

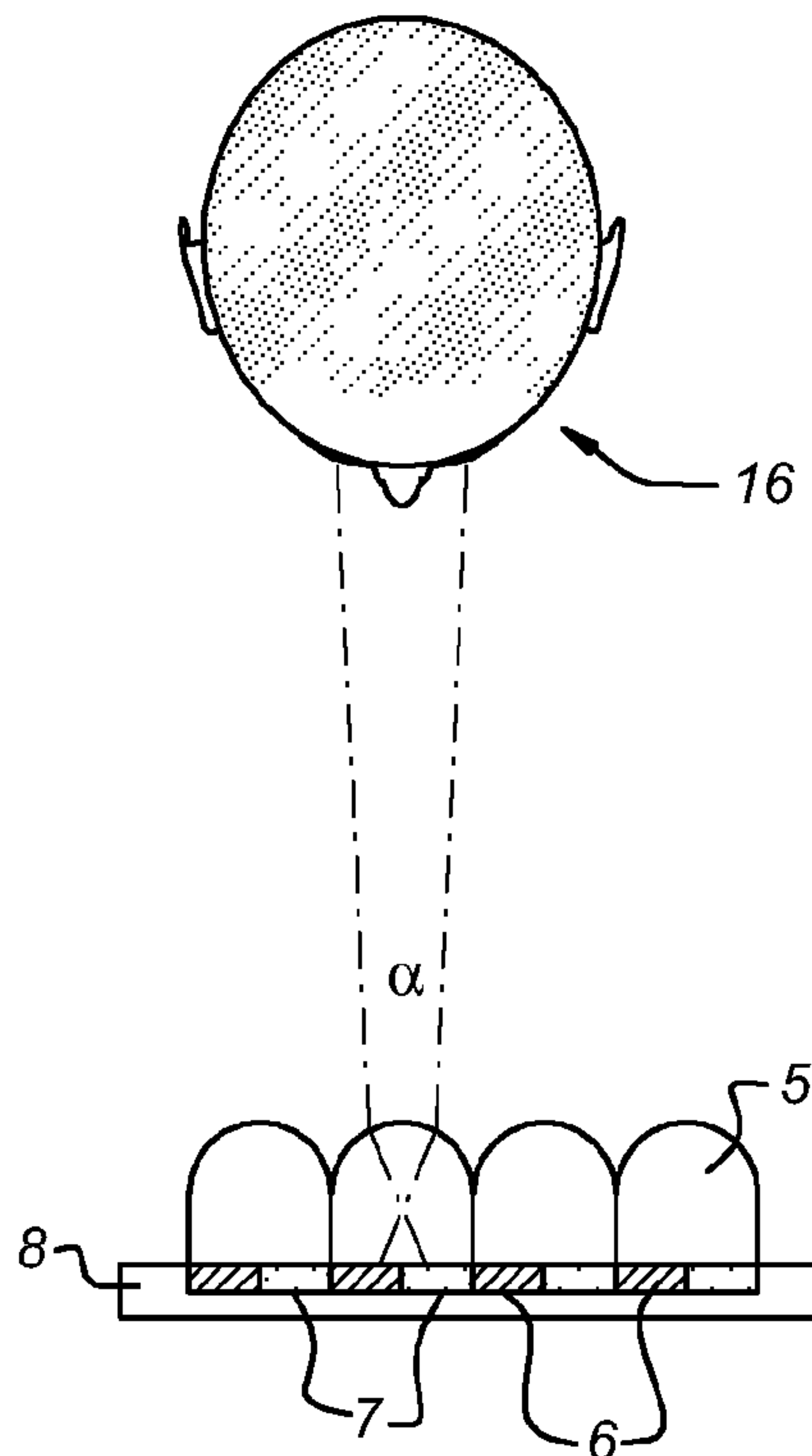


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(54) Titre : DOCUMENT D'IDENTITE ET PROCEDE D'ELABORATION

(54) Title: IDENTITY DOCUMENT AND METHOD FOR THE MANUFACTURE THEREOF



(57) Abrégé/Abstract:

Identity document comprising a data medium (1) with data (2). These data comprise an image (4) of a face. This image consists of two component images (6, 7) that are observed at different angles. By simultaneously viewing the two images (6, 7), the person studying the identity document can obtain further information about the face. This is possible because the two images (6, 7) are applied at a relatively small angle of 5° - 20°.



