

DIAMOND PATENT

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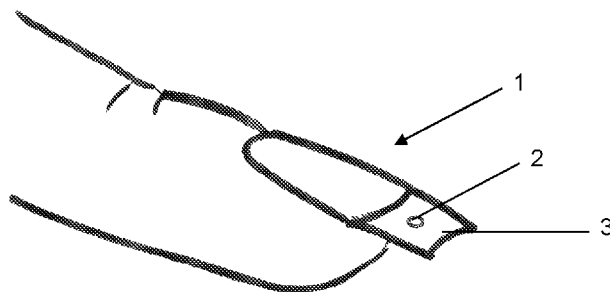


FIGURE 4

(57) Abstract: The invention relates to a method of decorating a nail (1) which comprises forming a socket (6) in an operatively upper surface (9) of the nail (1), (3), preferably at a position forward of a free edge of the natural nail, with the socket (6) being complementarily shaped and sized to a pavilion (14) of a cut diamond (2) to be secured in the socket; securing at least part of the pavilion of the diamond in the socket by means of an adhesive that is compatible with the nail and the diamond, covering the operatively upper surface of the artificial nail and the crown (11) and any part of the diamond which may extend above the socket with a clear acrylic layer (10 A) and a top base gel (10B), curing the top base gel, and shaping and buffing the upper surface of the clear acrylic layer and the cured base gel layer.



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NAIL DECORATING METHOD AND A DECORATED NAIL

5 FIELD OF THE INVENTION

This invention relates to a method to decorate a nail, in particular a human fingernail, and a nail that is decorated accordingly.

10 BACKGROUND TO THE INVENTION

It is common practice for people, especially women, of all cultures to apply some form of makeup to themselves for aesthetic purposes.

15 This also includes makeup to fingernails. Aesthetic fingernail treatments include the application of various types of coatings, including nail polish and gel coating. It also includes the application of acrylic artificial nails on top of natural nails.

The application of acrylic artificial nail products has led to the development of more advanced
20 custom treatments, including the application of decorative elements such as glitter, known in the industry as 'dazzle rocks' and other decorative items and patterns on top of nails. These are applied to the top of an acrylic nail, or into a gel layer on top of the artificial nails, which are sometimes overcoated with a protective and clear acrylic or nail lacquer layer.

25 There is need in the nail decorating industry for the application of higher value aesthetic elements, in particular diamonds. A problem with applying diamonds to a fingernail is that a diamond typically has a tapered base (called a 'pavilion'), which makes it impossible to apply it with the diamond's face directed directly upwards from the nail. Also, ensuring that such diamonds are properly secured to nails is crucial, since the loss of a relatively high value
30 element such as a diamond has to be avoided.

OBJECTIVE OF THE INVENTION

It is an objective of the invention to provide a nail decorating method and a decorated nail,
35 which at least partly overcomes the abovementioned problems.

SUMMARY OF THE INVENTION

According to this invention there is provided a method of decorating a nail which comprises:

5 forming a socket in an operatively upper surface of an artificial nail formed onto a natural nail, with the socket being complimentary shaped and sized to a pavilion of a cut diamond that is intended to be secured in the socket, with the diamond having been cut into a shape that includes a crown supported by a pavilion;

securing at least part of the pavilion of the diamond in the socket by means of an adhesive that is compatible with the nail and the diamond, and

10 sealing and the finishing operatively upper surface of the artificial nail and the crown and any of the diamond which may extend above the socket.

There is further provided for the sealing and finishing steps to comprise:

15 covering the operatively upper surface of the artificial nail and the crown and any part of the girdle and the pavilion which may extend above the socket with a clear acrylic layer and a top base gel,

curing the top base gel, and

20 shaping and buffing the upper surface of the clear acrylic layer and the cured base gel layer.

There is further provided for the adhesive to preferably comprise a clear base gel, and for both the base gel that acts as an adhesive between the pavilion surface and the socket, and the top base gel that covers the upper surface of the artificial nail, to be cured, preferably with a UV lamp or an LED lamp.

25 There is further provided for the socket to be created into a conical shape by drilling into the operatively upper surface of the artificial nail.

30 There is further provided for the depth to which the socket is drilled to substantially the same depth as the pavilion depth of the diamond, and for the diameter of the socket at the upper surface of the artificial nail to be drilled to a diameter that is substantially the same as the diameter of the diamond at its girdle.

