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(54) Jigsaw puzzle assembly

(57) A jigsaw puzzle comprising:

a base;
multiple puzzle piece blocks (22) detachably mounted on a top face of the base;
a frame assembly (1) surrounding the base and including corner frames (11) and at least one side frame (12), each corner frame (11) being located at a respective corner of the base and having a sectorial wall (111) extending from two adjacent side walls of the corner frame (11), the at least one side frame (12) being located at a side of the base and having a half circular wall (121) formed on a side face of the at least one side frame (12), wherein at least one side frame (12) is sandwiched between two corner frames (11); and
a securing device to engage two adjacent side walls of the respective corner frame (11) and the at least one side frame (12).

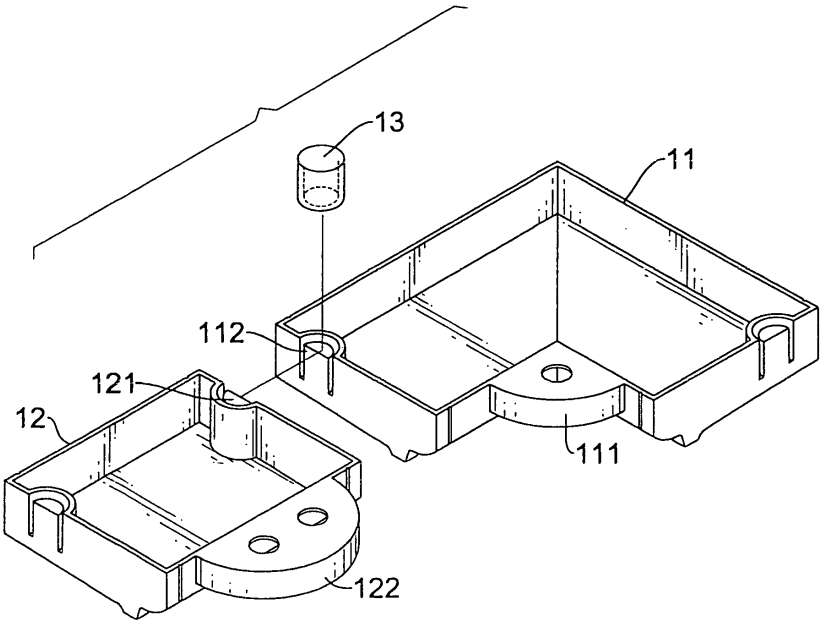

FIG.11

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Description

1. Field of the Invention

[0001] The present invention relates to a jigsaw puzzle, and more particularly to a jigsaw puzzle assembly having multiple subassemblies to be assembled respectively so as to form a complete picture and a frame assembly to secure the assembled jigsaw puzzle pieces on top of a base assembly.

2. Description of Related Art

[0002] Jigsaw puzzles are popular toys for children and even adults. Conventional jigsaw puzzles generally have planar pictures which have been cut up into pieces, and then the pieces are fitted together to recreate the pictures. The quantities of pieces in puzzles can be varied by manufacturers so that assorted difficulty levels in doing the puzzles are achieved in order to satisfy consumer demands.

[0003] There have been some jigsaw puzzles invented that are called three-dimensional puzzles. One of the three dimensional puzzles is composed of cubic pieces that each have six surfaces painted with various patterns and that can be recombined to form six pictures corresponding to the respective surfaces of the cubic pieces.

[0004] Another three-dimensional jigsaw puzzle has a three dimensional frame being composed of horizontal brackets and vertical brackets. The brackets have a plurality of apertures defined therein. Puzzle pieces with poles can be mounted on the brackets by the poles being inserted in the apertures to form a three-dimensional shape.

[0005] In a third three-dimensional jigsaw puzzle, there is a plurality of sheets painted with the same picture. The sheets are cut according to the pieces of the jigsaw puzzle. The pieces are respectively adhered with the sheets and have different numbers. Whereby, the pieces have different thicknesses and the picture is recreated by the pieces so as to present a three-dimensional effect.

[0006] Although various jigsaw puzzle games do meet the players' requirements to allow the players to gradually solve the puzzle by putting the puzzle pieces of the same feature together, there is no jigsaw puzzle available in the market to allow the players to assemble subassemblies of the jigsaw puzzle first and then to combine the assembled subassemblies to form the predetermined picture. Furthermore, there is no structure to preserve the picture after the jigsaw puzzle is completed.

[0007] To overcome the shortcomings, the present invention tends to provide an improved jigsaw puzzle to mitigate the aforementioned problems.

[0008] The primary objective of the present invention is to provide a jigsaw puzzle having multiple subassemblies to be assembled so that the user is able to assemble one subassembly at a time and then combine the subassemblies.

[0009] Another objective of the present invention is that a frame assembly is provided to the jigsaw puzzle so as to preserve the picture after the jigsaw puzzle is finished.

[0010] Still another objective of the present invention is to provide a securing device to the frame assembly to firmly combine the frame assembly so that the picture is protected.

[0011] Other objects, advantages and novel features of the invention will become more apparent from the following detailed description when taken in conjunction with the accompanying drawings.

[0012] In the drawings:

Fig. 1 is a perspective view of the jigsaw puzzle of the present invention;
Fig. 2 is a subassembly of the jigsaw puzzle of the present invention;
Fig. 3 is an exploded perspective view of the subassembly of the jigsaw puzzle of the present invention;
Figs. 4, 5 and 6 are perspective views of the rear sides of the puzzle piece blocks of the subassembly of the puzzle piece blocks of the present invention;
Fig. 7 is a cross sectional view showing the combination between a puzzle piece block and a secondary frame;
Fig. 8 is an exploded perspective view showing that a joint is provided to a bottom face of the base unit to enable one base unit to be assembled with another base unit;
Fig. 8A is a side plan view showing the structure of the joint;
Fig. 9 is a cross sectional view showing the assembly among one of the puzzle piece blocks, the base unit and the joint;
Fig. 10 is a perspective view of a side frame of the present invention;
Fig. 11 is an exploded perspective view of the bottom sides of the side frame and a corner frame;
Fig. 12 is a perspective view showing the structure of a bottom side of the jigsaw puzzle assembly of the present invention.

