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(71) Applicant: **DTR Patents Ltd.**
67013 Tel Aviv (IL)

(72) Inventor: **Segev, Doron**
Tel Aviv (IL)

(74) Representative: **Watts, Peter Graham**
Anthony Cundy & Co.
39/41 South Drive
Sutton Coldfield
West Midlands B75 7TE (GB)

(54) Underwater viewing facility

(57) An underwater facility has of a buoyant platform (1), having a through-hole (8), the hole's diameter is slightly bigger than the size of a human head, the hole employs an underwater observation device, the observation device consists of a transparent viewing chamber (6), the chamber protruding the bottom of the buoyant platform and means (7) to secure the viewing chamber in the correct position to said hole and in said hole, enabling an observer to lie in a prone position on the buoyant platform with at least his face resting in the transparent viewing chamber.

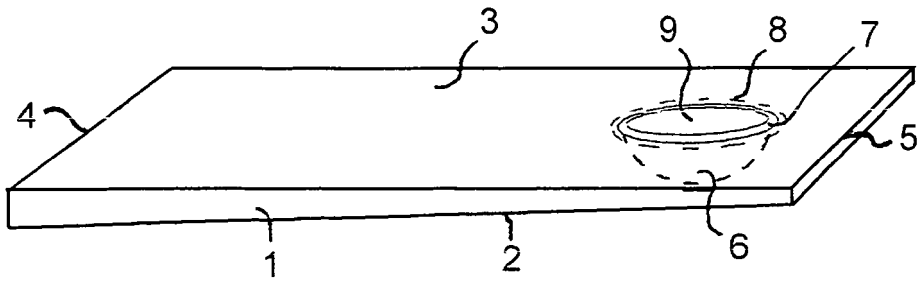

Fig 1a.

EP 2 465 767 A2

Description

[0001] The present invention relates to an underwater viewing facility consisting of a buoyant platform with an underwater observation device. More particularly, the invention provides a buoyant platform for a person lying prone on it, such as a raft, a sea mattress, a pontoon, or the like, with an underwater observation device characterised by its panoramic wide angle sight.

[0002] The prior art describes several underwater viewing facilities; such as:

U.S. Pat. No. 2,712,139 (July 5,1955)
U.S. Pat. No. 2,717,399 (Sept. 13,1955}
U.S. Pat. No. 4,895,539 (Jan. 23,1990)
U.S. Pat. No. Des. 311,410 (Oct.16, 1990)
U.S. Pat. No. Des. 357,156 (April 11,1995)
U.S. Pat. No. 6,142,844 (Nov. 7,2000)
U.S. Pat. No. 6,241,569 B1 (June 5, 2001}
U.S. Pat. No. 6,293,841 B1 (Sept.25,2001)
U.S. Pat. 6,572,424 B2 (June 3,2003)
U.S. Pat. Appl. Pub. No. U.S. 2006/0252318 A 1
U.S. Pat. Appl. Pub. No. U.S. 2010/0062665 A 1
DE203 15 281U1(22.01.2004} Gebrauchsmusterschrift [Functional design)

[0003] None of the above inventions and patents, or others which have been cited in those, taken either singly or in combination, is seen to describe the instant invention as claimed.

[0004] All prior-art underwater observation devices, enable the observer, which uses a buoyant platform, an insufficient and much limited view of the underwater scenes, due to the fact that the observer's face is situated beyond the viewing device, and as a result, he is enjoying a more or less,however always limited angle of sight, depending on the construction of the viewing device.

[0005] It is therefore the object of the present invention to obviate the said disadvantage of the prior-art and to provide the observer with a much broader angle of underwater sight.

