



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
16.11.2005 Bulletin 2005/46

(51) Int Cl.7: **A42B 3/30**

(21) Application number: **05010040.3**

(22) Date of filing: **09.05.2005**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HU IE IS IT LI LT LU MC NL PL PT RO SE SI SK TR
Designated Extension States:
AL BA HR LV MK YU

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(30) Priority: **10.05.2004 IT GE20040039**

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(54) **Crash helmet with communications device**

(57) A crash helmet (1) with communications device, which includes a sound conduction means (4,7) arranged inside the shell (2) and associated with an ex-

ternal socket means (6,8), which is suitable to receive a connection means (10,11,12) for connection to another similar crash helmet (101).

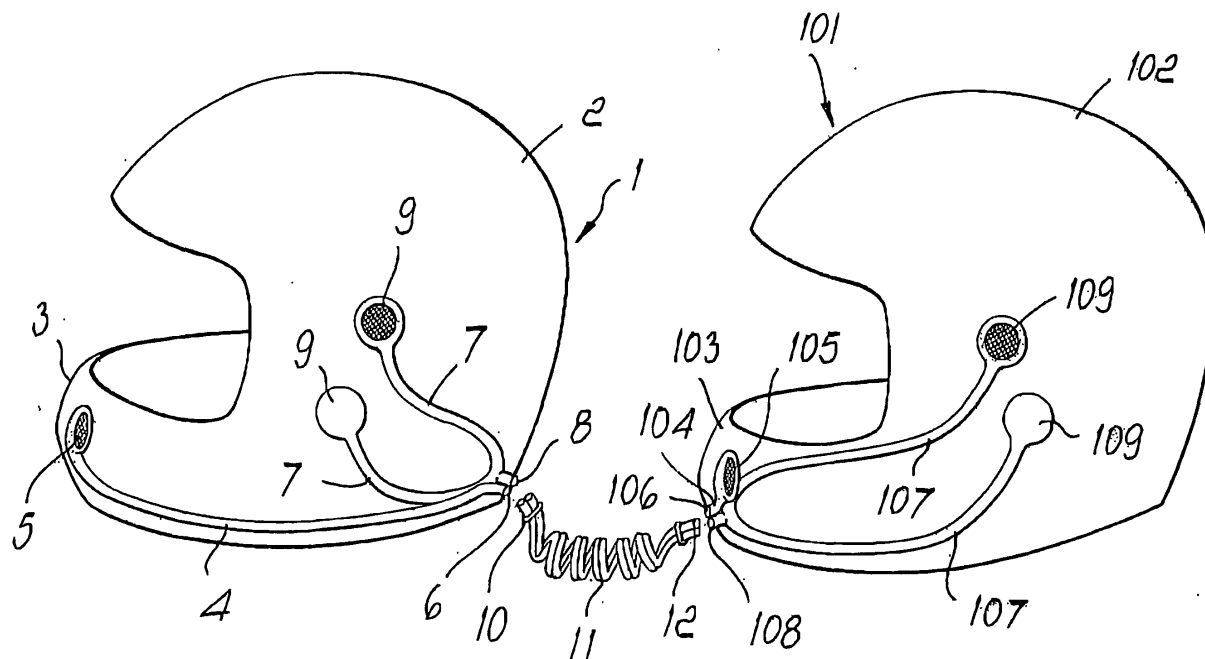


Fig. 1

Description

[0001] The present invention relates to a crash helmet with communications device.

[0002] Various communications systems capable of allowing conversation between the driver and passenger of a motorcycle are known commercially.

[0003] The systems that are most widely used commercially are based on devices for reproducing and transmitting sound by means of wired or wireless electrical devices.

[0004] However, electrical devices have several drawbacks, the most evident of which is cost.

[0005] Moreover, electrical devices require a power source, and therefore a connection to the power outlet of the motorcycle, if provided (as seldom occurs), or more commonly a battery pack, with all the consequent problems.

[0006] Other drawbacks are linked to the very nature of the electrical components, which are sensitive to moisture, dirt, impacts, etc., and therefore require some care during use as well as a little maintenance.

[0007] As regards radio devices, there are also the ordinary problems of interference that can lead to malfunctions.

[0008] Other systems have been proposed that operate substantially according to the same principle as the stethoscope and are constituted by flexible tubes with a wider end that acts as a mouthpiece or earpiece.

[0009] Those systems are generally commercially available as a kit to be applied to an ordinary crash helmet and have the disadvantage of being difficult to apply and rather bulky.

[0010] The aim of the present invention is to provide a crash helmet, particularly for motorcycling and the like, which is provided with a communications device that overcomes the drawbacks of the cited background art.

