



(19)

Europäisches Patentamt
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(11)

EP 0 953 300 B2

(12)

NEW EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the opposition decision:
28.07.2004 Bulletin 2004/31

(51) Int Cl.⁷: **A42B 3/32**

(45) Mention of the grant of the patent:
11.07.2001 Bulletin 2001/28

(21) Application number: **99201154.4**

(22) Date of filing: **13.04.1999**

(54) Protective helmet for vehicle drivers

Schutzhelm für Fahrzeugführer

Casque de protection pour conducteurs de véhicules

(84) Designated Contracting States:
AT CH DE ES FR GB IT LI NL

(30) Priority: **27.04.1998 IT MI980892**

(43) Date of publication of application:
03.11.1999 Bulletin 1999/44

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Description

[0001] The present invention relates to a protective helmet for vehicle drivers. More specifically, the present invention relates to a helmet of the integral type comprising a shell, a visor and a mouth guard, in which the said mouth guard and the said visor rotate with respect to the said shell substantially independently of each other.

[0002] Protective helmets for vehicle drivers are known in which the mouth guard rotates with respect to the shell of the helmet, carrying the visor with it. These helmets have the disadvantage that the visor cannot be used when the mouth guard is raised.

[0003] In order to overcome this disadvantage, a type of helmet has been proposed in which the mouth guard and the visor rotate independently of each other about the same axis.

[0004] The inventors of the present invention have realized that in this type of helmet there are large gaps between the visor and the mouth guard when these are both closed (lowered). This is because one of these elements (the visor) is set back with respect to the other (the mouth guard). This gives rise to a number of disadvantages such as, for example, water infiltration and draughts which generate whistling noises and reduce the aerodynamics of the helmet. Not even a complex system of seals is sufficient to overcome these problems. Moreover, even the most sophisticated seals tend to deteriorate rapidly over time when exposed to atmospheric agents. Furthermore, when the mouth guard is in the closed position, these seals impede closure of the visor and are subjected to strong mechanical stresses each time the visor is forced in an attempt to close it.

[0005] The inventors have perceived that the drawbacks of this helmet are due to the fact that both the visor and the mouth guard rotate about a single axis and that the trajectory of one of these two elements has a larger radius than the trajectory of the other element in order to allow the first to rotate outside the second.

[0006] US-A-4,794,652 discloses a safety helmet for motorcycle drivers or the like including a helmet shell which is open at the chin of the user and has a shock-absorbing inner lining, and a folding portion which is swivelably and removably connected to the helmet shell. The folding portion forms a chin protector composed of outer shell and inner lining and includes a visor. The chin protector rests at least in its lower portion against corresponding end faces of the helmet shell. The folding portion is held so as to be in contact with the helmet shell through holding means which are displaceable against a spring load. The folding portion extends at least essentially over the forward half of the helmet and is hinged to the helmet shell so as to be releasable only in a predetermined swivel position. The visor is hinged to the inside of the folding portion which extends over the front half of the helmet.

[0007] In the said safety helmet, the movement of the

visor and chin protector are not fully independent. Indeed, the hinge of the said visor is supported by the said chin protector and the visor is caused to move when the chin protector rotates.

[0008] As a result of these observations, the inventors also perceived that all the abovementioned drawbacks can be overcome by a protective helmet according to claim 1.

[0009] Preferably, the said visor and the said mouth guard follow trajectories which intersect each other in such a way that, in the closed position, the bottom profile of the said visor sits substantially flush with the top profile of the said mouth guard.

[0010] Characteristics and advantages of the invention will now be described with reference to embodiments which have been illustrated, by way of non-limiting example, in the attached drawings, in which:

- Fig. 1 is a left side view of a helmet shell according to the invention;
- Fig. 2 is a left side view of the helmet shell of Fig. 1 with a visor;
- Fig. 3 is a left side view of the helmet shell of Fig. 1 with a visor and a mouth guard; and
- Fig. 4 is a longitudinal section through the helmet of Fig. 3 in which dashed lines represent the mouth guard and the visor in the raised position.

