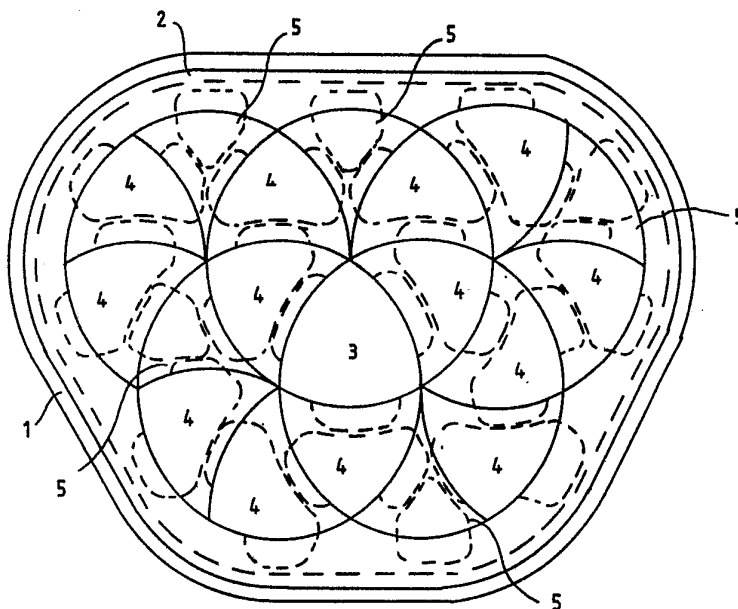




## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification <sup>5</sup> : A63F 9/08</p>	A1	<p>(11) International Publication Number: <b>WO 92/11912</b> (43) International Publication Date: 23 July 1992 (23.07.92)</p>
<p>(21) International Application Number: PCT/HU92/00001 (22) International Filing Date: 10 January 1992 (10.01.92) (30) Priority data: 75/91 11 January 1991 (11.01.91) HU (71)(72) Applicant and Inventor: KALAPÁCS, János [HU/HU]; Csokonai u. 10 fsz. 2.a., H-1081 Budapest (HU). (74) Agent: S.B.G. AND K. PATENT AND LAW OFFICE; Dalszinház u. 10, H-1061 Budapest (HU). (81) Designated States: AT (European patent), AU, BE (European patent), BG, BR, CA, CH (European patent), DE (European patent), DK (European patent), ES (European patent), FI, FR (European patent), GB (European patent), GR (European patent), IT (European patent), JP, KP, KR, LU (European patent), MC (European patent), NL (European patent), NO, RO, RU, SE (European patent), US.</p>		<p><b>Published</b> <i>With international search report.</i></p>

## (54) Title: LOGICAL MOSAIC-PUZZLE



## (57) Abstract

The invention relates to a logical mosaic-puzzle containing puzzle elements divided into three different groups and being of the same shape in each group, said puzzle elements are arranged in five circles extending into each other, embedded in a frame consisting of two parts, namely a casing (1) and a clamping frame (2) in the assembled state of the puzzle. The nineteen puzzle elements (3, 4, 5) forming the circles, fitted to each other loosely in five circles extending into each other and can be simultaneously turned about the axes of the circles each in respect to the other circles, further, one circle each consists of six puzzle-elements (3, 4, 5) out of which one element (3) forms a part of three different circles, whilst six puzzle elements (4, 5) belonging to two different groups form two other circles, further said puzzle-elements (3, 4, 5) are provided with projections (11, 15, 18) connected to the casing (1) and to the clamping frame (2) and grooves (19, 20, 21) respectively receiving said projections (11, 15, 18).

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## LOGICAL MOSAIC-PUZZLE

Technical Field

The invention relates to a logical mosaic-puzzle  
5 containing puzzle elements divided into three different  
groups and being of the same shape in each group, said  
puzzle-elements are arranged in five circles extending  
into each other, embedded in a frame consisting of two  
main parts, namely a casing and a clamping frame in the  
10 assembled state of the puzzle.

