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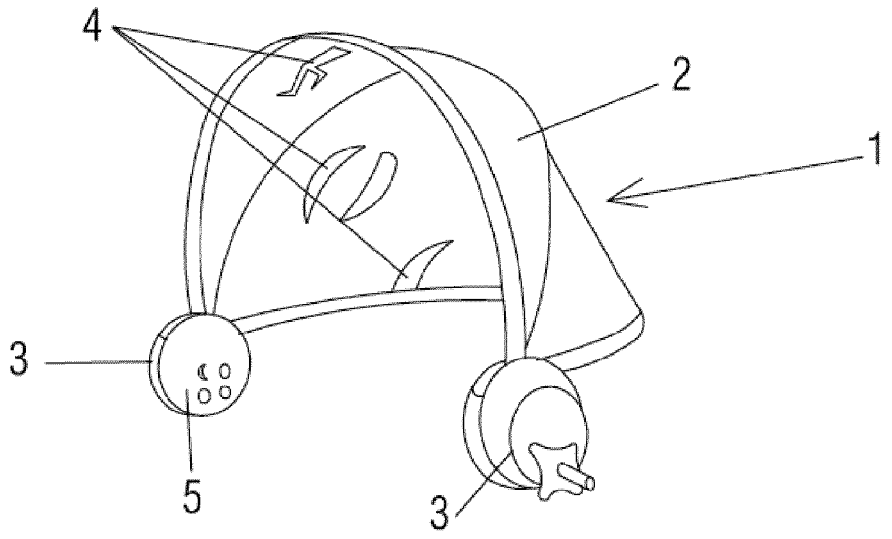
## (54) Improved mobile device for a cradle

(57) Improved mobile device (1) for a cradle, comprising a cover (2) connected to support means (3, 3') formed to hold said cover (2) above the head of a laying baby, which cover (2) has a plurality of electroluminescent devices such as LEDs, OLEDs, AMOLEDs and/or electroluminescent printings forming figures (4), said multiple electroluminescent devices being connected to a processing means (5) permitting to illuminate said figures (4) with different colours according to preestablished illumination programmes. In this way, some mobile parts may be dispensed with, obtaining a longer service life of the device while its manufacture may be faster.

FIG. 1a

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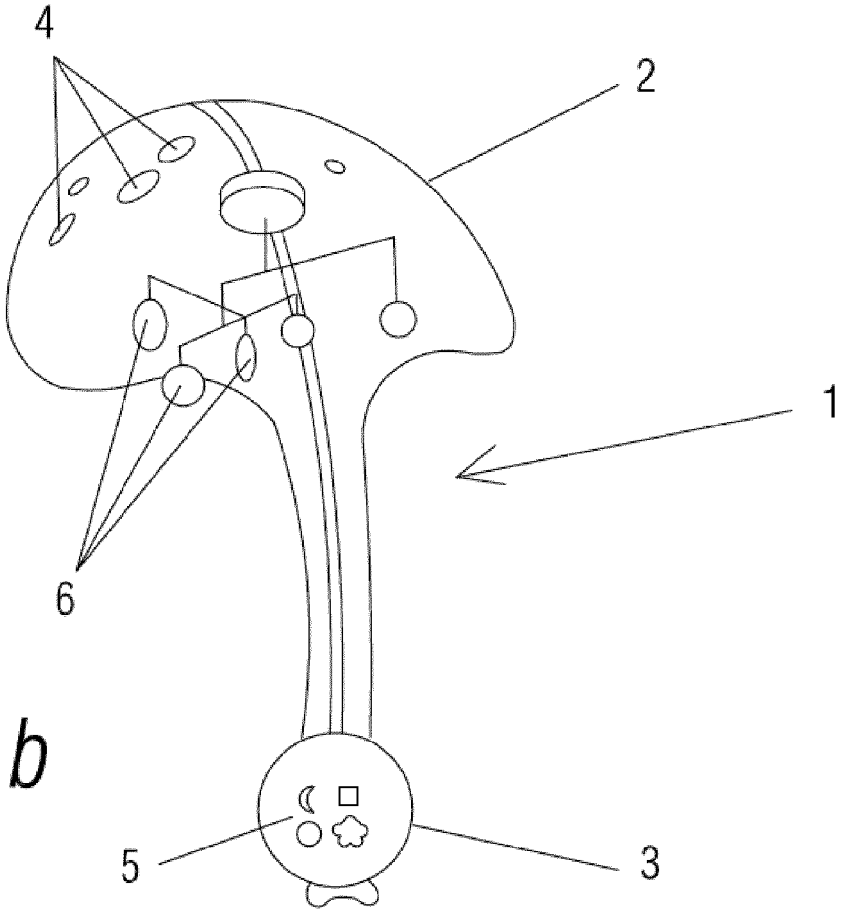