[0011] An object of the invention is to provide a crash helmet having a communications device that requires no installation on the part of the user.

[0012] A further object of the invention is to provide a crash helmet in which the communications device is not at all bulky.

[0013] A further object is to provide a crash helmet in which the communications device requires no maintenance.

[0014] A further object of the present invention is to provide a crash helmet with a communications device that is extremely convenient in terms of production and of the materials that can be used.

[0015] This aim and these and other objects that will become better apparent hereinafter are achieved by a crash helmet with communications device, comprising a shell and characterized in that it comprises a sound conduction means which is arranged inside the shell and is associated with an external socket means which is suitable to receive a connection means for the connection of the sound conduction means to another sim-

ilar crash helmet.

[0016] Further characteristics and advantages of the invention will become better apparent from the description of preferred but not exclusive embodiments thereof, illustrated by way of non-limiting example in the accompanying drawings, wherein:

Figure 1 is a perspective view of two crash helmets of the full-face type, provided with the communications device according to the invention;

Figure 2 is a bottom view of the crash helmets of Figure 1;

Figure 3 is a bottom view of a crash helmet according to a further aspect of the invention;

Figure 4 is a perspective view of two crash helmets of the open-face type, provided with the communications device according to the invention;

Figure 5 is a bottom view of the crash helmets of Figure 4;

Figure 6 is a bottom view of a crash helmet provided with a communication device according to still a further aspect of the invention.

[0017] With reference to the cited figures, a crash helmet according to the invention, generally designated by the reference numeral 1, comprises a shell 2, which in a full-face crash helmet includes at the front a chin guard 3.

[0018] According to the invention, a sound conduction means constituted by tubular members is provided inside the shell 2.

[0019] In particular, the tubular members include at least one transmission tube 4 and at least one reception tube 7.

[0020] The transmission tube 4 begins with an opening 5, which constitutes the mouthpiece of the system and is arranged in the chin guard 3 at the user's mouth, and ends with an external socket 6.

[0021] The reception tube 7 is preferably a split tube, which begins with an external socket 8 and ends with two openings 9, which are arranged in the shell 2 at the ears of the user and act as earpieces.

[0022] The sockets 6 and 8 are arranged in the rear part of the shell 2 and can be engaged by a double plug 10, which is associated with a respective flexible tube 11, which ends, at the opposite end, with a second plug 12, which is suitable to engage a double socket 106 and 108 of a second crash helmet 101 similar to the crash helmet 1.

[0023] More particularly, the helmet 101 includes a shell 102, which in a full-face helmet includes at the front a chin guard 103.

[0024] According to the invention, a sound conduction means is provided inside the shell 102 and is constituted by tubular members similar to the helmet described above.

[0025] In particular, the tubular members include at least one transmission tube 104 and at least one recep-

tion tube 107.

[0026] The transmission tube 104 begins with an opening 105, which constitutes the mouthpiece of the system and is arranged in the chin guard 103 at the mouth of the user, and ends with the external socket 106.

[0027] The reception tube 107 is preferably a split tube, which begins in the external socket 108 and ends with two openings 109, which are arranged in the shell 102 at the ears of the user and act as earpieces.

[0028] In the helmet 101, the connectors 106 and 108 are arranged in the front part, particularly in the chin guard 103, and can be engaged by the second double plug 12 associated with the flexible tube 11, which ends, at its opposite end, with the first plug 10, which engages the double socket 6 and 8 of the first helmet 1.

[0029] In the system described above, the helmet according to the invention therefore has two configurations: a front-helmet configuration, which is worn for example by the driver of a motorcycle, and the rear-helmet configuration, which is worn by the passenger of the motorcycle.

[0030] Figure 3 illustrates a helmet 201 according to the invention, which can be used both as a front helmet or driver helmet and as a rear or passenger helmet.

[0031] The helmet 201 includes, like the helmets described above, a shell 202 which in a full-face helmet includes at the front a chin guard 203.

[0032] According to the invention, a sound conduction means, constituted by tubular members, is provided inside the shell 202.

[0033] In particular, the tubular members include at least one transmission tube 204 and at least one reception tube 207.

[0034] The transmission tube 204 begins with an opening 205, which constitutes the mouthpiece of the system and is arranged in the chin guard 203 at the mouth of the user, and ends with two external sockets, a front external socket 206a and the rear external socket 206b.

[0035] The reception tube 207 is preferably a split tube that begins with two external sockets: a front external socket 208a and a rear external socket 208b.

[0036] The split tube 207 ends with two openings 209, which are arranged in the shell 202 at the ears of the user and act as earpieces.

