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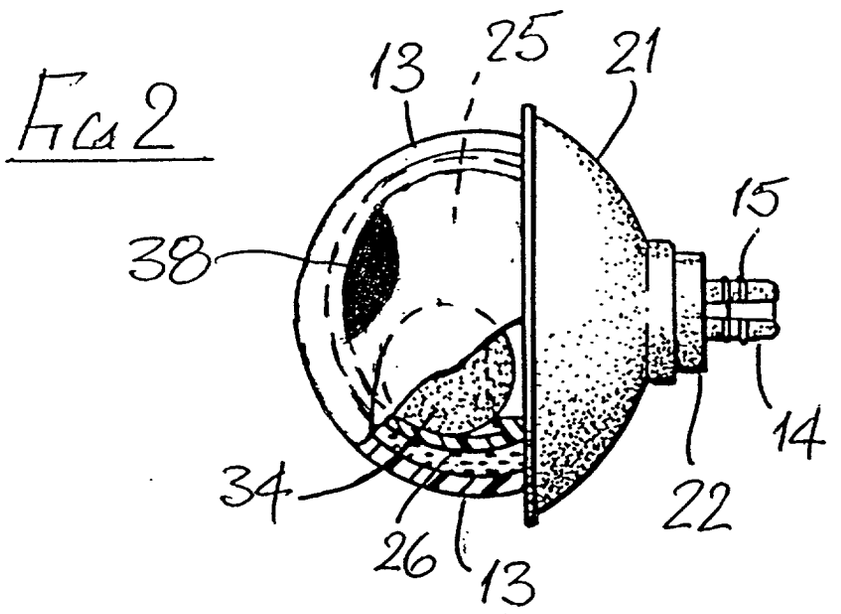
(54) Eye assembly for toys

(57) An eye assembly for use on a toy creature 10 has a transparent spherical shell 13 provided with a mounting stud 14 projecting rearwardly. A clamp member 21 is received on the stud 14 and has a surface which overlies a rearwardly-facing part of the shell, thereby to clamp fabric of the creature between the shell 13 and the clamp member 21. Within the shell is a generally spherical eyeball 25 having a decorated iris region 38 intended to be exposed through the forward-facing part of the shell. The external diameter of the eyeball 25 is less than the internal diameter of the shell 13 with a viscous fluid 26 between the eyeball and shell. A weight 34 is disposed within the eyeball 25 to urge the eyeball to a pre-defined position under the influence of gravity. Cooperating stop means 18,27 on the eyeball and shell limit movement of the eyeball so that the iris region tends to face forwardly with respect to the shell.



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Description

[0001] This invention relates to an eye assembly for use on a toy creature, as well as to such toy creatures whenever incorporating the eye assembly.

[0002] The term toy creature as used herein is intended to mean any kind of toy animal which has at least one eye. The term thus extends to realistic toy animals as well as to purely mythical creatures and also to human and human-like toys.

[0003] The appeal of a toy creature having a face often depends upon the quality of the eyes. If the eyes are too realistic, that can detract from the appeal, but equally a very simple representation also lacks appeal. For example, a simple fabric eye sewn or glued on to a soft or plush toy does not have particular appeal. In an attempt to address this, there have been many proposals for eyes for toy creatures which move at least to some extent. However, any such eyes must also satisfy the toy regulations so far as safety is concerned and that can make it difficult to provide an eye which has significant aesthetic qualities and which also meets all of the current regulations.

[0004] According to the present invention, there is provided an eye assembly for use on a toy creature, comprising a generally spherical shell at least a generally forward-facing portion of which is formed of a translucent material, the shell being provided with a mount projecting generally rearwardly from the shell, a clamp member adapted to be secured to the mount and having a surface which overlies a rearwardly facing part of the shell when positioned on the mount, and a generally spherical eyeball located within the shell which eyeball has a decorated iris region intended to be exposed through said portion of the shell, the external diameter of the eyeball being less than the internal diameter of the shell and the space between the eyeball and the shell being substantially filled with a fluid to permit the eyeball to drift around therewithin, a weight being disposed within the eyeball to urge the eyeball to a predefined disposition under gravity and the eyeball and shell being provided with co-operating stop means to limit the movement of the eyeball with respect to the shell, whereby said decorated iris region of the eyeball tends to face forwardly through the transparent portion of the shell.