[0006] The present invention achieves the above object by providing a buoyant platform made of any kind of floating material or floating capacity,the buoyant platform having a through-hole, the hole's diameter is slightly bigger than the size of a human head, the through-hole penetrating from top to bottom of the buoyant platform, the buoyant platform on its top has a soft protecting ring around said hole, thus when an observer is lying in a prone position on the buoyant platform with his face in the hole, the protective ring around his head prevents water to reach the hole, the hole employs an underwater observation device, the observation device consists of:

1. A viewing chamber, e.g. a transparent chamber, sitting in the hole of the buoyant platform, the chamber protruding the bottom of the buoyant platform, the observer's face rests in the transparent viewing chamber, through the chamber is opening at its upper side;

2. Means to secure the viewing chamber in the correct position to said hole, in a preferredembodiment said means are:

a. A flat ring is in a perpendicular position to the chamber's upper edge;
b. A lock-belt is situated around said chamber, a ring configuration, to secure the position of the transparent viewing chamber in the hole of the buoyant platform;

[0007] In a preferable embodiment of the present invention the lock-belt is an inflatable sleeve provided with an inflatable valve of its own, the sleeve being part of the observation device.

[0008] If the buoyant unit of the present invention is an air mattress, preferably it will have an integral lock-belt made of a separate inflatable sleeve provided with a separate, inflatable valve.

[0009] The most preferred shape of the viewing chamber of the underwater observation device of the present invention is of a semi-spherical configuration, however, it could be of any other configuration such as rectangular, trapezoidal or any other desired configuration, as long as the chamber is open at is upper edge, and the chamber's size is such that the observer can insert at least his face, or preferable his entire head, into the transparent viewing chamber.

[0010] In case of an air mattress the person lying prone on it, the weight of his body causes the mattress to float below sea level, however, the front of the mattress carrying only the weight of the person's head is automatically lifted and stays in a tilt position to the rest of the mattress, thus enabling the person to insert his head easily into the viewing chamber and in a comfortable manner.

[0011] In case of a rigid buoyant platform, in order that the person can insert his head easily and in a comfortable manner into the viewing chamber, it is preferred that the platform's front is thinner than its rear side, which means that the upper surface of the platform is slightly sloped.

[0012] With specific reference now to the figures in detail, it is stressed that the particulars shown are by way of example and for the purposes of illustrative discussion of the preferred embodiments of the present invention only, and are presented in the cause of providing what is believed to be the most useful and readily understood description of the principles and conceptual aspects of the invention. In this regard, no attempt is made to show structural details of the invention in more detail than is necessary for a fundamental understanding of the invention, the description taken with the drawings making apparent to those skilled in the art how the several forms of the invention may be embodied in practice.

[0013] In Figs. 1a and 1b is shown an underwater viewing facility made of a rigid buoyant platform 1, the plat-

form's front 5 is thinner than its rear side 4, its upper surface 3 being moderately sloped. A through-hole 8, which is slightly bigger than the size of a human head, penetrates from the upper surface 3 to the bottom 2, of the buoyant platform 1. A transparent chamber 6 is accommodated in the hole 8,the chamber 6 has a flat ring 7 in a perpendicular position to its upper edge, the ring 7 is resting on the upper surface 3 of the buoyant platform 1. Chamber 6 is protruding the bottom 2 of platform 1. A lock-belt 11 is pressed between chamber 6 and platform 1 to secure the chamber 6 in a correct position to hole 8. In this embodiment, lock-belt 11 has on its top a soft protective ring 20,ring 20 is situated over, and is surrounding, the upper edge of chamber 6.

[0014] An observer lying prone on the sloped upper surface 3 of rigid platform 1, can easily insert his head and in a comfortable manner into transparent viewing chamber 6.

[0015] When an observer inserts his head in opening 9 of chamber 6, the soft protecting ring 20 fits itself around his head and prevents water to enter through opening 9 into chamber 6.

[0016] The rigid buoyant platform lof this invention, may be a massive body made of any floating material, or a hallow float body of a material which by its own is without floating capacity, such as a metallic body, or the like.

[0017] In Figs. 2a,2b and 2c is shown an underwater viewing facility similar to the one described in Figs. 1a and 1b, however it differs from that facility, in the buoyant platform's folding capability, thus this embodiment needs less storage room at home and fits well in a car's trunk.

