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File Number: T 725/90 - 3.2.1

Application No.: 84 302 698.0

Publication No.: 0 127 936

Title of invention: Cargo container

Classification: B65D 88/14

D E C I S I O N
of 14 January 1992

Proprietor of the patent: Robert Looker

Opponent: Alusingen GmbH

Headword:

EPC Article 56

Keyword: "Inventive step (yes)"

Headnote



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Boards of Appeal

Chambres de recours

Case Number : T 725/90 - 3.2.1

DECISION
of the Technical Board of Appeal 3.2.1
of 14 January 1992

Appellant :
(Opponent)

Alusingen GmbH
Alusingenplatz 1
W-7700 Singen (DE)

Representative :

Hiebsch, Gerhard F., Dipl.-Ing.
Erzbergerstraße 5A
Postfach 464
W-7700 Singen 1 (DE)

Respondent :
(Proprietor of the patent)

Looker, Robert
405 Toro Canyon Road
Carpenteria
California 93013 (US)

Representative :

Allen, William Guy Fairfax
J.A. KEMP & CO
14 South Square
Gray's Inn
London WC1R 5LX (GB)

Decision under appeal :

Decision of Opposition Division of the European
Patent Office dated 16 May 1990, and posted on
13 June 1990, rejecting the opposition filed
against European patent No. 0 127 936 pursuant to
Article 102(2) EPC.

Composition of the Board :

Chairman : F. Gumbel
Members : S. Crane
M. Schar

Summary of Facts and Submissions

I. European patent No. 0 127 936 was granted with effect from 22 July 1987 on the basis of European patent application No. 84 302 698.0 filed on 19 April 1984, priority being claimed from United States application Nos. US 487 274 and US 598 407 dated 21 April 1983 and 12 April 1984 respectively.

II. The patent was opposed by the legal predecessors of the Appellants on the ground that its subject-matter lacked inventive step (Article 100(a) EPC).

Of the state of the art documents and alleged prior uses relied upon in the opposition proceedings only the following have been referred to in the appeal proceedings:

(D1) GB-A-2 091 695

(D2) US-A-3 591 034

(D4) DE-U-8 127 161

III. By a decision taken at oral proceedings on 16 May 1990, and issued in written form on 13 June 1990, the Opposition Division rejected the opposition.

IV. The Appellants filed an appeal against this decision on 24 July 1990, the appeal fee being paid on the same day. The Appellants requested that the decision under appeal be set aside and the patent revoked in its entirety.

The Statement of Grounds of Appeal was filed on 12 October 1990. In this statement the Appellants referred to several new documents but only requested that one of them viz.

(D6) US-A-3 926 243

be formally introduced into the proceedings.

V. Oral proceedings before the Board were held on 14 January 1992.

At the oral proceedings the Respondents (Proprietors of the patent) submitted a new set of Claims 1 to 5 and an amended description on the basis of which together with the drawings as granted they requested maintenance of the patent in amended form.

Claim 1 according to this request reads as follows:

"A cargo container having a base (10), corner posts (12a, 12b) extending upwardly therefrom, cross-pieces (16) between the corner posts (12a, 12b), and side sheets (26) attached to the corner post (12a, 12b), base (10) and cross-pieces (16) to define a box-like container having one or more door openings, a tensionable sealing and load supporting fabric door closure apparatus, comprising for each door opening a piece of fabric material (30) attached at its upper end to the cross-piece (16) above the door opening and attached at its side edges to cables (64) and an over-centre tensioning mechanism for the cables, characterised by:-

- (a) an elongate bar (38) attached to the lower end of the fabric material (30);
- (b) pins (60a, 60b) attached to said elongate bar (38) adjacent to the upper edge thereof and extending generally perpendicular to the cables, for engaging hooks (62a, 62b) immovably attached to the corner

posts on either side of the door opening; and in that

- (c) said cables (64) are attached at either end of said elongate bar (38) at a point below said pins (60a, 60b) and extend up and are attached to the top of the corner posts (12a, 12b) on either side of the door opening, such that when said pins (60a, 60b) engage said hooks (62a, 62b), and said elongate bar (38) is brought flush against the door opening, said cables are pulled taut downwardly."

Dependent Claims 2 to 5 relate to preferred features of the container according to Claim 1.