Background Art

A great number of mosaic-puzzles are known. The  
most general types of the mosaic-puzzles are based on  
15 arrangement, with which different plates and elements  
are to be fitted to each other with the aim to produce  
some predetermined shape and configuration respectively.

Mosaic-puzzles, with which the elements are starting  
from a given place have been considered as novelties;  
20 as the place of one element was left empty, whereby the  
desired formation, configuration can be obtained by  
shifting displacing the puzzle elements having been  
provided with numbers or other markings or simply different  
coloured. Even at present a small number of planar puzzles  
25 or toys with a planar effect are known, with which the  
motion of the elements is solved in a different way, e.g.  
by the transformation of spatial possibilities into the  
plane, so e.g. by means of balls, gears and pins by  
sliding elements into one another. Far lower is the  
30 number of puzzles, with which simultaneously several  
elements can be put into motion.

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The invention relates to a logical mosaic-puzzle with a planar effect, with which the puzzle-elements - simultaneously a plurality of elements - can be turned to form desired configurations. By intermixing  
5 of the elements several variations may be obtained.

By virtue of shape and easy manipulation, the mosaic-puzzle according to the invention is well suitable for the development of logical and combinative abilities. Similar solutions with different turnable elements are  
10 specified in the SU-PS 1238773, GB-PS 2 199 755 and GB-PS 2 117 256. Shape of the elements, mode of fitting the configuration to be obtained, accordingly the general impression are different from one another and from the solution according to the invention too. The disadvantage  
15 of the well-known mosaic-puzzle lies in that construction and facilitating of manipulation can be solved only to the detriment of playing.

The mosaic-puzzle according to the invention is most similar to the logical toys specified in the FR-PS A22489164  
20 and FR-PS-A1 2 490 102. The patent specifications mentioned above are based, setting out from three well-known circle configuration extending into each other, on the recognition that three circular plates extending into each other sliced into curved, arcuated puzzle-plates can be rotated  
25 respectively to each other, thereby mosaic-puzzle plates get mixed up.

The disadvantages of logical toys specified in the patent specifications mentioned above lies in that their embodiment does not facilitates in security and good  
30 playing the increasing of the number of elements without detriment of playing because of spatial elongation. The

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present invention relates to a solution that facilitates the increasing of the number of puzzle-elements and thereby the increasing of the number of possible variations, whereby a more exciting and interesting puzzle can be formed. Accordingly, the solution according to the present invention differs essentially from the puzzles specified in the patent specifications mentioned above in consideration of its general effect, too.

#### Disclosure of the Invention

The invention relates to a logical mosaic-puzzle consisting essentially of twenty-one elements where between two main elements, - namely a casing and a clamping frame - nineteen puzzle elements are fitted loosely to each other, said puzzle elements can be turned simultaneously along five circles extending into each other, about the axes of a circle each, further, one circle each consists of six puzzle elements out of which one element forms a part of three different circles, said puzzle elements are provided with projections connected to each other respectively, to the casing and the clamping frame, respectively grooves receiving said projections.

In a preferred embodiment of the mosaic-puzzle according to the invention one puzzle element forming said three circles is essentially a curved triangular prism provided with projections on its all three sides.

In another preferred embodiment thirteen puzzle elements belonging to the second group, connected to

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the puzzle element having a curved triangular shape and forming a part of the other circles form a prism having two convex-arcuated side and one concave-  
5 -arcuated sides connected with said convex-arcuated sides, said prism is provided with one projection on each convex-arcuated sides and connected to the adjacent puzzle element and grooves receiving the projections of the adjacent puzzle element.

10 In a further preferred embodiment the five puzzle elements belonging to the third group are connected to the puzzle elements belonging to the second group, filling the free sections of the casing resp. the clamping frame and forming parts of said circles form  
15 a prism having two concave-arcuated sides and one convex-arcuated side connected to said concave sides, said convex-arcuated side of said prism is provided with a projection connected to the corresponding parts of the casing resp. the clamping frame and its concave-  
20 -arcuated sides are provided with grooves receiving the projections of adjacent prisms.