FIG.1b

## Description

### OBJECT OF THE INVENTION

**[0001]** The present invention refers to an improved mobile device for a cradle which takes profit of the recent developments in electroluminescence to obtain a mobile device more durable and practical in its use.

### BACKGROUND TO THE INVENTION

**[0002]** Mobile devices for cradles are already known since a certain time, being aimed at stimulating the cognitive development of babies. Basically, the mobile devices for cradles known so far are formed by a projector which casts varying images on the roof of the room in which the baby is kept or alternatively, on a screen forming part of the mechanism of the mobile device. Some mobile devices are known which may have a structure from which various plastic or woven material figures hang down, which movement is aimed at amusing the baby apart from generating varying shadows thanks to the projector. Apart from the visual stimulation, many mobile devices currently known comprise a device emitting melodies adapted to the projected images.

**[0003]** However, these mobile devices still have some drawbacks due to the great number of moving parts which are necessary for its manufacture, as for example the plastic or woven material figures representing small horses, different types of fish, stars, etc. to be projected onto the roof, the parts which constitute the projector itself and the parts of the mechanism to move the projector or said figures. This high amount of components is not only the reason for the undesirable frequency of disturbances in the current mobile devices for cradles but they also are the reason for additional hindrances during the transport, assembly and disassembly of said mobile devices.

**[0004]** As a consequence, there is still the need of a mobile device for a cradle which solves the above stated drawbacks.

### DESCRIPTION OF THE INVENTION

**[0005]** The present invention solves the above stated problems thanks to a new improved mobile device for a cradle using electroluminescent devices such as LEDs, OLEDs, AMOLEDs and/or electroluminescent printing (to be named "electroluminescent devices" in the following) assembled on a cover portion which is installed above the cradle to form illuminated figures to improve the cognitive development of the baby. The electroluminescent devices are connected to a small processing means which will contain multiple illumination programmes. This configuration of the mobile device for a cradle completely prevents the use of mobile parts, which means a longer service life and permits a much faster manufacture.

**[0006]** Accordingly, the mobile device of the invention has a cover connected to support means adapted to hold said cover above a baby laying on the cradle. The cover has incorporated a plurality of electroluminescent devices implemented on a thin film. These electroluminescent devices form different figures on the cover as for example, figures representing horses, different type of fish, stars and in general any figure of an object or animal which might be enjoyable and/or illustrative for a baby. In its turn, the electroluminescent devices are connected to a driving unit which permits to illuminate the figures they make up with different colours according to preestablished illumination programmes. Preferably, the mobile device for a cradle according to the invention comprises as well an on/off switch.

**[0007]** Thus, for example in the case that the electroluminescent devices form figures corresponding to different kinds of fish and corals, different fish forms could be illuminated alternatively with different colours, creating an impression of movement or bringing about blinking effects, variations in the intensity, etc. Alternatively, if the scene is formed by the moon and the stars, adequately programming the electroluminescent devices it would be possible to obtain that the moon may represent its different phases and that the stars show intermittent flickering.

**[0008]** Any expert in the matter will easily imagine other examples of scenes for children which could be shown in movement using the electroluminescent devices fully integrated on the cover and therefore will not be described in more detail.

**[0009]** Additionally, it is possible to add to the mobile device of the invention some plastic or woven material figures hanging from the cover, which will have some natural movement due to the displacement of the cradle and to the action of air, thus completing the effects created by the figures formed by the electroluminescent devices.

**[0010]** According to a preferred embodiment of the invention, the mobile device comprises as well sound reproduction means connected to the processing means, including optionally a MP3 device. Thus, different melodies or tunes could be reproduced as well as any other accompanying sound in function of the combination of colours obtained by the electroluminescent devices.

**[0011]** On the other hand, it will be understood that the processing means could be implemented by any element capable of controlling the electroluminescent devices and eventually the sound reproduction means. However, it is preferable that the processing means be selected among: a microcontroller, a microprocessor, a CPU, a DSP, a FPGA or an ASIC.

