

12 **EUROPEAN PATENT APPLICATION**

21 Application number: 90200146.0

51 Int. Cl.⁵: **A63F 9/00**

22 Date of filing: 19.01.90

30 Priority: 02.03.89 BE 8900216

43 Date of publication of application:
05.09.90 Bulletin 90/36

84 Designated Contracting States:
AT CH DE ES FR GB GR IT LI LU NL SE

71 Applicant: **De Reze, Vital**
Hoornblaasstraat 145
B-3280 Zichem(BE)

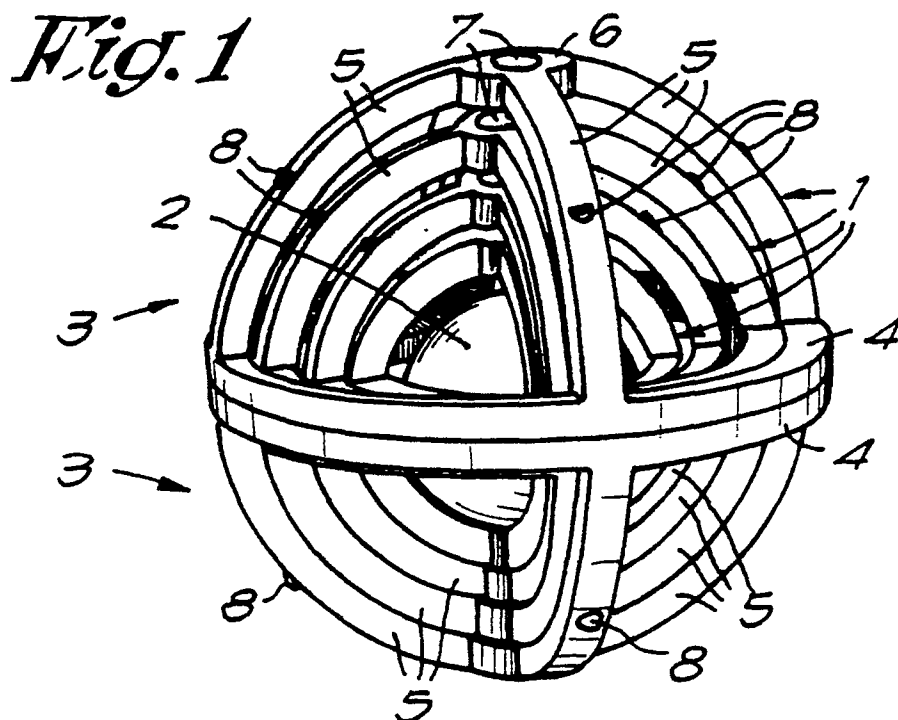
72 Inventor: **De Reze, Vital**
Hoornblaasstraat 145
B-3280 Zichem(BE)

74 Representative: **Donné, Eddy**
Bureau M.F.J. Bockstael nv Arenbergstraat
13
B-2000 Antwerpen(BE)

54 **Toy, more especially magnetic sphere set.**

57 Toy, more especially a magnetic sphere set, characterised in that this principally consists of a number of spheres (1) of progressively decreasing diameter which can be placed in each other concen-

trically and each being formed by two half spheres (3) which can be attached to each other by means of magnets (10).



The invention relates to a toy, more especially a magnetic sphere set whereby the spheres have a progressively decreasing diameter and each is formed by two detachable halves through which they may be stacked upon each other in all kinds of ways and furthermore may also be placed concentrically in each other.

Such a sphere set has a great didactic value and shows a certain similarity with the well known hollow cubes with decreasing diameters which may be stacked on each other into a tower and which, always via the open base surface of the previous cube, may be pushed into each other.

Such a cube set offers however only a very limited number of construction possibilities, namely the construction of always the same tower and putting them back together, through which this cube set quickly becomes monotonous and boring. Besides when the parts of the cube set are put inside each other mainly the outermost cube is visible so that nothing can be observed of the internal configuration and the cube set does in itself not form an attractive whole.

The present invention then also relates to a magnetic sphere set which does not have these disadvantages and which therefore makes many attractive configurations possible through which it is very instructive, fantasy enriching and attractive.

For this purpose the object of the invention is a magnetic sphere set which principally consists of a number of spheres of progressively decreasing diameter which can be placed in each other concentrically and each being formed by two half spheres which can be attached to each other by means of magnets.