[0005] The eye assembly of the present invention includes an eyeball which is constrained to move within an outer shell by the interaction of gravity with a weight associated with the eyeball. The shell contains a fluid which damps the motion of the eyeball and thus the motion of the eyeball lags behind movement of a toy carrying the eye assembly. In this way, as the toy is played with by a child, the eyeball will move around in an attractive and appealing manner, which appears to be not directly related to the handling of the toy.

[0006] Preferably, at least the greater part of the shell is of a transparent plastics material but conveniently the entire shell is moulded in two parts, from such a material. In this way, the decorated region of the eyeball may be viewed through the shell irrespective of the movement of the eyeball within the shell.

[0007] In a preferred embodiment, the stop means comprises a peg projecting from the outer surface of the eyeball and a ring-shaped rail formed on the internal surface of the shell. Provided that the components are appropriately dimensioned, the peg will be constrained always to lie within the confines of the rail, so limiting movement of the eyeball with respect to the shell.

[0008] Conveniently, the eyeball is weighted by a metal ball held within the eyeball at an appropriate position having regard to the intended disposition of the eye assembly on a toy creature. To simplify assembly, the internal surface of the eyeball may be provided with retention means to hold the metal ball at a predefined positioned within the eyeball. Such retention means may allow the holding of the ball at one of a pre-selected number of different positions, the appropriate position being selected during production of the eyeball for incorporation within an outer shell to form a complete eye assembly.

[0009] In one embodiment, the eyeball is formed from two hemispheres which are joined together during manufacture. There is a wall within one hemisphere and which defines three distinct recesses in any one of which the weight may be inserted. The other hemisphere has three legs which project towards the recesses, so as to retain the weight in the selected recess once the two hemispheres have been joined together.

[0010] The eye assembly of this invention may be provided with a mounting cup adapted to be secured on the mount and when so secured partially to enclose a rearwardly facing region of the shell. Then, the mount may be passed through a hole in the fabric of a soft or plush toy, from the exterior of the toy, and the cup is then fitted on to the mount so as to sandwich the fabric between the shell and the cup. Preferably a simple mechanical lock is provided for the cup to prevent the cup being withdrawn from the mount, once the eye assembly has been furnished on a toy.

[0011] By way of example only, one specific embodiment of an eye assembly constructed and arranged in accordance with this invention will now be described in detail, reference being made to the accompanying drawings in which:-

Figure 1 is a general view of a soft toy fitted with an embodiment of eye assembly of this invention;

Figure 2 is a side view, partly cut away, of the eye assembly used in the toy of Figure 1;

Figures 3, 4 and 5 are sections through the eye assembly but assembled in three different configurations;

Figures 6A and 6B are respectively an axial view into and a cross-section through one component of the eyeball used in the eye assembly;

Figures 7A, 7B and 7C are respectively an axial view into, a cross-section through and an external axial view of the other component of the eyeball;

Figures 8A and 8B are respectively an axial view into and a cross-section through one component of the outer shell used in the eye assembly;

Figures 9A and 9B are respectively an axial view into and a cross-section through the other component of the outer shell used in the eye assembly; and

Figure 10 is a cross-section through the outer shell, assembled from the components of Figures 8 and 9, but excluding the eyeball.

[0012] Referring initially to Figure 1, there is shown a soft toy in the form of a stylised fish 10, and including a face region having a mouth 11 and two eyes 12. Each eye 12 has a moving eyeball to enhance the attractiveness of the soft toy to small children. The construction of the eye assembly will be described in detail below.