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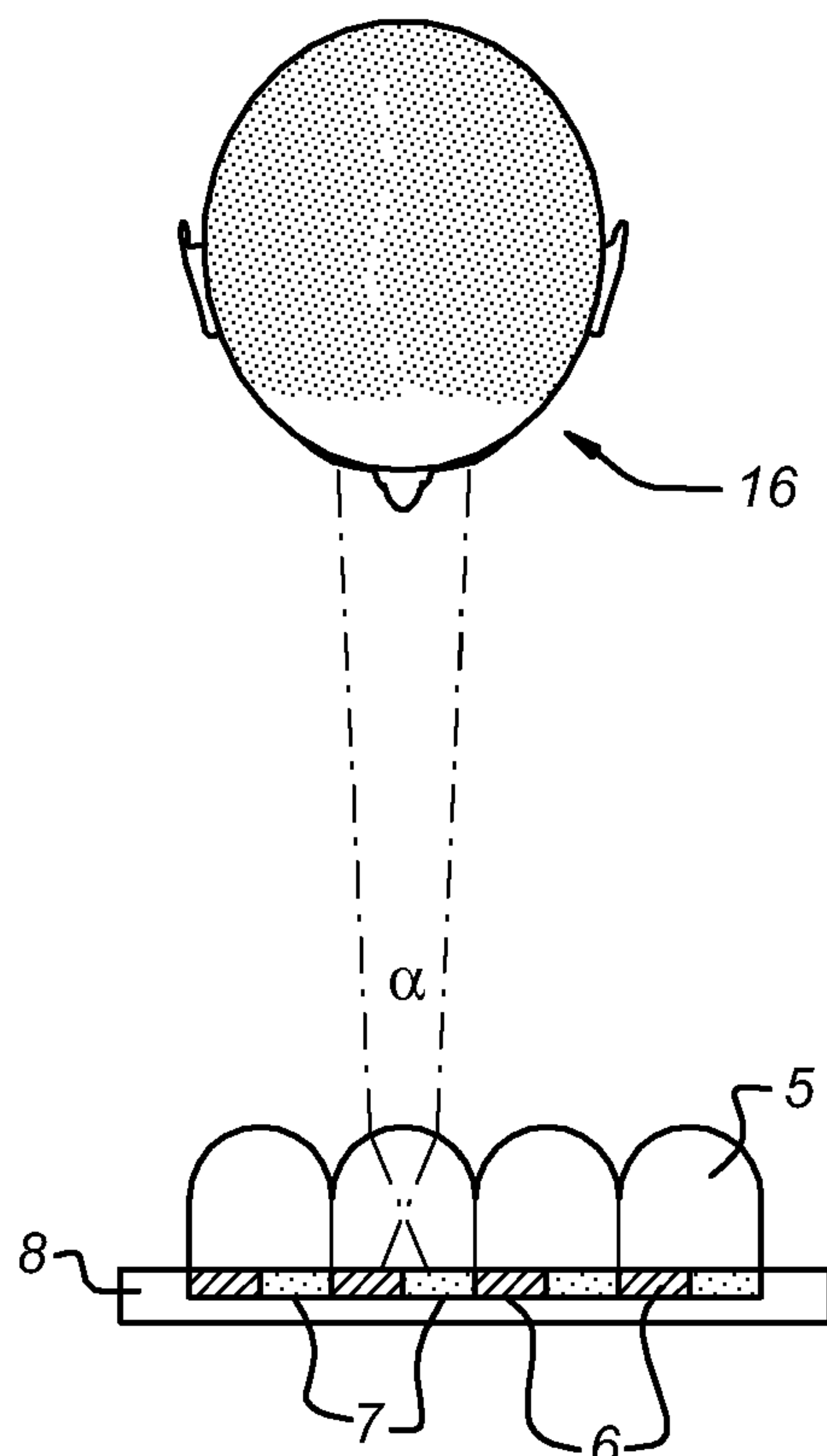
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(54) Title: IDENTITY DOCUMENT AND METHOD FOR THE MANUFACTURE THEREOF



(57) Abstract: Identity document comprising a data medium (1) with data (2). These data comprise an image (4) of a face. This image consists of two component images (6, 7) that are observed at different angles. By simultaneously viewing the two images (6, 7), the person studying the identity document can obtain further information about the face. This is possible because the two images (6, 7) are applied at a relatively small angle of 5° - 20°.