[0011] According to the embodiment shown in Fig. 1, a helmet 1 according to the invention comprises a shell 10 of the jet type and a first cavity 11 and a second cavity 12, both of which are threaded to take a first screw 13 and a second screw 14. The said second cavity 12 is a suitable distance away from the said first cavity 11. The right side view (not shown) is, of course, the mirror image of the left side view shown in Fig. 1.

[0012] As may be seen in Figures 2 and 3, the said helmet 1 also comprises a visor 20 and a mouth guard 30. The said visor 20 is hinged so as to rotate on the said shell 10 by means of the said first screw 13 while the said mouth guard 30 is hinged so as to rotate on the said shell 10 by means of the said second screw 14. The said visor 20 also has a slot 15 which engages with the said second screw 14, delimiting the end-of-travel positions of the said visor 20.

[0013] Fig. 4 is a longitudinal section through the helmet of Fig. 3 in which dashed lines represent the mouth guard 30 and the visor 20 in the raised position. The said Fig. 4 further shows the trajectories followed by the said visor 20 and the said mouth guard 30 as they are raised. Lastly, 16 is a general reference for the padding inside the helmet 1.

[0014] Preferably, the said helmet 1 is also fitted with conventional retention means (not shown) designed to hold the said visor 20 and/or the said mouth guard 30 securely in the closed and/or open position, even while the driver is travelling at high speed.

[0015] The said visor 20 preferably consists of a sin-

gle polycarbonate body. The said material also preferably undergoes a treatment to make it scratch resistant. The mouth guard 30 and the shell 10, on the other hand, preferably each consist of a single body made of polycarbonate or a composite material.

[0016] In the embodiment illustrated in Figures 1 to 4 the mouth guard 30 can rotate through approximately 180° around the said shell 10, passing over the said visor 20 and coming to a position substantially opposite its closed position. In turn, the slot 15 allows the visor 20 to rotate through approximately 90°. One or more conventional retention devices (not shown) will enable the said visor 20 and the said mouth guard 30 to be securely fixed in various open positions so that they cannot close or open accidentally.

[0017] A further advantage of the helmet 1 illustrated in Figures 1 to 4 is that it is extremely aerodynamic.

Claims

1. Protective helmet (1) for vehicle drivers, comprising a shell (10), a visor (20) and a mouth guard (30), in which the said visor (20) and the said mouth guard (30) rotate with respect to the said shell (10), about their own axes of rotation, positioned a suitable distance apart, **characterized in that** both the said visor (20) and the said mouth guard (30) are rotatively hinged on the said shell (10) and rotate substantially independently of each other so that said mouth guard (30) can pass over said visor (20) and reach a position substantially opposite its closed position.
2. Helmet according to Claim 1, **characterized in that** the said visor (20) and the said mouth guard (30) follow different trajectories which intersect each other in such a way that, in the closed position, the bottom profile of the said visor (20) sits substantially flush with the top profile of the said mouth guard (30).

Patentansprüche

1. Schutzhelm (1) für Fahrzeugführer, umfassend eine Schale (10), ein Sichtschild (20) und einen Mundschutz (30), wobei das Sichtschild (20) und der Mundschutz (30) sich in bezug auf die Schale (10) um Ihre eigenen Drehachsen drehen, die in einem geeigneten Abstand getrennt positioniert sind, **dadurch gekennzeichnet, dass** sowohl das Sichtschild (20) als auch der Mundschutz (30) auf der Schale (10) drehgelenkig befestigt sind und sich im wesentlichen unabhängig voneinander drehen, so dass kann der Mundschutz (30) über den Sichtschild (20) gelangen und eine Position im wesentlichen gegenüber seiner geschlossenen Position ankommen.

5 2. Helm nach Anspruch 1, **dadurch gekennzeichnet, dass** das Sichtschild (20) und der Mundschutz (30) unterschiedlichen Trajektorien folgen, die sich gegenseitig auf solch eine Weise schneiden, dass in der geschlossenen Position das Bodenprofil des Sichtschirms (20) im wesentlichen ausgerichtet mit dem oberen Profil des Mundschutzes (30) sitzt.

