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THE JOINT EXAMINATION BOARD

PAPER P4

Amendment of Specifications for United Kingdom Pate
Prosecution, Revocation Proceedings or Oth

Wednesday 3rd November 2010

10.00 am – 1.00 pm

Please read the following instructions carefully. **Time Allowed - *THREE HOURS***

1. Please note the following:
   a. Enter the Paper Number (P4) and your Examination number in the appropriate boxes at the top of each sheet of paper;
   b. The scripts are photocopied for marking purposes. Please write with a **dark inked pen** on one side of the paper only and within the printed margins, and do not use highlighters in your answer;
   c. Do not state your name anywhere in the answers;
   d. Write clearly, examiners cannot award marks to scripts that cannot be read;
   e. Reasoning should always be given where appropriate. In particular, you are expected to produce a covering letter / note to the client explaining what you have done in order to comply with his instructions and why.
   f. If one or more Divisional Application(s) are suggested, only main claim(s) need be supplied, there is no need to provide amended specifications.

2. Under the Examination Regulations **you may be disqualified from the examination and have other disciplinary measures taken against you if:**
   a. you are found with unauthorised printed matter or other unauthorised material in the examination room;
   b. your mobile phone is found to be switched on;
   c. you copy the work of another candidate, use an electronic aid, or communicate with another candidate or with anyone outside the examination;
   d. you continue to write after being told to stop writing by the invigilator(s). **NO WRITING OF ANY KIND IS PERMITTED AFTER THE TIME ALLOTTED TO THIS PAPER HAS EXPIRED.**

3. **At the end of the examination assemble your answer sheets in question number order and put them in the WHITE envelope provided.** Do not staple or join your answer sheets together in any way. Any answer script taken out of the examination room will not be marked.

This paper consists of 16 sheets including this sheet, and comprises:

Question	[1 sheet]
Client's Application GB 0714285.6	[8 sheets]
Prior art reference US 3141592	[3 sheets]
Prior art reference "Impractical classics"	[1 sheet]
Official Letter	[1 sheet]
Client's letter	[1 sheet]

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Question

A United Kingdom patent application comprising the attached spe
GB 0714285.6) has been filed at the UK Intellectual Property Office without any claim to priority.

The UK Intellectual Property Office has now issued the attached Official Letter. You have received brief comments from your client in an e-mail, which is also attached.

Your task is to prepare:

1. a full draft response to the UK Intellectual Property Office in response to the Official Letter;

2. a set of amended claims;

3. an outline memorandum for your client, explaining the actions you have taken and why. You should provide full reasoning for your actions and provide an outline of future actions that your client could take to secure full protection for their commercial interests as outlined by your client, taking into account that further information may be needed. This future advice should only relate to the invention(s) outlined in the client's letter to you. These notes should be restricted to patent matters and you are NOT required to consider other matters such as copyright or design protection.

4. If the advice to your client includes a suggestion of filing a divisional application(s) you should draft the corresponding independent claim(s) and your memorandum should explain why filing a divisional is advisable. You should NOT draft a description or any dependent claims for a divisional application.

Note the following:

(a) You are NOT required in this examination to make any amendments to the description of the client's patent application.

(b) You should accept the facts given to you and base your answer on those facts. In particular you should NOT make any use of any special knowledge that you may have of the subject-matter concerned, and you must presume that the prior art referred to is exhaustive.

(c) If you submit any amended claim set and / or divisional claims(s) put these at the top of the answer papers when handing in your answer and number the pages accordingly so as to readily identify the claims or claim sets.

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GB 0714285.6 (Application)

This invention relates to vehicles and more particularly to a road
described as a convertible or open-top sports car.

A convertible or open-top sports car normally comprises a body
passenger compartment with an open top. The open top of this c
conventionally provided with a removable roof structure and kn
roof structures include hoods and other removable panels.

One type of known arrangement consists of foldable framework made of metal to which a flexible hood made from PVC, canvas or the like is attached. The framework is itself pivotally attached to the car body just behind the doors. On a two-door convertible this position is known as the "B-pillar". The framework is connected together by a transverse member at its front section (known as a header rail) for attachment to the top of the windscreen frame. Latches are provided to secure the header rail to the top of the windscreen frame so as to retain the hood in the erected position.

However, these previously known roof structures are complex and have a tendency to leak. Moreover, the framework has no real structural integrity and so provides no protection for the occupants of the vehicle in the event that the vehicle is rolled over.