[0018] The rigid buoyant platform 1 of Figs. 2a, 2b and 2c consists of three links; 16, 17, and 18. The edge 19 of each two neighbouring links is coupled to each other.

[0019] When the user wishes to fold the buoyant platform 1, he pulls the links 16,17 and 18 to withdraw them from each other. Between each two links are fixed pivoted bars 13 with a couple of hinge pins 14 and 15. When the links 16,17 and 18 are withdrawn from each other, the space 12 between each two links enables the links to fold and lie on each other.

[0020] As long as the edges 19 of the links 16,17 and 18 are tied to each other, the hinge pins 14 and 15 sit close to the centre of their pivoted bar 13 (See Fig. 2a}. Having pulled the links 16, 17, and 18 away from each other, the hinge pins 14 and 15 move to the edges of their pivoted bar 13 (SeeFig.2b and 2c}.

[0021] Figs.3 to 5 demonstrate an embodiment of the underwater viewing facility with a soft buoyant platform 10 being a constant air mattress or the like, or an inflatable one.

[0022] In this embodiment in which the buoyant platform 10 is an air mattress, the softprotecting ring 20 is part of the air mattress's front 21 (See Fig.4a and 5a} and not part of a lock-belt as in the previous embodiments.

[0023] In Figs 3a and 5a is shown a person 22, an observer that is lying prone on the buoyant platform 10, an air-mattress 10. Contrary to the main body of the air-mattress 10, which carries a considerable weight, that is the person's 22 body, the front 21 of air-mattress 10 carries only the low weight of the person's 22 head. This division in the weight acting on buoyant mattress 10, while floating, causes automatically the front 21 to raise itself and stay tilt to the main body of buoyant mattress 10. This phenomenon helps the person 22 to easily insert his head 23 into the transparent viewing chamber 6 and in a comfortable manner.

[0024] In Figs. 3b, 4 and 5a are shown a transparent viewing chamber 6 with its perpendicular ring 7 (Fig. 3b} at its upper edge In a hole 8 in the internal ring 24 of front 21 of the mattress 10, is accommodated the transparent viewing chamber 6. In this embodiment internal ring 24 presses on transparent viewing chamber 6 to secure the chamber 6 in a correct position to hole 8. The same function of internal ring 24 in this embodiment, is carried out in the previous embodiments by the lock-belt. A lock-belt is unnecessary in this embodiment of the air-mattress. The front 21 of air-mattress 10 consists of an external ring 25, an internal ring 24 with its hole 8 and a soft protecting ring 20. All three said rings and the air-mattress may be produced as one unit.

[0025] In Figs. 4 and 5a is seen opening 9 of transparent viewing chamber 6 (not illustrated here). In Fig. 5a the observer 22 lying on air-mattress 10, has started to put his face 23 into opening 9, in order to insert most of his head, or even the entire head in the transparent viewing chamber.

[0026] In Fig. 5b is shown a view of the bottom of front 21 of air-mattress 10, with external ring 24, transparent view chamber 6 and ring 24 which will soon press against chamber 6 when ring 24 is more inflated.

[0027] The embodiments of the present invention, including the preferred embodiments, disclosed herein are intended to be illustrative only and are not intended to limit the scope of the invention. It should be understood by those skilled in the art that various modifications and adaptations of the present invention as well as alternative embodiments of the present invention may be contemplated. It is to be understood the present invention is not limited to sole embodiments described above, but encompasses any and all embodiments within the scope of the following claims.

Claims

1. An underwater facility comprising of a buoyant platform, having a through-hole, the hole's diameter is slightly bigger than the size of a human head, the hole employs an underwater observation device, the observation device consists of a transparent viewing chamber, the chamber protruding the bottom of the buoyant platform and means to secure the viewing chamber in the correct position to said hole and in

said hole, enabling an observer to lie in a prone position on the buoyant platform with at least his face resting in the transparent viewing chamber.