[0037] The front and rear sockets can be engaged by the connection means, which is constituted by the flexible tube 11, provided with plugs 10 and 12, described above.

[0038] Therefore, the helmet 202 described here can be used equally as a driver's helmet or as a passenger helmet by virtue of the dual front and rear sockets.

[0039] Figures 4 and 5 illustrate two helmets of the so-called open-face type, designated respectively by the reference numerals 301 and 401, each provided with a communications system similar to the one described above.

[0040] The open-face helmet designated by the reference numeral 301 includes a shell 302, inside which a sound conduction means, constituted by tubular members, is provided.

[0041] In particular, the tubular members include at least one transmission tube 304 and at least one reception tube 307.

[0042] The transmission tube 304 begins with an opening 5, which constitutes the mouthpiece of the system and is arranged at the mouth of the user, and ends with an external socket 306.

[0043] Since in this case the chin guard is not provided, the transmission tube 304 is conveniently rigid enough to constitute the support of the mouthpiece 305 or is supported by a rigid member.

[0044] Preferably, the reception tube 307 is a split tube, which begins in an external socket 308 and ends in two openings 309, which are arranged in the shell 302 at the ears of the user and act as earpieces.

[0045] The sockets 306 and 308 are arranged in the rear part of the shell 302 and can be engaged by the double plug 10, which is associated with the flexible tube 11 that ends with the second plug 12, which is suitable to engage a double socket 406 and 408 of a second helmet 401, which is similar to the helmet 301.

[0046] More particularly, the helmet 401 includes a shell 402, inside which there is a sound conduction means, constituted by tubular members that are similar to the helmet described above.

[0047] In particular, the tubular members include at least one transmission tube 404 and at least one reception tube 407.

[0048] The transmission tube 404 begins with an opening 405, which constitutes the mouthpiece of the system and is arranged at the mouth of the user, and ends with an external socket 406.

[0049] Since in this case the chin guard is not provided, the transmission tube 404 is conveniently rigid enough to constitute the support of the mouthpiece 405 or is supported by a rigid member.

[0050] The reception tube 407 is preferably a split tube, which begins with the external socket 408 and ends with two openings 409, which are arranged in the shell 402 at the ears of the user and act as earpieces.

[0051] In the helmet 401, the sockets 406 and 408 are arranged in the front part and can be engaged by the second double plug 12, which is associated with the flexible tube 11 and ends, at the opposite end, with the first plug 10, which engages the double socket 306 and 308 of the first helmet 301.

[0052] The helmet according to the invention therefore has two configurations also in the system described in Figures 4 and 5: a front helmet configuration 301, which is worn for example by the driver of a motorcycle, and a rear helmet configuration 401, which is worn by the passenger of the motorcycle.

[0053] Figure 6 illustrates a helmet 501 according to the invention, which can be used both as a front helmet

or driver helmet and as a rear or passenger helmet.

[0054] As in the previous embodiments, helmet 501 comprises a shell 502 which in a full-face helmet has a front a chin guard 503.

[0055] According to the invention, a sound conduction means, constituted by tubular members, is provided inside the shell 502.

[0056] In particular, the tubular members comprise at least one transmission tube 504 and at least one reception tube 507.

[0057] The transmission tube 504 begins with an opening 505, which constitutes the mouthpiece of the system and is arranged in the chin guard 503 at the mouth of the user, and ends with one external socket 506, provided laterally in one of the sides of the shell.

[0058] The reception tube 507 is constituted by one tube that begins with one external socket 508, provided in one side of the shell 502, preferably side by side with the external socket 506 of the transmission tube.

[0059] The reception tube 507 ends with one opening 509 which is arranged in the shell 502 at the ear of the user and acts as an earpiece.

[0060] The side sockets 506 and 508 can be engaged by the connection means, which is constituted by the flexible tube 11, provided with a plug 10 as described above.

[0061] Helmet 502 described here can be used equally as a driver's helmet or as a passenger helmet by virtue of the side sockets.

[0062] Helmet 502 may also be provided with two earpieces by splitting the reception tube 507 as in the embodiments described above.

[0063] This embodiment has the advantage of being even more economical and simpler to produce because of the reduced number of components and of working steps.

[0064] The tubular members that constitute the sound conduction means according to the present invention can be provided by rubber or plastic tubes, which are inserted in the helmet, for example between the shell and the internal lining or in appropriately provided grooves inside the lining.

[0065] The tubular members can also be provided in the form of chambers or cavities provided in the material that constitutes the helmet.

[0066] The connection means is preferably constituted by an elastic tube that is coiled in a spiral, as shown in the figures, and offers the advantage of being short but extensible, but it is possible to use any type of tube, even if it is not coiled in a spiral.

