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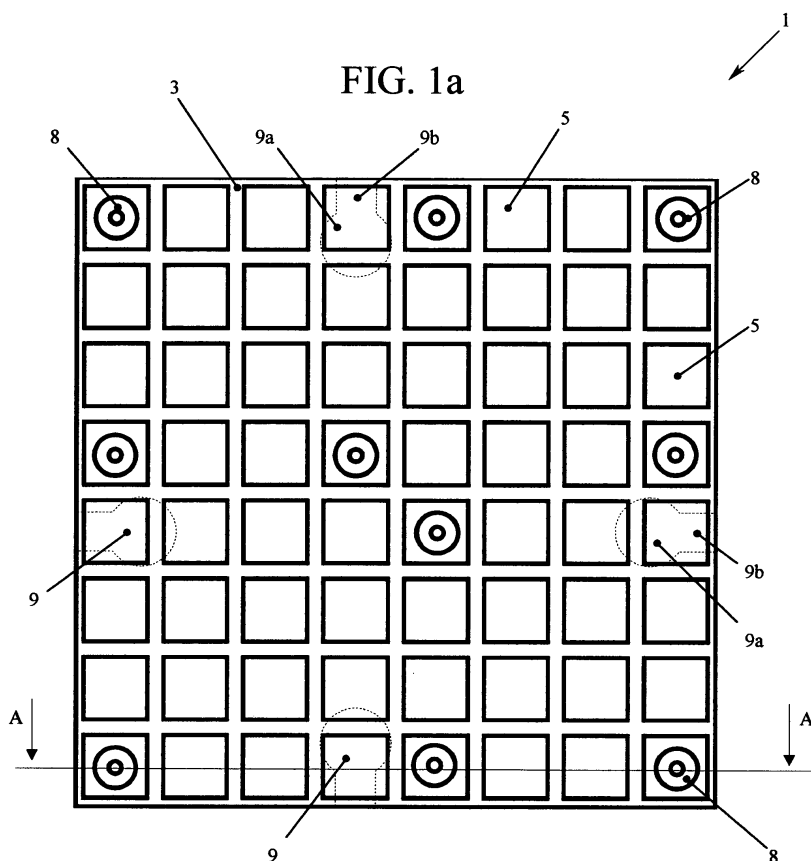
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(54) **Modular member for manufacturing raised walking or road planes and process for laying such modular member**

(57) A modular member (1) is described comprising a panel (3) divided into a plurality of seats (5), each one respectively adapted to house at least one block (7), such blocks (7) being adapted to realise a walking or road surface. A process is further described for laying such mod-

ular members (1) for manufacturing a raised walking or road plane, comprising the steps of placing on the ground a plurality of such modular members (1) in order to cover the surface on which the raised plane has to be realised, securing the modular members (1) to the ground; and inserting the blocks (7) into their respective seats (5).



Description

[0001] The present invention refers to a modular member which can be used for manufacturing raised walking or road planes, such as pedestrian crossings, traffic islands and other pavements in general. A process for laying such modular member is also described.

[0002] Building techniques which deal with manufacturing raised works from the road passing plane are rather limited, and mostly use asphalts or bitumens to be laid in situ in widely known modes, or using self-locking tiles and bricks, typically made of concrete.

[0003] Taking into account the particular context with which the above techniques deal, and namely in general the road conditions, it is clear that it is desirable to use methods which allow reducing to a minimum the time for building the works, in order to avoid unpleasant problems and obstacles to ordinary road conditions and traffic which road yards usually create.

[0004] However, it is common experience that both the use of asphalt and the use of self-locking tiles require, in addition to the presence of specialised personnel for their laying, also quite long realisation times and the use, above all in case of asphalt, of extremely encumbrant machinery, which makes it difficult to use and manage them in extremely narrow or delicate urban contexts.

[0005] Therefore, object of the present invention is providing a modular member which can be used for manufacturing raised walking or road planes, such as pedestrian crossings, pavements, traffic islands and other pavings in general, which is easy to realise and use, economic, with a quick laying without the help of expert personnel.

