



(11) **EP 4 306 001 A1**

(12) **EUROPEAN PATENT APPLICATION**
published in accordance with Art. 153(4) EPC

(43) Date of publication:
17.01.2024 Bulletin 2024/03

(51) International Patent Classification (IPC):
A45D 34/04 ^(2006.01) **A46B 3/18** ^(2006.01)
A46B 9/02 ^(2006.01)

(21) Application number: **22766635.1**

(52) Cooperative Patent Classification (CPC):
A45D 34/04; A46B 3/18; A46B 9/02

(22) Date of filing: **21.01.2022**

(86) International application number:
PCT/JP2022/002278

(87) International publication number:
WO 2022/190668 (15.09.2022 Gazette 2022/37)

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
KH MA MD TN

(71) Applicant: **Fairydrops, Inc.**
Tokyo, 154-0002 (JP)

(72) Inventor: **YASUDA, Aya**
Tokyo 154-0002 (JP)

(74) Representative: **Schön, Christoph**
Dr. Schön, Neymeyr & Partner mbB
Bavariaring 26
80336 München (DE)

(30) Priority: **08.03.2021 JP 2021036630**

(54) **MASCARA APPLICATOR**

(57) [Problem to be solved]

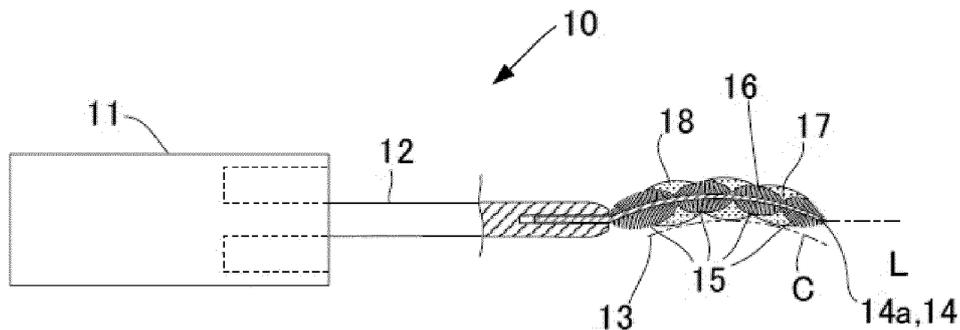
To provide a mascara applicator that can easily apply mascara liquid from the root portion that exists within the mucous membrane near the nasal edge of the eyelid.

[Solution]

A mascara applicator 10 comprises a holding part 11 held by a hand and fingers, a shaft part 12 extending in one axial direction from the holding part 11, and an application part 13 provided at the tip of the shaft part 12. The application part 13 comprises a core part 14 ex-

tending from the tip of the shaft part 12 and curved into an arc shape, and a plurality of brush bristles 15 arranged to protrude around the entire curved core part 14. The tip of the core part 14 is arranged so that the tip of the core part 14 coincides with the extension of the shaft part 12, and the three-dimensional shape consisting of the tip of the plurality of brush bristles 15 protruding around the entire tip of the core part 14 has a weighted shape that tapers toward the tip of the core part 14.

FIG. 1



EP 4 306 001 A1

Description

[Technical field of the invention]

[0001] The present invention relates to a mascara applicator.

[Prior art]

[0002] Conventionally, mascara applicator with variously shaped application parts has been proposed.

[0003] For example, in Patent Document 1 below, a cosmetic application tool having a brush shape in which at least two or more convex parts consisting of curved surfaces in the longitudinal direction are symmetrically arranged around a shaft member is proposed. In this cosmetic application tool, the brush bristles had a curved surface such as a circular arc, an elliptical arc, or a parabola.

[0004] In Patent Document 2 below, a cosmetic application tool in which brush bristles are arranged so as to provide two or more convex parts consisting of curved surfaces such as circular or elliptical arcs or parabolas on a core member formed in an arc shape. In this cosmetic application tool, the brush bristles are arranged on the arc-shaped core member to make it easier to bring the application part into contact with the eyelashes growing on curved eyelids, thereby reducing the need for complicated application work and making it possible to apply the mascara liquid to the entire eyelashes in an average manner.

