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Remarks:

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(54) **Transformable elastic toy**

(57) An elastic toy has a chamber defined by a wall having an aperture through which the chamber can be turned inside-out from a first configuration in which an

elongate member of the toy extends from the wall within the chamber through the aperture to the chamber exterior and which under tension draws the chamber through the aperture.

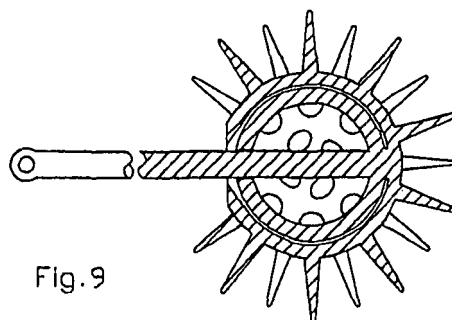


Fig. 9

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 -- the content of which is hereby incorporated by cross-reference. 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 comprising two or more integrally formed chambers, each defined by a wall having an aperture through which the other chamber or chambers can pass when reconfiguring the toy.

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

[0006] Preferably, each chamber comprises 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] There is further disclosed herein an elastic toy comprising: a primary chamber defined by a wall having an aperture through which the primary chamber can be turned inside-out from a first configuration in which an elongate member of the toy extends from the wall within the primary chamber through the aperture to the primary chamber exterior and which under tension draws the primary chamber through the aperture.

[0011] The toy might further comprise a secondary chamber surrounding the primary chamber and attached thereto by an integral web, and comprising an aperture

through which the elongate member extends.

[0012] The toy might further comprise a plurality of said primary chambers and elongate members, wherein the elongate members of each primary chamber are integrally formed to radiate from a common point.

[0013] The toy might comprise a plurality of said primary and secondary chambers and elongate members, wherein the elongate members of each primary chamber are integrally formed to radiate from a common point.

[0014] Preferably, the elongate member has a distal end comprising a string attachment.

[0015] Preferably, the string attachment comprises an aperture extending transversely across the elongate member.

[0016] Preferably, the toys are made of highly elastic material.

[0017] Preferably, the highly elastic material comprises a gelatinous composition produced by a melt blend of a copolymer and plasticising oils.

[0018] Preferably, the copolymer is a poly SEBS (styrene-ethylene-butylene-styrene) triblock copolymer.

[0019] Preferably tackiness or stickiness on the surface of the gelatinous composition formed by plasticising the triblock copolymer of SEBS is removed.

[0020] Preferably this is achieved by spraying over the toy a thin layer of lacquer or paint to cover any tacky areas.

[0021] Alternatively, this might be achieved by applying a chemical substance to react with the composition at the toy surface to remove surface tackiness.

[0022] Preferably the toy is formed by moulding.

[0023] Preferably the moulding is injection moulding or cast moulding.

[0024] 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.

[0025] 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.

[0026] 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

[0027] 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 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

[0028] 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.

[0029] 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.

[0030] 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.

[0031] 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.

[0032] An embodiment similar to that of Figs. 6 to 11 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.

[0033] 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.

[0034] 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.

[0035] 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.

[0036] 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.

[0037] A further embodiment of the invention provides

an elastic toy comprising two or more integrally formed chambers, each defined by a wall having an aperture through which the other chamber or chambers can pass when reconfiguring the toy. Preferably the chambers are substantially concentric in one or more configurations. Preferably each chamber comprises three-dimensional internal features extending from its wall. Preferably the three-dimensional features of one chamber are different to the three-dimensional features of the other chamber. Preferably the chambers are connected to one another by an integral web extending between the walls. Preferably the wall of each chamber comprises a substantially flat portion and wherein the flat portions reside alongside one another.

[0038] In this further embodiment of the invention, preferably the toy being made of highly elastic material. Preferably the highly elastic material comprises a gelatinous composition produced by a melt blend of a copolymer and plasticising oils. Preferably, the copolymer is a poly SEBS (styrene-ethylene-butylene-styrene) triblock copolymer. Preferably tackiness or stickiness on the surface of the gelatinous composition formed by plasticising the triblock copolymer of SEBS is removed. Preferably said removal is achieved by spraying over the toy a thin layer of lacquer or paint to cover any tacky areas. Preferably said removal is achieved by applying a chemical substance to react with the composition at the toy surface. Preferably the toy is formed by moulding.

