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None

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(54) Convertible hatchback car

(57) A convertible hatchback car (11) has at least two interlocking roof panels (10) which are slidable on guide rails (9) linearly into a compartment (14) pivoted to the hinged rear door (12) of the car when that door is in an upward-swung position. The guide rails (9) can be extended beyond the rear edge of the car roof for the sliding operation and then retracted into the flange (7). The compartment (14) is then swung against the rear door and the rear window (16) of the vehicle pivoted to lie flush with the compartment (14) to provide an open top arrangement.

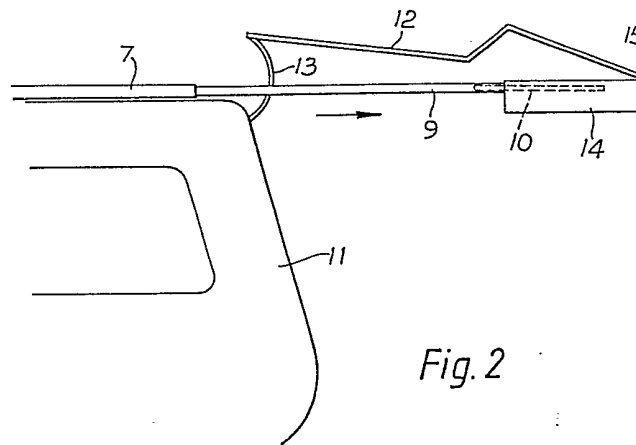


Fig. 2

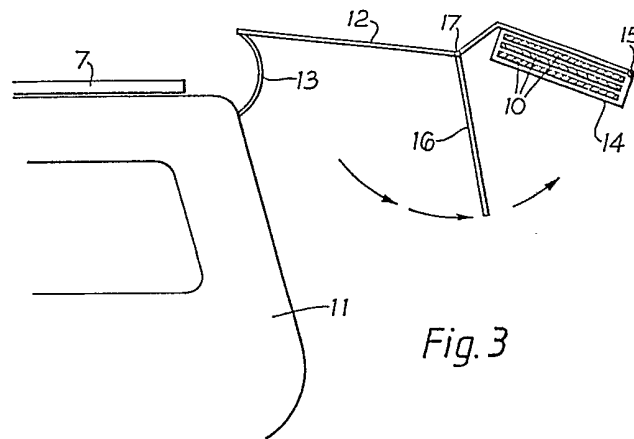
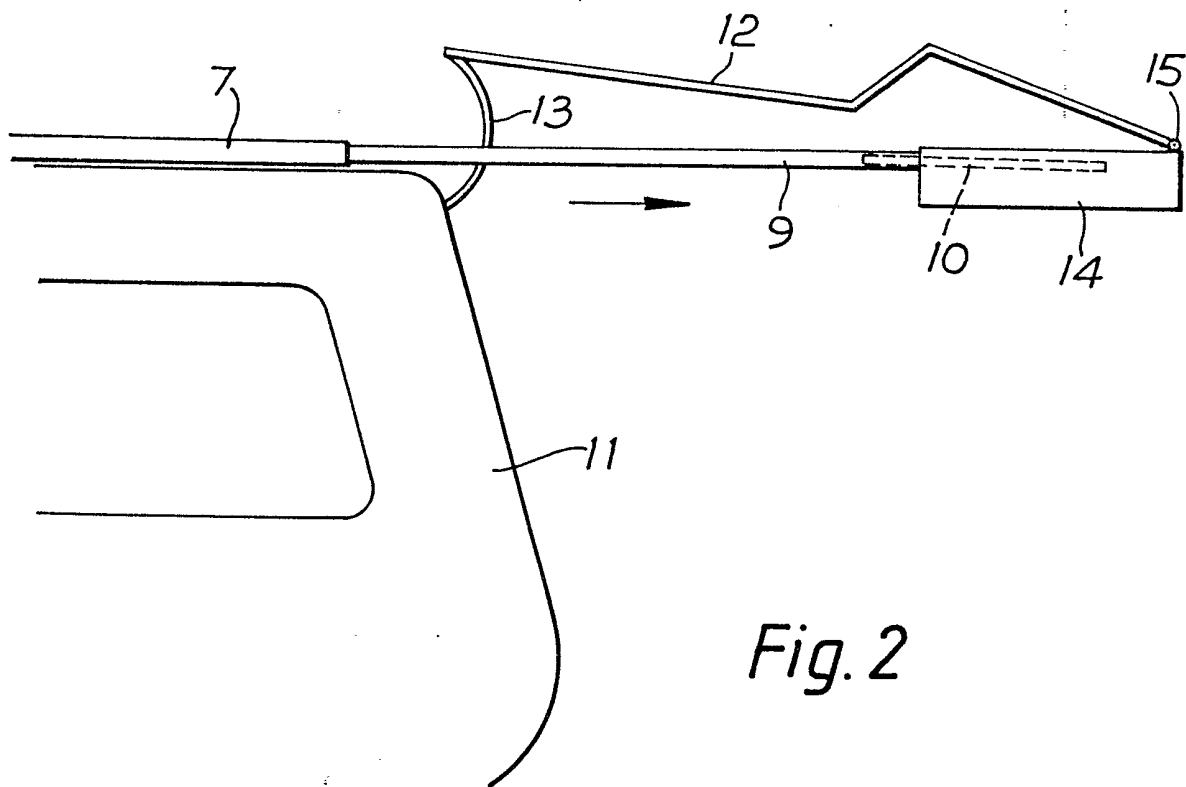
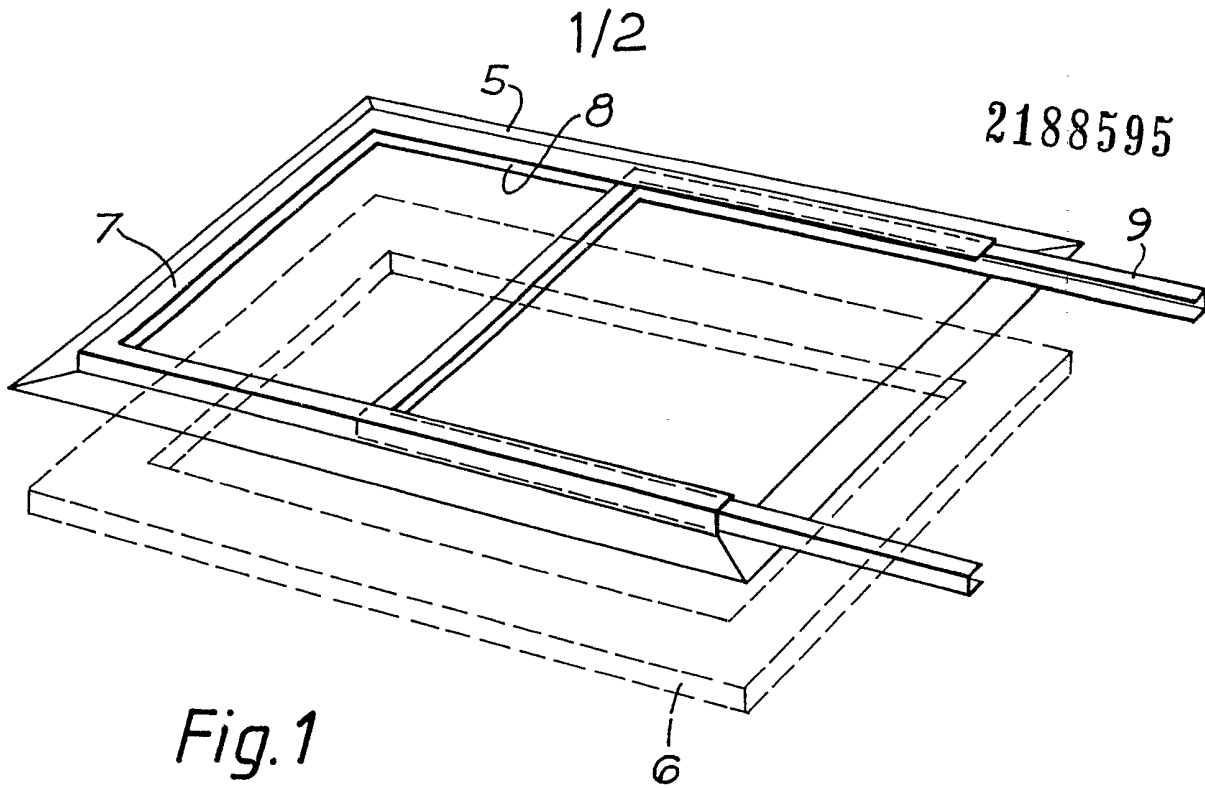