35 There is further provided for the socket to be drilled with a drill bit of which the drill bit angle is substantially the same as the pavilion angle of the diamond.

There is further provided for an operatively forward end of the artificial nail to extend forward of a free edge of the natural nail, and for the method to include forming the socket in the artificial nail at a position forward of the free edge of the natural nail.

- 5 There is further provided for the method to include forming to socket optionally to extend through the artificial nail and trough an operatively lower surface of the artificial nail at a position forward of the free edge of the natural nail to accommodate a diamond of which the pavilion height exceeds the thickness of the artificial nail, and then for the diamond to be inserted with its culet and optionally part of facets surrounding the culet to extend from the
- 10 operatively lower surface of the artificial nail, and further optionally for any portion of the diamond which extends below the operatively lower surface of the artificial nail to be covered with a complimentary sized drop of a mixture of solvent and acrylic nail powder.

According to a further aspect of the invention, there is provided a method of decorating a nail which comprises:

15

forming a socket in an operatively upper surface of a natural nail, with the socket being complimentary shaped and sized to a pavilion of a cut diamond that is intended to be secured in the socket, with the diamond having been cut into a shape that includes a crown supported by a pavilion;

20 securing at least part of the pavilion of the diamond in the socket by means of an adhesive that is compatible with the nail and the diamond, and

sealing and finishing the operatively upper surface of the nail and the crown and any part of the diamond which may extend above the socket.

25 There is further provided for the socket to be formed at a position forward of the free edge of the natural nail.

According to a still further aspect of the invention there is provided for a decorated artificial nail that is created on a natural nail, with the decorated artificial nail including an embedded

30 diamond secured in a socket formed in the operatively upper surface of the artificial nail, and with the upper surface of the artificial nail and the crown of the diamond being sealed and finished.

There is further provided for the upper surface of the artificial nail and the crown of the

35 diamond to be sealed and finished by being overcoated with a layer of clear top base gel

which is cured over the upper surface of the artificial nail and the crown of the diamond, and for the cured layer of clear top base gel to be shaped and buffed.

5 There is also the upper surface of the artificial nail and the crown of the diamond to be overcoated with a layer of clear acrylic and a layer of clear top base gel which is cured over the upper surface of the artificial nail and the crown of the diamond, and preferably for the cured layer of clear acrylic and layer of clear top base gel to be shaped and buffed.

10 There is still further provided for the socket to be formed in the artificial nail forward of the free edge of a natural nail underneath it, and for the socket to extend through an operatively lower surface of the artificial nail to accommodate a diamond of which the pavilion height exceeds the thickness of the artificial nail, and for the diamond to be inserted with a culet and optionally part of facets surrounding the culet extending from the operatively lower surface of the artificial nail.

15 There is still further provided for any portion of the diamond which extends below the operatively lower surface of the artificial nail to be covered with a complimentary sized drop of a mixture of solvent and acrylic nail powder.

20 There is also provided for the natural nail to comprise a human fingernail.

These and other features of the invention are described in more detail below.

BRIEF DESCRIPTION OF THE DRAWINGS

25 A preferred embodiment of the invention is described by way of example only and with reference to the accompanying drawings in which:

- Figure 1 is a cross section view of the typical structure of a diamond;
- 30 Figure 2 is a perspective top end view of a human finger with an artificial nail formed onto it, to which a real diamond is to be secured using the method of the invention;
- Figure 3A is a cross sectional end-view of the nail of Figure 2;
- Figure 3B is a cross sectional end-view of the nail shown in Figure 3A with a socket drilled into it;
- 35

- Figure 3C is a cross sectional end-view of the nail shown in Figure 3B with a diamond secured into the socket;
- Figure 3D is a cross sectional end-view of the nail shown in Figure 3C with a clear acrylic overcoat and cured top gel coating it; and
- 5 Figure 4 is a perspective top end view of the human finger of Figure 2, with a real diamond secured to the artificial nail formed onto it according to the method of the invention.

DETAILED DESCRIPTION OF THE INVENTION

10

A preferred embodiment of the invention is applied to a human fingernail (1). The purpose of the invention is to apply a real diamond (2) which is cut into a shape that includes a crown (11) comprising a central table (12) and an arrangement of facets (13) around it. The crown (11) is supported by a pavilion (14) that is cut into facets (15) and it terminates in a culet (16).
15 The crown (11) and the pavilion (14) are separated by a girdle (17). The total depth of the diamond is comprised of the pavilion (14) depth, the girdle (17) thickness and the crown (11) height. The structure of the diamond is shown in Figure 1, in this instance for a round cut.