10 Revendications

1. Casque protecteur (1) pour conducteurs de véhicules, comprenant une enveloppe (10), une visière (20) et un protège-bouche (30), dans lequel ladite visière (20) et ledit protège-bouche (30) tournent par rapport à ladite enveloppe (10) sur leurs propres axes de rotation, qui sont disposés à une distance appropriée l'un de l'autre, **caractérisé en ce que** ladite visière (20) et ledit protège-bouche (30) sont tous deux articulés de manière rotative sur ladite enveloppe (10) et tournent de façon sensiblement indépendante l'un vis-à-vis de l'autre, de telle manière que ledit protège-bouche (30) peut passer au-dessus de ladite visière (20) et venir jusqu'en une position qui est sensiblement opposée à sa position fermée.
2. Casque selon la revendication 1, **caractérisé en ce que** ladite visière (20) et ledit protège-bouche (30) suivent des trajectoires différentes qui se coupent l'une et l'autre de façon que, dans la position fermée, le profil inférieur de ladite visière (20) se pose sensiblement en affleurement avec le profil supérieur dudit protège-bouche (30).

35 40

45 50

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FIG. 1

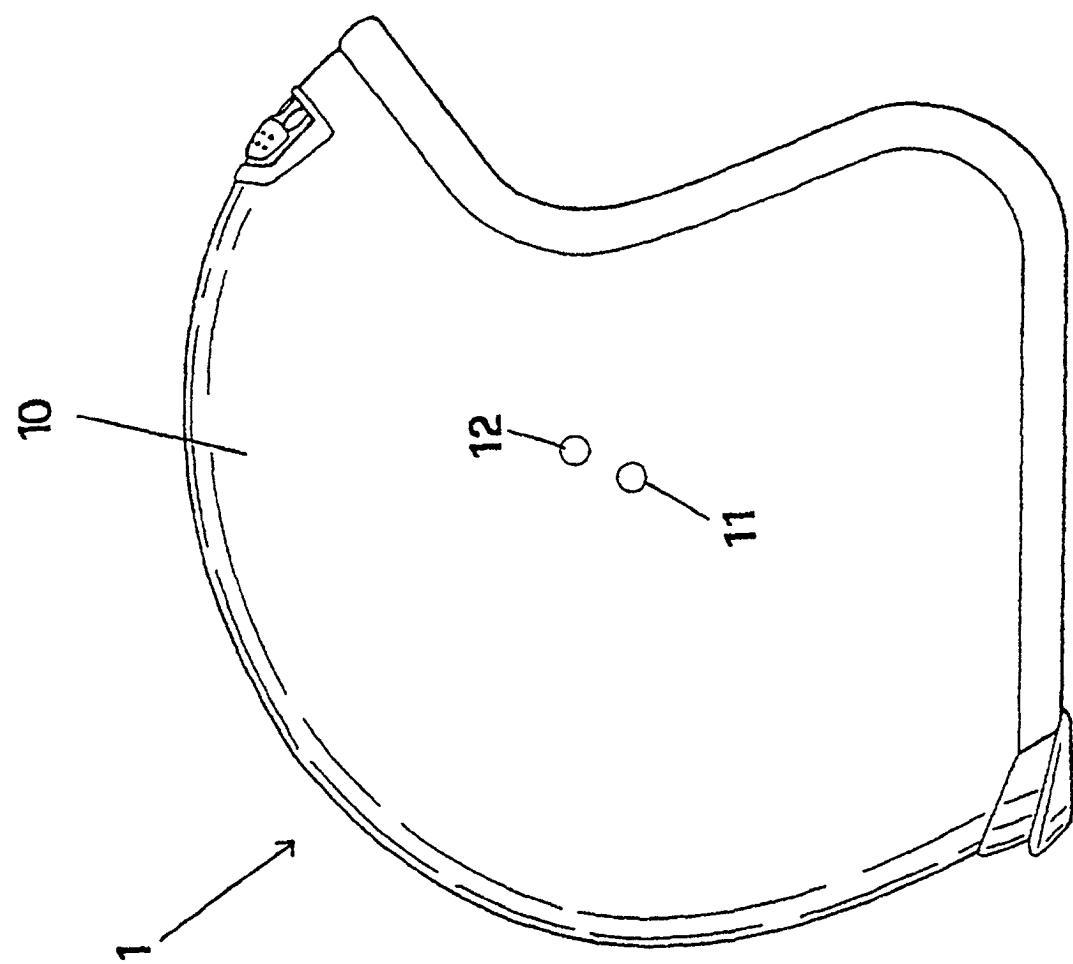
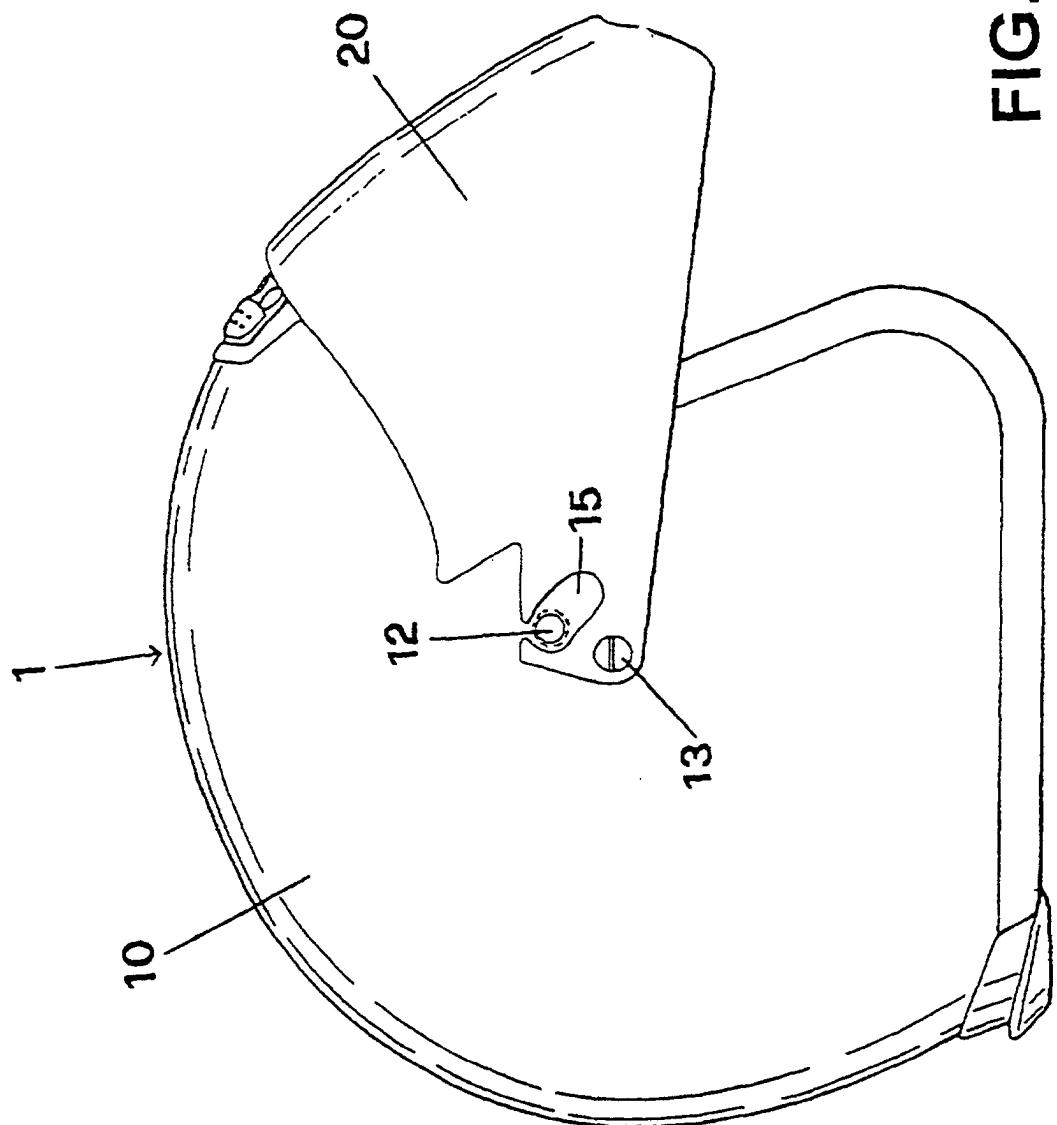