In order to show better the characteristics of the invention, a preferred embodiment is described hereafter, as example and without any restrictive character with reference to the enclosed drawings, in which:

figure 1 shows a view in perspective of a magnetic sphere set according to the invention;

figure 2 shows a dismantled view of the sphere set from figure 1;

figure 3 shows a top view of half a sphere from figure 2;

figure 4 shows a cross-section according to line IV-IV in figure 3;

figure 5 shows on larger scale the part indicated by F5 in figure 4;

figure 6 shows a representation analogue to that from figure 5, but with regard to another embodiment;

figure 7 shows a cross-section according to line VII-VII in figure 6;

figure 8 shows a view according to arrow F8 in figure 3;

figure 9 shows a view according to arrow F9

in figure 8;

figure 10 shows a view of a possible stacking up of the half spheres according to the invention;

figure 11 shows a view analogue to that from figure 10 but with regard to another stacking up;

figure 12 shows a view analogue to figure 11 but with regard to yet another stacking up.

In figure 1 a magnetic sphere set according to the invention is shown consisting of four openwork spheres 1 surrounding each other and a closed hollow sphere 2 with for example a loose small bell inside whereby each open sphere 1, as appears from figure 2, consists of two detachable openwork half spheres 3.

Every half sphere 3 is manufactured in a suitable plastic and is formed by a circular edge 4 with four upright circular arches 5 which join together on top on a round disc 6 provided with a slightly recessed central part 7.

Both the edge 4 and the circular arches 5 show a U-shaped profile. Projections 8 are further installed on the circular arches 5 which form a stop.

According to figure 4 a hollow 9 is provided on the edge 4 at the location of the attachment of the circular arches 5 which runs through into the respective circular arch 5 and in which a magnet 10 is so clasped or glued that it cannot be removed by children playing.

In the variant according to figure 5 this is prevented, because the magnet 10 and the hollow 9 narrow towards their extremity while in the variant according to figures 6 and 7 the magnet 10 is held tight in the hollow 9 by means of a sprung clasp 11 which is clicked into a peripheral groove 12 of the magnet 10.

In figure 9 it is clearly seen that the magnets 10 are installed equidistantly from each other at 90 degrees, whereby care is taken that the outward facing extremity of the magnets 10 are arranged alternately according to a north pole N and a south pole Z. A number of magnets 10 could also possibly be replaced by a ferromagnetic element.

The magnetic sphere set described above can, as will appear from the following, be arranged in many different configurations.

In figure 10 the half spheres 3 are for example stacked on each other first by decreasing and then inversely by increasing diameter whereby the edge 4 of a smaller half sphere 3 always rests on the stops 8 on the circular arches 5 of a larger half sphere 3.

Because of the flat disc 6 on the top of each half sphere 3, the half spheres 3 can also be placed on each other with their tops or, as in figures 11 and 12, on the ground.

In figure 12 the different spheres 1 are for that matter stacked on top of each other in this manner.

Furthermore in figure 12 the closed sphere 2 is also used as a link whereby the stack also still remains stable in this case because of the recessed central part 7 on the round disc 6.

The many different stacking possibilities and the alternation of the magnetic poles through which both the attraction and repellent forces can act, make the magnetic sphere set very fascinating and instructive whereby the small bell in the closed sphere 2 also provides for an additional attractive element.

The number, the shape and the colours of the open spheres 1 may vary widely whereby even closed spheres 1 are possible which can then be manufactured in transparent plastic.

The safe mounting of the magnets 10 in the hollows 9 is also important by which the toy becomes very safe for small children. Indeed detached magnets present a danger since small children can put these in the mouth and swallow them.

The presence of the stops 8 on the circular arches 5 which make stacking possible, is also very important.

The present invention is in no way restricted to the embodiment described as an example and shown in the enclosed drawings, but such magnetic sphere set may be developed in all kinds of forms and dimensions without departing from the scope of the present invention.

Claims

1.- Toy, more especially a magnetic sphere set, characterised in that this principally consists of a number of spheres (1) of progressively decreasing diameter which can be placed in each other concentrically and each being formed by two half spheres (3) which can be attached to each other by means of magnets (10).

2.- Toy, more especially a magnetic sphere set according to claim 1, characterised in that the magnets (10) of the one half sphere (3) work together with ferromagnetic elements on the other half sphere (3).