[0013] With reference to Fig. 1, the jigsaw puzzle in accordance with the present invention includes a frame assembly (1) and a puzzle piece assembly (2) securely framed by the frame assembly (1).

[0014] With reference to Figs. 2 and 3, it is noted that the puzzle piece assembly (2) of the present invention includes multiple base units (21) and multiple puzzle piece blocks (22) detachably mounted on top of the base units (21). The base unit (21) has multiple through holes (211) defined through the base unit (21).

[0015] With reference to Figs. 4, 5 and 6, multiple bosses (220) are formed on top of each of the puzzle piece blocks (22) to present a unique reflection of light after a unique picture is painted on top of each of the puzzle piece blocks (22) and light shines on the bosses (220).

The puzzle piece blocks (22) include four corner puzzle piece blocks (22A), side puzzle piece blocks (22B) and central puzzle piece blocks (22C). Each of the corner puzzle piece blocks (22A) has bosses (four are formed in this embodiment) (22A1) each formed on a corresponding one of corners of a bottom side of the corner puzzle piece block (22A) and two first ribs (22A2) extending from one of the bosses (22A1) to respectively connect to two different bosses (22A1).

[0016] Each side puzzle piece block (22B) has bosses (22B1) (four in this embodiment) each formed on a corresponding one of corners of a bottom side of the side puzzle piece block (22B) and one second rib (22B2) interconnecting two of the bosses (22B1). Each central puzzle piece block (22C) has bosses (22C1) (four in this embodiment) respectively formed on a corresponding one of corners of a bottom side of the central puzzle piece block (22C). Furthermore, each corner puzzle piece block (22A), each side puzzle piece block (22B) and each central puzzle piece block (22C) has a circular step (22A3, 22B3,22C3) formed on the bottom side of the corner puzzle piece block (22A), the side puzzle piece block (22B) and the central puzzle piece block (22C) and a cylindrical extension (22A4,22B4,22C4) extending from a center of the circular step (22A3, 22B3,22C3) of the corner puzzle piece block (22A), the side puzzle piece block (22B) and the central puzzle piece block (22C) to correspond to and be received in one of the through holes (211) of the base unit (21) as shown in Fig. 7.

[0017] The formation of the two ribs (22A2) of the corner puzzle piece block (22A) is to indicate that this particular corner puzzle piece block (22A) is located at a particular corner of the base unit (21) of the puzzle piece assembly (2). The rib (22B2) of the side piece block (22B) is to show that this particular side puzzle piece block (22B) is located at a particular side of the base unit (21) and the central puzzle piece blocks (22C) are then surrounded by the corner puzzle piece blocks (22A) and the side puzzle piece blocks (22B). Therefore, it is noted that after the corner puzzle piece blocks (22A), the side puzzle piece blocks (22B) and the central puzzle piece blocks (22C) are mounted on a top face of the base unit (21), the bosses (22A1,22B1,22C1) of the corner puzzle piece blocks (22A), the side puzzle piece blocks (22B) and the central puzzle piece blocks (22C) keep the bottom faces of the corner puzzle piece blocks (22A), the side puzzle piece blocks (22B) and the central puzzle piece blocks (22C) from engagement with the top face of the base unit (21).

[0018] With reference to Fig. 8, it is noted that a bottom face of the base unit (21) is provided with multiple connecting areas (212) (four in this embodiment) each being a quarter of a circle. Each connecting area (212) includes an arcuate gap (2121) defined between a first wall (2122) and a second wall (2123) having a height lower than that of the first wall (2122) and a hook (2124) formed on an inner face of the first wall (2122). A circular joint (3) is provided to combine base units (21). In this embodiment, the joint (3) is able to combine four base units (21). The joint (3) has a recessed area (31) defined in a bottom face of the joint (3) and a cross shaped protrusion (32) formed on the bottom face of the joint (3) and having a crossed path (321) defined in the protrusion (32). Furthermore, from the depiction of Fig. 8A, the joint (3) has a step (30) formed on a top periphery of the joint (3) to correspond to the hook (2124).

[0019] With reference to Fig. 9, it is noted that when the joint (3) is applied to combine the base unit (21) having a puzzle piece block (22) detachably mounted on top of the base unit (21) via an extension of the cylindrical extension (22A4, 22B4, 22C4) into the through hole (211) of the base unit (21), the hook (2124) is on top of the step (30) to secure the joint (3) in the arcuate gap (2121). Furthermore, because the height of the second wall (2123) is smaller than that of the first wall (2122), after the joint (3) is received in the arcuate gap (2121), the top face of the joint (3) is flush with the first wall (2122) of the base unit (21). Further, side walls surrounded by the second wall (2133) of the base units (21) are respectively received in the crossed shaped paths (321) of the circular joint (3).

[0020] With reference to Figs. 10, 11 and 12, the frame assembly (1) of the present invention includes corner frames (11) and side frames (12). To simplify the structure of the frame assembly (1) of the present invention, only one side frame (12) is introduced between two corner frames (11). The combination of the corner frames (11) and the side frame (12) forms a rectangle. The corner frame (11) has a sectorial wall (111) formed between two adjacent side walls of the corner frame (11) to correspond to the arcuate gap (2121) of the base unit (21). A first securing device is provided between the corner frame (11) and the side frame (12) to combine the corner frame (11) and the side frame (12). The first securing device includes two half-cylindrical protrusions, a first half-cylindrical protrusion (112) formed on a side of the corner frame (11) and a second half-cylindrical protrusion (121) formed on a side of the side frame (12) to combine with the first half-cylindrical protrusion (112) to form a cylinder. The first securing device further has a hollow cylindrical connector (13) to receive therein the first half-cylindrical protrusion (112) and the second half-cylindrical protrusion (121). After the first half-cylindrical protrusion (112) and the second half-cylindrical protrusion (121) are received in the cylindrical connector (13), the corner frame (11) and the side frame (12) are securely combined. Further, the side frame (12) has a half circular wall (122) formed on a side face of the side frame (12) to correspond to a combination of two arcuate gaps (2121) of two base units (21). Therefore, from the depiction of Fig. 12, it is noted that a joint (3) is able to combine four base units (21), a sectorial wall (111) of the corner frame (11) is able to connect to one base unit (21) and the half circular wall (122) of the side frame (12) is able to combine two base units (21).