An alternative semi-convertible structure is known as the 'targa' top. Such a structure includes a fixed hoop extending over the vehicle at the B-pillar position (i.e. just behind the doors). This hoop structure is constructed so as to be sufficiently strong so as to be load-bearing in the event that the vehicle is rolled over. The hoop structure conventionally includes a rear window which may be removable. The remainder of the roof arrangement is provided by a roof panel which is fixed between the hoop and the top of the windscreen. Various latching mechanisms may be used to secure the panel into position both between the panel and the roll hoop as well as between the panel and the windscreen.

The object of this invention is to provide a vehicle having a simpler form of removable and/or foldable roof structure than the known structures referred to above.

According to this invention, a road vehicle comprises a body shell having an open-topped driver and passenger compartment; a roll hoop member extending transversely of the compartment, the roll hoop member being a unitary structure consisting of a central portion having downwardly depending end sections at each end thereof; a roof panel releasably securable between the front edge of the roll hoop member and a windscreen structure on the body shell of the vehicle wherein the roll hoop member is pivotally connected at or adjacent to the free ends of the end sections to the body shell for pivotable movement from an erect upright position to a folded position and a retaining means is provided for retaining the roll hoop member in the upright position.

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A preferred embodiment of this invention will now be described with reference to the accompanying drawings, in which:-

Figure 1 is a diagrammatic side elevation of a central portion of a convertible sports car with parts omitted for the sake of clarity;

Figure 2 is a diagrammatic side elevation of a strut assembly in a partially folded state;

Figure 3 is a diagrammatic side elevation of the pivot of the strut assembly in a partially folded state;

Figures 4 and 5 are diagrammatic perspective views of the pivot of the strut assembly in which Figure 5 shows a pivot in a disassembled state.

Figure 6 is a diagrammatic perspective view of the central portion of the convertible or sports car with a roof panel ready for insertion thereon;

Figure 7 is a diagrammatic perspective view of the central portion of the convertible or sports car with the roof panel partially inserted thereon; and

Figure 8 is a diagrammatic perspective view of the central portion of the convertible or sports car with the roof panel fully inserted thereon.

Referring now to the drawings, a sports car comprises a body shell having a driver and passenger compartment with an open top as indicated generally at 12. A conventional windscreen structure 14 is provided at the front of the compartment 12 and a transversely extending roll hoop member 16 is mounted adjacent the rear of the compartment 12.

The roll hoop member 16 is a unitary structure composed of a lamination of glass-reinforced plastics and foam material. The roll hoop member 16 consists of a central portion 18 having downwardly depending end sections at each end thereof. The lower end of each end section 20 has a metal plate 22 secured thereto and these metal plates are pivotally connected to the upper ends of associated support tubes 24 which are in turn secured to and form an integral part of the body shell 10 around the B-pillar. The pivotal connection of the metal plates 22 to the tubes 24 is such as to permit the roll hoop member 16 to be pivotable about an axis extending transversely of the vehicle from an erect upright position to a folded substantially horizontal position by moving the roll hoop member 16 rearwardly and downwardly.

The roll hoop member 16 is retained in the erect upright position by two spaced-apart strut assemblies indicated generally at 26 which extend between the roll hoop member 16 and a portion of the body shell 10 at the rear of the driver and passenger compartment 12.

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Figures 2 to 5 show the strut assemblies in more detail. It shoul
which shows the disassembled pivot is purely to assist explainin
use the pivot will always be in assembled form. Each strut asse
pivotally interconnected struts, upper strut 28 and lower strut 30
lower strut 30 a portion of the top facing surface is removed so a
longitudinal flanges 30a. The bottom facing surface extends alo
Between the extending flanges, a reduced width lower end 28a of the upper strut 28 is secured. A pivot pin 35 extends through the flanges 30a and the end of lower strut 28 to effect pivotal interconnection therebetween.

The axis of the pivot pin 35 is off-set from the central longitudinal axis of the lower strut 30 so that when the two struts 28 and 30 are moved so as to be longitudinally aligned, the struts 28 and 30 are capable of moving to an over-centre position. In this over-centre position, the strut assembly can move no further since the reduced width end 28a will abut the bottom facing surface of the lower strut 30. The strut assembly 26 is thus effectively locked into position.

The upper end of upper strut 28 is pivotally connected to the roll hoop 16 via a bracket 34. The lower end of lower strut 30 is pivotally connected the portion of the body shell 10 at the rear of the driver and passenger compartment via bracket 36.

As shown in Figures 6 to 8, a flexible rear hood section 38 is permanently secured between the roll hoop member 16 and the body shell 10 at the rear of the driver and passenger compartment 12. In addition, a roof panel 40 is releasably secured between the windscreen structure 14 and the front edge of the roll hoop member 16. The roof panel 40 is provided on its front and rear edges with spaced-apart projections 42 which engage in corresponding recesses (not shown) in the windscreen structure 14 and in the roll hoop member 16 so that the roof panel 40 is retained in position.