[Prior art documents]

[Patent Document]

[0005]

[Patent document 1] JP2005-334094A

[Patent document 2] JP2009-82554A

[Summary of the invention]

[Problem to be solved by the invention]

[0006] However, conventional mascara applicators were designed with a brush shape that allows easy application of mascara liquid from the middle of the eyelashes to the tip side. Therefore, it was not sufficient for any growth process of eyelashes, including grown hairs and laying hairs present in eyelid lashes. Although human eyelashes grow out of the mucous membrane of the eyelids, it is difficult and time-consuming to apply mascara from the edge of the eyelashes. In particular, applying mascara from the short eyelashes near the nasal edge of the upper and lower eyelids and from the base of the eyelashes that exist in the mucous membrane is notably time-consuming.

[0007] The purpose of the present invention is to provide a mascara applicator that can easily apply mascara liquid from the root portion that exists within the mucous membrane near the nasal edge of the eyelid.

[Means for solving the problem]

[0008] In order to achieve the above-mentioned purpose, a mascara applicator comprising: a holding part held by a hand and fingers; a shaft part extending in one axial direction from the holding part; an application part provided at the tip of the shaft part; and wherein the application part comprising a core part extending from the tip of the shaft part and curved into an arc shape, and a plurality of brush bristles arranged to protrude around the entire curved core part; wherein the tip of the core part is arranged so that the tip of the core part coincides with the extension of the shaft part, and the three-dimensional shape consisting of a plurality of any brush bristles protruding around the entire tip of the core part has a weight shape that tapers toward the tip of the core part.

[0009] In the mascara applicator of the present invention, the application part comprises a twisted brush with the brush bristles arranged between the core part and the weight shape is formed by the brush bristles arranged in the section where the core part is twisted more than one rotation.

[0010] In the mascara applicator of the present invention, the three-dimensional shape consisting of the tip of a plurality of the brush bristles arranged on the shaft except for the tip side has a waveform contour that repeats convex parts and concave parts along the longitudinal direction of the core part, and the virtual curve connecting the tops in a plurality of the convex parts is formed to be the same as the curved shape of the core part.

[0011] In this case, the height difference between the convex part and the concave part of the waveform may be 3.9 mm or less.

[Effects of the invention]

[0012] According to the mascara applicator of the present invention, the tip of the core part is arranged to coincide with the extension of the shaft part, so that when the user holds the holding part and brings the application part close to the edge of the upper and lower eyelids, the user can easily grasp the position of the tip of the application part, and the tip position of the application part does not change even if the angle is shifted around the shaft part while holding the holding part. This makes it easy to bring the tip of the application part close to the nasal edge of the upper and lower eyelids.

[0013] Moreover, since the three-dimensional shape consisting of the tip of a plurality of brush bristles protruding around the entire tip of the core part has a weight shape that tapers toward the tip of the core part, the brush bristles near the tip become shorter toward the tip of the core part, and the tip is inclined at a constant gradient.

Therefore, when the tip of the application part is placed near the nasal edge of the eyelid, the tip of the brush bristles at the tip of the application part can be easily positioned along the edge of the eyelid near the edge.

[0014] Thus, it is possible to provide a mascara application tool that can easily apply mascara liquid from the root portion of eyelashes that exist side by side in the mucous membrane near the nasal edge of the eyelid.

[Brief description of the drawings]

[0015]

FIG. 1 is a side view of the mascara applicator which is one embodiment of the present invention.

FIG. 2 is a partially enlarged view of the tip side of the application part of the mascara applicator which is one embodiment of the present invention.

[Preferred embodiment of the invention]

[0016] The following is a detailed description of the embodiment of the present invention with reference to the figures.

[0017] FIG. 1 is a side view of the mascara applicator of this embodiment, and FIG. 2 is a partially enlarged view showing the tip side of the application part of the mascara applicator.