[0006] Another object of the present invention is providing a process for laying modular members according to the present invention for manufacturing raised walking or road planes, such as pedestrian crossings, pavements, traffic islands and other pavings in general, which is easy to realise and use, economic, with a quick laying without the help of expert personnel.

[0007] The above and other objects and advantages of the invention, as will appear from the following description, are obtained by a modular member which can be used for manufacturing raised walking or road planes, such as pedestrian crossings, pavements, traffic islands and other pavings in general as claimed in claim 1.

[0008] Moreover, the above and other objects and advantages of the invention, which will result from the following description, are obtained with a process for laying modular members according to the present invention for manufacturing raised walking or road planes, such as pedestrian crossings, pavements, traffic islands and other pavings in general as claimed in claim 10.

[0009] Preferred embodiments and non-trivial variation of the present invention are the subject matter of the dependent claims.

[0010] The present invention will be better described by some preferred embodiments thereof, provided as a

non-limiting example, with reference to the enclosed drawings, in which:

- FIG. 1a shows a top view of an embodiment of the modular member according to the present invention;
- FIG. 1b shows a sectional view along line A-A in FIG. 1a of the modular member according to the present invention;
- FIG. 2 shows a top view of a component of the modular member according to the present invention;
- FIG. 3a shows a top view of another component of the modular member according to the present invention;
- FIG. 3b shows a sectional view along line B-B of the component of FIG. 3a; and
- FIG. 4 shows a perspective view of another embodiment of the modular member according to the present invention.

[0011] With reference to the Figures, in particular to FIG. 1a and 1b, it is possible to note that the modular member 1 according to the present invention comprises a panel 3, preferably made of plastic material or rubber, divided into a plurality of seats 5 respectively adapted to house at least one block 7 made of stone material, concrete, cement or other similar material suitable for such purpose, such blocks 7 aimed to realise a walking or road surface.

[0012] In the Figures, merely as an example, the seats 5 are arranged in the panel 3 in a regular, matrix-shape way and have all similar sizes and a square shape. It is however wholly clear that the seats 5 can be arranged in any different way, such as, for example, in order to realise in the panel 3 a geometric or ornamental figure, a drawing or a recurring motive and/or have another shape.

[0013] Similarly, though, due to obvious laying and storage rationality reasons, the panel 3 of the Figures has a substantially square shape, it is wholly clear that it can be realised in any other shape, without therefore departing from the scope of the present invention.

[0014] In order to mutually join many modular members 1 making them as such a single body to offer a greater resistance to road traffic stresses, each modular member 1 can further be equipped, next to at least one of its sides, with connection means with at least one other modular member contiguous therewith. In particular, as an example, such connection means can be realised by means of a connection seat 9, arranged next to at least one side of the panel 3, adapted to accommodate a respective part of a connection member 10 like the one shown in FIG. 2: the connection member 10 is therefore composed of two lobes 10a joined by a baffle 10b, each lobe 10a being adapted to be housed in a corresponding first housing portion 9a of a connection seat 9 of a modular member 1, such first housing portion 9a being connected outside the panel 3 to a second housing portion 9b adapted to house a respective portion of the baffle

10b.

[0015] It is clear that the connection means can be anyway realised in any other shape and through different mechanisms, such as for example through suitable joints. It is also clear that such connection means could simply be made of screws, bolts or the like adapted to make many adjacent modular members 1 integral one with the other. The connection means could also be satisfactorily replaced by substantially known glueing agents aimed for building use.

[0016] As previously described, the mutual joining of many modular members 1 according to the present invention easily and quickly allows laying any raised walking or road plane, such as for example a pedestrian crossing, a pavement and/or a traffic island of any shape and size. Therefore, the present invention further deals with a process for laying modular members 1 for making a raised plane comprising the steps of:

- a) placing on the ground a plurality of modular members 1 in order to cover the surface on which the desired works have to be realised, possibly mutually connecting the modular members through the above connection means; obviously, in case the sizes to cover are not exact multiples of the modular members 1 sizes, or edges, angles or curves have to be copied, it is possible to cut one or more modular members 1 in order to suit to the different needs which occur; it is also evident that each modular member 1 can be realised with any desired height H , depending on the height which has to be conferred to the raised plane. Alternatively, it is possible to realise raised planes whose height is equal to a multiple of height H by mutually stacking an adequate number of modular members 1;
- b) securing the modular members 1 to the ground, for example through securing small blocks, for which passing seats 8 on the panel 3, glueing agents or both can be provided; and
- c) inserting the blocks 7 into their respective seats 5. The use of blocks 7 to be placed in the seats 5 further allows, though using a plastic material or rubber to realise the panel 3, to obtain a walking or road surface with different colours and anyway resistant to wear, also from vehicle traffic.