- VI. In support of their request for revocation of the patent the Appellants have put forward in essence the following arguments:

The best starting point for the evaluation of inventive step was the container according to Document D2. In this container the fabric door was attached at its lower end to an elongate bar that was provided at opposite ends with pins for engaging into recesses in the corner posts. Respective sliders in the corner posts were operative to depress the pins and thereby tension the fabric of the door and the diagonally extending reinforcing cables attached to the elongate bar. A skilled man seeking to improve this door tensioning arrangement would be aware of the advantages of using an over-centre tensioning mechanism for this purpose from Documents D1 and D6. The mechanism shown in this latter document could only function by means of an over-centre action, even though not described as such. It was not an appropriate manner for analysing obviousness merely to consider whether the specific form of over-centre mechanism shown in

Document D1 could be directly applied to the container shown in Document D2. Instead, the skilled man had to be considered as being capable of making the constructional adaptations necessary for applying the general teaching derivable from Document D1 to the container of Document D2 in order to achieve the designed advantageous result. The basic structure of an over-centre tensioning mechanism was so well known, as witnessed also by Documents D4 and D6, that the skilled man would have no difficulty in designing such a mechanism for use in the container of Document D2. The characterising clause of claim contained no more than what an over-centre tensioning mechanism must necessarily comprise.

VII. The counter-arguments of the Respondents can be summarised as follows:

The teachings of Documents D1 and D2 could not be combined in an obvious manner to lead to the container claimed. In the container of Document D1 two over-centre tensioning mechanisms were provided at respective lower corners of the door with the axis of pivoting of the mechanisms being at 45° to the horizontal and the main tensioning force acting on the diagonal cables. It was clearly impossible to replace the bottom cable shown by an elongate bar as it would then not be possible to engage the parts of the over-centre mechanism attached respectively to the door and the frame of the container. Similarly, the skilled man would have no incentive to replace the tensioning mechanism shown in Document D2 by an over-centre mechanism as claimed since the tensioning mechanism of this prior art in fact served the main purpose of locking the intermediate reinforcing-bars extending across the door to the frame of the container.

Document D4 also gave no lead in the direction of the claimed subject-matter as the tarpaulin tensioning mechanism shown there required that the bottom bar be engaged over its whole length with a corresponding groove.

The door closing mechanism shown in Document D6 was not of the over-centre type. The attachment point of the fabric door material to the elongate bottom bar and the arrangement of the pins and pin-receiving grooves were such that no tensioning of the door took place.

Reasons for the decision

1. The appeal complies with the requirements of Articles 106 to 108 and Rules 1(1) and 64 EPC; it is therefore admissible.
2. Allowability of the amendments

Present Claim 1 has been restricted with respect to granted Claim 1 by a more precise definition of the location and form of the pins and hooks. The two-part form of the claim has also been adjusted to reflect more accurately what is already known from Document D1. Granted Claim 1 itself corresponded in substance to the originally filed Claim 1.

The amendments made to the dependent claims and description are limited to those necessary to bring these into conformity with the new Claim 1. There are therefore no objections under Article 123(2) and (3) to the amendments made.

3. State of the art

3.1 Document D1 discloses a cargo container according to the preamble of Claim 1 in which the lower bottom corners of the door closure are associated with respective over-centre mechanisms for tensioning the cables attached to the side edges of the fabric material of the door closure. Each over-centre mechanism comprises a male part attached to the fabric material and a female part attached to the frame of the container. The male part can rotate with respect to the female part about an axis extending at 45° to the horizontal and has a peripheral channel for receiving a side cable and a bottom cable (which may be formed by a single cable) and an attachment for a diagonally extending cable. This attachment is mounted on the male part at a point below the axis of pivoting of the male part about the female part, thus giving the required over-centre action. In a preferred embodiment each diagonal cable is attached at its top end to a respective side cable by means of a lever mechanism. This arrangement allows proper distribution of tension in the diagonal and side cables.

3.2 In the cargo container shown in Document D2 the pliable door panel is reinforced by a series of horizontally extending elongate bars. Each of these bars is provided with a pin at either end, which pins enter into corresponding slots in the corner posts of the frame of the container at the sides of the door opening. Each of these corner posts is equipped with a slider that is movable to trap the pins in the respective slots for holding the door closed. In the embodiment of Figures 13 and 14 the sliders have an undercut at the lower end for engaging the pins of the bottommost elongate bar. On movement of the sliders downwards this bar is therefore engaged to tauten the door panel and two diagonally extending cables attached thereto.

- 3.3 Document D4 discloses a closure mechanism for a side or end tarpaulin of a heavy goods vehicle wherein the bottom end of the tarpaulin is secured along its length to one edge part of an elongate profile member. The other free edge of the profile member is formed as a pivot and is engagable along its length with a downwardly facing groove in a side- or tailboard of the vehicle. Once engaged in this fashion the tarpaulin is tensioned by pivoting of the profile member into a stable over-centre position.
- 3.4 Contrary to the assertions of the Appellants the Board cannot accept that there is any disclosure in Document D6 of an over-centre tensioning mechanism for the fabric door of a cargo container. As clearly shown in Figure 3 of this document the bottom edge of the fabric material is attached to the top edge of an elongate bar which is provided at its ends with respective outwardly extending pins. These pins are arranged at the same height with respect to the bar as the attachment point of the fabric material to the bar and are engagable with arcuate slots formed in respective plates attached to the corner posts of the container frame. It is apparent from the geometry involved that the only way to engage the pins into the slots is for these to be slid in at first with the elongate bar tilted away from the container frame and then to tilt the bar about the attachment point of the fabric material back towards the container frame. It is evident that in this operation there is no over-centre action and no substantial tensioning of the fabric material.
- 3.5 The other prior art documents cited in the opposition proceedings and not listed in Point III above, as well as the alleged prior uses, are less relevant than the state of the art analysed in Points 3.1 to 3.4 and need not be considered further. The same applies to the other documents mentioned in the Statement of Grounds of Appeal,

the Appellants in any case not having requested that these be introduced into the proceedings.

