(12) UK Patent Application (19) GB (11) 2 184 404 (13) A

(43) Application published 24 Jun 1987

(21) Application No 8627845

(22) Date of filing 21 Nov 1986

(30) Priority data
(31) 3545871 (32) 23 Dec 1985 (33) DE

(71) Applicant
Webasto-Werk W. Baier GmbH & Co

(Incorporated in FR Germany)

8035 Gauting, Federal Republic of Germany

(72) Inventors
Alfons Lutz
Arpad Fürst
Wolfgang Vogel

(74) Agent and/or Address for Service
W. H. Beck Greener & Co,
7 Stone Buildings, Lincoln's Inn, London WC2A 3SZ

(51) INT CL⁴
B60J 7/00 B62D 65/00

(52) Domestic classification (Edition I):
B7B 268 CM R

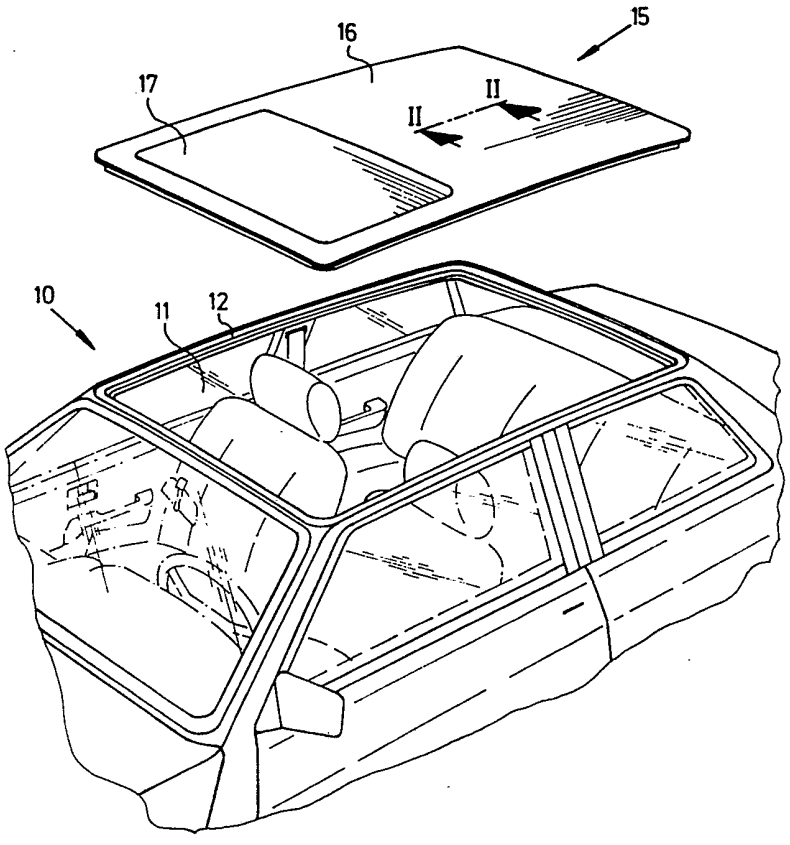
(56) Documents cited
None

(58) Field of search
B7B
Selected US specifications from IPC sub-classes B60J
B62D

(54) Motor vehicle with a roof mounted ventilation device

(57) The roof is designed as an installation unit in the form of a roof attachment 15 which can be mounted subsequently on at least the lateral roof members 12 of a motor vehicle body 10 and which incorporates a pre-assembled ventilation device 17 which may be a tilting, sliding, folding, spoiler or compound roof arrangement. The roof simplifies vehicle construction in that it may be attached to a finished motor vehicle body, itself in a finished state, and in that the fitting of and final adjustments to the ventilation device do not need to be made on the vehicle body assembly line.

