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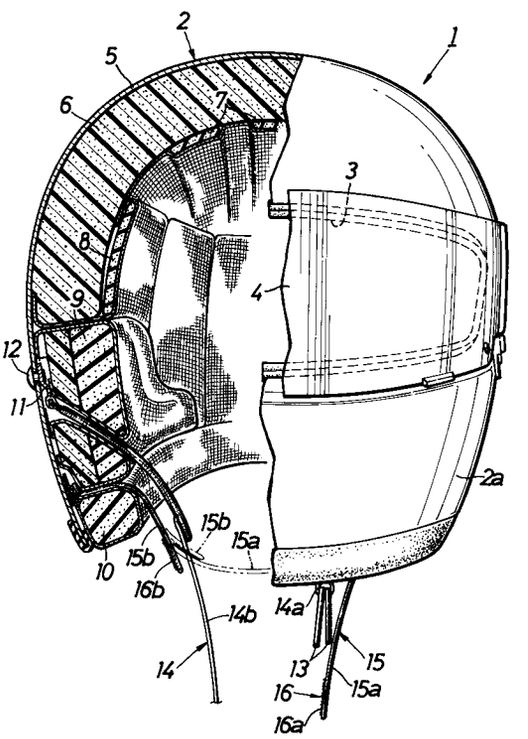
(54) **Helmet.**

(57) A flame proofing cover (15) is used for covering an outer surface of a helmet chin strap (14) in a fastened state. The flame proofing cover (15) comprises a pair of flame retardant band pieces (15a, 15b) each secured at one of opposite ends to a cap body (2) of a helmet. The other ends of the band pieces (15a, 15b) may be connectable to each other by means of band fastener (16). This ensures that the chin strap (14) in the fastened state in use of the helmet can be protected from flame.

FIG.2

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The present invention relates to helmets primarily used by drivers or passengers of automobiles, motorcycles or the like, and more particularly, improvements in helmets of a type having a chin strap provided on a cap body or shell of the helmet.

In general, fibres having a high tensile strength and which are pleasant to the touch, (e.g., nylon fibre) are widely used in the manufacture of chin straps for helmets.

However, a chin strap made of nylon fibre has poor flame retardance characteristics and therefore, if a vehicle is involved in a fire and the chin strap is subjected to naked flame, the strength of the chin strap is considerably reduced, with the result that the intrinsic fastening function thereof is impaired.

According to the present invention, there if provided a helmet having a chin strap provided on a cap body of the helmet, characterized in that the helmet comprises a flame retardant cover attached to the cap body, so as to cover an outer surface of the chin strap when in a fastened state.

With the above construction, even if the chin strap has poor flame retardance characteristics, it can be protected from a naked flame by the flame retardant cover. Therefore, taking account of both tensile strength and comfort, a wide range of suitable materials can be selected for the chin strap, and good flame retardant characteristics can be provided.

For a better understanding of the present invention and to show how it may be carried into effect, reference will now be made, by way of example, to the accompanying drawings in which:

Fig. 1 is a side view of a full-face type helmet;

Fig. 2 is a front view in partially longitudinal section taken along a line 2-2 in Fig. 1; and

Fig. 3 is a bottom view of the helmet shown in Fig. 1, but illustrating a chin strap in a fastened state.

Referring first to Fig. 1, reference numeral 1 is a helmet for use by a driver of a racing car. The helmet 1 includes a cap body 2 which is of a full-face type, having a chin covering portion 2a located immediately below a window opening 3 at a front surface thereof. A transparent visor 4 is pivotally mounted at its left and right ends to the cap body 2 for opening and closing the window opening 3 through vertical pivotal movement of the visor 3.

As shown in Figs. 2 and 3, the cap body 2 is comprised of a shell 5 made of FRP, and a shock absorbing liner 6 made of foamed styrene and fitted into the shell 5. The shock absorbing liner 6 is provided at an inner surface with a top pad 7 bonded to a ceiling portion thereof, a fit pad 8 bonded to the entire side thereof, and ear pads 9 bonded to left and right side portions thereof. A neck pad 10 is also bonded to a rear half of an inner peripheral surface of a lower portion of the shell 5 and adapted to come into close contact with the neck of a driver to prevent the undesirable admission of air currents. Each of the interior pads 7 to 10 is covered with a flame retardant fabric.

