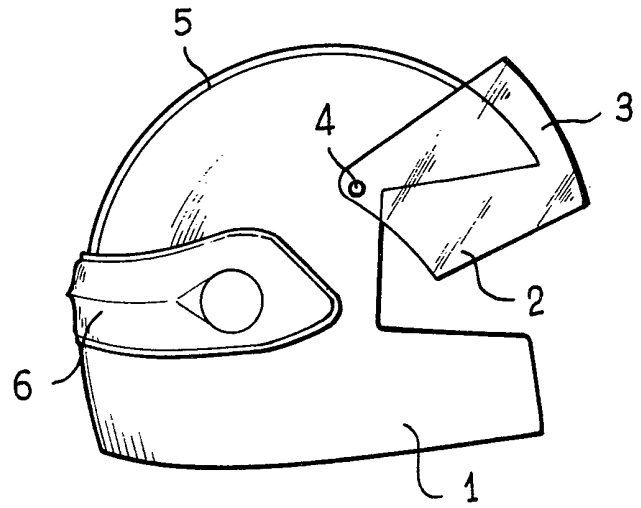
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(54) **A radio helmet**

(57) A radio helmet has a U-shaped hoop container (6) which is attachable to the synthetic shell of the helmet. The hoop (6) matches the shape of the rear part of the helmet and has two legs which extend forwardly over those parts of the helmet covering the wearer's ears. One leg contains radio receiver circuits (10) and rechargeable batteries, and the other leg contains a loudspeaker (7) arranged to transmit sounds through the shell to the wearer. An electrical connector (11) connects the receiver circuits to an aerial 5 embedded in the helmet shell.

