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(54) **Container for a contact lens**

(57) This invention provides a container (51) for a contact lens, comprising: a central recess (52); a ring-shaped region (53) surrounding the central recess; and a rim (54) surrounding the ring-shaped region; wherein

the central recess (52) is a curved surface having one or a plurality of continuous R values less than an R value of a contact lens in its natural state, and wherein R is a radius of curvature of the curved surface.

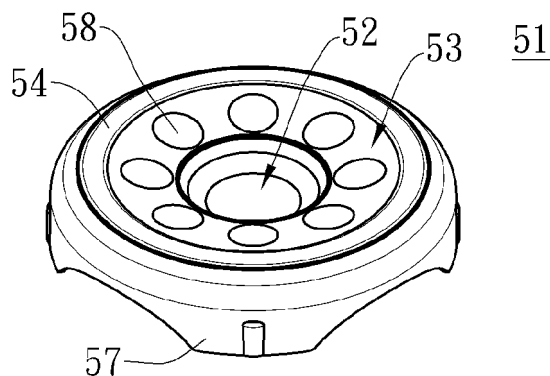


Fig. 7A

Description

BACKGROUND OF THE INVENTION

FIELD OF THE INVENTION

[0001] The present invention relates to a container for a contact lens, and more particularly, to a disposable container for a contact lens.

DESCRIPTION OF THE PRIOR ART

[0002] Nowadays people spend more time watching TV and multimedia materials due to the great audio and visual effects provided thereby and the popularity of mass media. Therefore, the number of short-sighted youngsters is growing. Short-sighted people need to wear glasses to correct their vision, and there are generally two types of glasses, (rimmed/rim less) glasses with temple arms and contact lenses.

[0003] Contact lens has been a popular option since being invented in the 1970s. As the improved manufacturing methods drive down the production cost and many consider their appearance to be more attractive with contact lenses than with glasses, the popularity of contact lenses has surged. With the change in life style, there is an increasing demand for disposable contact lenses. A growing number of people turn to disposable contact lenses because they are cheap and need no maintenance.

[0004] Generally, the package of a disposable contact lens (prescribed to be disposed of on a monthly, weekly or daily basis) comprises a plastic-injection-molded container and a flexible lid covering the container. The container has a recess for holding a contact lens and an antiseptic solution. The flexible lid is made of flexible material and configured to seal the recess so that the contact lens will not be contaminated. The user can tear off the flexible lid to pick up the contact lens and wear it.

SUMMARY OF THE INVENTION

[0005] A container for a contact lens of the present invention is configured to produce a contact lens. The container comprises a central recess, a peripheral groove and a rim. The central recess is provided with a protruding portion to prevent the contact lens from being flung away from the container during the production process or having burrs or a rough edge.

[0006] The present invention provides a container for a contact lens, comprising: a central recess; a peripheral groove surrounding the central recess; and a rim surrounding the peripheral groove; wherein the central recess is a curved surface having one or a plurality of continuous R values less than an R value of a contact lens in its natural state, and wherein R is a radius of curvature of the curved surface.

[0007] The present invention provides another con-

tainer for a contact lens, comprising: a central recess; a peripheral groove surrounding the central recess; a rim surrounding the peripheral groove; and a tenon disposed on a supporting portion of the container; wherein the central recess is a curved surface having one or a plurality of continuous R values less than an R value of a contact lens in its natural state, and wherein R is a radius of curvature of the curved surface.

[0008] The present invention provides yet another container for a contact lens, comprising: a central recess; a ring-shaped region surrounding the central recess; and a rim surrounding the ring-shaped region; wherein the central recess is a curved surface having one or a plurality of continuous R values less than an R value of a contact lens in its natural state, and wherein R is a radius of curvature of the curved surface.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009]

Fig. 1A is a top perspective view of a container for a contact lens in accordance with a first embodiment of the present invention.

Fig. 1B is a bottom perspective view of the container for a contact lens in accordance with the first embodiment of the present invention.

Fig. 1C is a section view of the container for a contact lens taken along the centerline A-A in Fig. 1A.

Fig. 1D is a top perspective view of the container for a contact lens and a contact lens in accordance with the first embodiment of the present invention.

Fig. 1E is a section view of the container for a contact lens and the contact lens taken along the centerline B-B in Fig. 1D.

Fig. 2A is a top perspective view of a container for a contact lens in accordance with a second embodiment of the present invention.

Fig. 2B is a bottom perspective view of the container for a contact lens in accordance with the second embodiment of the present invention.

Fig. 2C is a top perspective view of the container for a contact lens and a contact lens in accordance with the second embodiment of the present invention.

Fig. 3A is a top perspective view of a container for a contact lens in accordance with a third embodiment of the present invention.

Fig. 3B is a bottom perspective view of the container for a contact lens in accordance with the third em-

bodiment of the present invention.

Fig. 3C is a top perspective view of the container for a contact lens and a contact lens in accordance with the third embodiment of the present invention.

Fig. 4A is a top perspective view of a container for a contact lens in accordance with a fourth embodiment of the present invention.

Fig. 4B is a bottom perspective view of the container for a contact lens in accordance with the fourth embodiment of the present invention.

Fig. 4C is a top perspective view of the container for a contact lens and a contact lens in accordance with the fourth embodiment of the present invention.

Fig. 5A is a perspective exploded view of a container for a contact lens and a hand-held section in accordance with a fifth embodiment of the present invention..

Fig. 5B is a perspective assembly view of the container for a contact lens and the hand-held section in accordance with the fifth embodiment of the present invention.

Fig. 5C is a perspective view showing a lid adhered to the container for a contact lens in accordance with the fifth embodiment of the present invention.

Fig. 5D is a schematic view illustrating the tearing off of the lid in accordance with the fifth embodiment of the present invention.

Fig. 6 is a top perspective view of a container for a contact lens in accordance with a sixth embodiment of the present invention.

Fig. 7A is a top perspective view of a container for a contact lens in accordance with a seventh embodiment of the present invention.

Fig. 7B is a bottom perspective view of the container for a contact lens in accordance with the seventh embodiment of the present invention.

Fig. 7C is a top view of the container for a contact lens in accordance with the seventh embodiment of the present invention.

