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(54) **Transformable elastic toy**

Transformierbares elastisches Spielzeug

Jouet élastique transformable

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Description

Background of the Invention

[0001] The present invention relates to elastic toys. More particularly, the invention relates to a gelatinous toy having two or more connected chambers that can each be transformed inside-out to thereby change the appearance and/or function of the toy.

[0002] A transformable gelatinous ball has been disclosed by the present applicant in US Patent 6,645,101. That patent describes a single transformable ball that can be turned inside-out through a single aperture, wherein the inside and outside surfaces of the ball have different features. A limitation of each ball disclosed in the US patent is that only two external appearances are available, namely those associated with the inside and outside surface features of the ball.

Object of the Invention

[0003] It is the object of the present invention to provide a transformable gelatinous toy having two or more chambers connected together and in which the toy can be transformed into more than two configurations upon turning the respective chambers inside-out.

Disclosure of the Invention

[0004] There is disclosed herein an elastic toy as defined by Claim 1.

[0005] Preferably, the chambers are substantially concentric in one or more configurations.

[0006] Preferably, each chamber comprises a plurality of three-dimensional internal features extending from its wall.

[0007] Preferably, the three-dimensional features of one chamber are different to the three-dimensional features of the other chamber.

[0008] Preferably, the chambers are connected to one another by an integral web extending between the walls.

[0009] Preferably, the wall of each chamber comprises a substantially flat portion and wherein the flat portions reside alongside one another.

[0010] Preferably, the toys are made of highly elastic material.

[0011] Preferably, the highly elastic material comprises a gelatinous composition produced by a melt blend of a copolymer and plasticising oils.

[0012] Preferably, the copolymer is a poly SEBS (styrene-ethylene-butylene-styrene) triblock copolymer.

[0013] Preferably tackiness or stickiness on the surface of the gelatinous composition formed by plasticising the triblock copolymer of SEBS is removed.

[0014] Preferably this is achieved by spraying over the toy a thin layer of lacquer or paint to cover any tacky areas.

[0015] Alternatively, this might be achieved by apply-

ing a chemical substance to react with the composition at the toy surface to remove surface tackiness.

[0016] Preferably the toy is formed by moulding.

[0017] Preferably the moulding is injection moulding or cast moulding.

[0018] Preferably, thickness of the toy walls is not less than 4 mm where the toy is made of a SEBS gelatinous composition. This will assist in maintaining a substantially spherical shape in the toy in any transformed configuration.

[0019] For a more rigid material such as rubber, the wall thickness can be reduced. Conversely, for very soft material, such as foamed latex, the wall thickness can be increased.

[0020] Other materials which are highly elastic and provide comparable softness might alternatively be used. For example, the material might be selected from the group consisting of: Thermoplastic Elastomer (TPE); Thermoplastic Rubber (TPR) compounds and alloys; Thermoplastic Polyurethane (TPU) compounds and alloys; Thermoplastic Vulcanisates (TPV) compounds and alloys; Thermoplastic Olefins (TPO) compounds and alloys; Poly Vinyl Chloride (PVC) compounds and alloys; Gelatinous compositions of Styrene Block Copolymers (SBC); and Natural Rubber.

Brief Description of the Drawings

[0021] Preferred forms of the present invention will now be described by way of example with reference to the accompanying drawings, wherein:

Fig. 1 is a schematic cross-sectional elevation of a gelatinous toy in a first configuration,

Fig. 2 is a schematic cross-sectional elevation of the toy of Figure 1 inverted into a first inside-out configuration,

Fig. 3 is a schematic cross-sectional elevation of the toy of Figure 1 inverted into a second inside-out configuration,

Fig. 4 is a schematic perspective illustration of the toy of Fig. 1 in the configuration of Fig. 2,

Fig. 5 is a schematic perspective illustration of the toy of Fig. 1 in the configuration of Fig. 3,

Fig. 6 is a schematic cross-sectional elevation of another gelatinous toy comprising twin balls in a first configuration,

Fig. 7 is a schematic cross-sectional elevation of the toy of Fig. 6 inverted into a second configuration,

Fig. 8 is a schematic perspective illustration of the toy of Fig. 7,

Fig. 9 is a schematic cross-sectional elevation of the toy of Fig. 6 inverted into a third configuration,

Fig. 10 is a schematic perspective illustration of the toy of Fig. 9,

Fig. 11 is a schematic perspective illustration of the toy of Figs. 6 to 10 in a fourth configuration,

Fig. 12 is a schematic cross-sectional elevation of another gelatinous toy not forming part of the invention, in a first configuration,

Fig. 13 is a schematic cross-sectional elevation of the toy of Fig. 12 in a second configuration,

Fig. 14 is a schematic perspective illustration of the toy of Fig. 13,

Fig. 15 is a schematic cross-sectional elevation of the toy of Figs. 12 to 14 in a third configuration,

Fig. 16 is a schematic perspective illustration of the toy of Fig. 15

Fig. 17 is a schematic perspective illustration of another gelatinous toy,

Fig. 18 is a schematic perspective illustration of another gelatinous toy,

Fig. 19 is a schematic perspective illustration of another gelatinous toy,

Fig. 20 is a schematic cross-sectional elevation of another gelatinous toy in a first configuration,

Fig. 21 is a schematic elevation of the toy of Fig. 20 in a second configuration,

Fig. 22 is a schematic elevation of the toy of Fig. 20 in a third configuration

Fig. 23 is a schematic cross-sectional elevation of another gelatinous toy,

Fig. 24 is a schematic perspective illustration of another gelatinous toy,

Fig. 25 is a schematic perspective illustration of another gelatinous toy, and

Fig. 26 is a schematic perspective illustration of either of the toy is of Figs. 24 or 25 in a second configuration.