FIG_1



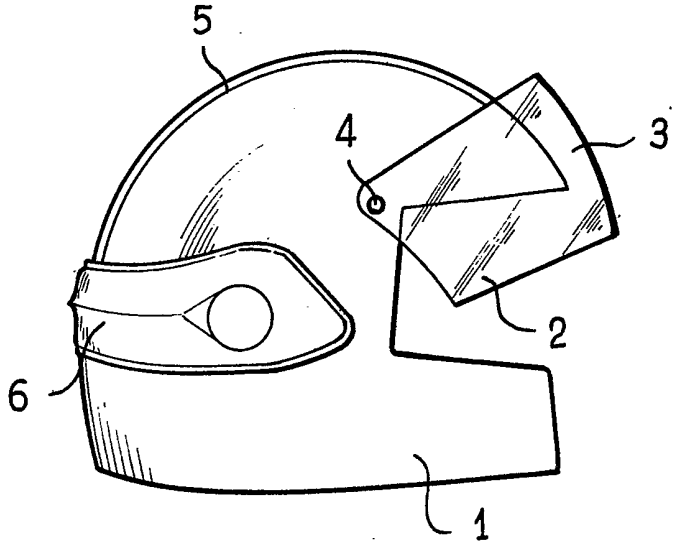


FIG_1

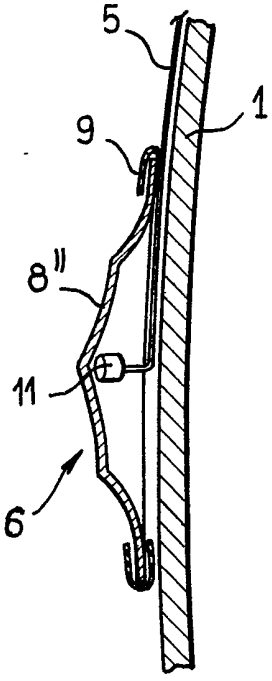


FIG_3

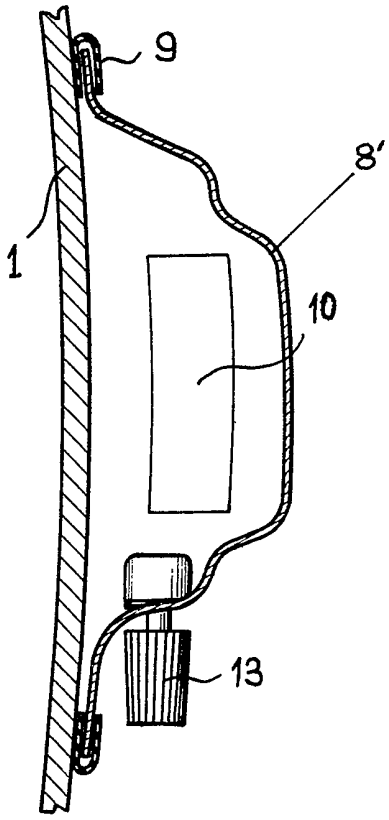


FIG_4

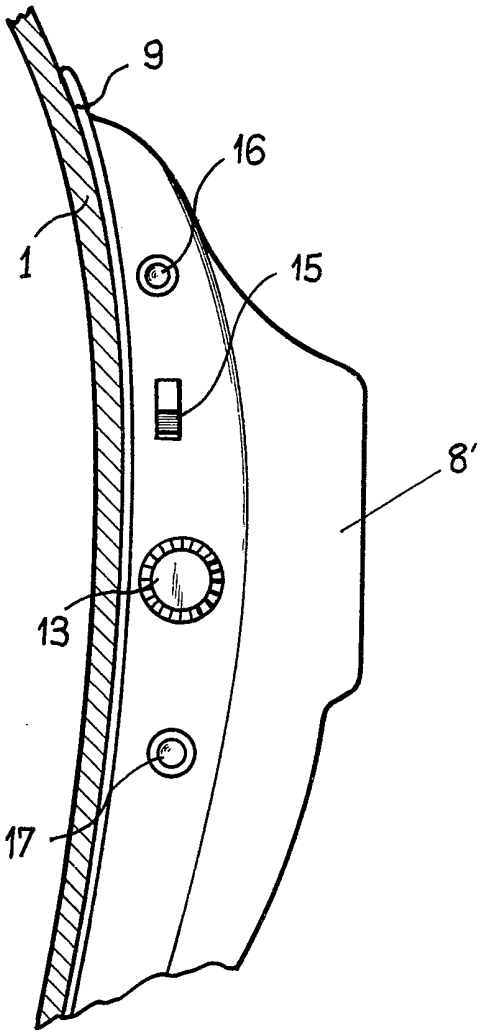


FIG_5

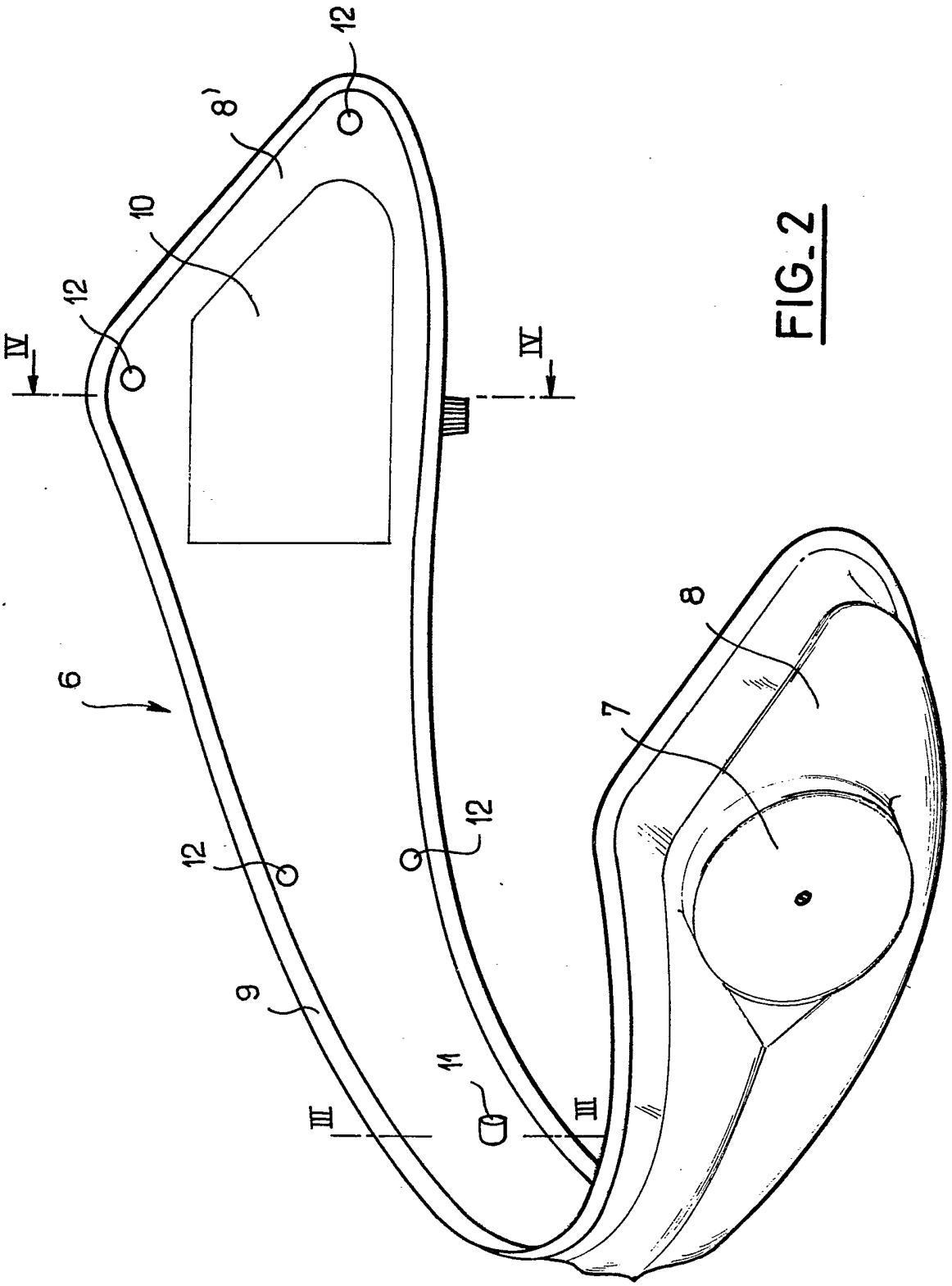


FIG_2

SPECIFICATION

A radio helmet

The present invention relates to a radio helmet, notably for motorcyclists and in general for persons likely to receiving or transmitting information within a given perimeter of reception without necessitating to limit their displacement.

Combined earphones are already known which are integral with a hoop and positioned against both ears. However, in such devices earphones must be connected to the plug of a receiver. Now, in some cases, for example for motorcyclists, such a link may be embarrassing and even dangerous.

Besides, such a connection is not possible in certain applications such as, for example, for the staff of the motorized Police which must stay tuned in by their motorcycles or vehicles.

Also, there are radiophonic receivers supported by a hoop and which are autonomous. Said receivers adapt against ears directly, said hoop resting on the top of the head. In addition, said receivers adapted against both ears prevent to hear every external noise, which is prohibited for obvious reasons of safety.

Now, the relatively large size of said receivers does not permit to house them in a helmet and, moreover, the problem of the aerial and the reception of signals whatever the position of the head would be raised. Besides, the same applies to earphones integral with a hoop.

To sum up, the various means known to date are not satisfactory, either because they do no permit to bear a crash helmet, or require a cable for connecting the helmet to a transmitter-receiver embarked on board of the motorcycle or vehicle and thus considerably hamper the movements of the user thereof.

Now, it is particularly interesting that motorcycle, vehicle, etc...drivers which must bear a crash helmet in view of the risks of accident might receive information or instructions from the exterior without the advantage of said reception being reduced by an absence of movements freedom, without so far the total weight of the helmet be over the current standards of regulations, but so that external noises might be heard.

Thus, the present invention is aimed at providing a device of radio reception capable to be used by a motorcyclist or any other person compelled to bear a helmet, which provides a good reception and listening-in of the emission, while not hampering the movements of the user thereof, leaving it totally independent from the machine (motorcycle, vehicle, etc.) and not increasing risks in case of fall, nor unbalancing the helmet (notably AFNDR standards).

