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54 **An inflatable throwing toy.**

57 An inflatable throwing toy (10, 30, 50, 60, 70) made of air impervious sheet material comprises an inflatable ring (11, 31, 56) having an inflating valve (19, 36, 38) located thereon and being comprised of a bottom and a top section (13, 33), (12, 32) joined at their outer and inner peripheries (14, 34), (15 and two or more disc sections with at least a first disc section (17, 37, 53) of which being attached to the top section (12, 32) of the inflatable ring (11, 31, 56) and a second disc section (18, 39, 54) being attached to the first disc section (17, 37, 53) or the inflatable ring (11, 31, 56) forming an inflatable enclosure (20, 41, 51, 52) with the first disc section (17, 37, 53) with an inflating means (21) located on a part of the inflatable enclosure (20, 41, 51, 52). The inflatable throwing toy (10, 30, 50, 60, 70) may have a cylindrical gusset (35) made of air impervious sheet material joining the top section (12, 32) and the bottom section (13, 33) of the inflatable ring (11, 31, 56) at the inner periphery (15 and there being a third disc section (40, 61) extending from the bottom section (13, 33) of the inflatable ring (11, 31, 56). When the third disc section (40, 61) is used, the second disc section (18, 39, 54) is an extension of the top section (12, 32) of the inflatable ring (11, 31, 56).

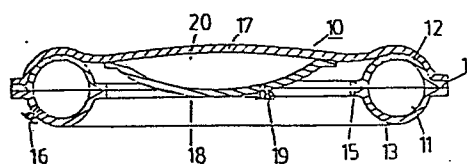


FIG. 1

AN INFLATABLE THROWING TOY

The present invention relates to an inflatable throwing toy.

In U.S. patent application No. 156,112 filed on June 3, 1980, there is disclosed an inflatable throwing toy made by the same applicants. It is known that the main object of said prior application is to provide a disc shape inflatable throwing toy which can be thrown and caught by the players with controlled floating movement. Although the inflatable toy disclosed in the above mentioned prior application is rather ideal in actual throwing operation, it is found that the control of floating movement can be much improved by simplifying the structure of the toy.

It is therefore the main object of the present invention to provide a number of improved modifications of the throwing toy with better controlled floating movement.

Another important object of the present invention is to simplify the structure of the inflatable throwing toy disclosed in the prior application for providing a simpler manufacture procedure and lowering the cost.

Accordingly, the inflatable throwing toy of the present invention comprises an inflatable ring formed by a top section and a bottom section joined at their outer and inner peripheries having an inflating valve located thereon, and two or more disc sections with at least a first disc section being attached to said top section of the inflatable



ring and a second disc section being attached to said first disc section or the inflatable ring forming an inflatable enclosure with said first disc section having an inflating means located on a part of the inflatable enclosure. The inflatable throwing toy may have a cylindrical gusset joining the top section and the bottom section of the inflatable ring at the inner periphery thereof and there being a third disc section extending from the bottom section of the inflatable ring with the second disc section being an extension of the top section of the inflatable ring.

Those and other objects, advantages and features of the present invention will become apparent from the following detailed description of the preferred embodiments with reference to the accompanying drawings, wherein:

Fig. 1 is a sectional view of a first embodiment of the inflatable throwing toy according to the present invention;

Fig. 2 is a sectional view of a second embodiment of the inflatable throwing toy according to the present invention;

Fig. 3 is a sectional view of a third embodiment of the inflatable throwing toy according to the present invention;

Fig. 4 is a sectional view of a fourth embodiment of the inflatable throwing toy according to the present invention;

Fig. 5 is a sectional view of a fifth embodiment of the inflatable throwing toy according to the present

invention;

Fig. 6 is a sectional view of a sixth embodiment of the inflatable throwing toy according to the present invention;

Fig. 7 is a sectional view of a seventh embodiment of the inflatable throwing toy according to the present invention;

Fig. 8 is a sectional view of a eighth embodiment of the inflatable throwing toy according to the present invention;

Fig. 9 shows a sectional view of a further embodiment of the throwing toy according to the present invention;

Fig. 10 shows a sectional view of a throwing toy having a sheet material located sheets of the disc sections;

Fig. 11 shows a still further embodiment of the throwing toy according to the present invention;

Fig. 12 shows a sectional view of a four ply structured throwing toy according to the present invention; and

Fig. 13 shows another four ply structured throwing toy according to the present invention.

