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VEHICLE ROOF STRUCTURE

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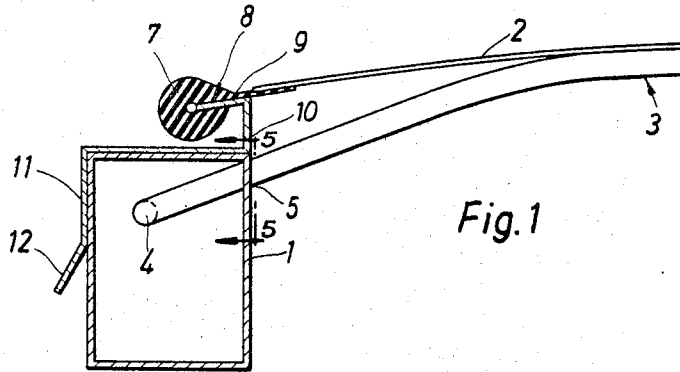


Fig. 1

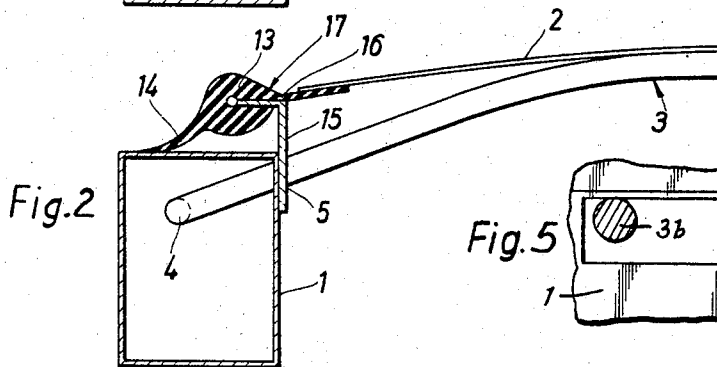


Fig. 2

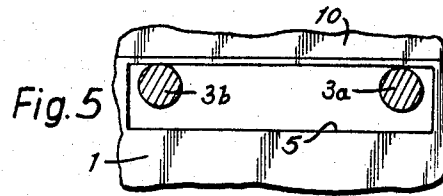


Fig. 5

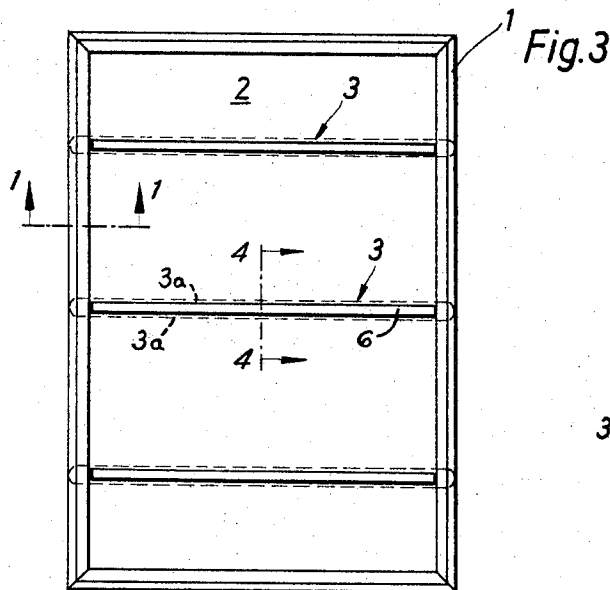


Fig. 3

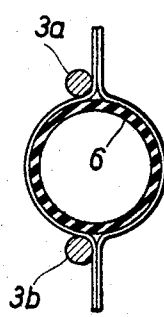


Fig. 4

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VEHICLE ROOF STRUCTURE

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ABSTRACT OF THE DISCLOSURE

Vehicle roof structure accommodates thermal contraction and expansion of a tensioned tarpaulin with temperature changes. The tarpaulin is stretched over tensioning bows which have free ends mounted on a roof frame. As the tarpaulin contracts, it flattens the bows, which are free to flatten because of the free ends. As the tarpaulin expands, the bows can assume their original configuration because of their free ends, and maintain the tarpaulin under tension. Resilient hoses sewn into the tarpaulin accommodate expansion and contraction transversely of the bows. As the tarpaulin contracts, the hoses are compressed. As the tarpaulin expands, the resiliency of the hoses causes them to assume their original configuration and take up any slack in the tarpaulin resulting from expansion.

The invention relates to a tensioned cover for cabins of heavy-duty vehicles.

Under extreme temperatures to be expected, tensioned covers of the conventional type frequently tear at their seams due to thermal contraction of the material, or hang loose without tension and flap, due to thermal expansion of the material.

The object of the invention is to provide a tensioned cover permitting universal compensation for the expansion.

This object has been attained by installing arched tensioning bows below the cover tarpaulin. The bows are fastened to the lateral edges of the cover frame and have free ends which are supported for axial shifting on the cover frame.

These tensioning bows become flat or domed, respectively, when the tension of the cover tarpaulin changes, so that the latter is kept under constant tension. The tarpaulin is sufficiently over-dimensioned to prevent it from being excessively tensioned under extreme temperatures.

Shiftability of the bow ends can easily be achieved by loosely inserting them in slots in the cover frame.

For maximum stability the bows are formed of spaced, parallel twin bars held together by arches at the ends.

