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(54) Safe barrel and keg stacking device and system

(57) A device (1) for stacking beverage containers, for example a beer keg, the device comprising a support surface (4) for supporting a container; and a flange (5) which juxtaposes the container; and wherein the flange acts to prevent the container from sliding off the top of a second container when in a stacked position.

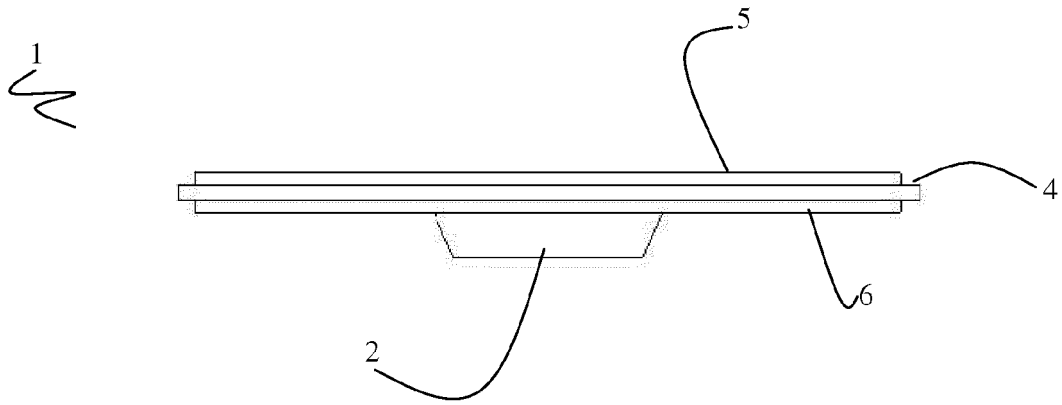

Figure 1

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Description

Field of the Invention

[0001] The invention relates to a device and system for safely stacking barrels and kegs in general. In particular, the invention relates to a device for stacking kegs and barrels and a system for doing the same.

Background to the Invention

[0002] On a daily basis people are working in storage rooms in the service industry lifting and stacking keg barrels. One of the major problems of storage rooms, and in particular cold storage rooms, in the service industry is the utilisation of space. More importantly, the health and safety of the people working in and around keg barrels, whether it is attaching lines, cleaning lines, lifting and loading barrels, stacking barrels on top of one another, is at risk. There is a very high risk of barrels falling off one another. The safe stacking of the barrels with the systems that are on the market do not solve the above problems as the barrels could not be stacked on top of one another safely enough or efficiently enough utilising the space available in storage rooms. Currently on the market there are cradles or racks for storing barrels which are very bulky, as are frames that barrels are lain into. Pallets, shelves and crates are the other options but these are very costly and very bulky. In general, a lot of space is required for these systems. However, most cellars or storage facilities in pubs, restaurants or hotels will have neither the space for nor the equipment to run these systems, such as forklifts and lifting equipment.

[0003] Another problem that faces workers in storage rooms is how to stack barrels that are damaged around their edges. The damage around the edges of the barrels prevents them sitting snugly on top of one another.

[0004] Even if the barrels, damaged or otherwise, do sit on top of one another, the slightest push or shove can cause those barrels on top to slide off the bottom barrel. Thus, the worker is at risk of becoming injured from falling barrels.

[0005] A similar problem exists for the general storage and transportation of kegs and barrels into and from warehousing locations, indoor and outdoor functions, concerts, *etc.*

[0006] There is therefore a need to provide a device and system for stacking barrels and kegs which overcome at least one of the above-mentioned problems.

Summary of the Invention

[0007] According to the present invention there is provided, as set out in the appended claims, a device for stacking containers, the device comprising:

a support surface for supporting a container; and
a flange which juxtaposes the container;

wherein the flange acts to prevent the container from sliding off the top of a second container when in a stacked position.

[0008] In one embodiment, the device may further comprise an aperture, wherein the aperture permits air to flow between the containers.

[0009] In one embodiment there is provided a device for stacking containers, the device comprising:

a support surface for supporting a container;
a flange which juxtaposes the container; and
an aperture,

wherein the aperture permits air to flow between the containers and the flange acts to prevent the container from sliding off the top of a second container when in a stacked position.

[0010] In one embodiment, the container is a beverage container. The beverage container may be selected from the group comprising a keg, a barrel, a cask, a vat.

[0011] In one embodiment of the present invention, the flange may juxtapose an inner diameter of a container.

[0012] In one embodiment of the present invention, the device may further comprise a second flange adapted to juxtapose an outer diameter of a container.

[0013] In one embodiment of the present invention, the aperture may be accommodated in the flange juxtaposed the inner diameter of the container.

[0014] In one embodiment of the present invention, the device may further comprise a gripping surface.

[0015] In one embodiment of the present invention, the flange is disposed in a substantially vertical direction relative to the support surface.

[0016] In one embodiment of the present invention, the device may further comprise a truncated cone positioned in the centre of the device, wherein the cone is configured to engage with a valve on the container. The cone may be in communication with the flange which juxtaposes the container.

[0017] In one embodiment of the present invention, the aperture may form one or more central openings in the device.

[0018] In one embodiment of the present invention, the device may be composed of one or more pieces of material.

[0019] In one embodiment of the present invention, there is provided a system for stacking containers of kegs or barrels comprising positioning a device as described above on top of a container and positioning a second container on the support surface of the device.

[0020] The system of the invention may be referred to as a safe barrel or keg stacking system, which can be made from plastic. It has vents cut into the main body and is shaped like a disc. There may be a cone shaped design cut into the centre point of the disc.

[0021] In the specification, the term "container" should be understood to mean any container suitable for storing

a large volume of fluid, such as for example, a keg, a barrel, a cask, or any item suitable for holding any form of liquid, or solid, or other matter.

[0022] In the specification, the term "fluid" should be understand to mean any alcoholic or non-alcoholic liquid which can be transported in containers, such as, for example, beer, lager, ale, stout, wine, whiskey or any spirit such as brandy, sherry and the like, water, milk, and soft drinks such as lemonade, cola, and the like.

Brief Description of the Drawings

[0023] The invention will be more clearly understood from the following description of an embodiment thereof, given by way of example only, with reference to the accompanying drawings, in which:-

Figure 1 illustrates a side view of one embodiment of the present invention.
Figure 2 illustrates a top plan view of Figure 1.
Figure 3 illustrates a cut section view of Figure 1.
Figure 4 illustrates a bottom plan of Figure 1.
Figure 5 illustrates a perspective view of the embodiment of Figure 1.
Figure 6 illustrates (A) a top plan view and (B) a side sectional view of an alternative embodiment of Figure 1.
Figure 7 illustrates (A) a top plan view and (B) a side sectional view of an alternative embodiment of Figure 1.
Figure 8 illustrates (A) a top plan view and (B) a side sectional view of a second embodiment of the present invention.
Figure 9 illustrates a (A) top plan view and (B) side view of a third embodiment of the present invention.
Figure 10 illustrates a bottom view of Figure 9.
Figure 11 illustrates a (A) top plan view and (B) side view of a fourth embodiment of the present invention.
Figure 12 illustrates a (A) bottom view and (B) side sectional view of Figure 11.
Figure 13 illustrates a side sectional view of any one of the embodiments illustrated in Figures 8 to 12 stacked one on top of the other.
Figure 14 illustrates (A) a top plan view and (B) a side sectional view of the second embodiment of Figure 8.
Figure 15 illustrates a perspective view of the embodiments illustrated in Figures 9 to 13 in use with a beer barrel.

Detailed Description of the Drawings

[0024] The present invention allows for the safe stacking and storing of containers, in particular barrels and kegs, one on top of the other. The device of the present invention is a single piece unit comprising a support having an upper and lower surface, at least one flange on the upper surface, at least one flange on the lower surface, and an aperture which provides ventilation between the barrels. The device is easy to use, is lightweight and prevents barrels from sliding off each other when the device is in use.

[0025] Figure 1 illustrates a side view and Figure 2 an elevation view of one embodiment of the device of the present invention, referred to by reference numeral 1. The device 1 comprises a cone 2 having a central cavity 3. The device 1 further comprises a support surface 4 having a flange 5, 6. The flange 5 generally contacts a barrel which sits on the support surface 4 (the "supported barrel") and the flange 6 generally contacts the top of a barrel which is placed beneath and in contact with the support surface 4 (the "supporting barrel"). The cone 2 secures itself to a valve on the supporting barrel in contact with the flange 6, thus keeping the barrels centred and safe. The flange 5 of the device 1 will fit within the internal diameter of the top and bottom of the barrel. As shown in Figures 1, 3 and 5 the flange 6 of the device 1 will fit within the internal diameter of the top and bottom of the barrel. Alternatively, the flange 6 may be positioned towards the outer edge of the support surface 4 so that it will fit around the outside diameter of the barrel. Either configuration will centre the barrels with the cone 2 and secure the barrels into position with the flanges 5, 6 thus holding the barrels into place on the top and the bottom, preventing the barrels from sliding or slipping off one another.