Fig. 7D is a section view of the container for a contact lens taken along the centerline C-C in Fig. 7C.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0010] The present invention will be described more fully hereinafter with reference to the accompanying drawings, in which preferred embodiments of the present invention are shown.

Figs. 1A and 1B are a top perspective view and a bottom perspective view, respectively, of a container 1 for a contact lens in accordance with a first embodiment of the present invention. In this embodiment, the container 1 for a contact lens comprises a central recess 2, a peripheral groove 3 surrounding the central recess 2, and a rim 4 surrounding the peripheral groove 3.

Fig. 1C is a section view of the container 1 for a contact lens taken along the centerline A-A in Fig. 1A. The central recess 2 of the container 1 for a contact lens can be used to produce a contact lens 5. The central recess 2 is a curved surface having one or a plurality of continuous R values less than an R value of the contact lens 5 in its natural state, wherein R is a radius of curvature of the curved surface. Moreover, the central recess 2 is provided with a protruding portion 6 to prevent the contact lens 5 from being flung away from the container 1 for a contact lens or having burrs or a rough edge. The container 1 for a contact lens further comprises a supporting portion 7 extending downwardly from the rim 4 so that the container 1 for a contact lens can be placed on a flat surface.

Fig. 1D is a top perspective view of the container 1 for a contact lens and the contact lens 5 in accordance with the first embodiment of the present invention, and Fig. 1E is a section view of the container 1 for a contact lens and a contact lens 5' taken along the centerline B-B in Fig. 1D. The peripheral groove 3 and the central recess 2 form an accommodation space for holding the contact lens 5' and a solution (e.g. saline solution). In this embodiment, the contact lens 5' is a hydrous contact lens. The present invention further comprises a lid (please refer to the lid 28 shown in Figs. 5C and 5D) adhered to the rim 4 of the container 1 for a contact lens to seal the contact lens 5' and the solution in the accommodation space. A user can tear off the lid to pick up the contact lens 5' and wear it.

Figs. 2A and 2B are a top perspective view and a bottom perspective view, respectively, of a container 1 for a contact lens in accordance with a second embodiment of the present invention. Fig. 2C is a top perspective view of the container 1 for a contact lens and a contact lens 5' in accordance with the second embodiment of the present invention.

[0011] The second embodiment and the first embodiment are substantially the same in terms of the structure of the main parts except that the supporting portion 7' of the container 1 for a contact lens of the second embodiment is a continuous surface of a constant dimension in the perpendicular direction (for example, the supporting portion 7' does not have any notches, as shown in Fig. 2B) while the supporting portion 7 of the container 1 for a contact lens of the first embodiment is a continuous surface of an irregular dimension in the perpendicular direction (for example, the supporting portion 7 has two notches, as shown in Fig. 1B), and that the bottoms of the containers 1 of the two embodiments are slightly different at the centers thereof.

Figs. 3A and 3B are a top perspective view and a bottom perspective view, respectively, of a container 11 for a contact lens in accordance with a third embodiment of the present invention. In this embodiment, the container 11 for a contact lens comprises a central recess 12, a peripheral groove 13 surrounding the central recess 12 and comprising at least one raised section 18 and a rim 14 surrounding the peripheral groove 13. Fig. 3C is a top perspective view of the container 11 for a contact lens and a contact lens 15' in accordance with the third embodiment of the present invention.

[0012] The third embodiment and the second embodiment are substantially the same in terms of the structure of the main parts except that the container 11 for a contact lens of the third embodiment is provided with four raised sections 18, and that the supporting portion 17 of the container 11 for a contact lens of the third embodiment is a round peripheral surface while the supporting portion 7' of the container 1 for a contact lens of the second embodiment is not a round peripheral surface. Additionally, the bottoms of the containers 1 and 11 are slightly different.

Figs. 4A and 4B are a top perspective view and a bottom perspective view, respectively, of a container 11 for a contact lens in accordance with a fourth embodiment of the present invention. Fig. 4C is a top perspective view of the container 11 for a contact lens and a contact lens 15' in accordance with the fourth embodiment of the present invention. The fourth embodiment and the third embodiment are substantially the same in terms of the structure of the main parts except that the container 11 for a contact lens of the fourth embodiment are provided with two raised sections 18' while the container 11 for a contact lens of the third embodiment are provided with four raised sections 18, and that the bottoms of the containers 11 of the two embodiments are slightly different. Fig. 5A is a perspective exploded view of a container 21 for a contact lens and a hand-held section 31 in accordance with a fifth embodiment of

the present invention. The fifth embodiment of the present invention provides a container 21 for a contact lens comprising: a central recess 22; a peripheral groove 23 surrounding the central recess 22, the peripheral groove 23 and the central recess 22 forming an accommodation space for holding a contact lens and a solution; a rim 24 surrounding the peripheral groove 23; a supporting portion 27 extending downwardly from the rim 24; and a tenon 26 disposed on the supporting portion 27 of the container 21. The central recess 22 of the container 21 for a contact lens can be used to produce a contact lens. The central recess 22 is a curved surface having one or a plurality of continuous R values less than an R value of the contact lens in its natural state, wherein R is a radius of curvature of the curved surface. The central recess 22 is further provided with a protruding portion (not shown) to prevent the contact lens from being flung away from the container 21 during the production process or having burrs or a rough edge. The hand-held section 31 has an opening 32, which is provided with an engaging portion 34 at the inner wall thereof, and an extended portion 33 extending outward from the opening 32. As shown in Fig. 5B, when the hand-held section 31 is moved in the direction indicated by the arrow, the tenon 26 of the container 21 for a contact lens is connected by the engaging portion 34 of the hand-held section 31 correspondingly. After twisting the container 21 for a contact lens and the hand-held section 31 with respect to each other, the container 21 for a contact lens and the hand-held section 31 will be integrally combined together. Referring to Fig. 5A, though the container 21 for a contact lens comprises two tenons 26 symmetrically disposed at the front and rear sides thereof and the hand-held section 31 comprises two engaging portions 34 symmetrically disposed at the front and rear sides thereof, only one tenon 26 and one engaging portion 34 are visible due to the limit of the angle of view.

