The present invention relates to a bumper skin protection cover (22) including means (24; 32; 34; 38) for suspending it from a support.
MOTOR VEHICLE BUMPER SKIN PROTECTION COVER, A STOWAGE DEVICE INCLUDING SUCH A COVER, AND A METHOD OF LOADING SAID BUMPER SKIN

[0001] The present invention relates to a motor vehicle bumper skin protection cover, to an assembly comprising a stowage device and such a cover, and to a method of loading said bumper skin.

[0002] In the prior art, a bumper skin stowage device is known that is constituted by a rack comprising a plurality of horizontal shelves each having bumper skins wrapped in individual covers placed thereon.

[0003] The use of such stowage devices enables bumper skins to be transported in large numbers instead of being handled individually.

[0004] Nevertheless, the skins resting on the shelves are subjected to small impacts due to vibration of the transport vehicle in which the shelves are located. This vibration can lead to impacts between a bumper skin and its shelf or between two adjacent bumper skins.

[0005] Thus, even though the covers do already provide the surfaces of the skins with some protection, there remains a certain reject rate that can be reduced further.

[0006] To this end, the invention provides a bumper skin protection cover, characterized in that it includes suspension means for suspending it from a support.

[0007] A protection cover is generally suitable for several different types of bumper skin, providing they are similar in size.

[0008] By means of the invention, having the bumper skin suspended while it is being transported makes it possible for less vibration to be transmitted thereto due to the running of the transport vehicle, since the bumper skin is not directly in contact with a support that receives all of the vibration from the vehicle body. In addition, the suspension means have degrees of freedom enabling them to further damp vibration.

[0009] Impacts between various suspended bumper skins are also diminished because all of the bumper skins oscillate together: movements of bumper skins relative to one another are limited and the impacts, scratches, and bumps that occur during transport are thus lessened.

[0010] The stowage device of the invention thus enables bumper skins to be packaged in kinder manner, i.e. enables the reject rate due to transport to be reduced.

[0011] Advantageously, the suspension means comprise a ring or a hook.

[0012] In a particular embodiment, the suspension means comprise at least one strap, preferably of fabric secured to the cover, in particular by stitching.

[0013] Advantageously, at least one strap is suitable for being secured to the bumper skin so as to transmit directly to the support at least a fraction of the weight of the bumper skin.

[0014] Thus, the bumper skin can be suspended directly from the support by the suspension means and not via the cover: this reduces the risk of generating the tiny defects in appearance that occur, when the bumper skin is suspended via the cover, because of the pressure exerted by the cover against the sensitive surfaces of the bumper skin.

[0015] Advantageously, at least one strap includes a releasable link mechanism suitable for linking the strap to a complementary strap.

[0016] This mechanism makes it easier for an operator to put the cover and the straps into place relative to the bumper skin when the straps enable the bumper skin to be suspended directly.

[0017] In another embodiment, the suspension means comprise, stitched to the cover, a lug of plastics material and including an opening.

[0018] Advantageously, the cover is made of an elastic material.

[0019] Thus, the cover is stretchable and, within limits, adaptable to the dimensions of the bumper skin. It is thus possible to use a single cover with several types of bumper skin.

[0020] Advantageously, the cover is made of an impact-absorbing material. Thus, even in the event of the bumper skin it contains colliding with the support or with neighboring skins, the defects generated in the skin are smaller or non-existent.

[0021] The invention also provides an assembly comprising a bumper skin stowage device and a cover of the invention, in which the stowage device comprises a stand provided with connection means suitable for co-operating with the suspension means of a cover as defined above.

[0022] In a particular embodiment, the connection means comprise at least one taut cable or rigid bar extending in a horizontal direction and suitable for co-operating with the suspension means of the cover in the form of a ring or a hook.

[0023] In another particular embodiment, the connection means comprise at least one hook or ring suitable for co-operating with the suspension means of the cover in the form of a strap or a plastics material lug.

[0024] Optionally, the rigid bar is provided with a slide way.

[0025] Advantageously, the assembly also includes spacer means for keeping two adjacent bumper skins a predetermined distance apart.

[0026] The term “predetermined distance” means a distance selected by an operator, said distance not necessarily being the same for all bumper skins.

[0027] Advantageously, the stand comprises two rigid bars, and the spacer means comprise an L-shaped bar comprising a rectilinear central portion having the suspension means of the cover arranged thereon, and two parallel rectilinear end portions forming respective sliders, each co-operating with a slideway of a rigid bar.

[0028] Advantageously, connection means are provided at different heights.

[0029] This makes it possible to stow bumper skins at different heights in the transport vehicle. It is thus possible to optimize stowage space and save on transport costs.

[0030] Advantageously, the carrier also includes means for adjusting the level of the connection means along a vertical axis.

