

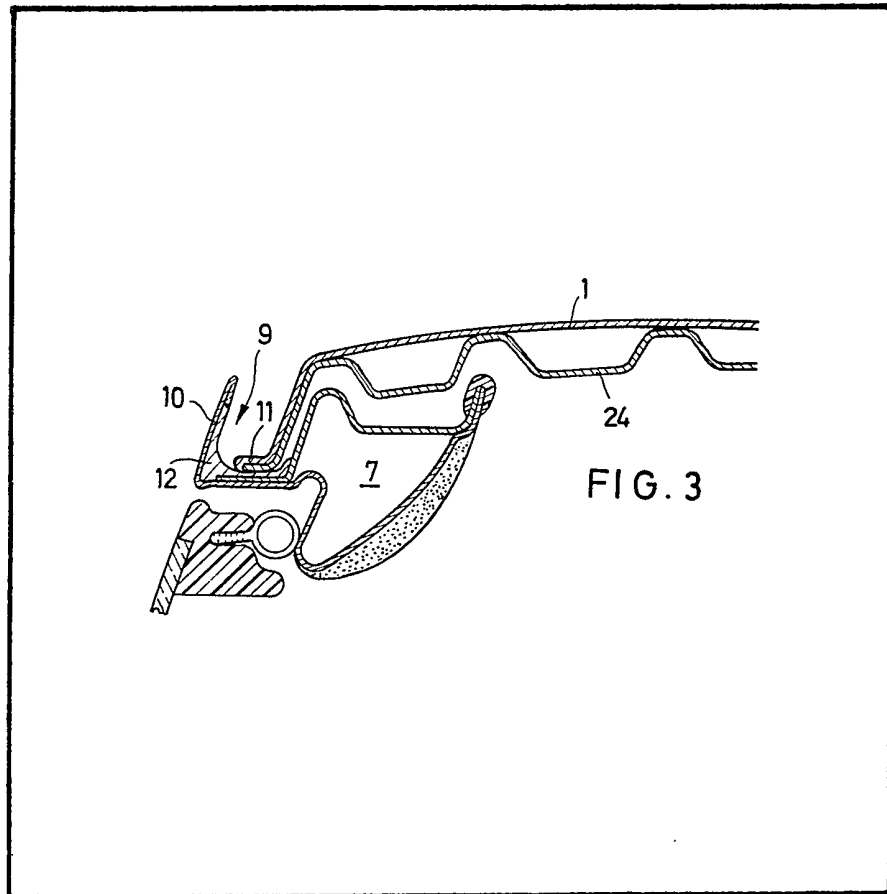
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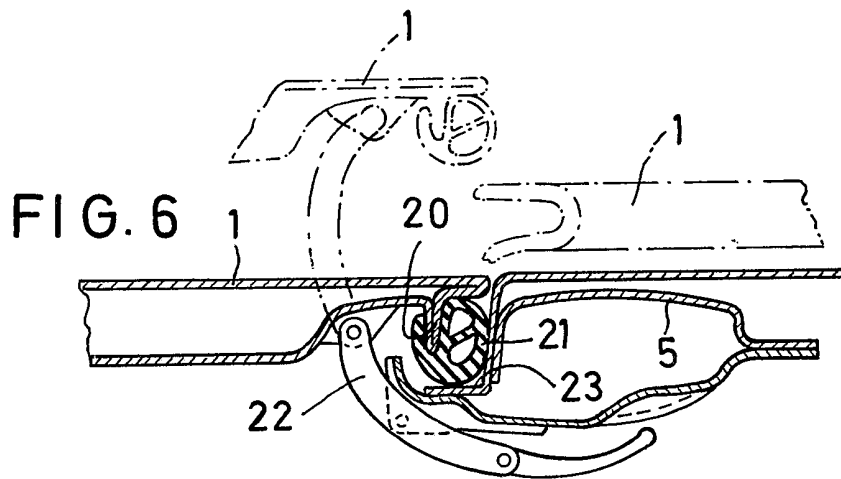