[0021] Referring to Figs. 2 and 3, it is noted that be-

cause the puzzle piece assembly (2) of the present invention is composed of multiple base units (21) and each base unit (21) has multiple puzzle piece blocks (22) detachably mounted thereon, a user is able to separately package one base unit (21) together with the puzzle piece blocks (22) on that one particular base unit (21) as a travel package. That is, the player of the jigsaw puzzle is able to carry one portion of the jigsaw puzzle as a pastime on a bus journey etc so that after each of the puzzle piece blocks (22) is mounted on each of the base units (21), the player is then able to combine the base units (21) one by one via the joint (3). Therefore, in addition to the indication of the rib formed on the back side of the corner puzzle piece block and the side puzzle piece block, the difficulty level of the jigsaw puzzle may be reduced by the travel package.

[0022] It is to be understood, however, that even though numerous characteristics and advantages of the present invention have been set forth in the foregoing description, together with details of the structure and function of the invention, the disclosure is illustrative only, and changes may be made in detail, especially in matters of shape, size, and arrangement of parts within the principles of the invention to the full extent indicated by the broad general meaning of the terms in which the appended claims are expressed.

Claims

1. A jigsaw puzzle comprising:

a base;
multiple puzzle piece blocks (22) detachably mounted on a top face of the base;
a frame assembly (1) surrounding the base and including corner frames (11) and at least one side frame (12), each corner frame (11) being located at a respective corner of the base and having a sectorial wall (111) extending from two adjacent side walls of the corner frame (11), the at least one side frame (12) being located at a side of the base and having a half circular wall (121) formed on a side face of the at least one side frame (12), wherein at least one side frame (12) is sandwiched between two corner frames (11); and
a securing device to engage two adjacent side walls of the respective corner frame (11) and the at least one side frame (12).

2. The jigsaw puzzle as claimed in claim 1, wherein the base is composed of multiple base units each selectively engageable with a corresponding one of the base units.

3. The jigsaw puzzle as claimed in claim 2, wherein the base is composed of multiple base units (21) each selectively engageable with a corresponding one of the base units and having multiple connecting areas (212) each configured as a quadrant, each connecting area (212) includes an arcuate gap (2121) defined between a first wall (2122) and a second wall (2123) respectively formed on the base and the second wall (2123) having a height lower than a height of the first wall (2122),
wherein a circular joint (3) is provided to combine base units (21), the circular joint (3) has a recessed area (31) defined in a bottom face of the joint (3), a cross shaped protrusion (32) formed on the bottom face of the joint (3) and a cruciform path (321) defined in the cross shaped protrusion (32) to correspond to and receive therein side walls surrounded by the second wall (2123) of each of the base units (21) such that after a peripheral edge of the circular joint (3) is received in arcuate gaps (2121) of base units (21) and a peripheral edge of the half circular wall (121) of the at least one side frame (12) as well as the sectorial wall (111) of each of the corner frames (11) are received in the arcuate gaps (2121) in the base units (21), the base units (21) are detachably interconnected with one another.

4. The jigsaw puzzle as claimed in claim 3, wherein the joint (3) further has a step (30) formed on a top periphery of the joint to correspond to a hook (2124) formed on an inner face of the second wall (2123) such that after the hook (2124) is abutted to the step (30) of the joint (3), engagement between adjacent base units (21) are secured.

5. The jigsaw puzzle as claimed in claim 4, wherein the puzzle piece blocks (22) each has multiple bosses formed on a top face thereof and including corner puzzle piece blocks(22A), side puzzle piece blocks (22B) and central puzzle piece blocks (22C), each corner puzzle piece block (22A) having first bosses (22A1) respectively formed on a back side of the corner puzzle piece block (22A) to correspond to one of corners of the corner puzzle piece block (22A) and two first ribs (22A2) interconnecting three of the first bosses (22A1) of the corner puzzle piece block (22A) to indicate that the corner puzzle piece block (22A) is located at one of multiple corners of the base, each side puzzle piece block (22B) having multiple second bosses (22B1) respectively formed on a back side of the side puzzle piece block (22B) to correspond to one of corners of the side puzzle piece block (22B) and a second rib (22B2) interconnecting two of the second bosses (22B 1) to indicate that the side puzzle piece block (22B) is located at a side of the base, each central puzzle piece block (22C) having multiple third bosses (22C1) respectively formed on a back side of the central puzzle piece block (22C) to correspond to one of corners of the central puzzle piece block (22C) to indicate that the central puzzle

piece blocks (22C) are surrounded by the corner puzzle piece blocks (22A) and the side puzzle piece blocks (22B).

6. The jigsaw puzzle as claimed in claim 5, wherein the base has multiple through holes (211) defined through the base, each of the corner puzzle piece blocks (22A) has a first circular step (22A3) formed on the back side of the corner puzzle piece block (22A) and a first cylindrical extension (22A4) extending from a center of the first circular step (22A3) to be extended through a corresponding one of the through holes (211) of the base, each of the side puzzle piece blocks (22B) has a second circular step (22B3) formed on the back side of the side puzzle piece block (22B) and a second cylindrical extension (22B4) extending from a center of the second circular step (22B3) to be extended through a corresponding one of the through holes (211) of the base, each of the central puzzle piece blocks (22C) has a third circular step (22C3) formed on the back side of the central puzzle piece block (22C) and a third cylindrical extension (22C4) extending from a center of the third circular step (22C3) to be extended through a corresponding one of the through holes (211) of the base such that after the first cylindrical extension (22A4) of the corner puzzle piece block (22A), the second cylindrical extension (22B4) of the side puzzle piece block (22B) and the third cylindrical extension (22C4) of the central puzzle piece block (22C) are extended through the corresponding through holes (211) of the base, the first bosses (22A 1), the first circular step (22A3), the second bosses (22B 1), the second circular step (22B3), the third bosses (22C1) and the third circular step (22C4) keep the puzzle piece blocks (22) away from engagement with the top face of the base to facilitate detachment of the puzzle piece blocks (22) from the base.