Claims

1. An elastic toy comprising: a primary chamber defined by a wall having an aperture through which the primary chamber can be turned inside-out from a first configuration in which an elongate member (17) of the toy extends from the wall within the primary chamber through the aperture to the primary chamber exterior and which under tension draws the primary chamber through the aperture.
2. The toy of Claim 1, further comprising a secondary chamber surrounding the primary chamber and attached thereto by an integral web, and comprising an aperture through which the elongate member extends.
3. The toy of either Claim 1 or Claim 2, wherein the elongate member has a distal end comprising a string attachment (18).
4. The toy of Claim 3, wherein the string attachment comprises an aperture extending transversely across the elongate member.
5. The toy of any one of Claims 1 to 4, comprising a plurality of said primary chambers and elongate members, wherein the elongate members of each

primary chamber are integrally formed to radiate from a common point.

6. The toy of Claim 2, comprising a plurality of said primary and secondary chambers and elongate members, wherein the elongate members of each primary chamber are integrally formed to radiate from a common point. 5
7. The toy of any one of the preceding claims being made of highly elastic material. 10
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. 15
9. The toy of Claim 8, wherein the copolymer is a poly SEBS (styrene-ethylene-butylene-styrene) triblock copolymer. 20
10. The toy of Claim 8, wherein tackiness or stickiness on the surface of the gelatinous composition formed by plasticising the triblock copolymer of SEBS is removed. 25
11. The toy of Claim 8, wherein said removal is achieved by spraying over the toy a thin layer of lacquer or paint to cover any tacky areas.
12. The toy of Claim 8, wherein said removal is achieved by applying a chemical substance to react with the composition at the toy surface. 30
13. The toy of Claim 1 being formed by moulding. 35

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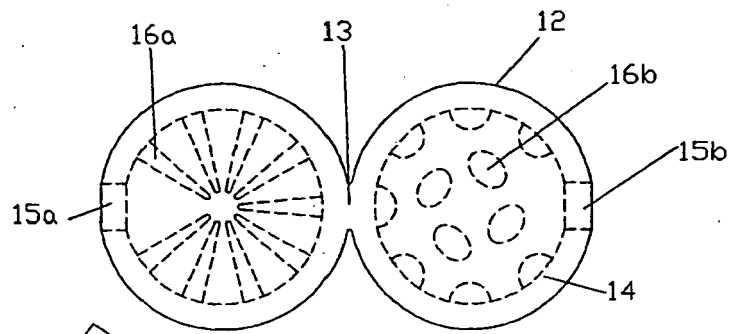