It is to be noted at the beginning that for simplicity the embodiments of the throwing toy of the present invention are shown as sectional views and the corresponding parts in every embodiment are numbered with same numerals.

Referring to Fig. 1 which shows a sectional view of a first embodiment of the inflatable throwing toy according to the present invention, the toy 10 comprises an inflatable ring 11 which is made of a top section 12 and a

bottom section 13 joined at their outer periphery 14 and inner periphery 15. The inflatable ring 11 has an inflating valve 16 located thereon. A first disc section 17 is attached to the top section 12 of the inflatable ring 11 and a second disc section 18 is attached to said first disc section 17, with an inflating valve 19 located thereon, forming an inflatable enclosure 20.

The throwing toy in Fig. 2 has the same structure as that in Fig. 1 except that the second disc section 18 is attached to the top section 12 of the inflatable ring 11 instead of the first disc section 17.

In Fig. 3, the second disc section 18 of the throwing toy is again attached to the top section 12 of the inflatable ring 11 but there is an opening 21 or a plurality of openings 21 provided on the top section 12 for communicating the inflatable enclosure 20 with the inflatable ring 11. Therefore, said openings 21 serve as the inflating means of the inflatable enclosure 20. One can inflate the whole toy through the single inflating valve 16 on the inflatable ring 11. However, the openings 21 can be replaced by a valve member on the first disc section.

In Fig. 4, the throwing toy 10 comprises a second disc section 18 which is an extension of the top section 12 of the inflatable ring 11 instead of attaching thereto.

In the above descriptions for the embodiments of the inflatable throwing toy with reference to Figs. 1 to 4, two disc sections are employed for forming an inflatable enclosure which can be inflated. It is found under test

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throwing that the floating movement is nearly perfect because the concave space beneath the second disc section and around by the inflatable ring is filled up with air for supporting the throwing toy. It is believed that due to the concave shape under the toy and convex shape on the top of the toy that the aerodynamic effect is to provide an air flow permitting said toy to be given a controlled movement.

Referring to Fig. 5 which shows another embodiment of the inflatable throwing toy according to the present invention, the toy 30 comprises an inflatable ring 31 having a top section 32 and a bottom section 33 joined at the outer periphery 34 with an inflating valve 36 located thereon and also joined by a cylindrical gusset 35 at the inner periphery. A first disc section 37 is attached to the top section 32 of the inflatable ring 31 with an inflating valve 38 located thereon. A second disc section 39 and a third disc section 40 are the extension of the top section 32 and bottom section 33 of the inflatable ring 31 respectively forming an inflatable enclosure 41 and an air tight enclosure 42.

The throwing toy in Fig. 6 has a same structure as that shown in Fig. 5 except there are a plurality of openings 43 formed on the top section 32 serving as the inflating means for the inflating enclosure 41.

Referring to Fig. 7, the toy comprises a first disc section 37 and a third disc section 40 joined by the cylindrical gusset 35. The second disc section 39 which is still an extension of the top section 32 of the inflatable ring 31 is then joined also to the gusset 35.

It is seen that the inflatable enclosure 41 is still between the first and second disc section 37, 39 while the air tight enclosure 42 is between the first disc section 37 and the third disc section 40.

Referring to Fig. 8 which shows a particular embodiment of the throwing toy according to the present invention, the toy 50 has no cylindrical gusset and there are two inflatable enclosures 51 and 52 between first and second disc sections 53, 54 and second and third disc sections 54, 55 respectively. The enclosure 52 actually communicates with the inflatable ring 56 and can be formed into a plurality of eccentric inflatable portions 57, 58 and 59 having air passages communicating with each other.

