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(11) **EP 0 945 155 A2**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
29.09.1999 Bulletin 1999/39

(51) Int. Cl.⁶: **A63F 9/08**

(21) Application number: 99105899.1

(22) Date of filing: 24.03.1999

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE**
Designated Extension States:
AL LT LV MK RO SI

(72) Inventor: **Lerda, Bruno**
12020 Cuneo (IT)

(74) Representative: **Aprà, Mario**
Aprà Brevetti
Via Bertola 2
10121 Torino (IT)

(30) Priority: 27.03.1998 IT CN980003

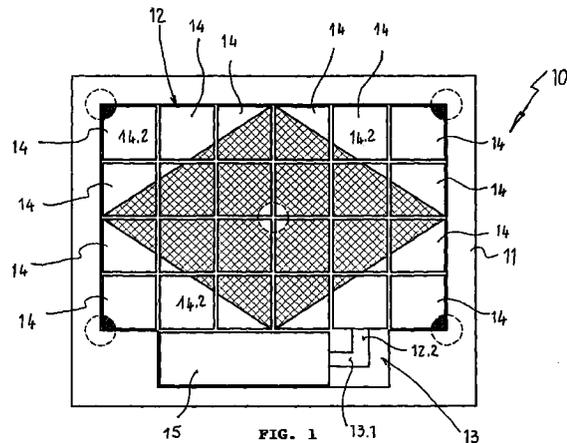
(71) Applicant: **Lerda, Bruno**
12020 Cuneo (IT)

(54) **Educational game device with sliding tiles to arrange in predetermined sequences**

(57) The educational game device with sliding tiles to arrange in predetermined sequences includes a support or board (11) and, according to the invention, comprises, in the said support (11), two mutually adjacent and communicating tracks (12, 13), a principal track (12) having greater area and an auxiliary track (13) of smaller area.

At the beginning and end of the game the principal track (12) is completely occupied by a plurality of tiles (14), positioned side by side in an arrangement of rows and columns and able to slide in perpendicular directions, while the auxiliary track (13) is occupied only partly by a block (15) that is able to slide in a single direction parallel to one direction of sliding of the said tiles (14).

The block (15) is moveable between two positions of play, in each of which it leaves in the said auxiliary track (13) an unoccupied space (15.3) of variable position and of dimensions approximately corresponding to the dimensions of one tile (14). In each of the said two positions of play of the block (15) a respective tile (14) in the row of tiles adjacent to the auxiliary track (13) is next to the said unoccupied space (15.3), which this tile can be made to occupy by sliding it in a direction perpendicular to that of the said block (15). This opens up in the principal track (12) a corresponding unoccupied space between the tiles (14), which - during the game - can be rearranged relative to each other in the principal track (12) by movements in perpendicular directions.



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Description

[0001] The present invention relates to an educational game device with sliding tiles to arrange in predetermined sequences.

[0002] Game devices of the type specified are known.

[0003] However, known game devices have the drawback of requiring a fairly anodyne intellectual effort which is therefore often unsatisfying. Furthermore, being of simplified structure, they do not permit of graduation of the level of difficulty.

[0004] Furthermore, such known game devices are not suitable for visually handicapped or illiterate players.

[0005] The object of the present invention is to provide an educational game device with sliding tiles to arrange in predetermined sequences, that is designed to stimulate and develop, in the form of an "intelligent game" the user's perceptive insight, logic and sense of geometry, by exchanging the positions of sliding tiles.

[0006] Another object is to provide a game device as specified, that will allow the level of difficulty of the game to be graduated to suit the ability of the player.

[0007] A further object is to provide a game device as indicated, that is also suitable for visually disabled or illiterate players.

[0008] With a view to these objects, the present invention provides an educational game device with sliding tiles to arrange in predetermined sequences, whose essential features form the subject of the characterizing part of Claim 1.

[0009] Other advantageous features appear in the dependent claims.

[0010] The aforesaid claims are to be understood as reproduced here in their entirety.

[0011] The invention is described in detail below with reference to the accompanying drawings, which are provided purely by way of example, in which:

- Fig. 1 is a plan view of the game device according to the invention in the initial condition of the game;
- Fig. 2 is a view similar to that of Fig. 1 but illustrating the final condition of the game;
- Fig. 3 is a plan view of a support or board for the game device according to Figures 1, 2;
- Fig. 4 is a sectional view on the plane marked IV-IV in Fig. 3;
- Fig. 5 is a view similar to that of Fig. 1, but in which the game device is provided with moveable peg means which increase the difficulty of the game;
- Fig. 6 is a side view in the direction of the arrow marked VI in Fig. 5;
- Figures 7 and 8 are partial views in section through the game device according to Fig. 5, illustrating two different positions of play of a moveable peg;
- Fig. 9 is a view in partial cross section through the device of Fig. 5, illustrating two sliding game tiles and their respective slideways in the support or board; and

- Fig. 10 is a view in partial cross section through the device of Fig. 5, illustrating a sliding game block and a slideway for it in the support or board.

5 [0012] In the drawings, 10 (Figs. 1, 2) denotes the whole of the educational game device according to the present invention.

[0013] The said device 10 comprises a quadrilateral support or board 11 (Figs. 3, 4) made of e.g. plastic, on one of whose faces are two mutually adjacent and communicating recessed tracks with rectangular perimeters, namely a principal track 12 and an auxiliary track 13.