Fig. 3



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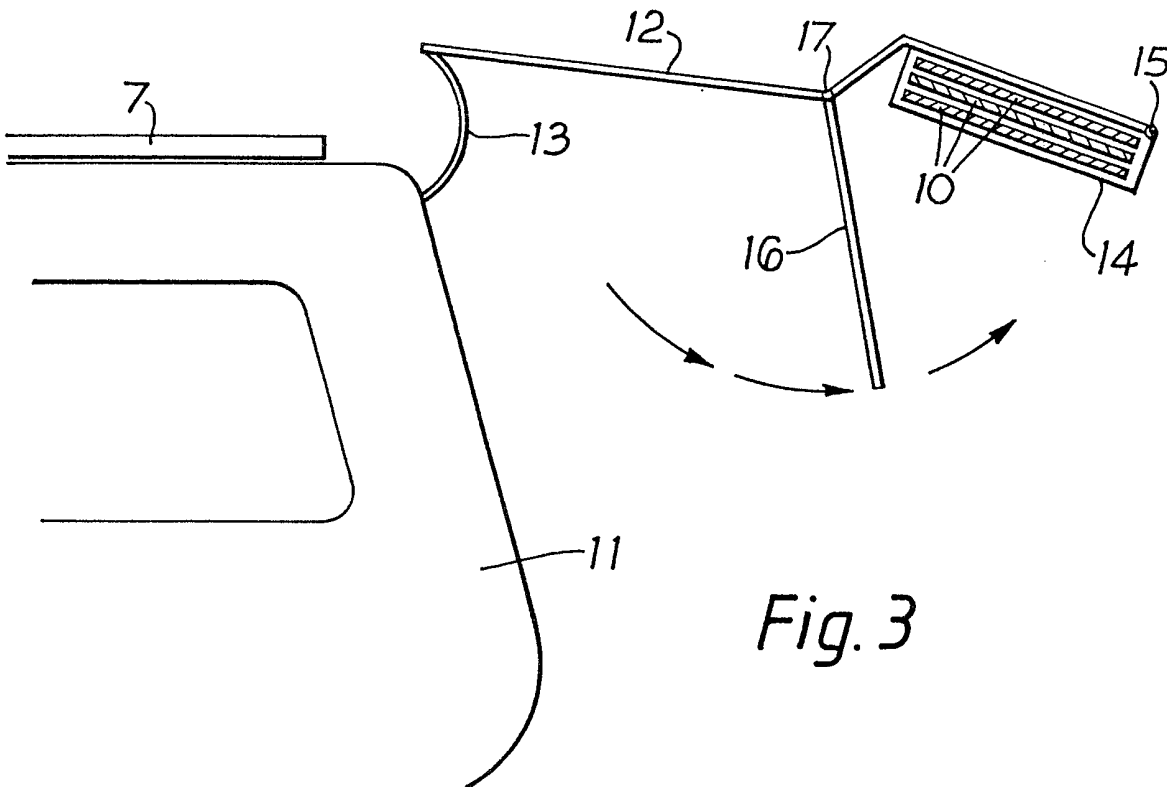