[0067] The connection means may also be constituted by a single tube that is split at the plugs or socket.

[0068] If the communications device is not used and therefore the connection means is not connected to the helmets, it is preferable to close the sockets and for this purpose there is an appropriate means for closing them.

[0069] In practice it has been found that the invention achieves the intended aim and objects, providing a hel-

met that has a communications device that is effective and at the same time extremely simple from the functional standpoint and from the structural standpoint.

[0070] The communications system according to the present invention offers several advantages.

[0071] The communications device is integrated in the helmet and no user installation is required in order to use the device.

[0072] Moreover, the installation of the communications device is cheap also from the point of view of production.

[0073] The advantages are considerable from the point of view of the user.

[0074] The communications device requires no maintenance and requires no power source.

[0075] If one wishes to communicate during travel, for example on a motorcycle, it is sufficient to connect the two helmets by means of the connecting means and no setup is required. The connection means is compact and can be easily stored in a pocket or in the small compartments provided in some motorcycles until it is used.

[0076] Impacts, moisture, dust and dirt do not damage the device and do not reduce its functional efficiency except to an irrelevant extent.

[0077] The helmet according to the invention is susceptible of numerous modifications and variations, within the scope of the appended claims. All the details may be replaced with technically equivalent elements.

[0078] The materials used, as well as the dimensions, may of course be any according to the requirements and the state of the art.

Claims

1. A crash helmet with communications device, comprising a shell and **characterized in that** it comprises a sound conduction means, which is arranged inside said shell and is associated with an external socket means, which is suitable to receive a connection means for the connection of said sound conduction means to another similar crash helmet.
2. The helmet according to claim 1, **characterized in that** said sound conduction means is constituted by tubular members.
3. The helmet according to claim 2, **characterized in that** said tubular members comprise at least one transmission tube and at least one reception tube.
4. The helmet according to one or more of the preceding claims, **characterized in that** said transmission tube begins with an opening, which constitutes a mouthpiece and is arranged at the mouth of the user, and ends with a socket arranged externally with respect to said shell.

5. The helmet according to one or more of the preceding claims, **characterized in that** said reception tube is a split tube that begins with an external socket and ends with two openings, which are arranged in the shell at the ears of the user and act as earpieces. 5

6. The helmet according to one or more of the preceding claims, **characterized in that** said sockets are arranged in the rear part of the shell and can be engaged by a double plug, which is associated with a respective flexible tube that ends, at the opposite end, with a second plug, which is suitable to engage a double socket of a second similar helmet. 10
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7. The helmet according to one or more of the preceding claims, **characterized in that** said sockets are arranged in the front part of the shell.

8. The helmet according to one or more of the preceding claims, **characterized in that** said transmission tube begins with an opening, which constitutes the mouthpiece and is arranged at the mouth of the user, and ends with two external sockets, a front external socket and a rear external socket. 20
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9. The helmet according to one or more of the preceding claims, **characterized in that** said reception tube is a split tube, which begins with two external sockets: a front external socket and a rear external socket. 30

10. The helmet according to one or more of the preceding claims, **characterized in that** if it is of the open-face type, without a chin guard, said transmission tube is rigid enough to constitute the support of the microphone or is supported by a rigid member. 35