To this end, the invention relates to a radio helmet wherein there is a shell of synthetic material with an aerial incorporated in the mass of the wall of said shell, a circuit of detection and amplification of electromagnetic signals with at least a loudspeaker and a feed power supply, the electronic circuit being housed in a protecting hoop taking the exact shape of the rear basis of the shell on a level with the nape and ears of the user thereof.

As the helmet is made from a non-metalic material, it is possible to incorporate therein an aerial for the reception of radio signals, whatever the position of the head. In addition, as the assembly of the radio circuit, including the transducer and the feed power supply, are housed in a hoop which, when horizontal, almost surrounds the rear portion of the helmet, as a result the user is suffering no discomfort nor imbalance nor any risk of catching for the helmet in case of fall. Besides, as the electronic circuit comprising the feed power supply and the transducer or transducers is housed in a hoop, this constitutes a whole which, if need be, can be removed from the helmet for reparing it or prevent it from being stolen.

According to an advantageous characteristic feature, the hoop carries ratchet means secured in suitable elements provided in the helmet.

The present invention will be described with more details by means of the mode of embodiment depicted in the attached drawings, wherein:

Figure 1 is a side view of a radio helmet according to the invention.

Figure 2 is a view in perspective of the portion of the helmet carrying an electronic circuit of detection and amplification, the loudspeaker or loudspeakers and the feed power supply.

Figure 3 is a cross-section view along III-III of Figure 2.

Figure 4 is a cross-section view along IV-IV of Figure 2.

Figure 5 is a view from beneath of an end of the portion shown in Figure 2.

As shown in Figure 1, the radio helmet consists of a shell 1, casing-shaped, whose front portion carries an opening 2 capable to be closed by a rocking shutter 3, transparent, hinged at points 4. In the portion of the helmet corresponding to the symmetry plane, an aerial 5 is provided, incorporated in the mass of the thickness of the shell 1. Finally, on a level with the rear portion and up to the side parts of the helmet, above the nape and up to the ears, there is a hoop 6 fixed amovable. Said hoop 6 carries the electronic circuit of detection and amplification of the signals received by the aerial 5, as well as the feed power supply of said electronic circuit.