A fitting 11 is secured to each of left and right sides of the shell 5 by a rivet 12. A left strap half 14a is secured to the left fitting (not shown) and has a connecting ring 13 at its lower end, and a right strap half 14b is secured to the right fitting 11. The strap halves 14a and 14b form a strap 14 and can be fastened together by the connecting ring 13 (see Fig. 3).

A flame proofing or retardant cover 15 is attached to the cap body 2 and adapted to cover an outer surface of the chin strap 14 and the chin of the driver when the chin strap 14 is fastened.

The flame proofing cover 15 is comprised of a left band piece 15a and a right band piece 15b each secured at one end to the cap body 2 together with the neck pad 10, and hook and loop type fastener elements 16a and 16b are sewn to overlapped surfaces of the belt pieces 15a and 15b at the other ends thereof to constitute a belt fastener 16. Each of the belt pieces 15a and 15b is made of fabric of a flame retardant resin such as an aromatic polyamide resin fibre, as is the outer skin of each of the interior pads 7 to 10.

The operation of this embodiment will be described below.

When the driver wears the helmet 1, the cap body 2 is first put on the driver's head and then the chin strap 14 is fastened as described above. Subsequently, the free end of the left band piece 15a of the flame proofing cover 15 is overlapped on the free end of the right band piece 15b and the free ends are connected to each other by the band fastener 16 so that the left and right band pieces 15a and 15b are brought into close contact with the outer surface of the chin strap 14. Thus, the outer surface of the chin strap 14 and a portion of the driver below the chin are covered with the flame retardant cover 15.

Accordingly, even if the driver should be involved in a vehicle fire, not only the chin strap 14 but also a portion of skin below the driver's chin can be protected from flame by the flame proofing cover 15. This ensures the fastening function of the chin belt and partially shields the driver, thereby insuring the driver's safety.

It will be, of course, understood that in order to take off the helmet, the above described procedure for putting on the helmet should be carried out in reverse order.

## Claims

1. A helmet having a chin strap provided on a cap body of the helmet, characterized in that the helmet comprises a flame retardant cover attached to the cap body, so as to cover an outer surface of the chin strap when in a fastened state.

2. A helmet as claimed in claim 1, in which the flame retardant cover is comprised of a pair of left and right flame retardant band pieces secured at one of opposite ends thereof to left and right sides of the cap body, respectively, the other ends of the band pieces being connectable to each other by means of a fastener.

3. A helmet as claimed in claim 1 or 2, in which the flame retardant cover is made of aromatic polyamide resin fibre.

4. A helmet as claimed in claim 1 or 2, further including a neck pad covered with a flame retardant fabric and disposed on an inner peripheral surface of a rear half of a lower end of the cap body, the neck pad being adapted to come into close contact with a neck of a wearer of the helmet, the flame retardant cover being secured to the cap body together with the neck pad.