11. The helmet according to claim 1, **characterized in that** said sound conduction means is constituted by tubular members, said tubular members comprising at least one transmission tube and at least one reception tube; said transmission tube beginning with an opening, which constitutes the mouthpiece of the system and is arranged at the mouth of the user, and ending with one external socket, provided laterally in one of the sides of the shell; said reception tube being constituted by one tube that begins with one external socket, provided in one side of the shell side by side with said external socket of the transmission tube; said reception tube ending with one opening which is arranged in said shell at the ear of the user and acts as an earpiece. 40
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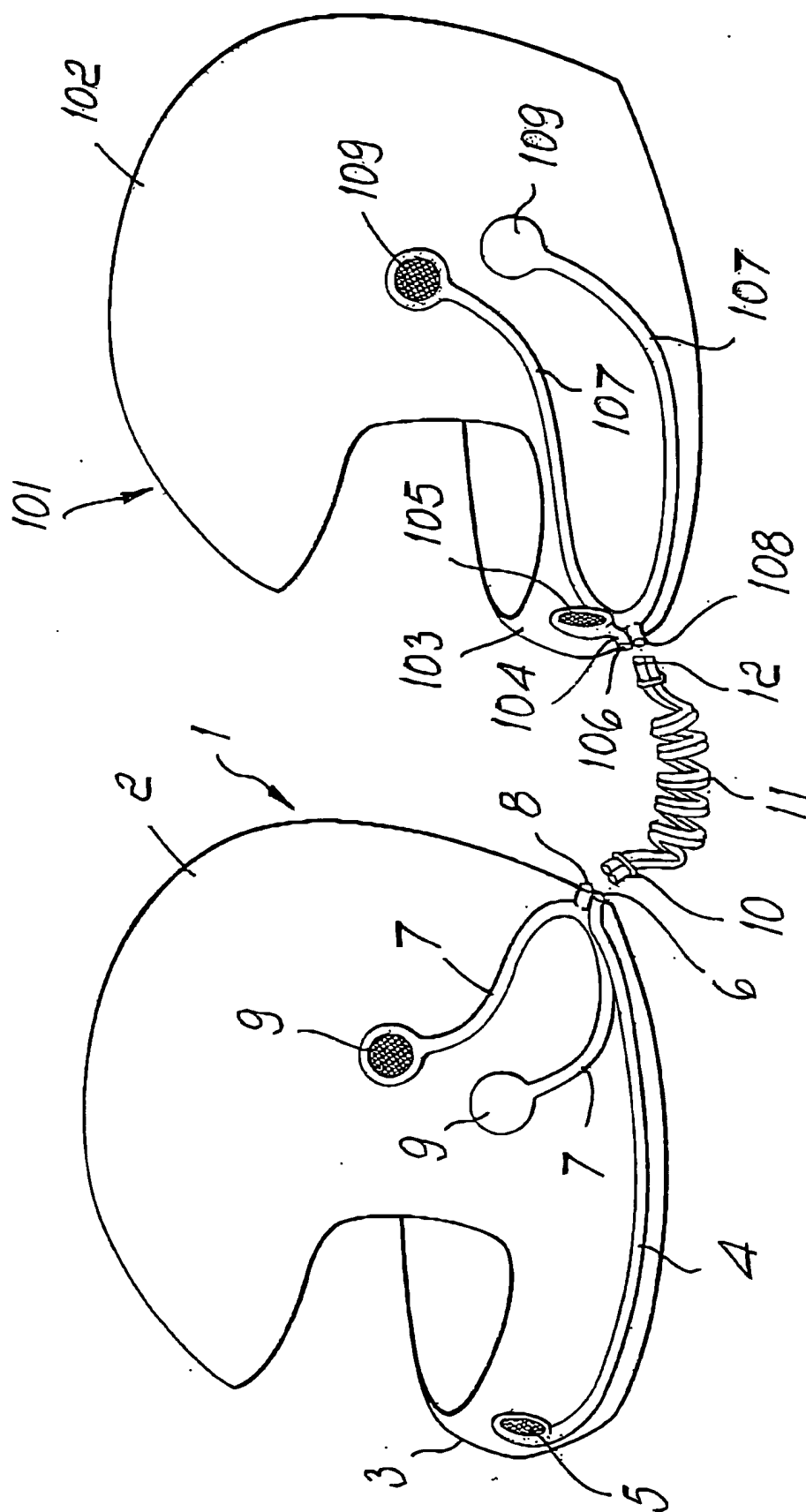