**[0012]** On the other hand, the support means holding the cover above the baby in the cradle may adopt different executions although in this description two particular embodiments will be described.

**[0013]** In a first preferred embodiment of the support means, these comprise at least a clamping mechanism arranged to engage the bars of a side of the cradle. The clamping mechanism could be formed, as will be shown

in more detail later on, by a couple of parallel plates which are capable of getting close or separating from each other by driving a winged nut or wheel, having adequate dimensions for engaging two consecutive bars of one of the side of the cradle. It will be sufficient in this situation to arrange the clamping mechanism between two of the bars, pressing both plates until these will be firmly seated on said bars. Although it could be sufficient with only one clamping mechanism, in a preferred embodiment of the invention two clamping mechanisms will be used for its engagement to the bars of two opposed sides of the cradle thus obtaining a higher stability.

**[0014]** In a second preferred embodiment of the support means, these will comprise a curved tube contained in a plane which is substantially parallel to the cover that, when sitting on an horizontal surface, permits to hold said cover above the head of a baby. In this second embodiment of the support means, these do not engage the cradle but they engage the curved tube to support the cover above the head of the baby, to permit its use out of the cradle. This permits furthermore to use the mobile device of the invention out of the cradle, for instance, in the case that the baby is laying on a carpet or fitted carpet.

## BRIEF DESCRIPTION OF THE DRAWINGS

**[0015]**

Figures 1a and 1b show respective perspective views of two examples of mobile devices for cradles according to the present invention in which the support means are respectively two clamping means and one clamping means.

Figures 2a and 2b show perspective views of the mobile devices of figures 1a and 1b engaged to a cradle.

Figure 3 shows a detailed view of one clamping mechanism for any of the mobile devices of figure 1.

Figure 4 shows a perspective view of another example of mobile device according to the invention in which the support means consists is a U form tube.

## PREFERRED EMBODIMENT OF THE INVENTION

**[0016]** An example of the invention in connection with the annexed drawings will be explained in the following. Particularly, figures 1 a and 1b show respective examples of mobile devices (1) for a cradle according to the invention in which the support means (3, 3') are respectively formed by two clamping means (3) and one unique clamping means (3). It is to be seen from both figures that the mobile device (1) is comprised of a cover web (2) supported by clamping means (3). The cover (2) has integrated a plurality of electroluminescent devices such as LEDs, OLEDs, AMOLEDs and/or electroluminescent printings (not individually shown in the drawings) forming infantile figures (4) consisting in fish representations in the example of figure 1a and stars in the example of figure 1 b. The example of figure 1b has as well a set of figures (6) hanging from the cover (2) consisting in stars in this particular case.

**[0017]** Figures 1 a and 1 b show as well the processing means (5) which in this examples is incorporated with the sound reproduction means and the clamping mechanisms (3), both being located in an internal side when the mobile devices (1) are secured to a cradle (1) as shown in figures 2a and 2b. Optionally, there is the possibility to incorporate a MP3 device to broaden the selection of melodies.

**[0018]** Figure 3 shows in a greater detail a clamping means (3) as those used in the mobile devices (1) of figures 1 a and 1 b. In this case, it may be observed that each clamping means (3) is formed by one pair of parallel plates (3b) which are capable of getting closer to one another or of being separated by the use of a winged nut (3a). Thus, to secure a mobile device (1) of the invention to a cradle (100), it will be sufficient to locate the one or various clamping means (3) between two consecutive bars of a cradle, rotating the winged nut (3a) until the plates (3b) are well seated against said bars. As mentioned above, the sound reproduction means, integrated in this case in the processing means (5), are located on an internal side of the cradle (100) in order that the baby may be capable to listen to the tunes without need to use an excessively high volume of reproduction.

**[0019]** At last, figure 4 shows another example of the mobile device (1) according to the invention in which the support means (3, 3') are formed by a bar (3') curved to adopt a U form, contained in a plane substantially parallel to cover (2). It is to be clearly appreciated that said mobile device (1) could be used to entertain a baby laying on a carpet or similar as it is not required anything else but an horizontal surface to be placed on.

