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(54) Title: SPATIAL LOGICAL TOY

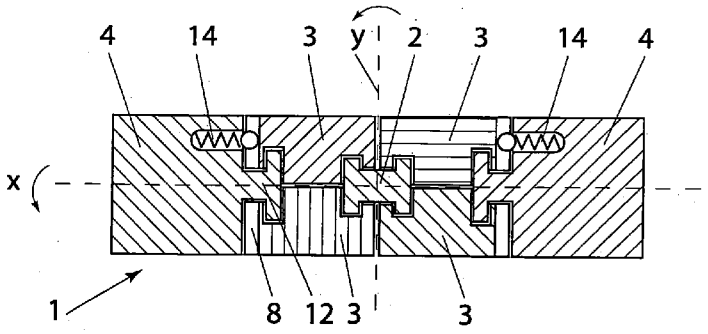

Fig.5

(57) Abstract: The object of the invention is a spatial logical toy having an integral enveloping body (1) consisting of two groups of profiled bodies and one core element (2) allowing the rearrangement of the profiled bodies. The profiled bodies are arranged such that they are rotatable about two perpendicular axes that both cross the geometric centre of the enveloping body (1), and at least part of the profiled bodies have a symbol carrying element (6) on their surface forming the enveloping body (1). The profiled bodies belonging to one group have an identical configuration that is different from the configuration of the profiled bodies belonging to the other group, where one group of the profiled elements consists of central elements (3) having a semi-circular block shape and the other group of the profiled elements consists of profiled elements (4) that are shaped as rectangular segments of a cylindrical shell, and where the shorter-radius cylindrical surfaces (10) of the profiled elements (4) are rotatably connected to the side surfaces of the central elements (3) in a self-locking manner. The invention is essentially characterised in that at least part of the profiled elements (4) have at least one arresting means (14) adapted for engaging grooves (8) disposed on the side surface (7) of the central elements (3).

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Spatial logical toy

The invention relates to a spatial logical toy having an integral enveloping body, the enveloping body consisting of two groups of profiled bodies and one core element allowing the rearrangement of the profiled bodies, where the profiled bodies are arranged such that they are rotatable about two perpendicular axes that both cross the geometric centre of the enveloping body, and at least part of the profiled bodies have a symbol carrying element on their surface forming the enveloping body, with the profiled bodies belonging to one group having an identical configuration that is different from the configuration of the profiled bodies belonging to the other group, where one group of the profiled elements consists of central elements having a semi-circular block shape and the other group of the profiled elements consists of profiled elements shaped as rectangular segments of a cylindrical shell, and where the shorter-radius cylindrical surface of the profiled elements is rotatably connected to the side surface of the central elements in a self-locking manner.

A large group of spatial logical toys is formed by toys where the symbol carrying elements can be rearranged by means of rotation.

Hungarian patent HU 170 062 discloses a spatial logical toy having rotatable and stationary small cube-shaped toy elements forming a larger hexahedral enveloping body. The small cubes have symbol carrying elements and can be rotated about spatial coordinate axes and can be assembled from a disordered state into a predetermined logical order.

The document HU 180 385 discloses a spatial logical toy having an octahedron-shaped enveloping body formed by profiled elements belonging to three different groups, with the elements belonging to the same group having identical configuration. The profiled elements carry symbols and can be rotated about spatial coordinate axes passing through the geometric centre of the enveloping body, and thereby the symbol carrying elements can be assembled from a disordered state into a predetermined logical order.

The prior art solution that is closest to our invention is disclosed in Hungarian patent HU 206 275 that relates to a spatial logical toy. The toy has an

integral enveloping body formed by a plurality of different profiled elements that carry symbols on their surface. The profiled elements belong to different groups, and the elements belonging to the same group have identical configuration. A core element allowing the rearrangement of the profiled elements is disposed in the interior of the enveloping body, and the profiled elements are arranged to be rotatable about axes passing through the geometric centre of the enveloping body. The enveloping body is a discus-shaped body, wherein the central portion surrounding the core element, as well as the profiled elements connected to the central portion, may be rotated about two perpendicular axes.