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Identity document and method for the manufacture thereof

The present invention relates to an identity document comprising a data medium with data, said data comprising two images, said images being applied offset relative to one another and overlapping one another in an image layer sensitive to laser light, wherein a layer comprising a (laser) light-permeable material and forming a lens array is applied to said image layer, wherein said images are applied in such a way that when viewed at a first angle to said data medium the first image is visible and when viewed at a second angle said second image is visible.

An identity document of this type is disclosed in EP 0 219 012 A1. In this publication an authentication mark is described consisting of two or three images that are engraved by laser light through a lens structure in a layer sensitive to laser light. By holding the card or other data medium in question at a different angle, one of the images can always be seen. The angle at which the different images are applied is $+27^\circ$, 0° and -27° , respectively. This provides added security for an identity document such as a passport, driving licence and the like. However, for the user, i.e. the person checking the identification document, it is not always clear that such different images are present. Moreover, at certain checkpoints there is little time to check all the authentication marks in an identity document, as a result of which checking for the presence of the different images is overlooked. As a result, the authentication marks are not always optimally used under normal circumstances.

An identity document provided with a lens structure is disclosed in EP 0 323 108. By viewing at different angles, different images can be seen.

An identity card wherein two different images can also be seen by tilting the card is disclosed in DE 8529297U.

The aim of the present invention is to provide an identity document with a primary authentication mark, i.e. a simple authentication mark that is immediately recognisable by the user without further aids and where the user also knows how this mark has to have been made.

This aim is realised in an identity document described above in that said images comprise two images of the same face observed at different angles, said images are being in such a way and said lenses of the lens array are made in such a way that the distance between said first and second angle is 5° - 20° .

According to the present invention two completely different images are no longer engraved in a layer sensitive to laser light at a relatively large angle, but two mutually dependent images are applied in the layer sensitive to laser light at a relatively limited angle. That is to say the same face can be seen by tilting at two different angles. This has
5 the consequence that, in the observation position of the user, i.e. the inspecting person, both images can be registered by the user at the same time so that effect of depth is created. As a result, the angle is relatively limited compared with the state of the art. The angle described above is preferably between 10° and 15° and is more particularly about 12° . These values apply for an average viewing distance between the user and the identity
10 document of about 30 - 40 cm.

When checking the identity document, the user will always be inclined to study the image applied thereon of the face of the holder of the identity document. He will automatically see the two different images that in this way form (in his mind) a perspective picture of the face of the person being checked. This action occurs as a reflex. If there is
15 only one image, this will be immediately noticeable to the inspecting person and if there is an error between the two images this will be recognisable to the inspecting person at first sight.

It will be understood that three or more images can be used instead of two images. This aspect is dependent on the desired pixel spacing and the desired pixel size in the layer
20 sensitive to laser light.

Because in principle an image is created of the same face at a different angle and this image is engraved in the layer sensitive to laser light, according to an advantageous embodiment an image correction, for the perspective image obtained, is applied in at least one of said images in order that when said two images are combined a natural transition is
25 obtained. That is to say a correction for the perspective distortion has to be introduced.

With certain means of identification, such as when using cards, there are international regulations concerning the total thickness of such a card. In such a case the diameter of the individual lenses and hence the thickness of the layer forming a lens array must be about 100 - 400 μm and more particularly 150 - 250 μm . It will be understood that
30 the layer forming a lens array can consist of any type of lenses. For instance, it is possible to apply a number of adjacent cylindrical lenses and it is also possible to provide a set of (partially) spherical lenses.

The layer sensitive to laser light can in principle be any layer that can be engraved

using laser light. Polycarbonate with carbon is such a material that under the influence of a laser bundle can be easily blackened or provided with a different colour.