[0026] As illustrated in Figures 1 to 5, the flange 5 of the device 1 is in fluid communication with the cone 2. The cone 2 is positioned in the centre of the device 1 which will fit down over the valve on the top of each barrel as they are stacked. The flange 5 is punctuated with apertures 7 which permit air to pass through and around the barrels that are stacked on top of each other. This helps prevent condensation and corrosion between the barrels.

[0027] An alternative arrangement of the apertures 7 of the device 1 is shown in Figures 6 and 7. In these arrangements, the cone 2 is in communication with the flange 5 by means of connectors 8 and 9. The apertures 7 permit air to pass through and around the barrels that are stacked on top of each other, thus preventing condensation and corrosion between the barrels.

[0028] In Figure 8(A) and 8(B) there is illustrated a second embodiment of the device 1 of the present invention. In this embodiment, the cone 2 is replaced with a central aperture 17, which is in communication with the flange 5. The device 1 further comprises a flange 16 in addition to the flange 6, wherein the flange 16 is positioned towards the outer edge of the support surface 4 so that the flange 16 will fit around the external diameter of the top or bottom of the barrel.

[0029] In Figures 9(A), 9(B) and 10 there is illustrated a third embodiment of the device 1 of the present invention. In this embodiment, the flange 5 forms the border of a central aperture 27. The device 1 further comprises a flange 26 in addition to the flange 6, wherein the flange

26 is positioned towards the outer edge of the support surface 4 so that the flange 26 will fit around the external diameter of the top or bottom of the barrel.

[0030] In Figures 11(A), 11(B), 12(A) and 12(B) there is illustrated a fourth embodiment of the device 1 of the present invention. In the illustrated embodiment, the device 1 comprises a flange 36 and flange 6, and on a lower surface 40 of the supporting surface 4, that is, the surface of the device 1 which contacts the top of a barrel when in use, there is a lattice-like structure 39 which acts to provide a gripping feature on the device 1.

[0031] The lattice-like structure 39 can be applied to any one of the embodiments of the claimed invention, as illustrated in Figure 14A and 14B. The device 1 illustrated therein is that shown in Figure 8A and 8B with a lattice-like structure 39 on the lower surface 40 of the supporting surface 4 and lower surface 60 of the flange 5.

[0032] A plurality of the device 1 of the present invention can be stored conveniently by stacking one on top of the other as illustrated in Figure 13. The arrangement of the flanges 5, 6 and the aperture 7, 17, 27, 37 permit the stacking of a plurality of the device 1. When a first device 1 is placed on top of a second device 1, the flange 6 of the first device 1 is juxtaposed the flange 5 and resting within the aperture 7 of the second device 1. Thus, it is possible to stack a large number of the devices 1 and store them in a convenient and tidy manner.

[0033] In use, the device 1 of the present invention provides a system for safely stacking and storing barrels in a storage room, as illustrated in Figure 15. When a barrel 50 is placed on the ground or on a surface, a user may place the device 1 on top of the barrel 50, as illustrated in Figure 15. The flange 16, 26, 36 fits around the external diameter of the barrel 50 and the flange 6 fits within the internal diameter of the barrel 50. The aperture 7, 17, 27, 37 permits air to pass through and around the top of the barrel 50. When a second barrel 51 is placed on top of the barrel 50, the bottom 52 of the barrel 51 rests on the support surface 4 of the device 1. The bottom 52 of the barrel 51 rests against the flange 5 and prevents the barrel 51 from sliding off the barrel 50.

[0034] It will be appreciated that the advantages of the stacking system over what is currently on the market are that it is the only one of its kind that will do this job. It is designed to stack the barrels from the centre cone out. It is this design feature that secures the barrels that are stacked onto one another.

[0035] It should also be appreciated that the safe barrel stacking system is a single plastic disc that the barrels sits on, the cone shape sits securely over the valve on the bottom keg barrel and centres the safe barrel stacking system into the centre point of the barrel on the bottom. The top barrel can then sit over the inner flange of the safe barrel stacking system and rests on the outer flange, thus securing the barrel into position. Because the design of the safe barrel stacking system allows air to flow in and around the barrels stacked on top of one another through the vents in the disc, this prevents condensation and corrosion taking place between the barrels.

[0036] It will also be appreciated that the safe barrel stacking system is also designed to allow one to inspect the valve on the barrels with the safe barrel stacking system fitted onto the barrel.

[0037] It will further be appreciated that this invention will allow for the improvement in health & safety in the way barrels are handled and stacked in store rooms, providing a safe working environment for all employees.

[0038] It will be appreciated that the object of the present invention called a safe barrel stacking system is made of moulded plastic and it is used for stacking barrels safely, particularly keg barrels for the bar trade but could be utilised on all types of barrels. The product has a cone feature in the centre and an inner and outer flange along with air vents in its main body. These features allow for the barrels to be centred and stacked safely, preventing the barrels falling off one another. The vents allow air to pass through and around the barrels preventing corrosion and condensation. The cone secures itself to the valve on the keg barrel on the bottom, thus keeping the barrels centred and safe. The inner flange of the safe barrel stacking system will fit inside the internal diameter of the barrels top and bottom; the outer flange will have the outside diameter of the barrel resting on it. This will firstly centre the barrels with the cone and secondly secure the barrels into position with the inner and outer flanges holding the barrels in place on the top and the bottom.

[0039] It will be appreciated that the method of producing this product is as follows, each SAFE BARREL STACKING SYSTEM is moulded in a plastic moulding machine, this gives the finished unit in one process; it will be natural in colour but maybe coloured if required. Other designs for catching the centre of the Keg barrels such as a "X" shape in the centre or a square shape or a claw grip around the valve were looked at, the essence of the design is the centre stabilisation feature which is in the centre of the main body of the safe barrel stacking system and the inner and outer design is the concept that is important to the design. It is possible to use other shapes however.

[0040] It will be further appreciated that the product called the safe barrel stacking system can also so be made from timber using any type of manufactured or machined or natural wood, cutting the parts required *i.e.* the cone, inner and outer flanges and gluing or nailing them together. Other materials which could be used to make it are from all types of metal for example, soft and hard metal, light and strong metal that could be welded together or CNC machined to the shape. Other materials which could be considered are fibreglass moulding or rubber, nylon and plaster. The advantages of the plastic moulding was that it is one unit/one mould, it is light yet very durable and load resistance, it is hard wearing a long life investment for the health and safety of people working around barrels.

[0041] It should also be appreciated that the device

can be moulded or cut from a one or more pieces of material and assembled to form the device of the present invention.

[0042] In the specification the terms "comprise, comprises, comprised and comprising" or any variation thereof and the terms "include, includes, included and including" or any variation thereof are considered to be totally interchangeable and they should all be afforded the widest possible interpretation and vice versa.

[0043] The invention is not limited to the embodiments hereinbefore described but may be varied in both construction and detail.

Claims

1. A device for stacking beverage containers, for example a keg or barrel, the device comprising:

a support surface for supporting a container; and
a flange which juxtaposes the container;

wherein the flange acts to prevent the container from sliding off the top of a second container when in a stacked position.

2. A device according to Claim 1, further comprising an aperture, wherein the aperture permits air to flow between the containers.

3. A device according to Claim 1 or Claim 2, wherein the flange juxtaposes an inner diameter of a container.

4. A device according to any one of the Claims 2 or 3, wherein the aperture is accommodated in the flange juxtaposed the inner diameter of the container.

5. A device according to any one of the preceding claims, wherein the device further comprises a second flange adapted to juxtapose an outer diameter of a container.

6. A device according to any one of the preceding claims, further comprising a gripping surface.

7. A device according to any one of the preceding claims, wherein the flange is disposed in a substantially vertical direction relative to the support surface.

8. A device according to any one of the preceding claims, further comprising a truncated cone positioned in the centre of the device, wherein the cone is configured to engage with a valve on the container.

9. A device according to Claim 8, wherein the cone is in communication with the flange which juxtaposes the container.

10. A device according to any one of Claims 1 to 7, wherein the aperture forms a central opening in the device.

11. A device according to any one of the preceding claims, wherein the device is composed of one or more pieces of material.

12. A system for stacking containers comprising positioning a device of Claim 1 on top of a container and positioning a second container on the support surface of the device.