Fig. 5C is a perspective view showing a lid 28 adhered to the container 21 for a contact lens in accordance with the fifth embodiment of the present invention, and Fig. 5D is a schematic view illustrating the tearing off of the lid 28 in accordance with the fifth embodiment of the present invention. In this embodiment, a lid 28 is adhered to the rim 24 of the container 21 for a contact lens to seal a contact lens 25' and a solution in an accommodation space formed by the peripheral groove 23 and the central recess 22. The user can hold the extended portion 33 of the hand-held section 31 with one hand while tearing off the lid 28 with the other hand, and then pick up the contact lens 25' and wear it.

Fig. 6 is a top perspective view of a container 41 for a contact lens in accordance with a sixth embodi-

ment of the present invention. The sixth embodiment and the fifth embodiment are substantially the same in terms of the structure of the main parts except that the container 41 for a contact lens of the sixth embodiment is provided with two raised sections 48 while the container 21 for a contact lens of the fifth embodiment is not provided with any raised sections, and that the supporting portion 47 of the sixth embodiment is slightly different from the supporting portion 27 of the fifth embodiment. Specifically, the supporting portion 47 of the sixth embodiment is a round peripheral surface while the supporting portion 27 of the fifth embodiment is not a round peripheral surface.

Figs. 7A, 7B and 7C are a top perspective view, a bottom perspective view and a top view, respectively, of a container 51 for a contact lens in accordance with a seventh embodiment of the present invention. In this embodiment, the container 51 for a contact lens comprises a central recess 52, a ring-shaped region 53 surrounding the central recess 52 and a rim 54 surrounding the ring-shaped region 53.

Fig. 7D is a section view of the container 51 for a contact lens taken along the centerline C-C in Fig. 7C. The central recess 52 of the container 51 for a contact lens can be used to produce a contact lens (not shown). The central recess 52 is a curved surface having one or a plurality of continuous R values less than an R value of the contact lens in its natural state, wherein R is a radius of curvature of the curved surface. Moreover, the central recess 52 is provided with a protruding portion 56 to prevent the contact lens from being flung away from the container 51 or having burrs or a rough edge. The container 51 for a contact lens of the present invention further comprises a supporting portion 57 extending downwardly from the rim 54 so that the container 51 for a contact lens can be placed on a flat surface.

[0013] The container 51 for a contact lens of the seventh embodiment further comprises an aluminum foil lid (not shown) adhered to the rim 54 of the container 51 for a contact lens to seal the contact lens and a solution in the accommodation space. The distance between the protruding portion 56 of the container 51 for a contact lens and the aluminum foil lid is shorter (compared with other embodiments) so that the hydrous contact lens tends to attach to the aluminum foil lid and the user can pick it up easily.

[0014] While this invention has been described by way of examples and in terms of preferred embodiments, it is to be understood that this invention is not limited hereto. Various substitutions and modifications made without departing from the spirit of this invention are intended to be embraced within the scope of the invention as defined in the appended claims.

Claims

1. A container for a contact lens comprising:
 - a central recess;
 - a peripheral groove surrounding the central recess; and
 - a rim surrounding the peripheral groove; wherein the central recess is a curved surface having one or a plurality of continuous R values less than an R value of a contact lens in its natural state, and wherein R is a radius of curvature of the curved surface.
2. The container for a contact lens according to claim 1, wherein the peripheral groove comprises at least one raised section.
3. The container for a contact lens according to claim 1, wherein the peripheral groove and the central recess form an accommodation space for holding the contact lens and a solution.
4. The container for a contact lens according to claim 3 further comprising a lid adhered to the rim of the container to seal the contact lens and the solution in the accommodation space.
5. The container for a contact lens according to claim 1, wherein the central recess comprises a protruding portion.
6. A container for a contact lens comprising:
 - a central recess;
 - a peripheral groove surrounding the central recess;
 - a rim surrounding the peripheral groove; and
 - a tenon disposed on a supporting portion of the container; wherein the central recess is a curved surface having one or a plurality of continuous R values less than an R value of a contact lens in its natural state, and wherein R is a radius of curvature of the curved surface.
7. The container for a contact lens according to claim 6, wherein the peripheral groove comprises at least one raised section.
8. The container for a contact lens according to claim 6 further comprising a hand-held section having an opening and an extended portion extending outward from the opening, wherein the opening is provided with an engaging portion at an internal wall thereof, and wherein the tenon of the container is connected by the engaging portion of the hand-held section correspondingly.

9. The container for a contact lens according to claim 8, wherein the peripheral groove and the central recess form an accommodation space for holding the contact lens and a solution. 5
10. The container for a contact lens according to claim 9 further comprising a lid adhered to the rim of the container to seal the contact lens and the solution in the accommodation space. 10
11. The container for a contact lens according to claim 6, wherein the central recess comprises a protruding portion. 15
12. A container for a contact lens comprising: 15
- a central recess;
 - a ring-shaped region surrounding the central recess; and
 - a rim surrounding the ring-shaped region; 20
- wherein the central recess is a curved surface having one or a plurality of continuous R values less than an R value of a contact lens in its natural state, and wherein R is a radius of curvature of the curved surface. 25
13. The container for a contact lens according to claim 12, wherein the ring-shaped region comprises at least one raised section. 30
14. The container for a contact lens according to claim 12, wherein the ring-shaped region and the central recess form an accommodation space for holding the contact lens and a solution. 35
15. The container for a contact lens according to claim 14 further comprising a lid adhered to the rim of the container to seal the contact lens and the solution in the accommodation space. 40
16. The container for a contact lens according to claim 12, wherein the central recess comprises a protruding portion. 45

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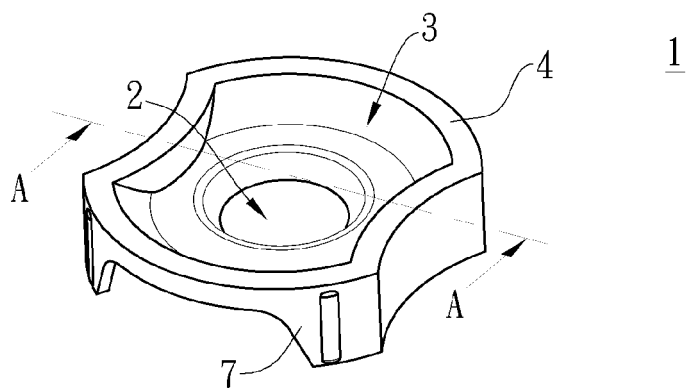