2. An underwater facility according to claim 1, wherein the buoyant platform is of a rigid material.

3. An underwater facility according to claim 1, wherein the rigid buoyant platform is sloped at its top.

4. An underwater facility according to claim 1, wherein the rigid buoyant platform is foldable.

5. An underwater facility according to claim 1, wherein the buoyant platform is a sea mattress.

6. An underwater facility according to claim 1, wherein the buoyant platform is an inflatable air mattress.

7. An underwater facility according to claim 1, wherein the front of the mattress consists of several rings, of which at least one ring is provided with an inflatable valve of its own.

8. An underwater facility according to claim 1, wherein the buoyant platform's hole is surrounded by a soft protecting ring on the top of the platform, avoiding water to reach the hole, when a viewer's head occupies the hole.

9. An underwater facility according to claim 1, wherein the transparent viewing chamber is slightly bigger than the size of a human head, enabling an observer to put his whole head into the chamber.

10. An underwater facility according to claim 1, wherein the transparent viewing chamber is of a semi-spherical configuration.

11. An underwater facility according to claim 1, wherein the means to secure the viewing chamber in its correct position are an inflatable sleeve provided with its own valve to serve as a lock-belt.

12. An underwater facility according to claim 1, wherein the means to secure the viewing chamber in its position are an integral part of the buoyant platform.

13. An underwater facility according to claim 1, wherein the means to secure the viewing chamber in its position, are part of the observation device.

14. An underwater facility according to claim 1, wherein in addition to other means, the viewing chamber has also a flat ring in a perpendicular position to its upper edge to help to secure the viewing chamber into its position.

15. An underwater facility according to claim 1, wherein the means to secure the viewing chamber in its position, are independent, being neither part of the buoyant platform, nor of the observation device.

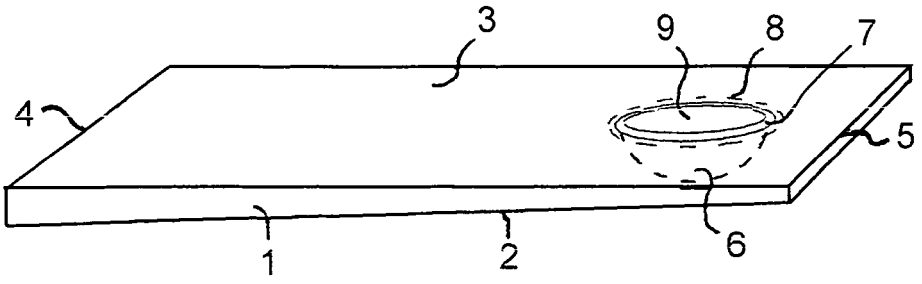

Fig 1a.

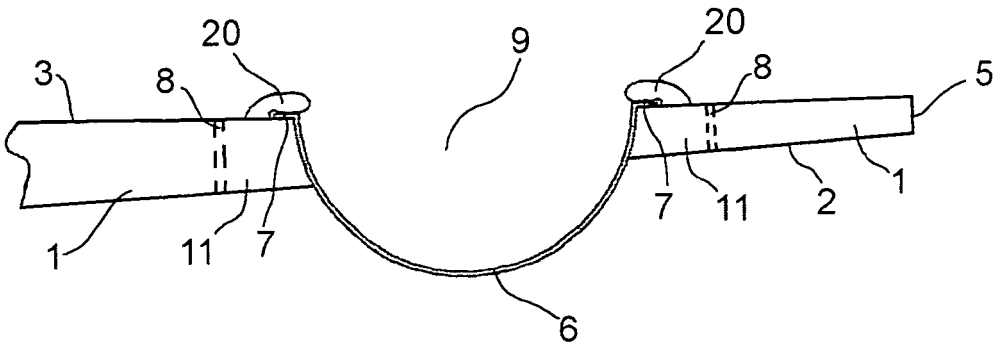

Fig 1b.