The above summarized known solutions have the common disadvantage that it is not always easy for the user to set the plane of rotation, which implies that it is often necessary to manually align the individual profiled elements in the desired plane so that they can be rotated about two different axes. This reduces the amusement value of the toy.

The objective of the present invention is therefore to improve the above described spatial logical toy in such a way that the connection and movement of the enveloping body and the profiled elements can be simpler than with previous solutions. A further objective of the invention is that the relative positioning of profiled elements become better and more exact than it was previously.

The above objectives are achieved by providing a spatial logical toy where at least part of the profiled elements have at least one arresting means adapted for engaging grooves disposed on the side surface of the central elements.

According to a preferred embodiment of the invention the arresting means is implemented as a spring-biased ball projecting from the cylindrical surface of the profiled element. According to a further preferred embodiment of the invention the enveloping body is disc-shaped.

In a further preferred embodiment a T-shaped projection is disposed on the shorter-radius cylindrical surface of each profiled element for engaging the grooves of the central elements.

According to another preferred embodiment of the invention a T-shaped projection is disposed also on the longer-radius cylindrical surface of the profiled elements, in which projection the tabs of the extension pieces connected to the longer-radius cylindrical surface of the profiled elements are snapped. Further symbol carrying elements are preferably disposed on the extension pieces.

The invention will be explained in more detail with reference to conceivable embodiments illustrated in the attached drawings, where

Fig. 1 is the top plan view of the spatial logical toy according to the invention,

Figs. 2a, 2b , respectively, show the top plan view and front elevation view of the central element,

Figs. 3a, 3b, respectively, show the top plan view and front elevation view of the profiled element,

Fig. 4 is the sectional view of the toy shown in Fig. 1 taken along plane IV-IV,

Fig. 5 is the sectional view of the toy shown in Fig. 1 taken along plane V-V,

Fig. 6 is the top plan view of another preferred embodiment of the spatial logical toy according to the invention, and

Figs. 7a, 7b, respectively, show the top plan and sectional views of another embodiment of the profiled element.

Fig. 1 shows the top plan view of the spatial logical toy according to the invention. The enveloping body 1 of the toy has a disc shape, and is assembled from two groups of profiled bodies, more particularly four central elements 3 and twelve profiled elements 4. A different number of central and profiled elements may also be applied. In a preferred embodiment of the invention the dimensions of the disc are identical to the dimensions of an ice hockey puck. The central elements 3 as well as the profiled elements 4 are arranged such that they are rotatable about two perpendicular axes X, Y of the enveloping body 1. At least part of the central elements 3 and the profiled elements 4 carry a symbol carrying element 6. The symbol carrying element 6 may show a colour and/or number and/or figure.

Figs. 2a, 2b show the top plan and front views of the central element 3. The central elements 3 are implemented as semi-circular blocks, with a recess adapted for receiving the core element 2 being disposed at the central region thereof. The central element 3 has a circular groove 9 for receiving the projections 12 of the profiled elements 4. Axially extending parallel grooves 8 are disposed on the side surface 7 of the central element 3 for receiving the ball of the arresting means 14.

Figs. 3a, 3b show the top and front views of the profiled element 4. The profiled element 4 is shaped as a rectangular segment of cylindrical shell. A T-shaped projection 12 attaches to the shorter-radius cylindrical surface 10 of the profiled element 4. The longer-radius cylindrical surface 11 of the profiled element

4 forms a part of the enveloping body 1. Bores 13 adapted for receiving arresting means 14 are disposed on the cylindrical surfaces 10 of the profiled element 4.

Figs. 4 and 5 are sectional views of the enveloping body 1 taken respectively in planes IV-IV and V-V. A core element 2 is disposed in the centre of the enveloping body 1. The axis of symmetry of the core element 2 coincides with the X axis of the enveloping body 1 about which the central elements 3 can be rotated. The core element 2 is a rotationally symmetric, preferably generally cylindrical body configured to have a a H-shaped cross section. The central element 2 can be inserted in a recess 5 formed in the central elements 3. As it is illustrated in Fig. 4, the core element 2 is surrounded by the four central elements 3 in a self-locking manner. The T-shaped projections 12 of the profiled elements 4 extend into the grooves 9 of the central elements 3. The profiled elements 4 are rotatable about the axis Y of the enveloping body 1.

