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(54) **Garment support rails**

Aufhängeschiene für Kleidungsstücke

Rail de support pour vêtements

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(56) References cited:  
**CA-A- 1 191 115**                      **GB-A- 2 033 741**  
**GB-A- 2 044 094**                      **US-A- 2 904 190**

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## Description

This invention relates to garment support rails intended for use as part of a system for the high volume transportation of garments on coat-hangers or "sets" in rigid sided box-vans, trucks, other vehicles or containers (hereinafter and in the claims, for convenience, simply referred to as "vehicles").

According to current practice, there are a number of systems commercially available for carrying garments, all of which have limitations known to those skilled in the art.

In all known systems, a number of rails span the width of the vehicle, and are attached at either end at or close to the inner side walls by suitable fitments or supporting structure. It is upon these rails that the garments are hung, usually by means of coat-hangers or "sets", the latter being a conveniently handled hooked fitment to which a number of garments on coat-hangers have been previously attached.

Since the vehicle is normally loaded from doors situated at one end, and the rails are commonly set at up to four separate height levels in vertical displacement for example, and up to perhaps fifty or so in longitudinal displacement for example, it is necessary that some or all of the rails be detachable or movable to facilitate loading or unloading. The known facility to detach or reposition the rails by sliding them into the roof space is also of substantial commercial importance, since once a garment consignment has been delivered this facility frees the vehicle to carry alternative loads on its return journey, or to be used generally for other purposes without disadvantage.

In some situations, it would be highly advantageous to be able to adapt the vehicle to a "second deck" system - that is, to enable alternative loads to be carried both on the floor of the container and on a temporary deck (or decks) typically set at a metre or so above the floor or lower decks or decks to maximise the load carrying capacity.

Currently, this adaption is effected by supporting the garment rails below more substantial second decking beams by means of short pillars, struts or ties. Ideally, to maximise the load bearing capacity and to reduce weight, cost and overall depth, the rail should form a fully stressed part of the rail/beam assembly when subjected to second decking loads. A normal pillar, strut or tie system cannot readily achieve this since it requires the end pillars, struts or ties to be of sufficient strength and to have sufficient integrity of attachment to the vehicle structure to impart fairly high tensile loads into the garment rails when the assembly is loaded. This is difficult without the pillars, struts or ties being of such a size that their presence reduces the number of hangers able to be carried.

CA-1191115 discloses a load support system for a vehicle according to the preamble of claim 1 in which a tubular beam is fitted with elongate swing rods rotatably mounted on the beam. Garment hangers are suspended

from the tubular beam with an elongate bar of each swing rod being disposed parallel to and above the beam. When the hangers have all been positioned the swing rods are rotated so that the elongate bars are moved into engagement with the neck of the hangers so as to lock them on the tubular beam and prevent their removal during transportation.

It is an object of the present invention to provide a garment support rail capable of functioning *per se* as a decking support.

According to the present invention there is provided a garment support rail for use in a vehicle, the garment support rail comprising a beam having a suspension means characterised in that the suspension means is a depending web formed integrally with said beam said web having a hooked structure from which the garment hangers or "sets" can be suspended.

Preferably the garment rail is of transverse open or closed box section to define the beam and with a depending integral web configured to define a hooked structure from which garment hangers or "sets", can be suspended.

Preferably the hooked structure defines with the beam a slot extending the length of the garment rail for insertion or removal of the garment hangers, or "sets".

Such a garment support rail has the necessary structural strength to permit it to function as a decking support beam, and the necessity to provide the aforesaid rail/beam assembly is avoided.

Embodiments of the present invention will now be described, by way of example, with reference to the accompanying drawings in which:-

Figure 1 is a transverse cross-section of a first embodiment of a garment rail/decking beam according to the present invention;

Figure 2 is a transverse cross-section of a second embodiment of a garment rail/decking beam according to the invention; and

Figure 3 is a transverse cross-section of a third embodiment of a garment rail/decking beam according to the invention.

Referring to Figure 1, the garment rail 10 is formed by an extrusion process for example and is of a length adapted to span the internal width of the vehicle.

The rail 10 is of open-bottomed box section, i.e. it is of inverted U-section which is defined by a top web 11 and two depending webs 12 and 13, whereof web 12 is longer, in vertical terms, than the web 13 and is inturned to define a hook configuration 14 from which garment hangers 15, or "sets", can be suspended.