Fig.1

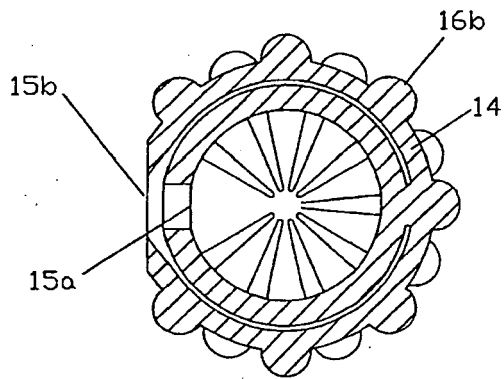


Fig.2

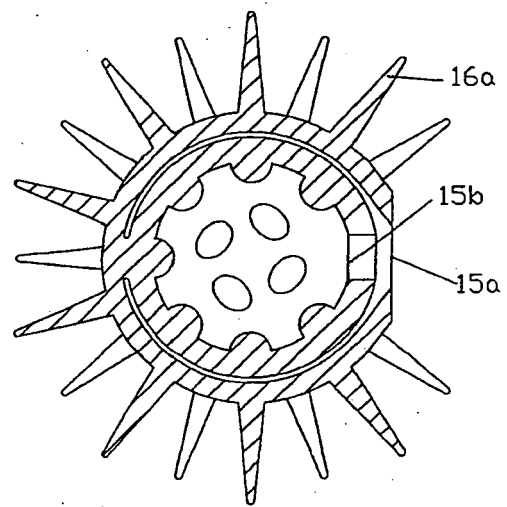


Fig.3

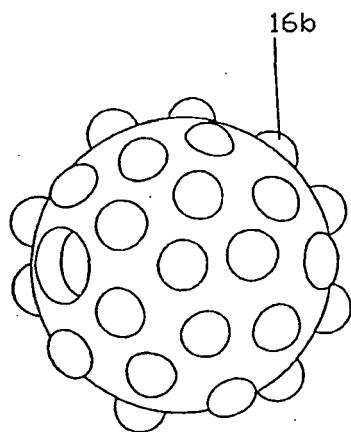


Fig.4

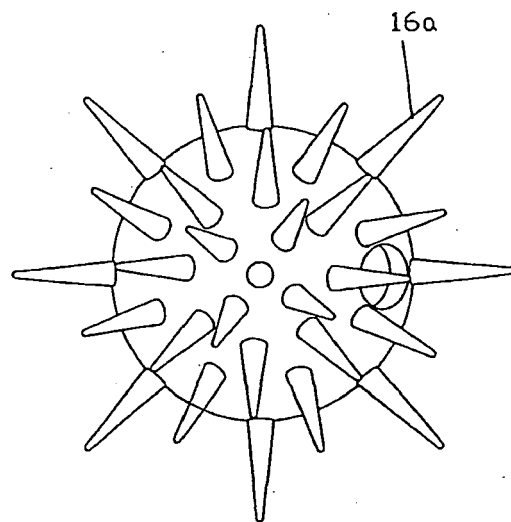


Fig.5

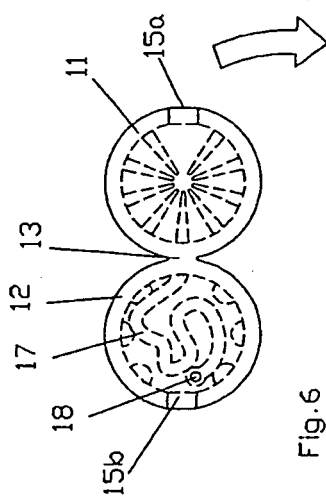


Fig. 6