[0018] As shown in FIG. 1, the mascara applicator 10 of this embodiment consists of a holding part 11 that is held by the user's hand and fingers, a shaft part 12 that extends linearly from the holding part 11 in the direction of the axis L, and an application part 13 provided at the tip of the shaft part 12.

[0019] The application part 13 has a core part 14 extending from the tip of the shaft part 12 in a curved arc shape such as a circular arc, elliptical arc, parabola, etc., and a plurality of brush bristles 15 arranged along the core part 14 so that they protrude from the core part 14 in an orthogonal direction.

[0020] The core part 14 has a curved shape that roughly corresponds to the shape of the mucous membranes of the upper and lower eyelids of adults, and the width of the curved portion is formed to be equivalent to the width of the mucous membranes of the upper and lower eyelids of adults.

[0021] In this application part 13, the tip of the core part 14 is arranged so that it matches the extension of the shaft part 12, preferably on the axis L.

[0022] The application part 13 of this embodiment consists of a twisted brush made of metal thin wire, etc., formed by twisting a plurality of brush bristles 15 continuously arranged between a pair of core materials 14a and 14a connected at the tip.

[0023] In this application part 13, brush bristles 15 are arranged so as to be continuous over the entire curved portion of the core part 14, and each brush bristles 15 projects radially in both orthogonal directions relative to

the core part 14. By twisting the core material 14a, a plurality of brush bristles 15 is arranged in a spiral shape protruding around the entire circumference. Thus, the tip of a plurality of brush bristles 15 arranged around the entire circumference of the core part 14 has a three-dimensional shape.

[0024] The three-dimensional shape of the tip of a plurality of brush bristles 15 has a rotational body shape centered on the core part 14 roughly. In this embodiment, around the entire tip side of the core part 14, the three-dimensional shape consisting of the tips of a plurality of brush bristles 15 arranged in a section where a pair of cores 14a and 14a are twisted more than one rotation has a weight shape that tapers toward the tip of the core part 14. The weight shape can be a cone shape or a polygonal pyramid shape, but in this embodiment, it is formed in a polygonal pyramid shape, called pyramidal shape.

[0025] To form a pyramidal shape all around the tip side of the core part 14, it can be formed, for example, like a ceramic single flower vase that is finished using a potter's wheel.

[0026] In the three-dimensional shape around the core part 14, except for the tip side, three to five convex part 16 and concave parts 17 of the same shape are repeated along the longitudinal direction of the core part 14, and the contour shape seen from the side periphery of the wave side has a waveform. The contour of each convex part 16 is formed into a convex curve such as a circular arc, elliptical arc, parabola, etc., and the concave part 17 between adjacent convex parts 16 is also formed into a convex curve such as a circular arc, elliptical arc, parabola, etc.

[0027] Straight nylon bristles can be used as the brush bristles 15 in this embodiment.

[0028] Although a comb-type structure has existed in the past, in this embodiment, it is possible to hold a large amount of mascara liquid 18 easily by attaching the nylon bristles to the core part 14 instead of a comb-type structure. It makes it possible to apply the mascara all over the eyelashes, even to newborn eyelashes that are soft and fine-laying hairs. In addition, the mascara applicator is particularly suitable for mucous membrane structures because it is gentler on the skin and less likely to damage mucous membrane areas than a comb-type.

[0029] The length of a plurality of brush bristles 15 protruding in the orthogonal direction from the core part 14 of the contour of the three-dimensional shape of this embodiment should be between 0.1mm and 4mm. When applying the mascara liquid 18, it will be difficult to bring the application part 13 close to the root of the eyelashes if the brush bristles projecting from the core part 14 are overly long. On the contrary, if it's too short, the impregnation force that holds the mascara liquid 18 in place will be diminished, and application will take longer. As a result, a modest length is required.