The hook configuration 14 and the lower end of the web 13 define a slot 16 to facilitate entry of the hooks 17 of the garment hangers 15, or "sets", which slot 16 is intermediate the top and bottom ends of the garment rail 10.

The garment suspension hook configuration 14, i.e. from the lower end 14A of the web 12 to the inner tip 14B

of the hook configuration 14, of the garment rail or decking support beam 10, when the latter is loaded across its span either in its primary function as a garment support rail or its secondary function as a decking support beam, due to its integrity with the box-section of the rail or beam, constitutes a stressed part of the rail/beam structure. This is achieved by the provision of the continuous (unbroken) vertical shear web 12, especially across the central third of the span.

The web 13 is disposed relative to the hook configuration 14 to act as a buffer or impediment to accidental or inadvertent de-railing of the garment hangers 15, or "sets".

More precisely the upper edge of the slot 16, i.e. the lower inturned end 13A of the web 13, is offset relative to an imaginary vertical line drawn through the approximate centre of the hanger 15 or set hook in its normal rest position at 14C on the hook configuration 14. Should any hanger 15 be "bounced" upwards clear of the hook configuration 14 during transit, contact with the upper edge of the slot 16, i.e. end 13A, will tend to deflect it in a direction forwards and downwards back to its correct location, rather than allowing it to bounce off completely. This "buffer" feature eliminates de-railing and obviates the need (and expense) for a separate system to lock the hangers or "sets" in position during transit.

The garment support rail or decking support beam 20 of Figure 2 is identical with that garment support rail of decking support beam 10 of Figure 1 save that the webs 21, 22 (equivalent to webs 12, 13) are interconnected by a web 23 below and parallel with the top web 24 and above the inturned "buffer" end 22A of the web 22.

This web 23 has the effect of strengthening and stiffening the rail or beam and also provides a housing into which end fittings (not shown) can be located. The end fittings, which form the intermediary attachment of the beam to the inner walls or vertical support track provided in the vehicle, may be fixed or may slide telescopically within the rectangle defined by webs 21 to 24.

This telescopic operation at one or both ends of the rail or beam 20 enables the rail or beam effectively to change its length to accommodate variations between opposite inner wall spacing. It also allows the rail or beam to extend to accommodate angular displacements from the horizontal when pivotal end fittings are used and thereby enables either end of each rail or beam to be moved up or down the inner walls on vertical sliding tracks independently of each other to simply rail or beam.

Reference is now made to Figure 3 which shows a garment rail or decking support beam 30 which is of relatively thin-walled structure and which may be formed by a roll-forming or press-brake folding process for example.

In this embodiment, the rail/beam configuration is, in essence, of the same transverse cross-section as the rail/beam 20 of Figure 2.

However, the web 31 (equivalent to web 23 of Figure 2) is a separate component of flattened inverted U-shape

welded or otherwise secured between vertical webs 32, 33.

This web 31 need not extend the full length of the rail/beam 30 but may be provided only at each end thereof to accommodate locating and positioning end fittings (not shown).

The hook configuration 34 may be inturned as shown in Figures 1 and 2, but, in this instance it is formed with an outwardly-directed lip 35 having secured thereto by bonding, clipping or otherwise a wear or abrasion strip 36, say, of extruded plastics material for example.

The end 33A of the web 33 which serves as the derailment buffer is shown as an inturned configuration but it may alternatively be out-turned.

An extruded strip, such as 36, may be fitted on this buffer end 33A, whether it be inturned or out-turned.

Posts or ties 37 may optionally be fitted at intervals across the slot of the rail or beam 30 to enhance its load bearing capacity. These posts or ties may be welded or otherwise secured in position.

Alternatively, or additionally, an internal dividing wall or wall normal to the main longitudinal axis of the rail or beam may be fitted by welding or otherwise at the centre of the rail or beam and/or at spaced intervals along the length thereof.

While the garment support rail/decking support beam has been shown and described as having a transverse closed or open box section it will be manifest that other sections may be employed, for example I-section, H-section or X-section.