Referring to Fig. 9 which shows a sectional view of a further embodiment of the throwing toy according to the present invention, the toy 60 has a basic structure similar to that of the throwing toy 10 shown in Fig. 1 except a third disc section 61 is provided. The third disc section 61 is sealed at its periphery 62 to the outer joining 63 of the outer ring 64 making the joint become a four ply joining. Besides, this particular third disc section 61, which is not an extension of the bottom side of the outer ring 64, will curve upward in touch with the disc section 65 when the toy 60 is inflated due to the limit amount of air existing between the disc sections 61 and 65. This kind of particular structure of the throwing toy serves a similar floating and flying condition.

Fig. 10 shows a throwing toy having a same structure

as that of the toy shown in Fig. 9 except a plastic sheet 66 is located between the disc sections 61 and 65 during the forming procedure. This sheet 66 can be other kind of sheet material filled therein for making the whole toy have a heavier weight. A heavier weight of the throwing toy can make the same have a better flying condition for light materials.

Fig. 11 shows a sectional view of a still further embodiment of the throwing toy according to the present invention. The toy 70 comprises an outer ring 71 which is formed by two sheets of plastic materials 72 and 73 sealed by two concentric seals 74 and 75, and a first disc section 76 which is attached to the top section of the outer ring 71. There is no air existed between the sheets 72 and 73 at the region within the seal 74.

The structure of the throwing toy of the kind shown in Fig. 11 can still be modified to become a four ply structure as that are shown in Figs. 12 and 13. In Fig. 12, a fourth disc section 77 which is a sheet material sealed between sheets 78 and 79 at joints 80 and 81 respectively. There is no air or only limit amount of air existing between sheets 77 and 79. In Fig. 13, a fourth disc section 82 is attached to the outer ring 83 and is attaching to the sheet 84 because of the limit amount of air existing therebetween. Structurally speaking, the throwing toys shown in Figs. 12 and 13 are same after the various sheets are sealed together. In other words, the fourth disc section is provided at a bottom or sub-bottom position making no difference to the structure of the throwing toy.



Although the present invention has been described hereinbefore by way of preferred embodiments, it should be understood that various changes or modifications are still possible by those skilled in the art without departing from the spirit and scope of the present invention.

A disc section may be any shape desired and not only round when that disc section is attached on top of or on bottom of disc section 17 shown in Fig. 1.

WHAT IS CLAIMED IS:

1. An inflatable toy made of air impervious sheet material comprising an inflatable ring having an inflating valve located thereon and consisting of a top section and a bottom section joined at their outer and inner peripheries and two or more disc sections with at least a first disc section attached all around its periphery to the top section and a second disc section attached opposite to said first disc section to form an inflatable enclosure which has an inflating means located thereon.
2. An inflatable toy as claimed in Claim 1 further comprising a cylindrical gusset made of said sheet material being located at the inner periphery to join said top section and said bottom section, with said second disc section being an extension of said top section of said inflatable ring; and a third disc section which is an extension of said bottom section of said inflatable ring.
3. An inflatable toy as claimed in Claim 2 wherein said second disc section is an extension of the top section of said inflatable ring and the first disc section is attached to said top section and said second disc section between said cylindrical gusset and said top section of the inflatable ring and said second disc section.
4. An inflatable toy as claimed in Claim 2 wherein said first disc section is attached within the outer periphery of said top section of the inflatable ring.
5. An inflatable toy as claimed in Claim 1 wherein said second disc section is an extension of said top section of the inflatable ring.