[0017] In the particular case in which the modular members 1 have to be specifically used for realising a raised pedestrian crossing, a pavement equipped with a driveway or any other raised work on which the passage of vehicles is provided, or for example in order to make it easier for pushchairs, trolleys or perambulators for handicapped people to pass thereon, it is possible to provide for the use of a suitable ramp-type member 20, like the one, for example, shown in FIG. 3a and 3b, to be secured to the ground, for example through securing small blocks and/or a glueing agent, next to a side of a modular member 1, such ramp-type member 20 being

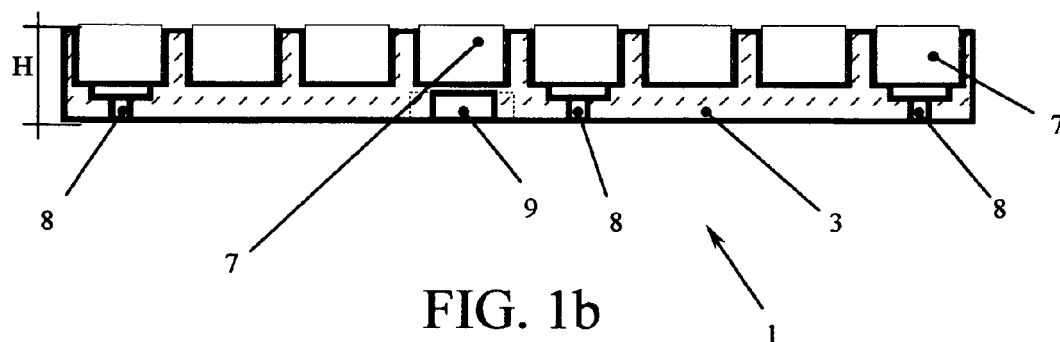
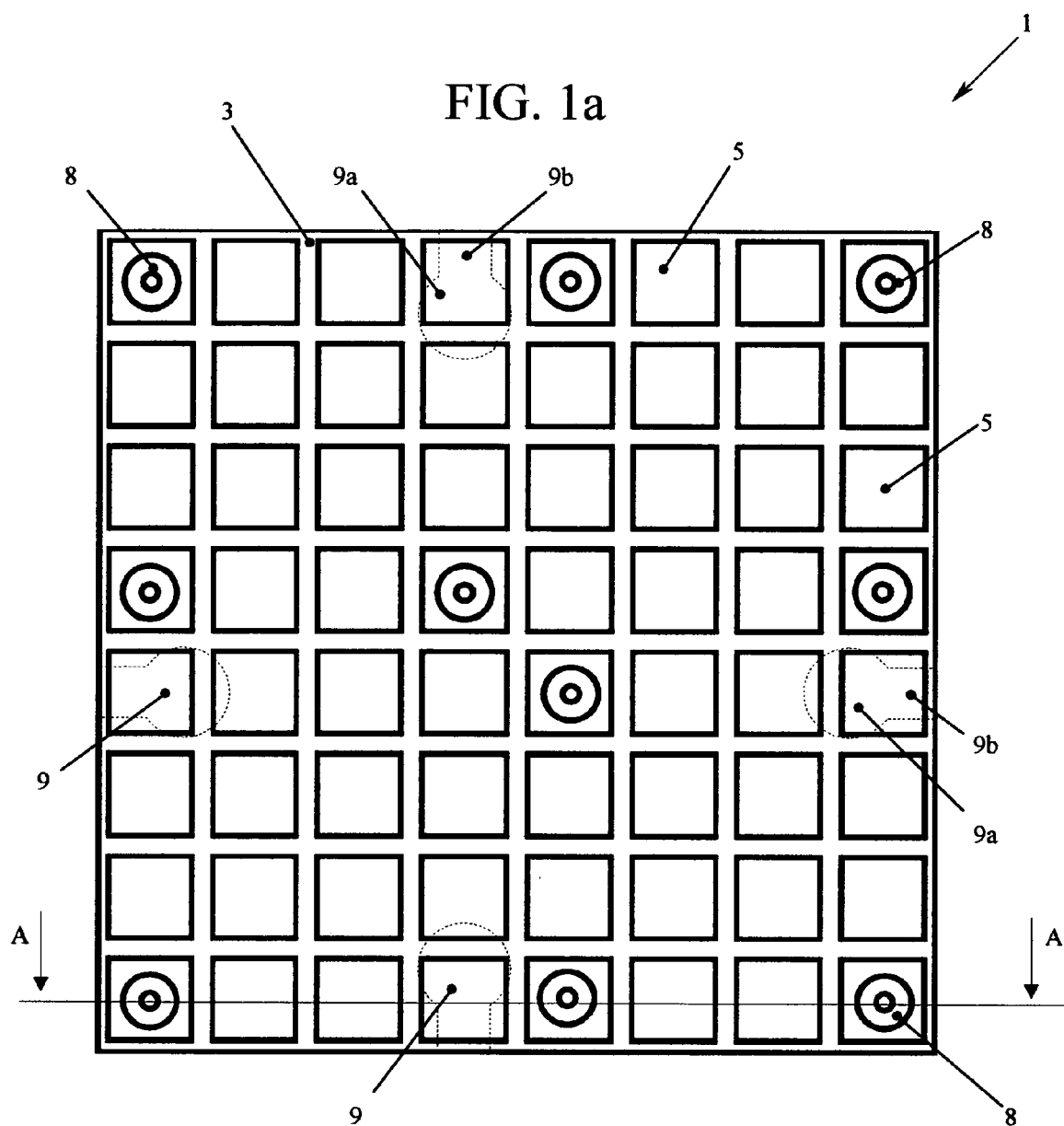
able to be also equipped with passing seats 8 for the small blocks and/or with connection means to the modular member 1 itself or to at least one other contiguous ramp-type member 20, such as for example those realised through the cooperation between at least one connection member 10 and at least one connection seat 9 obtained in the previously described ramp-type member 20. Obviously, for reasons of union with the modular member 1, also the ramp-type member 20 should have a height H . Further preferably, the ramp-type member 20 should have a slope α not greater than 8%.