One or several rubber hoses permitting compensation for expansion of the cover tarpaulin in a direction transversely of the tensioning bows are expediently sewn into the cover tarpaulin parallel with the tensioning bows. If the tension increases, the hoses are subject to compression or, if the tension decreases, they are subject to doming. They are preferably placed between each of the twin bars of the tensioning bows, thus effecting mutual support.

In order to be spread out, the cover tarpaulin is provided along its edge with a suspension strip adapted to be hung in a supporting member on the cover frame. The cover frame preferably has a box-shaped cross-section, and the supporting member is preferably formed of a separate, profiled sheet-metal element. The latter has an outwardly directed tensioning flange extending in spaced relation with the upper side of the cover frame for supporting the suspension.

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In order to achieve good sealing between cover frame and cover tarpaulin, two simple measures can be taken. The suspension strip can be provided with an outwardly directed sealing lip, and the sheet-metal profile can have an approximately L-shaped cross section, one of the shank portions being connected with the inner side of the frame and the other shank portion forming the tensioning flange. An alternative structure includes a drop-shaped suspension strip, with the sheet-metal profile bearing on the upper side of the cover frame and being provided on the outer side of the frame with a downwardly directed extension, the extremity of which is bent outwardly to form a drip nose.

In the following, an embodiment of the invention is explained in more detail with reference to the drawings in which:

FIGURE 1 is a cross section through a tensioned cover in accordance with the invention taken on line 1—1 of FIGURE 3;

FIGURE 2 depicts a modified form of the structure of FIGURE 1;

FIGURE 3 is a plan view of a tensioned cover in accordance with the invention;

FIGURE 4 is a section taken on line 4—4 of FIGURE 3, and

FIGURE 5 is an enlarged, detail view on section line 5—5 of FIGURE 1.

According to the drawings a cover frame 1 is provided, having a box shaped cross section over which there is extended an over-dimensioned cover tarpaulin 2. Arched tensioning bows 3 formed of spaced, parallel twin bars 3a and 3b, which are held together by arches at the ends, are loosely inserted with their free ends 4 in slots 5 provided in the cover frame below the cover tarpaulin. A rubber hose 6 is sewn into the tarpaulin between each of the twin bars 3a and 3b.

By using an over-dimensioned cover tarpaulin, even in the case of great contraction due to unfavorable weather conditions the tarpaulin is not excessively tensioned. The tensioning bows and the rubber hoses guarantee a constantly sufficient tension of the cover tarpaulin despite the over-dimensions of the material and prevent sagging or flapping in windy weather and during travel.

In accordance with FIGURE 1, a drop-shaped suspension strip 7 provided with a slot 8 to receive a tensioning flange 9 on a sheet-metal profile 10, can be employed for suspension of the cover tarpaulin. The sheet-metal profile 10 bears on the frame 1 and has on the outer side of the cover frame a downwardly inclined extension 11, the extremity of which is bent outwardly and thus forms a drip nose 12.

In the modification of FIGURE 2, a suspension strip 13 having a sealing lip 14 has been chosen, whereas only an L-shaped sheet-metal profile 15 is provided whose one shank portion 16 serves to engage a slot 17 of the suspension strip 13 and whose other shank portion is welded to the inner side of the frame 1.

I claim:

1. Vehicle roof structure, comprising:

a frame having opposite sides spaced a distance apart, a tarpaulin extending between the sides of the frame and having opposite sides,

the dimension of the tarpaulin between its sides being greater than the distance between the sides of the frame,

securing means for securing the opposite sides of the tarpaulin at the opposite sides of the frame, and tensioning means for tensioning the tarpaulin,

the tensioning means including a plurality of spaced-apart, elongated, resilient, upwardly arched bows

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extending between the sides of the frame and having free ends,
 the frame including mounting means mounting the free ends of the bows for longitudinal movement, the mounting means including means defining slots in the frame, 5
 the slots loosely receiving the free ends of the bows, the tarpaulin being free of attachment to the bows.
 2. The structure of claim 1,
 each bow including two spaced-apart, generally parallel bars having ends, and 10
 arch members securing the ends of the bars together.
 3. The structure of claim 1, including:
 a plurality of spaced-apart, elongated, resilient tubular members sewn into the tarpaulin and extending in generally parallel relationship with the bows. 15
 4. The structure of claim 3,
 each bow including two spaced-apart, generally parallel bars,
 each tubular member being disposed between the bars 20
 of a bow.
 5. The structure of claim 1,
 the frame having a hollow cross-sectional configuration, an inner wall and an outer wall,
 the slots being located in the inner wall of the frame, 25
 the free ends of the bows being spaced from the outer wall.
 6. The structure of claim 1,
 the securing means including a suspension strip secured to a side of the tarpaulin,
 means defining a slot in the strip at a location below the side of the tarpaulin,
 the slot opening in a direction toward the tarpaulin, and

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a supporting member rigidly associated with the frame and having an outwardly projecting tensioning flange received in the slot in the strip.

7. The structure of claim 6,
 the frame including an inner wall and an upper wall, the suspension strip being spaced above the upper wall and including an elongated sealing lip,
 the sealing lip bearing on the upper wall of the frame, the supporting member including a shank portion secured to the inner wall of the frame.

8. The structure of claim 6,
 the frame including an outer wall and an upper wall, the supporting member being secured to the upper wall and including an extension projecting downwardly along the outer wall,
 the extension having an edge portion spaced outwardly from the outer wall.

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