[0013] Each eye assembly comprises a generally spherical outer shell 13 made of a transparent plastics material and having a mounting stud 14 projecting generally radially from the shell, to permit the shell to be secured to the fabric of the toy. The mounting stud 14 is hollow and is split axially along its length. The stud further has ridges 15 disposed circumferentially around its outer surface.

[0014] The shell 13 is made up from two separate moulded plastics components 16 and 17. The rear component 16 is provided with the mounting stud 14 and internally is formed with a rib 18 upstanding from the inner surface, which rib lies in a plane substantially parallel to the plane of circular edge 19 of the rear component 16. The front component 17 is in the form of a simple hemisphere and has an edge 20 adapted to co-operate with edge 19 of the rear component, whereby a secure and fluid-tight bond may be formed therebetween, with the aid of a suitable adhesive agent. Figure 10 shows the front and rear components 17 and 18 bonded together in this way, though without the eyeball present within the shell.

[0015] The shell may be secured to the outer fabric of a soft toy by means of an attachment cup 21, received on the mounting stud 14. This cup 21 is also in the form of a part-spherical shell having a mounting boss 22 through which the mounting stud 14 may be passed, so that the cup contains part of the shell 13. The bore of the boss also has ridges engageable with those of the mounting stud 14. After the stud has been passed through a hole formed in the fabric of the toy, the mounting cup is secured in position on the stud, with the fabric between the cup and the shell, by pressing an expansion pin 23 into the mounting stud 14. This expands that stud in the radial and circumferential directions and thereafter prevents removal of the attachment cup 21 from the stud.

[0016] An eyeball 25, of generally spherical shape and having an external diameter slightly smaller than the internal diameter of the shell 13, is disposed within the shell, with the space between the eyeball 25 and the shell 14 being filled with a slightly viscous liquid 26. The external surface of the eyeball 25 has an outwardly-projecting peg 27 which is received within the circular space defined by the rib 18 of the rear shell component 16, the peg 27 and rib 18 being arranged so that the peg always is constrained to lie within the area defined by that rib. In this way, the rotational movement of the eyeball about an axis lying substantially in the plane of the interface between the front and rear components of the shell is limited by interengagement of the peg 27 with the rib 18.

[0017] The eyeball itself is opaque or translucent and is assembled from two hemispherical plastic components 28 and 29, shown respectively in Figures 6 and 7. The rear component 28 carries the peg 27 on its axis and internally defines an upstanding wall 30 having three distinct regions 31, 32 and 33. A metallic ball 34, such as of steel and serving as a weight, may be received in a selected any one of those three regions and when so received, cannot move to the other regions without leaving the confines of the wall 30.

[0018] The front eyeball component 29 is provided with three internal pins 35 suitably disposed for association with each of the regions 31, 32 and 33 respectively, when the front and rear components are joined together. In this way, a ball 34 located in any one of the regions is held in that region by interaction with the associated pin 35 of the front component following bonding together of the two components.

[0019] Internally, the front component 29 is provided with a nib 36 which interacts with a recess 37 defined by a pair of projections formed internally within the rear component 28. On assembling together the two components of the eyeball, the nib 36 is engaged in the recess 37, so ensuring proper orientation between the two components, prior to the bonding together of those two components. As with the outer shell 13, the edges of the two components 28 and 29 may suitably be formed to ensure proper alignment and a fluid-tight seal, when bonded together.

[0020] Externally, the front component 29 of the eyeball is decorated at 38 in order to represent the iris and pupil of an eye. In Figure 7C, this decoration 36 is shown as a simple dark circle, though it could take other forms in order to suit the toy with which the eye assembly is to be used.