Fig. 1A

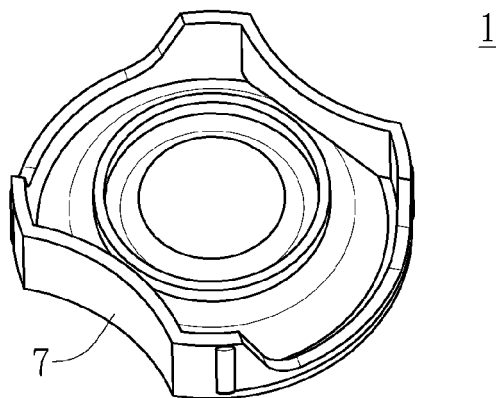


Fig. 1B

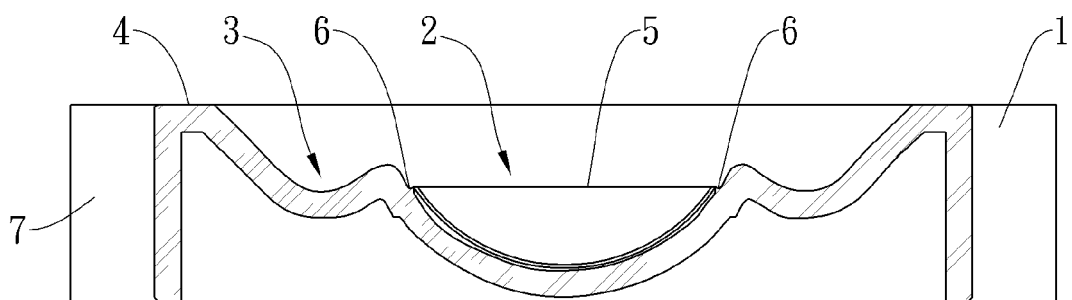


Fig. 1C

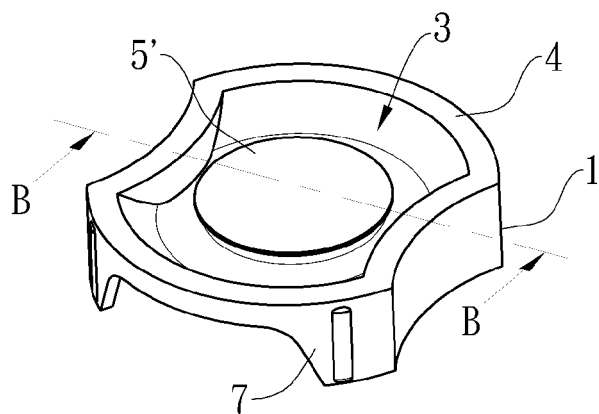


Fig. 1D

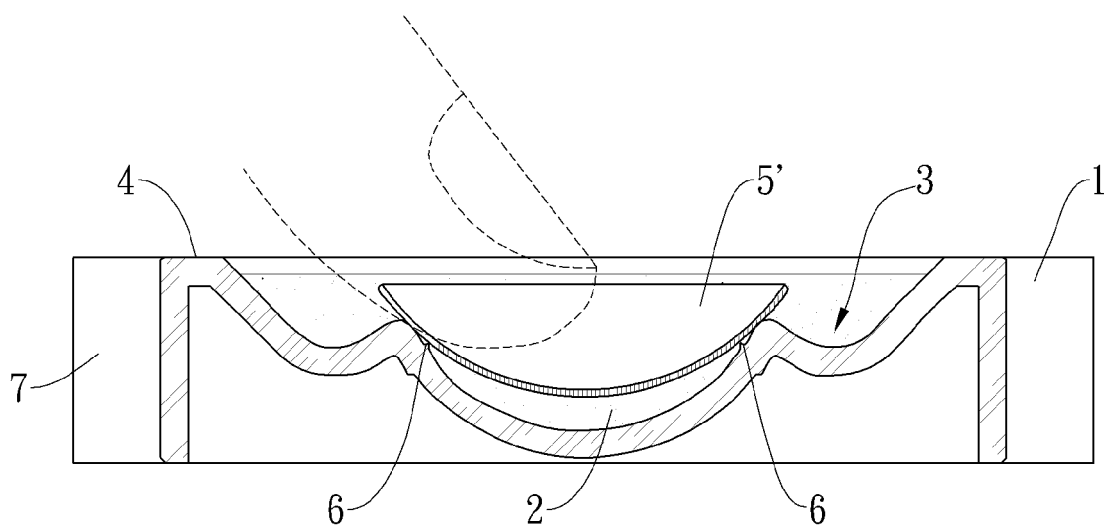


Fig. 1E

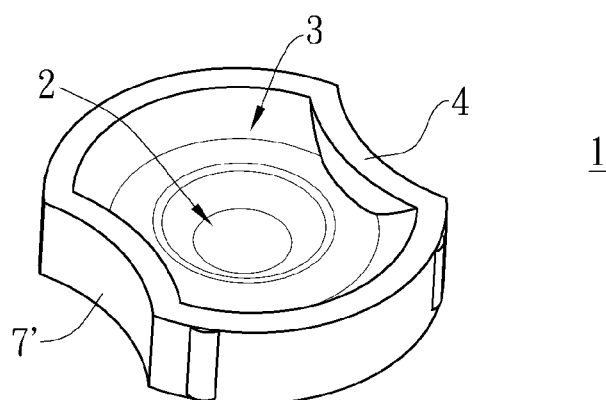


Fig. 2A

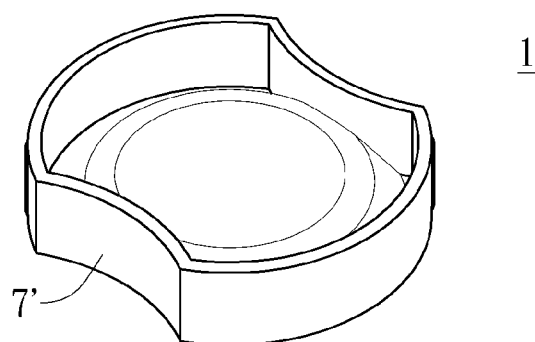


Fig. 2B

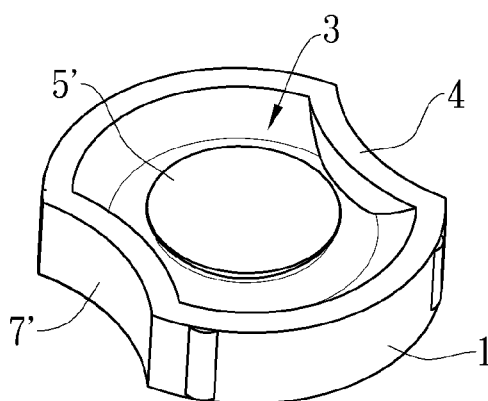


Fig. 2C

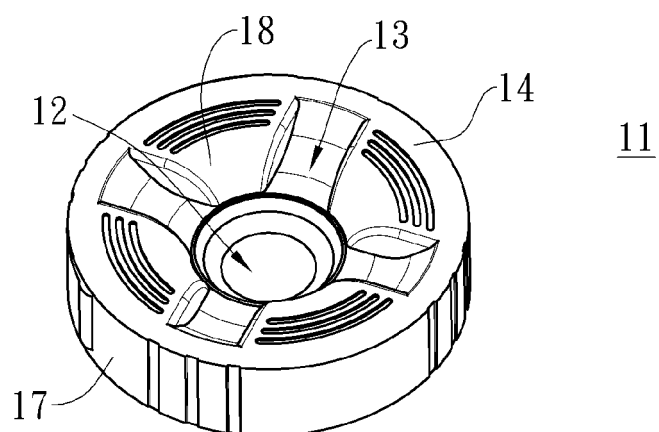


Fig. 3A

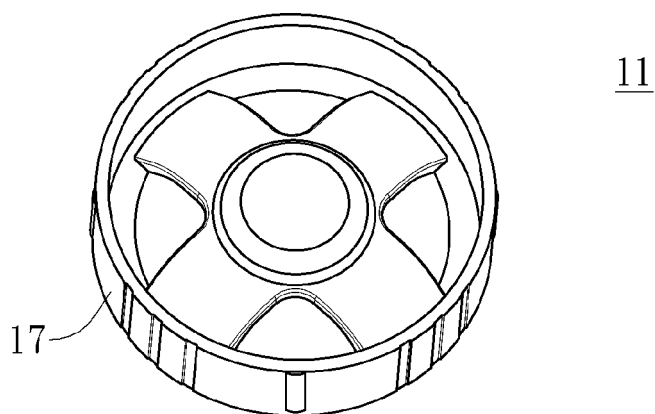


Fig. 3B

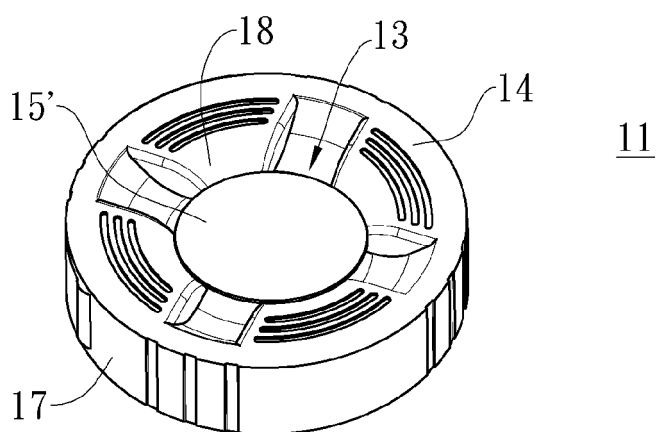


Fig. 3C

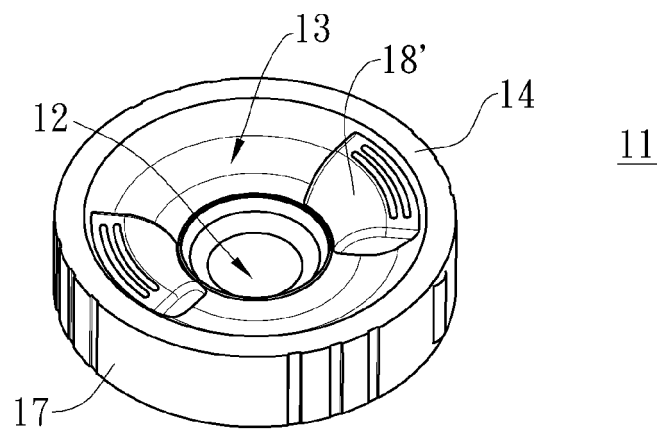


Fig. 4A

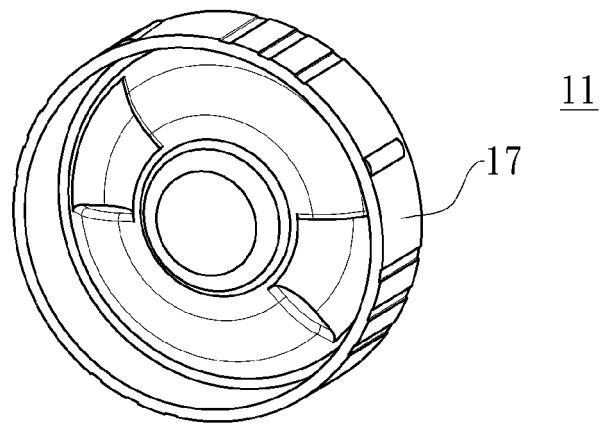


Fig. 4B

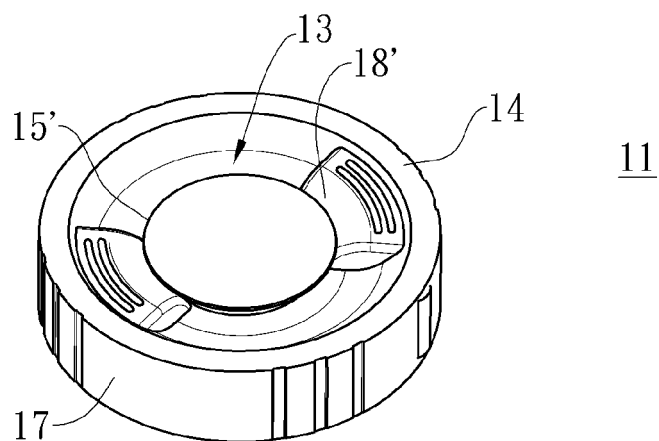


Fig. 4C

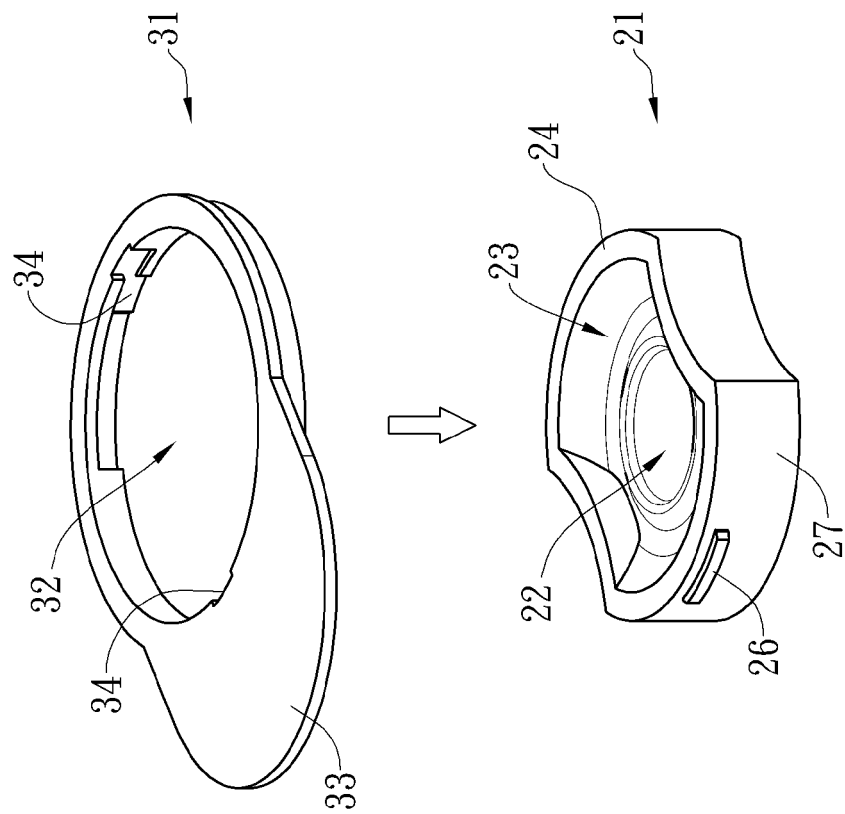


Fig. 5A

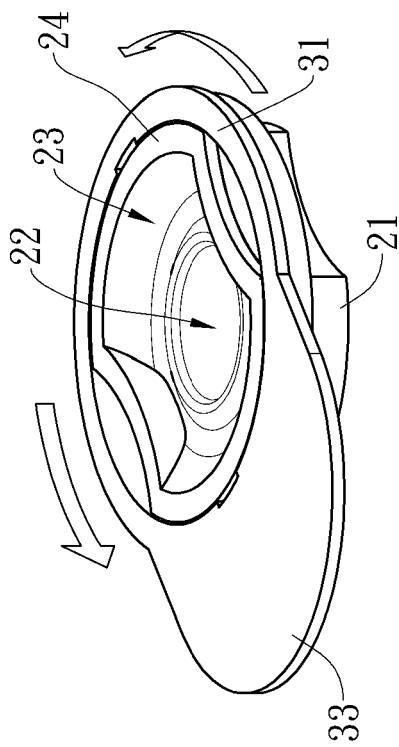


Fig. 5B