Fig. 3

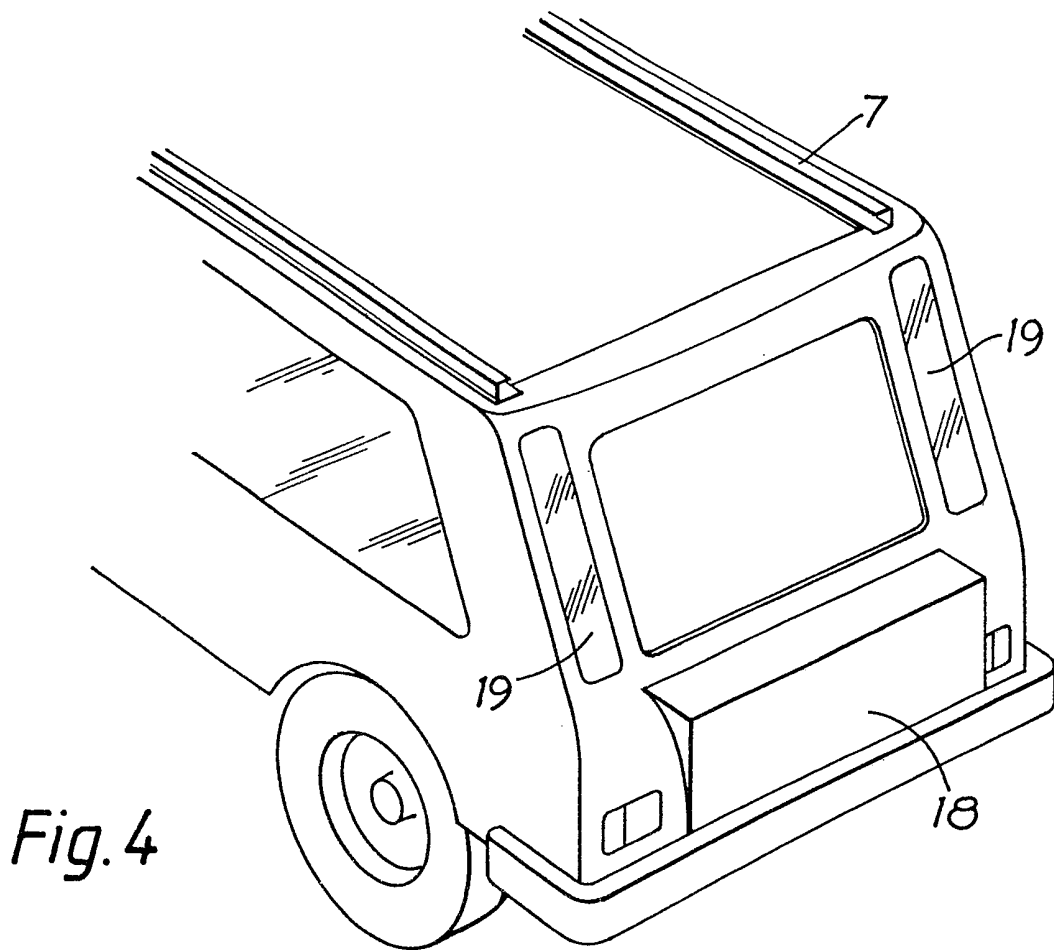


Fig. 4

## SPECIFICATION

**Convertible hatchback car**

5 The present invention is a car of the hatchback type, that is of the type having a rear door hinged at the top. The car of the present invention is convertible to a condition in which the top of the car may be largely open to the surrounding air.

10 Cars of the convertible type have always been popular and, with few exceptions, have relied upon the provision of a fabric hood which can be collapsed and stowed to open up the car to its surroundings. In spite of the more recent development of improved designs, convertible cars of this type are in general more noisy and often less draughtproof than saloon cars.

The considerably increased popularity of hatchback cars in recent years has made it impossible to provide a satisfactory convertible version of the more conventional type. However, attempts to compensate for this by providing hinged or sliding sun-roofs fall far short of achieving an adequate alternative to the open-top convertible car.

25 It is an object of the present invention to provide a hatchback car which may readily and satisfactorily be converted to an open form.

The convertible hatchback car of the present invention is characterised by having at least two inter-locking roof panels which are slidable on guide rails linearly into the hinged rear door of the car when the latter is in an upward-swung position. Thus, by means of the present invention, a major part of the roof area of the car may be opened up to the surrounding air.

The roof panels are intended to be so fitted together, in their roof-closing position, as to cover the roof area which is intended to be opened. While in some cases it may be desired to have just two such roof panels or in some cases more than three, I have found that an optimum arrangement for most purposes is achieved using three panels. Preferably the panels are a close edge-to-edge fit in their roof-closing position although, less desirably, they may overlap if the particular design or sealing considerations require it.

Rails are provided within the roof area to allow the panels to be slid rearwards into the rear door. Advantageously the rails may be extendible beyond the rear of the roof to provide a link between the roof and the part of the rear door wherein the panels are to be stowed when not in use. To permit the rails to be extended in this way, the rear door is preferably so hinged that it can be swung upwards to assume a generally horizontal position in line with the roof or slightly above it.

The panels may be stowed within the thickness of the rear door but preferably a stowage compartment for this purpose is provided on the inner face of the door. Preferably the door has a window in its upper half, in which case the stowage compartment may be located on the inner face of the lower half of the door. In a particularly preferred form of the invention, a window in the rear door is pivotable or slidable directly into the panel stowage compartment with

the roof panels. Since the panels will normally be somewhat narrower than the width of the car roof and similarly of the rear door, such a pivoted window is preferably itself somewhat narrower than the door and may therefore usefully be supplemented by additional fixed windows, located in the rear door to each side of the pivoted window.

70 Transfer of the panels along the rails from the roof of the car into the panel stowage compartment may be assisted by pivoting the compartment at its lower end to permit it to align with the roof when the rear door is in its uppermost position.