Description of the Preferred Embodiments

[0022] In Figs. 1 to 5 of the accompanying drawings there is depicted schematically a first transformable elastic toy 10. The toy 10 is typically moulded in one of the materials mentioned above. The toy comprises a pair of elastic hollow chambers or balls 11 and 12 integrally formed and connected to one another by a web 13. Each ball 11, 12 has a wall 14 with an aperture 15a/15b extending therethrough and communicating the ball's interior with the ball's exterior. Inside the first ball 11, there is a plurality of spikes 16a and inside the second ball 12, there is a plurality of bumps 16b. It does not matter what particular shape these features take, however, they ought to be different from one another.

[0023] In Figs. 2 and 4, the ball 12 has been turned inside-out by expanding its aperture 15b and drawing it over the ball 11 so that the apertures 15a and 15b are adjacent to one another and the bumps 16b face outward.

[0024] In Figs. 3 and 5, the ball 11 has been turned inside-out by expanding its aperture 15a and drawing it over the ball 12 so that the apertures 15a and 15b are adjacent to one another and the spikes 16a face outward.

[0025] A development of the toy depicted in Figs. 1 to 5 is depicted in Figs. 6 to 11. In addition to the features described above, the ball 12 has formed integrally therewith and opposite the web 13 an internal elongate elastic member 17. At the distal end of the elongated member 17, there is an eyelet 18 to which a length of string (not shown) can be attached. Upon dangling the toy from a length of string attached through the eyelet 18, the elongated member is drawn out through aperture 15b and the toy can be used somewhat like a yo-yo. Moreover, upon bouncing the toy at the bottom of the length of string, the toy can be caused to "flip" between the configurations depicted in Figs. 7 to 11 as the apertures 15a expand about the respective balls 11 and 12 as a result of the inertial mass of the walls.

[0026] An embodiment similar to that of Figs. 6 to 11, but not forming part of the invention, is depicted in Figs. 12 to 16. This embodiment comprises just a single ball 11 having spikes 16b on one surface. An elongate elastic member 17 can be drawn out by a string through aperture 15b so that the toy can be dangled and "flipped" back and forth between the configurations depicted in Figs. 13 and 15. The inertial mass of the wall 14 causes flipping of the toy between the depicted configurations.

[0027] Fig. 17 depicts a further embodiment in which a pair of balls 11a and 11b is mutually interconnected by a common elongate elastic member 17 having an eyelet 18 at its centre. Again, a length of string can be attached to the eyelet 18 so that the balls 11a and 11b can be dangled and flipped in unison or otherwise. A further extension of the theme is depicted in Fig. 18 in which a trio of balls 11a, 11b and 11c each have a portion of an elastic member 17 extending therefrom to a common eyelet. A four-ball version is depicted in Fig. 19 and comprises a quad of elastic elongated members 17 all radiating from

a common eyelet 18.

[0028] Figs. 20 to 22 depicted a transformable the ball 20 comprising a pair of hemispherical ball halves 21 and 22. Each ball half comprises a back wall 23 connected together at a web 24. Each ball hemisphere has an aperture 25a/25b. The first ball hemisphere 21 has a male figurine 26 moulded integrally therein against the back wall 23, whereas the second ball 22 has a female figurine 27 extending from its back wall. Each hemisphere can be drawn over the other hemisphere upon expansion of its aperture 25a or 25b so that either of the configurations depicted in Figs. 21 or 22 can be achieved. An extension of this idea is depicted in Fig. 23 wherein instead of providing ball hemispheres, a trio of segments is attached at a common web 24 so that three possible configurations are achievable upon expansion of the apertures 25a, 25b, or 25c in a similar manner as described with reference to Figs. 20 to 22.

[0029] A pair of elastic flying toys is depicted in Figs. 24 and 25. Each flying toy comprises a ball 30 having an aperture 25 through which the ball can be turned inside-out. The embodiment of Fig. 24 has a peripheral ring 31, whereas the embodiment of Fig. 25 has a series of equatorial wings 32. The internal surface of the balls 30 is typically smooth so that when turned inside-out, the toy takes the appearance of the ball is depicted in Fig. 26.

[0030] It should be appreciated that modifications and alterations obvious to those skilled in the art are not to be considered as beyond the scope of the present invention. For example, instead of providing male and female figurines as depicted in Figs. 20 to 22, any shape could be provided.

Claims

1. An elastic toy (10) comprising two or more integrally formed hollow chambers (11, 12), each hollow chamber defined by an elastic wall (14) having at least one three-dimensional feature (16) extending into the hollow chamber and an expandable aperture (15) through which the ether chamber or chambers can pass and wherein any one of the two or more chambers can be turned inside out such that each said three-dimensional feature therein faces cutwards by passing the other chamber or chambers through the aperture.
2. The toy of Claim 1, wherein the chambers are substantially concentric in one or more configurations.
3. The toy of either Claim 1 or Claim 2, wherein each chamber comprises a plurality of said three-dimensional internal features extending from its wall.
4. The toy of Claim 3, wherein the three-dimensional features of one chamber are different to the three-dimensional features of the other chamber.

