(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number: **0 150 876**
A2

(12) EUROPEAN PATENT APPLICATION

(21) Application number: **85200049.6**

(22) Date of filing: **21.01.85**

(51) Int. Cl.⁴: **A 42 B 3/00**

(30) Priority: **27.01.84 IT 1510984 U**

(43) Date of publication of application: **07.08.85**
Bulletin 85/32

(84) Designated Contracting States: **AT BE CH DE FR GB IT LI LU NL SE**

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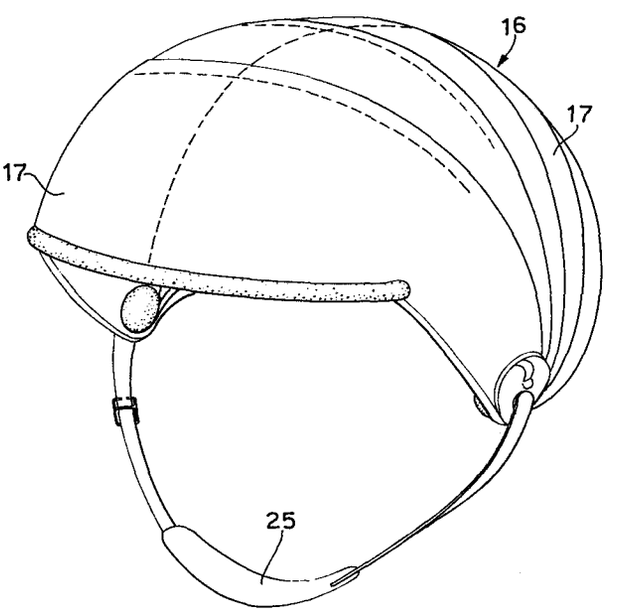
(54) Crash helmet with retractable elements.

(57) A crash helmet comprises a plurality of arcuated elements which are articulated one another at their end portions. Said elements are shiftable from one retracted non-operative position to another open operative position in which they are spread to form a cap structure, and viceversa.

Means are further provided to positively lock said elements one another in the spread operative position.



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CRASH HELMET WITH RETRACTABLE ELEMENTS

This invention relates to a crash helmet with retractable elements, which elements when the helmet is not in use can be retracted and collected together one upon another so as to occupy a minimum space.

As it is well known, the choice to use systematically a crash helmet is often hindered both from a pratical and psychological point of view by the fact that said helmets are inconvenient to carry when not put on, mainly for their remarkable encumbrance causing difficulties in putting them into bags, pouches, purses and the like.

It is accordingly an object of the present invention to provide a crash helmet with a structural arrangment such as to cause the helmet to occupy a minimum space when not in use, so as to be carried comfortably and put away easily even in small spaces.

In view of said object, according to the invention we provide a crash helmet characterized in that it comprises a plurality of arcuated elements, said elements being articulated one another at the ends so as to be shiftable between two extreme position, i.e. between a first operative spread position in which said elements are mutually set apart so as to give rise to a cap structure and a second non-operative retracted position in which said elements are collected and overlapped together, so that the helmet dimensions are substantially the same as those of a single element, means being also provided for

mutual articulation and mutual engagement of said elements when in the spread position, said latter position being therefore identified steadily.

Preferably, said articulated means include a plurality of eccentric discs, one for each element, said discs being integrally fixed to an operating stud which is provided on its end facing the inner part of the helmet with a tightening disc and on its other end is provided with a knob pivoted on said stud, said knob having a shaped portion for cooperating with a cam fixed on said stud to draw closer all the spread elements and to engage stably said means for mutual engagement.

