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(54) **DEVICE FOR TREATING TEXTILE ARTICLES**

VORRICHTUNG ZUM BEHANDELN VON TEXTILARTIKELN

DISPOSITIF POUR LE TRAITEMENT DE TEXTILES

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WO-A-92/09736

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Description

The present invention concerns a dispensing device for treatment and washing of textile items with liquid detergents.

In recent times the use of dispensing devices for the dispersion of detergents in washing machines has become wide spread both for machines not equipped with an automatic dispensing device and in order to improve detergent dispensing in machines that have automatic detergent dispensing means, generally consisting of one or more drawers.

Known forms of such dispensing device are disclosed in EP-A-0368680 which are generally spherical in shape with one or more apertures allowing the device to be filled and subsequently, during washing, enabling the detergent to escape as a result of the drum rotation movement in the washing machine and the pressure exerted by the items contained in the said machine.

FR-A-2629433 discloses a disposable detergent dispenser particularly for liquid detergents which has a pouring spout by means of which detergent can be poured from the device.

WO-A-92/09736, which is included in the state of the art by virtue of Art 54(3) EPC, discloses a detergent dispensing device having a transverse opening through which detergent can be dispensed for pre-treatment of a textile article.

It is also well known that certain textile items require prior treatment when they exhibit significant stains or particularly dirty spots that are unlikely to be removed with a normal washing operation. Such prior treatment is often carried out by hand with consequent contact with the detergent, so that it would be particularly advantageous to be able to do it by means of an appropriate device.

For this purpose it has been proposed to provide a dispensing device which, in addition to the central opening for filling and subsequent dispensing of the detergent, has a further lateral aperture made in an outwardly projecting part of the device. This device does not however allow accurate pouring of the detergent or convenient prior treatment of the items to be washed, since it only allows detergent to be poured at areas such as stains. The problem of accurate pouring and of distributing and spreading the detergent precisely and accurately is not resolved. The detergent still requires spreading and rubbing onto the fabric by hand in order to perform an effective pretreatment action.

The purpose of the present invention is to produce a dispensing device that can be used with liquid detergents or similar compositions both to pretreat items fully and effectively and to dispense the detergent inside the washing machine during washing, thus avoiding the user's contact with the detergent at all times.

Another purpose is to provide a device which is easy to manufacture, cheap and long-lasting.

According to the present invention, there is provided

a dispensing device that can be placed in the drum of a washing machine to dispense detergent during the machine washing cycle, the said device consisting of a hollow body with smooth walls, a base on which to maintain a vertical position, at least one filling and dispensing aperture through which the device can be filled with a quantity of detergent and through which the detergent is dispensed in the washing machine drum during washing, and a pouring aperture above the maximum filling level through which a quantity of detergent can be poured by tilting the device, characterised in that the pouring opening lies in a plane generally parallel to the plane of the base and is formed by the upper edges of a pouring and spreading spout extending laterally from the hollow body, characterised by the pouring and spreading spout having a spreading surface suitable for spreading detergent applied to a textile article, and the pouring and spreading spout communicating with the interior of the hollow body.

Because the plane of the pouring opening is generally parallel to the plane of the base of the device the user can readily observe liquid detergent in the pouring spout as the device is tilted to pour detergent onto a stain or the line. The user is therefore easily able to control the quantity and direction of the detergent that is poured from the pouring spout.

In a preferred form of the dispensing device the pouring and spreading spout communicates with the interior of the hollow body through a connecting aperture having an area less than the area of the pouring opening. Thus as the device is tilted the detergent has to pass first through the communicating aperture into the pour spout which further assists the user in controlling the flow of detergent out of the pouring opening.

The communicating aperture can have the shape of a trapezium having a short top edge and a longer bottom edge parallel to one another and parallel to the plane of the base of the device. This trapezium shape of aperture allows precise and gradual regulation of the quantity of detergent passing through from the hollow body within the pouring spout. The longer bottom edge facilitates initial flow of detergent through the aperture from the hollow body to the pouring spout according to the amount by which the device is tilted. Furthermore having the short edge of the trapezium uppermost helps to maintain solidity, sturdiness and rigidity in the upper part of the hollow body to the pouring spout as the device is tilted whilst further tilting of the device has a more gradual influence on the rate of flow since the width of the aperture decreases towards the top. Thus the flow of detergent into the pouring spout is controlled.

Alternatively the communicating aperture can be rectangular although with this shape the degree of control over the quantity of detergent to be poured and spread is reduced.