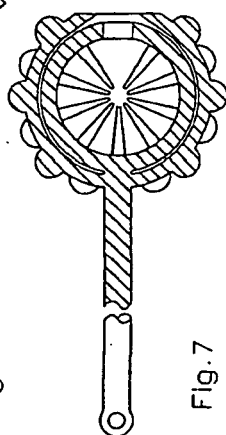


Fig. 7

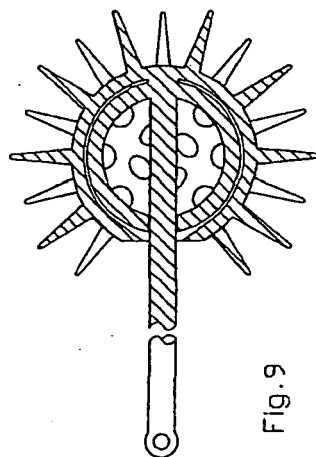


Fig. 9

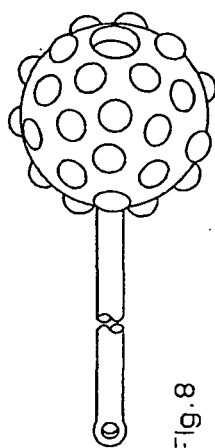


Fig. 8

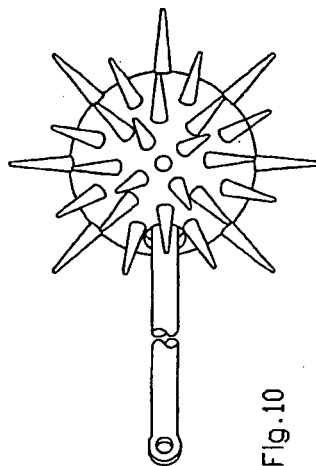


Fig. 10

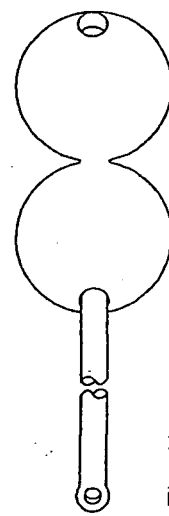


Fig. 11

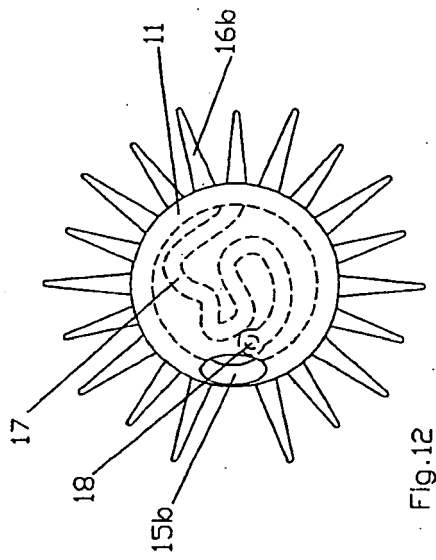