5. The toy of Claim 2, wherein the chambers are connected to one another by an integral web (13) extending between the walls.
6. The toy of any preceding Claim, wherein the wall of each chamber comprises a substantially flat portion and wherein the flat portions reside alongside one another.
7. The toy of any one of the preceding claims being made of highly elastic material.
8. The toy of Claim 7, wherein the highly elastic material comprises a gelatinous composition produced by a melt blend of a copolymer and plasticising oils.
9. The toy of Claim 8, wherein the copolymer is a poly SEBS (styrene-ethylene-butylene-styrene) triblock copolymer.
10. The toy of Claim 9, wherein tackiness or stickiness on the surface of the gelatinous composition formed by plasticising the triblock copolymer of SEBS is removed.
11. The toy of Claim 10, wherein said removal is achieved by spaying over the toy a thin layer of lacquer or paint to cover any tacky areas.
12. The toy of Claim 11, wherein said removal is achieved by applying a chemical substance to react with the composition at the toy surface.
13. The toy of Claim 1 being formed by moulding.

Patentansprüche

1. Elastisches Spielzeug (10), umfassend zwei oder mehr integral gebildete Hohlkammern (11, 12), wobei jede Hohlkammer durch eine elastische Wand (14) definiert ist, die mindestens ein dreidimensionales Merkmal (16), das sich in die Hohlkammer hinein erstreckt, und eine dehnbare Öffnung (15), durch die die andere Kammer oder die anderen Kammern hindurchgehen kann/können, aufweist, und wobei jede der zwei oder mehr Kammern nach außen gedreht werden kann, sodass jedes der dreidimensionalen Merkmale darein nach außen zeigt, indem sie die andere Kammer oder die anderen Kammern durch die Öffnung passiert.
2. Spielzeug nach Anspruch 1, wobei die Kammern im Wesentlichen in einer oder mehrere Gestaltungen konzentrisch sind.
3. Spielzeug nach Anspruch 1 oder Anspruch 2, wobei jede Kammer eine Mehrzahl der dreidimensionalen

inneren Merkmale, die sich von ihrer Wand aus erstrecken, umfasst.

4. Spielzeug nach Anspruch 3, wobei sich die dreidimensionalen Merkmale einer Kammer von den dreidimensionalen Merkmalen der anderen Kammer unterscheiden. 5
5. Spielzeug nach Anspruch 2, wobei die Kammern durch ein integrales Gewebe (13), das sich zwischen den Wänden erstreckt, miteinander verbunden sind. 10
6. Spielzeug nach einem der vorhergehenden Ansprüche, wobei die Wand jeder Kammer einen im Wesentlichen ebenen Abschnitt umfasst und wobei sich die ebenen Abschnitte nebeneinander befinden. 15
7. Spielzeug nach einem der vorhergehenden Ansprüche, das aus einem hoch elastischen Material hergestellt ist. 20
8. Spielzeug nach Anspruch 7, wobei das hoch elastische Material eine gallertartige Zusammensetzung umfasst, die durch Schmelzvermischung eines Copolymers mit Weichmacherölen hergestellt wird. 25
9. Spielzeug nach Anspruch 8, wobei das Copolymer ein Poly-SEBS (Styren-Ethylen-Butylen-Styren) Triblockcopolymer ist. 30
10. Spielzeug nach Anspruch 9, wobei die Viskosität oder die Klebrigkeit auf der Oberfläche der gallertartigen Zusammensetzung, die durch das Weichmachen des Triblockcopolymers des SIEBS gebildet wurde, entfernt werden. 35
11. Spielzeug nach Anspruch 10, wobei das Entfernen durch Aufsprühen einer dünnen Schicht Lack oder Farbe auf das Spielzeug durchgeführt wird, um alle klebrigen Bereiche zu bedecken. 40
12. Spielzeug nach Anspruch 11, wobei das Entfernen durch das Aufbringen einer chemischen Substanz durchgeführt wird, die mit der Zusammensetzung auf der Oberfläche des Spielzeugs reagiert. 45
13. Spielzeug nach Anspruch 1, das durch Formpressen gebildet wird. 50

Revendications

1. Jouet élastique (10) comprenant deux chambres creuses (11, 12) ou plus formées d'une seule pièce, chaque chambre creuse étant définie par une paroi élastique (14) ayant au moins une caractéristique tridimensionnelle (16) s'étendant dans la chambre creuse et une ouverture extensible (15) à travers la-

quelle l'autre ou les autres chambres peuvent passer, l'une quelconque des deux chambres ou plus pouvant être retroussée de sorte que chacune des dites caractéristiques tridimensionnelles s'y trouvant est tournée vers l'extérieur en passant l'autre chambre ou les autres chambres à travers l'ouverture