The corners of the communicating aperture are preferably rounded to minimise any weakening of the hollow body caused by the presence of the communi-

cating aperture.

The pouring and spreading spout can have a flat front wall and two side walls connecting the front wall to the outside surface of the hollow body. The flat front wall provides a convenient surface which can be used by the user to spread detergent over the stained area and the treated area to be rubbed to assist penetration of the detergent into the fabric.

The front wall of the spout is conveniently in a plane tangential to the outer surface of the hollow body and at right angles to the base of the device. This presents the flat front wall in a way which is convenient for the user to spread and rub detergent on a stained area without detergent being dispensed through the pouring spout.

The upper edge of the front wall of the pouring spout can conveniently lie at a lower level than the annular edge of the filling and dispensing aperture so that when the device is tilted to pour detergent from the pouring spout the risk of detergent overflowing out of the hollow body through the filling aperture is minimised.

To assist in the spreading and rubbing of the detergent on the fabric the outer surface of the flat front wall can have a non-smooth wrinkled surface. Obviously this surface should not be rough as to damage the fabric either during the spreading or rubbing or during its use as a dispensing device within the drum of the washing machine.

The dispensing device according to the invention conveniently has transparent walls so that the user can readily fill it with the appropriate quantity of detergent and the hollow body is preferably of a resilient and deformable material for efficiency when used within a washing machine drum and to minimise any noise arising from its movement within the drum.

The invention will now be more particularly described with reference to the accompanying diagrammatic drawings in which

Figure 1 is a perspective view from above of the dispensing device according to the present invention;

Figure 2 is a side section view of the device according to the present invention, seen along the section II-II in Figure 1;

Figure 3 is a top view of the device according to the present invention;

Figure 4 is a front view of the device according to the present invention.

With reference to Figure 1 a dispensing device for the treatment and washing of textile items with liquid detergents and similar compositions, according to the present invention, is indicated as a whole by the number 10.

From Figures 1 and 2 it can be seen that the dis-

persing device 10 has a hollow body 11, of spherical form in the example, made of transparent, tough and deformable material, with outside surface 12 and inside surface 12a, both smooth.

The said device 10 at one end has a base consisting of a flat horizontal surface 13 enabling the device to retain a stable vertical position without overturning problems.

At one end opposite to the said base 13 the device 10 has a top central filling and dispensing aperture 14 with a smooth and rounded annular edge 15. The edge 15 has a thickening 16 allowing the rigidity of the upper part of the hollow body to be increased.

This increases resistance of the device to washing, and especially high temperature washing. It further enables the device 10 to be tightly fastened to a detergent bottle cap during transport, storage and distribution.

On the side of the hollow body 11 there are provided one or more measuring ribs or notches 17, and on the side opposite to the said notches 17 a lateral communicating aperture 18.

The communicating aperture 18 is trapezoidal in form with two generally vertical edges 19 and 19', forming the oblique sides of the trapezium, a horizontal top edge 20 and a horizontal bottom edge 20', respectively forming the shorter and the longer edges of the trapezium. The corners between the edges of the trapezium are provided with rounded corners.

The communicating aperture 18 connects the hollow body 11 to a pouring and spreading spout 21 which projects radially outwards.

The pouring and spreading spout 21 comprises a front flat wall 23 which is in a plane tangential to the outer surface 12 of the hollow body 11 and connects therewith at the equatorial diameter thereof (see Figure 4) so that it lies at right angles to the base 13. The front wall 23 is connected to the hollow body by side walls 22 which diverge from the front wall towards the hollow body. The pouring spout is thus positioned on the upper half of the hollow body and gradually widens from the bottom upwards.

The two upper free edges of the side walls 22 are inclined slightly downwards so that the upper free edge of the front wall 23 lies at a lower level than the annular edge 15 of the central aperture 14. The upper free edges of the walls 22 and 23 form together with the hollow body a pouring aperture 24 at the top of the pouring spout, the pouring aperture 24 lying in a plane generally parallel to the plane of the base 13.

It can also be seen from Figure 3 that the trapezium shape of the communicating aperture 18 is orientated in the opposite direction to the trapezium profile formed by the walls of the pouring spout 21.

The dispensing device is extremely simple to use. The user first pours the desired quantity of liquid detergent required for the wash into the device through the filling and dispensing aperture 14. The quantity of detergent can be indicated by one of the measuring ribs

or notches 17 since the walls of the body are sufficiently transparent for the level of detergent in the device to be observed. Furthermore the device enables high viscosity and concentrated liquid detergent products to be used.