It will be appreciated that the roof panel 40 is thus held in position solely by the roll hoop member 16 (itself being retained in the erect position by the over-centre position locked strut assemblies 26) without the requirement of further clips or other retaining members. Moreover, the arrangement may be such that the roof panel is slightly compressed so as to ensure a water and air tight seal. Consequently, when the roof panel 40 is to be removed it is only necessary to unlock the strut assemblies 26 by pulling the articulation point downwards. This permits the roll hoop member 16 to be moved in a rearward direction.

The process of replacing and securing the roof panel 40 is shown in Figures 6 to 8. This process is commenced by rotating the roll hoop member 16 forwards from the folded substantially horizontal position towards the vertical position as shown in Figure 6. When the roll hoop member 16 is in this almost vertical position the user places the panel into position such that the projections 42 mate with the corresponding recesses in the roll hoop

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member 16 and windscreen 14 (recesses not shown). Figure 7 s
the panel and its rearward extending projections have been inse
member 16 and the forward extending projections are about to b
in the windscreen.

The user then secures the roof panel 40 and roll hoop member 1
the pivot points of strut assemblies 26 into their 'over-centre' position as shown by the arrows in Figure 8 so as to lock the strut assemblies 26. In this position, the roll hoop 16 is retained in the vertical position and will remain in that position unless the strut assemblies 26 are unlocked by the application of force to the pivot point of the assemblies. The roof panel 40 is retained in position and slightly compressed between the windscreen 14 and the roll hoop member 16, the roll hoop member 16 being locked in this position by the strut assemblies 26.

In a modification, the strut assemblies 26 are replaced by one or more spring-loaded damper assemblies connected between arms extending from the end sections 20 of the roll hoop member 16 and the body shell 10. The or each spring-loaded damper assembly is designed to urge the roll hoop member 16 into the erect position so that the roll bar performs its roll-over function. The urging force in effect locks the roll hoop member 16 in position and exerts a compressive force to retain the roof panel (when present) in position. A catch is provided used so as to release the spring loading such that the roll hoop member 16 can be moved into the folded position and the roof panel 40 removed.

In a further modification, it is not necessary for the roof panel 40 to be held in its position between the roll hoop member 16 and the windscreen 14 using the force or locked configuration of the roll hoop member 16. Instead the roof panel 40 may simply be held in position by the provision of clips at the front and rear of the roof section. This may be in the vicinity of the engaging projections or spaced apart therefrom. Any necessary retaining force can be generated by using adjustable clips or latches which can be tightened. In this modification, the roll hoop member 16 may be retained in the upright position using either of the methods described above or a more simple latching arrangement.

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CLAIMS:

1. A road vehicle comprising:

   a body shell having an open-topped driver and passenger co

   a roll hoop member extending transversely of the compartm
   being a unitary structure consisting of a central portion having downwardly depending end sections at each end thereof;

   a roof panel releasably securable between the front edge of the roll hoop member and a windscreen structure on the body shell of the vehicle;

   wherein the roll hoop member is pivotally connected at or adjacent to the free ends of the end sections to the body shell for pivotable movement from an erect upright position to a folded position and a retaining means is provided for retaining the roll hoop member in the upright position.

2. A road vehicle according to claim 1, wherein the retaining means comprises one or more strut assemblies extending between the roll hoop member and the portion of the body shell at or adjacent to the rear of the driver and passenger compartment.

3. A road vehicle according to any preceding claim wherein a rear hood section is connected to the roll hoop member and/or to the body shell.

4. A road vehicle according to any preceding claim wherein said roof panel is retained in position by a biasing force.

5. A road vehicle constructed, arranged and adapted to operate substantially as hereinbefore described with reference to, and as illustrated by, the accompanying drawings.