2. Jouet selon la revendication 1, dans lequel les chambres sont substantiellement concentriques dans une ou plusieurs configurations,
3. Jouet selon la revendication 1 ou 2, dans lequel chaque chambre comprend une pluralité des dites caractéristiques internes tridimensionnelles s'étendant de sa paroi.
4. Jouet selon la revendication 3, dans lequel les caractéristiques tridimensionnelles d'une chambre sont différentes des caractéristiques tridimensionnelles de l'autre chambre.
5. Jouet selon la revendication 2, dans lequel les chambres sont connectées l'une à l'autre par un tissu intégré (13) entre les parois.
6. Jouet selon l'une quelconque des revendications précédentes, dans lequel la paroi de chaque chambre comprend une partie substantiellement plate et dans lequel les parties plates sont juxtaposées.
7. Jouet selon l'une quelconque des revendications précédentes, réalisé en un matériau hautement élastique.
8. Jouet selon la revendication 7, dans lequel le matériau hautement élastique comprend une composition gélatineuse produite par un mélange fondu d'un copolymère et d'huiles plastifiantes,
9. Jouet selon la revendication 8, dans lequel le copolymère est un copolymère tribloc poly SEBS (styrène-éthylène-butylène-styrène).
10. Jouet selon la revendication 9, dans lequel la viscosité ou l'adhérence sur la surface de la composition gélatineuse formée par plastification du copolymère tribloc de SEBS est supprimée.
11. Jouet selon la revendication 10, dans lequel ladite suppression est obtenue en pulvérisant sur le jouet une fine couche de laque ou de peinture pour couvrir toutes les surfaces visqueuses.
12. Jouet selon la revendication 11, dans lequel ladite suppression est obtenue en appliquant une substance chimique réagissant avec la composition sur la surface du jouet,

13. Jouet selon la revendication 1 formé par moulage.

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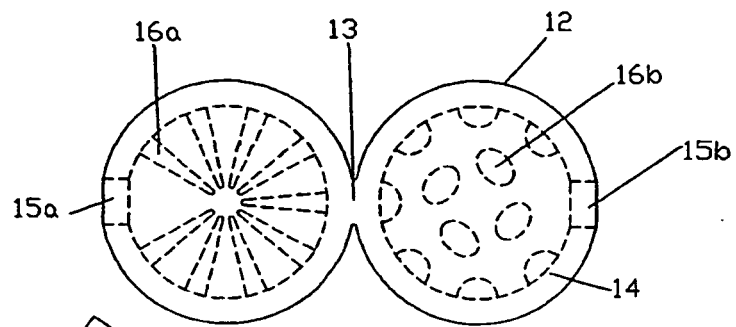