6. An inflatable toy as claimed in Claim 1, 2, 3, 4, or 5 wherein said inflating means is an inflating valve member.
7. An inflatable toy as claimed in Claim 1 further comprising a third disc section attached below said bottom section of the outer ring all around its periphery to the outer periphery of said bottom section of the outer ring with limit amount of air between said second and third disc sections.
8. An inflatable toy as claimed in Claim 5, 6 or 7 further comprising a sheet material located between the second and third disc sections.
9. An inflatable toy as claimed in Claim 2, 3, 4, 5 or 7 wherein said inflating means is opening provided on the top section of the inflatable ring which permits air to pass from the inflatable ring to the inflatable enclosure and inflate the same.
10. An inflatable toy as claimed in Claim 5 further comprising a third disc section which is an extension of said bottom section of said inflatable ring.
11. An inflatable toy as claimed in Claim 10 further comprising a fourth disc section with all its outer periphery attached to said bottom section of said inflatable ring.
12. An inflatable toy as claimed in Claim 10 further comprising a fourth disc section between said second and third disc section with its outer periphery attached all around to said bottom section of said inflatable ring and with part of said fourth disc section attached to said second disc section forming a part of said inflatable ring.



13. An inflatable toy substantially as hereinbefore described with reference to the accompanying drawings.



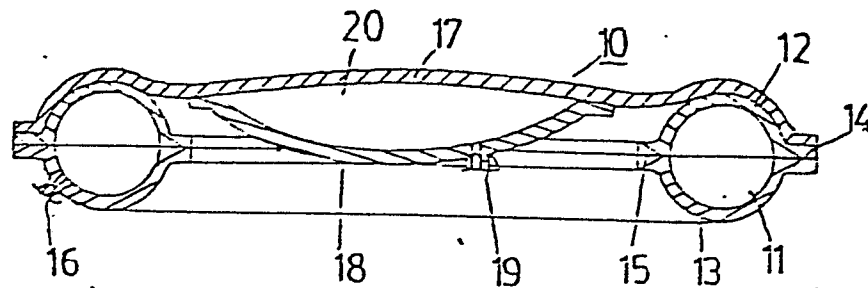


FIG. 1

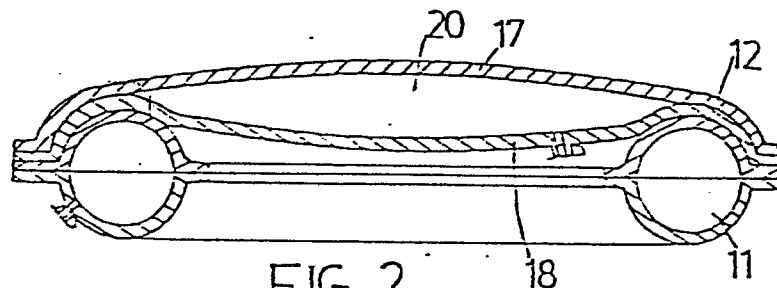


FIG. 2

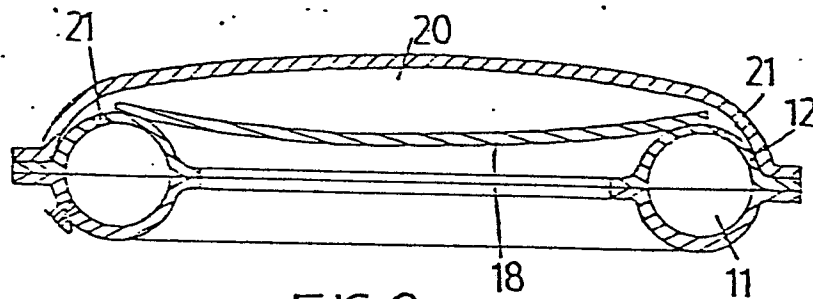


FIG. 3

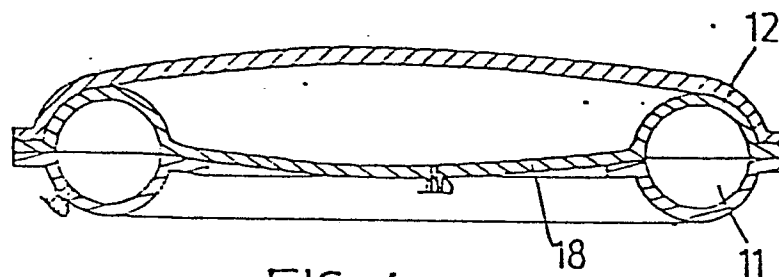
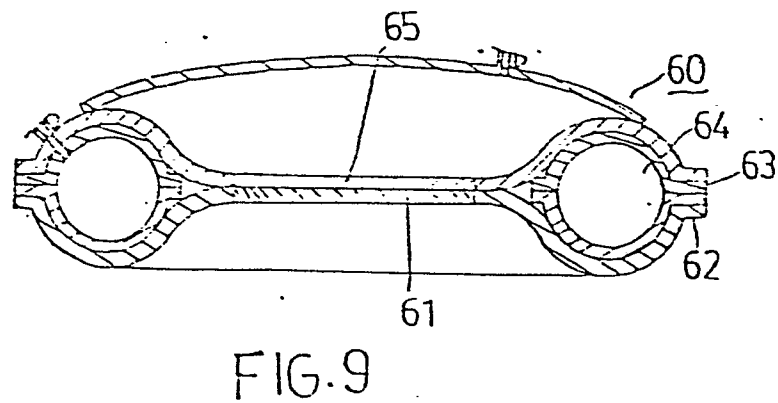
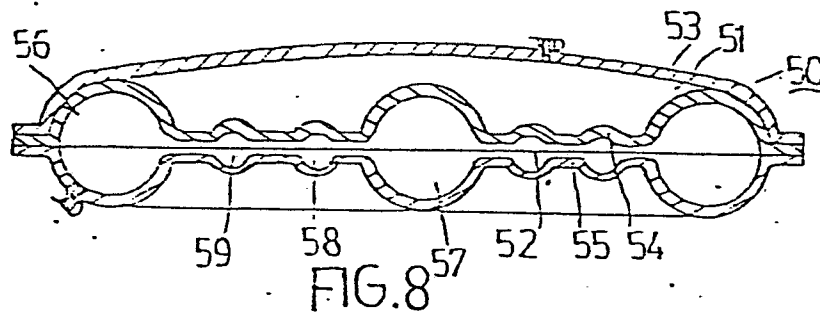
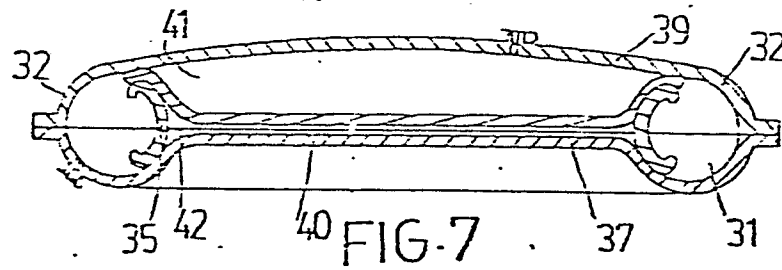
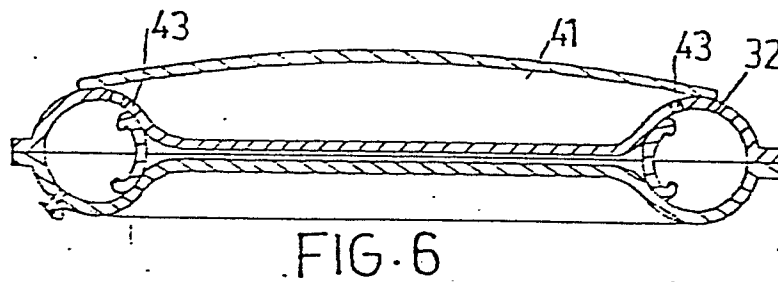
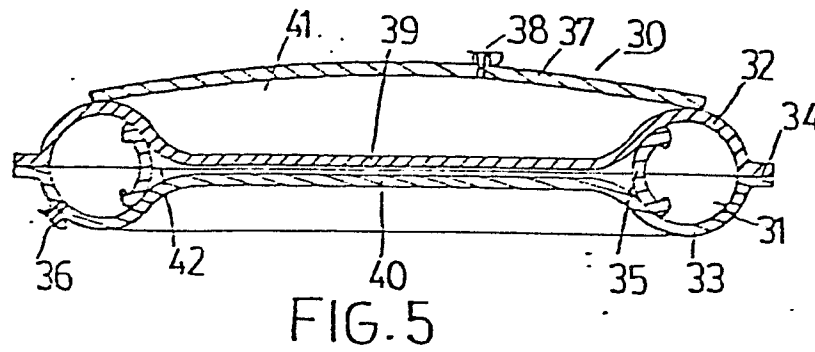