3.- Toy, more especially a magnetic sphere set according to claim 1, characterised in that the magnets (10) are mounted in the hollows (9) in the edge (4) of the half spheres (3).

4.- Toy, more especially a magnetic sphere set according to claim 3, characterised in that the magnets (10) in the hollows (9) in the edge (4) of the half spheres (3) are directed outwards alternately with a north pole (N) and a south pole (Z).

5.- Toy, more especially a magnetic sphere set according to one of the preceding claims, characterised in that the half spheres (3) are transparent.

6.- Toy, more especially a magnetic sphere set

according to claim 5, characterised in that the half spheres (3) are manufactured in transparent plastic.

7.- Toy, more especially a magnetic sphere set according to claim 5, characterised in that the half spheres (3) are formed by a circular edge (4) with circular arches (5) placed on it.

8.- Toy, more especially a magnetic sphere set according to claim 7, characterised in that the circular arches (5) on the top of the half sphere (3) come together in a round disc (6).

9.- Toy, more especially a magnetic sphere set according to claim 8, characterised in that the round disc (6) shows a recessed central part (7).

10.- Toy, more especially a magnetic sphere set according to one of the claims 7 through 9, characterised in that the magnets (10) are mounted in the edge (4) at the location of the circular arches (5).

11.- Toy, more especially a magnetic sphere set according to one of the preceding claims, characterised in that stops (8) are installed on the exterior surface on the half spheres (3).

12.- Toy, more especially a magnetic sphere set according to one of the preceding claims, characterised in that the spheres (1) are manufactured in a nonmagnetic material.

13.- Toy, more especially a magnetic sphere set according to one of the preceding claims, characterised in that the magnets (10) are permanently clasped or glued in the hollows (9).

14.- Toy, more especially a magnetic sphere set according to one of the claims 1 through 12, characterised in that the magnets (10) are permanently fixed in the hollows (9) by means of a clasp (11).

15.- Toy, more especially a magnetic sphere set according to one of the claims 1 through 12, characterised in that the half spheres (3) are manufactured in plastic and the magnets (10) are cast in the plastic.

16.- Toy, more especially a magnetic sphere set according to claim 15, characterised in that the magnets (10) and the hollows (9) have a decreasing diameter towards the outside.

17. Toy, more especially a magnetic sphere set according to one of the preceding claims, characterised in that the sphere set also contains a smallest sphere (2) with a small bell inside.