The structural and operative characteristics of the invention will be more clearly understood from the following description taken together with the attached schematic drawings showing examples of crash helmets according to the invention. In the drawings:

Fig. 1 is a side elevation view showing a cap of a crash helmet according to the teaching of the present invention and in a spread operative position;

Fig. 2 is a perspective view showing the cap of Fig. 1, but in a retracted position;

Fig. 3 is an enlarged detail illustrating a latching device for the elements forming the cap in a spread position;

Fig. 4 is a perspective view showing a complete crash helmet according to the invention and in a spread position;

Fig. 5 is a sectional view of the crash helmet of Fig. 1

put on a user;

Fig. 6 is a perspective view showing only the padding of the crash helmet;

Fig. 7 and Fig. 8 are enlarged sectional views showing in detail the articulated arrangement for the elements forming the cap, in a spread position and in a retracted position respectively; and

Fig. 9 to 12 are details illustrating locking devices for the cap elements.

With reference firstly to Fig. 1-3 of the drawings, the crash helmet of the invention comprises a cap generally indicated with the reference numeral 10, formed by a plurality of arcuated elements 11 mutually hinged at their ends by means of studs 12. Said arcuated elements 11 can thus be moved from the spread or open position as shown in Fig. 1 to the retracted or closed position shown in Fig. 2; in the latter position the cap elements occupy a minimum space. To the studs 12 are associated conventional locking knobs 13, by means of which the spread elements 11 can be tight together and steadily locked in the operative position. To this end elements 11 can have the edge portions provided with hooks 14, 15 (Fig. 3).

In the more complete embodiment shown in Fig. 4 to 12, a crash helmet according to the invention is generally indicated with the reference numeral 16 and includes a plurality of arcuated elements 17 mutually articulated at their opposed ends. The articulation arrangement of said elements 17 is clearly shown in Fig. 7 and 8 of the drawings, and is comprised of a plurality of eccentric

discs 18 (one for each element 17), the discs being integral with an actuation stud 19. Said stud 19 is provided at the end toward the inner part of the helmet with a padded locking disc 20, and at the other end is provided with an articulated knob 21 having a shaped portion 22 cooperating with a cam 23. The cam 23 is integral with the actuation stud 19. Said knob 21 is provided also with an aperture 24 for connecting a throatlatch 25.

As clearly seen in Fig. 9 and 12 of the drawings, between adjacent arcuated elements 17 suitable means are provided for effecting a positive mutual locking of said elements in the spread operative position shown in Fig. 4 and 5. Said locking means can be implemented by protrusions 26 mating with recesses 27. End abutments 28, 29 provided on the elements 17 (Fig. 9 and 10) or mutually opposed teeth 30, 31 (Fig. 11 and 12) cooperate with said protrusions 26 and recesses 27.

Said locking means (26, 27, 28, 29 and 30, 31) can of course be arranged and located elsewhere on the cap 10, along the dashed lines shown in Fig. 4.

As can be seen in Fig. 5 and 6, to the first and to the last of the elements 17 and to the lateral articulations is further fixed inwardly a folding padding 32, which can be made of a suitable microcellular material having a high energy absorbing power.

The operation of the crush helmet according to the

invention can be clearly understood from the above description with reference to the drawings, and briefly is as follows.

With the knobs 21 in the position shown in Fig. 7, the elements 17 are superimposed one another leaving small gaps therebetween and can be spread, so that the locking means 26, 27 or 30, 31 reach opposed positions. At this time each knob 21 is rotated in the positon of Fig. 8. Accordingly, the stud 19 and the eccentric discs 18 are also rotated, causing the elements 17 to approach one another and therefore causing the mutual engagement of the locking means 26, 27 or 30, 31. To lock axially the elements 17 in the spread position, it is now sufficient to upset the knob 21 letting it reach the position shown in Fig. 8 with dashed lines. Said locking action is implemented by the engagement of the said locking means, with which can cooperate also friction means 32 interposed between adjacent eccentric discs 18.

The purpose mentioned in the introductory part of this description is thus attained, i.e. it is provided a crash helmet occupying a minimum space when not in use, so as to be easily and comfortably carried.

Obviously the crash helmet of the invention can be conveniently utilized by any kind of user, such as motorcyclists, mountain climbers,workers, etc. and in any situation in which a head protection is needed or even simply advisable.