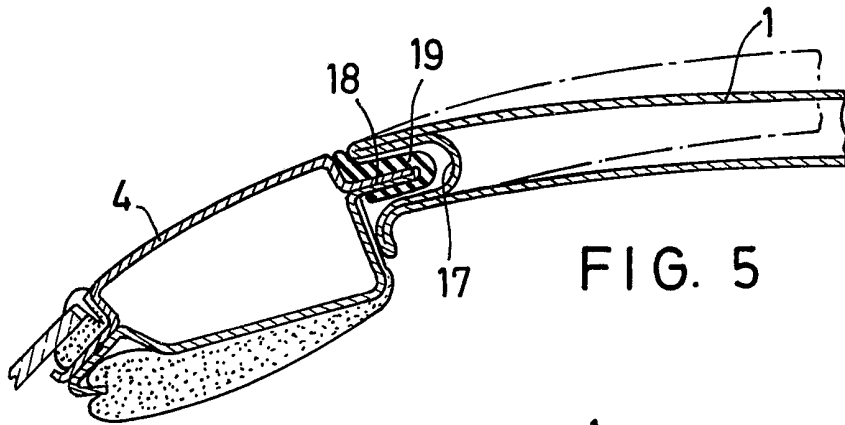
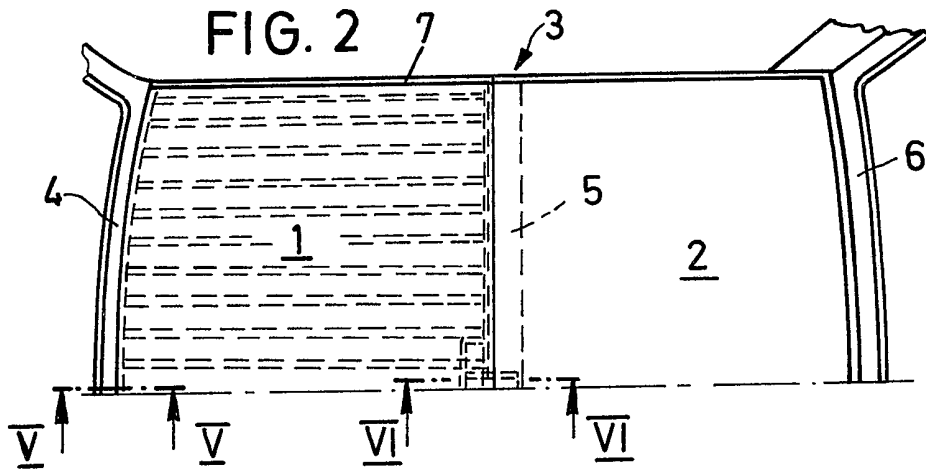
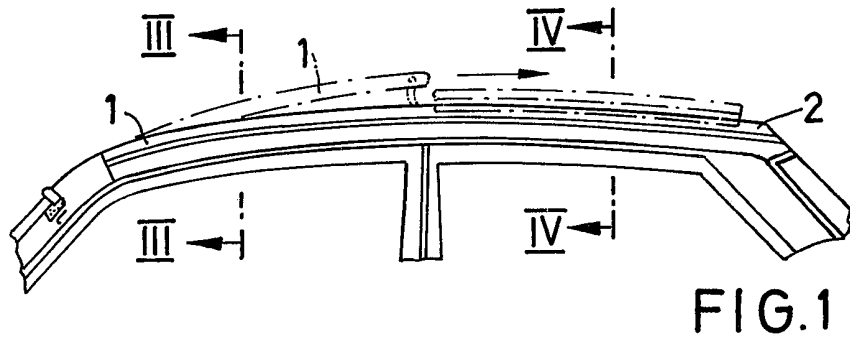
(54) **Vehicle roof with a movable roof part**