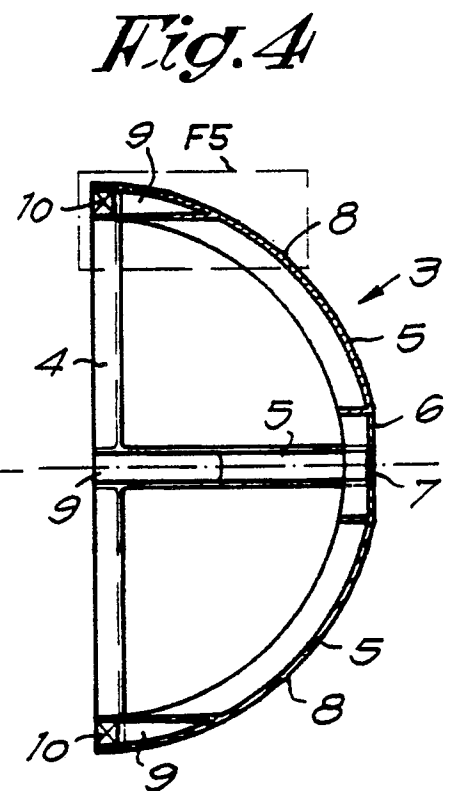
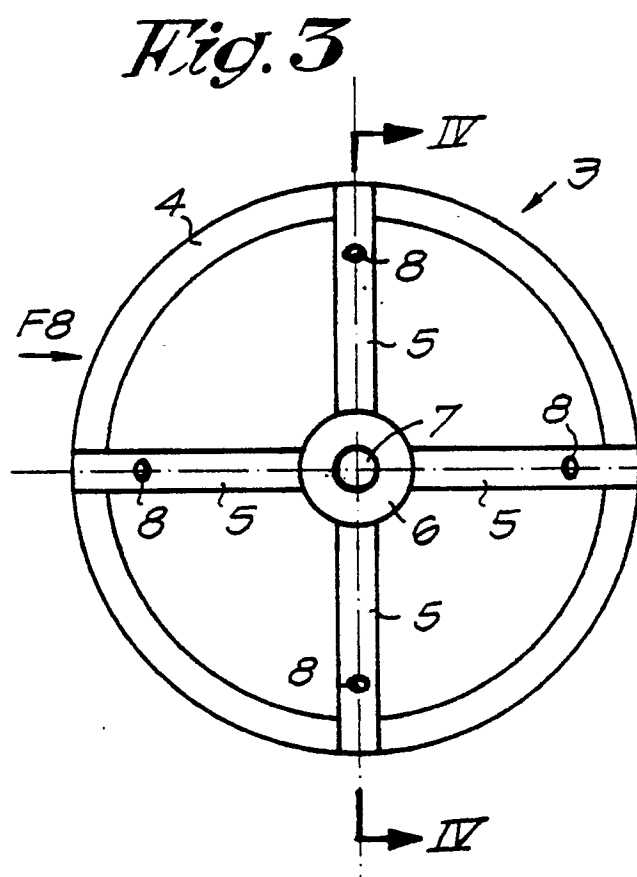
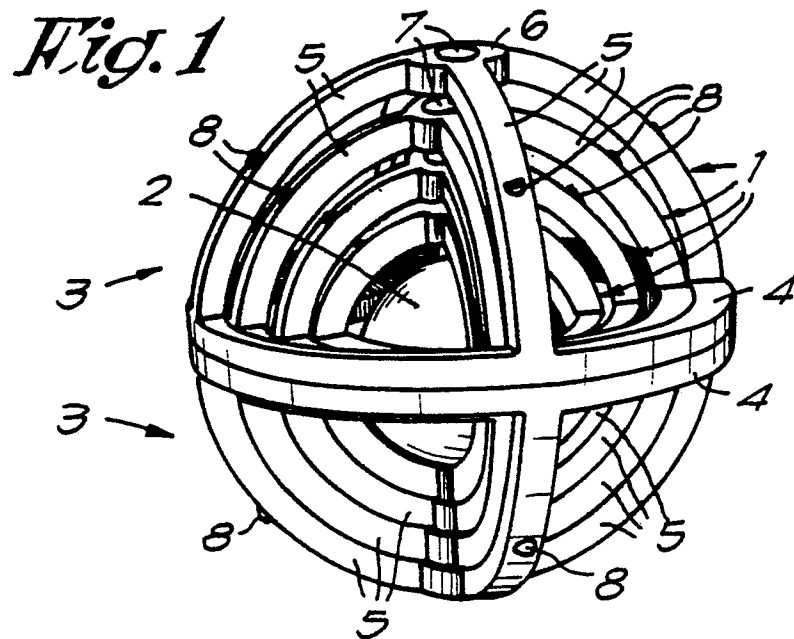