FIG. 1



GB 2 184 404 A

2184404

FIG. 1

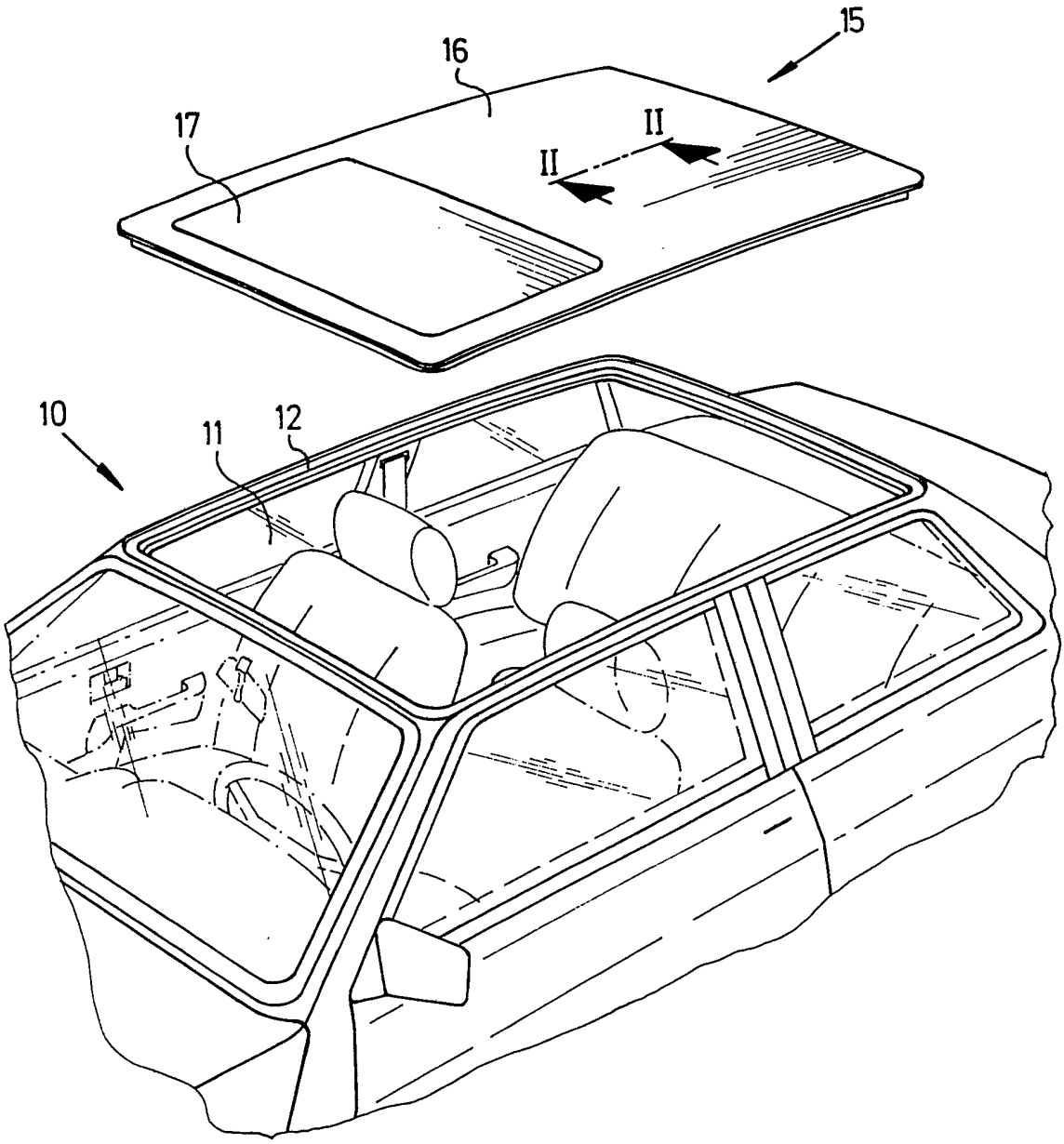


FIG. 2

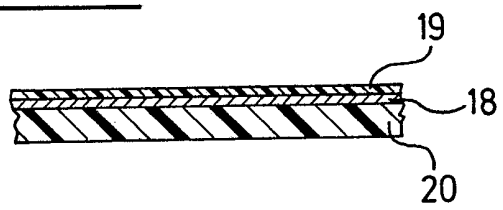


FIG. 3

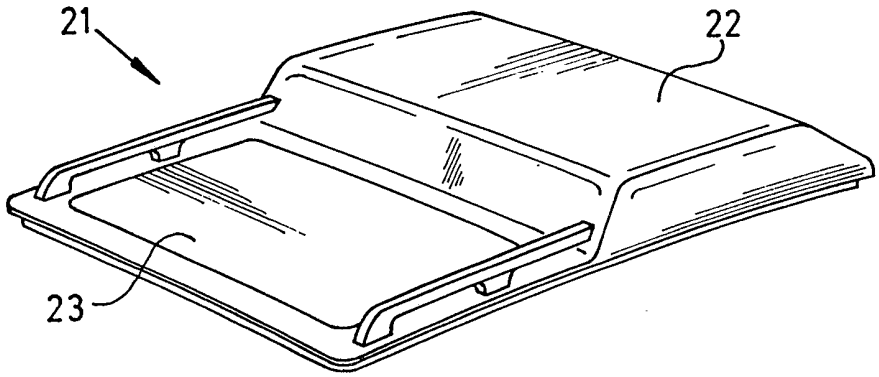


FIG. 4

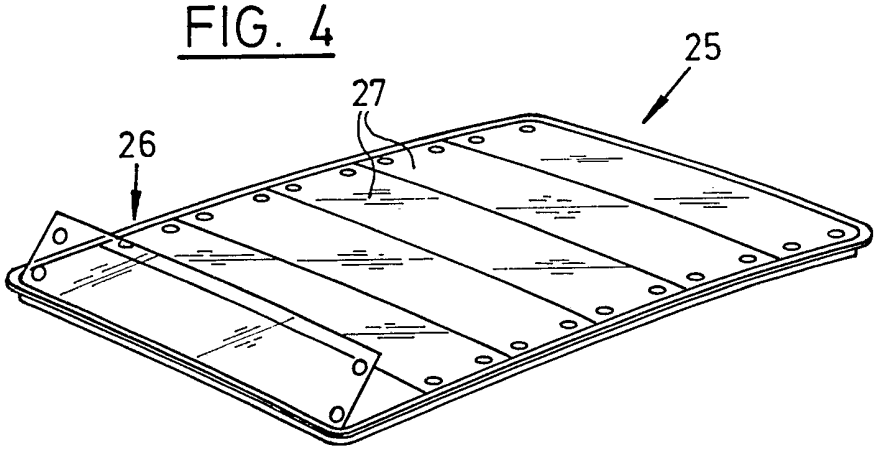


FIG. 5

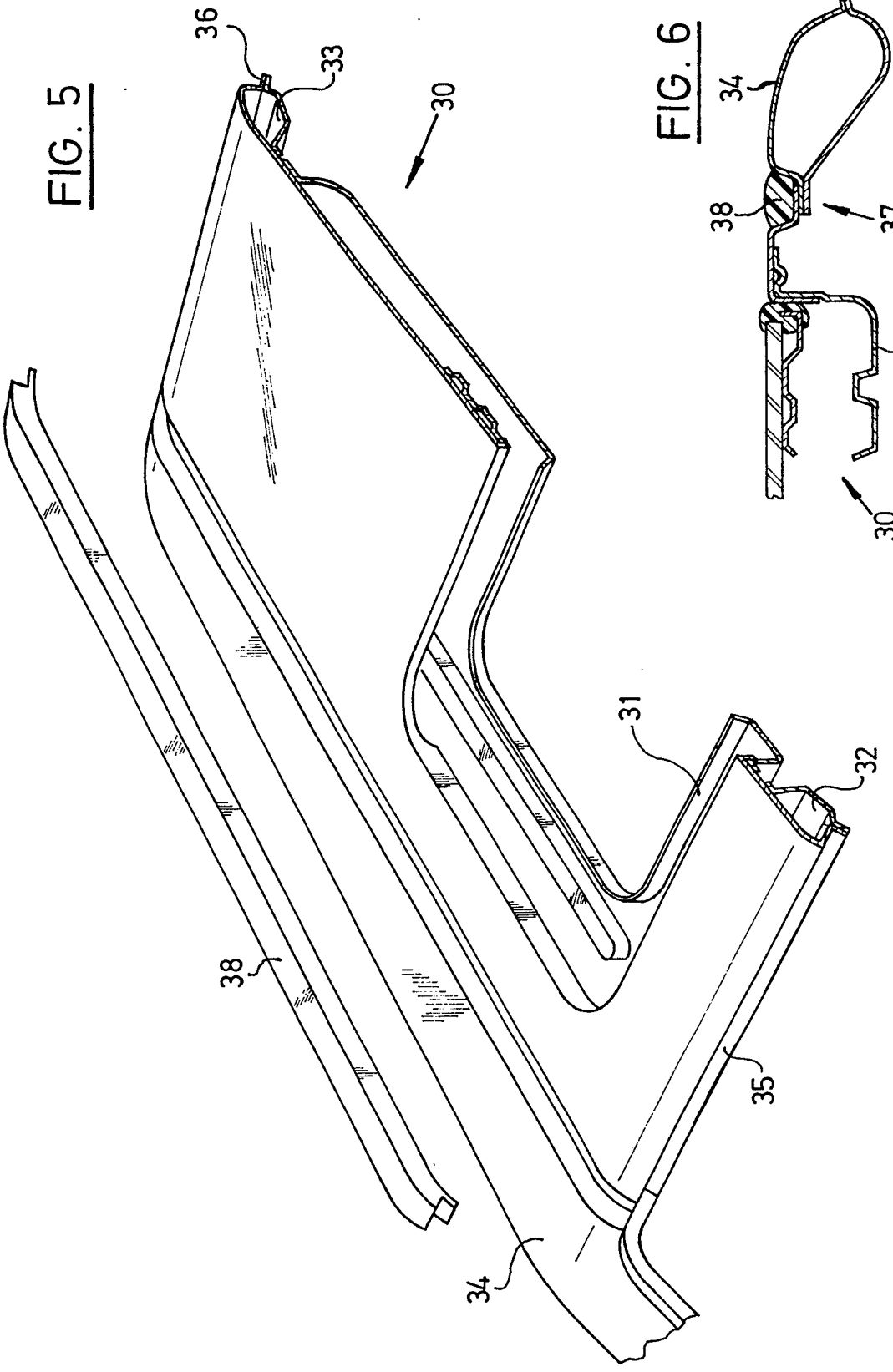


FIG. 6

SPECIFICATION

A motor vehicle roof with a ventilation device

The invention relates to a motor vehicle roof with a ventilation device.

It is known (US-PS 2 193 607 and US-PS 2 193 608) to provide a motor vehicle roof with an opening, which extends both in the transverse and longitudinal direction of the vehicle over a greater part of the roof area, and to mount a frame on a step-like bevelled portion of the part of the fixed roof sheet bounding the roof opening, which frame acts both as carrier and guide for one or more sliding panels and also supports a roof part which is stationary in the installed position and under which the panel or panels can slide. According to another known solution (DS-OS 32 22 419), a structural unit, comprising a vehicle roof and sliding roof frame, including reinforcing rails, is attached in a pre-assembled state to the rest of the motor vehicle body. In the case of the solution according to the above-mentioned U.S. patent specifications, a vehicle body is required which is provided with a roof in conventional manner and then the frame carrying the other parts of the roof has to be fitted into the roof opening. In the solution according to DE-OS 32 22 419, the structural unit, comprising roof, sliding roof frame and reinforcing rails, is welded to flanges of the vehicle side walls after insertion into the corresponding bodywork aperture, which of course has to be carried out during basic vehicle construction, namely prior to the painting of the bodywork and the fitting-out of its interior with lining, panelling, seats etc. Subsequently, the sliding roof and its operating unit is then installed on the sliding roof frame. Both of the aforementioned solutions necessitate a relatively high number of time-consuming installation procedures on the vehicle assembly line in the factory.