[0031] Thus, the position of the connection means can be modulated along a vertical axis. Even if the vertical space needed for each type of bumper skin varies, it is still possible to optimize stowage space.
The invention also provides a method of stowing at least one bumper skin in a transport vehicle, the method being characterized in that it comprises:

- a step of packaging the skin in a cover of the invention;
- a step of connecting the cover to a frame of the invention; and
- a step of loading a frame of the invention in the transport vehicle.

In a particular implementation, in which at least one strap is suitable for being connected to the bumper skin, the method of the invention includes an additional step of securing said strap to the bumper skin, which step is performed after the packaging step and before the connection step.

In another particular implementation, when the stand is provided with a slideway, the method of the invention includes, prior to loading, an additional step of transferring at least one cover positioned on a push cart constituting a first stand of a device of the invention to a second stand of a device of the invention for loading into the transport vehicle.

This avoids any need for a lift truck that is unhandy and constraining in use, but without it being necessary for an additional lengthy and constraining loading step. Once the covers have been loaded on the push cart, they can slide during a transfer step from the push cart slideway to the slideway of the second stand without the covers being moved one by one by an operator.

In another particular implementation, between the packaging and connection steps, the method includes a step of placing a cover on a conveyor and a step of removing the cover from the conveyor.

Thus, the presence of lift trucks in the factory is also avoided by this method and there is no need for an operator to be present to push the push cart. Under such circumstances, the covers are fed directly from the point where they are packaged to the point where they are connected to the stand. These two points can thus be located in different positions, as a function of proximity with transport vehicles or the space for stowing covers. The time required for preparing a bumper skin for transport is thus reduced.

The invention can be better understood on reading the following description given purely by way of example and made with reference to the drawings, in which:

- FIG. 1 shows a stowage device according to an embodiment of the invention;
- FIG. 2 shows a stowage device according to a second embodiment of the invention;
- FIG. 3 shows a cover according to an embodiment of the invention;
- FIG. 4 shows a cover and hook means according to a second embodiment of the invention;
- FIG. 5 shows a cover and hook means according to a third embodiment of the invention; and
- FIG. 6 shows a cover and hook means according to a fourth embodiment of the invention.

### General Explanations

The cover is of elastic material, that also absorbs impacts and includes a housing for the bumper skin.

The hook is of a piece with the cover, being stitched thereto via the fabric strap.

The two rigid bars and/or channel-section bars are parallel with each other, at least locally.

In the first embodiment, the I bar has three rectilinear portions: two mutually parallel end portions forming respective slides received in the slideways; and the central portion on which the suspension means are engaged.

The spacing distance is predetermined, but it could be varied as a function of the size of the bumper skin contained in a cover.

### Variants

- The connection means comprise a single rigid bar.
- Each rigid bar is connected to a leg of the stand at only one of its ends.
- Under such circumstances, the stand has rigid bar support means such as a spacer, and the transport vehicle also has means for supporting the free end of the rigid bar, such as a crescent-shaped projection on which the bar can rest.
- The connection means may also comprise at least one taut cable.
- At least one transverse bar may also be of a piece with the two rigid bars, e.g. being welded thereto.
The connection means may also be provided at a plurality of heights and/or they may be adjustable in height.

DESCRIPTION OF FIGS. 3, 4, 5, AND 6 SHOWING THE COVER

In FIG. 3, the cover 22 has two straps 28. Each strap 28 is secured to the cover 22 at one of its ends, with the other end of the strap 28 forming a stitched loop in which the ring 32 is inserted to constitute the suspension means.

In FIG. 4, two lugs 34 of plastics material are stitched to the cover 22, each lug 34 including an opening 36 enabling it to co-operate with a hook 23 of the stowage device.

In FIG. 5, the cover 22 has two straps 38. Each strap is secured to the cover 22 at each of its ends. The cover 22 can then be suspended, like a backpack, from a hook 23 of the stowage device.

In FIG. 6, the cover 22 has four straps 40, 41 that co-operate in pairs. Each strap 40, 41 is secured to the cover 22 at one of its ends. In particular, each first strap 40 is secured to an inside face of the cover 22 that is to come into contact with the bumper skin, each second strap 41 co-operating with a first strap 40 being secured to an outside face of the cover 22. Each second strap 41 includes at its free end a releasable link mechanism 42 suitable for linking the second strap 41 to the corresponding first strap 40 in order to provide durably a closed loop constituted by the strap. The mechanism 42 is conventional and comprises, for example, a buckle made of plastics material. It is shaped so as to be capable of being released by an operator (so that the free ends of the first and second straps 40 and 41 become independent) without it being possible for it to be deactivated during suspension.

Such a cover makes it possible to suspend the bumper skin 12 directly from the connection means while protecting it, the packaging in the cover remaining simple. For this purpose, the free end of each first strap 40 is passed through an orifice 44 in the bumper skin 12, in particular an orifice in the skin used for snap-fastening other elements thereto, and is linked to the second strap 41 via its link mechanism 42. The closed loop formed by the first and second straps 40, 41 serves to co-operate with a hook 23 of the stowage device.

Additional Explanations

In a first implementation, the method comprises a first step of packaging the bumper skin 12 in a cover 22 of the invention.