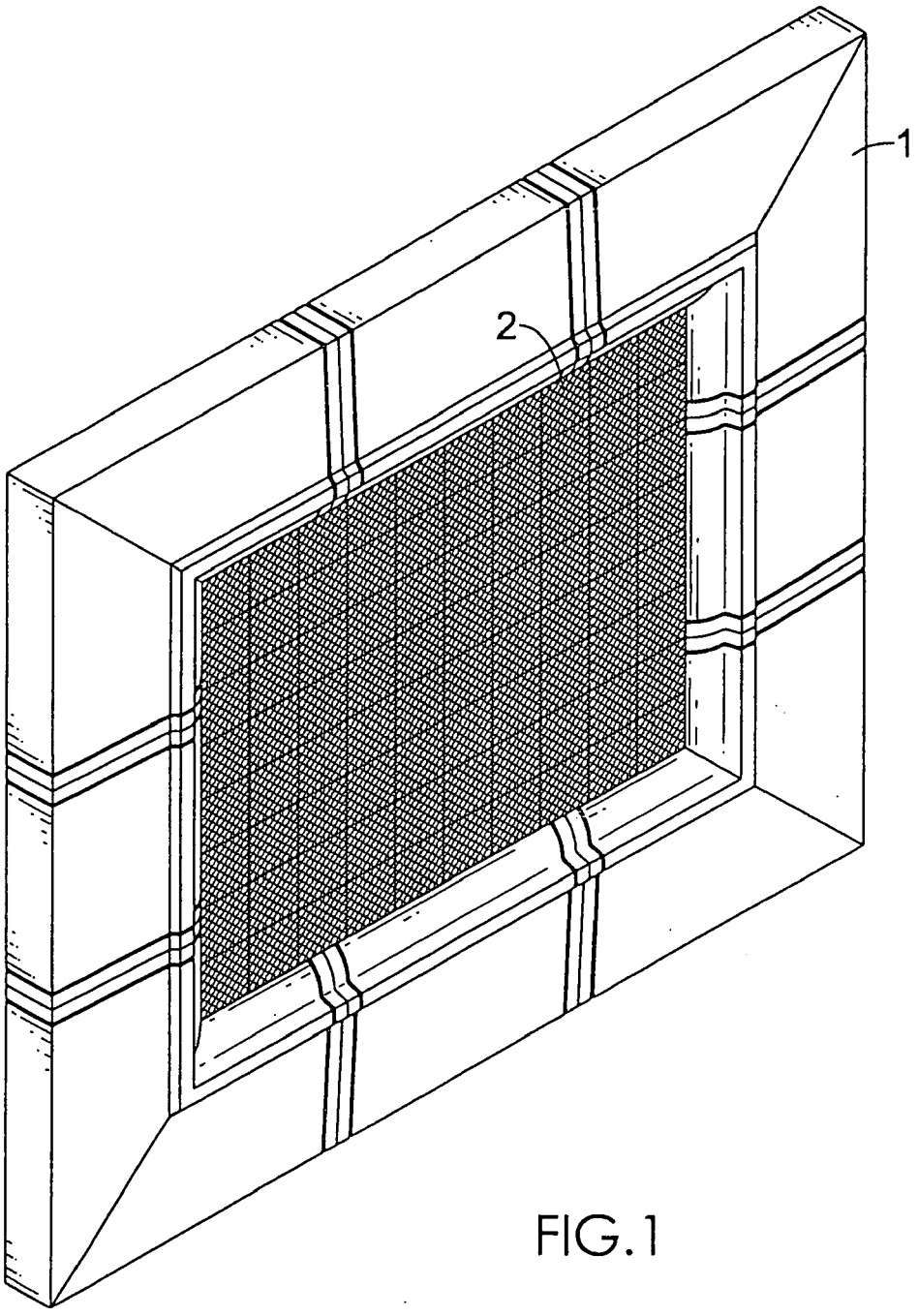

FIG. 1

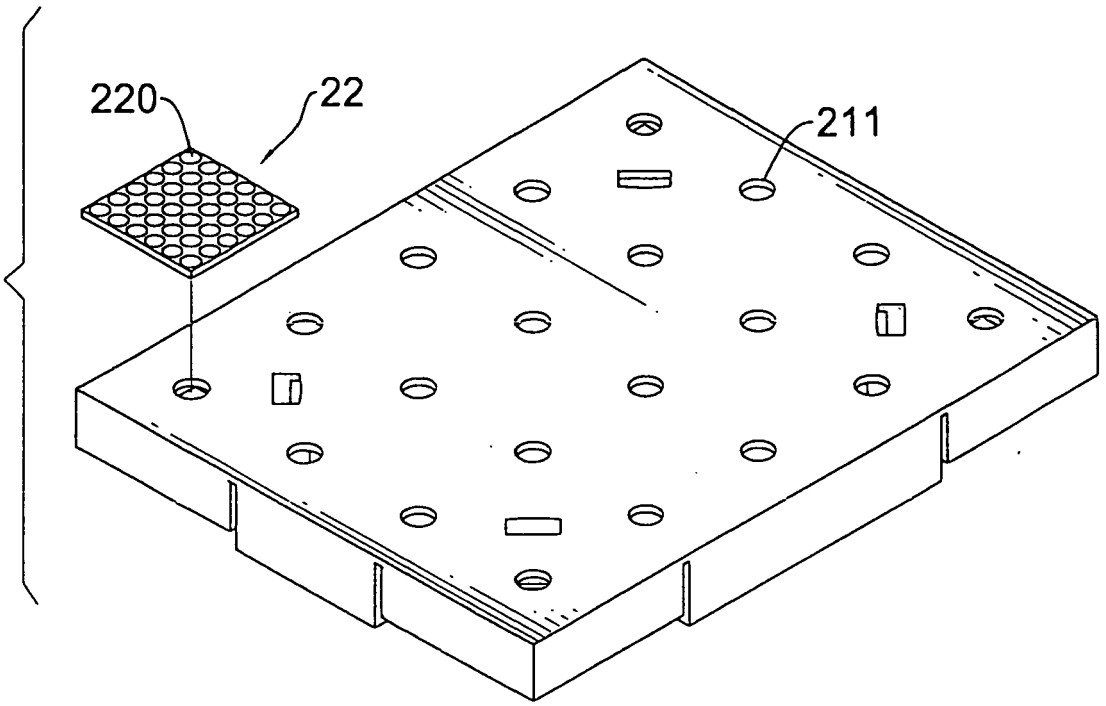

FIG.3

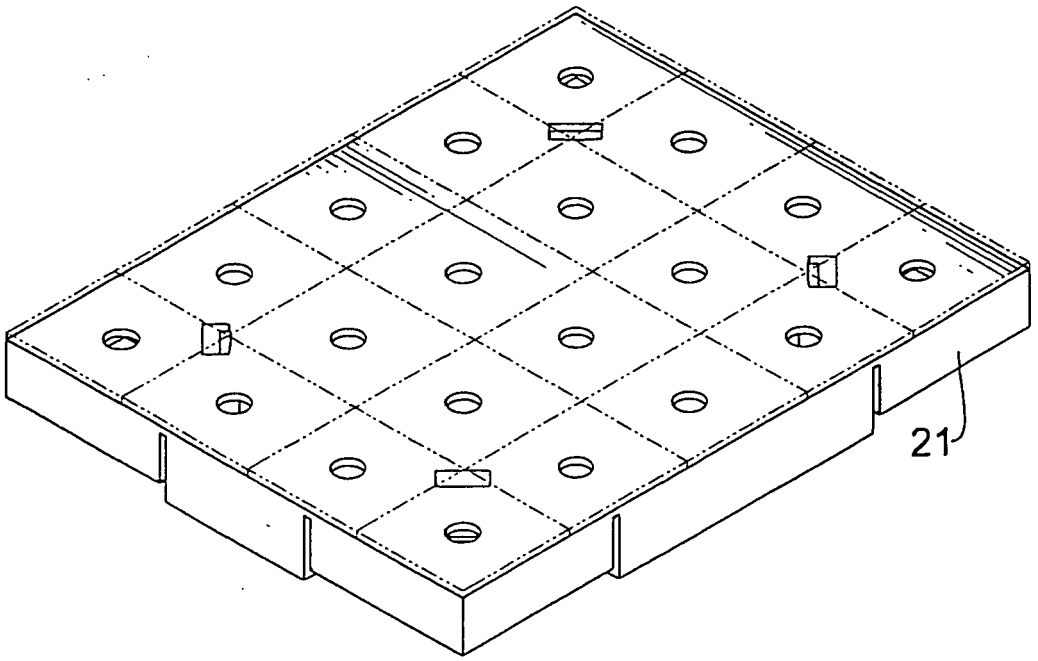

FIG.2

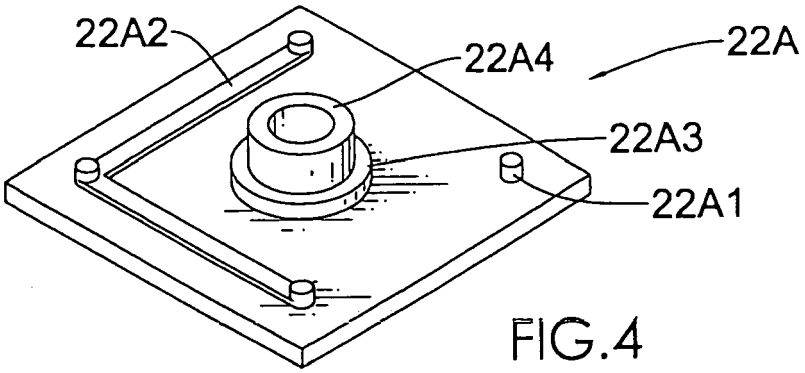

FIG.4

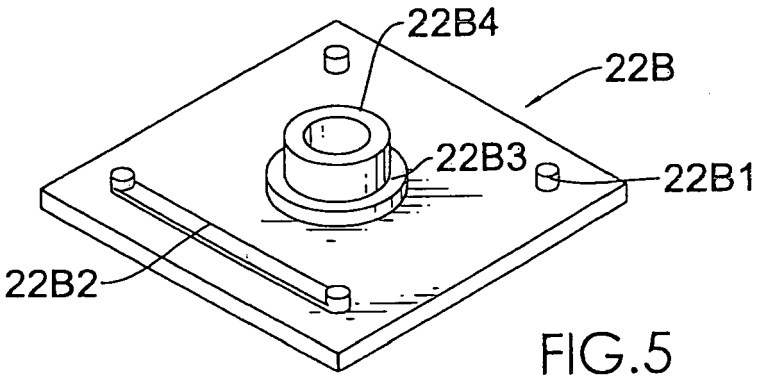

FIG.5

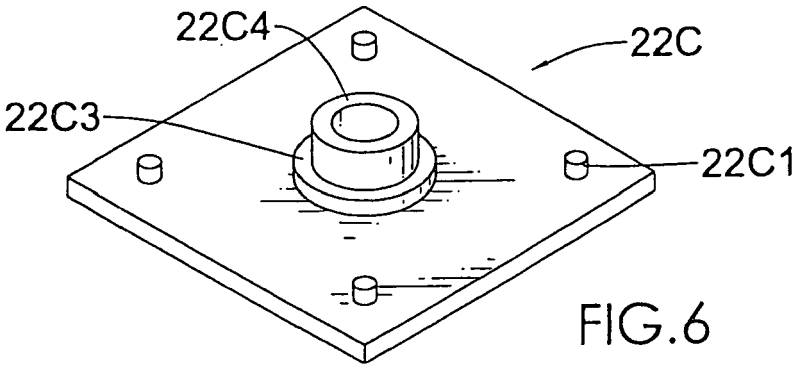

FIG.6

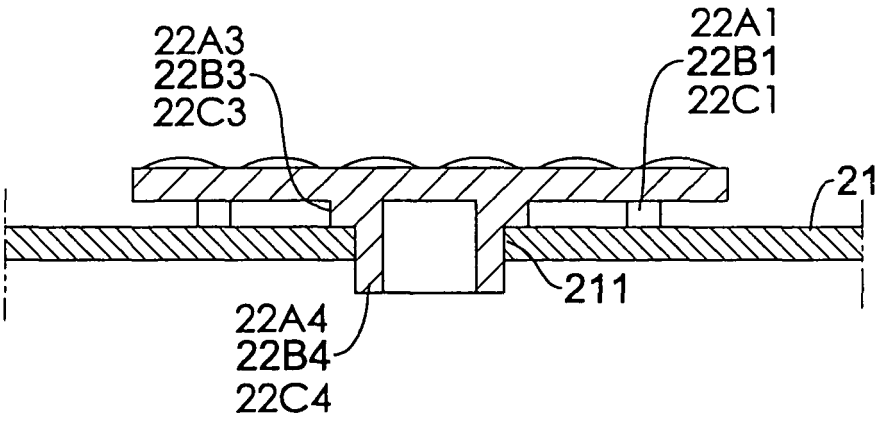

FIG.7

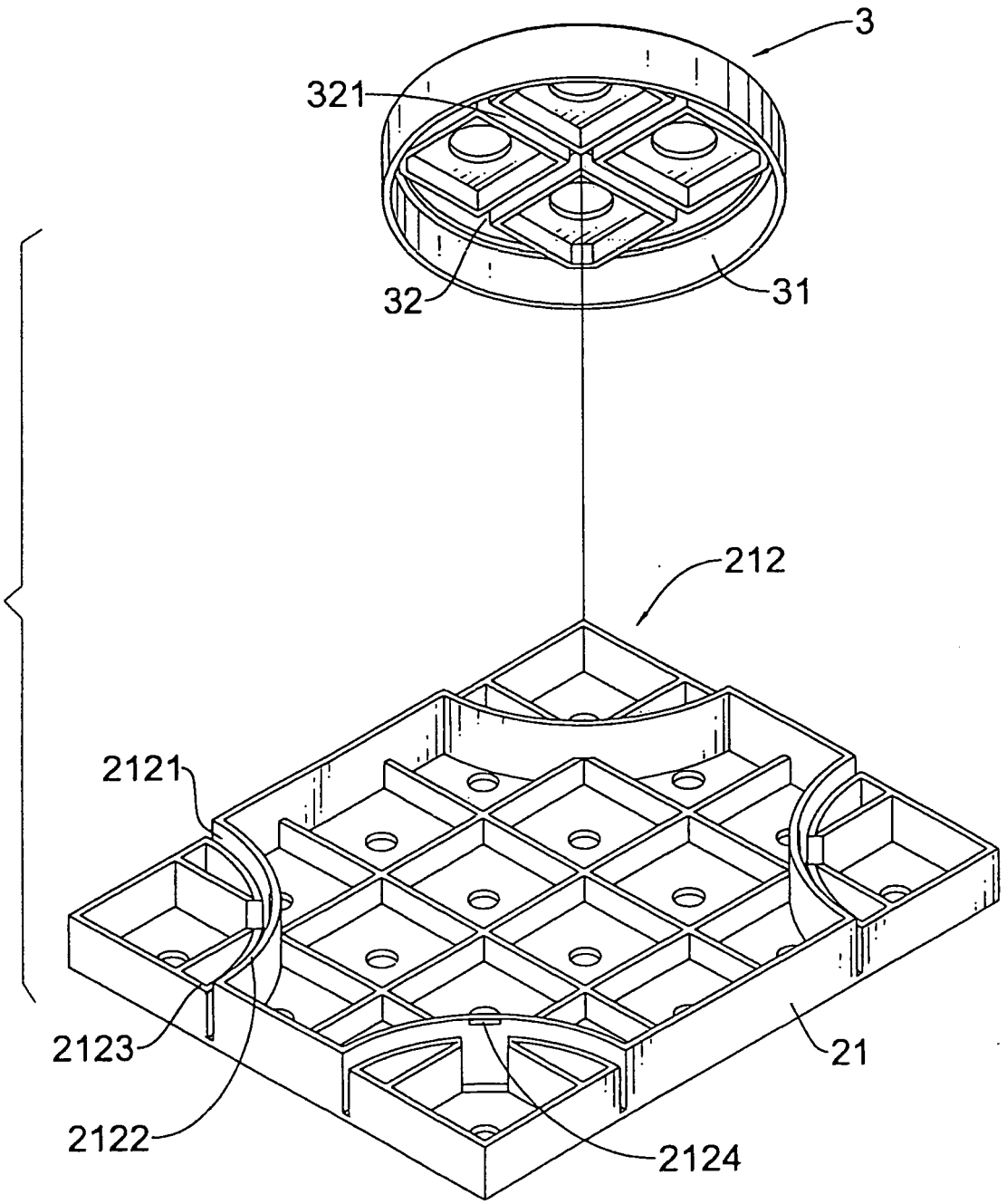