### Claims

1. A garment support rail (10; 20; 30) for use in a vehicle, the garment support rail (10; 20; 30) comprising a beam (11, 12, 13; 21, 22, 23; 31, 32, 33) having a suspension means (14A, 14B; 34) characterised in that the suspension means (14A, 14B; 34) is a depending web (12; 21; 32) formed integrally with said beam (11, 12, 13; 21, 22, 23; 31, 32, 33) said web (12; 21; 32) having a hooked structured (14A, 14B; 34, 35) from which the garment hangers (15) or "sets" can be suspended.
2. A garment rail as claimed in claim 1 having a beam structure defined by a transverse open or closed box cross-section (11, 12, 13; 21, 22, 23; 31, 32, 33).
3. A garment rail as claimed in claim 1 or 2 in which the hooked structure (14A, 14B; 34, 35) defines with the beam (11, 12, 13) a slot (16; 37) extending the length of the garment rail (10; 20; 30) for insertion or removal of the garment hangers or "sets".
4. A garment rail as claimed in claim 3 comprising a top horizontal web bridging (11; 24) and interconnecting first and second spaced parallel vertical webs (12, 13; 21, 22; 32, 33), whereof the first vertical web (12; 21; 32) is vertically longer than the sec-

ond (13; 22; 33) and is inturned to define the hooked structure (14; 34) below the bottom end of the second vertical web (13; 22; 33) and located transversely intermediate both webs.

5. A garment rail as claimed in claim 4 in which the lower end of the second vertical web (13; 22; 33) which is spaced inwardly and transversely from the hook structure (14; 34) serves as a buffer (13A; 22A).
6. A garment rail as claimed in claim 5, in which the lower end of the second vertical web (13; 22; 33) is inturned.
7. A garment rail as claimed in any one of claims 4 to 6 in which there is provided a transverse web (23; 31) below and parallel with said top web (34) to form therebetween, at the ends of the garment rail at least, sockets for receiving end fittings for securing the garment rail (10) between walls of a vehicle.
8. A garment rail as claimed in any one of claims 2 to 7 in which the hooked structure (14A, 14B; 34, 35) is provided with a wear or abrasion resistant strip (36).
9. A garment rail as claimed in any one of claim 5 to 8 comprising, at spaced intervals along the rail (10), ties connecting the lower end of the second vertical web (13; 22; 33) and the hooked structure (14A, 14B; 34, 35) and/or an internal vertical wall or walls connecting the vertical webs to provide increased structural length.
10. A garment support rail according to any preceding claim which is adapted to support load-carrying decking in a vehicle.

#### Patentansprüche

1. Kleiderhängeschiene (10; 20; 30) zur Verwendung in einem Fahrzeug, wobei die Kleiderhängeschiene (10; 20; 30) einen Träger (11, 12, 13; 21, 22, 23; 31, 32, 33) mit einer Aufhängevorrichtung (14A, 14B; 34) aufweist, dadurch gekennzeichnet, daß die Aufhängevorrichtung (14A, 14B; 34) ein integral mit besagtem Träger (11, 12, 13; 21, 22, 23; 31, 32, 33) geformter hängender Steg (12; 21; 32) ist, wobei der Steg (12; 21; 32) eine hakenförmige Struktur (14A, 14B; 34, 35) aufweist, an der die Kleiderbügel (15) oder "Sets" aufgehängt werden können.
2. Kleiderhängeschiene nach dem Anspruch 1, mit einer Trägerstruktur, die durch einen transversalen, offenen oder geschlossenen Kastenquerschnitt (11, 12, 13; 21, 22, 23; 31, 32, 33) gebildet wird.

3. Kleiderhängeschiene nach dem Anspruch 1 oder 2, bei der die hakenförmige Struktur (14A, 14B; 34, 35) mit dem Träger (11, 12, 13) einen über die Länge der Kleiderhängeschiene (10; 20; 30) verlaufenden Schlitz (16; 37) zum Einhängen oder Entfernen der Kleiderbügel oder "Sets" bildet.

4. Kleiderhängeschiene nach dem Anspruch 3, mit einem oberen, horizontalen Steg (11; 24), der erste und zweite parallel angeordnete, vertikale beabstandete Stege (12, 13; 21, 22; 32, 33) überbrückt und miteinander verbindet, wobei der erste vertikale Steg (12; 21; 32) in vertikaler Richtung länger als der zweite (13; 22; 33) und nach innen gebogen ist, um die hakenförmige Struktur (14; 34), die unter dem unteren Ende des zweiten vertikalen Stegs (13; 22; 33) liegt und quer zwischen beiden Stegen verläuft, zu bilden.

5. Kleiderhängeschiene nach dem Anspruch 4, bei der das untere Ende des zweiten vertikalen nach innen und quer zur Hakenstruktur (14; 34) beabstandeten Stegs (13; 22; 33) als Puffer (13A; 22A) dient.

6. Kleiderhängeschiene nach dem Anspruch 5, bei der das untere Ende des zweiten vertikalen Stegs (13; 22; 33) nach innen gebogen ist.