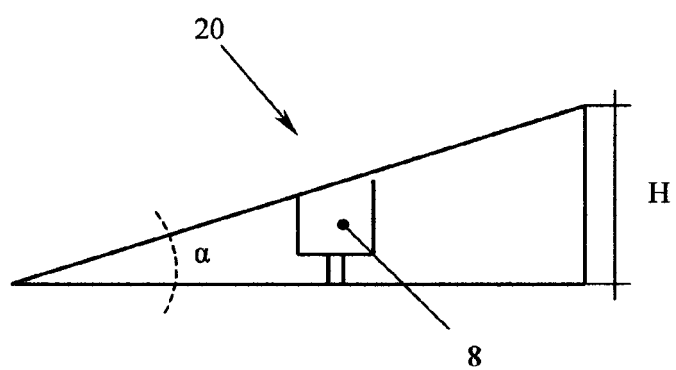
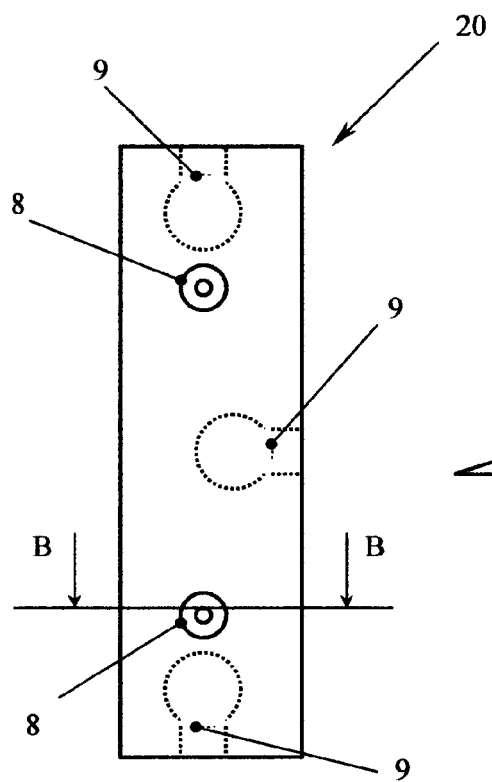
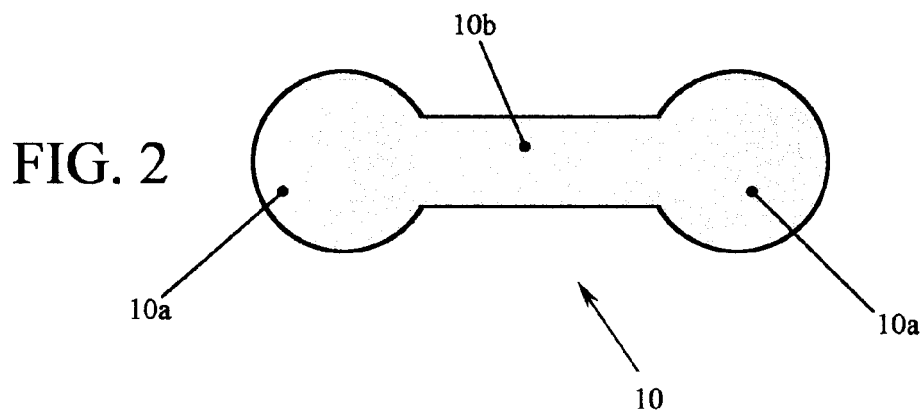
[0018] Alternatively, as shown in FIG. 4, the same modular member 1 can integrate a union ramp 4 on at least one of its sides. Similarly to what is stated above, the union ramp 4 should have a slope α not greater than 8%.