The puzzle elements of each preferred embodiment of the mosaic-puzzle according to the invention are provided with different distinguishing colours or  
25 other markings, further the puzzle elements fitted into the casing and the clamping frame resp. forming with their arcuated sides fives circles can be turned simultaneously in respect to each other only from two spatial sides whereby the planar characteristics  
30 of said puzzle transform it into a solid.

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Brief Description of Drawings

- A preferred embodiment of the invention will be described by way of example and with reference to the accompanying drawings, in which:
- 5 Fig. 1 is a top view of the mosaic-puzzle according to the invention;
- Fig. 2 is a top view of the casing of the mosaic-puzzle according to the invention;
- 10 Fig. 3 is a cross-sectional view of the casing shown in Fig. 2;
- Fig. 4 is a top view of the casing shown in Fig. 1;
- Fig. 5 is a cross-sectional view of the clamping frame shown in Fig. 4;
- 15 Fig. 6 is a top view of one of the puzzle elements divided into three groups, constituting the mosaic-puzzle of Fig. 1;
- Fig. 7 is a side view of a puzzle element of Fig. 6;
- 20 Fig. 8 is a top view of a puzzle element belonging to the second group of the puzzle elements shown in Fig. 1;
- Fig. 9 is a side view of the puzzle element of Fig. 8;
- 25 Fig. 10 is a top view of a further puzzle element belonging to the third group of the puzzle elements shown in Fig. 1;
- Fig. 11 is a side view of the puzzle element of Fig. 10.
- 30

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Best Mode of Carrying out the Invention

Referring to Figs. 1 to 6, there is shown a preferred embodiment of the present invention (Fig.1).

5           The mosaic-puzzle shown in Fig. 1 consists of twentyone components from which are two main parts, namely a casing 1 and a clamping frame 2 as well as nineteen movable puzzle elements 3, 4, 5 embedded in said casing 1 and clamping frame. The puzzle  
10 elements 3, 4, 5 are divided into three separate groups, but the puzzle elements belonging to the same group are of the same shape. The first group contains only one puzzle element 3 bordered with three arcs which are part of circles extending into each other at the  
15 same time, too. This puzzle element 3 is essentially a regular curved triangular prism having arcuated sides 12, all three sides of said prism are provided independently with a projection 11 for securing the connection to the adjacent puzzle elements 4 /See  
20 Figs. 6 and 7/.

Puzzle elements 4 connected on one hand to the adjacent puzzle element 3 and on the other hand to the puzzle elements 5 form the second group, the number of said puzzle elements 4 is thirteen. The  
25 puzzle elements 4 form essentially a prism having two convex-arcuated sides 13 and one concave-arcuated side 14 connected to these sides, the convex-arcuated sides 13 thereof are provided with projections 15 connected to the puzzle elements 5 and the concave-  
30 -arcuated side 14 is provided with grooves 19 receiving the projections 11 resp. 15 of the puzzle element 3



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resp. the adjacent puzzle elements 4 /See Figs. 8 and 9/.

Finally, the third group contains five puzzle elements 5 forming parts of five circles, said puzzle elements 5 are connected to the puzzle elements 4 as well as fill the free sections of the casing 1 and of the clamping frame 2, respectively. The puzzle elements 5 belonging to said third group form prisms having two concave-arcuated sides 17 and one convex-arcuated side 16 connected to these sides, said convex-arcuated side 16 thereof is provided with a projection 18 connected to the correspondent parts of the casing 1 respectively the clamping frame 2 and said concave-arcuated sides 17 are provided with grooves 20, 21 receiving the projections 15 of the adjacent puzzle elements 4 /See Figs. 10 and 11/.

The mosaic-puzzle according to the invention is assembled in such a manner that the projections 11, 15, 18 and grooves 19, 20, 21 of the puzzle elements 3, 4, 5, connected with each other are placed in the casing 1 so that they form five circles extending with their third parts symmetrically into each other.

