the supporting bar to the roof portion of the container.

Further advantages, features and preferred details of the invention will now be explained in the following description of preferred embodiments and with the help of the accompanying drawings, viz:-

Figure 1: A perspective view of a freight container with a structural frame and on this a covering, only part of which is shown here.

90 *Figure 2:* An enlarged perspective view of details from Figure 1, part of which has been sectioned here.

Figure 3: A section through a part shown in Figure 2, sectioned along the line III-III in Figure 2.

95 *Figure 4:* A section through a detail of another embodiment, showing a part corresponding approximately to the part shown in Figure 3.

Figure 5: A perspective view of an enlarged, sectioned part from Figure 1.

100 *Figure 6:* Front view of an enlarged vertical bar of the structural frame.

Figure 7: End view of the part shown in Figure 6, sectioned along the line VII-VII in Figure 6.

105 *Figure 8:* End view of a point of engagement for the vertical strut.

Figure 9: Another version of the point of engagement, shown here in cross section as sectioned along the line IX-IX in Figure 1.

A freight container 1 for storing articles of clothing 2 during transport by air has a movable covering over a structural light metal frame and over this a network of straps 6 running parallel to the floor 5 and in the transverse direction.

The frame 3 comprises essentially two polygonal frames 9 which make up the longitudinal sides 7,8 of the container 1, which are joined by bars 10 running transversely to these. The polygonal frames 9 stand on a base frame 11 which is part of the base 5. The long side 8 at the rear in Figure 1 is reinforced by bars 12 and 13 running parallel and at right angles respectively to the floor; the other long side serves as the entry or loading side and is therefore fitted with vertical supporting bars 14 which can be swung about the longitudinal axis A of the container 1 in the direction of the arrow Z, the bars 14 being connected to the upper bar 9a of the polygonal frame 9 by inclined rods 14a.

A plurality of clothes hangers 15 - each bearing an item of clothing - hang on straps 16 or cords 16a (see also Figures 2 and 3); these in turn hang from sliders

17 which can slide in undercut grooves 18 in transverse load bearing bars 19, both ends of which are secured to the upper rods 9a.

Figure 4 shows an alternative shape of transverse bar 19t.

The parts of the polygonal frame 9, the transverse bars 10 and the bars 12 in the long wall 8 also include, at least in part, grooves 20 in which fixtures for clamping facilities can be introduced via openings 21 in the walls 22 forming the grooves (Figure 5), the said fixtures not being shown here simply to preserve clarity in the drawings.

Each of the vertical bars 14 is in the form of a U-shaped channel in cross section, and is releasably hinged to the polygonal frame 9. For example in the embodiment shown in Figures 6 and 7 the bar 14 is hinged on the load-bearing bar 19 by a pin 25 which penetrates hinge plates 26 fixed to the bar 14. These hinge plates 26 are, as shown in Figure 7, made up from angle plate so that the bar 14, when vertical, fits between the upper beam 9a, which is in the form of a hollow section, and the base frame 11, and can take on the role of supporting the load due to the clothing. If the bar 14 needs to be replaced because of damage, it can be released by removing the pin 25.

The lower end 27 of the supporting bar 14 is then secured to the base frame 11 by means of a locking facility 28; a pin 29 of the locking facility 28 engages in an undercut groove 20b in the base frame 11. The pin 29 passes through holes 30 in a U-shaped bracket 31 and is loaded by a spiral spring 32; if one wishes to remove the pin 29 from the groove 20b, one pulls a ring 33, thus raising the locking facility 28 against the force of the spring 32. Next, the bar 14 is swung in the direction of the arrow Z to the roof 34 of the container so that the straps 16 or the like which have been hanging down are caught by the bar 14 and held in the space 40 (Figure 9). When the locking facility 28 engages in a groove 20c in the upper bar 9c (Figure 8), the straps 16 are secured and prevented from sliding; the load-bearing bars 19 and supporting bars 14 combine to form a storage space for these straps or the like which are used in hanging up the items of clothing. At the same time the bars 14 on the loading side 7 leave the opening free for loading the container.

In the version shown in Figure 9, the bolt 29a in the lock 28 is so long that it can be placed in hooks 43 on both sides of the bar 19 and can be removed again. This version is particularly suitable for the case when the bar 14 is shorter than the bar 19 and only partly forms the inner space 40.

When the air freight container 1 is to be used for transporting articles of clothing 2, then the lock 28 is freed from groove 20c by means of horn-shaped handles 42 - or as in Figure 9 by means of the bolt 29a - and the bar 14 can then be brought back into its position as a support or for transporting goods. In this position the special design of the locking facility 28 also allows a slight extension of the bar 14 when the container 1 begins to distort due to the movement of the aircraft.

When the bar 14 is in the position for transporting suspended items e.g. clothing, the straps 16 hanging

from the sliders 17 are distributed over the whole length m of a bar 19; the distance between them is determined by cords or wires 50 the length of which can be altered. These cords 50 are not only for determining the distance n between the sliders 17, but also for introducing them into the groove 18.

CLAIMS

1. A freight container having a floor, and a structural frame of bars defining a load-carrying space, in which at least one of the bars, running transversely in a roof portion of the frame, carries a rail section from which supports for hanging items of freight are suspended via sliders, and at least one supporting bar has its lower end releasably fixed to the floor and its upper end hinged to the frame, and the supporting bar can be swung upwards and secured to the roof portion of the frame.
2. A freight container according to claim 1, in which the supporting bar is secured to the roof portion in such a way that the slidable supports which have been hanging down from the roof are caught by the bar and held safely in a region where they are out of the load-carrying space during transit.
3. A freight container according to claim 2, in which the supporting bar is in the form of a channel-shaped section with the open side facing the interior of the container, with the result that the supporting bar and the bar carrying the rail section form a closable storage space for the supports.
4. A freight container according to any of claims 1 to 3, in which at least one locking facility is provided to secure the supporting bar at its free end.
5. A freight container according to claim 4, in which the locking facility is positioned in the longitudinal axis of the supporting bar, or parallel to this, and can be pushed into its locking condition.
6. A freight container according to claim 4 or claim 5, in which the locking facility engages in an opening in the floor when in the locking position.
7. A freight container according to claim 6, in which there is an opening in the roof portion opposite the hinge of the supporting bar and corresponding to the opening in the base, and the locking facility can be engaged with this opening in the roof portion when in the position where it forms a storage space.
8. A freight container according to any of claims 4 to 7, in which facilities for holding a bolt or the like of the locking facility are provided in a part of the roof portion facing the hinge for the supporting bar.
9. A freight container according to any of claims 1 to 8, in which the length of the supporting bar, plus locking facility if present, is variable.
10. A freight container according to any of claims 1 to 9, in which the sliders are connected by means of flexible cords which determine the spacing between adjacent sliders.



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