7. Kleiderhängeschiene nach einem der Ansprüche 4 bis 6, bei der unter und parallel zu dem besagten oberen Steg (34) ein Quersteg (23; 31) vorgesehen ist, um dazwischen zumindest an den Enden der Kleiderhängeschiene Muffen zum Einsetzen von Endmontageteilen zu bilden, damit die Kleiderhängeschiene (10) zwischen Karosseriewänden eines Fahrzeugs befestigt werden kann.

8. Kleiderhängeschiene nach einem der Ansprüche 2 bis 7, bei der die hakenförmige Struktur (14A, 14B; 34, 35) mit einem verschleiß- oder abriebfesten Streifen (36) versehen wird.

9. Kleiderhängeschiene nach einem der Ansprüche 5 bis 8, die in bestimmten Abständen entlang der Schiene (10) Verbindungen, die das untere Ende des zweiten vertikalen Stegs (13; 22; 33) mit der hakenförmigen Struktur (14A, 14B; 34, 35) verbindet, bzw. eine oder mehrere vertikale Innenwandungen, die die vertikalen Stege verbindet/verbinden, aufweist, um die strukturelle Länge zu vergrößern.

10. Kleiderhängeschiene nach einem der vorstehenden Ansprüche, die zur Aufnahme belastbarer Ladungsvorrichtungen in einem Fahrzeug angepaßt ist.

#### Revendications

1. Rail de support pour vêtements (10; 20; 30) à utiliser dans un véhicule, le rail de support pour vêtements

- (10; 20; 30) comprenant un profilé (11, 12, 13; 21, 22, 23; 31, 32, 33) comportant un moyen de suspension (14A, 14B; 34), caractérisé en ce que le moyen de suspension (14A, 14B; 34) est une nervure suspendue (12; 21; 32) solidaire dudit profilé (11, 12, 13; 21, 22, 23; 31, 32, 33), ladite nervure (12; 21; 32) possédant une structure en forme de crochet (14A, 14B; 34, 35) à laquelle on peut suspendre les cintres (15) ou les "ensembles".
2. Rail pour vêtements selon la revendication 1, possédant une structure de profité définie par une section transversale en forme de boîte ouverte ou fermée (11, 12, 13; 21, 22, 23; 31, 32, 33).
3. Rail pour vêtements selon la revendication 1 ou 2, dans lequel la structure en forme de crochet (14A, 14B; 34, 35) définit avec le profité (11, 12, 13) une fente (16; 37) s'étendant sur la longueur du rail pour vêtements (10; 20; 30) pour l'insertion ou le retrait des cintres ou des "ensembles".
4. Rail pour vêtements selon la revendication 3, comprenant une nervure horizontale supérieure (11; 24) surplombant des première et seconde nervures verticales parallèles espacées (12, 13; 21, 22; 32, 33) tout en les reliant l'une à l'autre, la première nervure verticale (12; 21; 32) parmi celles-ci étant plus longue en direction verticale que la seconde (13; 22; 33) et étant tournée vers l'intérieur pour définir la structure en forme de crochet (14; 34) en dessous de l'extrémité inférieure de la seconde nervure verticale (13; 22; 33), tout en étant située transversalement entre les deux nervures.
5. Rail pour vêtements selon la revendication 4, dans lequel l'extrémité inférieure de la seconde nervure verticale (13; 22; 33), qui est espacée vers l'intérieur et en direction transversale par rapport à la structure en forme de crochet (14; 34), sert de butée (13A; 22A).
6. Rail pour vêtements selon la revendication 5, dans lequel l'extrémité inférieure de la seconde nervure verticale (13; 22; 33) est tournée vers l'intérieur.
7. Rail pour vêtements selon l'une quelconque des revendications 4 à 6, dans lequel on prévoit une nervure transversale (23; 31) en dessous de ladite nervure supérieure (34) et parallèle à cette dernière pour former entre elles, au moins aux extrémités du rail pour vêtements, des douilles pour que viennent s'y loger des raccords terminaux pour fixer le rail pour vêtements (10) entre les parois d'un véhicule.
8. Rail pour vêtements selon l'une quelconque des revendications 2 à 7, dans lequel la structure en forme de crochet (14A, 14B; 34, 35) est munie d'une bande (36) résistante à l'usure ou à l'abrasion.
9. Rail pour vêtements selon l'une quelconque des revendications 5 à 8, comprenant, à intervalles espacés le long du rail (10), des liaisons reliant l'extrémité inférieure de la seconde nervure verticale (13; 22; 33) et la structure en forme de crochet (14A, 14B; 34, 35) et/ou une ou des parois verticales internes reliant les nervures verticales pour prolonger la longueur de la structure.
10. Rail pour vêtements selon l'une quelconque des revendications précédentes, qui est conçu pour supporter un plancher porteur de charge dans un véhicule.