4. Novelty

As is apparent from a comparison with the state of the art discussed above, the cargo container according to present Claim 1 is new. It is distinguished from the closest prior art disclosed in Document D1 by the features specified in the characterising clause of the claim. As the novelty of the claimed subject-matter has not been in dispute further elucidations on this point are unnecessary.

5. Inventive step

5.1 The Board is of the opinion, contrary to that of the Appellants, that the state of the art according to Document D1, on which the preamble of Claim 1 is based, is the appropriate starting point for the evaluation of inventive step, since this document is the only one which discloses the use of over-centre mechanisms for tensioning the cables attached to the side edges of a fabric door of a cargo container.

In the construction shown in Document D2 the male part of each over-centre mechanism is attached to the inside of the fabric material. Accordingly an operator must work "blind" when engaging the male part of the mechanism with the female part and furthermore because of the two mechanisms must repeat this operation at the respective bottom corners of the door.

In comparison with this state of the art the problem to be solved by the claimed invention is to be seen in the provision of a cargo container with an over-centre tensioning mechanism for the door which is more simple to

operate. It is not in dispute that this problem is solved by the features of present Claim 1. In order to close and tension the door it is merely necessary to engage the pins at the ends of the elongate bar with the hooks on the corner posts of the container and to pivot the bar about the axis of the pins.

The over-centre mechanisms described in Document D1 are specifically designed such that they operate on a side cable, a bottom cable and a diagonal cable simultaneously, this necessitating that the angle of pivoting of the male part of the mechanism about the female part be at an angle of 45° to the horizontal. Since the diagonal cable is perpendicular to the axis of pivoting of the male part a greater tensioning force is applied to this than to the side and bottom cable. The tensioning of the diagonal cable is stated in the introductory description of Document D1 as being the aim of the invention disclosed there. The replacement of the particular over-centre mechanisms disclosed in Document D1 by the single mechanism specified in present Claim 1, which has a horizontal axis of rotation, would therefore be such a radical departure from the teachings of that prior art that it cannot be considered as lying within the normal considerations of the skilled man, especially as no door tensioning mechanism comparable to that claimed has been demonstrated as being known per se.

- 5.2 Even if, following the argumentation of the Appellants, the cargo container according to Document D2 were considered as a better starting point for the evaluation of obviousness then the same conclusion as to the presence of an inventive step would be reached.

Admittedly, the door of this container is provided with an elongate bottom bar that has at either end a pin on which

a door tensioning mechanism operates. However, the sliders of this mechanism also have the essential function of retaining in the corner posts of the container frame the ends of the series of intermediate horizontal stays attached to the pliable door panel. Thus for the skilled man considering the totality of the disclosure of Document D2 there can be little incentive to keep on the one hand the sliders for retaining the intermediate stays and at the same time provide a supplemental over-centre mechanism for tensioning the door. However, even if he were to view the potential advantages of an over-centre tensioning mechanism (greater force, self-locking) as known in principle from Document D1 as being sufficient to justify its provision he would not be led to the specific form of such a mechanism defined in the characterising clause of Claim 1, since there is nothing comparable to it in the prior art, including Documents D4 and D6 referred to by the Appellants in this context (see evaluation of the teachings of these documents under points 3.3 and 3.4 above).

5.3 Accordingly, the Board comes to the conclusion that the subject-matter of present Claim 1 cannot be derived in an obvious manner from the cited state of the art and therefore constitutes a patentable invention (Articles 52(1) and 56 EPC). The patent can therefore be maintained on the basis of this claim and dependent Claims 2 to 5 which relate to preferred features of the container according to Claim 1.

Order

For the above reasons, it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the first instance with the order to maintain the patent on the basis of the following documents:

Claims 1 to 5 and description as submitted at the oral proceedings;

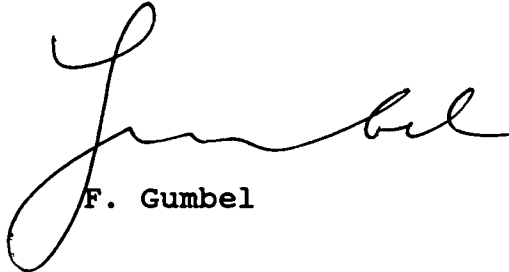
Drawings as granted.

The Registrar:



S. Fabiani

The Chairman:



F. Gumbel

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