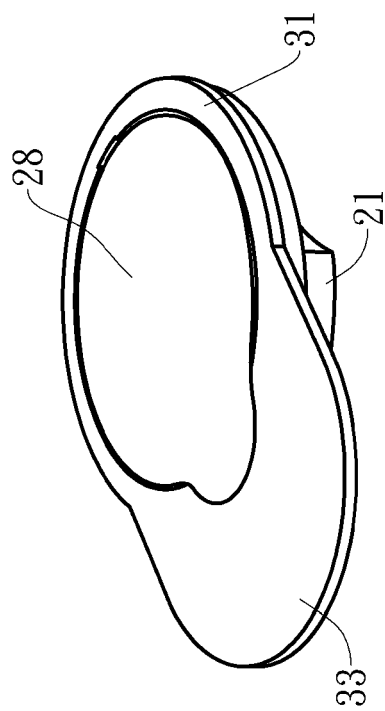


Fig. 5C

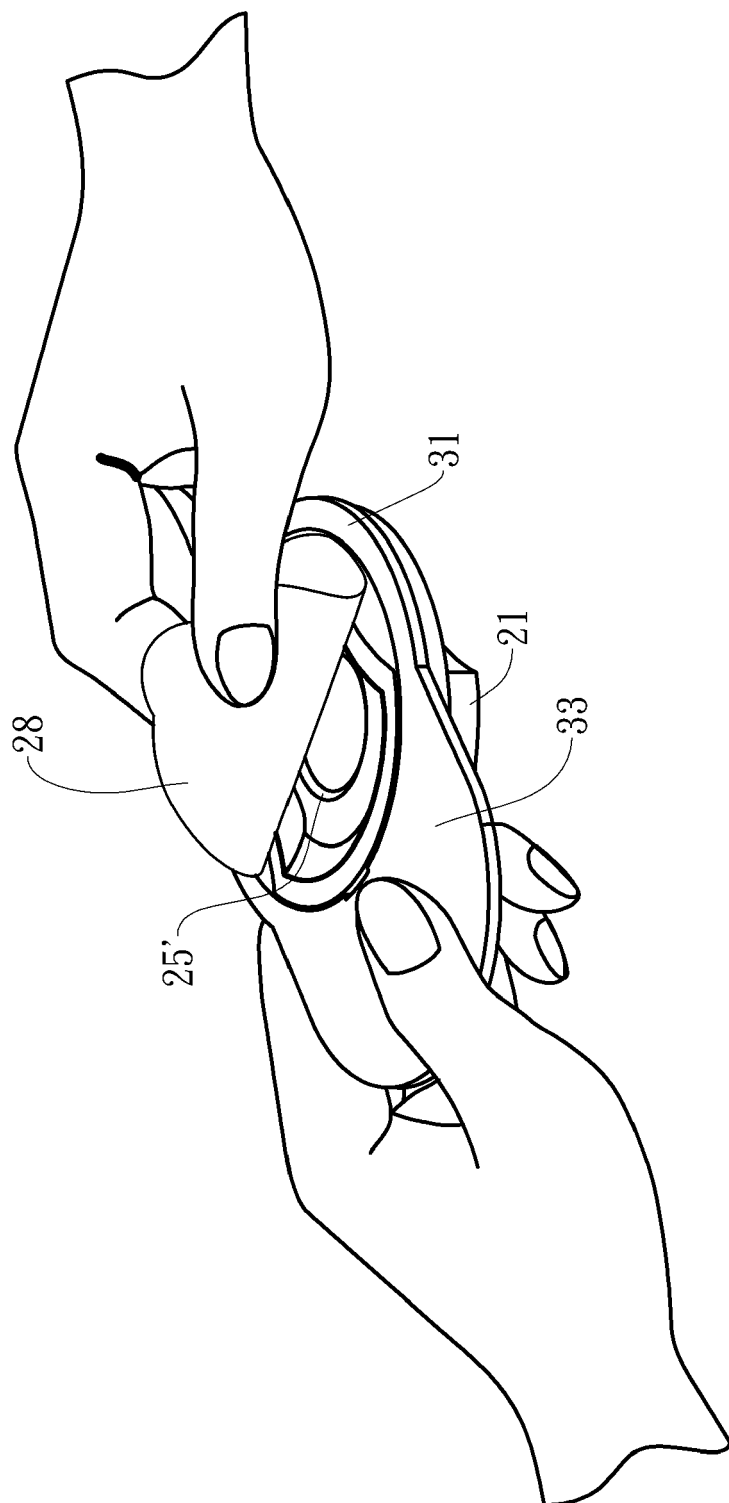


Fig. 5D

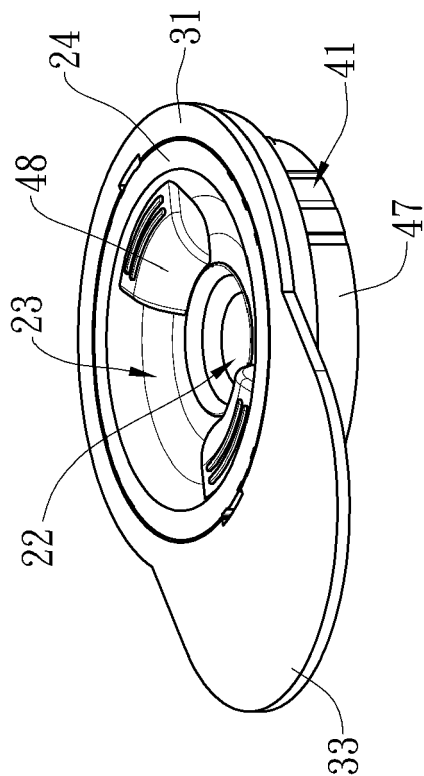


Fig. 6

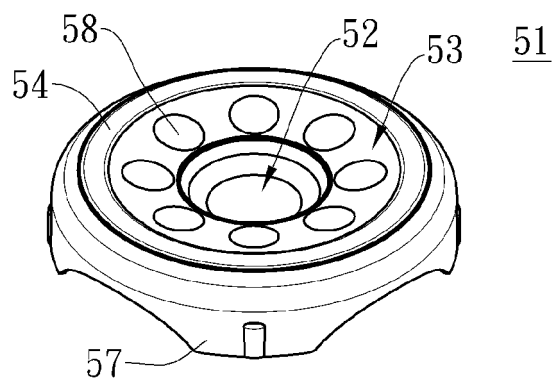


Fig. 7A

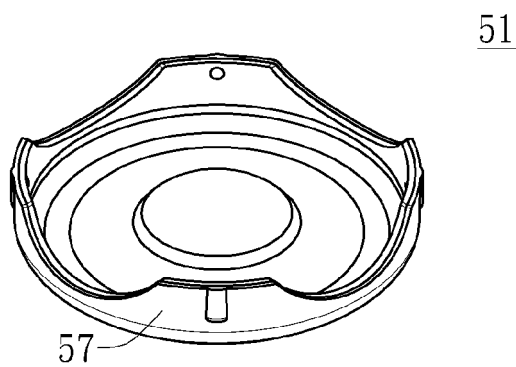


Fig. 7B

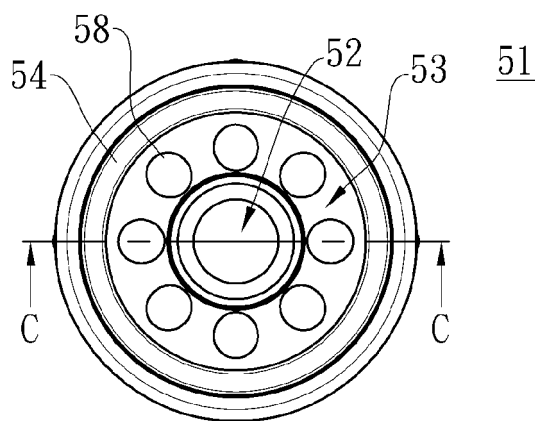


Fig. 7C

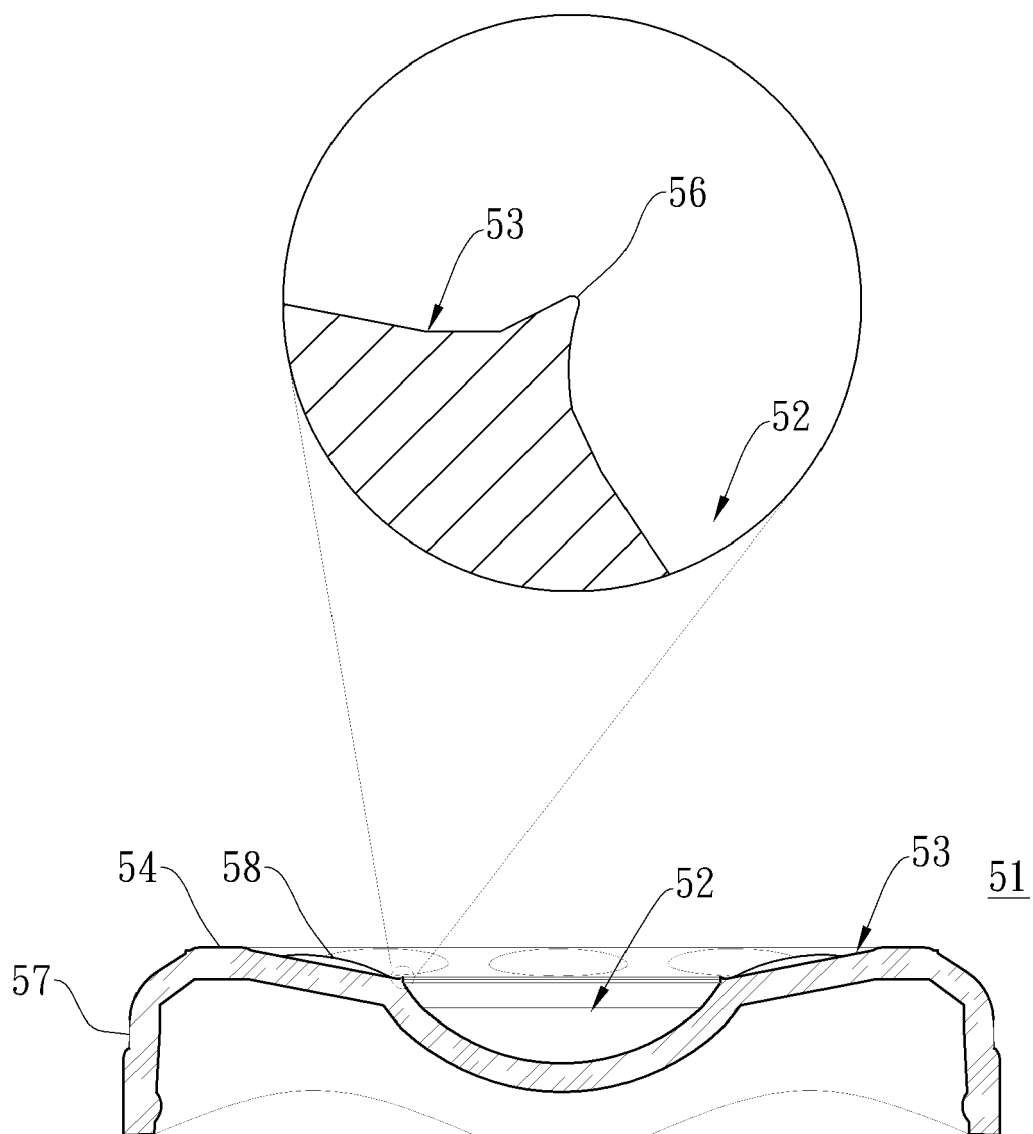


Fig. 7D

**PARTIAL EUROPEAN SEARCH REPORT**

Application Number

under Rule 62a and/or 63 of the European Patent Convention.
This report shall be considered, for the purposes of
subsequent proceedings, as the European search report

EP 11 17 4461

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	CN 101 791 864 A (JIANGSU HORIEN CONTACE LENS CO LTD) 4 August 2010 (2010-08-04) * figures 3-5 *	12-16	INV. A45C11/00
X	US 7 398 877 B1 (NELSON STERLING) 15 July 2008 (2008-07-15) * figure 6 *	12-16	