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Fig.1

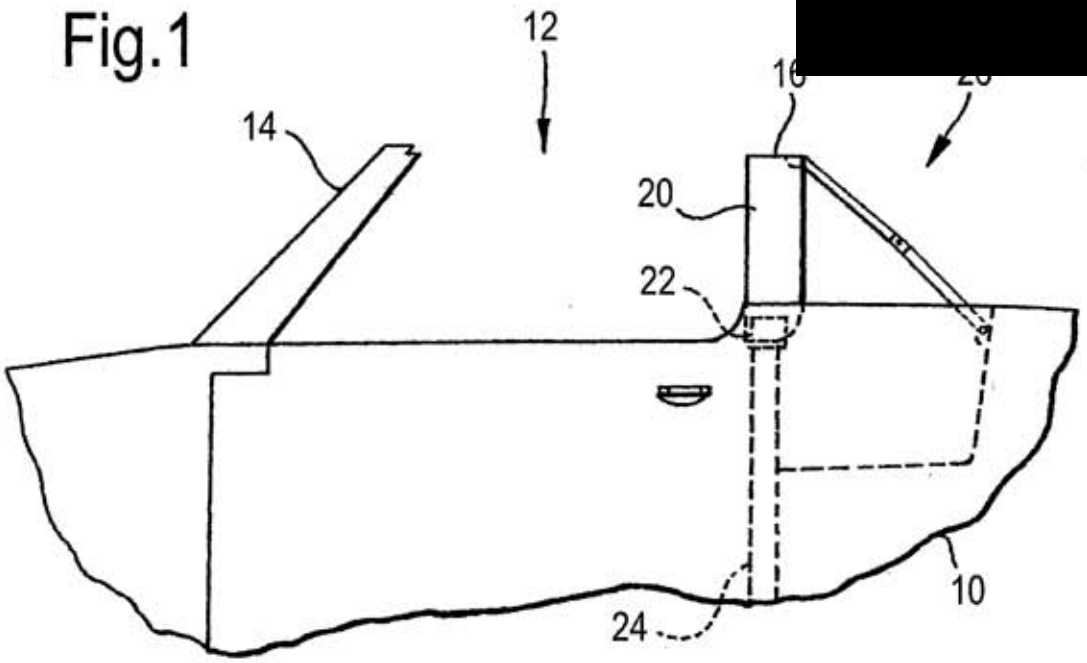

Fig.2

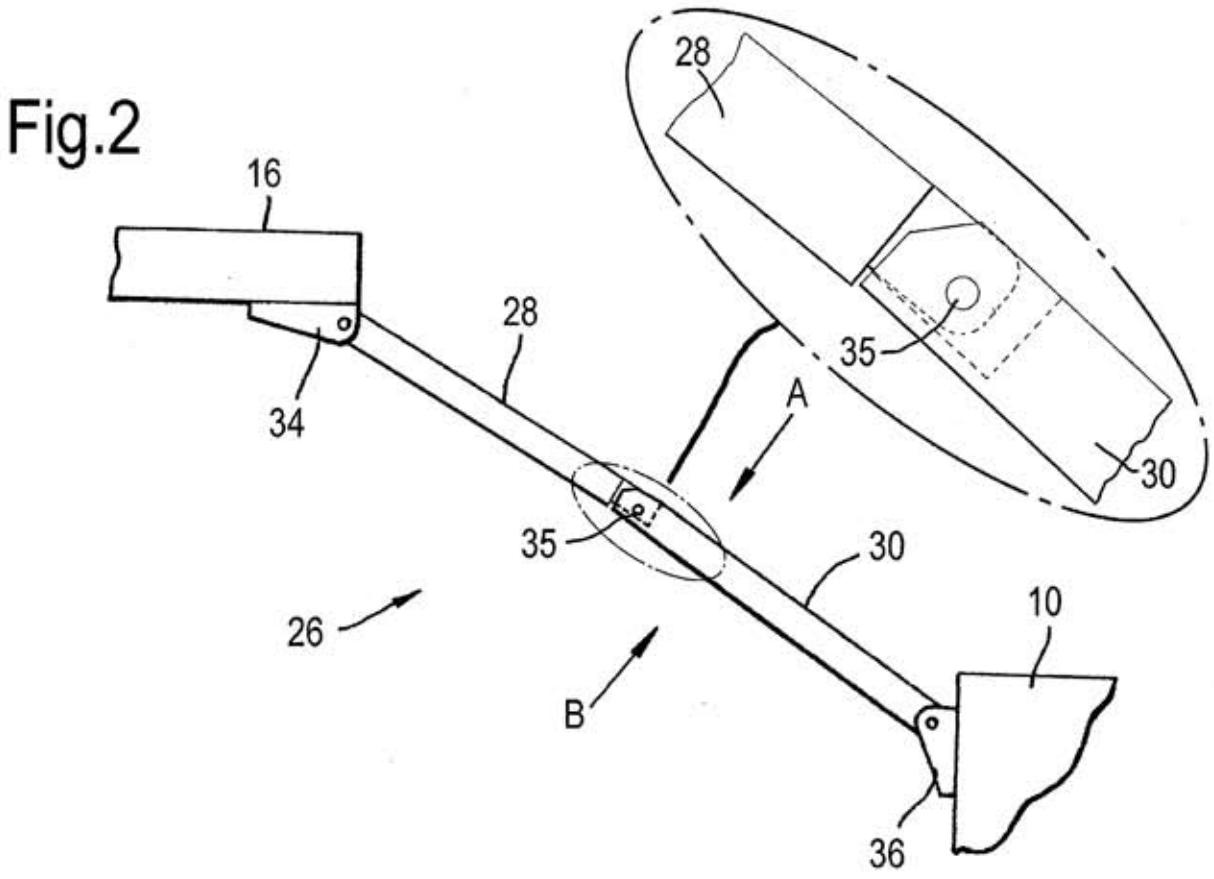

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Fig.3

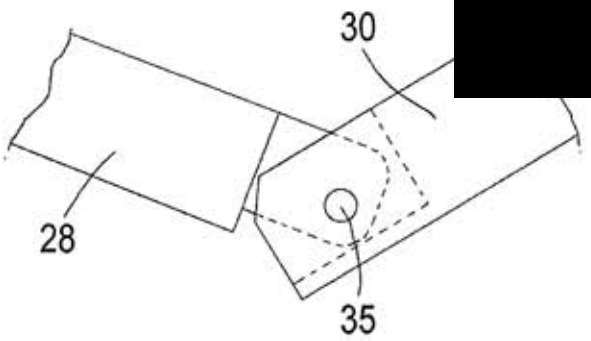