Fig. 2

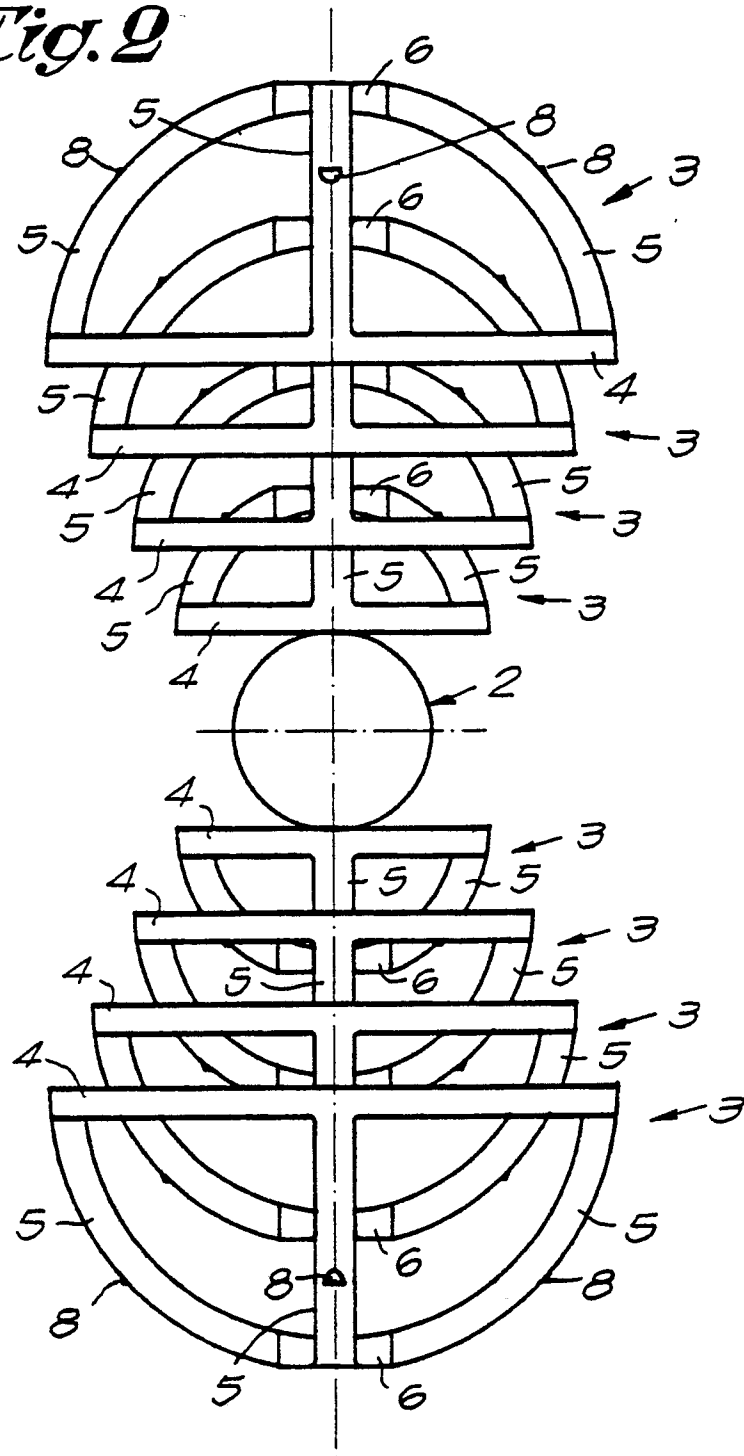


Fig. 9

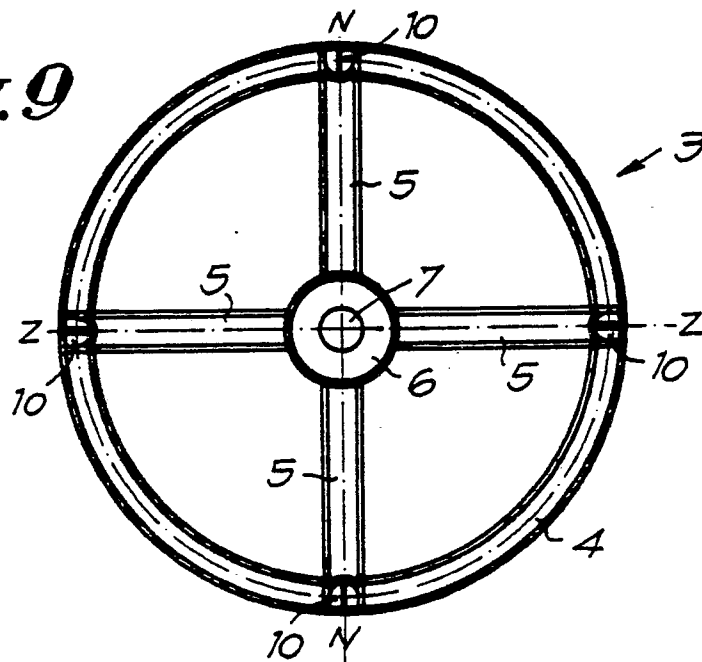


Fig. 8

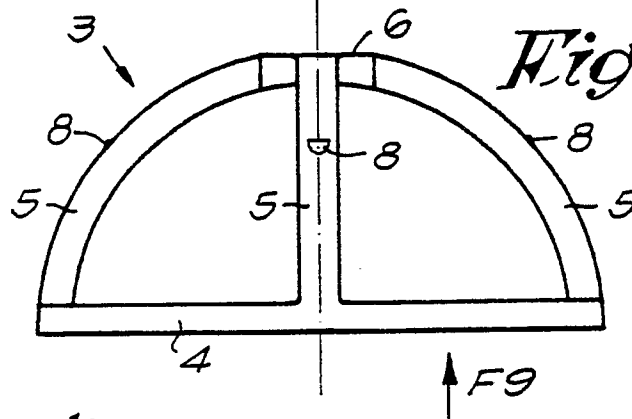


Fig. 5

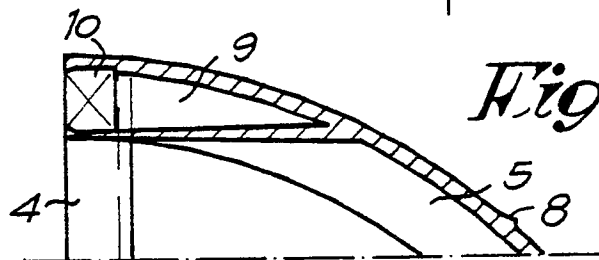


Fig. 6

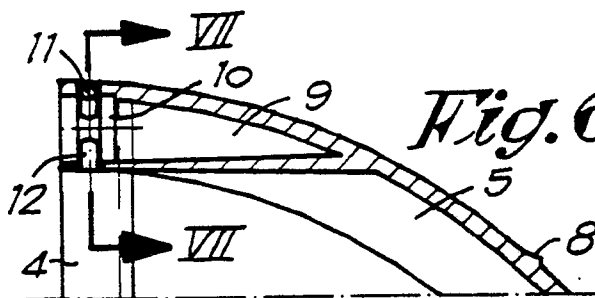
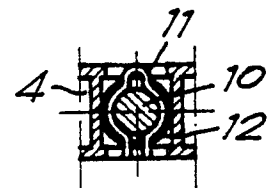