Fig.1

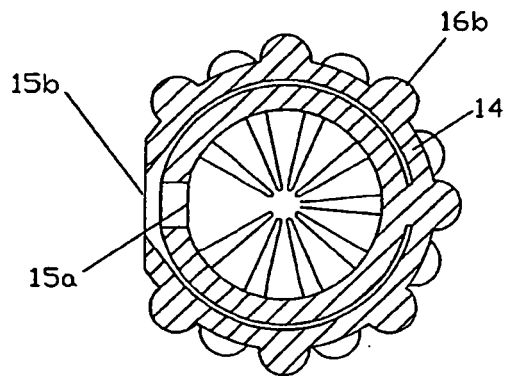


Fig.2

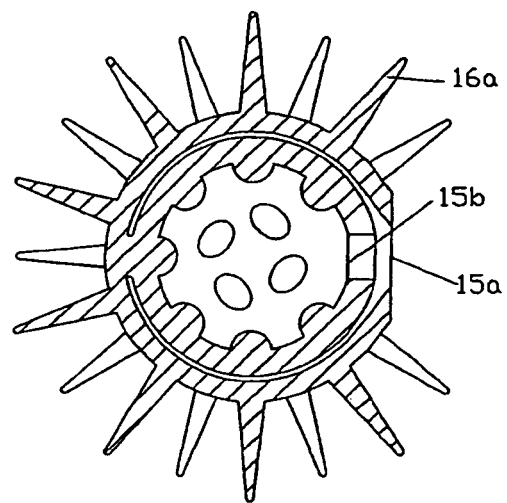


Fig.3

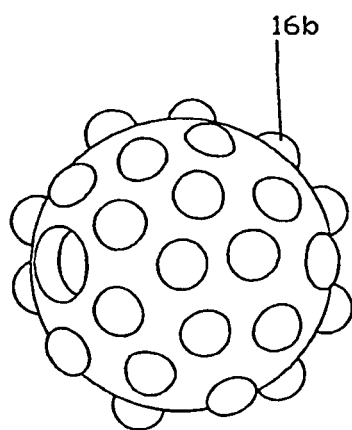


Fig.4

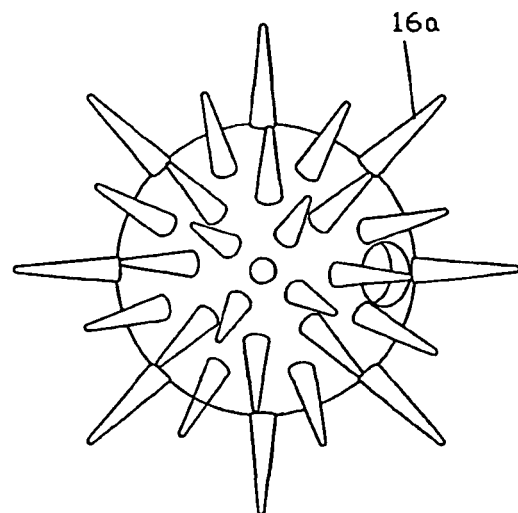
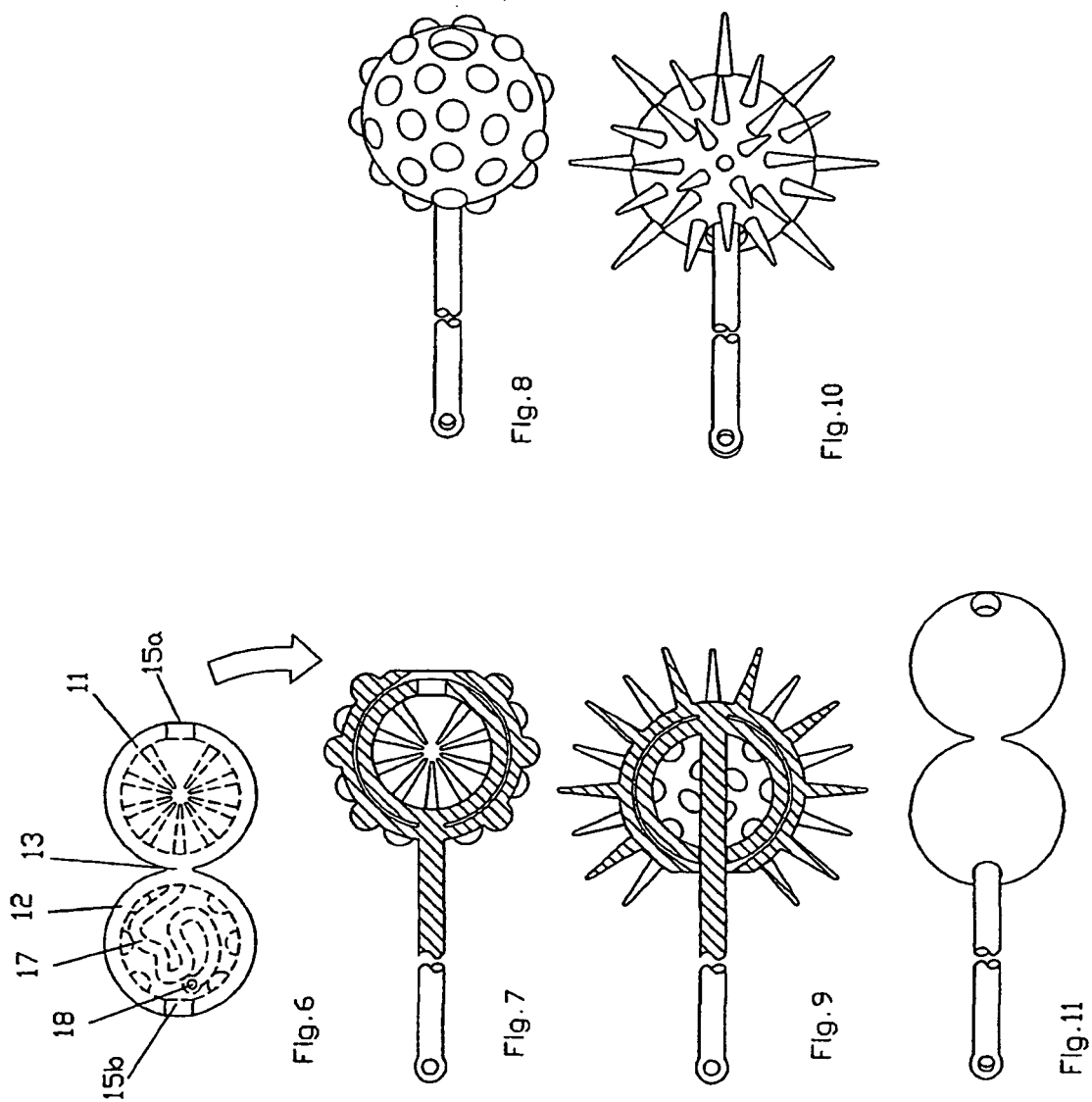