[0030] In addition, the height difference of the waveform repeated alternately in which the concave part 17

and convex part 16 of the three-dimensional shape contour in this embodiment, that is, the maximum width between the furthest distance from the core part 14 in each convex part 16 (the length of the brush bristles 15 protruding from the core part 14 in the orthogonal direction) and the furthest distance from the core part 14 in each concave part 17 (the length of the brush bristles 15 protruding from the core part 14 in the orthogonal direction) should be 3.9 mm or less.

[0031] If the maximum width of the height difference of the waveform is too large, the curvature of the three-dimensional shape of each convex part 16 becomes larger, resulting in a narrower area that can be placed close to the edge of the eyelid and a narrower area where the mascara liquid 18 can be applied to the root portion of the eyelashes.

[0032] On the other hand, if the height difference of the waveform is too small, the amount of mascara liquid 18 stored in the application part 13 becomes small when applying mascara liquid 18, and the mascara liquid 18 stored in the container, which is not shown in the figure, must be frequently contacted, making the application time-consuming.

[0033] Moreover, although the contour of the three-dimensional shape of a plurality of brush bristles 15 that make up the application part 13 has a waveform alternately repeated with concave part 17 and convex part 16, the virtual curve C connecting the tops of each convex part 16 at the same phase around the core part 14 in a plurality of convex parts 16 is formed to be roughly parallel to the same shape as the curved shape of the core 14.

[0034] According to the mascara applicator 10 of this embodiment as described above, the tip of the core part 14 is arranged to coincide with the extension of the shaft part 12, so that when the user holds the holding part 11 and brings the application part 13 close to the edge of the upper and lower eyelids, the user can easily grasp the position of the tip of the application part 13, and the tip position of the application part 13 does not change even if the angle is shifted around the shaft part while holding the holding part 11. This makes it easy to bring the tip of the application part 13 close to the nasal edge of the upper and lower eyelids.

[0035] Moreover, since the three-dimensional shape consisting of the tip of a plurality of brush bristles 15 protruding around the entire tip of the core part 14 has a weight shape that tapers toward the tip of the core part 14, the brush bristles 15 near the tip become shorter toward the tip of the core part 14, and the tip is inclined at a constant gradient. Therefore, when the tip of the application part 13 is placed near the nasal edge of the eyelid, the tip of the brush bristles 15 at the tip of the application part 13 can be easily positioned along the edge of the eyelid near the edge. Thus, the mascara liquid 18 can be applied easily from the root portion of eyelashes that exist side by side in the mucous membrane near the nasal edge of the upper and lower eyelids.

[0036] Moreover, in the mascara applicator 10 of this embodiment, the mucous membrane of the human eyelid is about 2 mm on average, and since it follows the shape of this mucous membrane, the mascara liquid 18 can be applied from the edge of the eyelashes at the root portion. In this embodiment, the arc follows the shape of the mucous membrane of the eyelid, and the brush bristles 15 are provided to fit the thickness of that mucous membrane, and the brush bristles 15 are given a convex and concave shape to make it easier to store the mascara liquid 18. In addition, the pyramid shape with a tapered tip is designed to directly reach previously unreachable laying hairs at the top of the eye. In other words, the eyelid mucous membrane is optimally designed for application from the edge of the eyelashes that grow out of the mucous membrane.

[0037] Moreover, in the mascara applicator 10 of this embodiment, the application part 13 consists of a twisted brush with the brush bristles 15 arranged between a pair of core materials 14a and 14a, and the weight shape is formed by the brush bristles 15 arranged in a section where the pair of core materials 14a and 14a are twisted more than one rotation. Therefore, a sufficient amount of brush bristles 15 can protrude in all directions around the core materials 14a and 14a at the weight-shaped tip of the application part 13. This allows the mascara liquid 18 to be applied more easily to the root portion of the eyelashes that exist in the mucous membrane near the nasal edge of the upper and lower eyelids, even if the angle around the axis during application is slightly off.