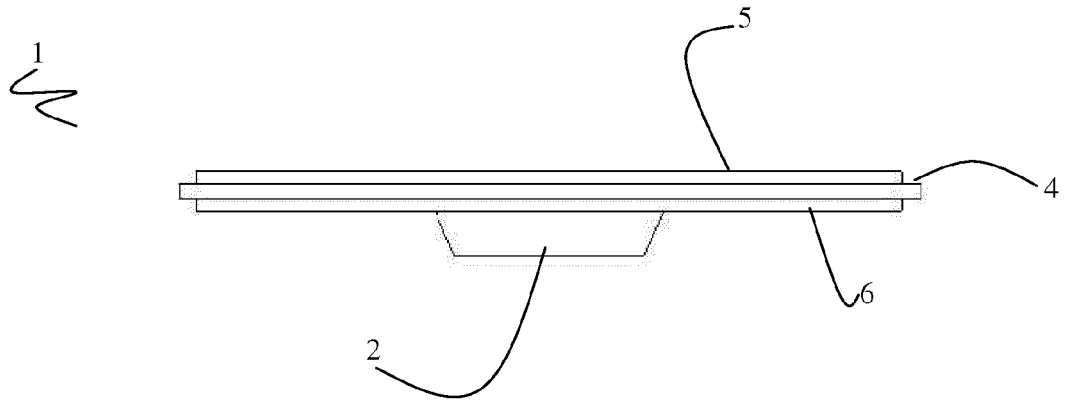

Figure 1

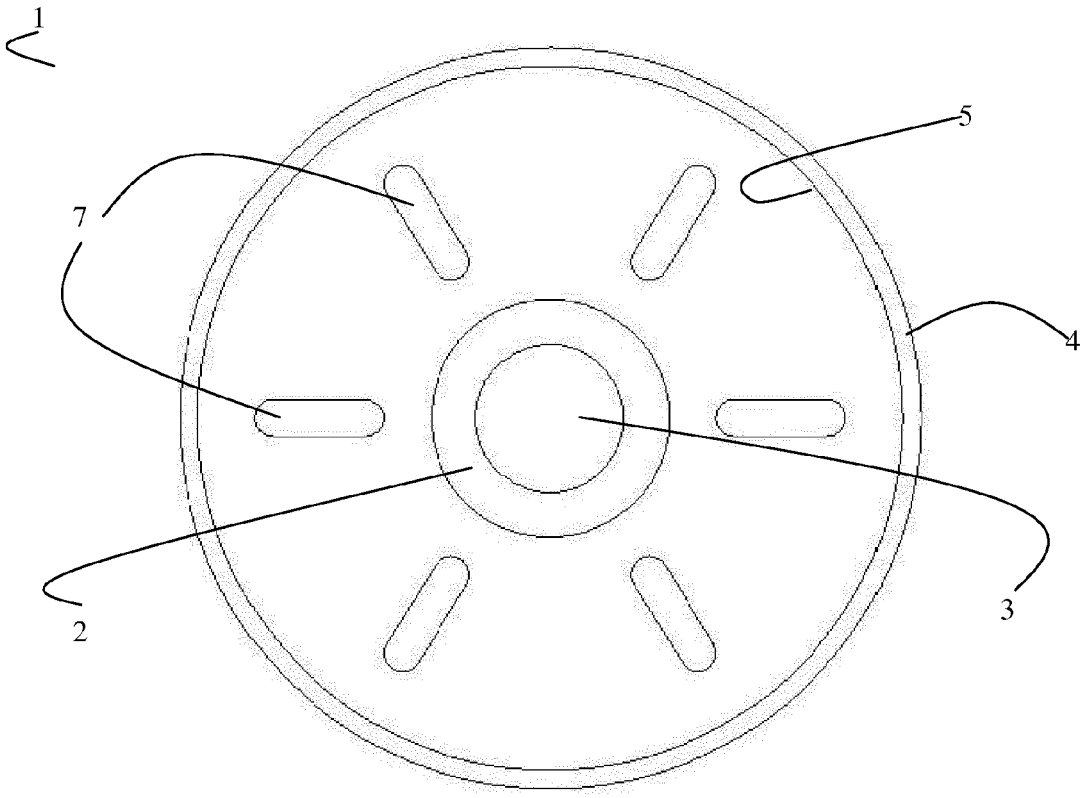

Figure 2

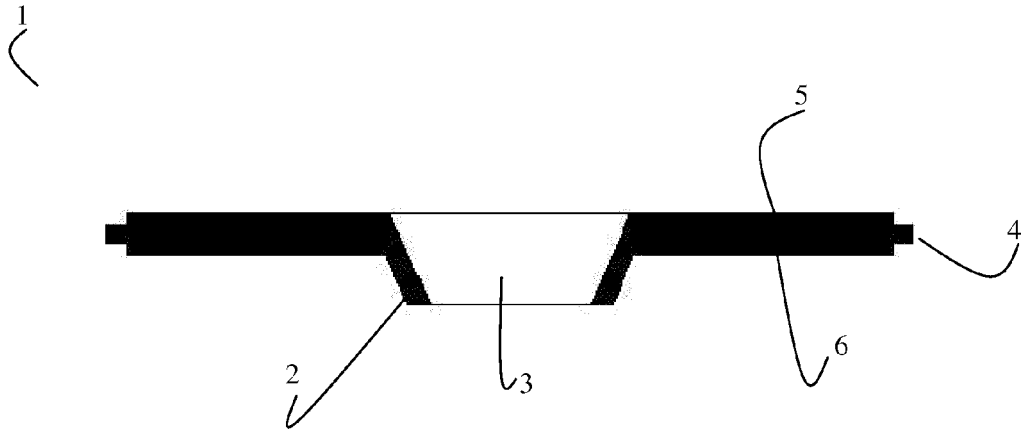

Figure 3

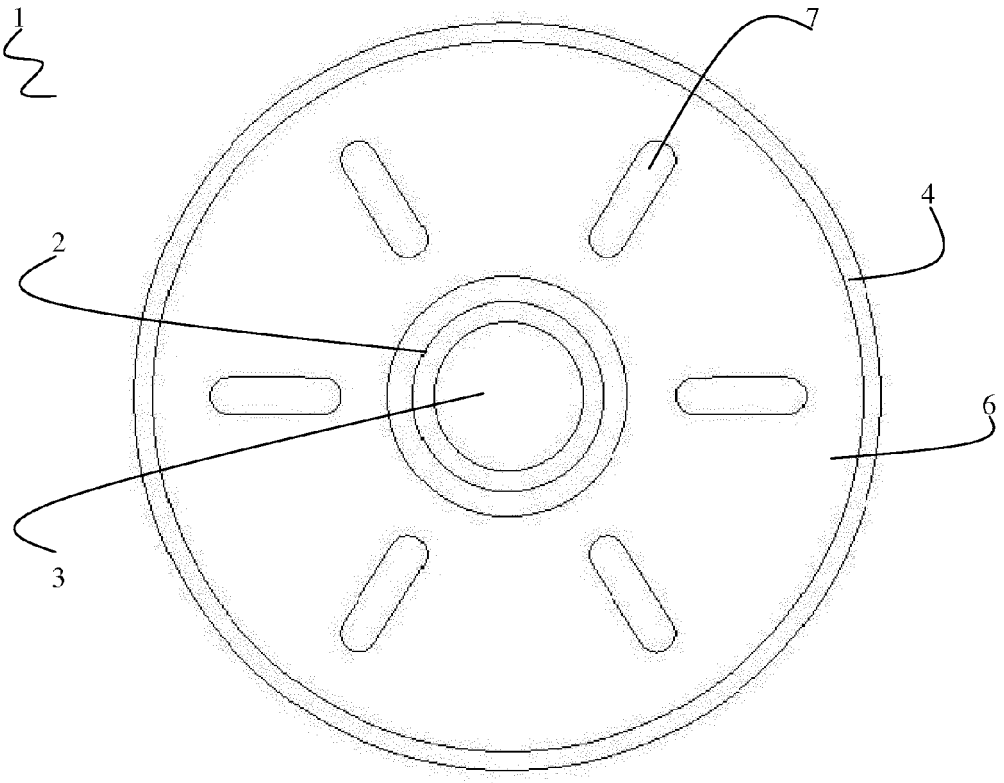

Figure 4

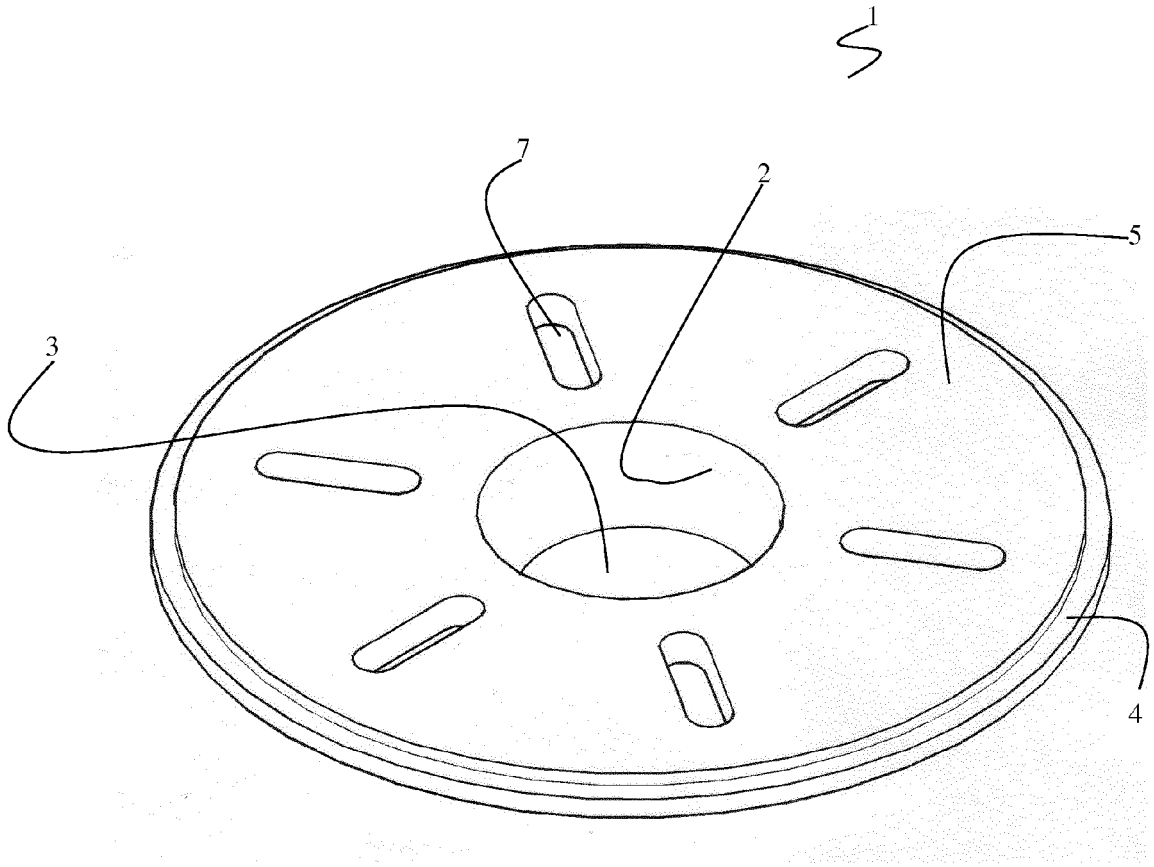

Figure 5

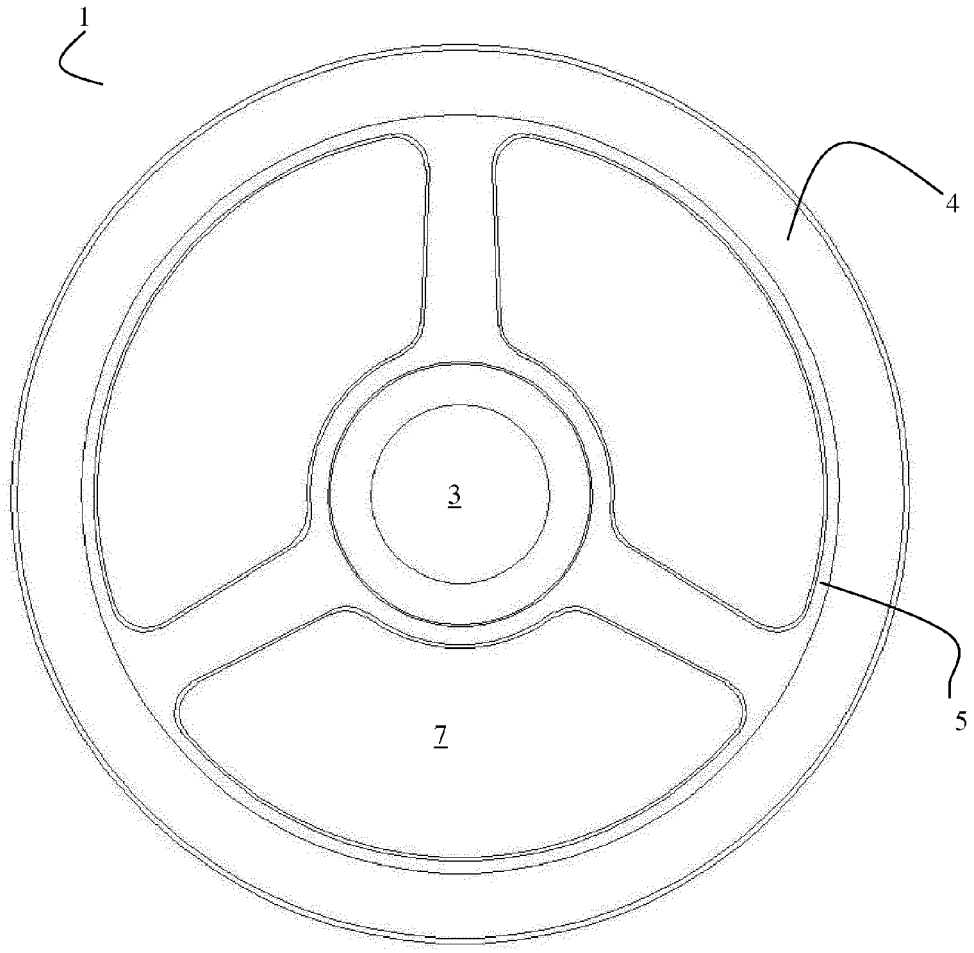

Figure 6A

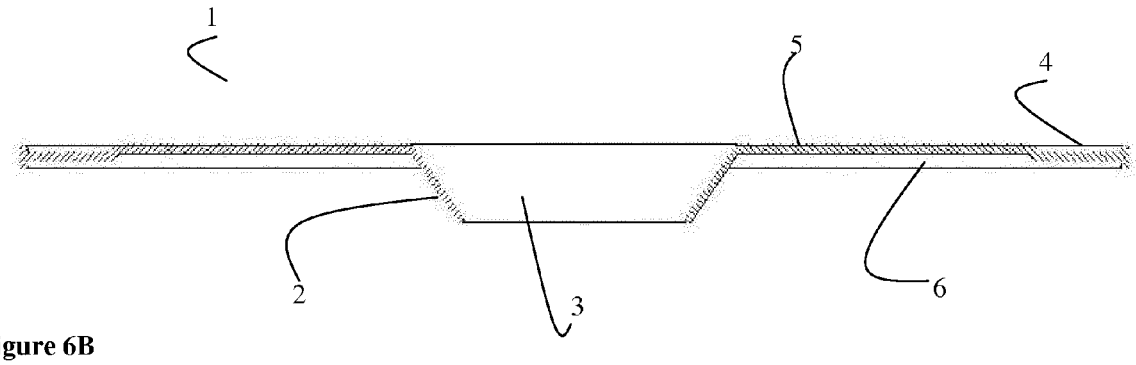

Figure 6B

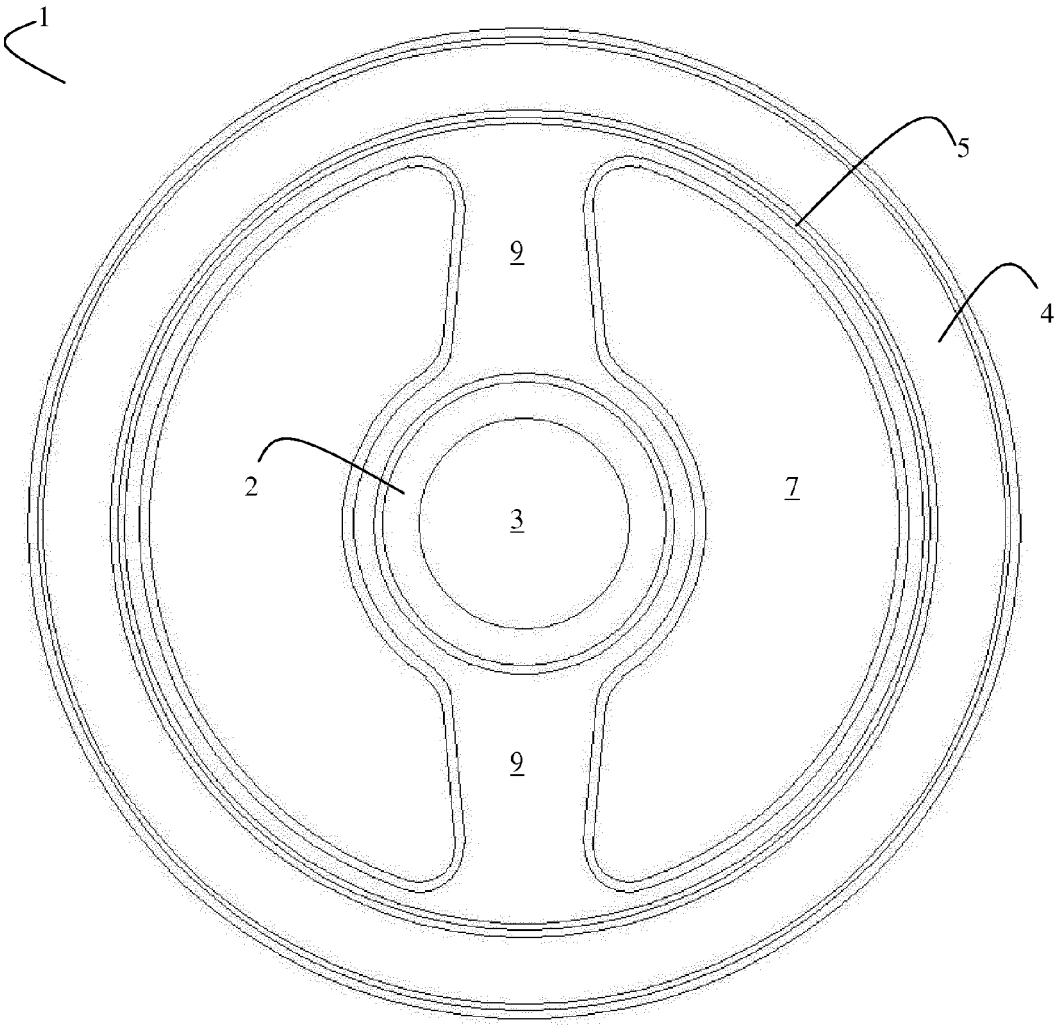

Figure 7A

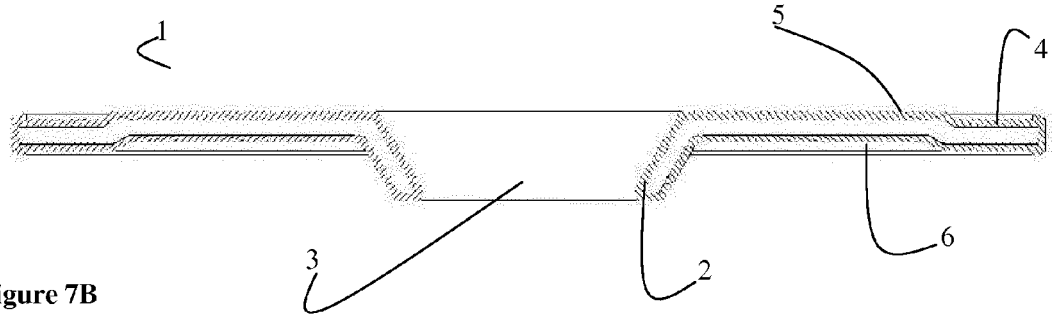