When the clamping frame 2 is fitted into the casing 1, a groove is formed between the casing 1 and clamping frame 2, consisting of curved sections 6, 7, 8, 9, 10. All grooves and projections of the mosaic-puzzle are fitted accurately but loosely. In such manner it becomes possible that in any position six elements 3, 4, 5 of one, two or all the three circles could be turned in respect to the other

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elements independently, by means of two fingers. In accordance with the aim set, from turn to turn we can change the position of puzzle elements 3, 4, 5, one element 3, 4, 5, each may be transferred from one circle into the other and if desired, into the third, the fifth one and then back. The sense of the game becomes obvious, if visible surfaces of the elements 3, 4, 5 are provided with distinguishing marks e.g. colours or other markings.

10 In general form of the embodiment, in the starting position of the mosaic-puzzle according to the invention the puzzle element 3 is arranged in the centre, its colouring corresponds to the colours of the clamping 2 and casing 1. Each central circle contains independently three puzzle elements 4, and one puzzle element 5 of another type, while the other circles contain independently two puzzle elements 4 and one puzzle element 5. As a matter of fact, due to overlapping, in respect to colours three or four elements can be distinguished in each circle. In general, the aim of the game lies in to turn back the elements into their original starting configuration, although obtaining any other configuration can be aimed, too. Several possibilities of variations render the game increasingly exciting. An additional advantage of the invention lies in that the surfaces thereof can be used for advertisement as well.

CLAIMS

1. Logical mosaic-puzzle containing puzzle elements divided into three different groups, said  
5 puzzle elements in each group are of the same shape and arranged in five circles extending into each other, embedded in a frame consisting of two main parts, namely a casing (1) and a clamping frame (2) in the assembled state of the puzzle, characterized  
10 in that nineteen puzzle elements (3, 4, 5) thereof can be turned along five circles, about the axis of the circles and simultaneously in respect to the other circles, further, one circle each consists of six puzzle-elements (3, 4, 5), out of which one  
15 element (3) forms a part of three different circles, six puzzle-elements (3, 4, 5) belonging to two different groups form two other circles, further said puzzle-elements (3, 4, 5) are provided with projections (11, 15, 18) connected to the casing (1) and to the  
20 clamping frame (2) and grooves (19, 20, 21) respectively receiving said projections (11, 15, 18).

2. Logical mosaic-puzzle as claimed in claim 1, characterized in that the only puzzle-element (3) forming part of said three circles is essentially a  
25 regular, curved triangular prism, bordered with three arcuated sides (12) provided independently with one projections (11).

3. Logical mosaic-puzzle as claimed in claim 1 or 2, characterized in that thirteen puzzle-  
30 -elements (4) belonging to the second group connected to the puzzle-element (3), having a curved triangular

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shape and forming a part of other circles, form a prism provided with two convex-arcuated sides (13) and a concave-arcuated side (14) connected to said convex-arcuated sides (13), one convex-arcuated  
5 side (13) each of said prism is provided independently with one projection (15) connected to the adjacent puzzle-elements (4, 5) as well as with one groove (19) receiving the projections (15, 18) of the adjacent puzzle-elements (3, 4).

10 4. Logical mosaic-puzzle as claimed in any of claims 1 to 3, characterized in that five puzzle-elements (5) belonging to the third group, connected to the puzzle-elements (4) belonging to the second group, filling the free sections of the casing (1)  
15 and the clamping frame (2), as well as participating in forming of the circles, form a prism provided with two concave-arcuated sides (17) and a convex-arcuated side (16) connected to said sides (17), the convex-arcuated side (16) of said prism is  
20 provided with a projections (18) connected to the corresponding parts of the casing (1) and of the clamping frame (2) while the concave-arcuated sides (17) thereof are provided with grooves (20, 21) receiving the projections (15) of the adjacent prisms  
25 (4).

5. Logical mosaic-puzzle as claimed in any of claims 1 to 4, characterized in that the puzzle-elements (3, 4, 5) are distinguished by colours or other markings.