[0021] Turning now to Figures 3, 4 and 5, there are shown the three possible assembly options for the eyeball and thus with the metal ball 34 located in the selected region 31, 32 or 33, respectively. Figure 3 shows a simple eyeball intended to be mounted with the stud 14 generally horizontally and the eyeball able to move over the range indicated by arrow A, under the influence of gravity acting on the metal ball 34. Here, the ball is mounted in region 31. In Figure 4, the ball is shown in region 33, allowing the decoration on the external sur-

face of the eyeball to point not directly forwardly, along the axis of the assembly. Figure 5 shows the ball 34 in the central region 32, which is particularly suitable for a toy where the assembly is mounted with the axis of the mounting pin generally vertical, with the toy on a "natural" position.

[0022] It will be appreciated that the eye assembly of this invention allows the eyeball of the assembly to move in a novel and attractive manner, so adding appeal to a soft toy fitted with the eye assembly. The movement of the eyeball is damped by the viscous liquid, and as the toy is moved the metal ball 34 will tend to move to the lowest part of the shell, so making the eyeball roll round the eye assembly, lagging behind movement of the toy.

Claims

1. An eye assembly for use on a toy creature (10), comprising a generally spherical shell (13) at least a generally forward-facing portion of which is formed of a translucent material, **characterised in that** the shell (13) is provided with a mount (14) projecting generally rearwardly from the shell, a clamp member (21) is adapted to be secured to the mount (14) and has a surface which overlies a rearwardly facing part of the shell when positioned on the mount, and **in that** there is a generally spherical eyeball (25) located within the shell (13) which eyeball has a decorated iris region (38) intended to be exposed through said portion of the shell, the external diameter of the eyeball (25) being less than the internal diameter of the shell (13) and the space between the eyeball and the shell being substantially filled with a fluid (26) to permit the eyeball to drift around therewithin, a weight (34) being disposed within the eyeball (25) to urge the eyeball to a predefined disposition under gravity and the eyeball (25) and shell (13) being provided with co-operating stop means (18,27) to limit the movement of the eyeball with respect to the shell, whereby said decorated iris region (38) of the eyeball tends to face forwardly through the transparent portion of the shell (13).

2. An eye assembly as claimed in claim 1, wherein the greater part or all of the shell (13) is formed of a transparent material.

3. An eye assembly as claimed in claim 1 or claim 2, wherein the stop means comprises a peg (27) projecting from the outer surface of the eyeball (25) and a ring-shaped rail (18) formed on the internal surface of the shell (13).

4. An eye assembly as claimed in any of the preceding claims, wherein the weight comprises a metal ball (34) held within the eyeball (25).

5. An eye assembly as claimed in claim 4, wherein the internal surface of the eyeball (25) is provided with retention means (30,35) to hold the metal ball (34) at a predefined position within the eyeball (25).

6. An eye assembly as claimed in claim 5, wherein the retention means (30,35) allows the holding of the ball (34) at a pre-selected one of a plurality of different positions (31,32,33) within the eyeball (25).

7. An eye assembly as claimed in claim 6, wherein the eyeball (25) defines three pre-selectable different positions (31,32,33) for the metal ball (34), relative to the stop means (18,27).

8. An eye assembly as claimed in claim 6 or claim 7, wherein the eyeball (25) is formed from two hemispheres (28,29), one of those hemispheres having an internal wall (30) which defines a plurality of recesses (31,32,33), the weight (34) being receivable in a selected recess and being retained in that recess by means of an opposed pin (35) provided in the other hemisphere.

9. An eye assembly as claimed in any of the preceding claims, wherein the mount is in the form of a stud (14) projecting radially from the shell (13) and the clamp member (21) is generally cup-shaped with a central boss (22) which may be received on the stud (14), thereby to clamp fabric of the toy (10) between the shell and the clamp member.