The present invention also relates to a method for the production of an identity document comprising a data medium with data consisting of an image layer and a layer forming a lens array applied thereon, wherein said data comprise two images, which images are engraved using a laser beam in an image layer sensitive to laser light offset relative to one another and overlapping in said image layer with said layer forming a lens array applied thereon in such a way that when viewed at a first angle to said data medium a first image is visible and when viewed at a second angle said second image is visible, wherein said two images are obtained by the provision of two images of a face observed at different angles and said images are applied in such a way and said lenses of the lens array are made in such a way that the distance between said first and second angle is 5° - 20° .

The two or more different images can be obtained by various methods known in the state of the art. According to a preferred embodiment an image of a face is always generated with two cameras, i.e. from two observation points. According to a particular embodiment this image is produced by the authority issuing the card. That is to say, the holder of the card does not have to obtain the images him-/herself.

Another method of providing an image is the use of a special lens system with which two images can be produced from a single viewing point. This can be performed optically, but it is also possible to achieve this with software. That is to say, two images are created by projection of the working area.

In all cases it may be desirable to apply a perspective correction. This alternative method of providing the images is also performed according to a preferred embodiment by the card-issuing authority.

The identity document preferably comprises a passport and more particularly a card-like part incorporated in a passport.

The invention will be explained in more detail below with reference to an illustrative embodiment shown in the drawing, in which:

Fig. 1 shows diagrammatically an identity document according to the invention;
Fig. 2 shows in detail in section the photographic image in Fig. 1;
Fig. 3 shows an example for producing the image according to Fig. 2; and
Fig. 4 shows the viewing of the identity document according to Fig. 1.

In Fig. 1 a means of identification such as a card is indicated in its entirety by 1. A

card of this type is also referred to as a data medium. On this card the data on the (legitimate) holder are indicated by 2 as well as a photograph by 3. This photograph 3 consists of a composite image 4.

Details of this composite image can be seen in Fig. 2. There is a lens structure 5 consisting of (semi-)cylindrical lenses. The diameter of the lens structure is 100 - 400 μm and in this example about 120 μm . The length of the centre-line of the lenses is approximately equal to the thickness d.

It can be seen in Fig. 2 that there are different mutually offset images 6 and 7. These are realised by engraving with a laser beam 9 that is positioned at different angles and first engraves information relating to image 6 and then engraves information relating to image 7 at a second angle.

According to the present invention, images 6 and 7 relate to the same object and more particularly to the face of the holder of the identity document seen from different angles. The maximum mutual offsetting of the images 6 and 7 is 50 % of the lens diameter of the lens structure 5 and more particularly about 30 %. If more than two images are used, the offset between the separate images will be less.

The image is engraved in a layer 8 sensitive to laser light. This is preferably a polycarbonate material. The same material is preferably used for the lens structure 5.

Fig. 3 shows how such a composite image assembly 4 is obtained. The face of the holder of the identity document is indicated by 12, a first camera by 13 and a second camera by 14. In Fig. 3 it can be seen that the face of the holder is recorded from two different angular positions.

Subsequently a perspective correction is performed in some way so that the two images are comparable to one another.

Fig. 4 shows how an observer 16 views the two images 6 and 7 simultaneously. Owing to the relatively small angle α , which lies between 10° and 20° and more particularly between 10° and 15° and more particularly is about 12° , the observer 16 is able to view image 6 with his left eye and image 7 with his right eye. As a result, an image of the face of the holder 12 is formed in the mind of the viewer that contains depth information. In order to optimise this image it is necessary to apply the perspective correction described above. Such a perspective correction can be performed either during observation with the aid of the cameras 13 and 14 or during the processing of the two images or during engraving in the layer 8 sensitive to laser light.

It will be understood that it is possible to obtain the two or more desired images in another way than that shown in Fig. 3.

In the light of the above, variants will be immediately apparent to those skilled in the art that are obvious in the light of the above description and fall within the scope of the
5 appended claims.