The invention will now be further described with reference to the accompanying drawings, wherein:

80 *Figure 1* is a perspective view illustrating, in their respective functioning positions, the components which are mounted upon the roof in one embodiment of the convertible hatchback car according to the present invention:

85 *Figure 2* illustrates in side elevation the transfer of the roof panels into the rear door;

*Figure 3* illustrates a subsequent stage in the conversion of the car to its open condition; and *Figure 4* is a partial perspective view from the rear of the car after conversion to its open condition.

90 Referring firstly to *Figure 1*, an open rectangular frame 5 is secured in place on the outside of a car roof by bolts (not shown) passing through the roof and engaging a matching rectangular frame 6 on the inside of the roof. Upstanding from the upper face of the frame 5 and extending along three sides of the frame is a continuous flange 7, which is L-shaped in cross-section and defines a guide-rail in the form of an open channel 8. Slidable within the channel 8 is a matching three-sided guide-rail defining an open channel 9, of slightly smaller cross-sectional dimensions than the channel 8. Three flat panels 10, omitted from *Figure 1* in the interests of clarity, lie edge-to-edge within the channel 9 so as securely to close the rectangular space defined by the three sides of the channel.

100 Thus, when the channel 9 and the panels 10 are slid fully within the channel 8, the roof of the car is closed by the panels 10. The structure so closed extends by about 4 cm above the car roof.

110 Referring now to *Figure 2*, when it is desired to open up the top of the car, indicated generally by the numeral 11, the rear door 12 is swung upwardly about an extended hinge 13 into a generally horizontal position as shown. A panel stowage box 14, pivoted at its lower end to the bottom of the door by a pivot 15, is swung downwards away from the door 12 until it is aligned with the car roof as shown in *Figure 2*. The channel 9 is now slid out rearwards from within the channel 8 until it extends to engage the end of the panel stowage box 14. The panels 10 are now slid from the channel 9, in the direction of the arrow, into the box 14, wherein they lie on top of each other.

125 The channel 9 may now be retracted again into the channel 8 and the stowage box 14 may be swung about the pivot 15 into contact with the inside face of the rear door 12, as shown in *Figure 3*. The rear window 16 is pivoted to the door 12 at 17 and may therefore now be swung, in the direction of the

arrow, until it lies flush with the box 14. The door 12 may now be swung downwards into its closed position and the car conversion is complete. Both the roof and the rear window are now fully open.

5 In Figure 4, the car is shown after conversion, the panel stowage box 14 being accommodated in a housing 18. It can be seen that the rear window area is necessarily somewhat narrower than usual, to allow the window to be accommodated with the panels 10. Auxiliary windows 19 are provided to compensate for the loss of rear window width.

10 If desired a spoiler may be fitted across the upper edge of the housing 18. This may then combine the conventional function of a spoiler of modifying the air flow to assist in keeping the rear wheels firmly against the ground, with the further function of diverting exhaust fumes away from the rear window space.

The convertible hatchback car according to the present invention may be manufactured as such or produced by modifying an existing hatchback car. In either case, the rail structure mounted upon the roof will itself impart structural strength to compensate for any loss of strength arising from cutting out the open portion of the roof area. The modified rear door may conveniently be formed as a unitary shell in glass-fibre-reinforced synthetic plastics material.

#### CLAIMS

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1. A convertible hatchback car having at least two interlocking roof panels which are slidable on guide rails linearly into the hinged rear door of the car when that door is in an upward-swung position.
  - 35 2. A convertible hatchback car as claimed in claim 1, having three said roof panels.
  3. A convertible hatchback car as claimed in claim 1 or 2, wherein said roof panels are a close edge-to-edge fit in their roof-closing position.
  - 40 4. A convertible hatchback car as claimed in any of the preceding claims, wherein said guide rails are extendible beyond the rear edge of the car roof.
  5. A convertible hatchback car as claimed in any of the preceding claims, wherein said rear door is so hinged as to be able to be swung upwards into a generally horizontal position in line with the car roof or slightly above it.
  - 45 6. A convertible hatchback car as claimed in any of the preceding claims, having a stowage compartment for said panels on the inner face of said rear door.
  - 50 7. A convertible hatchback car as claimed in claim 6, wherein said panel stowage compartment is located on the inner face of the lower half of the door.
  - 55 8. A convertible hatchback car as claimed in claim 7, having in said rear door a window which is pivotable or slidable directly into said panel stowage compartment.
  9. A convertible hatchback car as claimed in any of claims 6 to 8, wherein said panel stowage compartment is pivoted at its lower edge to permit it to align with the car roof when the rear door is in its uppermost position.
  - 60 10. A convertible hatchback car substantially as hereinbefore described with reference to, and as

illustrated in, the accompanying drawings.

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