Figure 7B

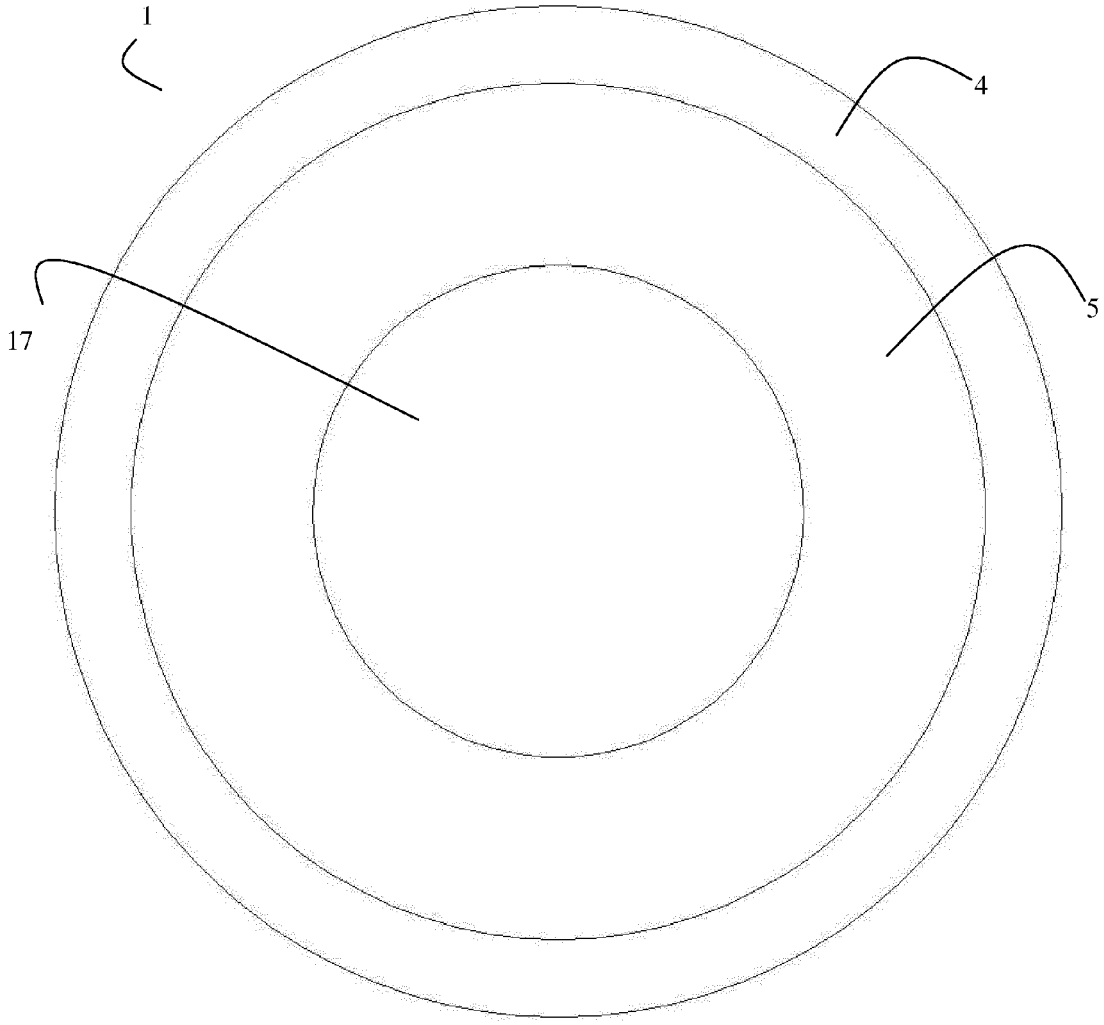

Figure 8A

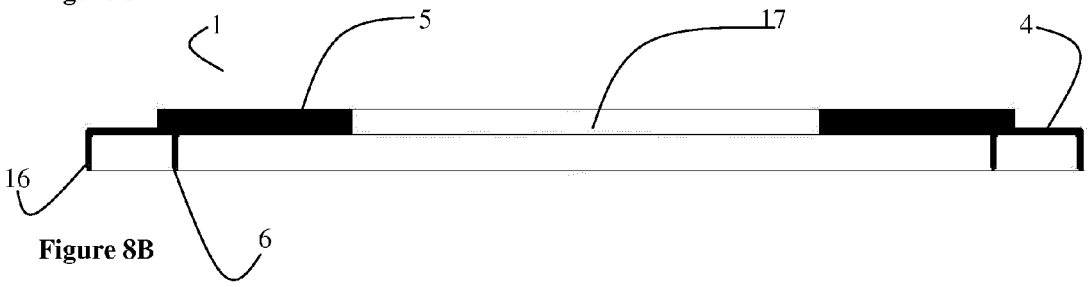

Figure 8B

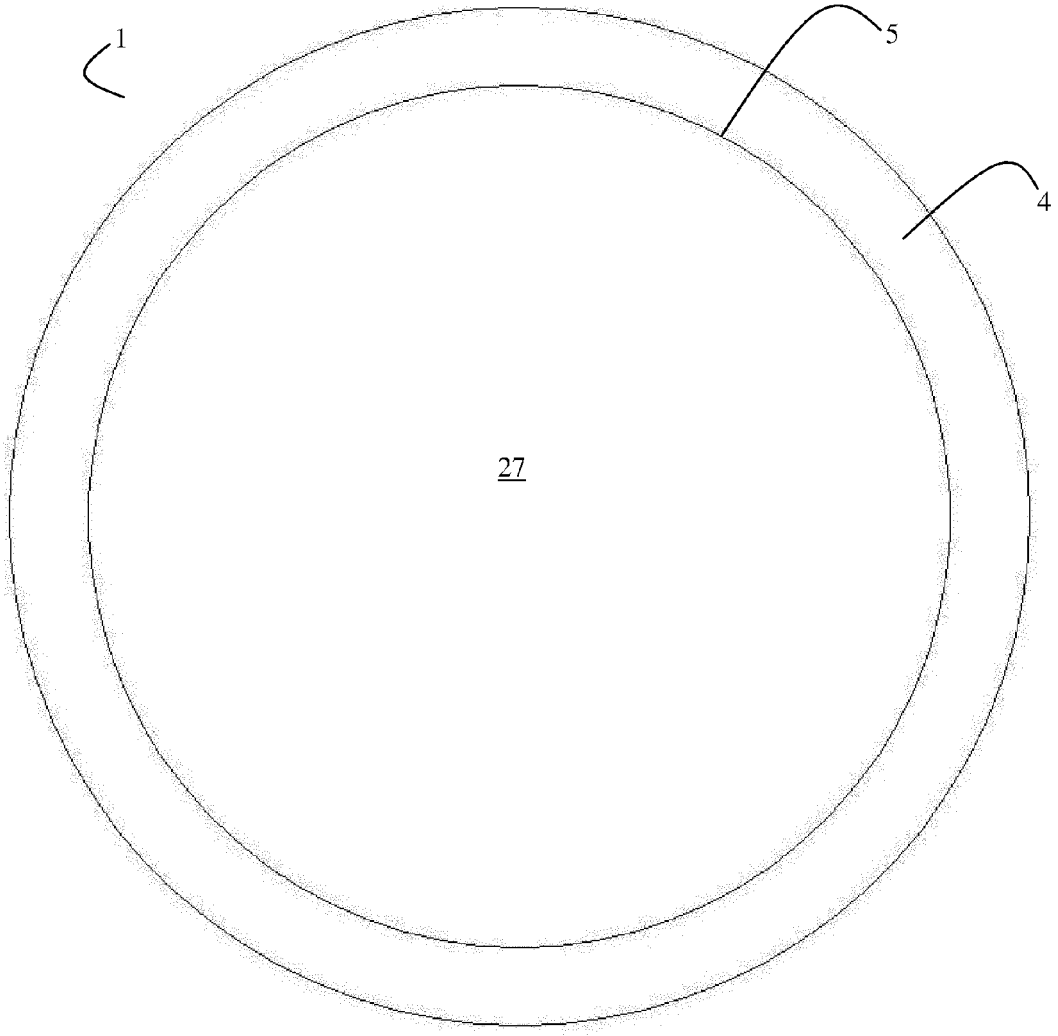

Figure 9A

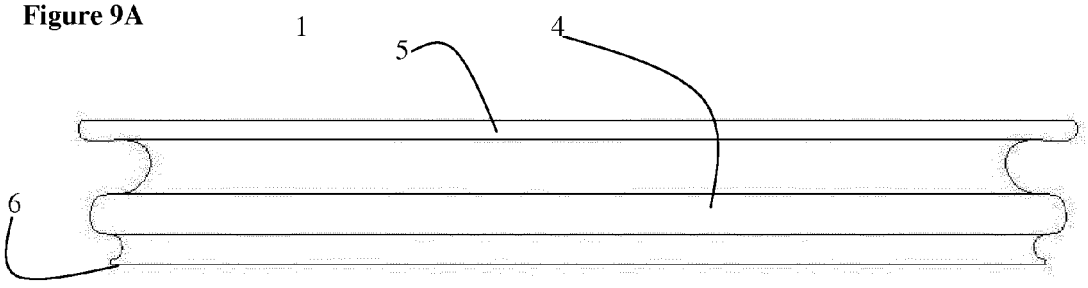

Figure 9B

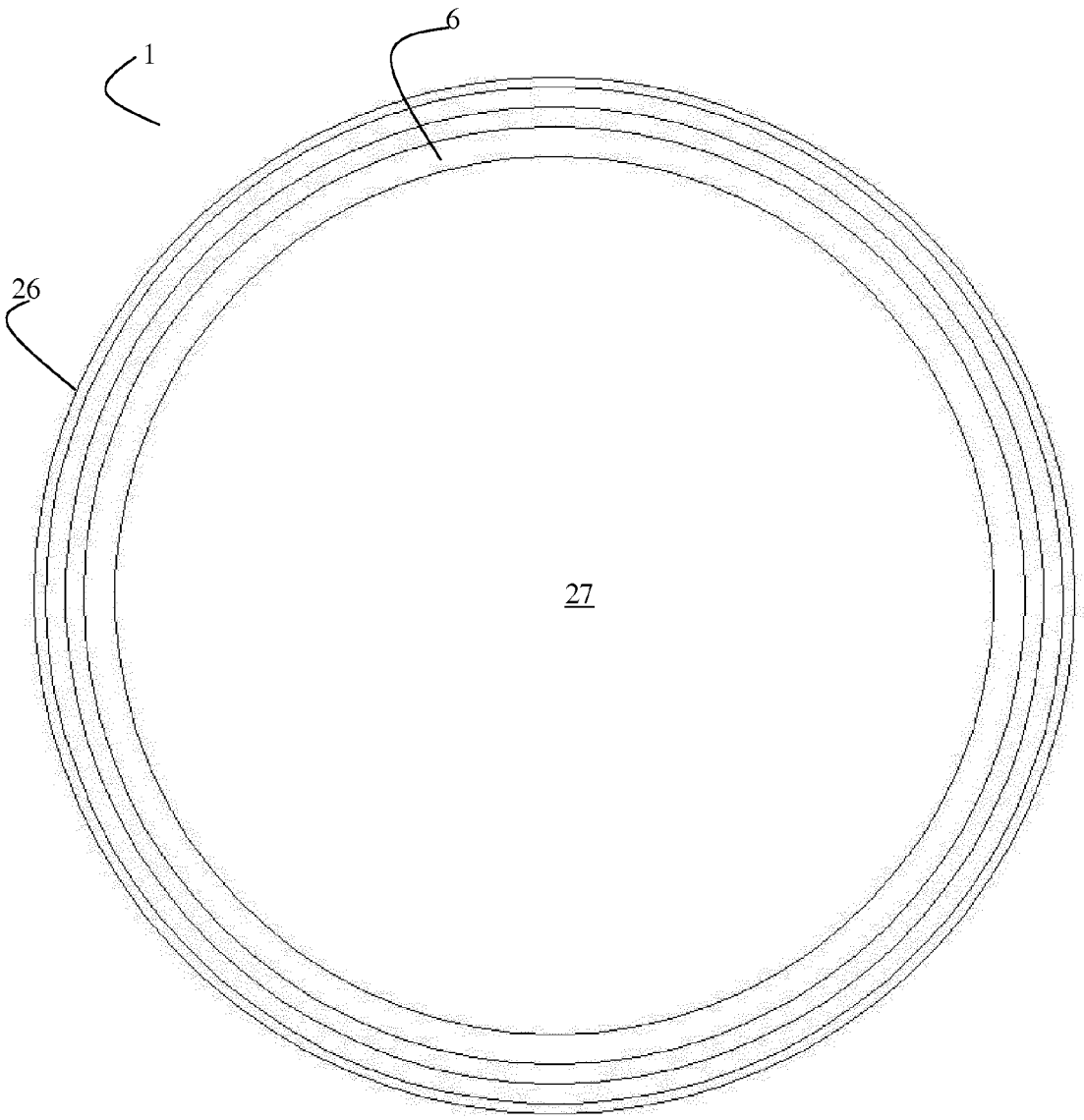

Figure 10

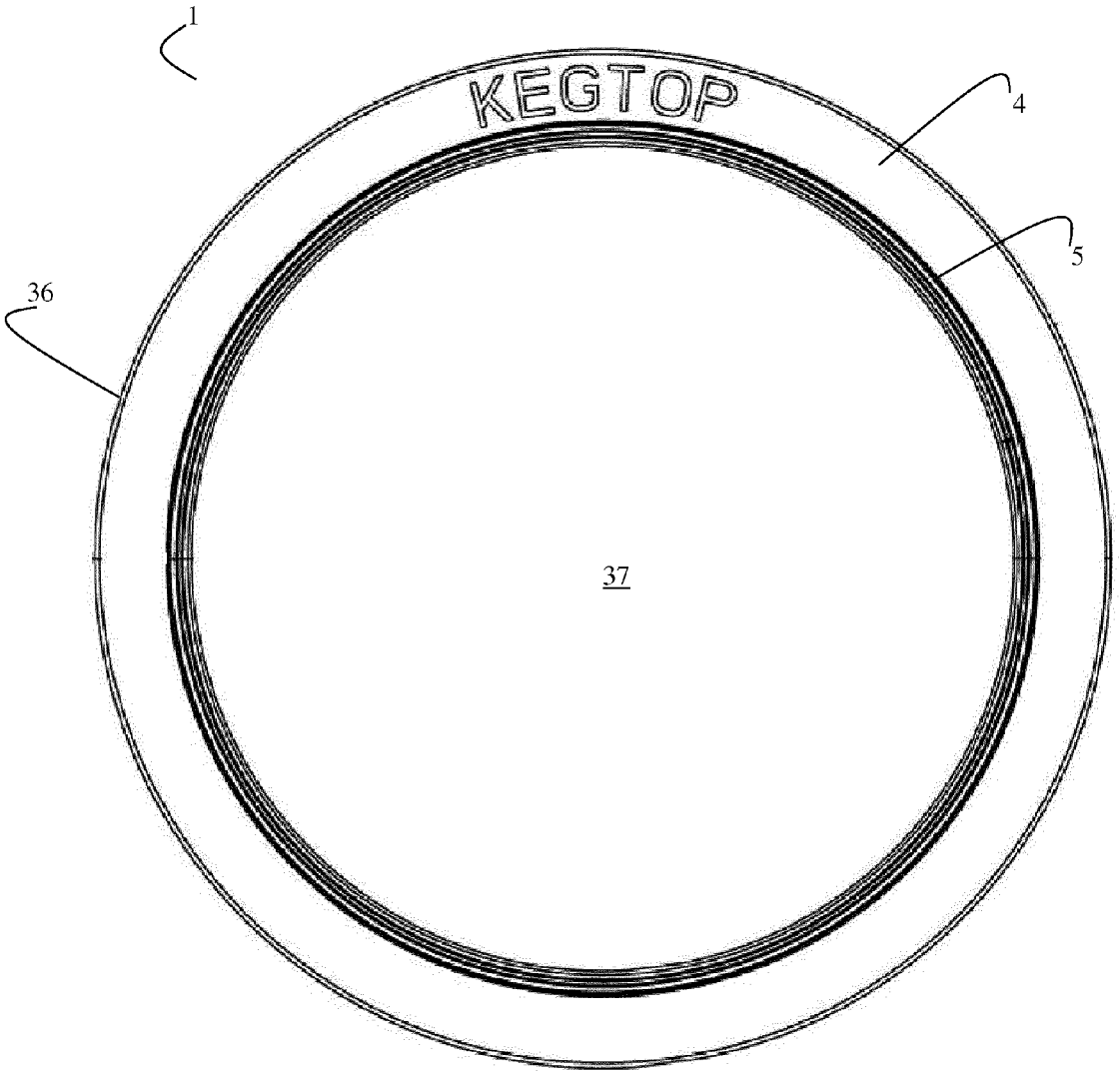

Figure 11A

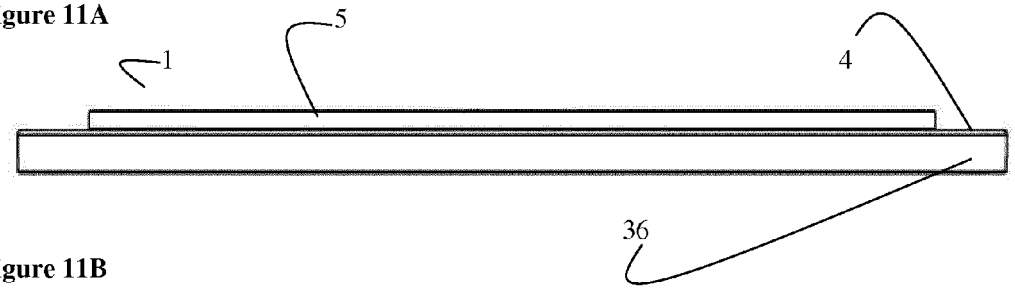

Figure 11B

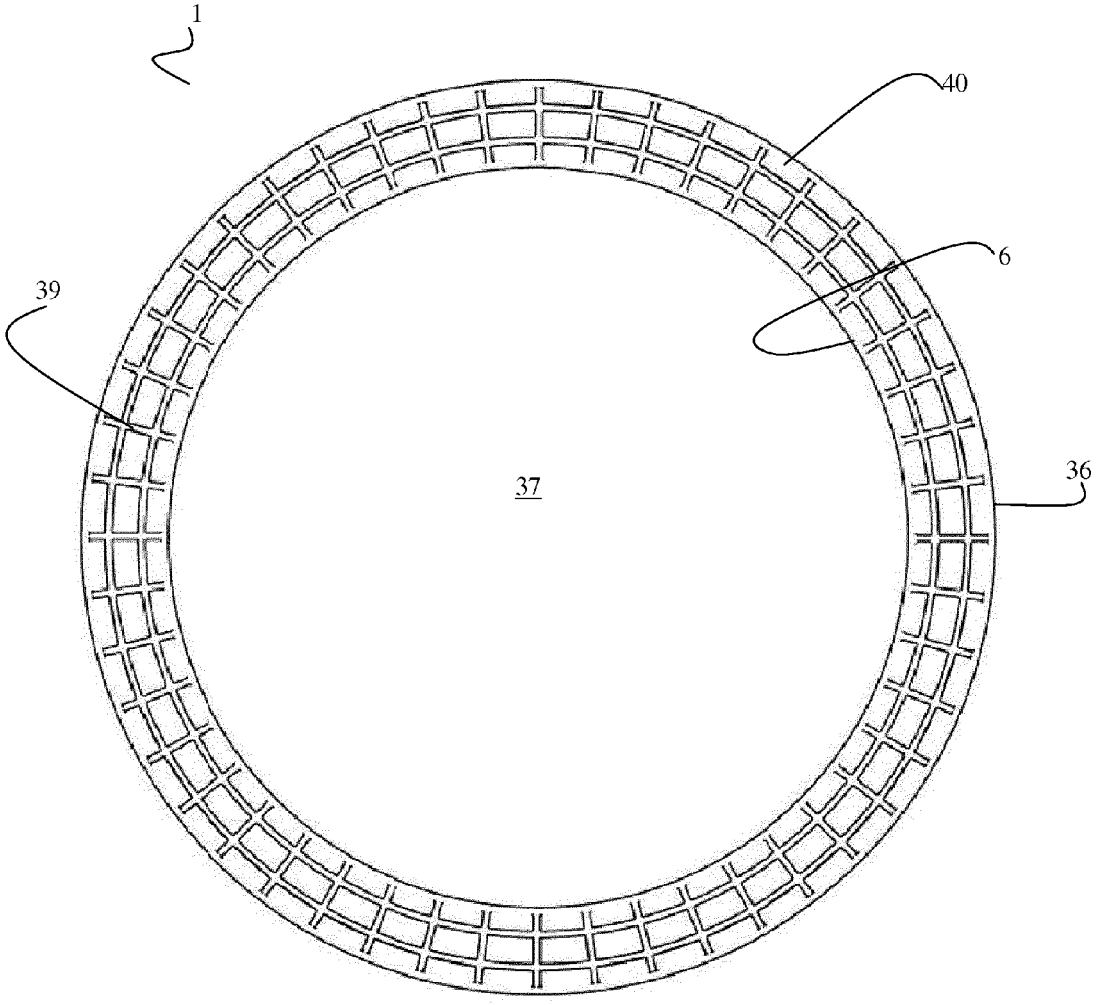

Figure 12A

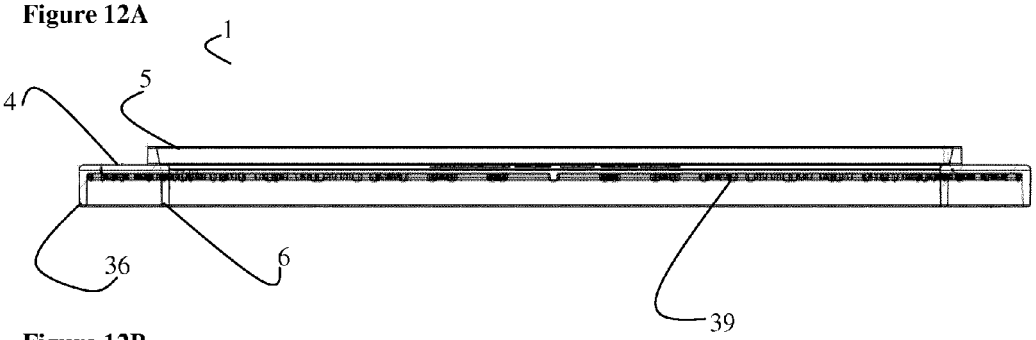