According to the invention bores 13 are machined in the cylindrical surface 10 of the profiled elements 4. The bores 13 are adapted for receiving arresting means 14. The arresting means 14 is implemented as a spring-biased ball mechanism known per se. The ball of the mechanism engages the grooves 8 of the central elements 3. All of the profiled elements 4 may comprise arresting means 14, each element having two arresting means 14 arranged symmetrically. The present invention also covers arrangements where each profiled element 4 has only one arresting means 14. According to a further preferred embodiment not all of the profiled elements 4 comprise arresting means 14. In specific cases it may be sufficient if every second or third profiled element 4 has arresting means 14. In a further preferred embodiment one of the corresponding profiled elements 4 comprises one arresting means 14, while the other has two.

Fig. 6 shows another preferred embodiment of the spatial logical toy according to the invention. The configuration of the core element 2 and the central elements 3 is identical to the previous embodiment. In this embodiment, however, an extension piece 15 is attached to each profiled element 4. The extension piece 15 is connected to the larger-diameter cylindrical surface 11 of the profiled element 4, and is arranged to be rotatable about the axis X of the enveloping body 1. Figs. 7a, 7b show the top plan and sectional views of the profiled element. A T-shaped projection 17 is disposed on the longer-radius cylindrical surface 11 of the profiled element 4, with the tabs 16 of the extension piece 15 being snapped into

the notch of the projection 17. The extension pieces 15 may be implemented as single-piece elements, or may be assembled from two pieces by adhesive fastening or similar means. The extension pieces preferably comprise symbol carrying elements.

Arresting means adapted to be snapped in grooves formed in the extension piece 15 may also be disposed on the cylindrical surface of the projections 17. The arresting means disposed between the profiled element 4 and the extension piece 15 provide for the exact positioning of the profiled element relative to the extension piece.

The game played using the spatial logical toy according to the invention is described below. The profiled elements have different symbol carrying elements 6 on their surface. The game is aimed at either systematically rearranging these symbol carrying elements 6 or create ordered patterns of the symbols. To rearrange the symbol carrying elements the central elements 3 and profiled elements 4 should be rotated about axes X, Y until the desired result is achieved. The arresting means 14 built into the cylindrical surface 10 of the profiled elements 4 provide that the elements can be rotated between discrete positions by rotation steps or moves. The end of each rotation step is indicated by the snapping action of the ball of the arresting means 14. Releasing the arresting means (that is, further rotating the profiled elements 4 from a given position) is not difficult for the player, while the faster gameplay due to the easier and more exact positioning of the profiled elements 4 made possible by the inclusion of arresting means makes using the toy more enjoyable than using conventional toys.

The application of 12 profiled elements 4 generates a very high number of possible combinations of the symbol carrying elements 6, which provides for an amusing gameplay. The number of possible combinations may be increased further by applying profiled elements 4 fitted with extension pieces 15 bearing further symbol carrying elements 6. Major advantages of the toy according to the invention are that it improves dexterity, combination skills and spatial vision, and also provides amusement for the player. An additional advantage of the toy is that it may be excellently applied for advertising purposes.

List of reference numerals

1	enveloping body
2	core element
3	central element
4	profiled element
5	recess
6	symbol carrying element
7	side surface
8	groove
9	groove
10	cylindrical surface
11	cylindrical surface
12	projection
13	bore
14	arresting means
15	extension piece
16	tab
17	projection

Claims

1. Spatial logical toy having an integral enveloping body, the enveloping body consisting of two groups of profiled bodies and one core element (2) allowing the rearrangement of the profiled bodies, where the profiled bodies are arranged such that they are rotatable about two perpendicular axes (X,Y) that both cross the geometric centre of the enveloping body, and at least part of the profiled bodies have a symbol carrying element (6) on their surface forming the enveloping body, with the profiled bodies belonging to one group having an identical configuration that is different from the configuration of the profiled bodies belonging to the other group, where one group of the profiled elements consists of central elements (3) having a semi-circular block shape and the other group of the profiled elements consists of profiled elements (4) shaped as rectangular segments of a cylindrical shell, where the shorter-radius cylindrical surface (10) of the profiled elements (4) is rotatably connected to the side surface of the central elements (3) in a self-locking manner,
characterised by that
at least part of the profiled elements (4) have at least one arresting means (14) adapted for engaging grooves (8) disposed on the side surface (7) of the central elements (3).