(57) A vehicle roof has a movable roof part which covers a roof opening bound by lateral drip mouldings and can be pushed back over the fixed roof part via guideways formed in the drip mouldings. The movable roof part (1) is in the form of a double skinned shell preferably made of a plastics material which covers the whole width of the roof and is supported by lateral slide

flanges (11) on the base of the lateral external drip mouldings (9) of the roof frame. The movable roof part (1) is pivotally supported at its leading edge on the roof frame and fixed at its rear edge via a separable toggle hinge. The movable roof part (1) can be pushed back over the roof membrane after opening of its rear edge and releasing of the toggle hinge by hand, whereupon the lateral slide-flanges (11) are received by guideways (15) Fig. 4 (not shown) of the lateral rainwater deflectors.



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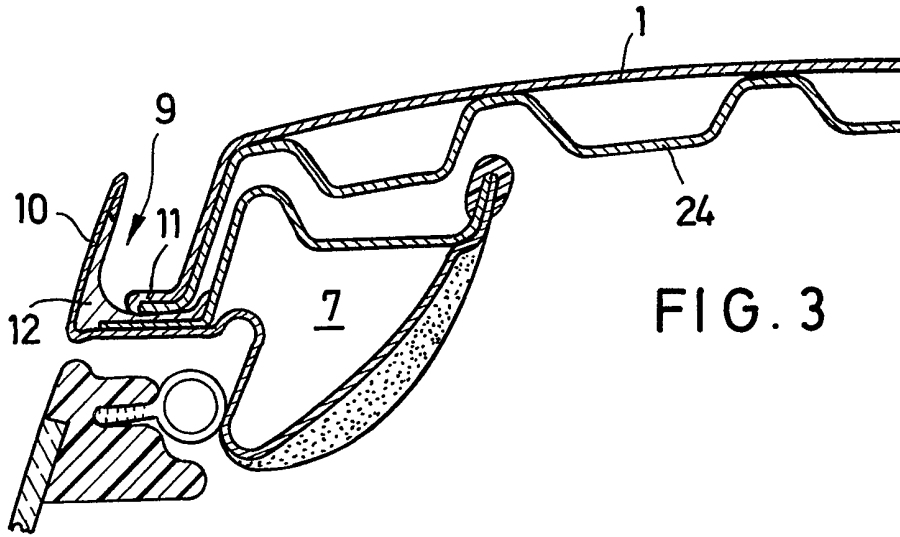


FIG. 3

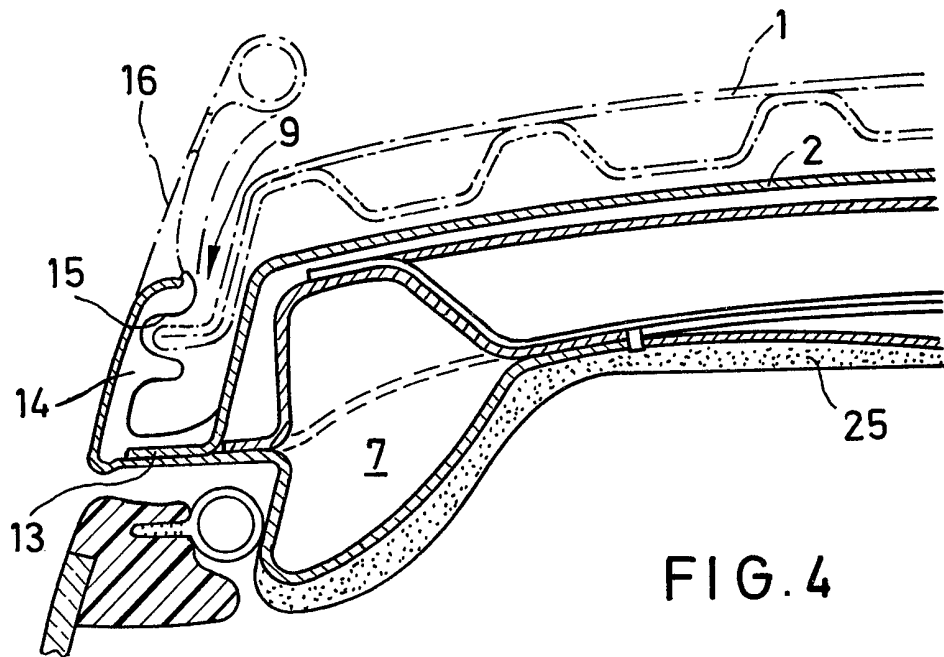


FIG. 4

SPECIFICATION

Vehicle roof with a movable roof part

The invention relates to a vehicle roof having a movable roof-part which covers a roof opening and a fixed part.

From German Offenlegungsschrift No. 20 53 086 a vehicle roof is known, in which lateral guide tracks for the movable roof-part are disposed as a U-shaped frame on the roof membrane adjacent the roof opening and extend back over the fixed part of the roof.

This vehicle roof has the disadvantage that the movable roof-part can be disposed flush with the roof membrane only at its leading edge, whilst at its rear edge there is a relatively large difference in level.

In British Patent Specification No 478 428 a guideway is moulded into each of the walls of the lateral drip moulding for the movable roof-part. Here, too, the lateral drip mouldings extend beyond the roof-opening and over the fixed roof-part.