CLAIMS

- 1 Method for the production of an identity document comprising a data medium (1)
5 with data (2), comprising an image layer and a layer (5) forming a lens array
applied thereon, wherein said data comprise two images (6, 7), said images being
engraved using a laser bundle in an image layer (8) sensitive to laser light offset
relative to one another and overlapping in said image layer with said layer
forming a lens array (5) applied thereon in such a way that when viewed at a first
10 angle to said data medium a first image (6) is visible and when viewed at a
second angle said second image (7) is visible, wherein said two images are
obtained by providing two images of a face observed at different angles and said
images are applied in such a way and said lenses of the lens array are made in
such a way that the distance between said first and second angle is 5° - 20° ,
15 wherein a perspective correction is applied in at least one image of the face such
that the images (6,7) are comparable.
2. Method according to Claim 1, wherein said different images are obtained by
registering said face at different angles.
- 20 3. Method according to Claim 1, wherein said perspective correction is made after
the registration and before the application of said image.

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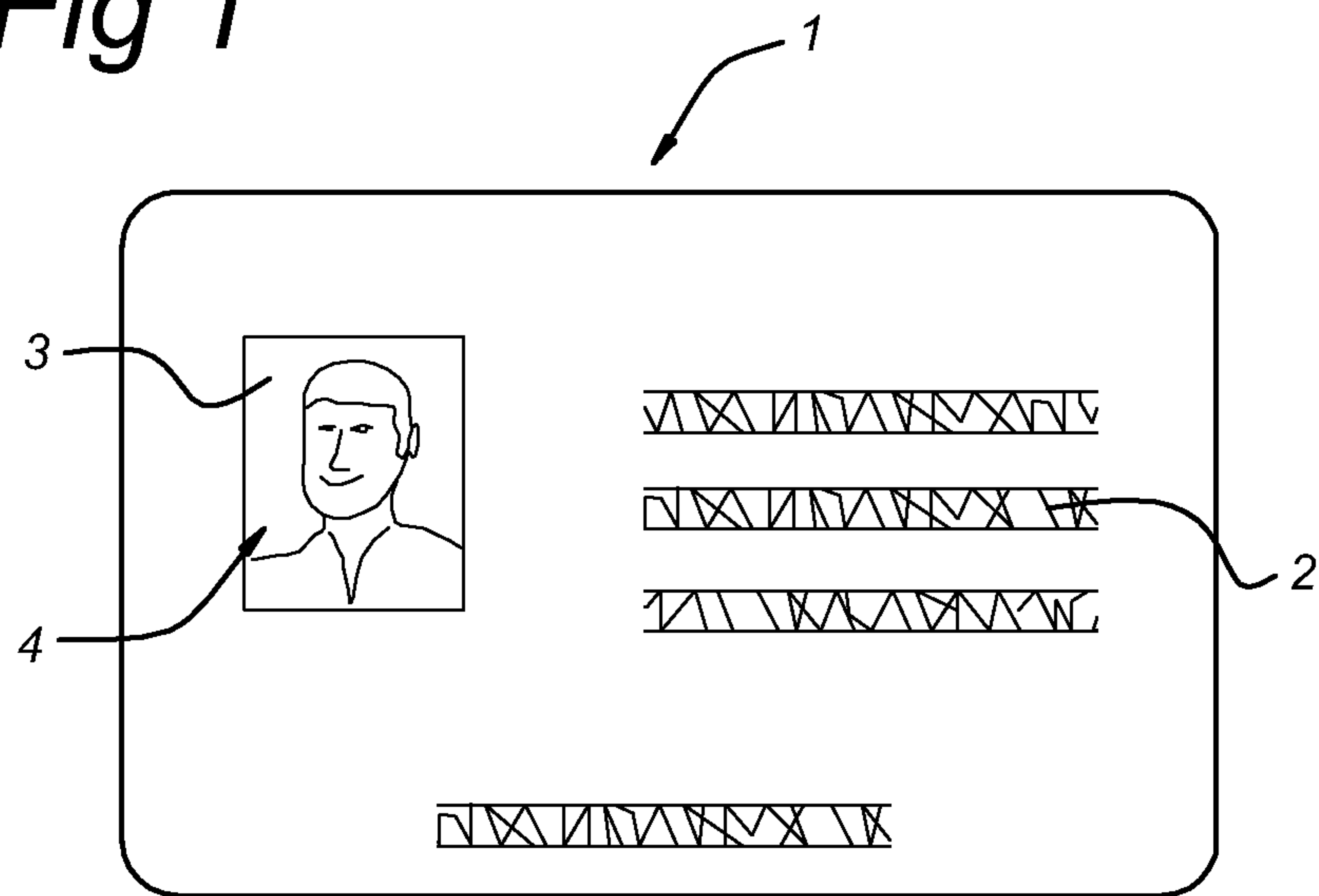
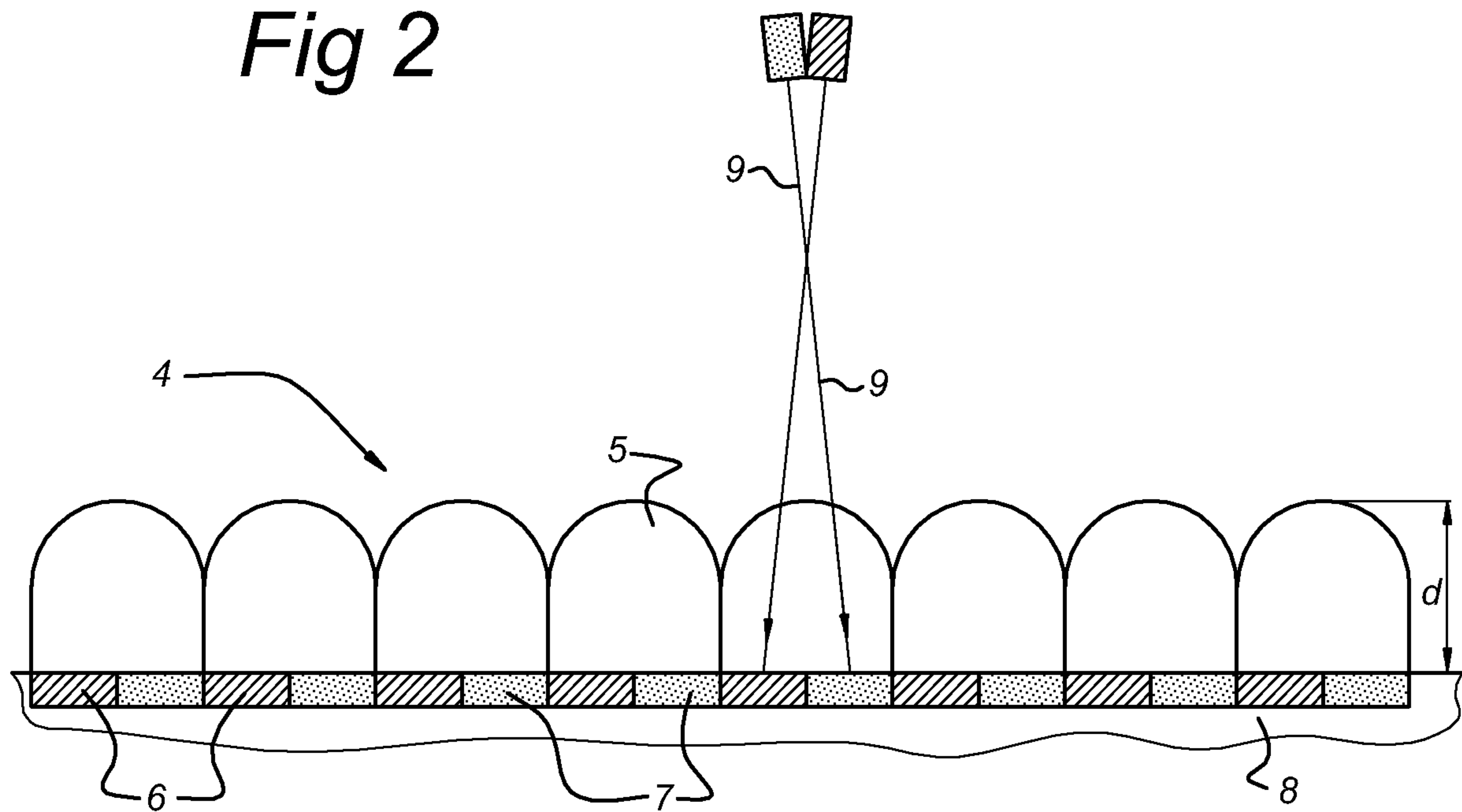
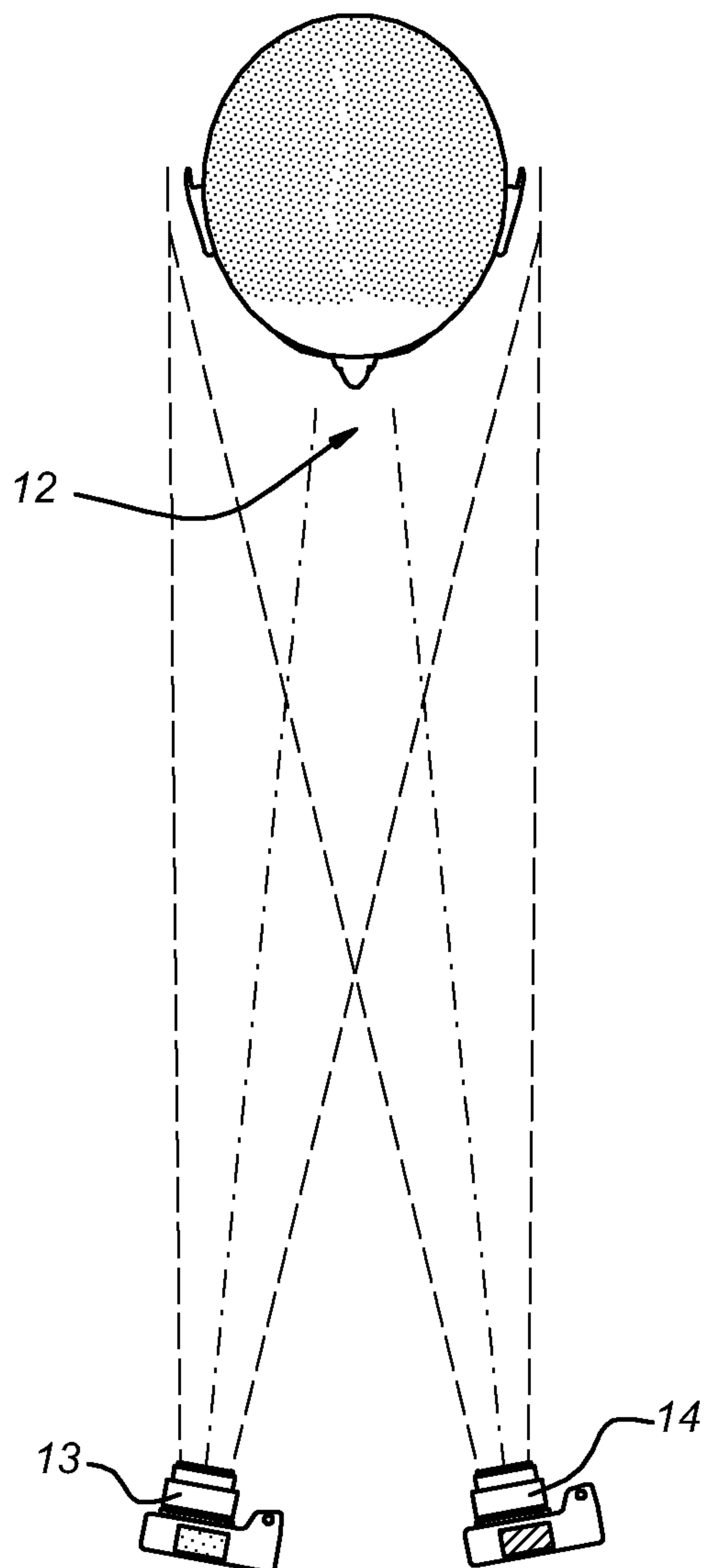
Fig 1*Fig 2*

Fig 3*Fig 4*