Figure 2 more particularly shows the hoop which, when seen in plane, is U-shaped, surrounding the rear portion of the casing 1 of the helmet. According to a mode of embodiment of the inention, an electromagnetic transducer 7 such as a loudspeaker is provided in the boss 8 on a level with one end of the hoop. Said boss 8 or the position of said transducer 7 are selected in such a way as when the hoop is put in position the loudspeaker is in the region of the ear, for example, the right one of the user of the helmet. Said hoop is made from a resilient material, slightly ribbed so as to increase the rigidity and elasticity of same. The edge of the hoop carries a pad 9 for ensuring tightness which applies against the external surface of the shell 1 of the helmet and ensures a tighter contact with said surface. The boss 8′ at the other hand of the hoop 6 has a shape symmetrical to that of the boss 8; said boss 8′ contains the electronic part in the form of a known circuit constituting the detector and the

amplifier of signals. Said electronic circuit 10 is connected to the transducer 7 through cables not shown. Finally, on a level with the medium plane, a connecting element 11 is provided for connecting the hoop 6 to the aerial 5. Finally, the hoop 6 carries fixing means 12, movable or with ratchet, permitting to make the hoop and shell 1 integral with one another, while also permitting to remove the hoop 6 for reparing it, changing the battery, etc., or again preventing said hoop from being stolen when the driver of the motorcycle leaves it on the latter when parking it.

The various Figures 3, 4, 5 show details of the hoop 6 and of the position thereof in relation to the wall of the shell 1 of the helmet.

The cross-section of Figure 3 shows the embossed shape of the rear portion 8" of the hoop 6, as well as the connecting means 11 of the hoop and of the aerial 5 incorporated in the mass of the wall of the shell 1. Also, said Figure shows the positioning of the tightness pad 9.

The cross-section view of Figure 4 shows the button operating the volume 13 and diagrammatically the electronic circuit 10 as well as the shape of the boss 8' receiving said electronic circuit 10.

Figure 5 shows the button operating the volume 13, the on/off button 15, the pilot light 16 of the electronic circuit, as well as a socket 17 for recharging the feeding batteries of the circuit, said batteries being housed inside the boss 8' receiving the circuit 10.

Tests have demonstrated, very surprisingly indeed, that one loudspeaker only was sufficient, and that it was not necessary to provide holes in the helmet on a level with the location of the loudspeaker for ensuring a good transmission of the sound inside the helmet. This avoids any mechanical weakening of the helmet caused by holes. Preferably, the sole loudspeaker is located at the right side of the helmet.

In addition, as the hoop has a resilient effect, so as to secure it to the casing of the helmet, only very single means such as press studs or the like are required.

According to the invention the radio helmet can be used by civil or military motocycle drivers, vehicle drivers, etc.

CLAIMS

1. A helmet comprising a shell of synthetic material and including a radio connected to an aerial, the radio comprising a detector and amplifier circuit, a power supply means and a loudspeaker, wherein the aerial is housed in the shell and the detector and amplifier circuit is housed in a protective hoop shaped to correspond to the curvature of the rear part of the shell on a level with the ear region of the helmet.

2. A helmet according to claim 1 wherein the aerial is embedded in the wall of the shell.

3. A helmet according to claim 1 or claim 2, wherein the hoop is convex-shaped and ribbed.

4. A helmet according to any preceding claim, wherein an edge of the hoop carries a resilient pad.

5. A helmet according to any preceding claim, wherein the radio includes one loudspeaker, which loudspeaker is housed in the hoop on one side of the helmet, and wherein the said circuit and power supply means are housed in the hoop on the other side of the helmet.

6. A helmet according to claim 1, wherein the hoop has an electrical connector for connecting the radio to the aerial.

7. A helmet according to any preceding claim including a rechargeable battery mounted in the hoop.

8. A helmet according to claim 7, wherein the hoop comprises two legs which extend from the rear of the helmet to respective ear regions of the helmet, and wherein a volume control, an indicator lamp and a battery recharging socket are housed in an end portion of a leg.

9. A helmet radio receiver comprising a U-shaped hoop container for attachment to the rear part of a helmet on a level with the nape and ear regions of the helmet, the container housing a detector and amplifier circuit, power supply means and a loudspeaker and including an electrical connector for connecting the receiver to an aerial fitted to the helmet.

10. A helmet constructed and arranged substantially as herein described and shown in the drawings.

11. A helmet radio receiver constructed and arranged substantially as herein described and shown in the drawings.

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