This vehicle roof has the same disadvantage as the first-mentioned one and in addition requires a costly deformation of the roof in order to form the guide tracks in the walls of the lateral drip mouldings.

The invention seeks to provide a vehicle roof which, in the closed position, lies fully flush with the roof membrane, can be opened for ventilation purposes at its rear edge and can be pushed back over the fixed part of the roof, to uncover the roof opening.

According to the invention, there is provided a vehicle roof having an opening covered by a movable roof-part which extends substantially across the width of the vehicle and has side flanges capable of sealingly engaging lateral external drip mouldings, the latter mouldings being provided with guideways for enabling the movable roof-part to be slid to overlie the fixed roof-part and thereby uncover the roof opening.

The invention offers the advantage that the movable roof part can be manufactured simply from a plastics material and the assembly of the roof can be effected simply from the outside.

When the movable part of the roof is provided at its leading edge with a bearing groove, via which it is pivotally supported on a sealing strip fixed to the leading edge of the roof opening and is provided at its rear edge with a sealing strip which is sealed via a detachable toggle hinge against a rear internal drip moulding, the opening of the movable part of the roof for ventilation purposes can be effected with a minimum effort.

If the lateral drip mouldings running in the area of the fixed part of the roof are in the form of lateral rainwater deflectors, which are provided with guide tracks for the side flanges raised by approximately the thickness of the movable part of the roof, the manual pushing of the vehicle roof is made possible with a minimum of effort.

Preferably the lateral rainwater deflectors in the front part of the roof are provided with a

sealing member and in the area of the rear part of the roof are provided with the guide tracks for the flanges of the movable part of the roof. This results in a particularly favourable formation of the roof side panels whereby the rainwater deflectors fulfil several functions, such as the draining away of water, and supporting and guiding the movable part of the roof.

Conveniently, the lateral rainwater deflectors are formed in one piece with an integrally formed roof luggage rack. This can be incorporated elegantly into the vehicle roof.

Advantageously, each of the movable parts of the roof and also the fixed parts of the roof can be formed as a self-supporting cellular structure, which has trapezoidal section ribs running in the longitudinal direction of the vehicle. In this way it is possible to achieve a level exterior of the roof, whilst the interior of the roof can be provided with an internal lining as desired.

The invention will now be described further, by way of example, with reference to the accompanying drawings, in which:

Fig. 1 is a side view of a vehicle roof according to the invention;

Fig. 2 is a partial top view of the vehicle roof shown in Fig. 1;

Fig. 3 is a section along the line III—III in Fig. 1;

Fig. 4 is a section along the line IV—IV in Fig. 1;

Fig. 5 is a section along the line V—V in Fig. 2; and

Fig. 6 is a section along the line VI—VI in Fig. 2.

In Figures 1 and 2, a vehicle roof consists of front movable roof-part 1 and a rear fixed roof-part 2 which are each in the form of a sandwich component or a cellular structure made of a plastics material. The roof-parts 1 and 2 are connected to a roof frame arrangement 3 which together with the roof columns is in the form of a sheet metal construction.

The roof frame arrangement 3 consists essentially of a front roof frame cross member 4, a central beam 5 and a rear roof frame cross member 6 which are connected to each other by means of lateral roof frame side bars 7.

The movable roof part 1 is indicated in Fig. 1 in dash-dot lines in its opened position and also in its pushed-back position.

The roof opening 8 defined by the roof arrangement 3 extends over almost the entire width of the roof and is bound by lateral drip mouldings 9, which are formed from lateral rainwater deflectors 10. The lateral rainwater deflectors 10 extend at the side of the fixed roof part 2 to the end of the vehicle roof.

From Figures 3 and 4, which show vertical cross-sections through the front and rear parts of the vehicle roof respectively, it can be seen that both the movable roof part 1 and also the fixed roof part 2 are in the form of double skinned plastics shell-shaped components. The movable roof part 1 (Fig. 3) has lateral slide flanges 11 by

means of which it is supported on an elastic sealing material 12 in the area of the drip moulding 9. The fixed roof part 2 has similar lateral slide flanges 13 (Fig. 4) by means of which it is connected to the roof frame side bars 7 and the beam 5 and the rear roof frame cross member 6 by adhesion.

The rainwater deflectors 10 which form drip mouldings 9 can, as shown in Fig. 3, be formed as part of the roof frame side bars 7, whilst, as shown in Fig. 4, they can form the guide tracks 15 for the movable roof part 1 being formed as one-piece parts 14.