FIG. 2



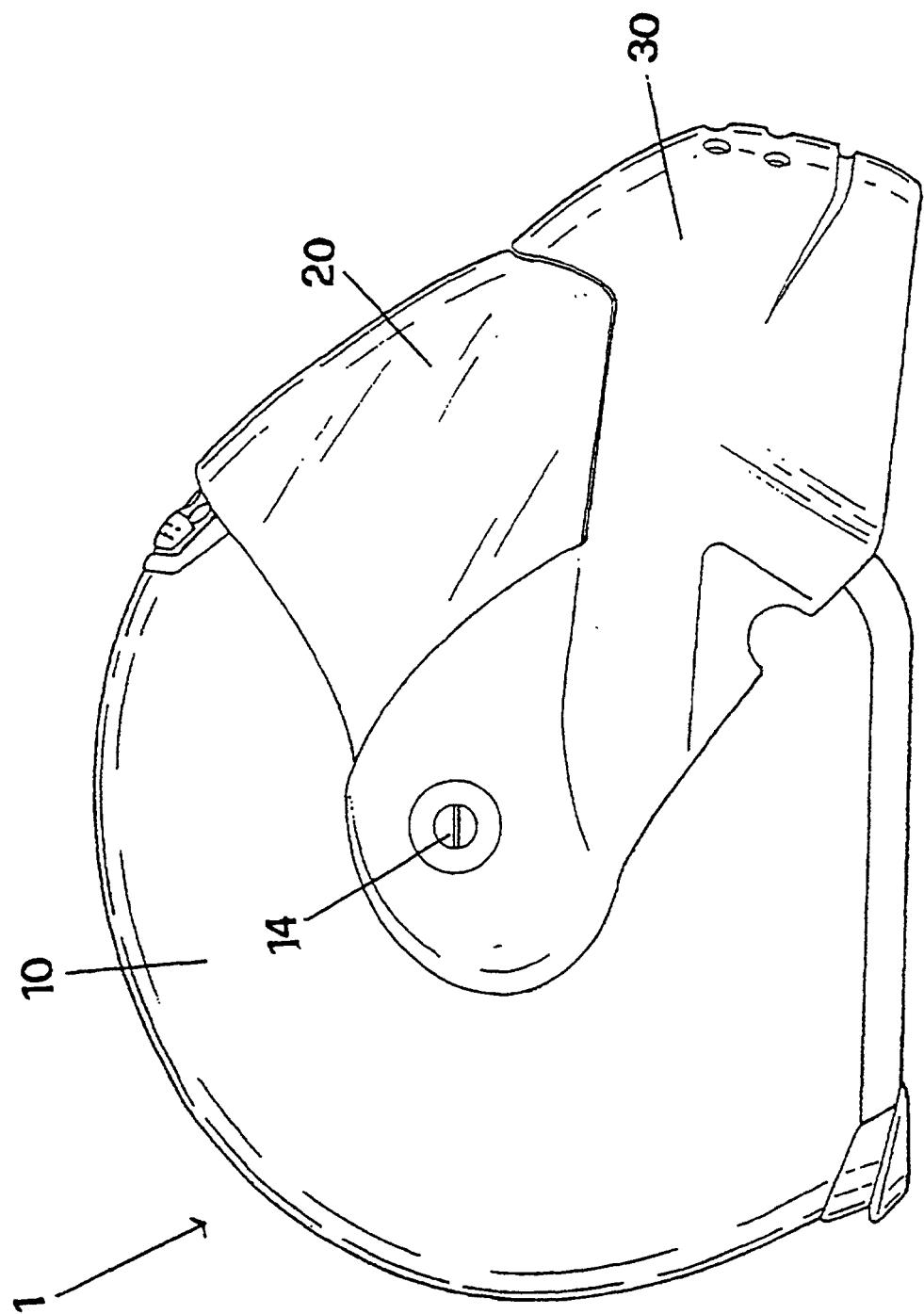