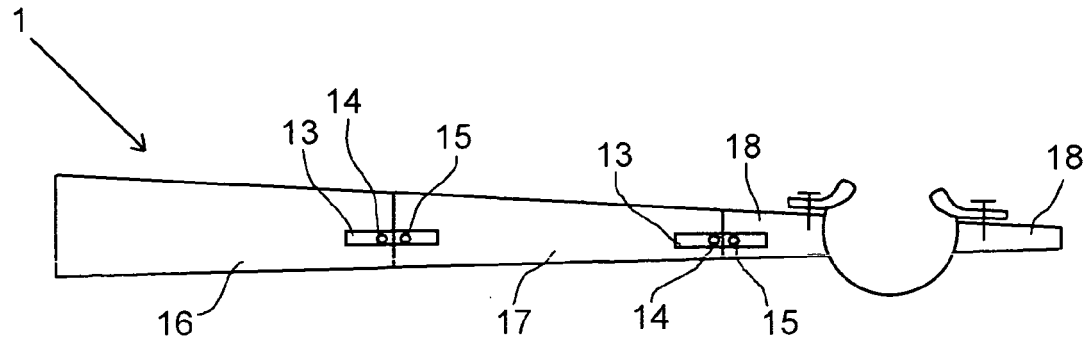

Fig 2a

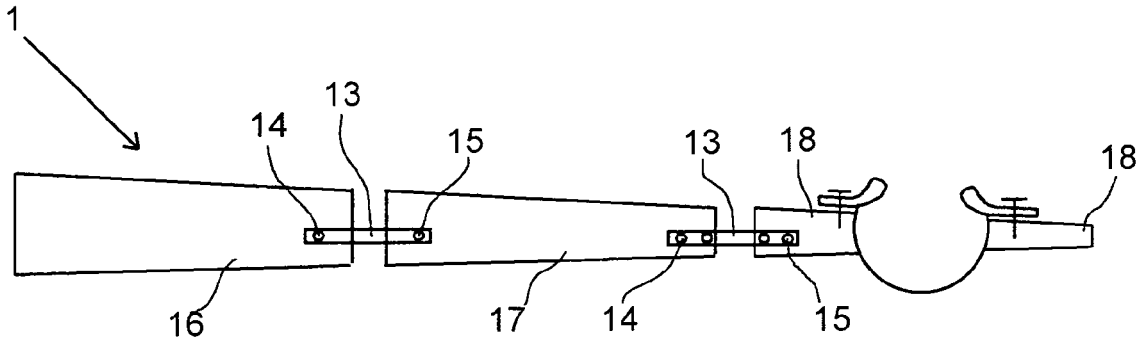

Fig 2b.

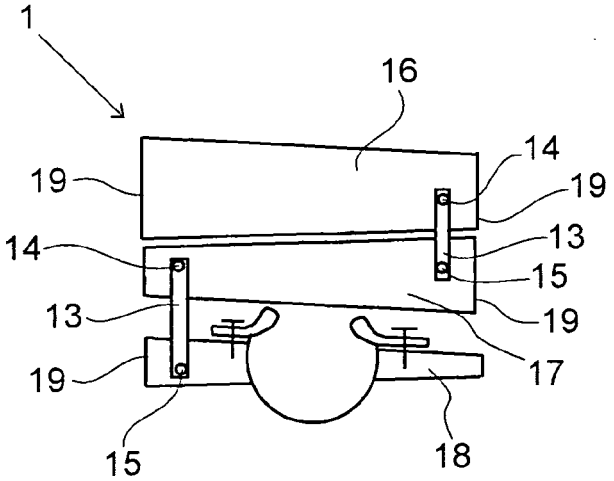

Fig 2c.