Claims

1. Modular member (1), **characterised in that** it comprises a panel (3) divided into a plurality of seats (5), each one respectively adapted to house at least one block (7), said blocks (7) being adapted to realise a walking or road surface.
2. Modular member (1) according to claim 1, **characterised in that** said panel (3) is made of plastic material or rubber.
3. Modular member (1) according to claim 1, **characterised in that** said block (7) is made of stone material, concrete, cement.
4. Modular member (1) according to claim 1, **characterised in that** it is equipped, next to at least one of its sides, with connection means with at least one other contiguous modular member (1).
5. Modular member (1) according to claim 4, **characterised in that** said connection means comprise a connection seat (9) in said panel (3) adapted to house a respective part of a connection member (10).
6. Modular member (1) according to claim 5, **characterised in that** said connection member (10) is composed of two lobes (10a) joined by a baffle (10b), each one of said lobes (10a) being adapted to be housed in a corresponding first housing portion (9a) of said connection seat (9) and said first housing portion (9a) being connected outside said panel (3) by a second housing portion (9b) adapted to house a respective portion of said baffle (10b).
7. Modular member (1) according to claim 1, **characterised in that** it is equipped with passing seats (8) for securing small blocks.

8. Modular member (1) according to claim 1, **characterised in that** it cooperates with at least one ramp-type member (20).
9. Modular member (1) according to any one of the previous claims, **characterised in that** said ramp-type member (20) is equipped with said passing seats (8) for said securing small blocks and/or with said connection means. 5
10. Modular member (1) according to any one of the previous claims, **characterised in that** it integrates a union ramp (4) on at least one of its sides. 10
11. Process for laying modular members (1) according to any one of the previous claims for manufacturing a raised walking or road plane, **characterised in that** it comprises the steps of: 15
- a) placing on the ground a plurality of said modular members (1) in order to cover the surface on which said raised plane has to be realised; 20
 - b) securing said modular members (1) to the ground; and
 - c) inserting said blocks (7) into said respective seats (5). 25
12. Process according to claim 11, **characterised in that** it comprises, between step a) and step b), the step of mutually connecting said modular members (1) through said connection means. 30
13. Process according to claim 11, **characterised in that** it comprises, between step a) and step b), the step of cutting one or more of said modular members (1) to cover sizes which are not exact multiples of the sizes of said modular members (1) . 35
14. Process according to claim 11, **characterised in that** it comprises, between step a) and step b), the step of cutting one or more of said modular members (1) in order to copy edges, angles or curves. 40
15. Process according to claim 11, **characterised in that** it comprises, between step a) and step b), the step of mutually stacking many modular members (1). 45
16. Process according to claim 11, **characterised in that** step b) is performed through securing small blocks inserted through said passing seats (8). 50
17. Process according to claim 11, **characterised in that** step b) is performed through a glueing agent. 55
18. Process according to claim 11, **characterised in that** it comprises the step of securing to the ground said ramp-type member (20) next to a side of said modular member (1).
19. Use of a plurality of said modular members (1) according to any one of claims 1 to 10, for manufacturing raised walking or road planes, such as pedestrian crossings, pavements, traffic islands.