The device thus prepared can at this point be simply used as dispensing device within the drum of the washing machine, e.g. as described in patent EP-A-0368680 previously mentioned.

When the item to be treated has a localised stain that is difficult to wash, the device is used for its pretreating purpose. The device filled with detergent is gripped and tilted slightly so that a small quantity of detergent passes through the communicating aperture 18 from the hollow body 11 to the pouring and spreading spout 21, the detergent then being poured exactly on the spot or stain to be treated.

As the device is tilted the liquid detergent first begins to flow out of the hollow body at the wide base of the trapezium shaped communicating aperture 18. There is thus an immediate perceivable flow of detergent readily obtained. As the device is tilted further the detergent fills the aperture 18 to a higher level but because the width of the aperture decreases towards the top the flow through the aperture is not directly proportional to the increase in the angle of tilt and the increase in flow of detergent into the pouring spout is restricted.

The trapezium shape of the communicating aperture thus provides for a maximum initial flow of detergent into the pour spout. The device must be tilted further for that detergent to be poured out of the pouring opening 24. There must therefore be an immediate flow into the pour spout since otherwise the user will tend to tilt the device to such an extent that detergent with overflow out of the opening 14. As the device is tilted to pour from the pouring opening 24 the trapezium shape restricts the increase in flow into the pouring spout so that the flow is controlled and any tendency to apply an excess of detergent to a stain is minimised.

Because that edge of the pouring opening 24 formed by the free upper edge of the front wall 23 is below the annular edge 15 of the opening 14 the detergent will flow out of the pouring opening before it overflows from the opening 14. This construction also provide easier dispensing of the detergent in the washing machine drum since the absence of a 90° angle between the plane containing the filling aperture 14 and the plane of the front wall 23 of the spout 21 reduces the risk of the device being trapped by the fabrics and prevented from tumbling within the drum. Any damage to the fabrics is also minimised and the actual construction of the device is simplified.

It will be noted that as the device is gripped and tilted the plane of the pouring opening 24 allows the user to observe the presence and flow of detergent in the pouring spout. This greatly facilitates the ease and accuracy of pouring a limited quantity of detergent onto a stain or the like.

Having applied a quantity of detergent to a stain the detergent can then be made to penetrate into the fabric by rubbing and spreading it with the front flat wall of the spout 21.

In a preferred construction this front flat wall 23 has an outside surface that has been rendered rough and wrinkly in order to increase the spreading efficiency.

The device 10 is then placed as usual in the washing machine drum together with the fabrics to be washed and the door is then closed. The machine is started and the device 10 dispenses the detergent during the washing operation.

Because of its resilience the device 10 returns to its original shape at the end of the washing cycle and can be reused.

The said pretreatment makes it possible to direct the desired quantity of detergent - generally a small amount - on the spot or stain to be treated without unwanted waste and, as stressed above, it enables the said detergent to be spread on the surface of the item to be treated and simultaneously to be forced inside its fibre. The front wall 23 of the pouring and spreading spout 21 is made flat for this very purpose. Any wrinkliness and roughness of the outside surface of the said front wall 23 makes the spreading operation even more effective.

The device can be made by moulding with an appropriate transparent and resilient material resistant to high temperatures which allows the device to be used for a large number of washes.

The dispensing device is advantageously obtained by injection moulding of a thermoplastic elastomer, and in particular a polyurethane for moulding. This material is stable at the temperatures generally reached during washing in washing machines, can be variously coloured and moulded without losing its distinctive characteristics, and enables a device to be obtained with tough and transparent walls through which the level reached by the detergent can be seen.

Technical tests have in fact shown the resistance of the device at high temperatures, and in particular up to a temperature of 95° for a considerable number of washes, even up to 100.

Claims

1. Dispensing device that can be placed in the drum of a washing machine to dispense a detergent during the machine washing cycle, the said device comprising a hollow body (11) with smooth walls, a base (13) on which the dispensing device may be maintained in a vertical position, at least one filling and dispensing aperture (14) through which the device can be filled with a quantity of detergent and through which the detergent is dispensed in the washing machine drum during washing, and a pouring opening (24) above the maximum filling level

through which a quantity of detergent can be poured by tilting the device (10), the pouring opening (24) lying in a plane generally parallel to the plane of the base (13) and being formed by the upper edges of a pouring and spreading spout (21) extending laterally from the hollow body (11) characterised by the pouring and spreading spout having a spreading surface (23) suitable for spreading detergent applied to a textile article, and the pouring and spreading spout (21) communicating with the interior of the hollow body.