Fig. 12

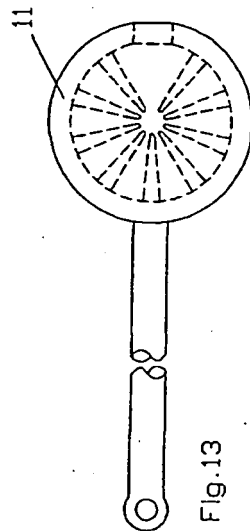


Fig. 13

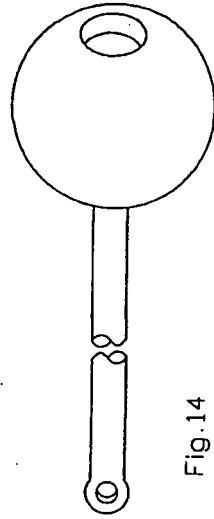


Fig. 14

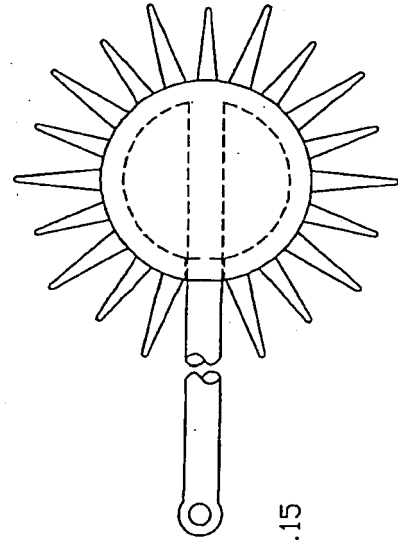


Fig. 15

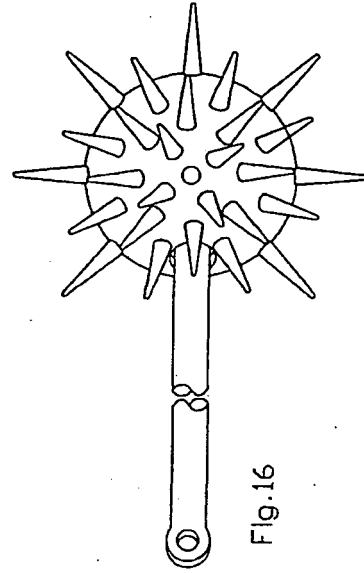


Fig. 16

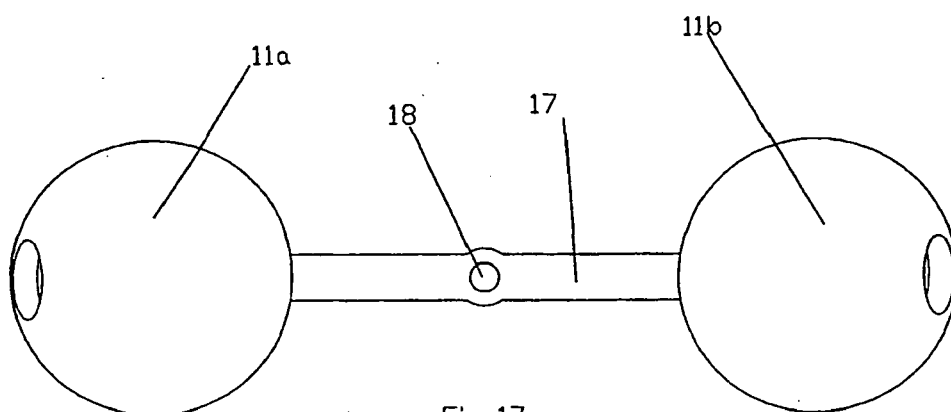