In a particular implementation (when the cover has at least one strap suitable for connection to the bumper skin 12, as shown in FIG. 6), the method includes a step of securing said strap to the skin 12, e.g. by passing a first strap through an orifice 44 of the skin 12 and then linking together the first and second straps using the mechanism 42.

This optional step or packaging step is followed by a step of connecting the cover 22 to a push cart having wheels and including a frame 14 as shown in FIG. 1.

Thereafter the cart is pushed by an operator in a factory and is taken to a loading dock where transport vehicles are loaded.

The operator then performs a step of transferring from the push cart to a stand 14, for loading in the transport vehicle.

To do this, the push cart and the stand 14 are positioned on a slope, with the push cart being higher up, chocks positioned at the ends of the slideways 26 of the push cart situated next to the stand 14 are removed as are other chocks positioned at the ends of the slideways 26 of the stand 14 situated beside the push cart. The 1 bars then slide from the push cart to the frame 14.

Thereafter, the operator replaces the chocks in the slideways 26 of the stand 14 and an operator performs a step of loading the transport vehicle with a conventional lift truck.

In a second implementation, the cover 22 is positioned directly on the frame 14, 14' that is to be placed in the transport vehicle.

Under such circumstances, the method does not include a transfer step but includes additional steps between the packaging step and the connection step. The frame 14, 14' is thus a frame as described with reference to FIG. 1 or FIG. 2.

Said additional steps are steps of placing the cover on a conveyor and releasing the cover from the conveyor.
[0079] When this method is used, a conveyor, e.g. a conveyor belt or a self-propelled wire is installed in the factory, with one end being close to the place where bumper skins 12 are packaged, and the other end being situated close to the loading dock.

[0080] Thus, after placing the bumper skin in the cover, an operator puts the cover 22 on the conveyor. The conveyor takes the cover 22 to the loading dock where it is separated by a second operator so as to be ready subsequently to connect the cover to the stand.

[0081] It should be observed that the various aspects of the invention are not limited to the embodiments described.

1.-18. (canceled)
19. A bumper skin protection cover including suspension means for suspending it from a support.
20. A bumper skin protection cover according to claim 19, in which the suspension means comprise a ring or a hook.
21. A bumper skin protection cover according to claim 19, in which the suspension means comprise at least one strap.
22. A bumper skin protection cover according to claim 21, in which at least one strap is suitable for being secured to the bumper skin so as to transmit directly to the support at least a fraction of the weight of the bumper skin.
23. A bumper skin protection cover according to claim 21, in which at least one strap includes a releasable link mechanism suitable for linking the strap to a complementary strap.
24. A bumper skin protection cover according to claim 19, in which the suspension means comprise, stitched to the cover, a lug of a plastics material and including an opening.
25. An assembly comprising a bumper skin storage device and a cover according to claim 19, wherein the stowage device comprises a stand provided with connection means suitable for co-operating with the suspension means of the cover.
26. An assembly according to claim 25, in which the connection means comprise at least one taut cable or rigid bar extending in a horizontal direction and suitable for co-operating with the suspension means, and the suspension means comprises a ring or a hook.
27. An assembly according to claim 25, in which the connection means comprise at least one hook or ring suitable for co-operating with the suspension means, and the suspension means comprises at least one strap.
28. An assembly according to claim 26, in which the rigid bar is provided with a slideway.

29. An assembly according to claim 25, including spreader means for holding two adjacent bumper skins a predetermined distance apart.
30. An assembly according to claim 29, in which the stand comprises two rigid bars, and the spreader means comprise an L-shaped bar comprising a rectilinear central portion having the suspension means of the cover arranged thereon, and two parallel rectilinear end portions forming respective sliders, each co-operating with a slideway of a rigid bar.
31. An assembly according to claim 20, in which the connection means are provided at different heights.
32. An assembly according to claim 23, in which the carrier also includes means for adjusting the level of the connection means along a vertical axis.
33. A method of stowing at least one bumper skin in a transport vehicle, the method being characterized in that it comprises:

   a step of packaging the bumper skin in a cover including suspension means for suspending it from a support;
   a step of connecting the cover to a stand of a device according to claim 25; and
   a step of loading a frame of said device in the transport vehicle.
34. A stowing method according to claim 33, in which the suspension means comprises at least one strap, and including an additional step of securing the strap of the cover to the bumper skin, performed after the packaging step and before the connection step.
35. A stowing method according to claim 33, including an additional transfer step performed before loading, in which at least one cover positioned on a push cart constituting a stand of a device comprising at least one taut cable or rigid bar extending in a horizontal direction and suitable for cooperating with the suspension means is transferred to a second stand of a device for loading in the transport vehicle.
36. A stowing method according to claim 35, including, between the packaging and connection steps, a step of placing the cover on a conveyor, and a step of separating the cover from the conveyor.
37. A bumper skin protection cover according to claim 21, wherein said strap is a strap of fabric secured to the cover by stitching.

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