Fig.4

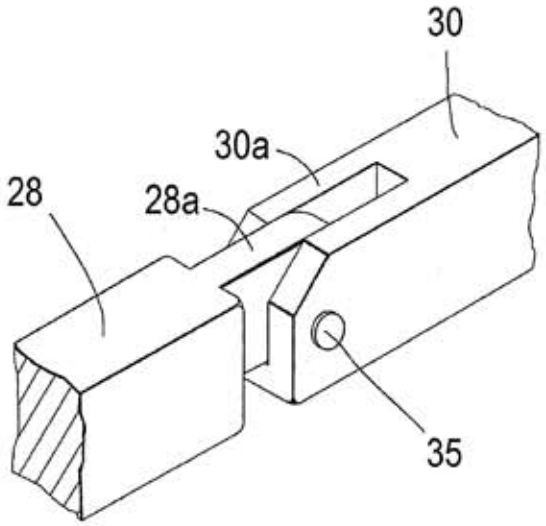

Fig.5

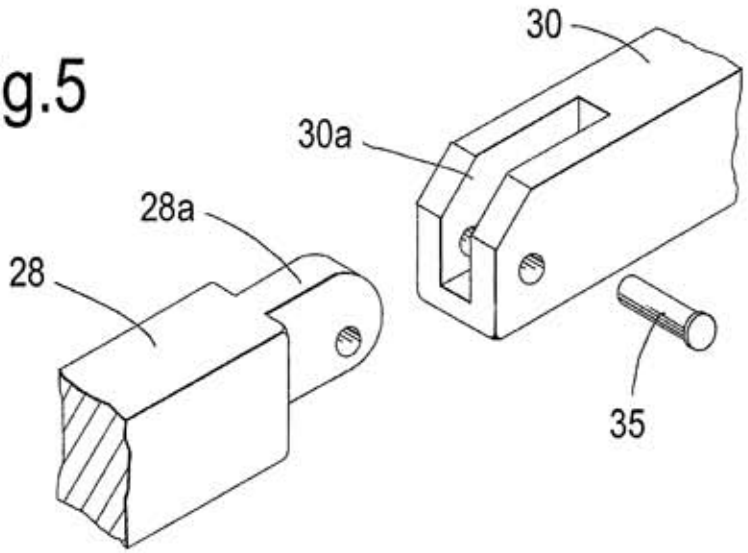

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Fig.6

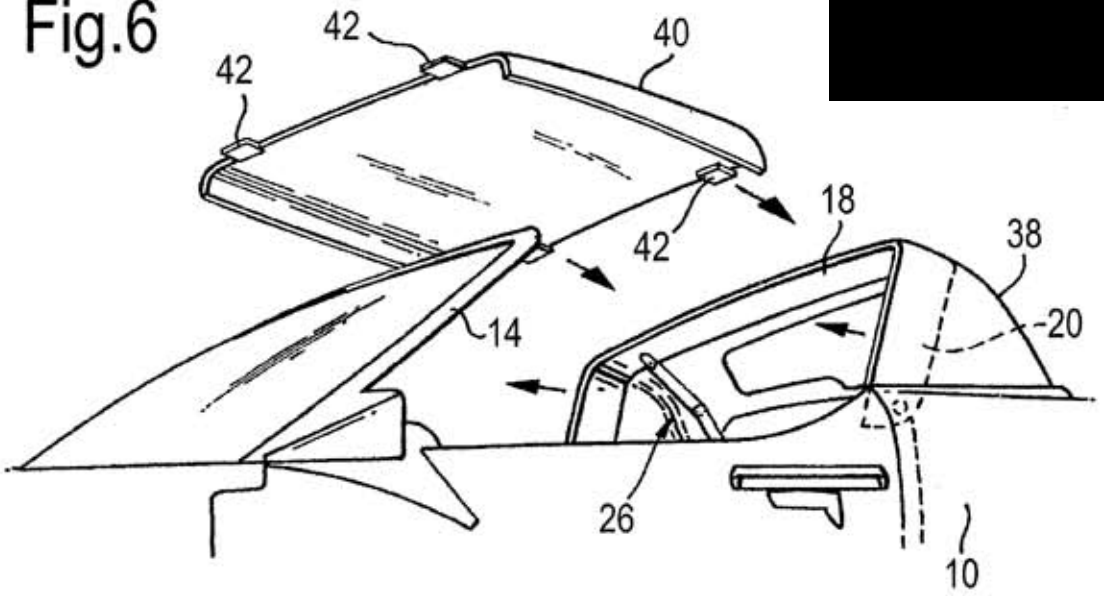


Fig.7

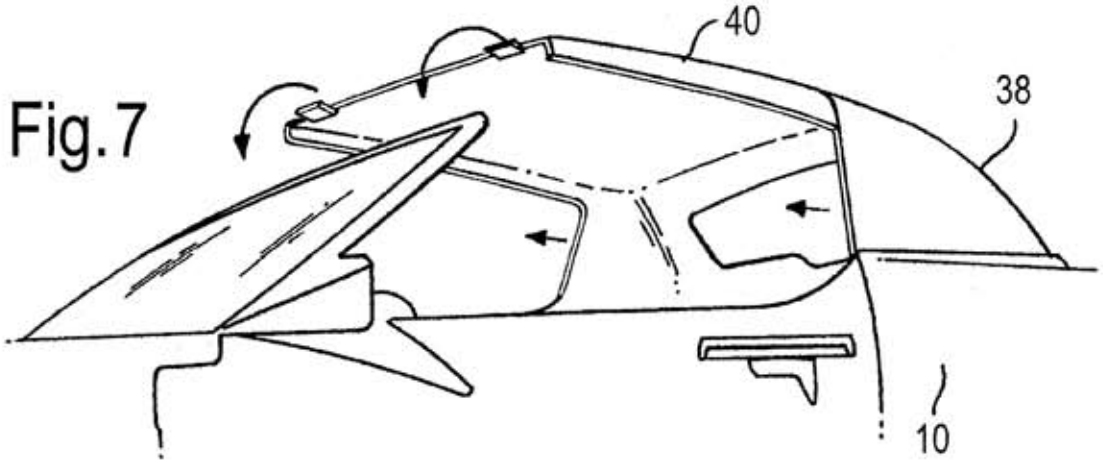