Figure 12B

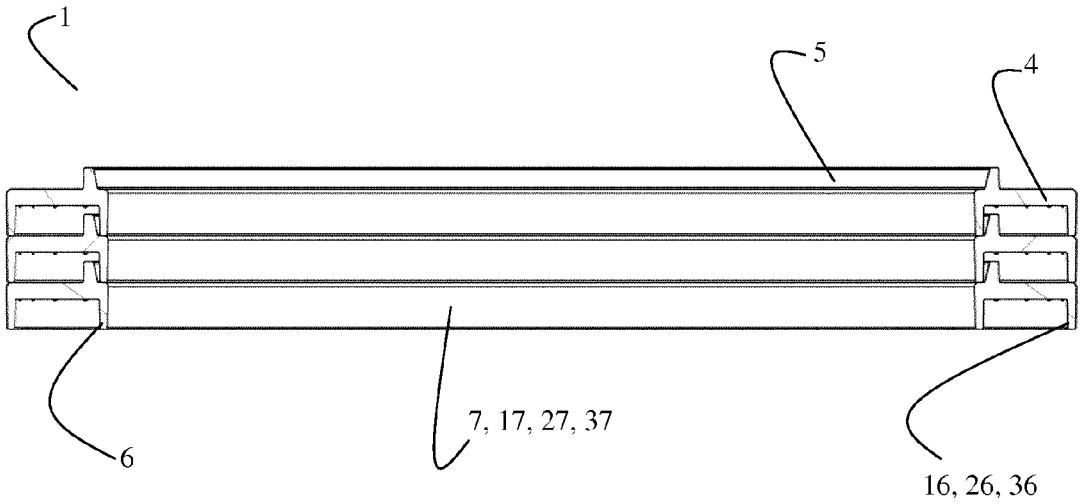

Figure 13

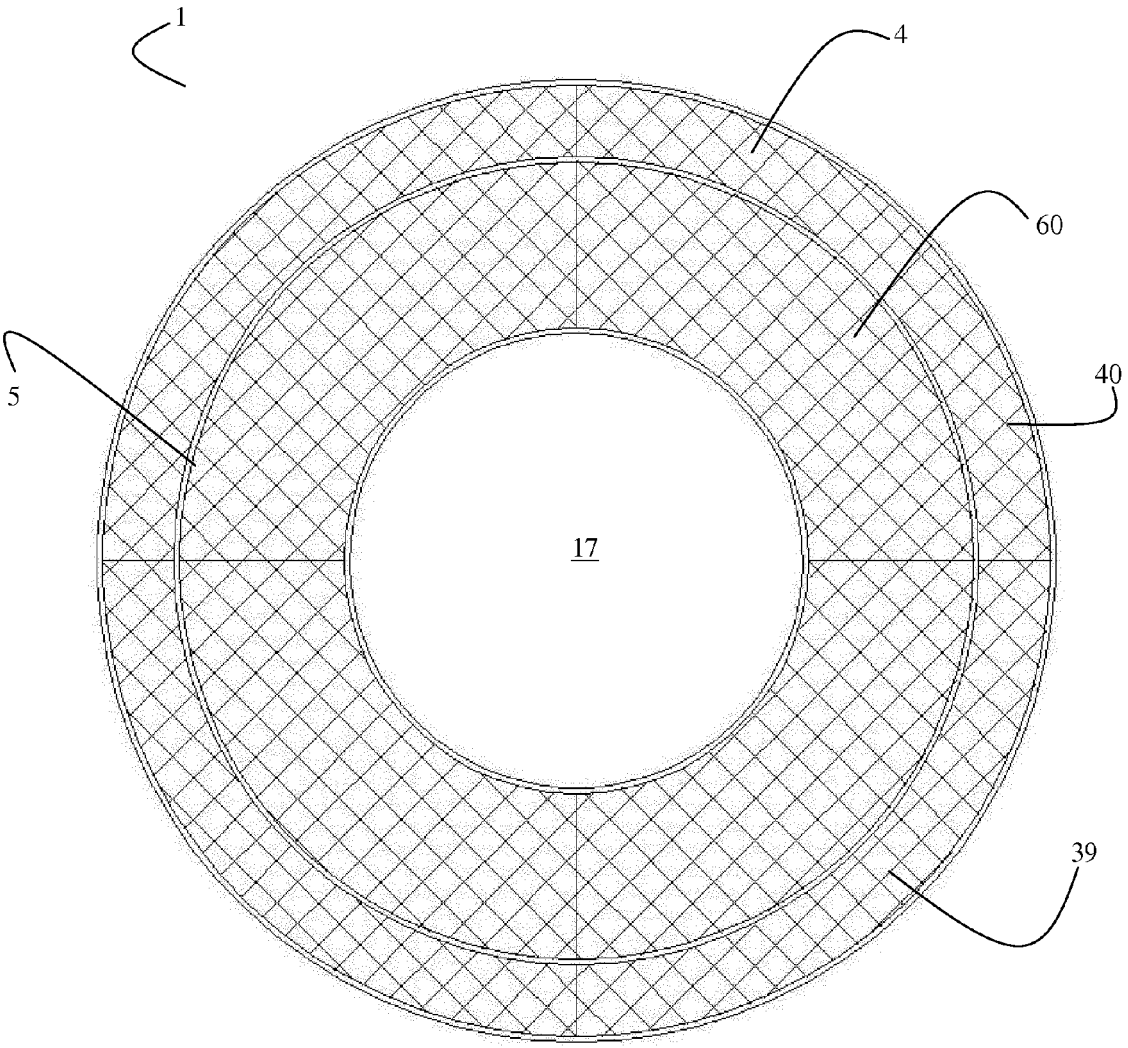

Figure 14A

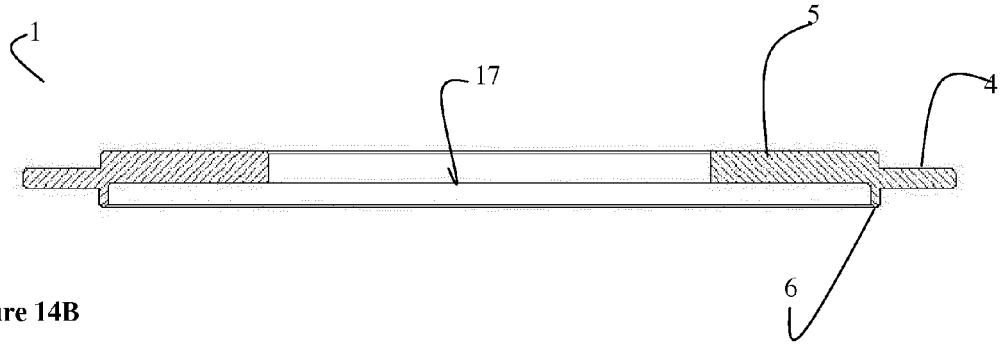

Figure 14B

Figure 15

Europäisches Patentamt
European Patent Office
Office européen des brevets

EUROPEAN SEARCH REPORT

Application Number
EP 12 18 4641

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	US 2 957 601 A (JACK NOVICK) 25 October 1960 (1960-10-25) * the whole document *	1-7, 10-12	INV. B65D21/02 B65D57/00
X	US 5 657 871 A (WATERS ROBERT E [US] ET AL) 19 August 1997 (1997-08-19) * abstract; figures *	1-4,6,7, 10-12	
X	US 2 119 745 A (INGERSOLL ROY C) 7 June 1938 (1938-06-07) * the whole document *	1-7, 10-12	
X A	DE 10 2009 044314 A1 (KRONES AG [DE]) 28 April 2011 (2011-04-28) * abstract; figures 4-5 * * paragraphs [0053] - [0054] *	1-7, 10-12 8,9	
X	WO 2011/101814 A1 (GYSEN AUGUST [BE]) 25 August 2011 (2011-08-25) * abstract; figures * * page 7, line 18 - page 9, line 28 *	1-12	

TECHNICAL FIELDS SEARCHED (IPC)

B65D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	20 November 2012	Serrano Galarraga, J

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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P : intermediate document

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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 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 12 18 4641

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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20-11-2012

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2957601 A	25-10-1960	NONE	
US 5657871 A	19-08-1997	NONE	
US 2119745 A	07-06-1938	NONE	
DE 102009044314 A1	28-04-2011	NONE	
WO 2011101814 A1	25-08-2011	BE 1019191 A3 WO 2011101814 A1	03-04-2012 25-08-2011

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82