30 6. Logical mosaic-puzzle as claimed in any of

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claims 1 to 5, characterized in that turning  
of the different types of puzzle-elements (3, 4, 5)  
embedded in the casing (1) and clamping frame (2),  
5 respectively of the circles formed by the arcuated  
sides of the puzzle-elements (3, 4, 5) can take  
place simultaneously from two sides of the space  
only, as a consequence, planar characteristics of  
the puzzle change it into a solid.

10

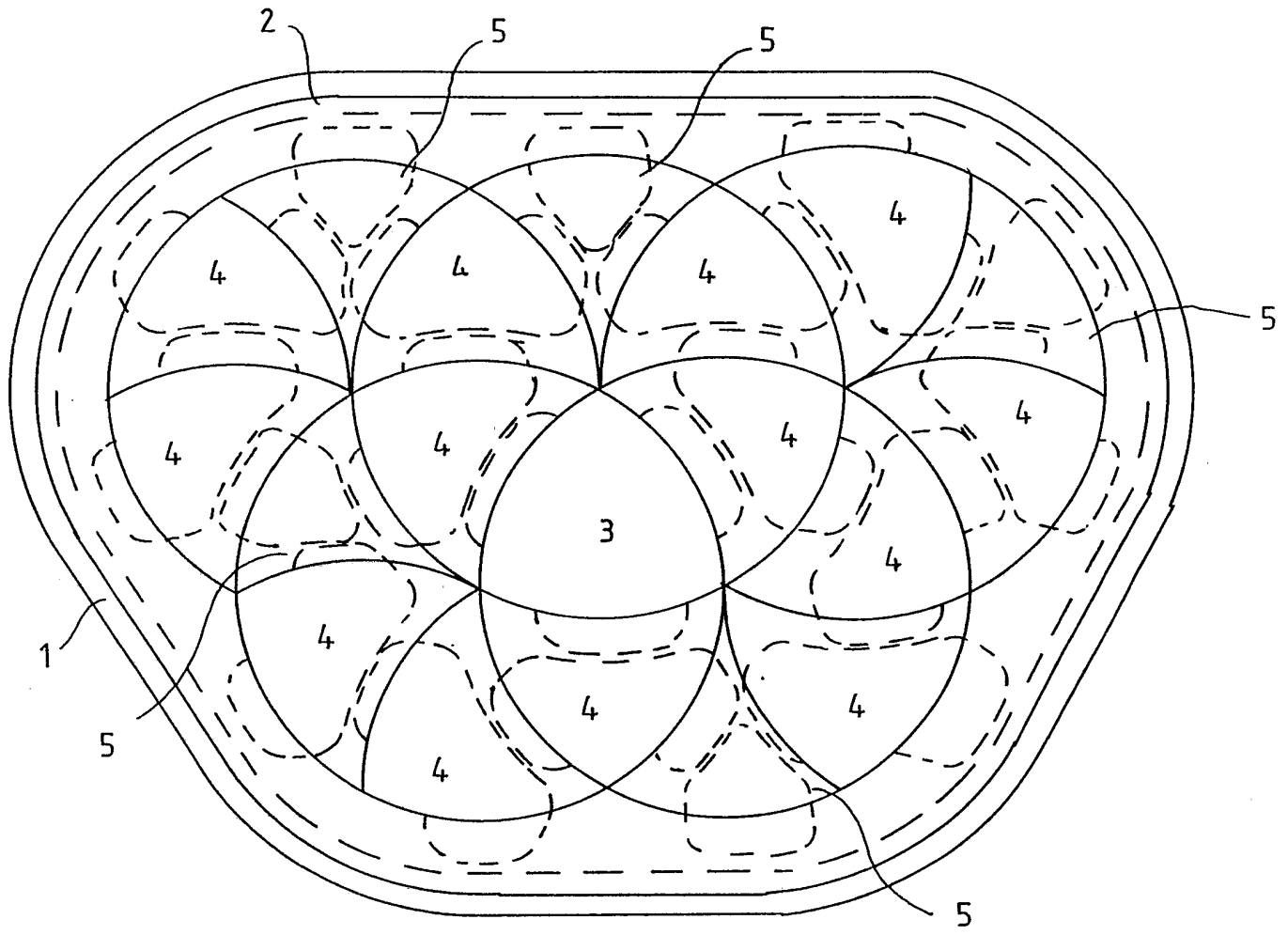
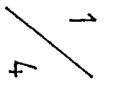


Fig. 1.