CLAIMS

1. Crash helmet characterized in that it comprises a plurality of arcuated elements, said elements being articulated one another at the ends so as to be shiftable between two extreme position, i.e. beetween a first operative spread position in which said elements are mutually set a part so as to give rise to a cap structure and a second non-operative retracted position in which said elements are collected and overlapped together, so that the helmet dimensions are substantially same as those of a single element, means being also provided for mutual articulation and mutual engagement of said elements when in the spread position, said latter position being therefore identified steadily.

2. Crash helmet of Claim 1, characterized in that said articulated means comprises a plurality of eccentric members, one for each element, said eccentric members being integrally fixed to an operating stud which is provided on its end facing the inner part of the helmet with a tightening disc and on its other end is provided with a knob pivoted on said stud, said knob having a shaped portion for cooperating with a cam fixed on said stud to draw closer all the spread elements and to engage stably said means mutual engagement.

3. Crash helmet of Claim 2, characterized in that said means for mutual engagement are opposed teth.

4. Crash helmet of Claim 2, characterized in that said

means for mutual engagement are opposed protrusions and recesses.

5. Crash helmet of Claim 2, characterized in that said means for mutual engagement are hook members.

Fig.1

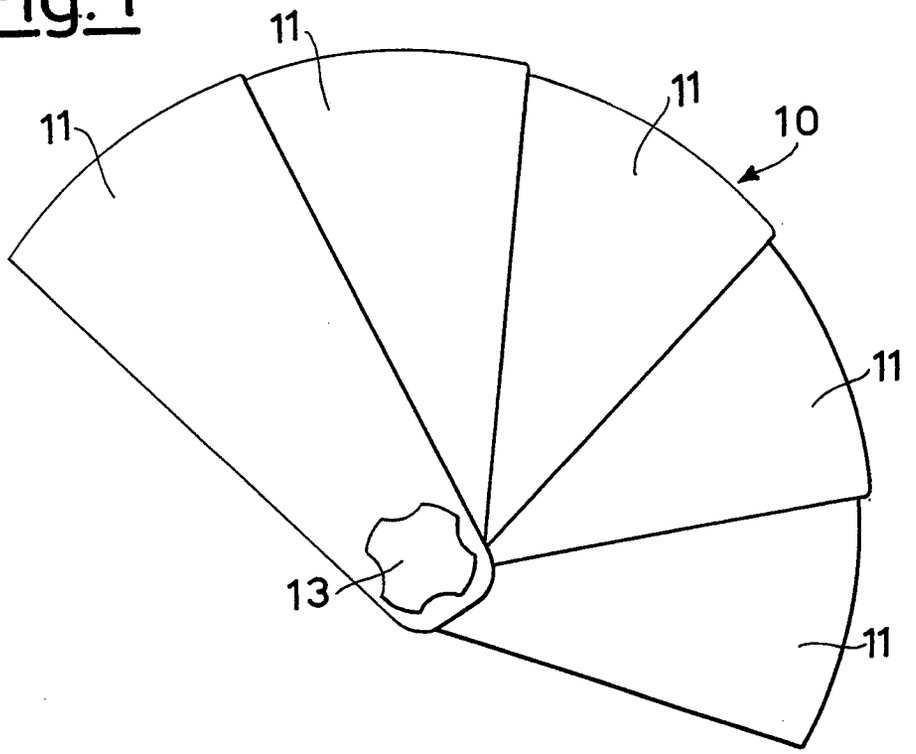

Fig.2

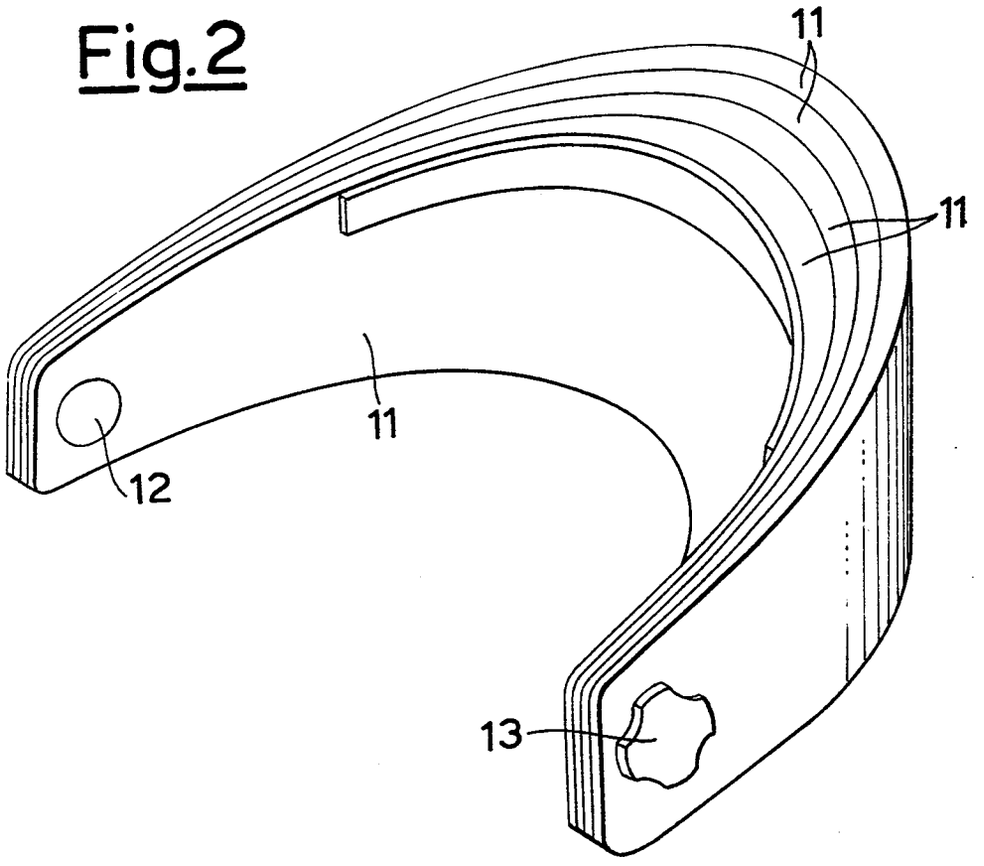

Fig. 3

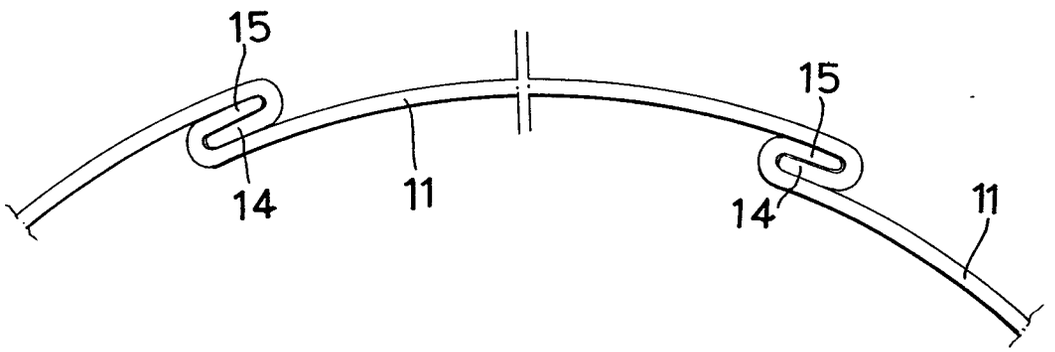

Fig. 4

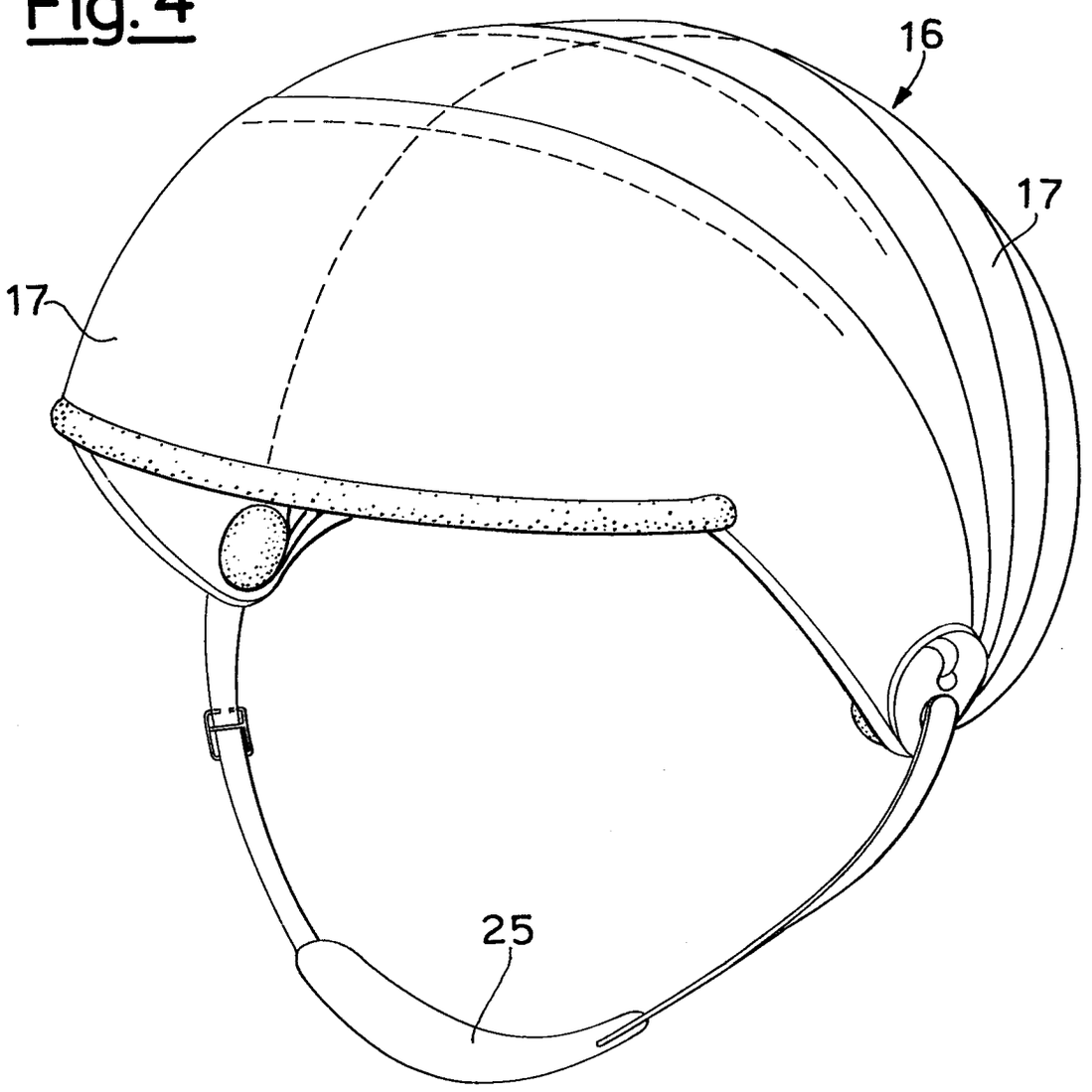

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Fig.5

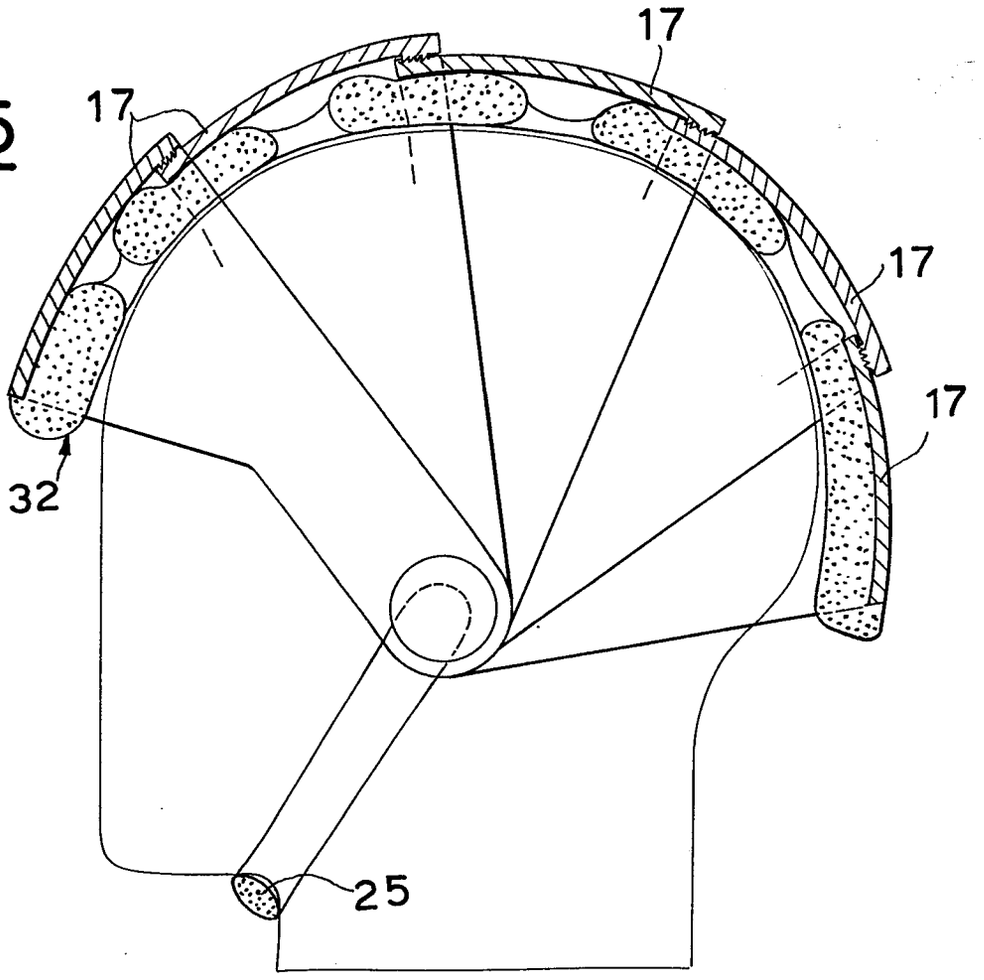
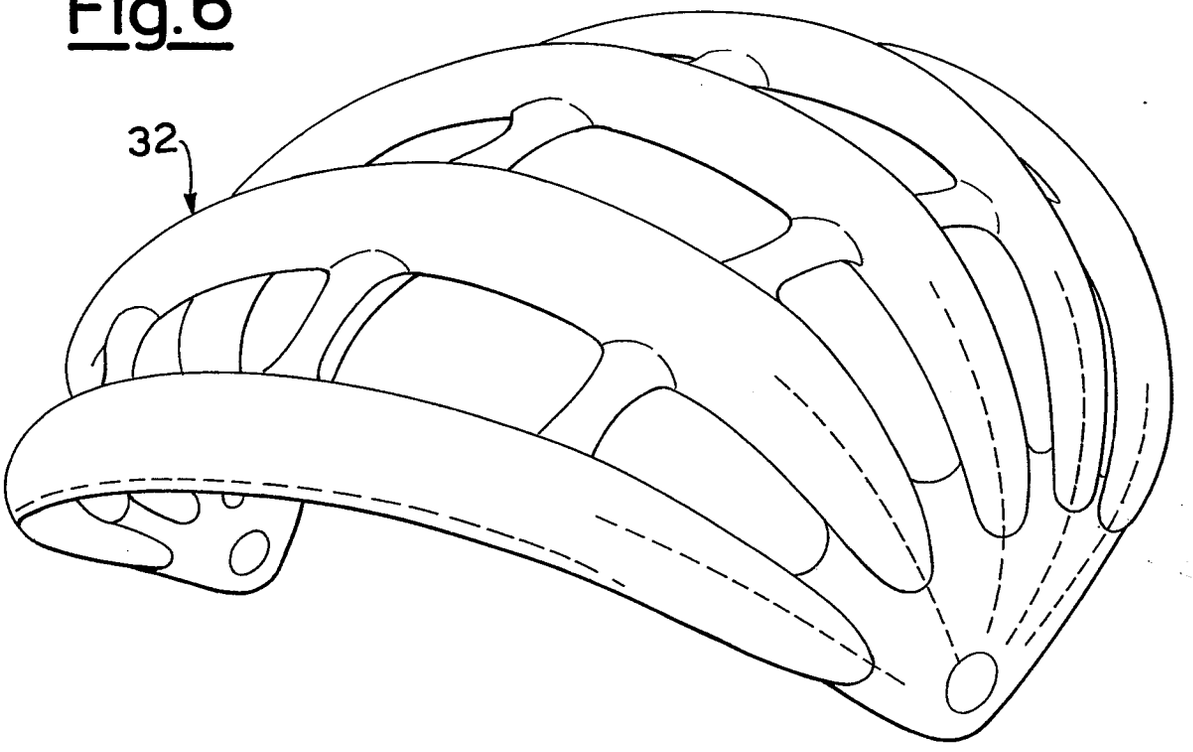