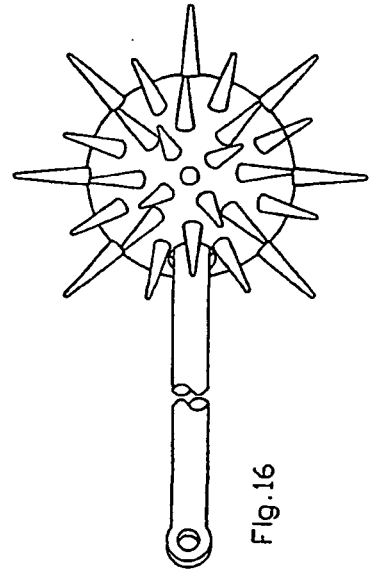
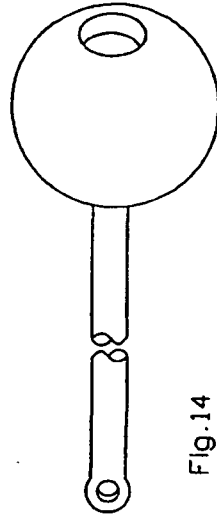
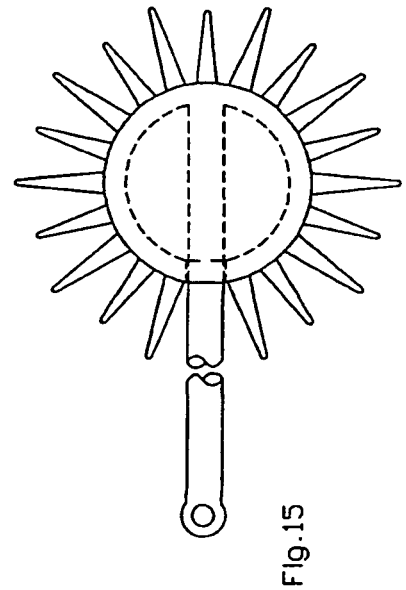
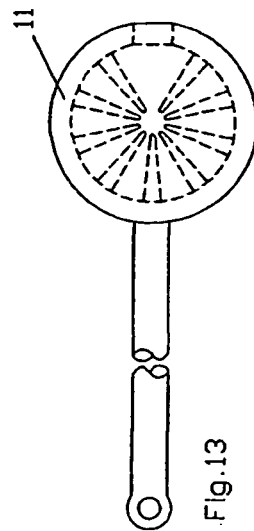
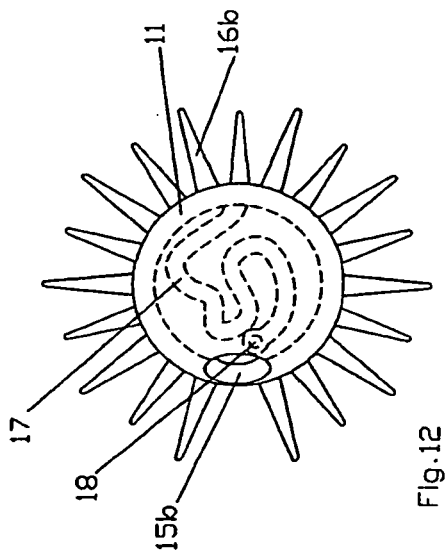