According to a preferred embodiment of the invention, both the rainwater deflectors 10 and the rainwater deflectors 14 can be formed in one piece with an integrally formed roof luggage rack 16 as indicated in Fig. 4 in dash-dot lines. The arrangement of the roof luggage rack 16 can be made in such away that the pushing function of the movable roof part can be retained.

Figures 5 and 6 show the particularly simple bearing and sealing of the movable roof part 1. The movable roof part 1 is for this purpose provided at its leading edge with a bearing groove 17, via which it is supported on a sealing strip 19 disposed on a flange 18 of the front roof frame cross member 4. The movable roof part 1 is provided at its rear edge with a cross piece 20, on which a sealing strip 21 is disposed via which it is sealed and supported under the effect of the toggle hinge 22 against a rear internal drip moulding 23.

The movable roof part 1 can be opened at its rear edge in a known manner by means of the separable toggle hinge 22 in order to provide ventilation. After separation of the toggle hinge 22 manual pushing results in the lateral slide flanges 11 of the movable roof part 1 engaging with the guideways 15 in the rear area of the rainwater deflectors 14. For hingeless sliding, corresponding expanding shoes can be provided in a known manner. Furthermore known clamping devices can be provided in the movable roof part 1, in order to fix the roof part in an intermediate position and prevent unintentional displacement.

In a particularly preferred embodiment, this kind of clamping device can be disposed in the area of the beam 5 and connected to the toggle hinge 22.

Both the movable roof part 1 and the fixed roof part 2 can be formed with a smooth external surface, whilst on their internal surface they can be provided with ribs 24 having a trapezoidal section and running in the longitudinal direction of the vehicle. If desired the inner side of the parts, as shown in Fig. 3 for the movable roof part 1, can be left visible or, as shown in Fig. 4 for the fixed roof part 2, covered by an internal roof lining

The movable roof part 1 and the fixed roof part 2 can be in the form of plastics components which can be made by injection moulding or

vacuum moulding, so that a wide variety of suitable plastics can be used.

Claims

1. A vehicle roof having an opening covered by a movable roof-part which extends substantially across the width of the vehicle and has side flanges capable of sealingly engaging lateral external drip mouldings, the latter mouldings being provided with guideways for enabling the movable roof-part to be slid to overlie the fixed roof-part and thereby uncover the roof opening.
2. A vehicle roof as claimed in Claim 1, wherein the movable roof part is formed of a plastics material.
3. A vehicle roof as claimed in Claim 1 or 2, in which a sealing member is provided between the side flanges of the movable roof part and the lateral drip mouldings.
4. A vehicle roof as claimed in Claim 1, 2 or 3, in which the movable roof-part is provided at its leading edge with a bearing groove by means of which it is supported pivotally on a sealing strip disposed on a flange at the leading edge of the roof-opening and is provided at its rear edge with a sealing member via which it is sealed by means of a detachable toggle hinge against a rear internal drip moulding.
5. A vehicle roof as claimed in any preceding Claim wherein the lateral drip mouldings extending in the area of the fixed part of the roof are formed from lateral rainwater deflectors which are provided with guideways for the side-flanges of the movable roof-part which guideways are raised by at least the thickness of the movable roof-part.
6. A vehicle roof as claimed in claim 5, wherein the lateral rainwater deflectors which form the lateral drip mouldings are in the form of single-piece plastics parts which are provided in the area of the front roof-part with a sealing member and in the region of the fixed roof-part are provided with the guideways for the flanges of the movable roof part.
7. A vehicle roof as claimed in claim 6, wherein the lateral rainwater deflectors are formed integrally with a luggage rack.
8. A vehicle roof as claimed in any preceding claim, wherein at least one of the movable roof-part and the fixed roof-part is in the form of a self-supporting cellular structure having ribs extending in the longitudinal direction of the vehicle.
9. A vehicle roof as claimed in any of Claims 1 to 7, wherein at least one of the movable roof-part and the fixed roof-part is in the form of a single sheet polycarbonate construction.
10. A vehicle roof having a movable roof-part which covers a roof opening and a fixed part, wherein the movable roof-part is in the form of a double skinned shell spanning substantially the whole width of the roof, and having side flanges by means of which the movable roof-part is

supported on lateral external drip mouldings.
11. A vehicle roof constructed substantially as

herein described with reference to and as
illustrated in the accompanying drawings.

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