Fig.17

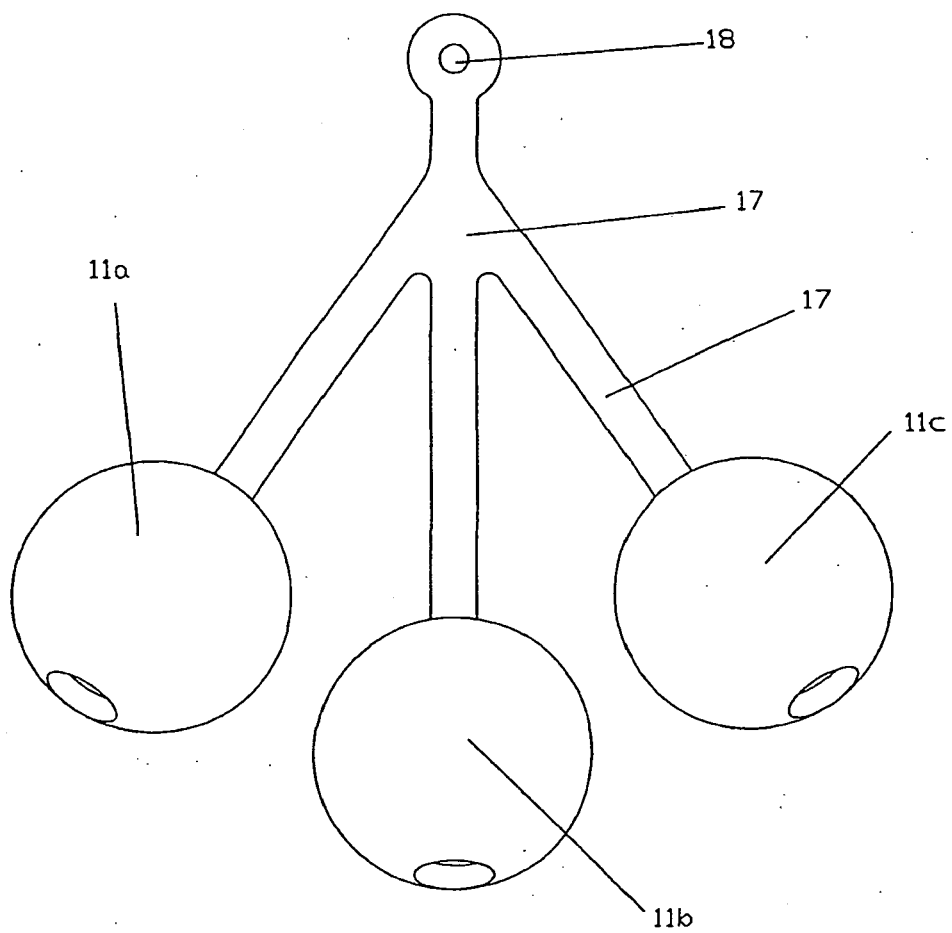


Fig.18

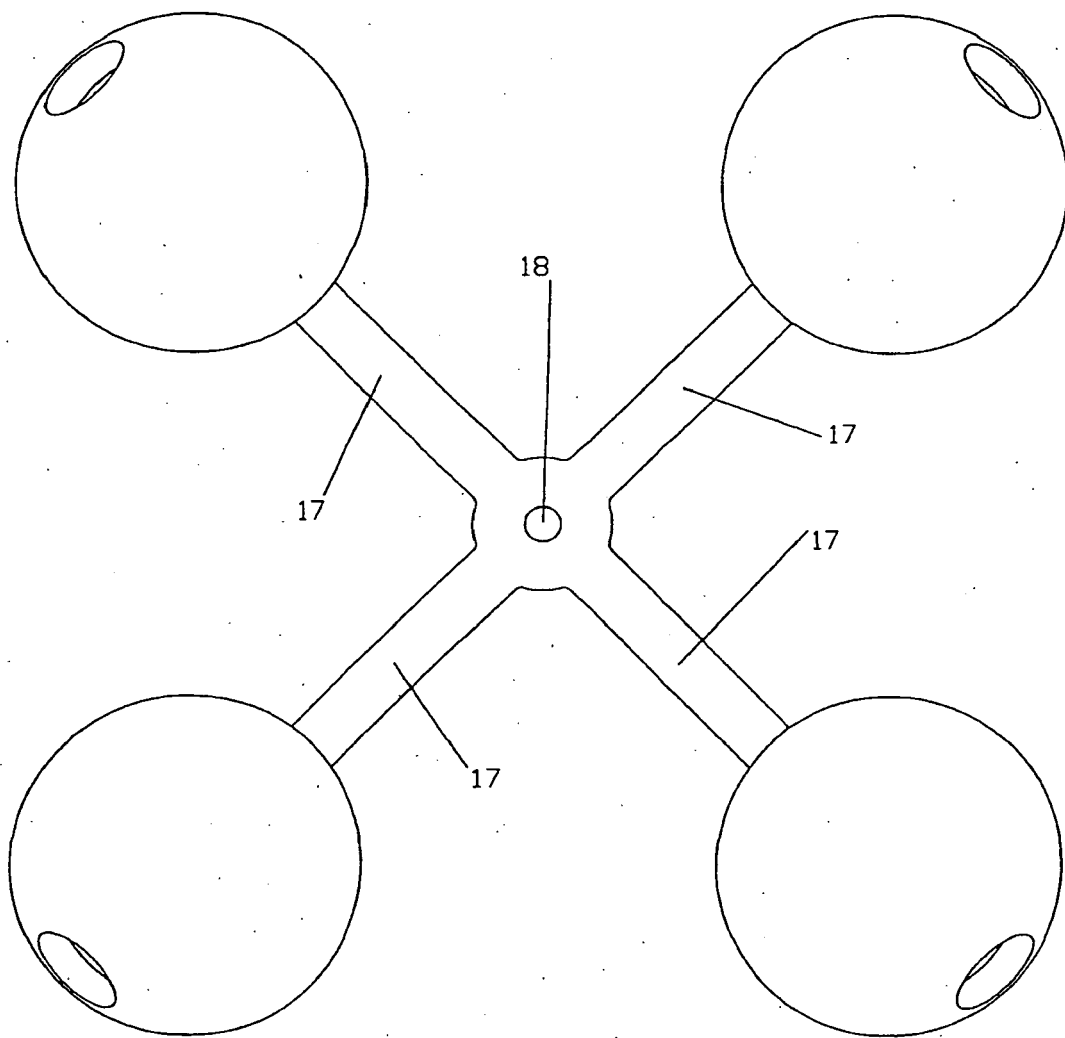


Fig.19

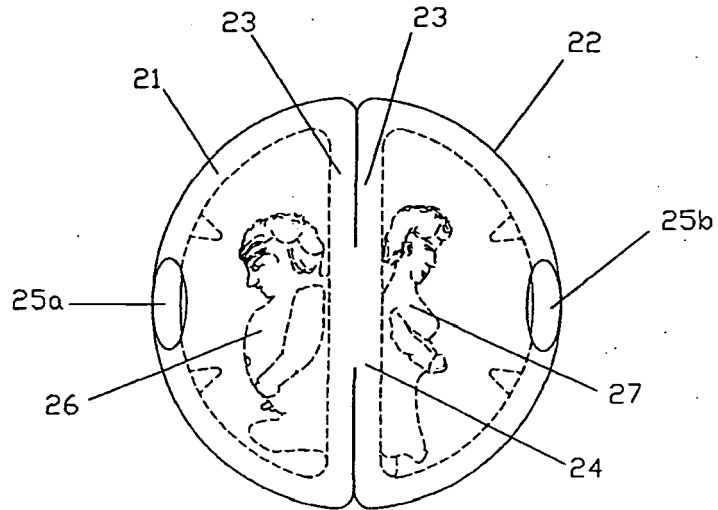


Fig. 20

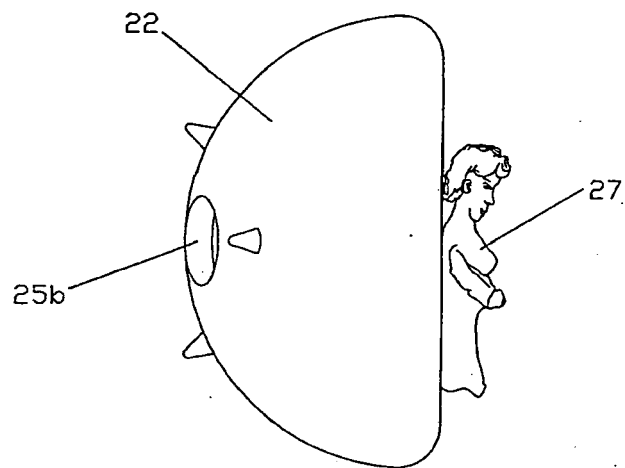


Fig. 21

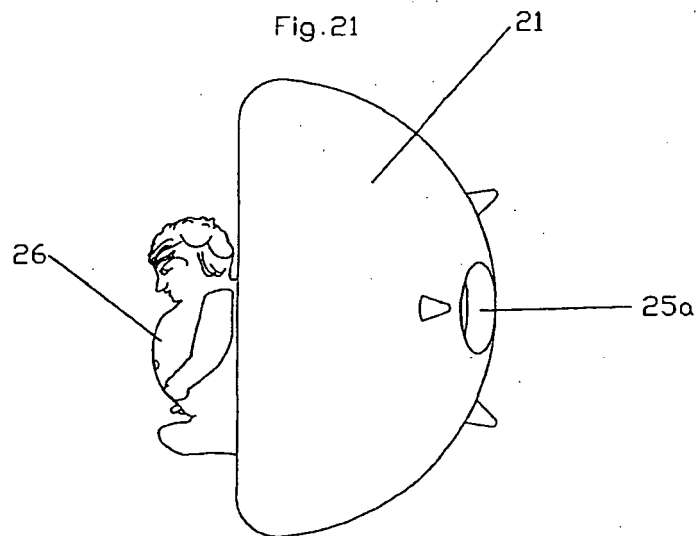


Fig. 22