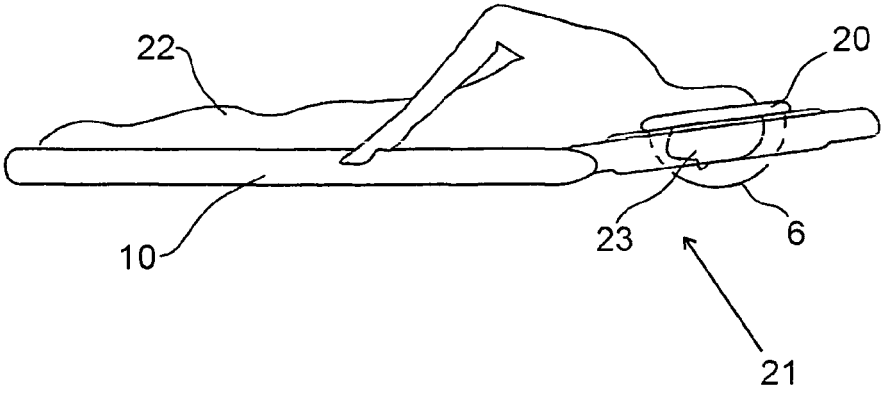

Fig 3a.

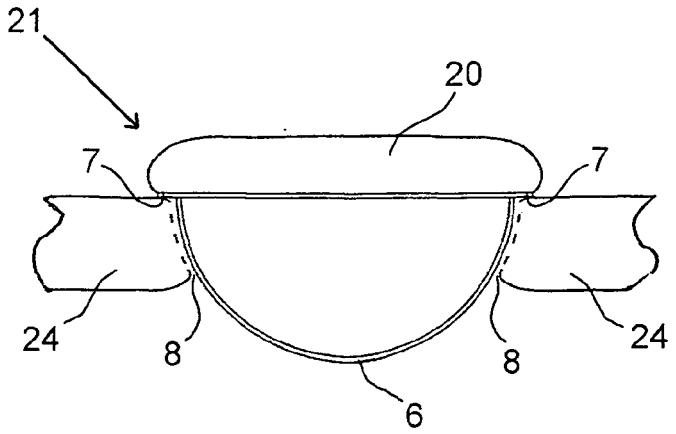

Fig 3b

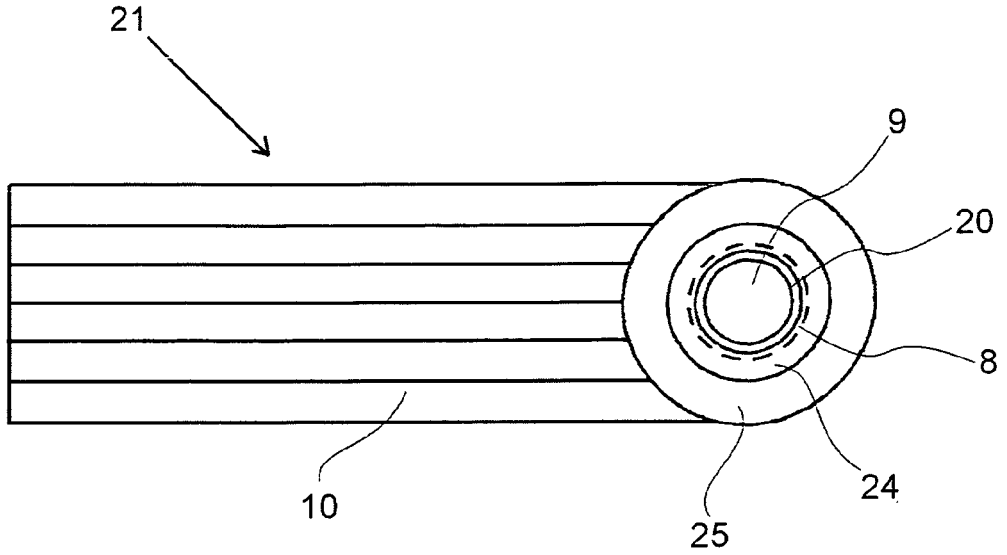

Fig 4.