X	US 5 695 049 A (BAUMAN ROBERT) 9 December 1997 (1997-12-09) * column 3, line 20 - column 4, line 15 * * figures 1,8,9,11 *	12-16	
X	US 3 414 117 A (LEEDS HARRY) 3 December 1968 (1968-12-03) * the whole document *	12-15	
X	US 5 515 964 A (BAUMAN ROBERT) 14 May 1996 (1996-05-14) * column 1, line 50 - column 3, line 16 * * column 3, lines 38-40 * * claim 1 * * figures 1-5 *	12,14-16	
			TECHNICAL FIELDS SEARCHED (IPC)
			A45C A61L
INCOMPLETE SEARCH			
The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC so that only a partial search (R.62a, 63) has been carried out. Claims searched completely : Claims searched incompletely : Claims not searched : Reason for the limitation of the search: see sheet C			
Place of search		Date of completion of the search	Examiner
The Hague		27 April 2012	Witkowska-Piela, A
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03.82 (P04E07)



PARTIAL EUROPEAN SEARCH REPORT

Application Number
EP 11 17 4461

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (IPC)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
A	US 2002/046958 A1 (LIPSCOMB LANCE KYLE) 25 April 2002 (2002-04-25) * paragraph [0040] * -----	1	
			TECHNICAL FIELDS SEARCHED (IPC)

**INCOMPLETE SEARCH
SHEET C**

Application Number

EP 11 17 4461

Claim(s) completely searchable:
12-16

Claim(s) not searched:
1-11

Reason for the limitation of the search:

Claims 1, 6 and 12 have been drafted as separate independent claims. Under Article 84 in combination with Rule 43(2) EPC, an application may contain more than one independent claim in a particular category only if the subject-matter claimed falls within one or more of the exceptional situations set out in paragraph (a), (b) or (c) of Rule 43(2) EPC. This is, however, not the case in the present application. In reply to the invitation to indicate the claims on which the search is to be based, the applicant requested the search to be carried out on the basis of independent claim 12 and claims 13-16 dependent thereon. Consequently, the search report has been drawn up on the basis of the claims 12-16 as indicated in the applicant's letter dated 28.12.2011.

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 11 17 4461

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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27-04-2012

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