Due to the angle of the pavilion (14) and its facets (15), it is not possible to properly secure a
20 diamond (2) on its pavilion (14) on top of a curved surface such as a fingernail (1). That would in any event not be desirable since it would direct the crown (2) in a specific orientation that is not perpendicular to the nail's (1) upper surface.

To properly secure a diamond (2) to a fingernail (1) and orientate the crown (11)
25 perpendicular to the nail top surface (3), the diamond (2) has to be embedded partly into the fingernail (1).

To achieve this an artificial nail (3) is created on top and in front of a person's natural nail (4), forward of the free edge (5) of the natural nail (4). This is achieved in conventional manner
30 by use of a shaping base, made of paper, that is operatively positioned underneath the tip of a person's nail and extended away from it. The artificial nail (3) is created on top of the natural nail (4) by applying a solution of solvent and acrylic powder and shaping it away from the free edge (5) of the natural nail (4). Through a series of applications of the acrylic powder and solvent the artificial nail (3) is created to the thickness, length and shape required by the
35 customer. A cross section of the artificial nail (3) is shown in Figure 3A, taken at a line

forward of the free edge (5) of the natural nail (4) and through a plane into which the diamond (11) will be embedded (as shown in Figures 3B to 3D) in the artificial nail (3).

Conventionally, additional elements such as glitter and the like could be applied to the top of the artificial nail (3) and overcoated with a protective clear acrylic overcoat layer consisting of solvent and acrylic powder, and a further cured layer of a gel overcoat. With suitable curing the conventional decorative elements would be located inside the layers that are formed on top of the artificial nail (3).

10 In this instance, to secure a real diamond (2) with a crown (11), girdle (17) and pavilion (14) a mounting socket (6) is drilled into the upper surface of the artificial nail (3). The socket is drilled at a position forward of the free edge (5) of the natural nail (4). The artificial nail (3) is created with a thickness suitable to enable the socket to be drilled into it, without necessarily extending (7) all the way through the artificial nail (3). This is suitable for smaller diamonds, of which the pavilion depth is less than the thickness of the artificial nail (3).

The drill bit is chosen to have an angle that is substantially the same as the pavilion (14) angle of the diamond (2) that is to be secured into the nail (3). Since the drill bit will drill a circular socket (6) with a conical shape at its end into the artificial nail (3), the diamond (2) can be located into the socket (6). The socket (6) is drilled very shallow, for which only the front, i.e. angled, part of the drill bit is used. This means the entire socket (6) has a conical shape.

The similar angles of the drill bit and the pavilion angle means that as long as the cutting depth is limited to the front part of the drill bit (i.e. the angled part), that the diameter of the socket on the surface of the artificial nail (3) will be the same as the diameter of the diamond (2) at the level up to which it is inserted into the socket (6). This allows for a close-contact secure fitting of the diamond (2) into the socket (6).

30 To secure the diamond (2) into the socket (6) a layer of adhesive, typically a clear base gel (8), is applied into the socket (6) and the diamond (2) is pressed into the socket (6). This secures at least the majority of the depth of the diamond's (2) pavilion (14) in the socket (6), but still with at least the diamond's (2) crown extending above the upper surface (9) of the artificial nail (3) , as shown in Figure 3C. To achieve the perfect sizing, the socket may be drilled in a few steps with the seating of the diamond checked in between drilling steps to ensure the proper socket depth is obtained for the specific diamond (2).

In a preferred installation, as shown in Figure 3C, the entire pavilion (14) height including the diamond's girdle (17) is located in the socket (6), with the only the crown (11) extending above the upper surface (9) of the artificial nail (3). This allows the girdle (17) to be located and secured into the top of the socket (6).

On the upper surface of the artificial nail (3), it is possible to install additional decorative elements around the diamond. Once the diamond (2) has been installed in the socket (6), a clear acrylic overcoat layer (10A) is applied to the upper surface of the artificial nail (3), and conventional decorative elements such as glitter or 'dazzle rocks' may be applied to this layer.

In the present example, which does not include any additional decorative elements, the mounting of the diamond (2) into the artificial nail (3) is finished by applying a layer of clear acrylic overcoat (10A) to the top of the artificial nail (3), including over the crown (11) of the diamond (2).