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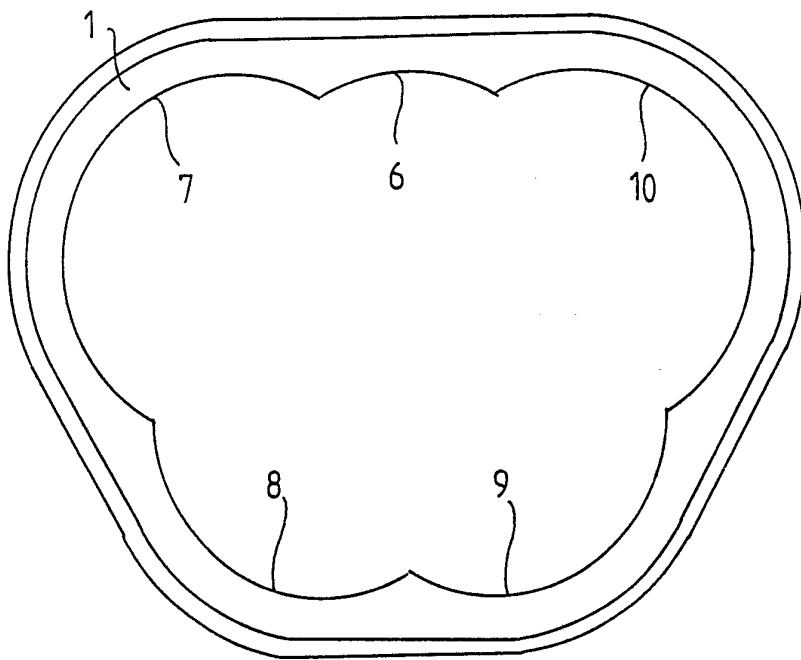


Fig. 2.



Fig. 3.

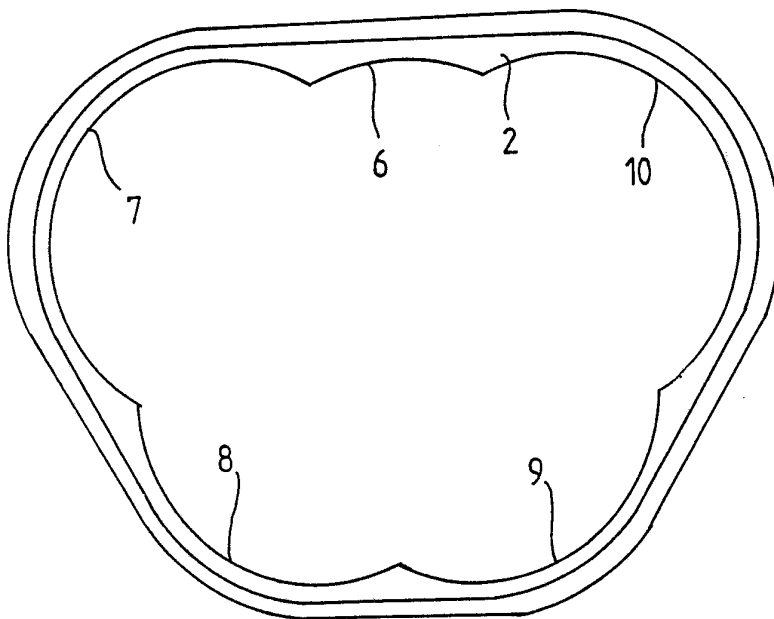


Fig. 4.



Fig. 5.