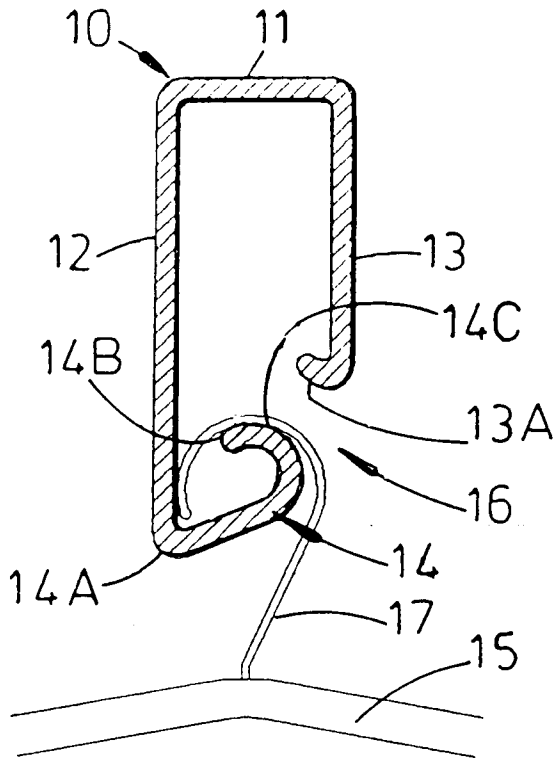


FIG. 1

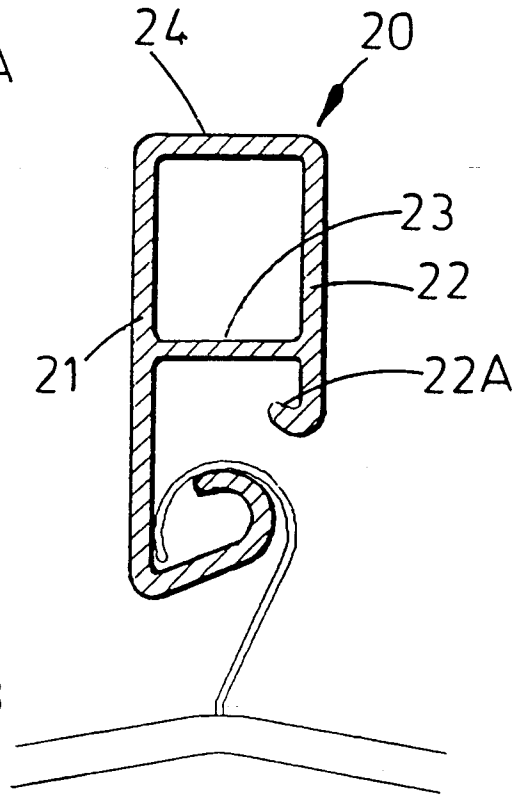


FIG. 2

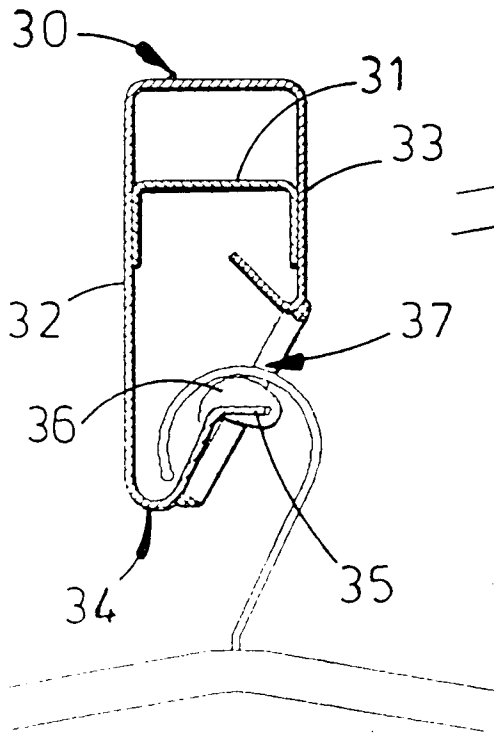


FIG. 3