The top of the artificial nail (3) is then shaped with a nail file and is buffed. After proper cleaning with a soap and manicure brush, a top gel layer (10B) is applied over the layer of clear acrylic overcoat (10A) (and thus also over the already covered diamond crown (11)) and cured under a LED and UV lamp. This creates a hard non-porous, non-staining surface that shines like glass for several weeks. Further conventional conditioning treatments, for example to cuticles, may be applied as required.

This secures the diamond (2) entirely within the structure of the artificial nail (3) that is formed in this manner, but with the crown (11) completely visible through the layer of clear acrylic overcoat (10A) and cured top gel layer (10B), as is shown in Figure 3D. The result appears as shown in Figure 4, with the diamond (2) secured into the top of the artificial nail (3).

The installation of the diamond (2) is intended to be secure for the duration that the artificial nails last, typically a couple of weeks. At that time the natural nails (4) underneath them will have grown out to such an extent that the artificial nails (3) have to be maintained with the addition of a filler acrylic layer behind them (between the nail cuticle and the operative rear edge of the artificial nail), or they may be removed for a fresh application of artificial nails (3). When the artificial nails (3) are removed the diamonds (2) can be recovered and used again.

It will be appreciated that the embodiment described above is given by way of example only and is not intended to limit the scope of the invention. It is possible to alter aspects of the embodiment without departing from the essence of the invention.

5

In cases where larger diamonds are installed, the socket may be drilled partly through the artificial nail. This is for as much as possible of the pavilion to be installed into the socket. In such instances, the culet of the diamond may extend from below the artificial nail, and part of the pavilion and then also the girdle may also extend above the upper surface of the artificial nail. This allows the bulk of the pavilion surface to be contained within the socket, which due to the higher surface area of the pavilion of such a larger diamond provides adequate contact surface to secure such a diamond in such a socket.

Also, with diamonds that have a high pavilion depth the culet and part of the facets around it may extend below the artificial nail. This is not problematic since artificial nails typically have C-shaped tips (when viewed from the front), which means the culet is located underneath the nail and effectively protected by the edges of the artificial nail that curve around further than what the culet will extend below the lower surface of the artificial nail. If desired, an extending culet can be covered by a small drop of solvent and acrylic nail powder, which can be spread out around it in similar manner to which an acrylic nail is formed.

It is also, for example, possible to apply the method also to human toenails, and to nails of pets. The process to install the diamond remains the same as described above.

In instances where diamonds with faceted culets are used the base gel that is inserted into the socket before the diamond are inserted into it will bond to the faceted culet. If the depth of the diamond is higher than the thickness of the artificial nail, a faceted culet may be allowed to extend below the artificial nail and covered with a drop of solvent and acrylic nail powder.

30

It is also possible to decorate a natural nail by making use of the method described above. For such the diamond should preferably be installed forward of the free edge of the fingernail to avoid nailbed complications. However, if the correct amount of care is used with an installation and the installation depth kept safely smaller than the natural nail's thickness, the diamond may also be installed behind the free edge of the natural nail.

35

CLAIMS

1. A method of decorating a nail which comprises:
forming a socket in an operatively upper surface of an artificial nail that is
5 formed onto a natural nail, with the socket being complimentary shaped and sized to
a pavilion of a cut diamond that is intended to be secured in the socket, with the
diamond having been cut into a shape that includes a crown supported by a pavilion;
securing at least part of the pavilion of the diamond in the socket by means of
an adhesive that is compatible with the nail and the diamond, and
10 sealing and finishing the operatively upper surface of the artificial nail and the
crown and any part of the diamond which may extend above the socket.
2. A method as claimed in claim 1 in which the sealing and finishing steps comprise:
covering the operatively upper surface of the artificial nail and the crown and
15 any part of the girdle and the pavilion which may extend above the socket with a clear
acrylic layer and a top base gel,
curing the top base gel, and
shaping and buffing the upper surface of the clear acrylic layer and the cured
base gel layer.
20
3. A method as claimed in claim 2 in which the adhesive comprises a clear base gel,
and for both the base gel that acts as an adhesive between the pavilion surface and
the socket, and the top base gel that covers the upper surface of the artificial nail, to
be cured, preferably with a UV lamp or an LED lamp.
25
4. A method as claimed in any one of the previous claims which includes forming the
socket into a conical shape.
5. A method as claimed in any one of the previous claims which includes forming the
30 socket to a depth that is substantially the same as the pavilion depth of the diamond,
and drilling the socket with a diameter at the upper surface of the artificial nail that is
substantially the same as the diameter of the diamond at its girdle.
6. A method as claimed in any one of the previous claims in which an operatively
35 forward end of the artificial nail extends forward of a free edge of the natural nail, and

the method includes the step of forming the socket in the upper surface of the artificial nail at a position forward of the free edge of the natural nail.