FIG.8

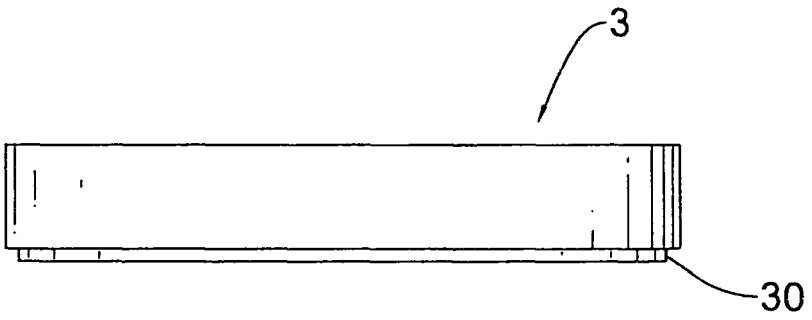

FIG.8A

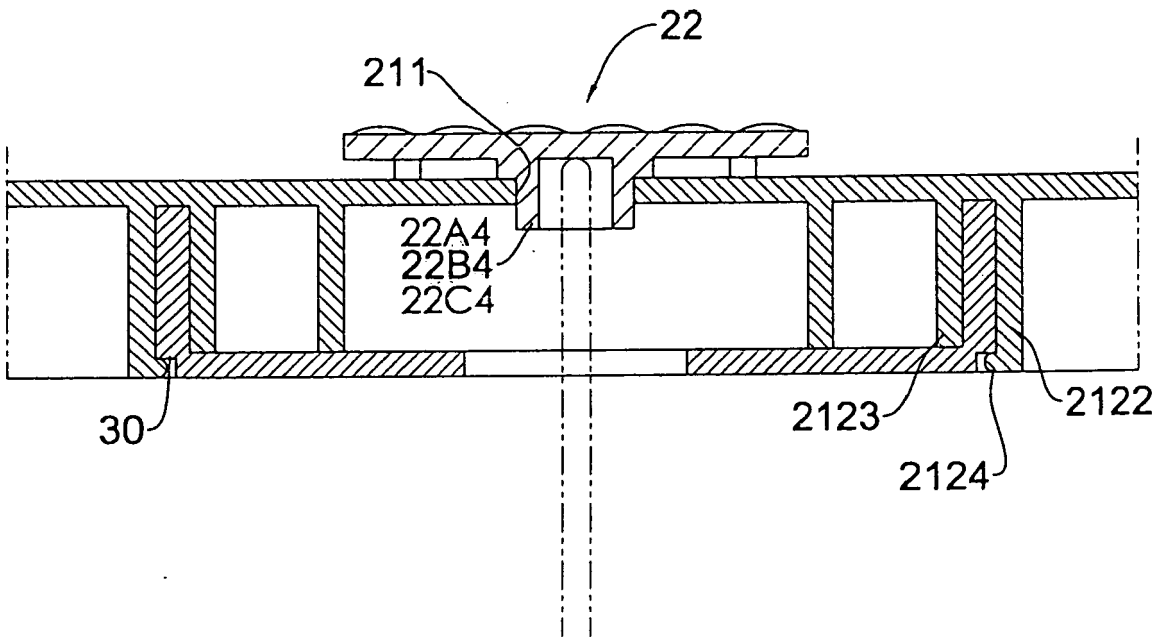

FIG.9

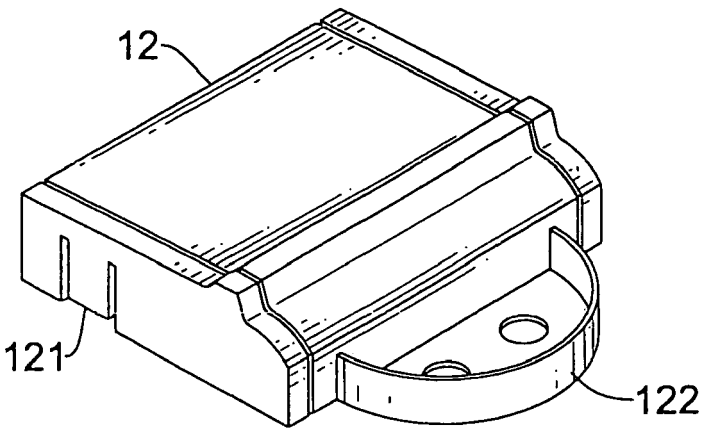

FIG.10

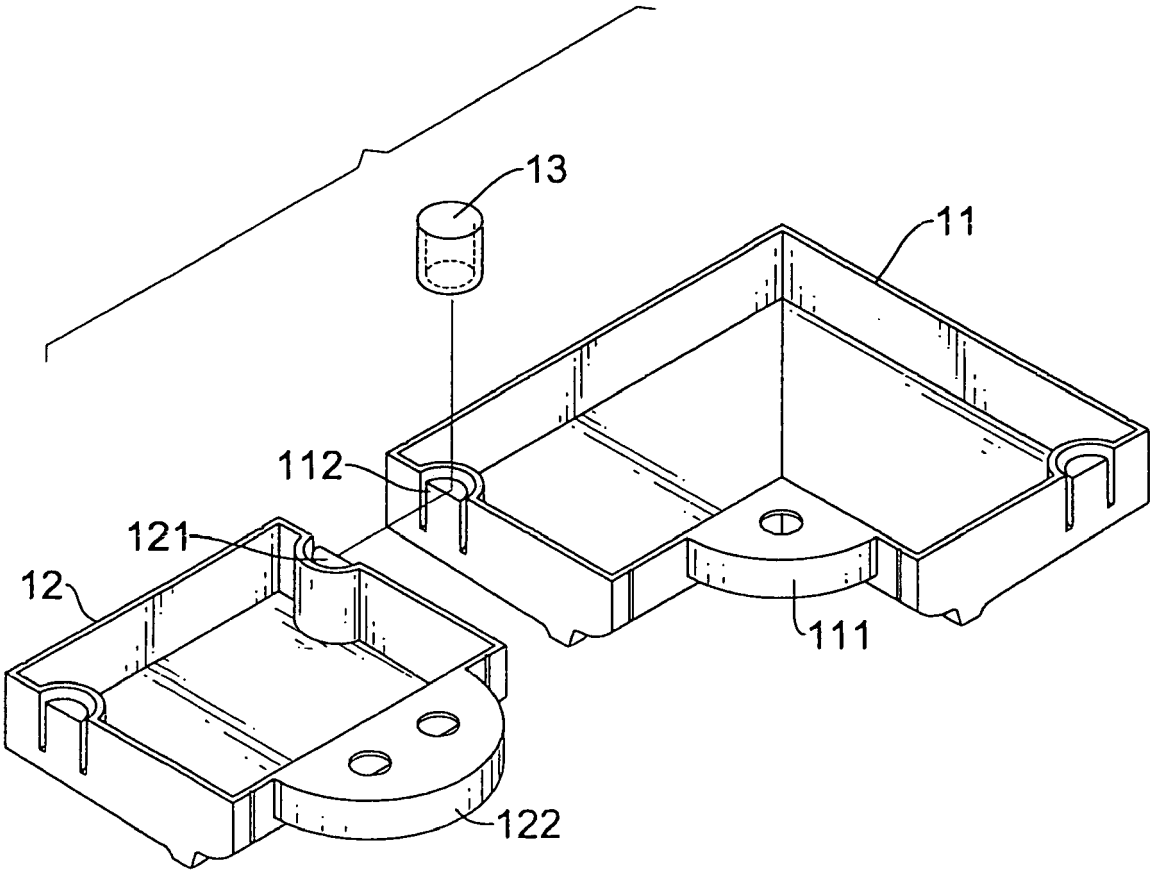

FIG.11

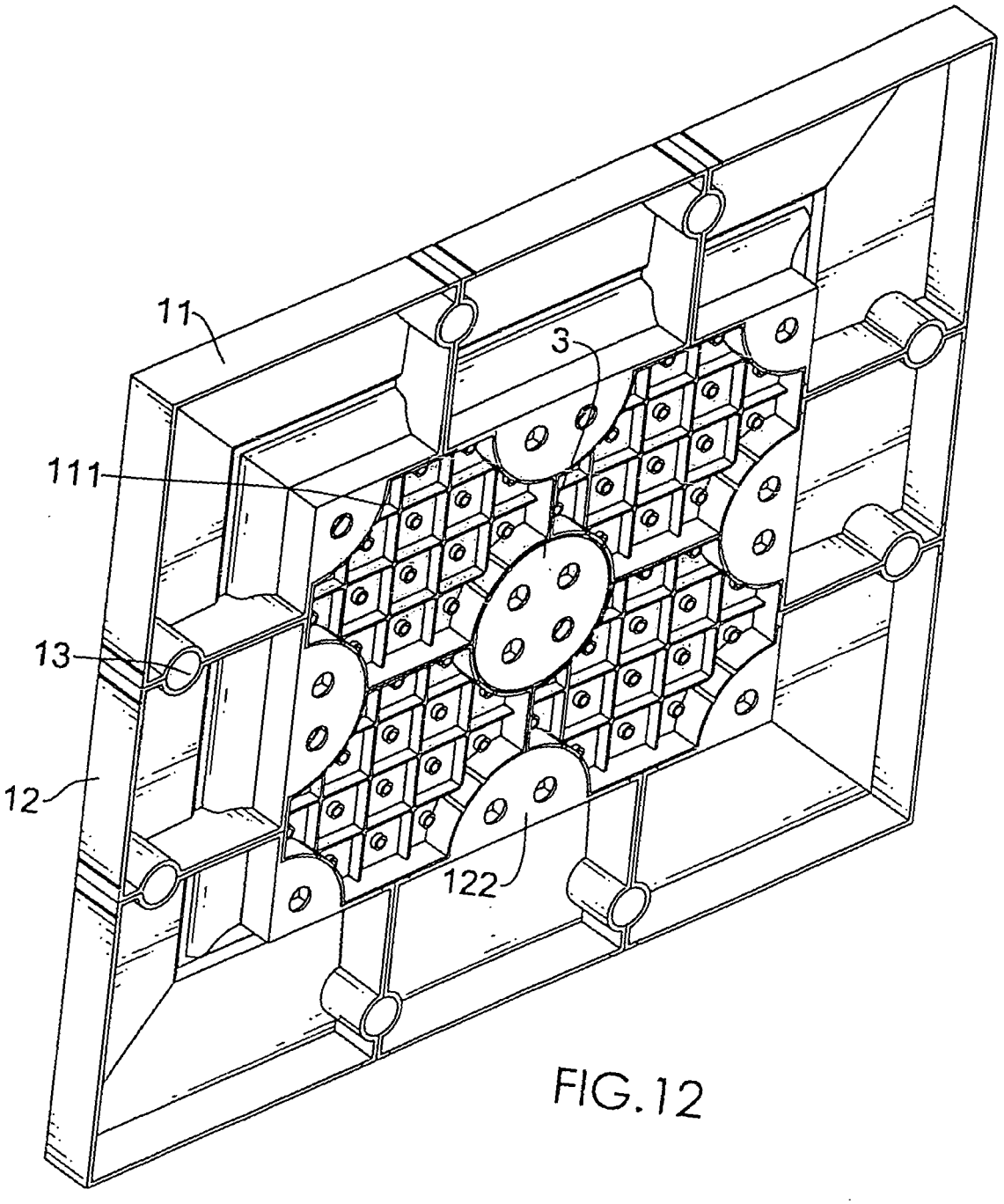

FIG.12

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 05 00 2750

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.7)
A	EP 0 054 577 A (LAUNZEL, EDWARD A) 30 June 1982 (1982-06-30) * page 1, line 3 - line 12 * * page 3, line 24 - page 4, line 34; figures 1-3 *	1-6	A63F9/10
A	GB 127 197 A (ALFRED JAMES HOLLADAY) 29 May 1919 (1919-05-29) * page 2, line 15 - line 34; figures *	1-6	
A	GB 743 749 A (CHARLES WILLIAM PHILLIPS) 25 January 1956 (1956-01-25) * page 2, line 36 - line 80; figures *	1-6	
A	GB 2 203 663 A (DENNIS * HOYLE) 26 October 1988 (1988-10-26) * page 2, line 1 - line 3 * * page 4, line 23 - page 8, line 7; figures 1-7 *	1-6	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			A63F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	9 June 2005	Lucas, P

CATEGORY OF CITED DOCUMENTS

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1

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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 05 00 2750

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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09-06-2005

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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GB 127197 A	29-05-1919	NONE	
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82