The present invention is based on the object of devising a motor vehicle roof with a ventilation device, which further simplifies and shortens the installation work on the vehicle assembly line in the factory.

This object is achieved in accordance with the invention in that the roof is designed as an installation unit in the form of a roof attachment which can be mounted subsequently on at least the lateral roof members of the motor vehicle body and which incorporates a pre-assembled ventilation device.

The solution according to the invention makes it possible for the motor vehicle body to be painted and fitted out beforehand, for example with linings and seats installed, and for the roof with the pre-assembled ventilation device, i.e. a ventilation device which has been tested and is already operational, to be simply mounted on the bodywork thus previously prepared.

The roof attachment may also include front and/or rear roof members. In particular, the ventilation device may be designed as a tilting roof, a sliding roof, a sliding and tilting roof, a spoiler roof or compound roof.

The said lateral roof members may be laterally disposed, longitudinally running structural rails each defining the top edge of a side of the vehicle, i.e. running immediately over the side door apertures of the vehicles.

The said front and rear roof members may be structural members which, when the roof is installed, bridge said lateral roof members to form a rigid structural framework.

The invention includes a method of vehicle assembly comprising fitting a roof as described herein to a pre-assembled vehicle body.

The improvements achieved with the invention, with the aim of facilitating assembly on the vehicle production line, also include inter alia the elimination of vertical adjustment of the panel which hitherto normally only possible on the assembly line, since this adjustment has already been made by the supplier of the roof attachment. The critical adjustment of the sealing clearance between the panel of a tilting, sliding, sliding and tilting or spoiler roof and the roof aperture which can be closed by means of a panel, or between the individual sections of a compound roof and the roof aperture rim has likewise already been carried out by the supplier. With a manual drive, the crank handle can also be already accurately adjusted. In the case of an electric drive the setting of the neutral position (the closed position in a sliding/tilting roof or the fully pivoted-out position in a spoiler roof) does not need to be undertaken on the vehicle production line.

The roof attachment can be made of plastics material or sheet metal in particular. When made of sheet metal it can be painted or covered with a top layer, for example imitation leather, already prior to being fitted on the rest of the motor vehicle body. Preferably, the inside of the roof attachment can also be lined prior to being united with the rest of the motor vehicle body, in particular with a covering or lining of roof lining material. Additionally, for the purpose of increased interior safety, the roof attachment may be padded on its inside.

The roof attachment and roof member can be joined together in various ways, for example by screw-fastening, bonding or the like but in any case in such a way that the bodywork and roof attachment can already be painted and, optionally, lined before they are united.

The invention will be described in more detail below on the basis of preferred examples of embodiment with reference to the accompanying drawings, wherein:

Figure 1 shows schematically an already painted and fitted-out body and a roof attachment with ventilation device before they are united;

Figure 2 shows on an enlarged scale a section along the line II-II in Figure 1;

Figures 3, 4 and 5 show three modified embodiments of roof attachments, and

Figure 6 shows a section along the line VI-VI in Figure 5.

In accordance with Figure 1 the reference numeral 10 designates a roofless motor vehicle body which has already been painted and, optionally, completely fitted out on the vehicle production line in the factory. The motor vehicle body 10 terminates at the top in roof members 12 bounding an aperture 11.

A roof attachment 15 (Figure 1) forms a stationary roof membrane 16 and is provided with a ventilation device 17 which, in the embodiment illustrated by way of example, may be a tilting roof, a sliding roof, a sliding/tilting roof or a spoiler roof. Ventilation devices of this type are known per se, for example from DE-AS 26 45 288, DE-OS 30 47 463, DE-OS 32 38 454 and DE-OS 33 11 478, and thus do not require further explanation here. Prior to delivery, the ventilation device 17 will have been installed in the roof membrane 16, adjusted and tested for operation by the roof supplier. The roof attachment 15 is painted or covered and, optionally, also padded on its interior. It can be covered or lined with roof lining material, or else finished with a prefabricated roof lining, for example of plastics material. In this fully completed assembled state, tested and ready for operation, the roof attachment 15 is simply mounted on the roof members 12 on the motor vehicle assembly line in the factory and fastened to the rest of the motor vehicle body, for example screwed or bonded thereto.