2. Dispensing device according to claim 1 in which the pouring and spreading spout communicates with the hollow body (11) through a connecting aperture (18) having an area less than the area of the pouring opening (24).
3. Dispensing device according to claim 2 characterised in that the communicating aperture (18) has the shape of a trapezium having a short top edge (20) and a longer bottom edge (20') parallel to the plane of the base (13).
4. Dispensing device according to claim 2 characterised in that the communicating aperture (18) is a rectangular aperture.
5. Dispensing device according to claim 3 or 4 characterised in that the corners of the communicating aperture (18) are rounded.
6. Dispensing device according to any one of the preceding claims characterised in that the pouring and spreading spout (21) comprises a flat front wall (23) which constitutes the spreading surface, and two side walls (22) connecting the front wall (23) to the outside surface (12) of the hollow body (11).
7. Dispensing device according to claim 6 characterised in that the flat front wall (23) of the spout (21) extends in a plane tangential to the outer surface (12) of the hollow body and at right angles to the plane of the base (13).
8. Dispensing device according to claim 7 characterised in that the upper edge of the front wall (23) lies at a lower level than an annular edge (15) of the filling and dispensing aperture (14).
9. Dispensing device according to claim 6 characterised in that the outer surface of the front wall (23) of the spout (21) has a non-smooth wrinkled surface.
10. Dispensing device according to any one of the preceding claims characterised in that the hollow body (11) has transparent walls.

11. Dispensing device according to any one of the preceding claims characterised in that the hollow body (11) is of resilient and deformable material.

Patentansprüche

1. Ausgabevorrichtung, die in der Trommel einer Waschmaschine angeordnet werden kann zur Ausgabe eines Waschmittels während des Waschgangs der Maschine, wobei die Vorrichtung einen Hohlkörper (11) mit glatten Wänden, eine Grundfläche (13), auf der die Ausgabevorrichtung in vertikaler Lage gehalten werden kann, mindestens einen Füll- und Ausgabeschlitz (14), durch den die Vorrichtung mit einer Menge Waschmittel gefüllt werden kann und durch den das Waschmittel in die Trommel der Waschmaschine während des Waschens ausgegeben wird, und eine Gießöffnung (24) oberhalb des maximalen Füllniveaus, durch die eine Menge an Waschmittel durch Kippen der Vorrichtung (10) gegossen werden kann, umfaßt, wobei die Gießöffnung (24) in einer Ebene im allgemeinen parallel zur Ebene der Grundfläche (13) liegt und durch die oberen Kanten einer Gieß- und Verteilungstülle (21) gebildet wird, die sich seitlich von dem Hohlkörper (11) erstreckt, dadurch gekennzeichnet, daß die Gieß- und Verteilungsöffnung eine Verteilungsfläche (23), geeignet zum Verteilen des auf einen textilen Gegenstand aufgetragenen Waschmittels aufweist, und die Gieß- und Verteilungstülle (21) mit dem Inneren des Hohlkörpers kommuniziert.
2. Ausgabevorrichtung nach Anspruch 1, wobei die Gieß- und Verteilungstülle mit dem Hohlkörper (11) durch einen verbindenden Schlitz (18) mit einer Fläche, geringer als die Fläche der Gießöffnung (24), kommuniziert.
3. Ausgabevorrichtung nach Anspruch 2, dadurch gekennzeichnet, daß der kommunizierende Schlitz (18) Trapezform aufweist mit einer kurzen oberen Kante (20) und einer längeren unteren Kante (20') parallel zur Ebene der Grundfläche (13).
4. Ausgabevorrichtung nach Anspruch 2, dadurch gekennzeichnet, daß der kommunizierende Schlitz (18) ein rechteckiger Schlitz ist.
5. Ausgabevorrichtung nach Anspruch 3 oder 4, dadurch gekennzeichnet, daß die Ecken des kommunizierenden Schlitzes (18) abgerundet sind.
6. Ausgabevorrichtung nach einem der vorangehenden Ansprüche, dadurch gekennzeichnet, daß die Gieß- und Verteilungstülle (21) eine flache vordere Wand (23), die die Verteilungsfläche ausmacht und

zwei Seitenwände (22), die die vordere Wand (23) mit der äußeren Fläche (12) des Hohlkörpers (11) verbindet, umfaßt.