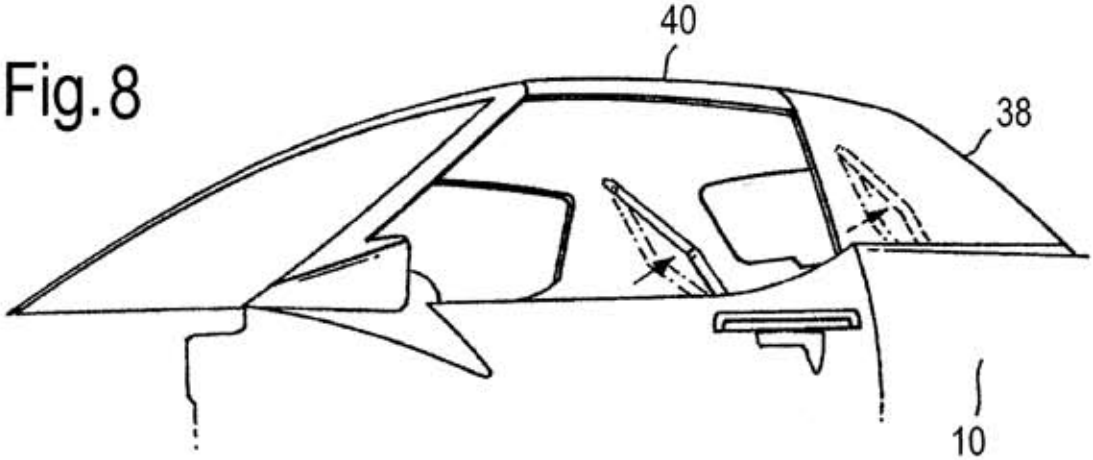


Fig.8



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US 3141592 (prior art)

Improvements relating to Roof Structures for M

This invention concerns improvements relating to roof st
vehicles.