Fig. 7



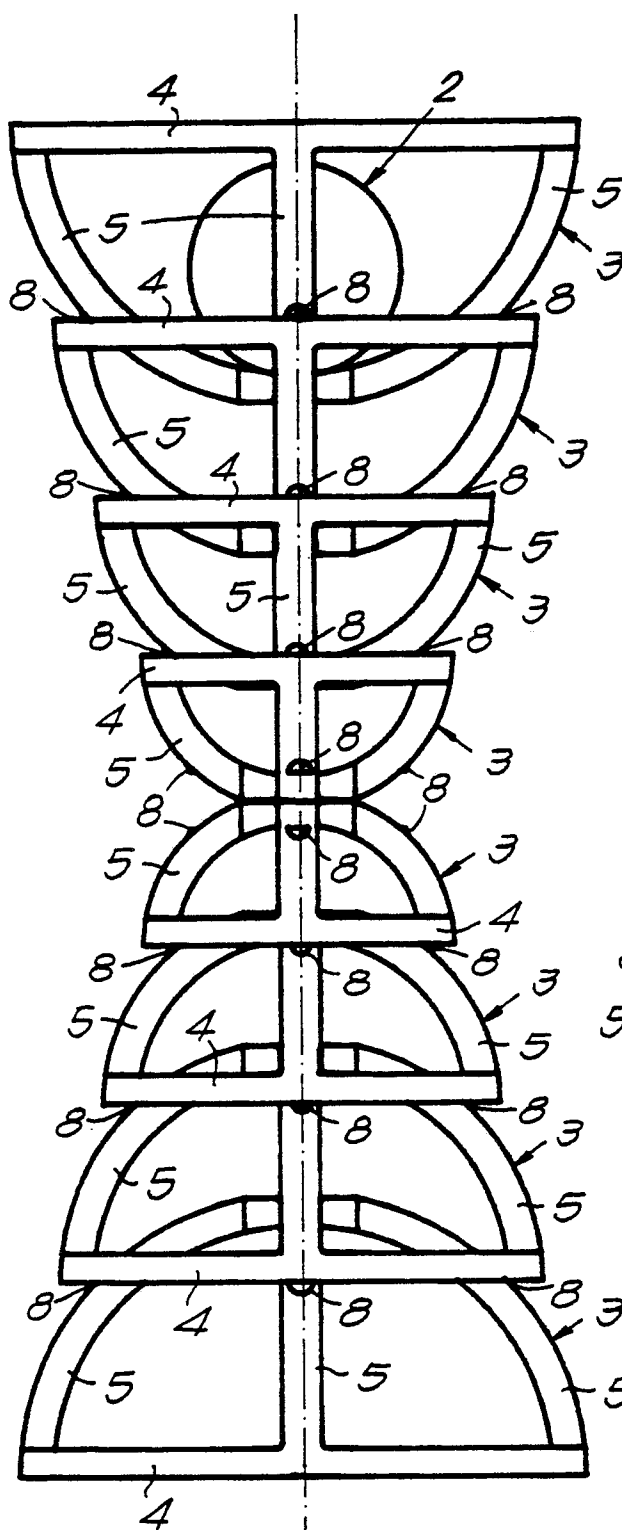


Fig. 10