7. Ausgabevorrichtung nach Anspruch 6, dadurch gekennzeichnet, daß die flache vordere Wand (23) der Tülle (21) sich in einer Ebene tangential zur äußeren Fläche (12) des Hohlkörpers und im rechten Winkel zur Ebene der Grundfläche (13) erstreckt.
8. Ausgabevorrichtung nach Anspruch 7, dadurch gekennzeichnet, daß die obere Kante der vorderen Wand (23) auf einem geringeren Niveau liegt als die ringförmige Kante (15) des Füll- und Ausgabeschlitzes (14).
9. Ausgabevorrichtung nach Anspruch 6, dadurch gekennzeichnet, daß die äußere Fläche der vorderen Wand (23) der Tülle (21) eine unglatte gekräuselte Oberfläche aufweist.
10. Ausgabevorrichtung nach einem der vorangehenden Ansprüche, dadurch gekennzeichnet, daß der Hohlkörper (11) durchsichtige Wände aufweist.
11. Ausgabevorrichtung nach einem der vorangehenden Ansprüche, dadurch gekennzeichnet, daß der Hohlkörper (11) aus elastischem und verformbarem Material besteht.

Revendications

1. Dispositif distributeur pouvant être placé dans le tambour d'un lave-linge pour distribuer un détergent pendant le cycle de lavage du lave-linge, ledit dispositif se composant

d'un corps creux (11) doté de parois lisses, d'une base (13) sur laquelle le dispositif distributeur peut être maintenu en position verticale, au moins d'une ouverture (14) de remplissage et de distribution à travers laquelle le dispositif peut être rempli avec une quantité de détergent et à travers laquelle le détergent est distribué dans le tambour du lave-linge pendant le lavage, et d'une ouverture verseuse (24), placée au-dessus du niveau maximum de remplissage, à travers laquelle une quantité de détergent peut être versée en inclinant le dispositif (10), l'ouverture verseuse (24) se trouvant dans un plan généralement parallèle au plan de la base (13), et étant formée par les bords supérieurs d'un bec (21) verseur et répartiteur s'étendant latéralement par rapport au corps creux (11), caractérisé par le bec verseur et répartiteur ayant une surface de répartition (23) adéquate

pour répandre le détergent appliqué sur un article textile, le bec (21) verseur et répartiteur communiquant avec l'intérieur du corps creux.

2. Dispositif distributeur selon la revendication 1, dans lequel le bec verseur et répartiteur communique avec le corps creux (11) par une ouverture de communication (18) ayant une surface inférieure à la surface de l'ouverture verseuse (24).
3. Dispositif distributeur selon la revendication 2, caractérisé en ce que l'ouverture de communication (18) a la forme d'un trapèze présentant un bord supérieur court (20) et un bord inférieur plus long (20') parallèles au plan de la base (13).
4. Dispositif distributeur selon la revendication 2, caractérisé en ce que l'ouverture de communication (18) est une ouverture rectangulaire.
5. Dispositif distributeur selon la revendication 3 ou 4, caractérisé en ce que les angles de l'ouverture de communication (18) sont arrondis.
6. Dispositif distributeur selon l'une quelconque des revendications précédentes, caractérisé en ce que le bec (21) verseur et répartiteur comprend une paroi frontale plate (23) qui constitue la surface de répartition, et deux parois latérales (22) reliant la paroi frontale (23) à la surface extérieure (12) du corps creux (11).
7. Dispositif distributeur selon la revendication 6, caractérisé en ce que la paroi frontale plate (23) du bec (21) s'étend dans un plan tangentiel à la surface extérieure (12) du corps creux et en formant des angles droits par rapport au plan de la base (13).
8. Dispositif distributeur selon la revendication 7, caractérisé en ce que le bord supérieur de la paroi frontale (23) se trouve à un niveau plus bas qu'un bord annulaire (15) de l'ouverture (14) de remplissage et de répartition.
9. Dispositif distributeur selon la revendication 6, caractérisé en ce que la surface extérieure de la paroi frontale (23) du bec (21) a une surface plissée non lisse.
10. Dispositif distributeur selon l'une quelconque des revendications précédentes, caractérisé en ce que le corps creux (11) a des parois transparentes.
11. Dispositif distributeur selon l'une quelconque des revendications précédentes, caractérisé en ce que le corps creux (11) est fabriqué dans un matériau élastique et déformable.

Fig.1.