2. The toy according to Claim 1, characterised by that the arresting means (14) is implemented as a spring-biased ball projecting from the cylindrical surface (10) of the profiled element (4).

3. The toy according to Claims 1 or 2, characterised by that the enveloping body (1) is disc-shaped.

4. The toy according to any one of Claims 1-3, characterised by that a T-shaped projection (12) is disposed on the shorter-radius cylindrical surface of each profiled element (4) for engaging the grooves (8) of the central elements (3).

5. The toy according to any one of Claims 1-4, characterised by that a T-shaped projection (17) is disposed also on the longer-radius cylindrical surface (11) of the

profiled elements (4), in which projection (17) the tabs (16) of the extension pieces (15) connected to the longer-radius cylindrical surface of the profiled elements (4) are snapped.

6. The toy according to Claim 5, characterised by that arresting means are also disposed on the cylindrical surface of the projections (17), the arresting means being adapted for snapping in the grooves formed in the extension pieces (15).

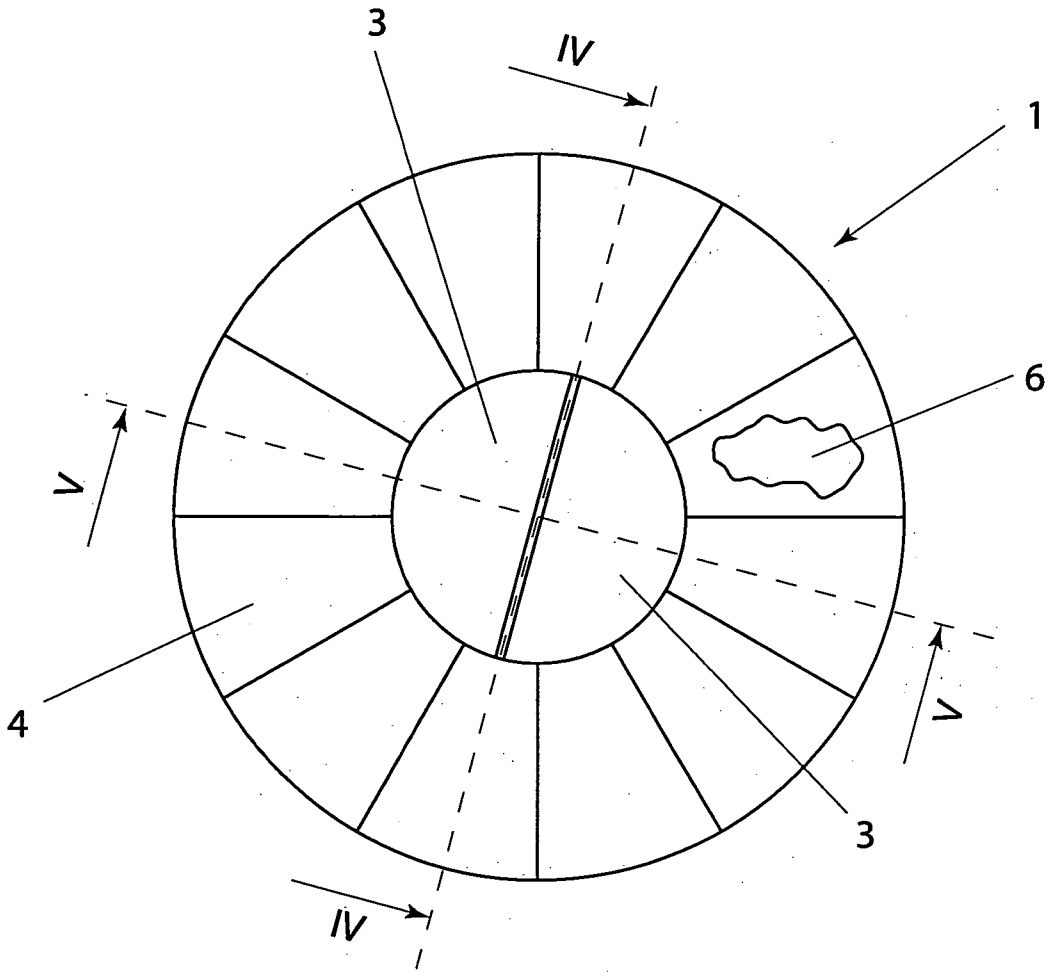

Fig. 1

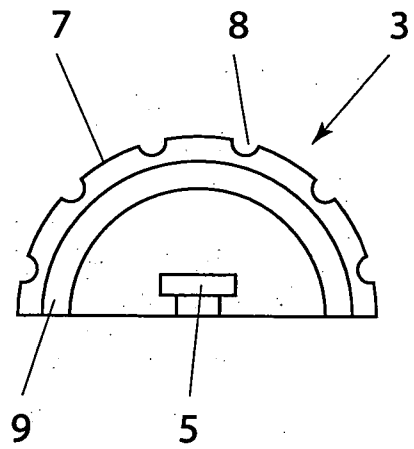

Fig.2a

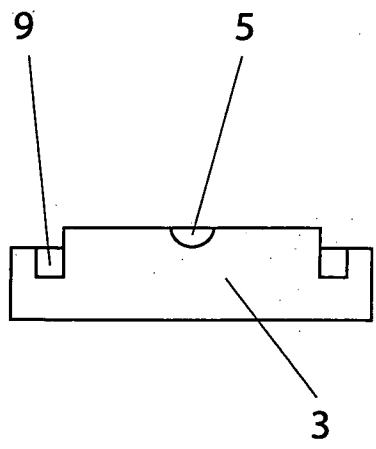

Fig.2b

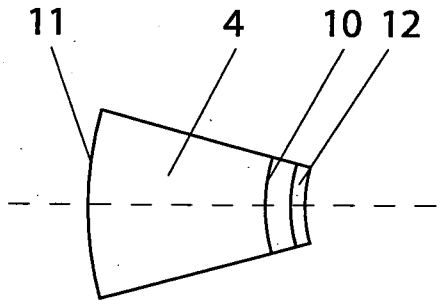

Fig. 3a

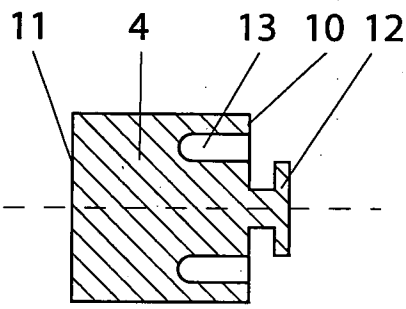

Fig. 3b

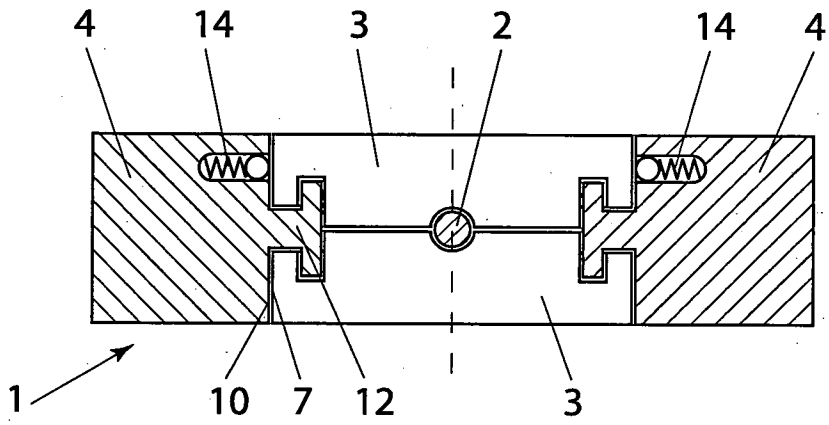

Fig. 4

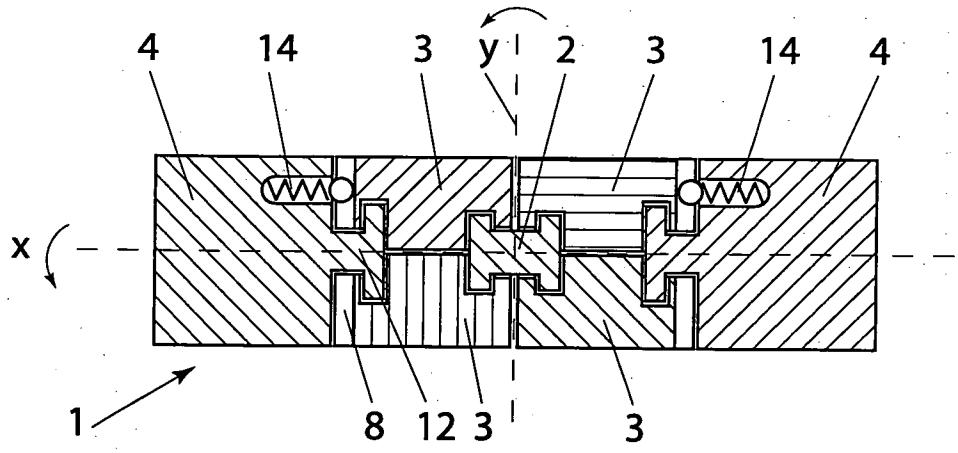

Fig.5

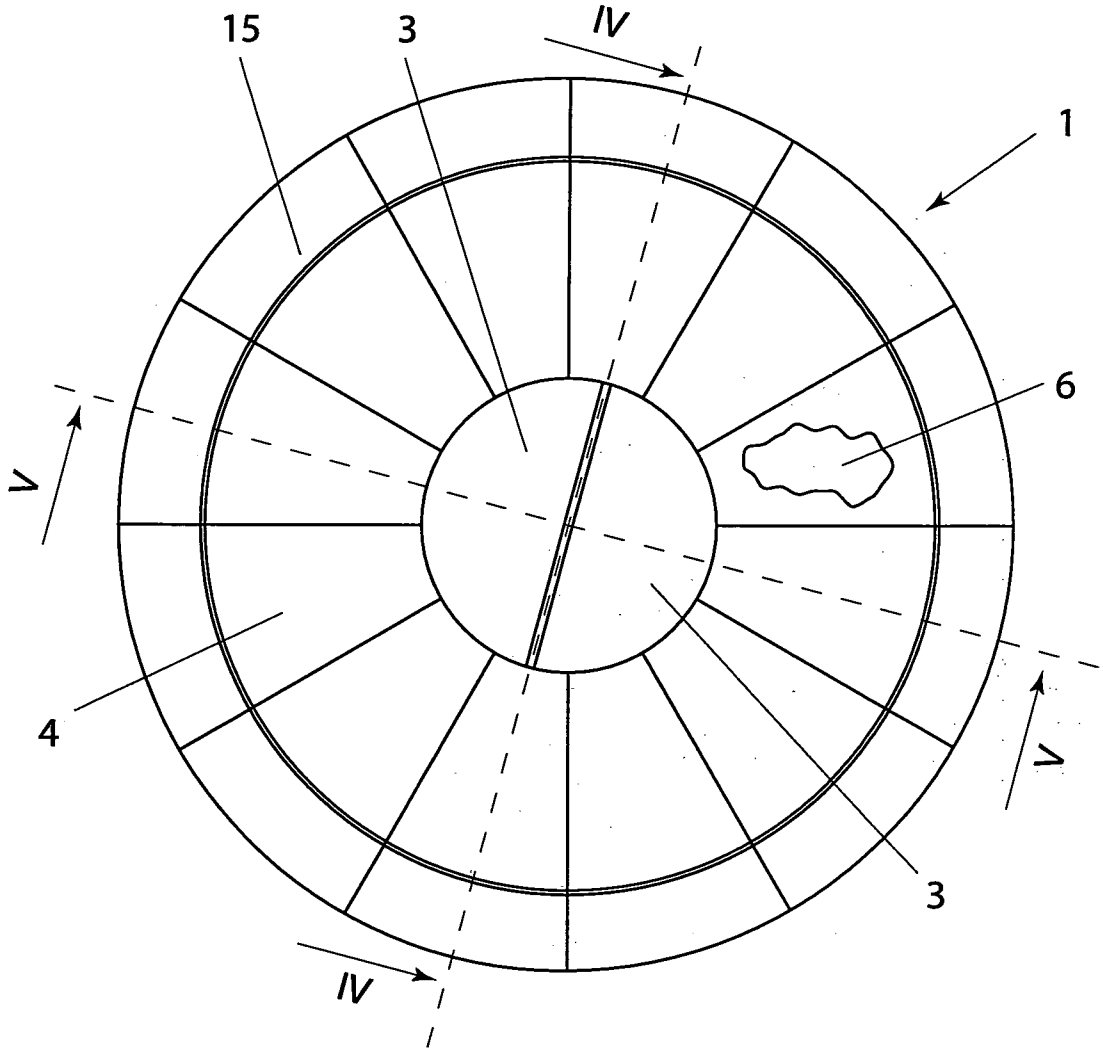

Fig. 6

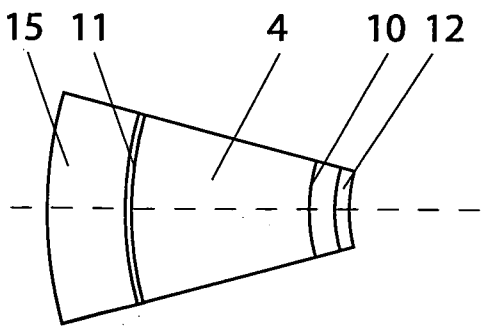

Fig. 7a

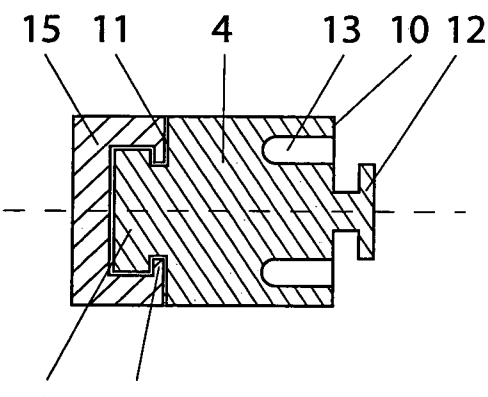

Fig. 7b

INTERNATIONAL SEARCH REPORT

International application No
PCT/HU2010/000086

A. CLASSIFICATION OF SUBJECT MATTER