Detachable roofs, for example so-called hardtops, are kn
mounted on the vehicle body during cold weather and removed during warmer weather, because it is then desired to have an openable hood, particularly in the case of sports cars.

A disadvantage of known roof structures is that vehicles with removable hoods, afford little or no safety to the occupants in the event of the vehicle overturning, for example as the result of an accident. In known forms of construction, the removable roof parts offer no protection, or inadequate protection, in the case of accident. This has hitherto been tolerated because of the pleasure of driving in such vehicles, particularly open sports cars.

Motor vehicles, particularly sports or racing cars, are known in which protection in the event of collision is provided by a so-called roll hoop. This, however, has the disadvantage of being attached to the body and of not permitting variation between an open vehicle and a vehicle provided with a closed hood or hardtop. An object of the present invention is to provide a motor vehicle roof structure which provides safety for the occupants in the event of accident, but which also permits at any time of changing the form of the vehicle top, as desired by the occupants.

According to the invention, roof-supporting pillars forming a hoop which affords protection if the vehicle rolls over are detachably connected to the rear portion of the vehicle body at a horizontal plane located approximately at, but preferably higher than, the level of the side edges of the said body.

A particularly simple form of construction is obtainable if the feet of the pillars are secured to the said surface by means of mechanical quick-release connections, for example eccentric fastening or locking devices.
Conveniently, the pillars are separable from the roof. With this form of construction, the detached hoop can be more readily fitted and removed and also more easily stored, for example in the boot, because it is light and occupies a relatively small space. In an alternative construction the hoop can be pivoted between an upright and an open position.

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Several embodiments of the invention by way of exampl
fully described with reference to the accompanying diagr
which:

Figure 1 is a side elevation of a motor car provi
roof attached both to the windscreen a
vehicle,

Figure 2 is a part side elevation of a two-piece roof for which a supporting hoop is attached at the rear of the vehicle only, and

Figure 3 is a similar view showing a rotatable hoop.

In **Figure 1**, a detachable roof structure comprising a roof part 2 and roof pillars 3 supporting the roof part 2 from the body 1 of a private motor car is mounted on the said body. The pillars 3 form an inverted U-shaped hoop affording protection if the vehicle rolls over. The hoop is supported by the arms of the inverted U-shape on a base surface 4 on the body 1, located in a horizontal plane 6 at approximately at the level of or, preferably, above the side edges 5 of the body. The surface 4 is made relatively wide, so that the feet of the pillars 3 rest firmly and securely at at least two points 7 and 8 separated longitudinally of the vehicle. The hoop is thus supported on a base which gives the roof structure great stability, even if it is not connected, as illustrated in Figure 1, at 9 to some other part of the body in the region of the windscreen or front pillars.

The roof part 2 and the hoop 3 may either be connected permanently together to form a unitary roof structure or may be readily separable from each other. In **Figure 2**, the roof part 2 is detachable from the hoop 3, which again rests on a wide base surface 4 in the plane 6 and is secured at the said surface to the body 1 by mechanical quick-release securing means (not illustrated), for example eccentric fastening devices. The roof part 2 is removable. It may, for example, be constructed so that it can be rolled up and removed or it may be a so-called Targa panel constructed, for example, from rigid fibre-glass. The hoop 3 can also be removed and, for example, placed in the boot.

A further embodiment is illustrated in **Figure 3**. In this embodiment, the hoop is not detachable but rearward rotatable. It is retained in its upright position by a quick release catch (not shown). Once in position, the roof part 2 can be attached in the same manner as that described in the first embodiment.