Fig. 1

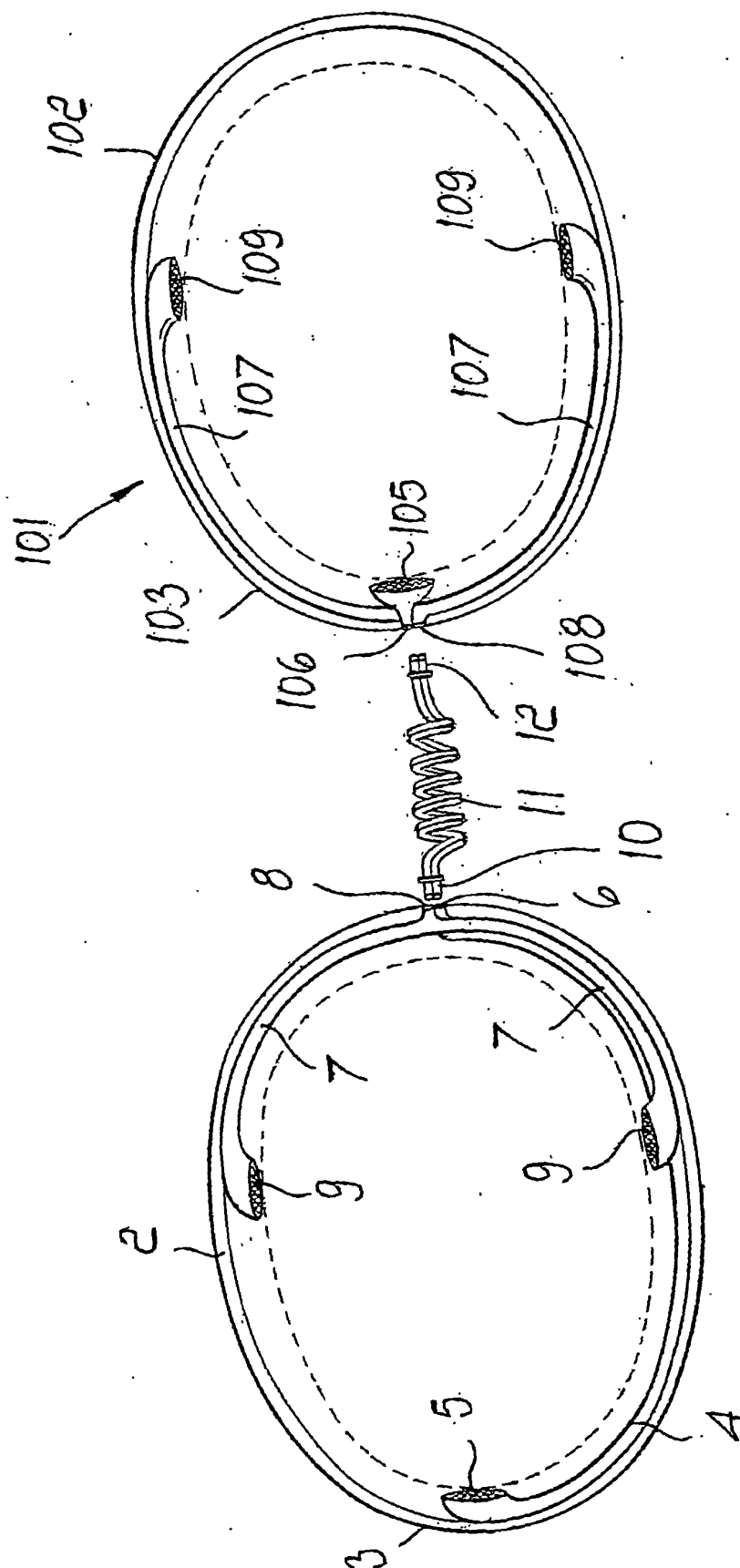


Fig. 2