10. A toy creature whenever provided with an eye assembly as claimed in any of the preceding claims.

Fig 1

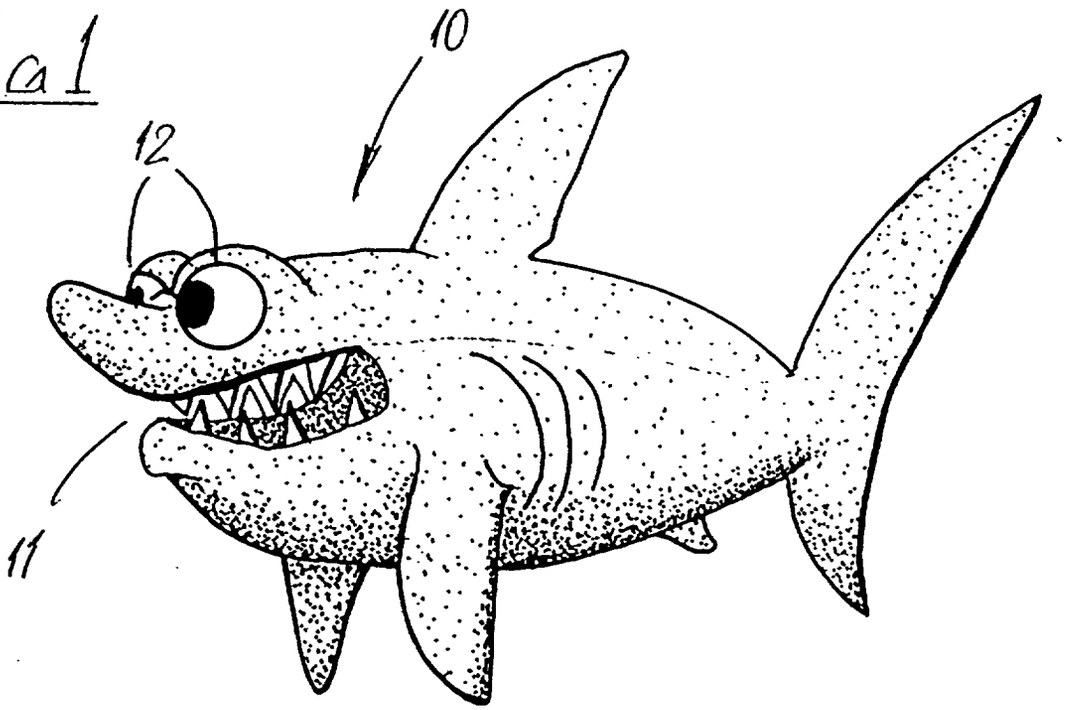


Fig 2