Figure 2 shows a roof attachment 15 with an inherently stable sheet-metal body 18 which is provided externally with an imitation leather covering 19 and internally is fitted with padding 20.

The modified roof attachment 21 illustrated in Figure 3 has a raised step-like rear section 22 so as to afford additional headroom or load space. The front portion of the roof attachment incorporates a ventilation device 23, for example in the form of a tilting roof, as known inter alia from DS-AS 26 45 388.

In a further modified roof attachment 25 according to Figure 4, a compound roof with transparent sections 27 is incorporated as a ventilation device 26. Compound roofs of this type are also known per se (cf. for example DE-OS 33 16 739).

Another alternative to be considered is the use of folding roofs, inter alia, as an integral part of the roof attachment described. Folding roofs of this type are also known per se (cf. inter alia DE-PS 916 497).

In the embodiment according to Figures 5 and 6 a roof attachment 30 is provided which not only includes a ventilation device in the form of a sliding or sliding/tilting roof, of which only the frame 31 is shown in Figure 5 for the sake of simplicity, but also a front roof member 32 and a rear roof member 33. The roof attachment 30 is mounted on side members 34 and, for example, is screwed or bonded thereto. The front and rear edges 35, 36 of the roof attachment 30 are fitted under the seals (not shown) of the windscreen and rear window respectively. The recessed connection points 37 between the roof attachment 30 and the side members 34 are concealed by means of cover strips 38.

CLAIMS

1. A motor vehicle roof which is adapted for use as an installation unit and takes the form of a roof attachment which can be mounted on at least the lateral roof members of a motor vehicle body after body assembly and which incorporates a pre-assembled ventilation device.

2. A motor vehicle roof according to Claim 1, wherein the roof attachment also includes front and/or rear roof members.

3. A motor vehicle roof according to Claim 1 or Claim 2, wherein a tilting roof, a sliding roof, a sliding/tilting roof, a spoiler roof, a compound roof or a folding roof is provided as the ventilation device.

4. A motor vehicle roof according to any one of the preceding claims, wherein the roof attachment is made wholly or predominantly of plastics material.

5. A motor vehicle roof according to any one of Claims 1 to 3, wherein the roof attachment is made wholly or predominantly of sheet metal.

6. A motor vehicle roof according to any one of the preceding claims, wherein the roof attachment is painted.

7. A motor vehicle roof according to any one of the preceding claims, wherein the roof attachment is covered with a top layer.

8. A motor vehicle roof according to Claim 7, wherein the top layer consists of imitation leather.

9. A motor vehicle roof according to any one of the preceding claims, wherein the inside of the roof attachment is lined.

10. A motor vehicle roof according to Claim 9, wherein a covering or panelling of roof lining material or the like is provided as the interior lining.

11. A motor vehicle roof according to any one of the preceding claims, wherein the roof attchment is padded on its inside.

12. A motor vehicle roof substantially as hereinbefore described with reference to and as illustrated in Figures 1 and 2, or 3 or 4 of the accompanying drawings.

13. A motor vehicle incorporating a roof as

claimed in any preceding claim.

14. A method of assembling a motor vehicle comprising assembling a vehicle body lacking a roof but having lateral roof support members, and attaching to said roof support members a vehicle roof as claimed in any one of Claims 1 to 12.

15. A method of assembling a motor vehicle substantially as hereinbefore described with reference to and as illustrated in Figures 1 and 2, or 3 or 4 of the accompanying drawings.

Printed for Her Majesty's Stationery Office
by Burgess & Son (Abingdon) Ltd, Dd 8991685, 1987.
Published at The Patent Office, 25 Southampton Buildings,
London, WC2A 1AY, from which copies may be obtained.