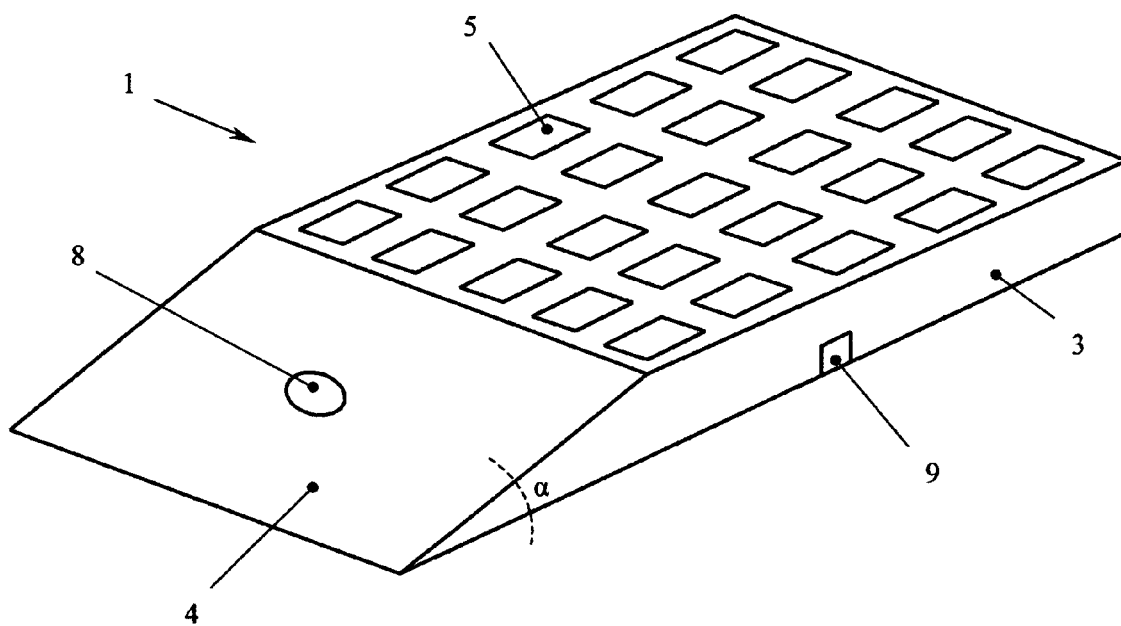


FIG. 4



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 06 42 5258

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	DE 297 10 241 U1 (BKN KARL BOEGL GMBH & CO. BAUSTOFFWERKE, 92318 NEUMARKT, DE) 14 August 1997 (1997-08-14) * page 4, paragraphs 3,4 * * page 6, paragraph 3 - page 15, paragraph 3 * * figures 1-9 * -----	1-5,11, 12,17,19	INV. E01C5/00 E01C5/22 E04F15/02
X	EP 0 328 639 A (HAYASHI, ISAO) 23 August 1989 (1989-08-23)	1,2,4,5, 11,12, 17,19	
Y	* abstract; figures 1-18 * -----	6	
X	GB 2 214 544 A (* FREDERICK JONES & SON) 6 September 1989 (1989-09-06) * abstract; figures 1-6 * -----	1,3,19	
X	DE 10 01 302 B (KURT MOEWS) 24 January 1957 (1957-01-24) * the whole document *	1,3-5,19	
Y	DE 19 60 736 U (FERMA-WERKE FERTIGBAU- UND MASCHINENGESELLSCHAFT M.B.H) 24 May 1967 (1967-05-24) * the whole document * -----	6	TECHNICAL FIELDS SEARCHED (IPC) E01C E04F
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 7 September 2006	Examiner Kerouach, May
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EPO FORM 1503 03.02 (P04C01)

**CLAIMS INCURRING FEES**

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

1-6, 11, 12, 17, 19



The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1,2-6,11,12,17,19

Modular member comprising a panel divided into a plurality of seats, each one respectively adapted to house at least one block, said blocks being adapted to realise a walking or road surface.

1.1. claims: 1,2,11,19

Modular member comprising a panel divided into a plurality of seats, each one respectively adapted to house at least one block, said blocks being adapted to realise a walking or road surface,
the panel being made of plastic material or rubber.

1.2. claims: 1,3,11,19

Modular member comprising a panel divided into a plurality of seats, each one respectively adapted to house at least one block, said blocks being adapted to realise a walking or road surface,
the blocks being made of stone material, concrete or cement.

1.3. claims: 1,4-6,11,12,19

Modular member comprising a panel divided into a plurality of seats, each one respectively adapted to house at least one block, said blocks being adapted to realise a walking or road surface,
the member being equipped with connection means for connecting with a contiguous modular member.

1.4. claims: 1,11,17,19