## Claims

1. Improved mobile device (1) for a cradle, comprising a cover (2) connected to support means (3, 3') arranged to support said cover (2) above a baby in laying position, **characterised in that** the cover (2) has a plurality of electroluminescent devices such as LEDs, OLEDs, AMOLEDs and/or electroluminescent printings forming figures (4), said plurality of electroluminescent devices being connected to a processing means (5) permitting to illuminate said figures (4) with different colours according to preestablished illumination programmes.

2. Mobile device (1) according to claim 1, further comprising sound reproduction means connected to the processing means (5) to reproduce different tunes in function of the combination of colours emitted by

the electroluminescent devices.

3. Mobile device (1) according to any of the preceding claims, further comprising an on/off switch.

4. Mobile device (1) according to any of the preceding claims, further comprising plastic or woven material figures (6) hanging from the cover (2).

5. Mobile device (1) according to any of the preceding claims, wherein the processing means (5) is chosen among the following: a microcontroller, a microprocessor, a CPU, a DSP, a FPGA or an ASIC.

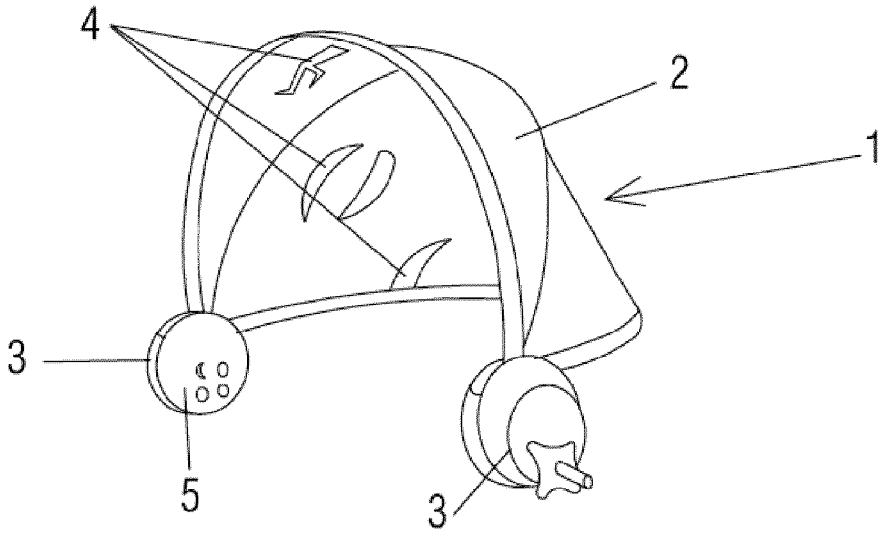
6. Mobile device (1) according to any of the preceding claims, wherein the support means (3, 3') comprises at least one clamping mechanism (3) formed to engage the bars of one of the sides of the cradle (100).

7. Mobile device (1) according to claim 6, wherein the support means (3, 3') comprises two clamp means (3) formed to engage to the bars of two opposed sides of the cradle (100).

8. Mobile device (1) according to any of the claims 1-5, wherein the support means (3, 3') comprises a curved tube (3') contained in a plane substantially parallel to the cover (2) that, when supported on a horizontal surface permits to hold the cover (2) above the head of a baby.