[0038] Furthermore, in the mascara applicator 10 of this embodiment, since the contour of the three-dimensional shape consisting of the tips of a plurality of brush bristles 15 arranged in the application part 13 has a waveform that repeats concave part and convex part along the longitudinal direction of the core part 14, it is easier to store mascara liquid 18 in the application part 13 in this embodiment than in the case where the three-dimensional shape of the application part 13 is formed as a straight cylindrical shape. Since the virtual curve C connecting the tops of a plurality of convex parts 16 has the same shape as the curvature of the core part 14, the wider area of the application part 13 can come into contact with more eyelashes on the eyelid edge, making it easier to apply the product to the eyelashes collectively and reducing the time and effort required to apply the product to the eyelashes.

[0039] In particular, if the maximum width of the concave part 17 and the convex part 16 is 3.9 mm or less, it is easier to bring a wider area of the application part 13 into contact with the root portion of more eyelashes in the mucous membrane at the eyelid edge, and it is easier to apply the mascara liquid 18 to the root portion of more eyelashes in the mucous membrane, reducing the time and effort required for application.

[Description of the numerals]

[0040]

10 mascara applicator	5
11 holding part	
12 shaft part	
13 application part	
14 core part	
15 brush bristles	10
16 convex part	
17 concave part	
L axis	
C virtual curve	15

Claims

1. A mascara applicator comprising:

20

a holding part held by a hand and fingers;

a shaft part extending in one axial direction from the holding part;

an application part provided at the tip of the shaft part; and wherein the application part comprising a core part extending from the tip of the shaft part and curved into an arc shape, and a plurality of brush bristles arranged to protrude around the entire curved core part;

wherein the tip of the core part is arranged so that the tip of the core part coincides with the extension of the shaft part, and the three-dimensional shape consisting of the tip of the plurality of brush bristles protruding around the entire tip of the core part has a weighted shape that tapers toward the tip of the core part.

35

2. A mascara applicator according to the claim 1, wherein the application part comprises a twisted brush with the brush bristles arranged between the core part and the weight shape is formed by the brush bristles arranged in the section where the core part is twisted more than one rotation.

40

3. A mascara applicator according to the claim 1 or 2, wherein the three-dimensional shape consisting of the tip of a plurality of the brush bristles arranged on the shaft except for the tip side has a waveform contour that repeats convex parts and concave parts along the longitudinal direction of the core part, and the virtual curve connecting the tops in a plurality of the convex parts is formed to be the same as the curved shape of the core part.

50

4. A mascara applicator according to the claim 3, wherein the height difference between the convex part and the concave part of the waveform is 3.9 mm or less.

55

FIG. 1

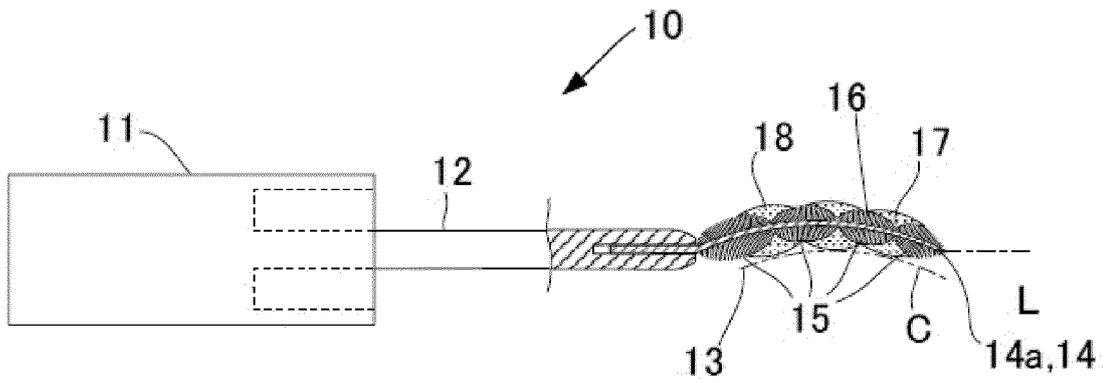
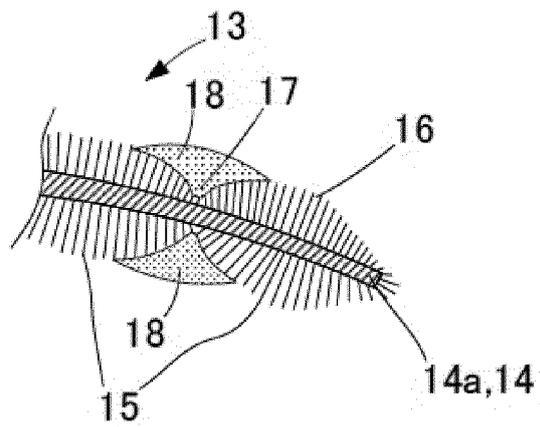