7. A method as claimed in claim 6 which includes the steps of:

5 drilling the socket through the artificial nail to accommodate a diamond of which the pavilion height exceeds the thickness of the artificial nail; and

inserting the diamond with its culet and at least part of facets surrounding the culet to extend from an operatively lower surface of the artificial nail.

10 8. A method as claimed in claim 7 which includes the step of covering any portion of the diamond which extends below the operatively lower surface of the artificial nail with a complimentary sized drop of a mixture of solvent and acrylic nail powder.

15 9. A method as claimed in any one of the previous claims which includes forming the socket in or through the artificial nail, as the case may be, by drilling the socket into the operatively upper surface of the artificial nail.

20 10. A method as claimed in claim 9 which includes drilling the socket with a drill bit of which the drill bit angle is substantially the same as the pavilion angle of the diamond.

25 11. A method of decorating a nail which comprises:

forming a socket in an operatively upper surface of a natural nail, with the socket being complimentary shaped and sized to a pavilion of a cut diamond that is intended to be secured in the socket, with the diamond having been cut into a shape that includes a crown supported by a pavilion;

securing at least part of the pavilion of the diamond in the socket by means of an adhesive that is compatible with the nail and the diamond, and

sealing and finishing the operatively upper surface of the nail and the crown and any part of the diamond which may extend above the socket.

30 12. A method as claimed in claim 11 in which the socket is formed at a position forward of the free edge of the natural nail.

35 13. A decorated artificial nail that is created on a natural nail, with the decorated artificial nail including an embedded diamond secured in a socket formed in the operatively

upper surface of the artificial nail, and with the upper surface of the artificial nail and the crown of the diamond being sealed and finished.

- 5 14. A decorated artificial nail as claimed in claim 13 in which the upper surface of the artificial nail and the crown of the diamond is sealed and finished by being overcoated with a layer of clear top base gel which is cured over the upper surface of the artificial nail and the crown of the diamond, and with the cured layer of clear acrylic and layer of clear top base gel being shaped and buffed.
- 10 15. A decorated artificial nail as claimed in claim 13 or 14 in which the socket is formed in the artificial nail forward of the free edge of a natural nail underneath it, and the socket extends through the artificial nail to accommodate a diamond of which the pavilion height exceeds the thickness of the artificial nail, and the diamond is inserted with a culet and optionally part of facets surrounding the culet extending from an
15 operatively lower surface of the artificial nail.
16. A decorated artificial nail as claimed in claim 15 in which any portion of the diamond which extends below the operatively lower surface of the artificial nail is covered with a complimentary sized drop of a mixture of solvent and acrylic nail powder.
20
17. A decorated artificial nail as claimed in claim any one of claims 13 to 16 in which the natural nail is a human fingernail.
25