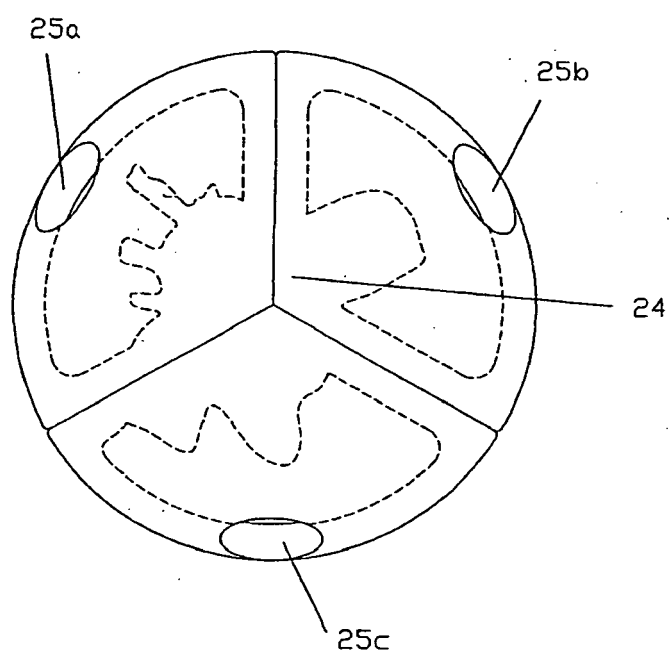


Fig. 23

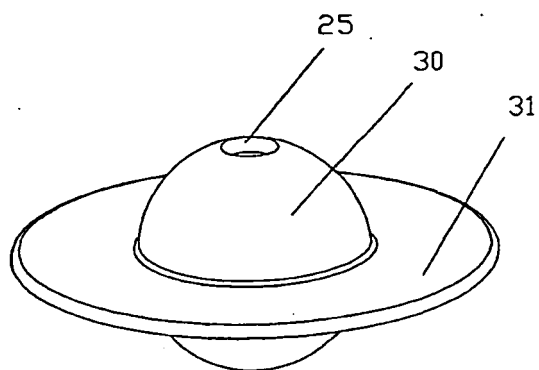


Fig. 24

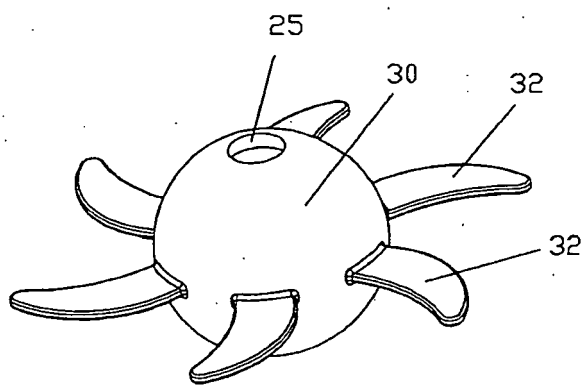


Fig. 25

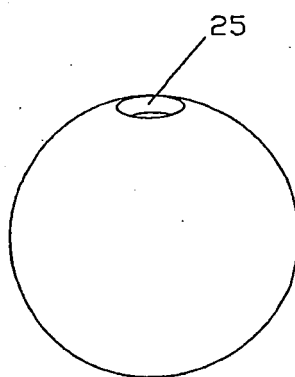


Fig. 26



REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- US 6645101 B [0002]