FIG. 2



INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2022/002278

A. CLASSIFICATION OF SUBJECT MATTER		
A45D 34/04(2006.01)i; A46B 3/18(2006.01)i; A46B 9/02(2006.01)i FI: A45D34/04 510A; A46B3/18; A46B9/02		
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) A45D34/04; A46B3/18; A46B9/02		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Published examined utility model applications of Japan 1922-1996 Published unexamined utility model applications of Japan 1971-2022 Registered utility model specifications of Japan 1996-2022 Published registered utility model applications of Japan 1994-2022		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 2009-82554 A (AYA KK) 23 April 2009 (2009-04-23) paragraphs [0014]-[0024], fig. 1-2	1-4
Y	US 2011/0030718 A1 (L'OREAL) 10 February 2011 (2011-02-10) paragraph [0134], fig. 5I, 8D, 11C	1-4
Y	JP 2013-212424 A (ALCAN PACKAGING BEAUTY SERVICES) 17 October 2013 (2013-10-17) fig. 10-12	1-4
Y	JP 2010-29567 A (FIGLA CO LTD) 12 February 2010 (2010-02-12) paragraphs [0013], [0022], fig. 3, 6(a) to 6(b), 6(e)	1-4
Y	US 2015/0327654 A1 (PIRES, Leo Clifford) 19 November 2015 (2015-11-19) fig. 7a-7b, 8b	1-4
Y	JP 2006-280597 A (PENDEL CORP) 19 October 2006 (2006-10-19) paragraphs [0002], [0007], fig. 2	2-4
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search 15 March 2022		Date of mailing of the international search report 29 March 2022
Name and mailing address of the ISA/JP Japan Patent Office (ISA/JP) 3-4-3 Kasumigaseki, Chiyoda-ku, Tokyo 100-8915 Japan		Authorized officer Telephone No.

Form PCT/ISA/210 (second sheet) (January 2015)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2022/002278

5

C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 2009/084343 A1 (SHISEIDO CO., LTD.) 09 July 2009 (2009-07-09) paragraph [0043], fig. 4-5	4
<hr/>		

10

15

20

25

30

35

40

45

50

55

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/JP2022/002278

5

10

15

20

25

30

35

40

45

50

55

Patent document cited in search report	Publication date (day/month/year)	Patent family member(s)	Publication date (day/month/year)
JP 2009-82554 A	23 April 2009	(Family: none)	
US 2011/0030718 A1	10 February 2011	WO 2009/153753 A1 FR 2932656 A1	
JP 2013-212424 A	17 October 2013	US 2008/0011317 A1 fig. 10-12 FR 2903585 A1 CN 101103859 A	
JP 2010-29567 A	12 February 2010	(Family: none)	
US 2015/0327654 A1	19 November 2015	(Family: none)	
JP 2006-280597 A	19 October 2006	(Family: none)	
WO 2009/084343 A1	09 July 2009	US 2010/0288296 A1 paragraph [0077], fig. 4-5 EP 2225963 A1 KR 10-2010-0099095 A CN 101909480 A	

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- JP 2005334094 A [0005]
- JP 2009082554 A [0005]