Fig.6



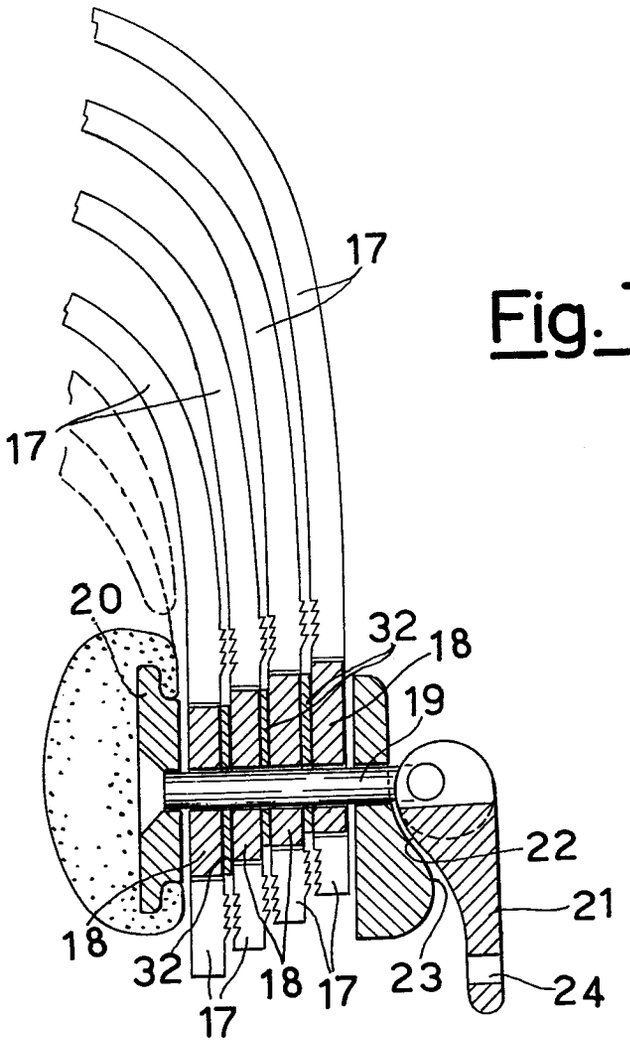

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Fig. 7

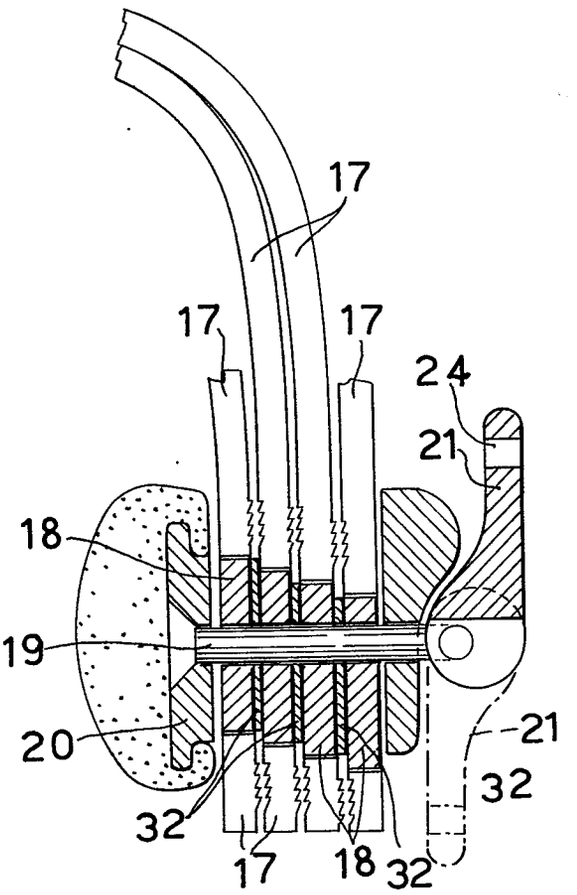
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Fig. 