FIG. 4

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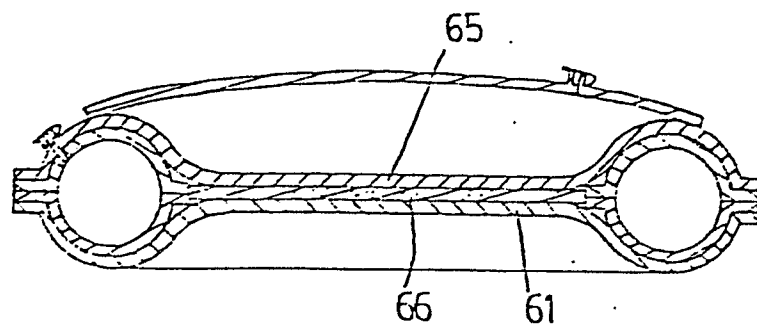


FIG.10

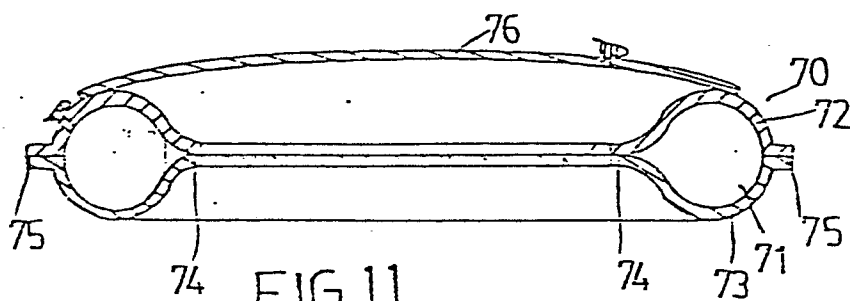


FIG.11

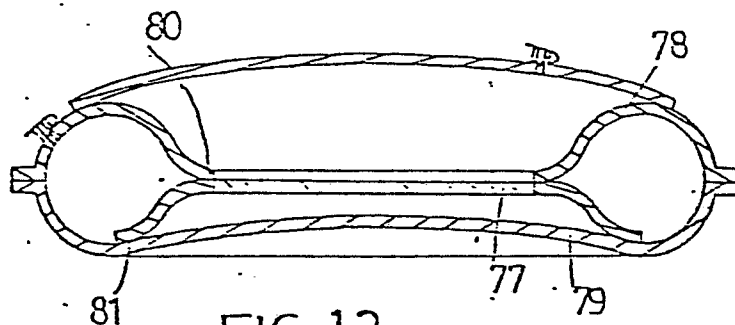


FIG.12

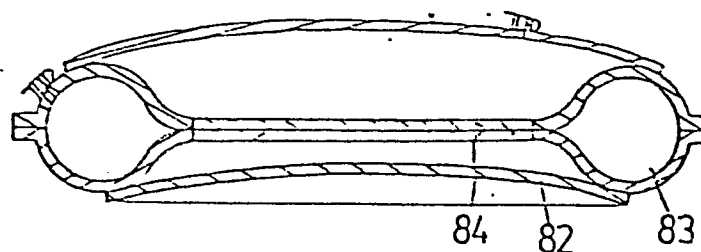


FIG.13



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