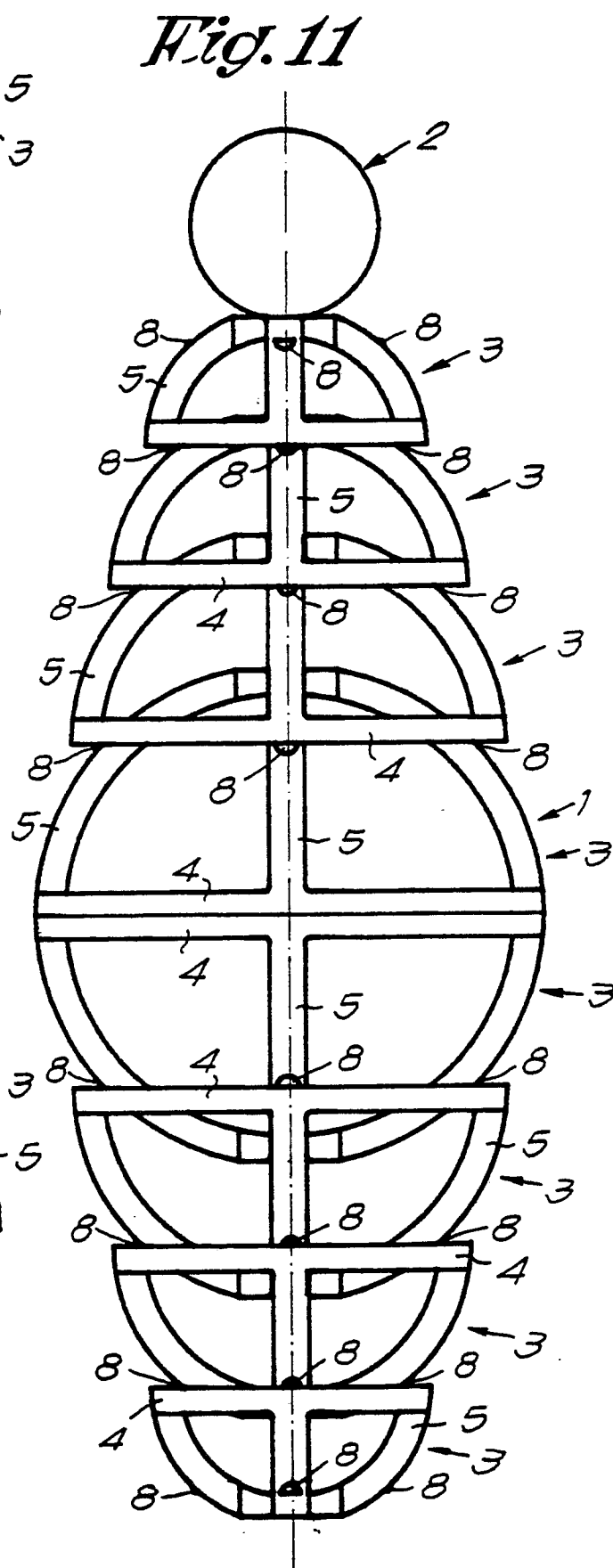
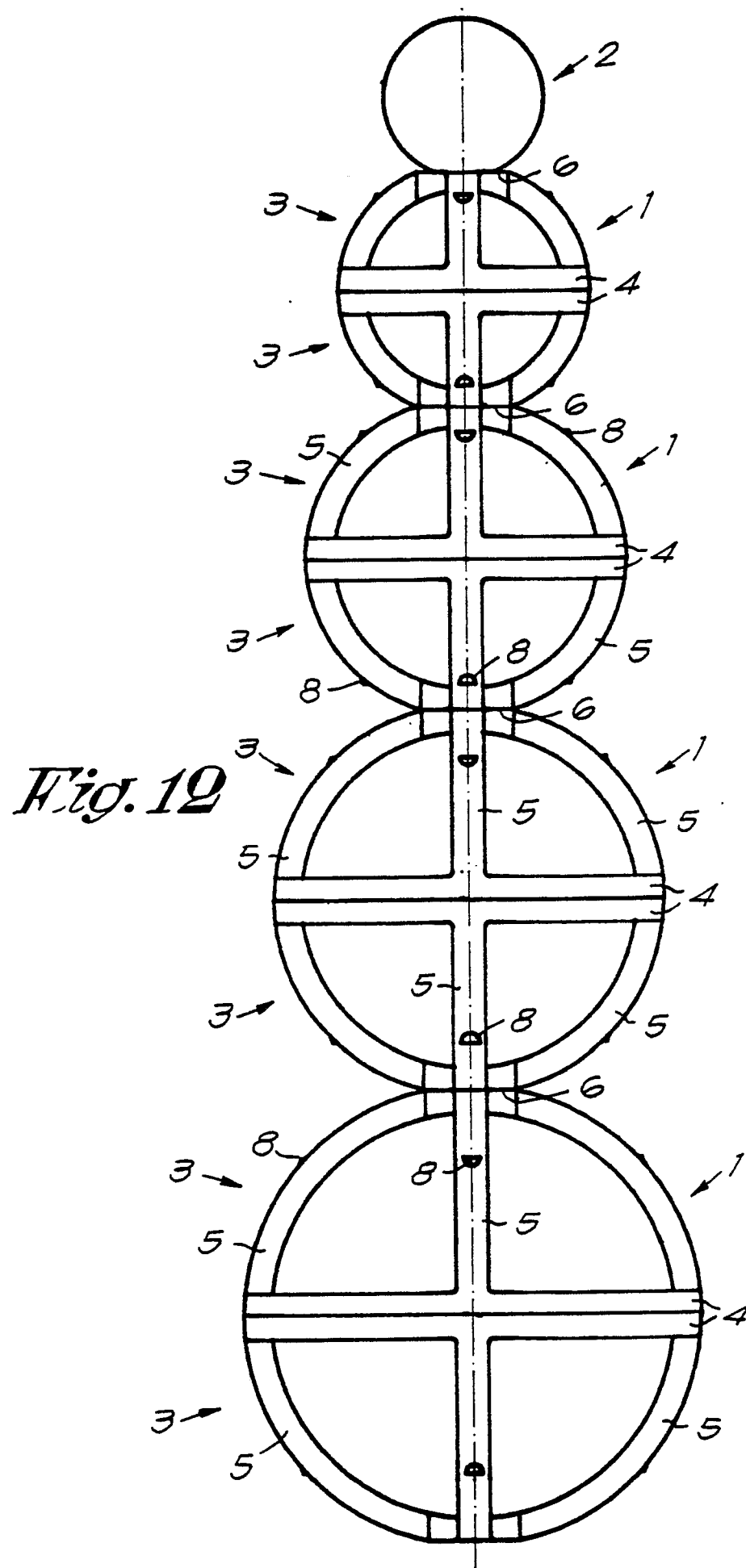