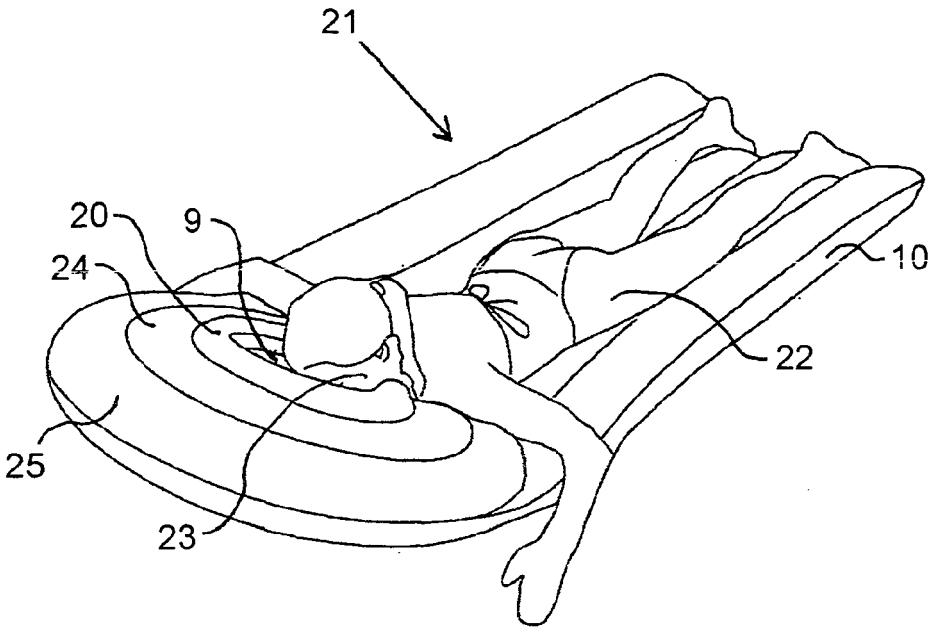

Fig 5a.

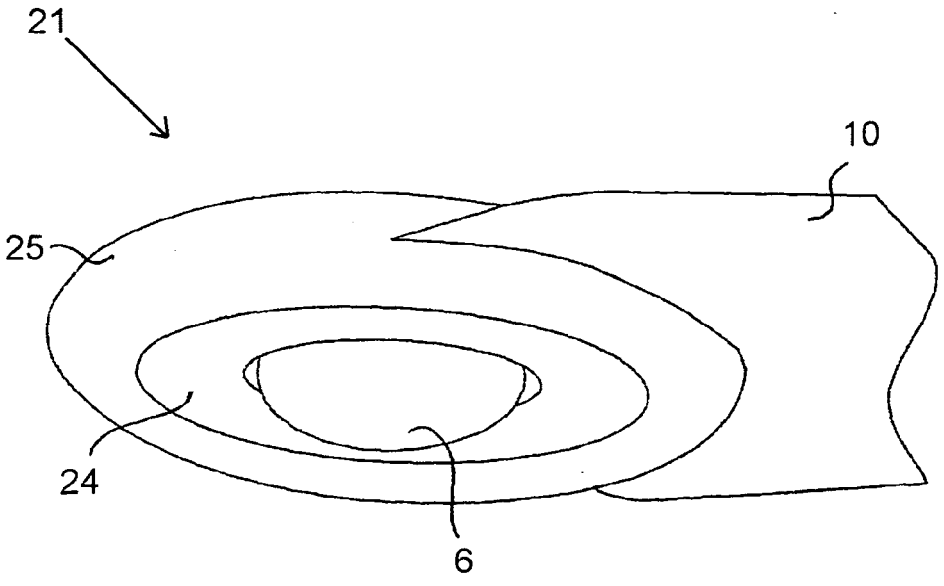

Fig 5b.

REFERENCES CITED IN THE DESCRIPTION

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