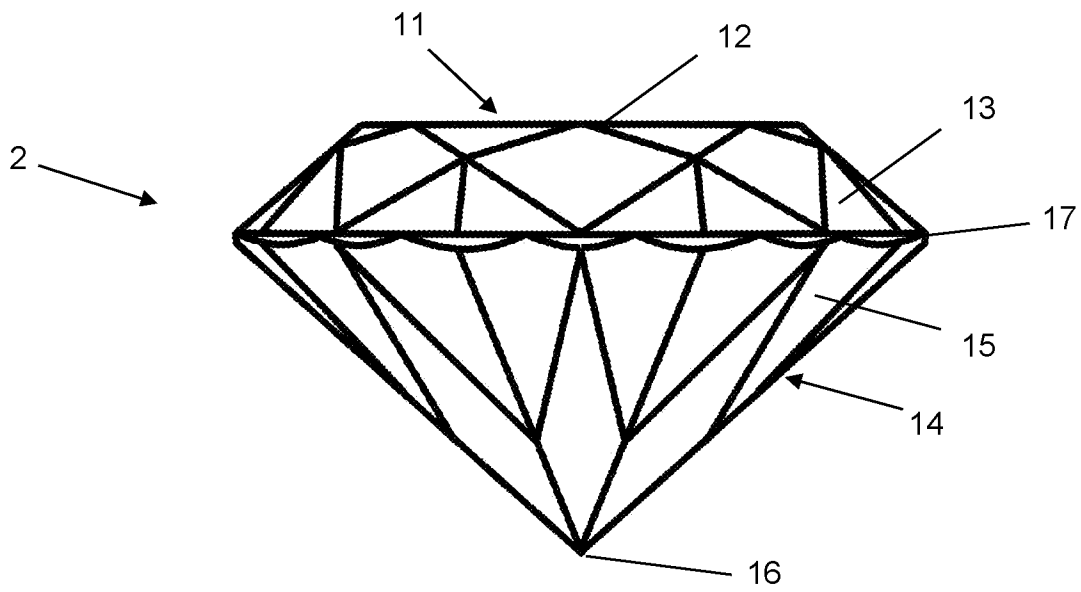


FIGURE 1

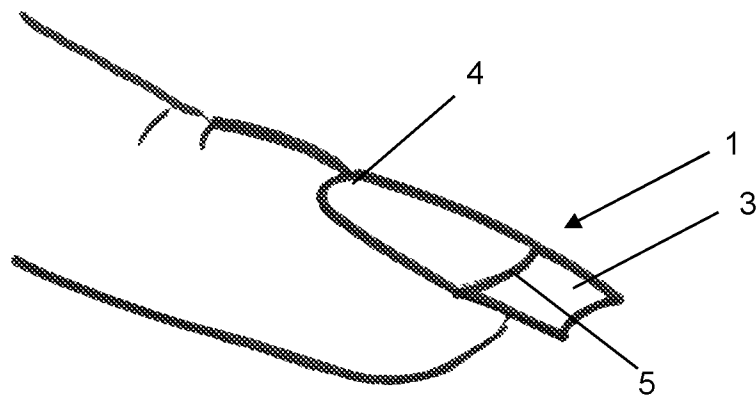


FIGURE 2

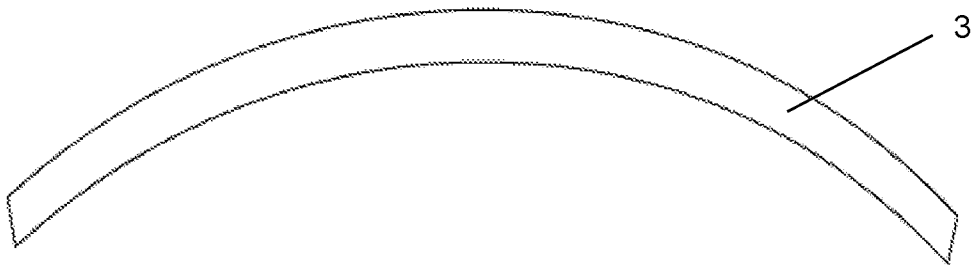


FIGURE 3A

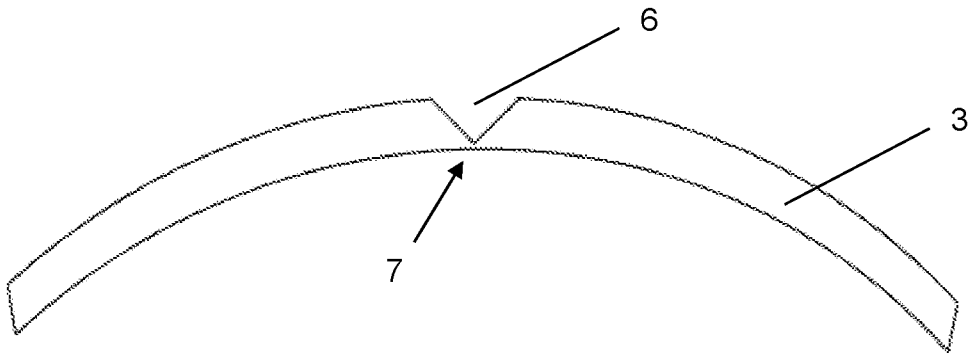


FIGURE 3B

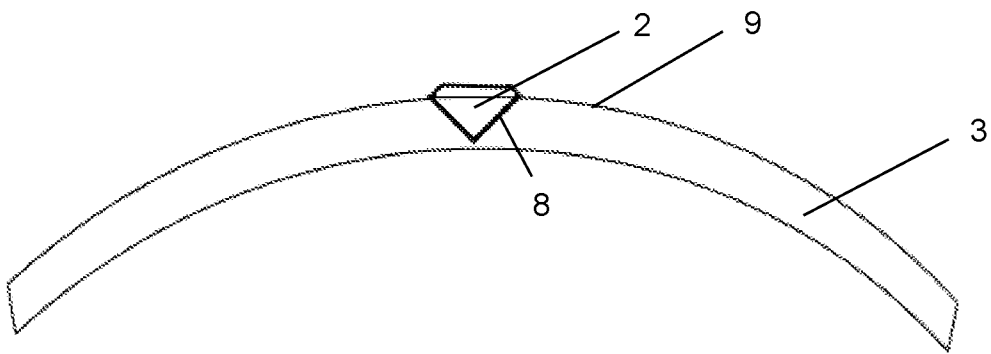


FIGURE 3C

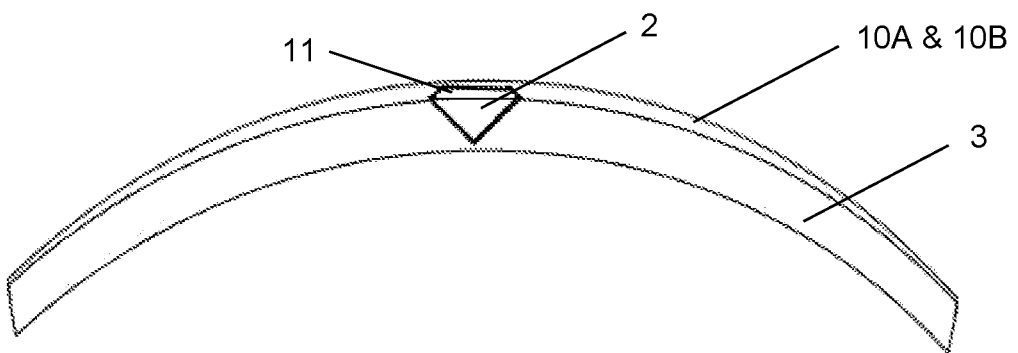


FIGURE 3D

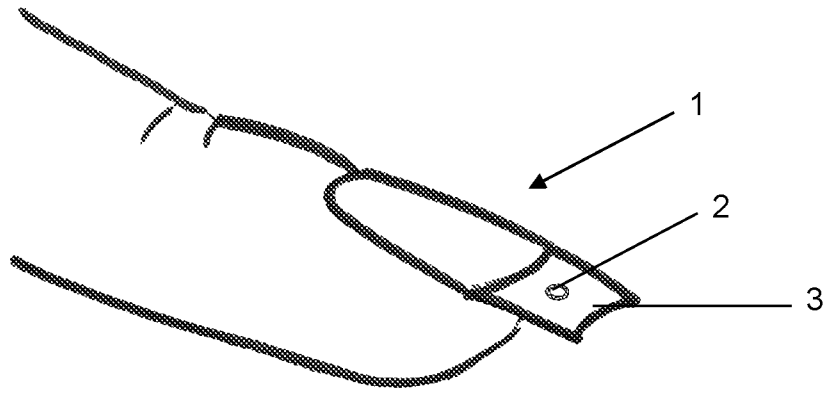


FIGURE 4

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB 2020/059960

A. CLASSIFICATION OF SUBJECT MATTER IPC: A44C 15/00 (2006.01); A44C 17/00 (2006.01)		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols) A44C		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) WPIAP, EPODOC, Fulltextdatabases		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	RU 2009109374 A (GERMAN ELENA ALEKSANDROVNA) 27 September 2010 (27.09.2010) Figs. 1-5, pages 1-3, claim 1	1-17
A	JP 2009247484 A (ANGELLY JAPAN KK) 29 October 2009 (29.10.2009) Figs. 4-7, [0010], [0014], [0019]	1-17
A	JP 2009273763 A (KING ROAD KK) 26 November 2009 (26.11.2009) Figs. 1a-1c, 2, [0010]-[0015]	1-17
A	JP 2011130934 A (IMCA INC, SEIKO CO LTD) 07 July 2011 (07.07.2011) Fig. 5, [0023], [0025], [0029], [0030]	1-17
Further documents are listed in the continuation of Box C.		<input checked="" type="checkbox"/> See patent family annex.
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