FIG.1

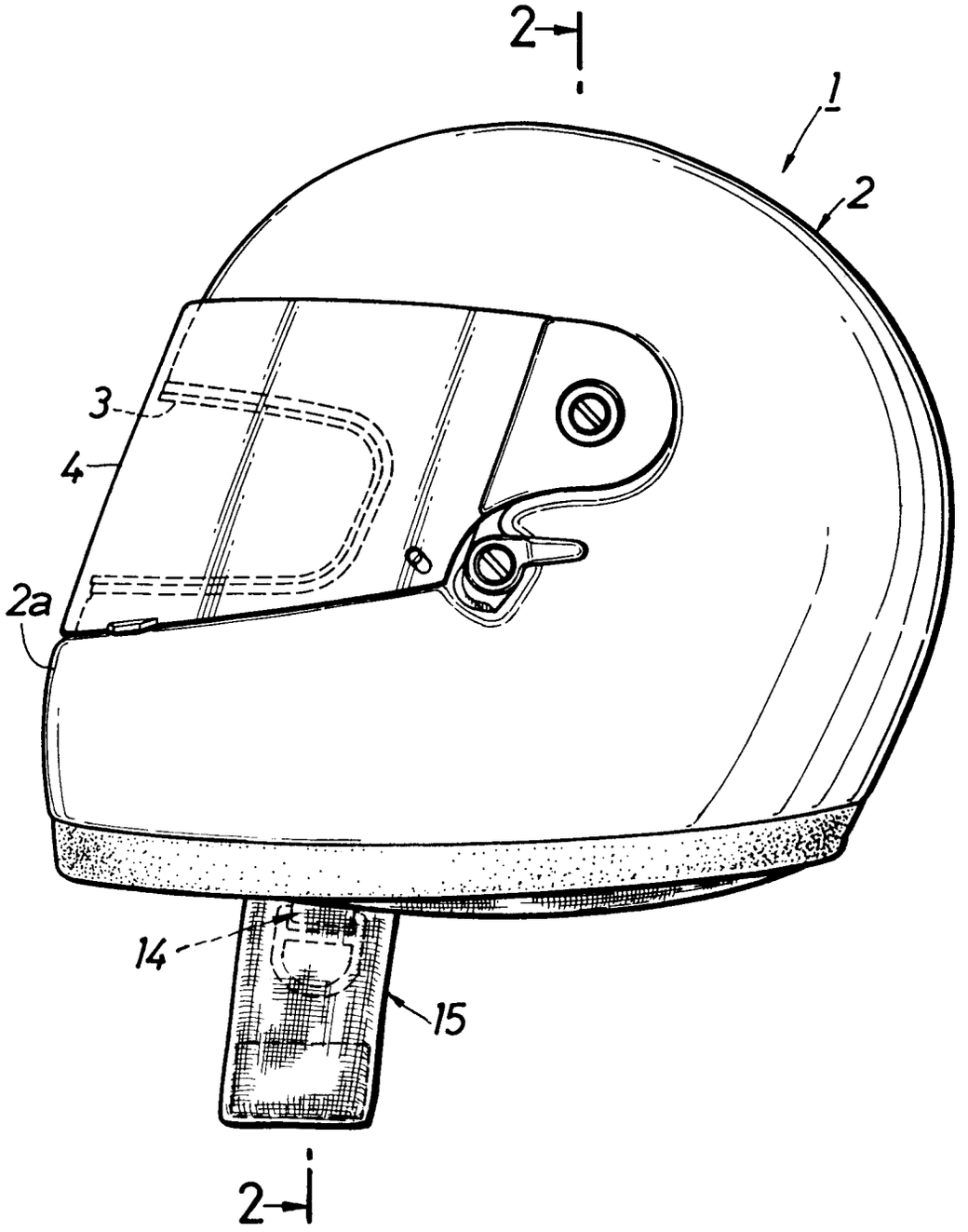


FIG.2

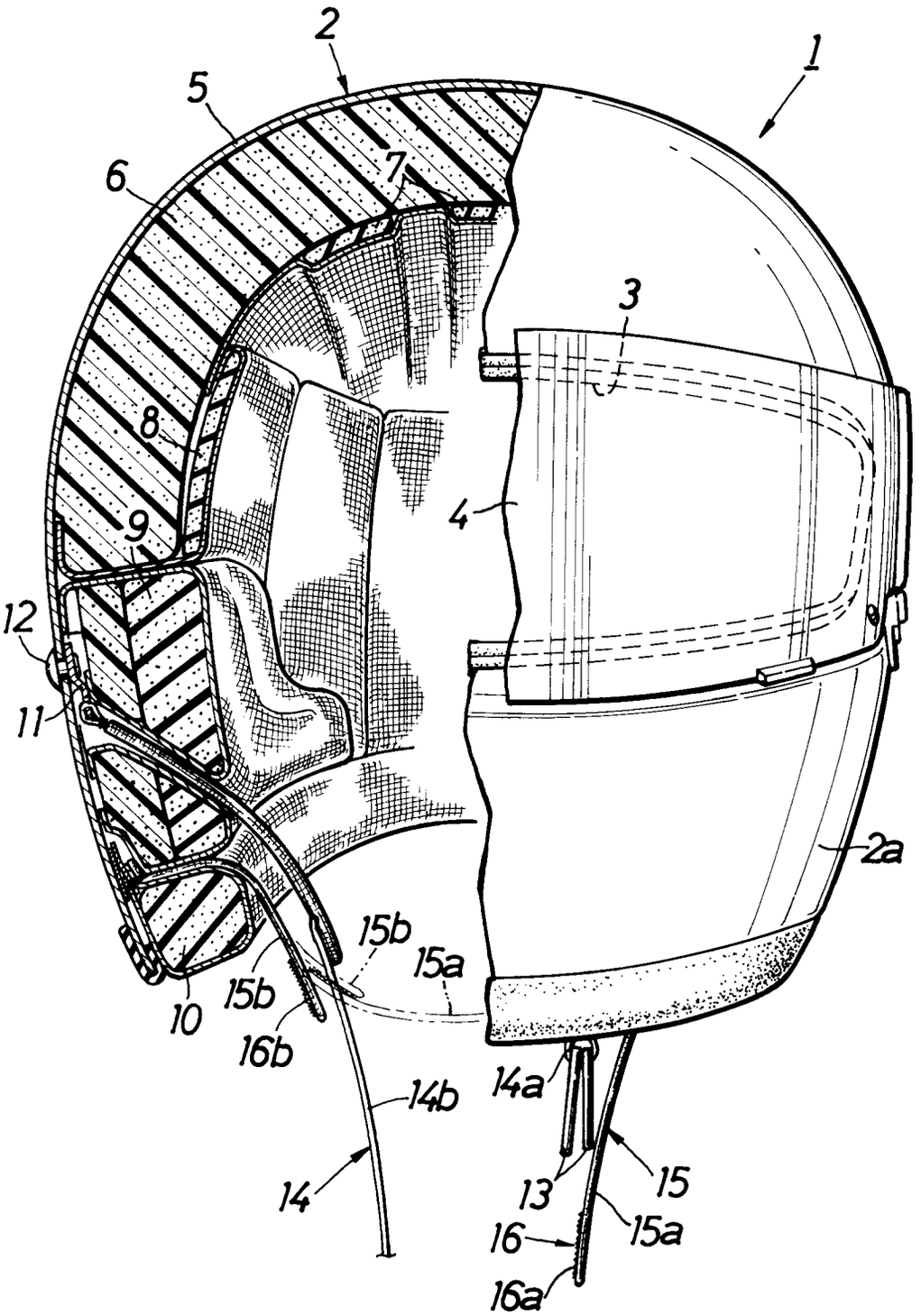
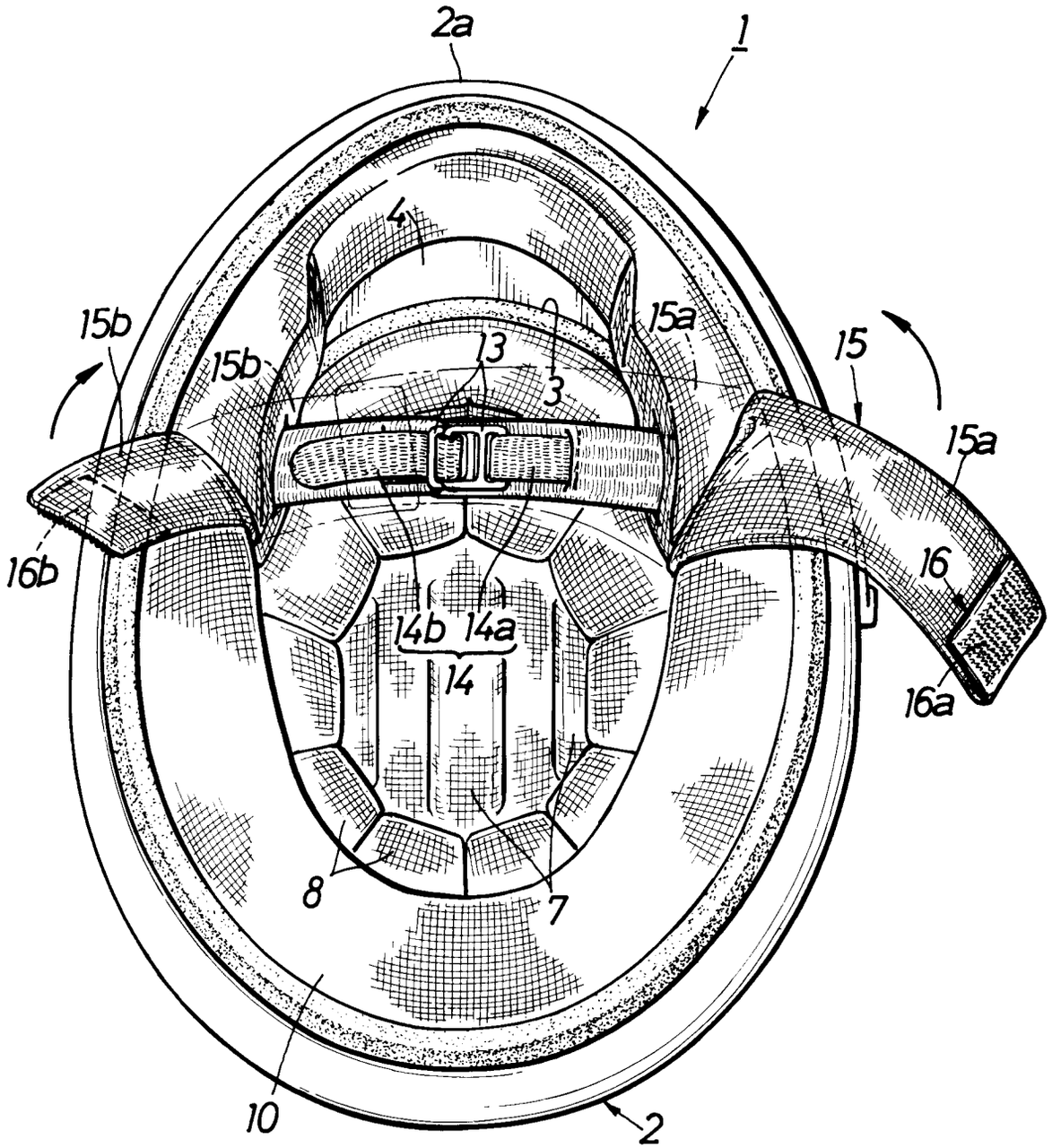


FIG.3



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# EUROPEAN SEARCH REPORT

Application Number

EP 91 30 6385

## DOCUMENTS CONSIDERED TO BE RELEVANT

| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim | CLASSIFICATION OF THE APPLICATION (Int. Cl.5) |
|---|---|---|---|
| A | FR-A-2 542 170 (J.-B. BRUNEAU)<br>* the whole document *<br>--- | 1 | A42B3/08 |
| A | US-A-4 975 980 (S. R. ERSTENIUK)<br>--- | | |
| A | DE-A-3 110 593 (TEMPEX GMBH)<br>--- | | |
| A | US-A-4 573 217 (C. C. REED)<br>--- | | |
| A | US-A-3 825 952 (R. L. PERSHING ET AL.)<br>----- | | |

TECHNICAL FIELDS SEARCHED (Int. Cl.5)

A42B

The present search report has been drawn up for all claims

| Place of search | Date of completion of the search | Examiner |
|---|---|---|
| THE HAGUE | 27 MAY 1992 | BOURSEAU A.M. |

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X : particularly relevant if taken alone
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