Fig.5





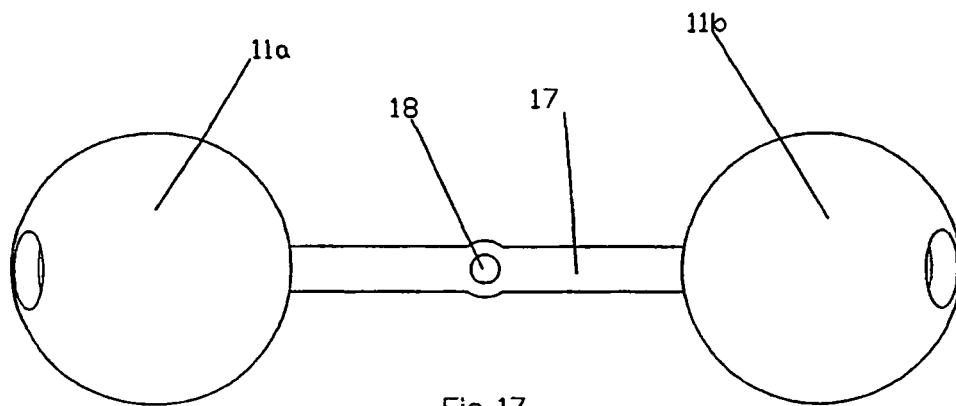


Fig. 17

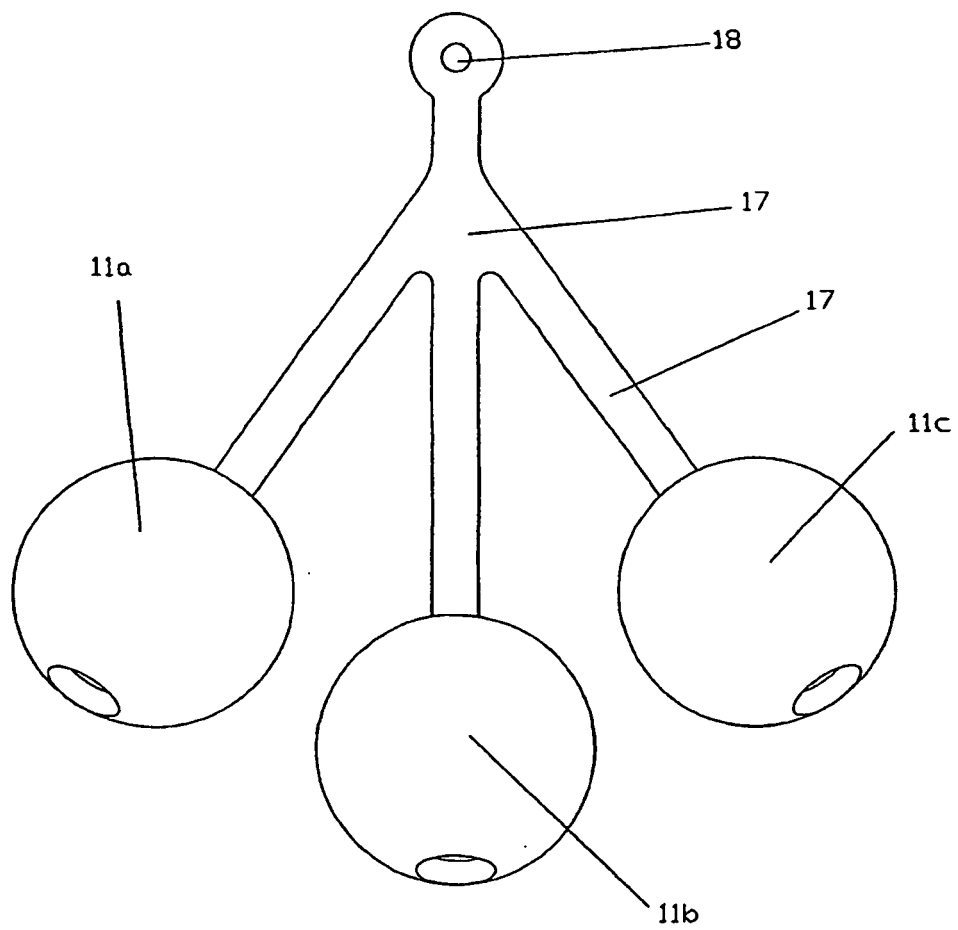


Fig. 18

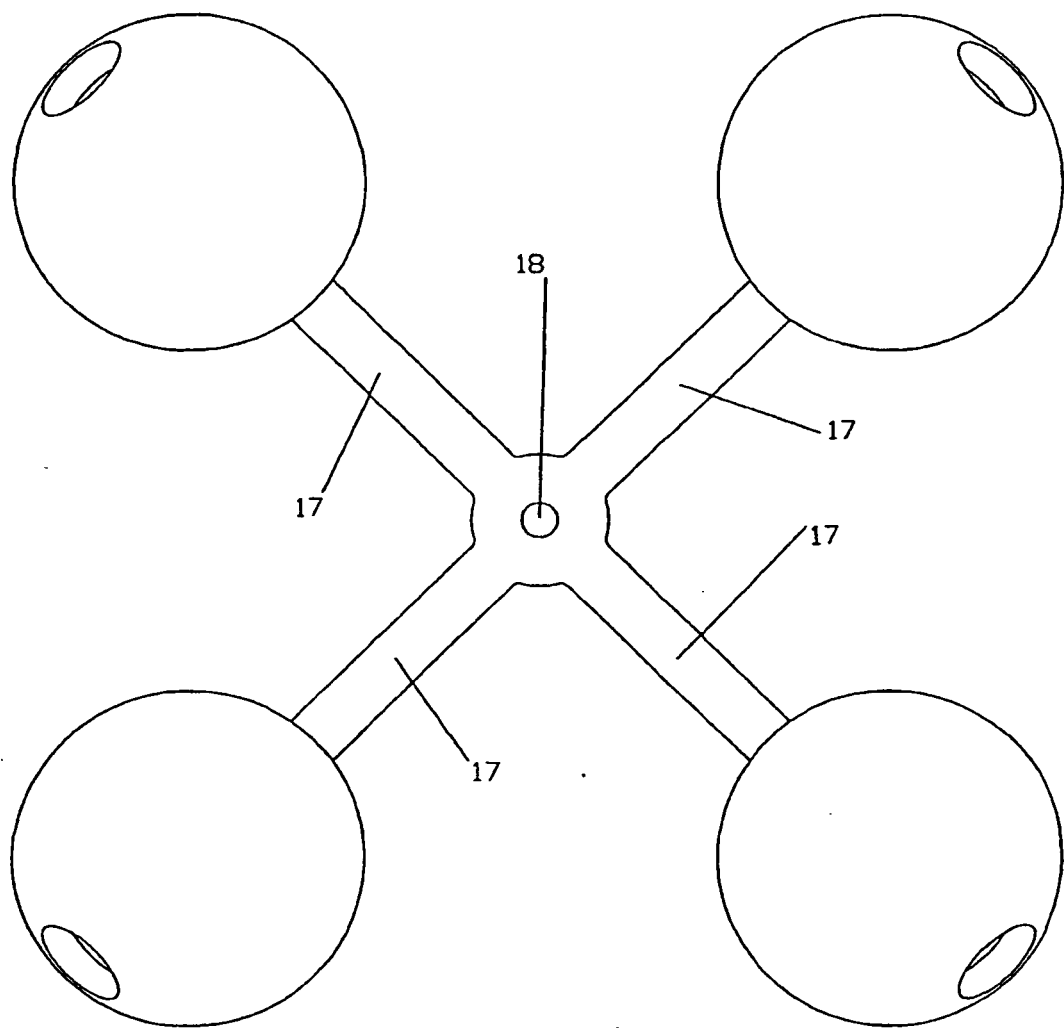


Fig.19

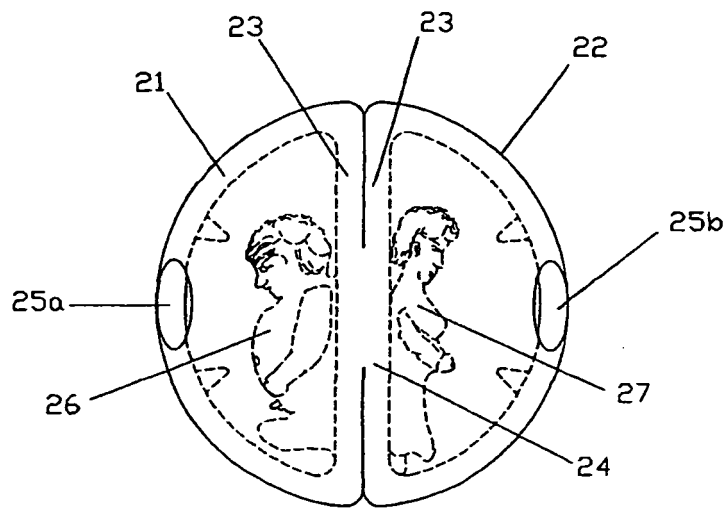


Fig. 20

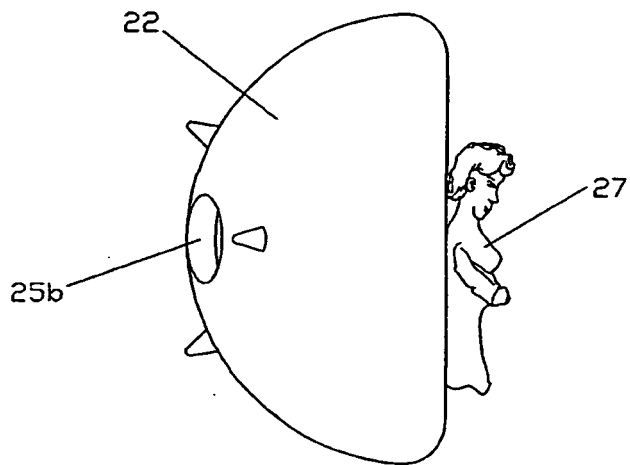


Fig. 21

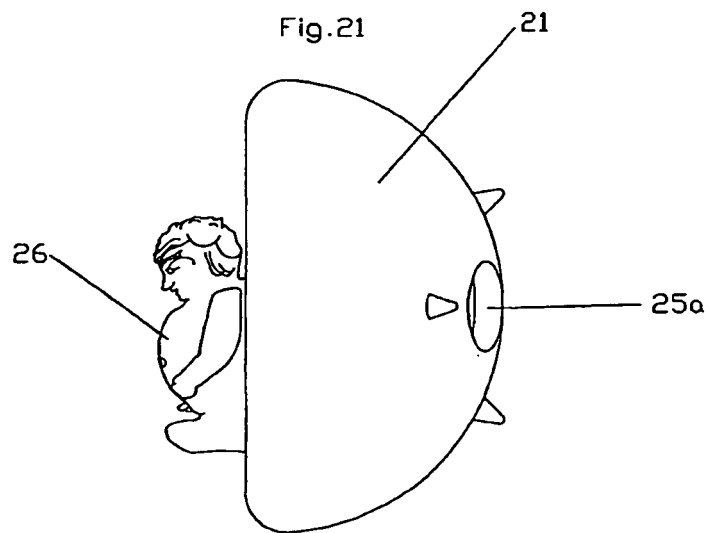