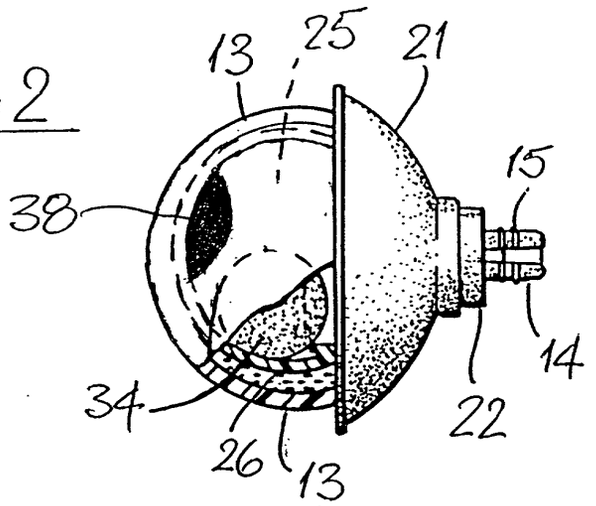


Fig 3

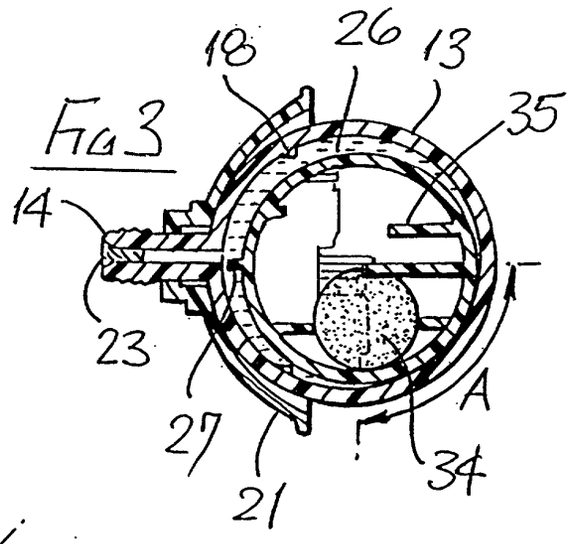


Fig 4

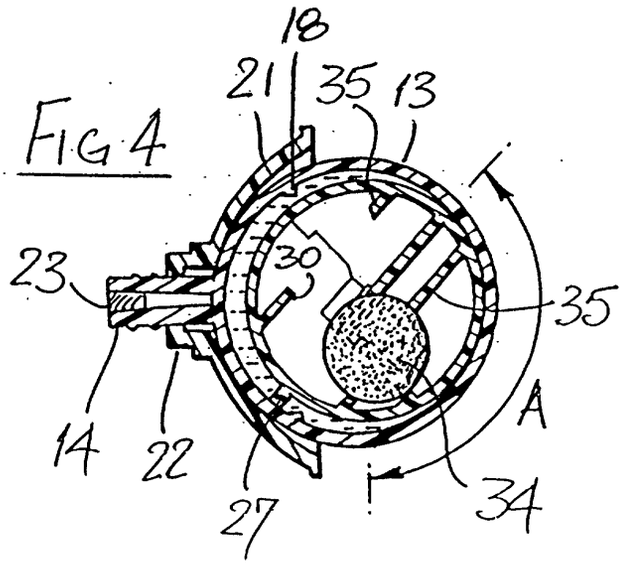
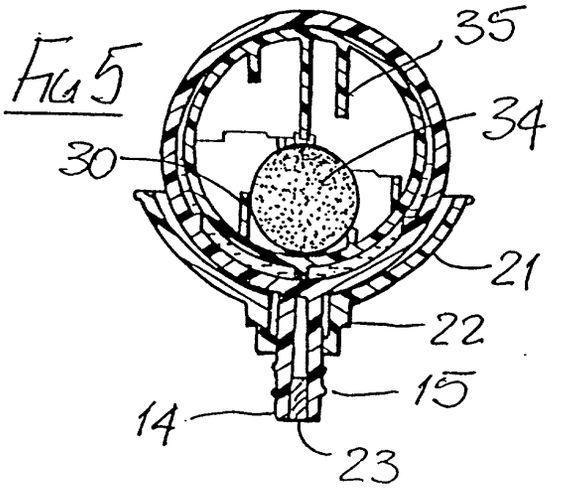