FIG. 3

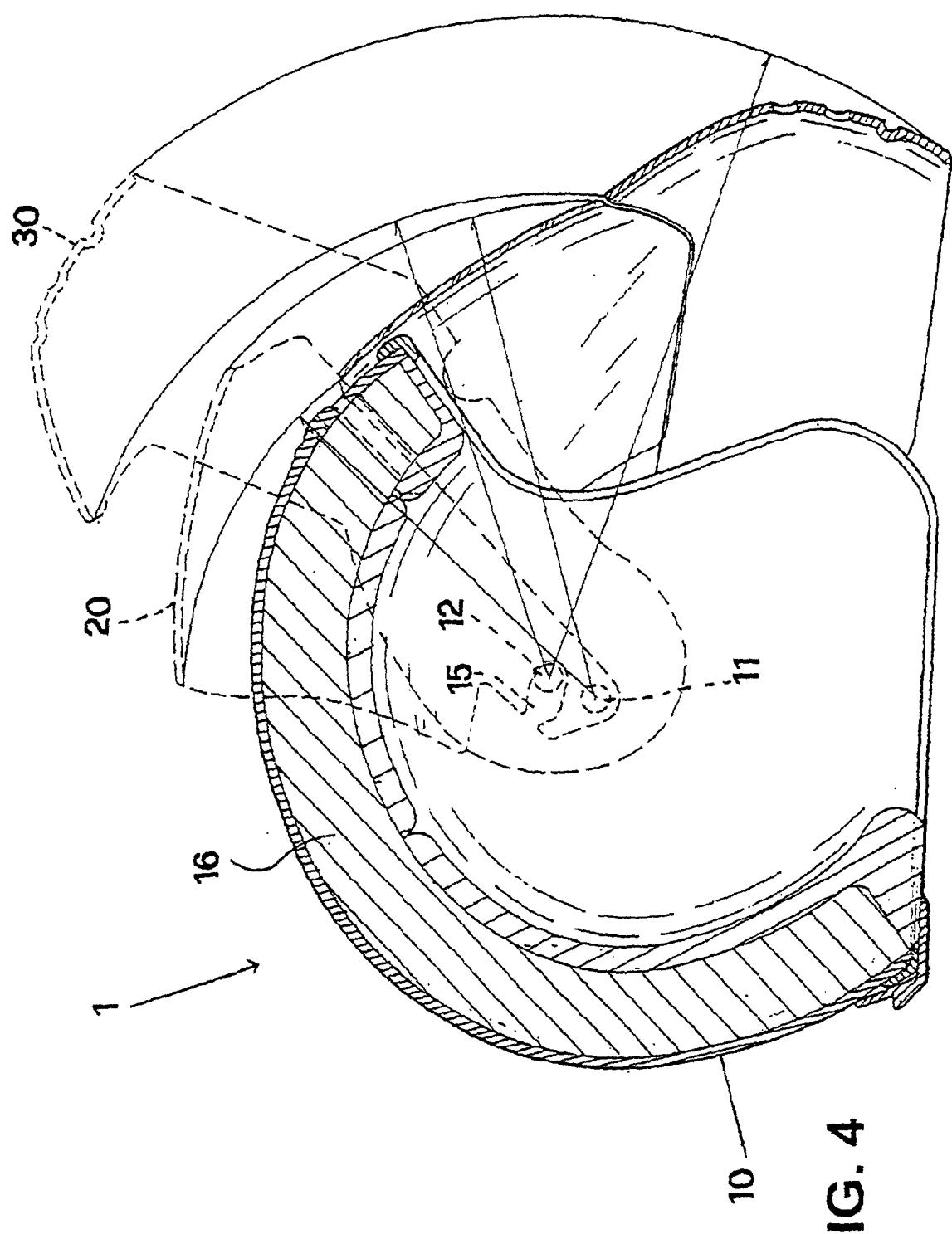


FIG. 4