Modular member comprising a panel divided into a plurality of seats, each one respectively adapted to house at least one block, said blocks being adapted to realise a walking or road surface,
the member, when laid, being glued to the ground.

2. claims: 1,7,11,16,19

Modular member comprising a panel divided into a plurality of seats, each one respectively adapted to house at least one block, said blocks being adapted to realise a walking or road surface,
the member being equipped with passing seats for small securing blocks.



The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

3. claims: 1,8-10,11,18,19

Modular member comprising a panel divided into a plurality of seats, each one respectively adapted to house at least one block, said blocks being adapted to realise a walking or road surface,
the member cooperating or integrating a ramp.

4. claims: 1,11,13,14,19

Modular member comprising a panel divided into a plurality of seats, each one respectively adapted to house at least one block, said blocks being adapted to realise a walking or road surface,
the member, when laid, being cut for adaptation to the surface.

5. claims: 1,11,15,19

Modular member comprising a panel divided into a plurality of seats, each one respectively adapted to house at least one block, said blocks being adapted to realise a walking or road surface,
the modular members, when laid, being stacked.

Please note that all inventions mentioned under item 1, although not necessarily linked by a common inventive concept, could be searched without effort justifying an additional fee.

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 06 42 5258

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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07-09-2006

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
DE 29710241	U1	14-08-1997	AU 2848897 A	15-01-1998
			CA 2209787 A1	05-01-1998
			EP 0816564 A2	07-01-1998
			JP 10088505 A	07-04-1998
			US 6171015 B1	09-01-2001

EP 0328639	A	23-08-1989	AU 608240 B2	28-03-1991
			AU 7805187 A	13-02-1989
			CA 1288270 C	03-09-1991
			CN 1030806 A	01-02-1989
			CN 1060324 A	15-04-1992
			DE 3784252 D1	25-03-1993
			DE 3784252 T2	03-06-1993
			DK 124889 A	15-03-1989
			WO 8900625 A1	26-01-1989
			JP 1033301 A	03-02-1989
			JP 2111015 C	21-11-1996
			JP 8001042 B	10-01-1996
			NZ 225293 A	25-10-1991

GB 2214544	A	06-09-1989	NONE	

DE 1001302	B	24-01-1957	NONE	

DE 1960736	U	24-05-1967	NONE	