Fig. 11





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.5)												
X	BE-A- 904 894 (I.C. MUNNIX)(01-10-1986) * Figures 1-2; page 1, lines 1-10; claims 1-4 *	1-7, 10, 12-16	A 63 F 9/00												
Y	---	17													
Y	US-A-4 643 427 (WOZNIAK)(17-02-1987) * Abstract; figure 16 * -----	17													
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)												
			A 63 H A 63 F												
The present search report has been drawn up for all claims															
Place of search THE HAGUE		Date of completion of the search 08-06-1990	Examiner MIR Y GUILLEN V.												
<table border="0"><tr><td>CATEGORY OF CITED DOCUMENTS</td><td></td></tr><tr><td>X : particularly relevant if taken alone</td><td>T : theory or principle underlying the invention</td></tr><tr><td>Y : particularly relevant if combined with another document of the same category</td><td>E : earlier patent document, but published on, or after the filing date</td></tr><tr><td>A : technological background</td><td>D : document cited in the application</td></tr><tr><td>O : non-written disclosure</td><td>L : document cited for other reasons</td></tr><tr><td>P : intermediate document</td><td>& : member of the same patent family, corresponding document</td></tr></table>				CATEGORY OF CITED DOCUMENTS		X : particularly relevant if taken alone	T : theory or principle underlying the invention	Y : particularly relevant if combined with another document of the same category	E : earlier patent document, but published on, or after the filing date	A : technological background	D : document cited in the application	O : non-written disclosure	L : document cited for other reasons	P : intermediate document	& : member of the same patent family, corresponding document
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