9. Mobile device (1) according to claim 2, wherein the sound reproduction means comprises an MP3 device.

FIG.1a



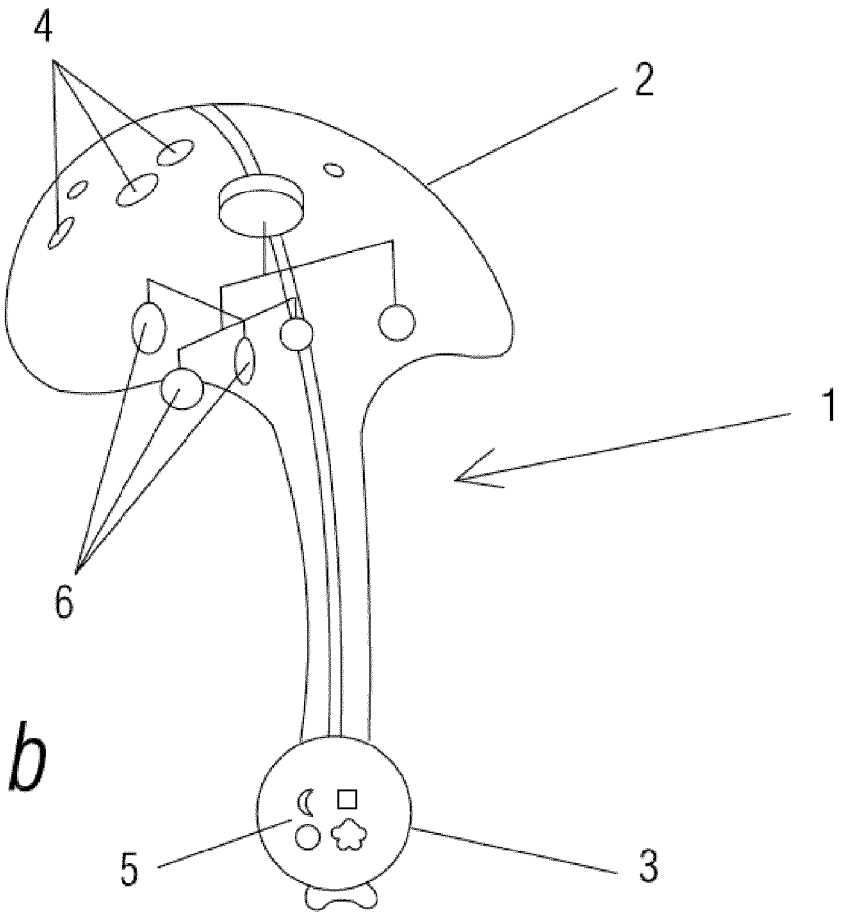




FIG.1b

FIG.2a

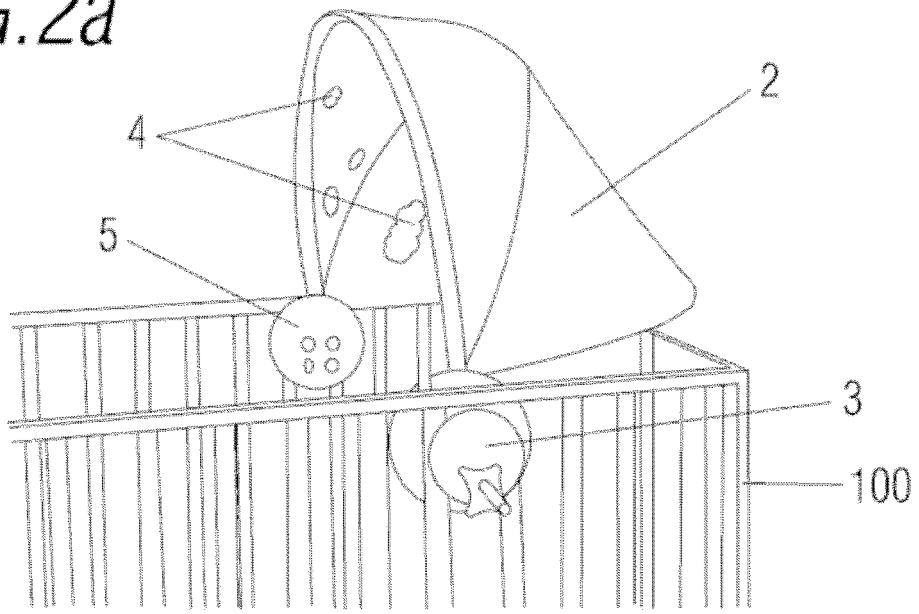



FIG.2b

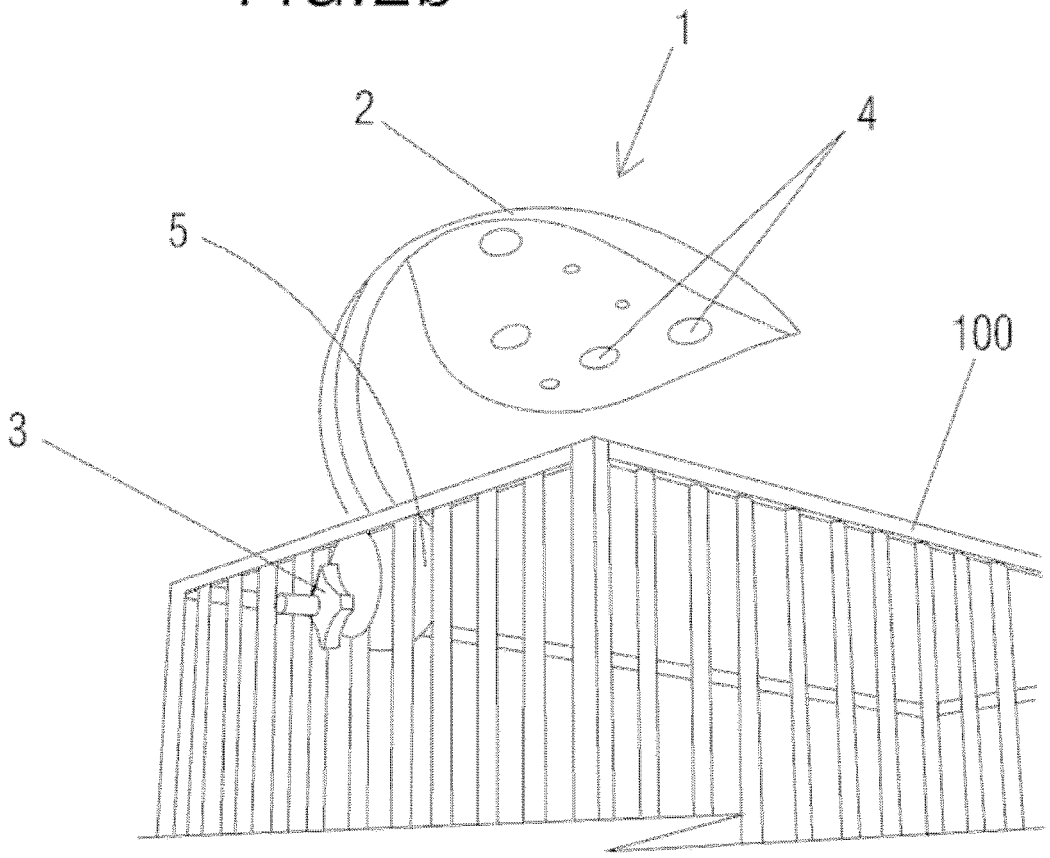


FIG.3

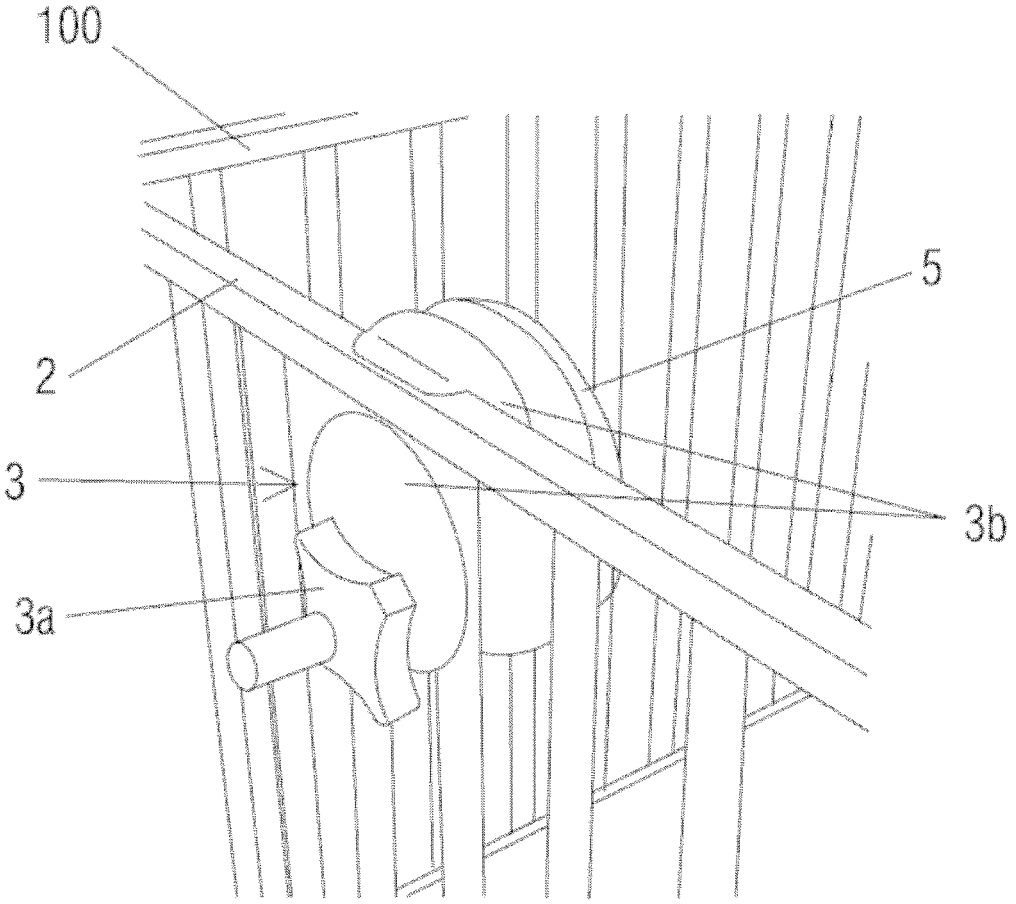
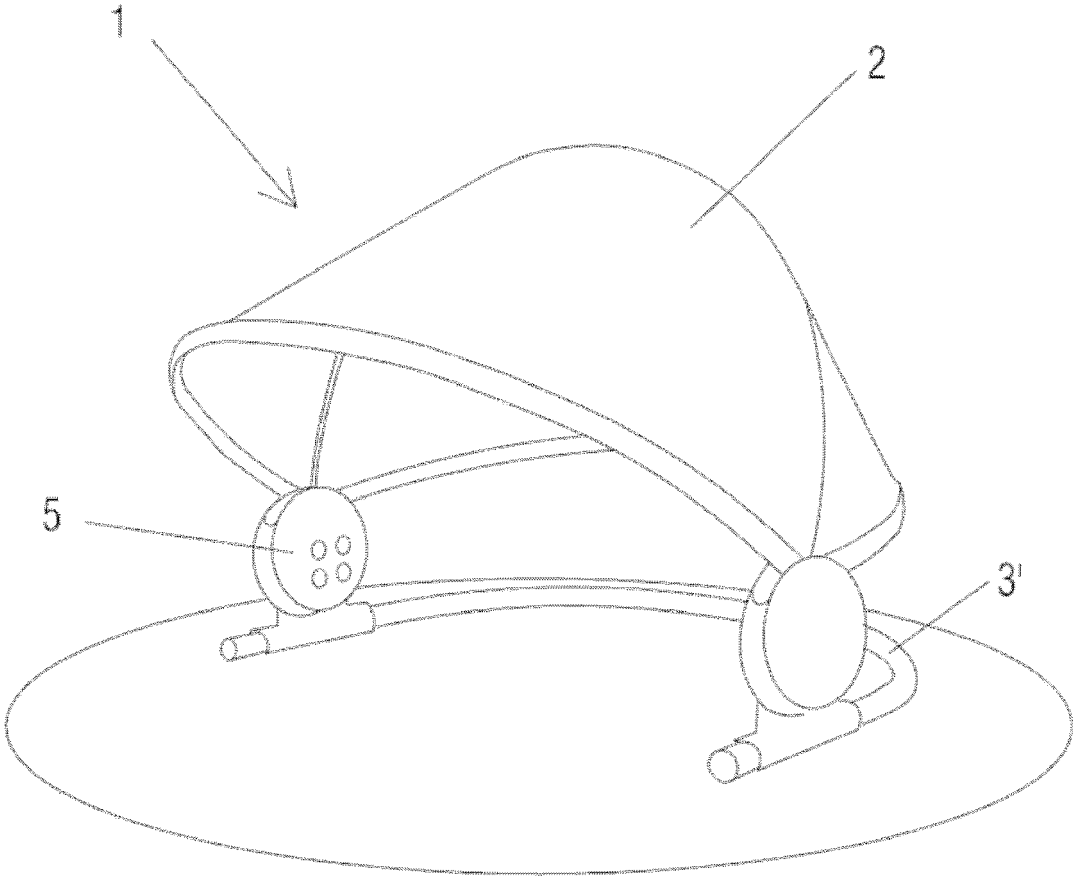


FIG.4



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# EUROPEAN SEARCH REPORT

Application Number
EP 11 18 9517

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The present search report has been drawn up for all claims

| Place of search | Date of completion of the search | Examiner |
|---|---|---|
| The Hague | 12 April 2012 | Amghar, Norddin |

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Application Number
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## DOCUMENTS CONSIDERED TO BE RELEVANT

| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim | CLASSIFICATION OF THE APPLICATION (IPC) |
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The present search report has been drawn up for all claims

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