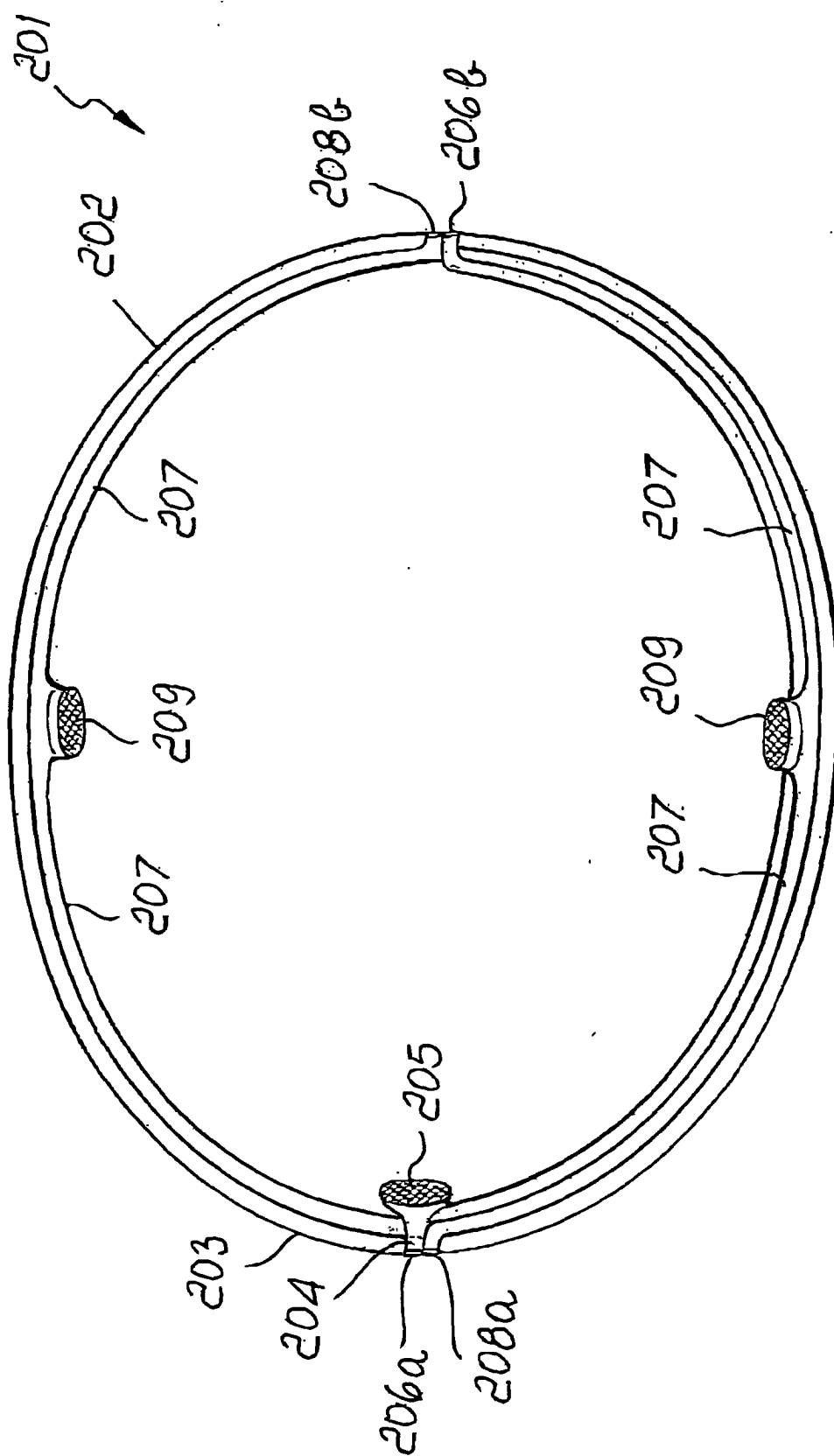


Fig. 3

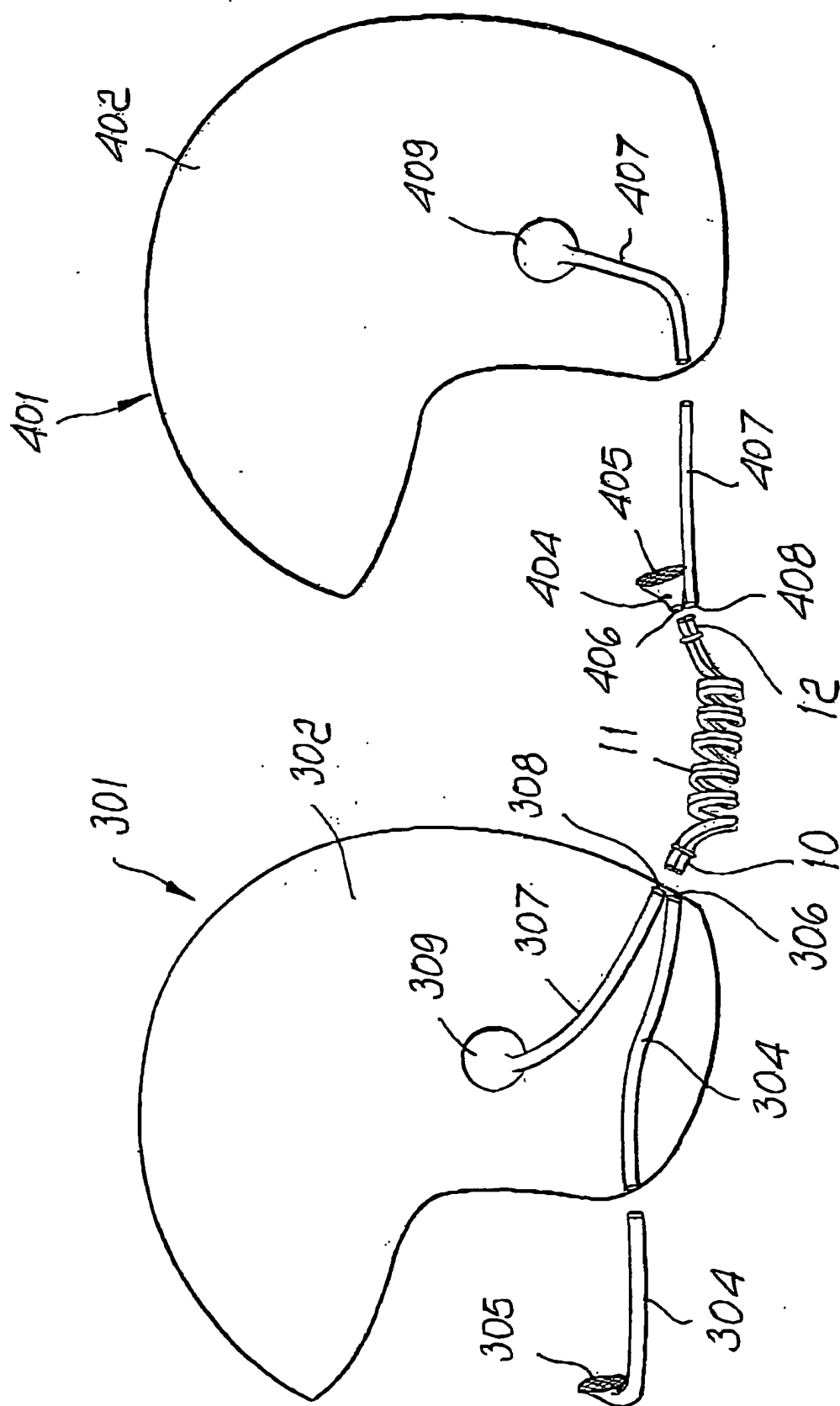