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Fig.1

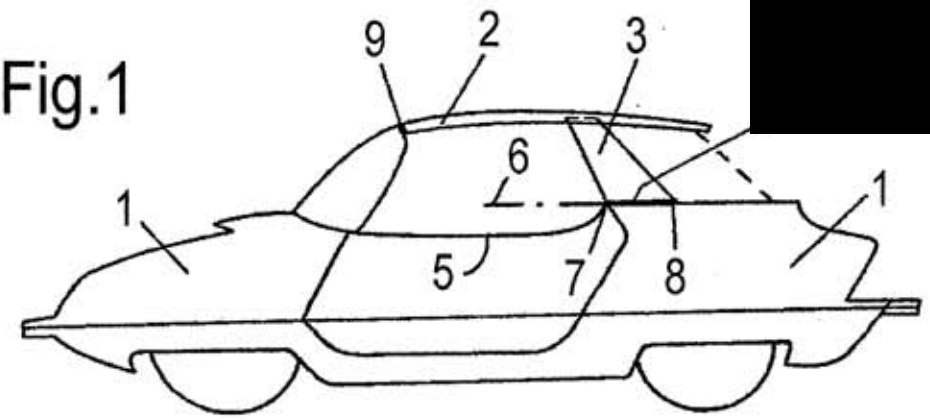


Fig.2

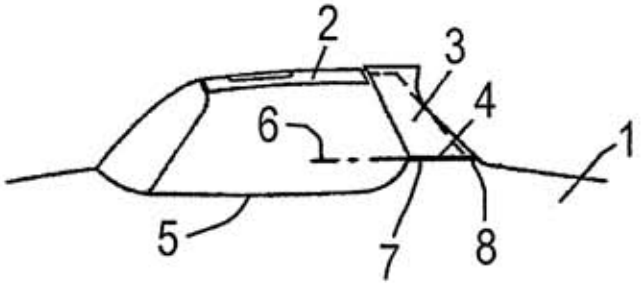
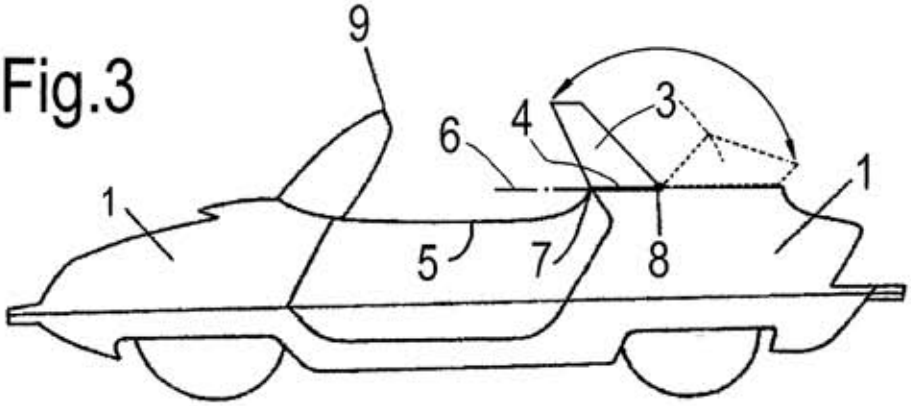


Fig.3



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IMPRACTICAL CLASSICS - OCTOBER 2006 (extract)

Is your MX-5, MG or classic Triumph leaking? fault-fixer gives you some tips.

"All convertibles leak" is something you will and relations when the heady days of summer de draw in and winter is upon us again. Those ea experience your classic roadster become less s the rain and hail which can get through the roof.

Yet it need not be like that if you follow these five top-tips.

…

3. Clean and grease those latches and catches. You may think that the catches which connect the header rail to the top of the windscreen are merely there to keep the roof shut. But, as any skilled person will tell you, just as important a role is that fact that they *tension* the fabric of the roof. It is this all important tension which affords an airtight and watertight seal.

…

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Letter from United Kingdom Intellectual Property Office

Application 0714285.6
Latest date for reply: 3 November 2010

Novelty
The invention as claimed in claim 1 is not new because it is antici

US 3141592 discloses a road vehicle (fig 1) a body shell (1) having an open-topped driver and passenger compartment; a roll hoop member (3) extending transversely of the compartment, the roll hoop member being a unitary structure consisting of a central portion having downwardly depending end sections at each end thereof (page 2, lines 11 - 22); a roof panel (2) releasably securable between the front edge of the roll hoop member and a windscreen structure on the body shell of the vehicle; wherein the roll hoop member is pivotally connected at or adjacent to the free ends of the end sections to the body shell for pivotable movement from an erect upright position to a folded position (page 2; lines 32-35) and a retaining means ("quick release catch") is provided for retaining the roll hoop member in the upright position.

Inventive step

Claims 2 and 3 are not inventive since these are routine features of soft top motorcars. It would therefore be obvious to incorporate such features in combination with the features of US 3141592.

The same is true for claim 4 since the use of a fasteners exerting a biasing force is also routine as shown, for example in the extract from "Impractical Classics", page 77, Oct 2006.

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Client's letter

Dear Sirs,

Thank you for the letter which you sent on to me. I see it is from UKIPO; is that something to do with the Patent Office?

I launched my car at the Paris motor show last month and have taken lots of advance orders. It uses the strut mechanism described in my patent. There was a lot of interest from my competitors at the Bavarian motor works particularly as it would allow them to get rid of the fiddly clips normally needed to keep the roof nice and watertight so it's important they can't copy this.

In addition the popular car journalist Gerry Meik-Arkson said it'll never sell unless the mechanism is automated. I can't see how to do this for the strut arrangement but I'm working on developing the spring loaded one to do this.

Let me know if you need anything further from me.

Thanks

Tim Von Roberts.

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