Fig 5



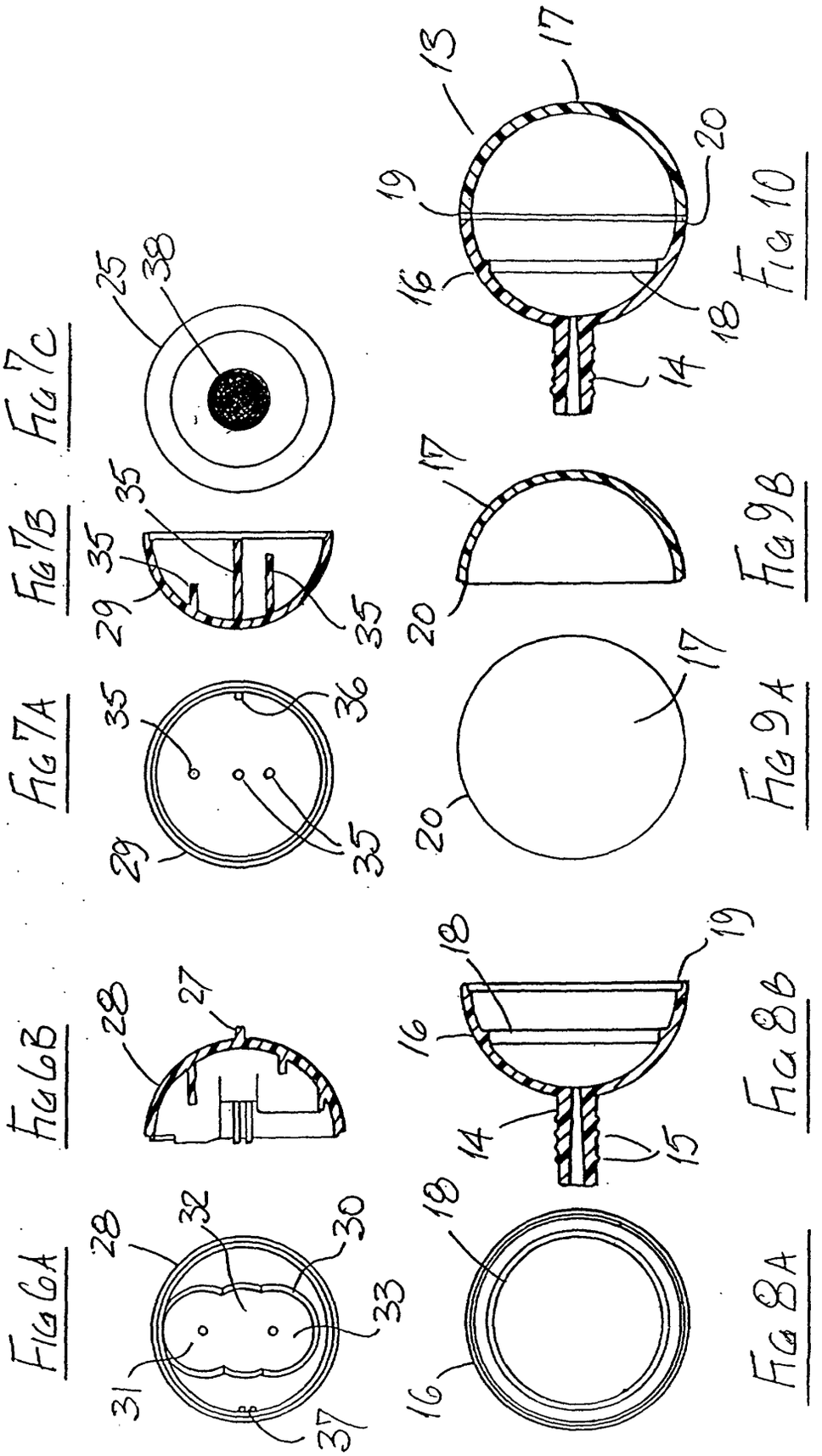


FIG 6A
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FIG 6B
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FIG 7A
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FIG 7B
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FIG 7C
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FIG 8A
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FIG 8B
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FIG 9A
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FIG 9B
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FIG 10
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EUROPEAN SEARCH REPORT

Application Number
EP 01 30 0492

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A	US 1 981 333 A (SCHAVOIR FREDERICK H) 20 November 1934 (1934-11-20) * page 1, line 73 - page 2, line 60; figures *	1-10	A63H3/38 A63H3/40
A	US 4 328 639 A (COTEY JOHN) 11 May 1982 (1982-05-11) * column 3, line 49 - column 4, line 34; figures 1-3 *	1-10	
A	EP 0 274 449 A (GARDEL WILLIAM ALBERT) 13 July 1988 (1988-07-13) * column 1, line 55 - column 3, line 36; figures *	1-10	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7) A63H

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
MUNICH	1 August 2001	Lucas, P

CATEGORY OF CITED DOCUMENTS

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EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 01 30 0492

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