Fig. 4

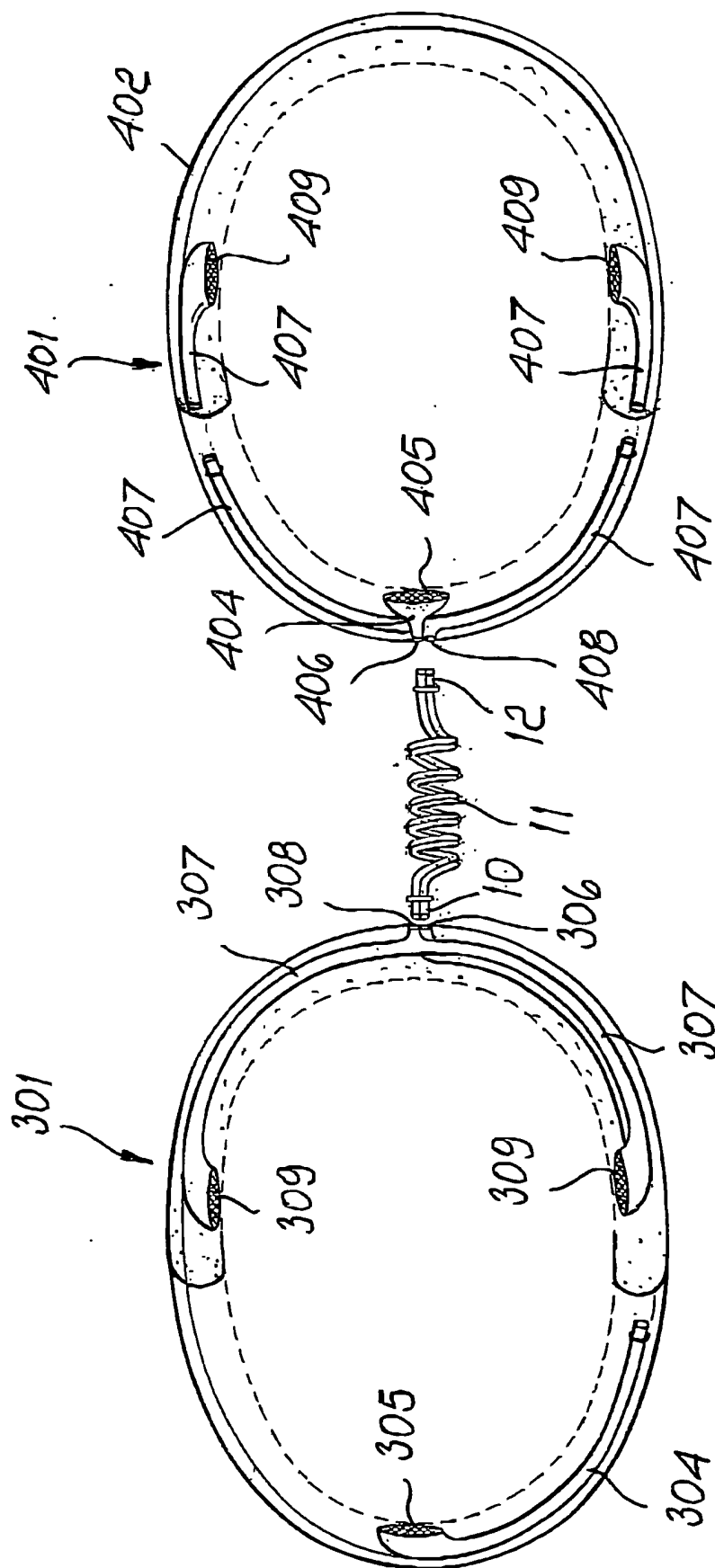


Fig. 5