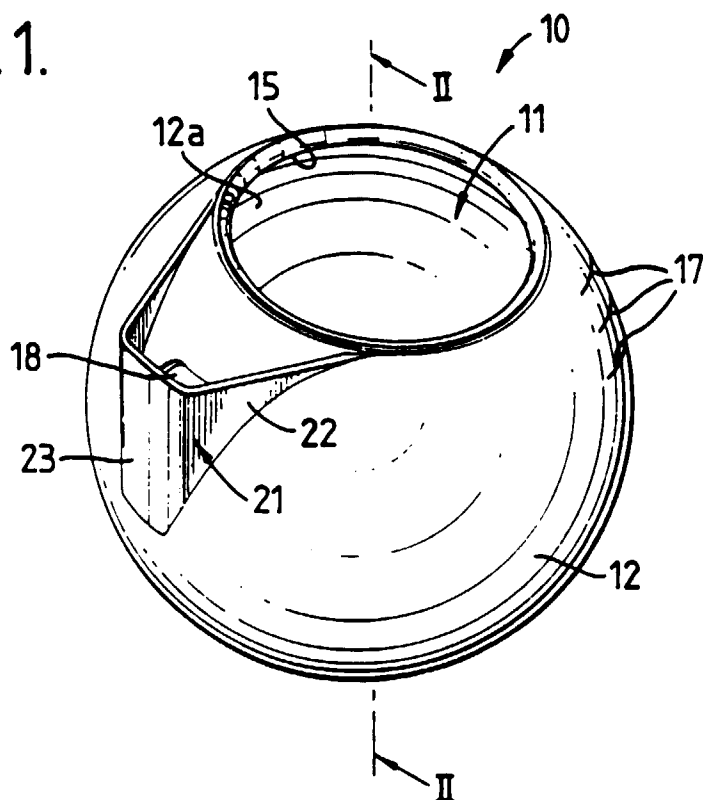


Fig.2.

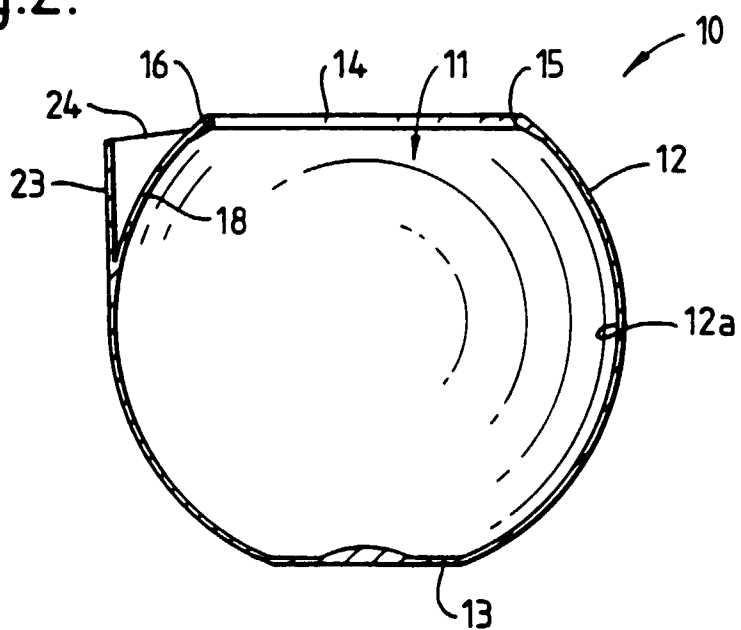


Fig. 3.

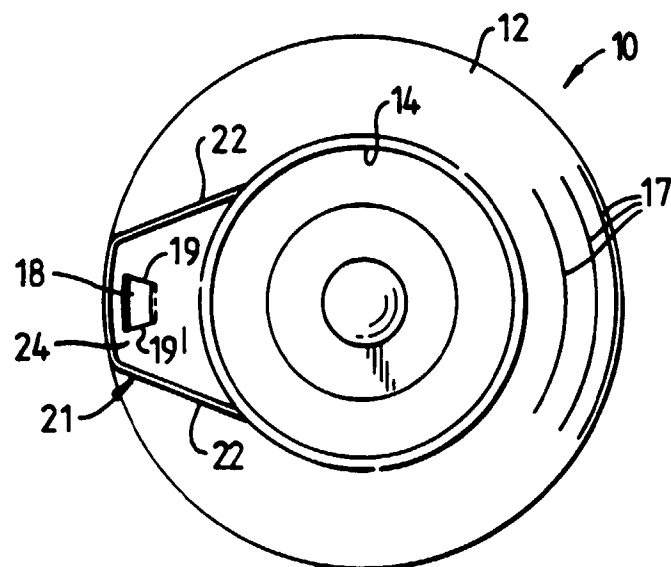


Fig. 4.