3 / 4

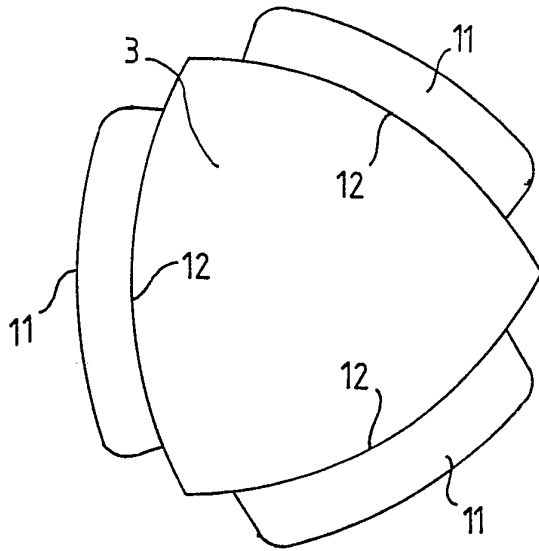


Fig. 6.

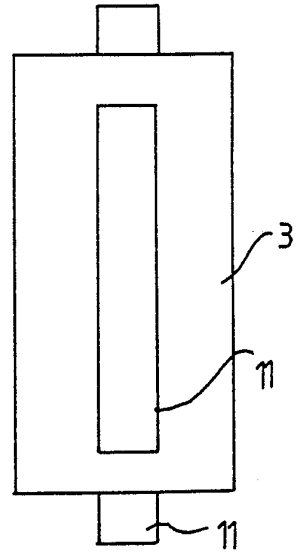


Fig. 7.

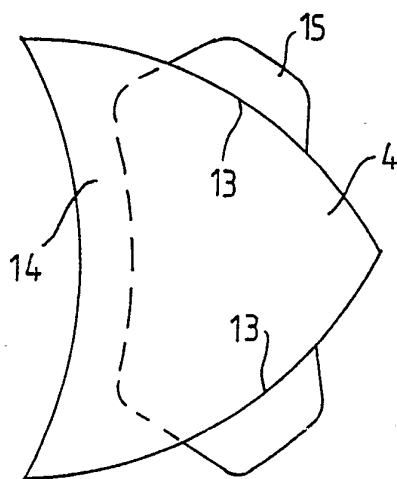


Fig. 8.

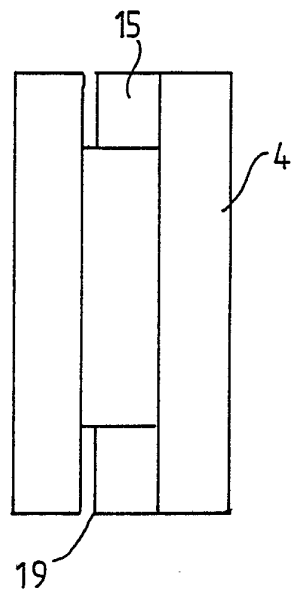


Fig. 9.



4  
/ 4

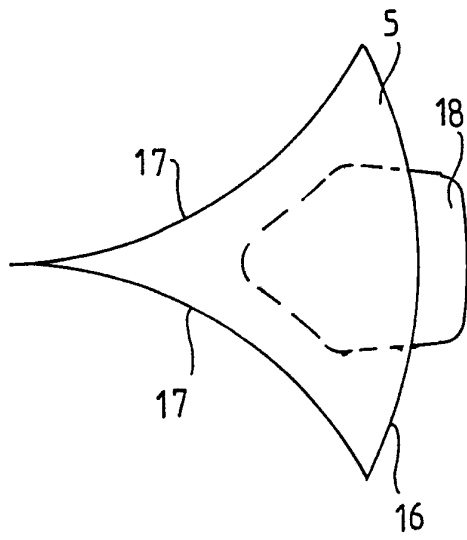


Fig. 10.