8

Fig.9

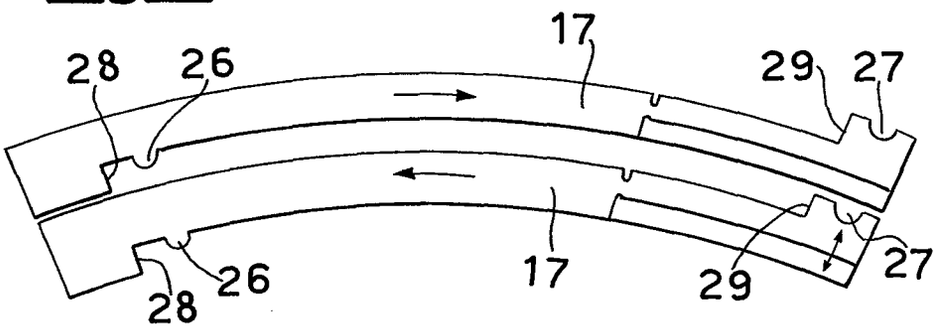

Fig.10

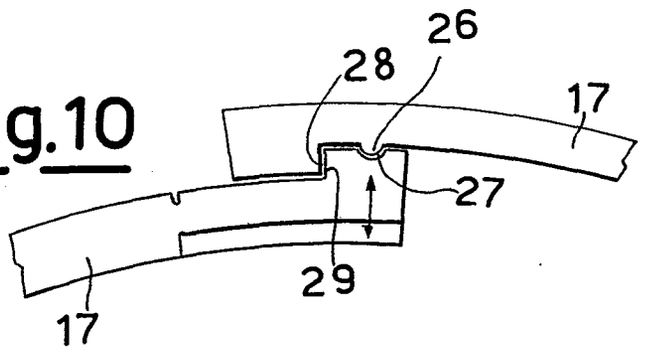

Fig.11

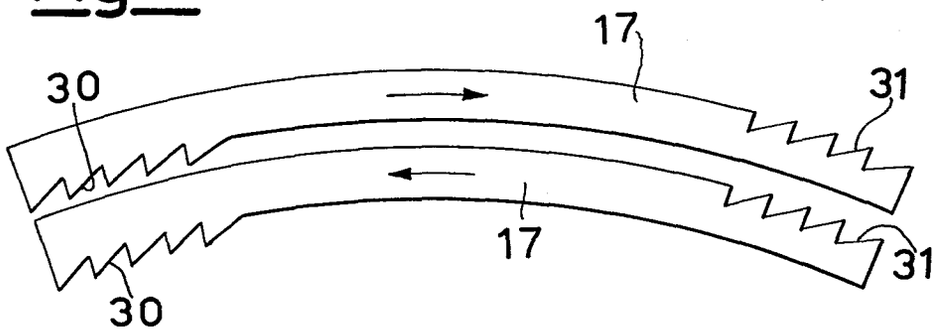

Fig.12