INV. A63F9/08
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
A63F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 91/02574 A1 (PATAKI ZOLTAN [HU]; CSOMOS GEZA [DE]) 7 March 1991 (1991-03-07) the whole document	1-6
Y	WO 84/03639 A1 (FEATHERSTON GRANT) 27 September 1984 (1984-09-27) page 4, line 22 - line 27 claims 9,10 figure 2	1-6
Y	WO 82/02340 A1 (KOEZPONTI VALTO ES HITELBANK I [HU]; GEDEON SANDOR [HU]; JODAL SANDOR) 22 July 1982 (1982-07-22) page 9, line 24 - page 10, line 8 figure 15	1-6

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[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

* Special categories of cited documents :

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
4 November 2010	15/11/2010

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Turmo, Robert

INTERNATIONAL SEARCH REPORT

International application No
PCT/HU2010/000086

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 96/08297 A1 (SANDOLIN KFT [HU]; PATAKI ZOLTAN [HU]; VARADI ISTVAN [HU]; KOVACS ATTI) 21 March 1996 (1996-03-21) page 5, line 3 - line 13 page 6, line 8 - line 10 claim 9 figures 9,10	1-6
Y	WO 83/01009 A1 (SZEGED ES VIDEKE ALTALANOS FOG [HU]) 31 March 1983 (1983-03-31) page 8, line 2 - line 23 figure 7/a	1-6

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/HU2010/000086

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9102574 A1	07-03-1991	HU 54909 A2	29-04-1991
WO 8403639 A1	27-09-1984	EP 0139680 A1	08-05-1985
WO 8202340 A1	22-07-1982	CA 1107210 A1	18-08-1981
		EP 0068009 A1	05-01-1983
WO 9608297 A1	21-03-1996	AU 3482995 A	29-03-1996
		HU 72255 A2	29-04-1996
WO 8301009 A1	31-03-1983	EP 0088782 A1	21-09-1983
		HU 183521 B	28-05-1984
		JP 58501613 T	29-09-1983