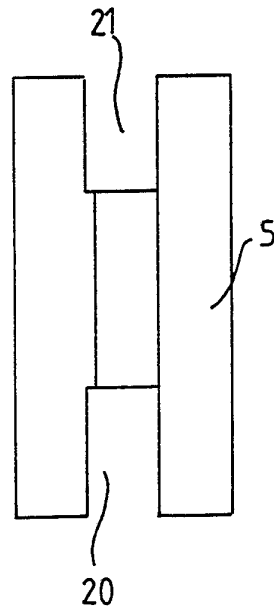


Fig. 11.

# INTERNATIONAL SEARCH REPORT

International Application No PCT/HU 92/00001

<b>I. CLASSIFICATION OF SUBJECT MATTER</b> (if several classification symbols apply, indicate all) <sup>6</sup>		
According to International Patent Classification (IPC) or to both National Classification and IPC		
Int.Cl. <sup>5</sup> : A 63 F 9/08		
<b>II. FIELDS SEARCHED</b>		
Minimum Documentation Searched <sup>7</sup>		
Classification System	Classification Symbols	
Int.Cl. <sup>5</sup>	A 63 F 9/08, 9/06, 9/00	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched <sup>8</sup>		
<b>III. DOCUMENTS CONSIDERED TO BE RELEVANT <sup>9</sup></b>		
Category <sup>9</sup>	Citation of Document, <sup>11</sup> with indication, where appropriate, of the relevant passages <sup>12</sup>	Relevant to Claim No. <sup>13</sup>
Y	FR, A1, 2 490 102 (RABA) 19 March 1982 (19.03.82), see fig. 6,7; page 2, lines 27-34; page 4, lines 14-31.	1 2,3,4,5
A		
Y	WO, A1, 85/01 666 (SKLEDAR) 25 April 1985 (25.04.85), see fig. 1.	1
A	FR, A2, 2 463 632 (RABA) 27 February 1981 (27.02.81), see fig. 1,3-19; page 3, lines 13-27.	1,2,3,4,5
A	GB, A, 2 116 050 (MOSHATOS) 21 September 1983 (21.09.83), see fig. 1,2,3,4,8; page 2, lines 54,55.	1,6
----		
<p><sup>9</sup> Special categories of cited documents: <sup>10</sup></p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>"&amp;" document member of the same patent family</p>		
<b>IV. CERTIFICATION</b>		
Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report	
04 March 1992 (04.03.92)	11 March 1992 (11.03.92)	
International Searching Authority	Signature of Authorized Officer	
AUSTRIAN PATENT OFFICE	<i>Velinsky Huber</i>	

**ANHANG**

zum internationalen Recherchen-  
bericht über die internationale  
Patentanmeldung Nr.

In diesem Anhang sind die Mitglieder  
der Patentfamilien der im obenge-  
nannten internationalen Recherchenbericht  
angeführten Patendokumente angegeben.  
Diese Angaben dienen nur zur Unter-  
richtung und erfolgen ohne Gewähr.

**ANNEX**

to the International Search  
Report to the International Patent  
Application No.

PCT/HU92/00001

This Annex lists the patent family  
members relating to the patent documents  
cited in the above-mentioned inter-  
national search report. The Office is  
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**ANNEXE**

au rapport de recherche inter-  
national relatif à la demande de brevet  
international n°

La présente annexe indique les  
membres de la famille de brevets  
relatifs aux documents de brevets cités  
dans le rapport de recherche inter-  
national visée ci-dessus. Les renseigne-  
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Im Recherchenbericht angeführtes Patendokument Patent document cited in search report Document de brevet cité dans le rapport de recherche	Datum der Veröffentlichung Publication date Date de publication	Mitglied(er) der Patentfamilie Patent family member(s) Membre(s) de la famille de brevets	Datum der Veröffentlichung Publication date Date de publication
FR A1 2490102	19-03-82	keine - none - rien	
WO A1 8501666	25-04-85	YU A 2101/83	30-06-87
FR A2 2463632	27-02-81	FR B2 2463632	19-11-82
GB A 2116050		GB A0 8305513 GB A1 2116050	30-03-83 21-09-83