Fig. 22

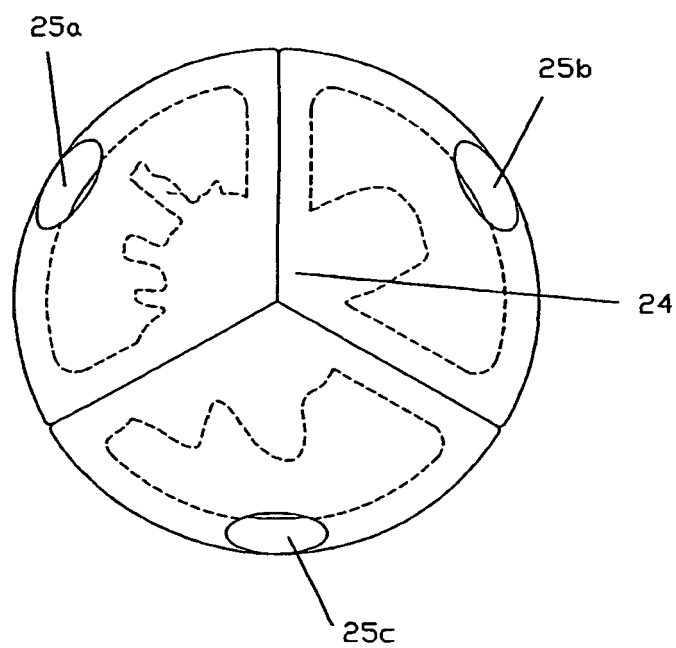


Fig. 23

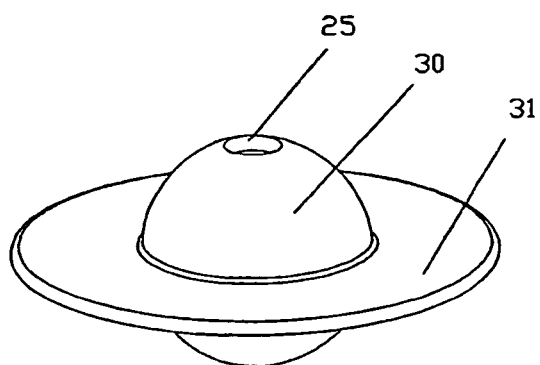


Fig. 24

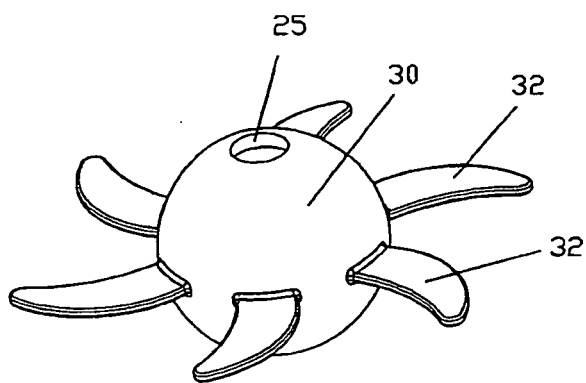


Fig. 25

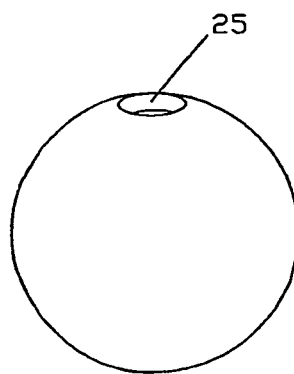


Fig. 26



REFERENCES CITED IN THE DESCRIPTION

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