15 [0014] The track 12, of greater area, comprises a network of longitudinal 12.1 and transverse 12.2 straight perpendicular intersecting slideways (slots) (Fig. 3). In the example illustrated, the track 12 comprises four longitudinal ways 12.1 and six transverse ways 12.2.

[0015] The auxiliary track 13 of smaller area, on the other hand, comprises a single straight slideway 13.1 that is parallel to the said longitudinal ways 12.1 and lies between two transverse ways 12.2, with which this way 13.1 communicates at its ends. In the example illustrated, the way 13.1 communicates with the second and penultimate of the six transverse ways 12.2.

20 [0016] Guided in the said network of ways 12.1, 12.2 are twenty-four quadrilateral sliding game tiles 14, made of e.g. plastic, which occupy the entire area of the track 12, being arranged when at rest in four rows and in six columns. In this arrangement, each tile 14 is at its own intersection between a longitudinal way 12.1 and a transverse way 12.2.

25 [0017] In particular, each tile 14 includes a foot with a frustoconical end 14.1 (Fig. 9) engaged with play in a corresponding slideway, 12.1, 12.2, and a flat head 14.2 (of square base in accordance with the example illustrated) which is juxtaposed with play against the head 14.2 of another tile or against an edge of the track 12.

30 [0018] An opening 13.2 (Fig. 3) in the way 13.1 allows insertion of the foot 14.1 of each tile, which is then slid, beyond the way 13.1, around the network of ways 12.1, 12.2.

35 [0019] A block 15 (Figs. 1, 2) is then inserted, once again through the opening 13.2, into the slideway 13.1 via its foot part 15.1 with the frustoconical end (Fig. 10). The said block 15, which may be made e.g. of plastic, comprises a flat head 15.2 (of rectangular base in accordance with the example illustrated), that occupies part of the track 13, but leaves in this track an unoccupied space 15.3 of variable position and corresponding approximately to the dimensions of the head 14.2 of one tile 14.

40 [0020] By means of this arrangement, the block 15 is able to slide along the track 13 in the longitudinal direction only, between two extreme positions, one against the right-hand end of the track, in which the unoccupied space 15.3 is on its left (Fig. 2) and the other against the left-hand end of the same track, in which the unoccu-

ped space 15.3 is on its right (Fig. 1). In each of the said two positions to which the block 15 can be slid, one tile 14 of the row of tiles adjacent to the track 13 (specifically the tile belonging to the second column or to the fifth column) is next to the unoccupied space 15.3, which this tile can occupy by sliding in a direction perpendicular to that of the block 15. This opens up an unoccupied space between the tiles 14 which, by making moves in perpendicular directions, can be rearranged relative to each other within the track 12.

[0021] As illustrated in Fig. 1, the basic face visible from the outside of the head 14.2 of each tile 14 is coloured, so that at the beginning of the game the said tiles form, for example, in the corners of the track 12, a geometrical arrangement of four identical right-angled triangles having mirror symmetry and having the same colour, and in the centre of the track a rhombus whose sides coincide with the hypotenuses of the four right-angled triangles.

[0022] The object of the game is, according to the example illustrated, by moving the tiles 14 and the block 15, to exchange the colour of the rhombus with that of the right-angled triangles inscribed within said track 12, so as to obtain the game configuration illustrated in Fig. 2.

[0023] It will be observed that the dissimilar chromatic configuration of the visible face of the heads 14.2 of the tiles 14 enables the device to be used by illiterate persons also.

[0024] In addition, in order to render the device useable by the visually disabled also, the visible basic face of the head 14.2 of each tile 14 may include knurling, depressions or reliefs, either instead of or in addition to the chromatic configuration.

[0025] In the bottom wall of the support 11 are four holes 16.1 and one hole 16.2. The axes of the holes 16.1 are each aligned with the vertices of the perimeter of the track 12, while the axis of the hole 16.2 is aligned with the intersection of the diagonals of the perimeter of this said track.

[0026] Each hole 16.1, 16.2 houses a respective moveable peg 17.1, 17.2 (Fig. 6) that can be placed in two different positions with respect to the support 11, one being a working position (Fig. 7) and the other a rest position (Fig. 8), corresponding to the peg being pushed in or pulled out manually, respectively.

[0027] Eight modified tiles denoted 14' have in their head 14.2' a cutout 14.3 of essentially cylindrical surface.

[0028] In its rest position, each peg 17.1, 17.2 does not emerge into the track 12 and therefore does not interfere with the movement of the tiles 14.

[0029] However, in their working position the pegs 17.1 emerge into their respective corners of the track 12, preventing the head 14.2 of an ordinary tile 14 from occupying a position corresponding to these corners. The corner positions can instead be occupied only by four modified tiles 14' correctly oriented in such a way

that the head of each with the cutout 14.3 is juxtaposed correctly against a respective peg 17.1.

[0030] Similarly the peg 17.2 in its working position emerges in the centre of the track 12, preventing four ordinary tiles 14 from occupying the central position of the track. The centre of the said track 12 can instead be occupied only by four modified tiles 14', correctly oriented in such a way that their heads with the cutouts 14.3 are juxtaposed correctly around the said peg 17.2.

[0031] The working position of play of the pegs 17.1 raises the difficulty of the game (difficulty level 2) compared with their rest condition (difficulty level 1). The difficulty of the game is even greater (difficulty level 3) if the central peg 17.2 is in the working position, while the pegs 17.1 are in the rest position.

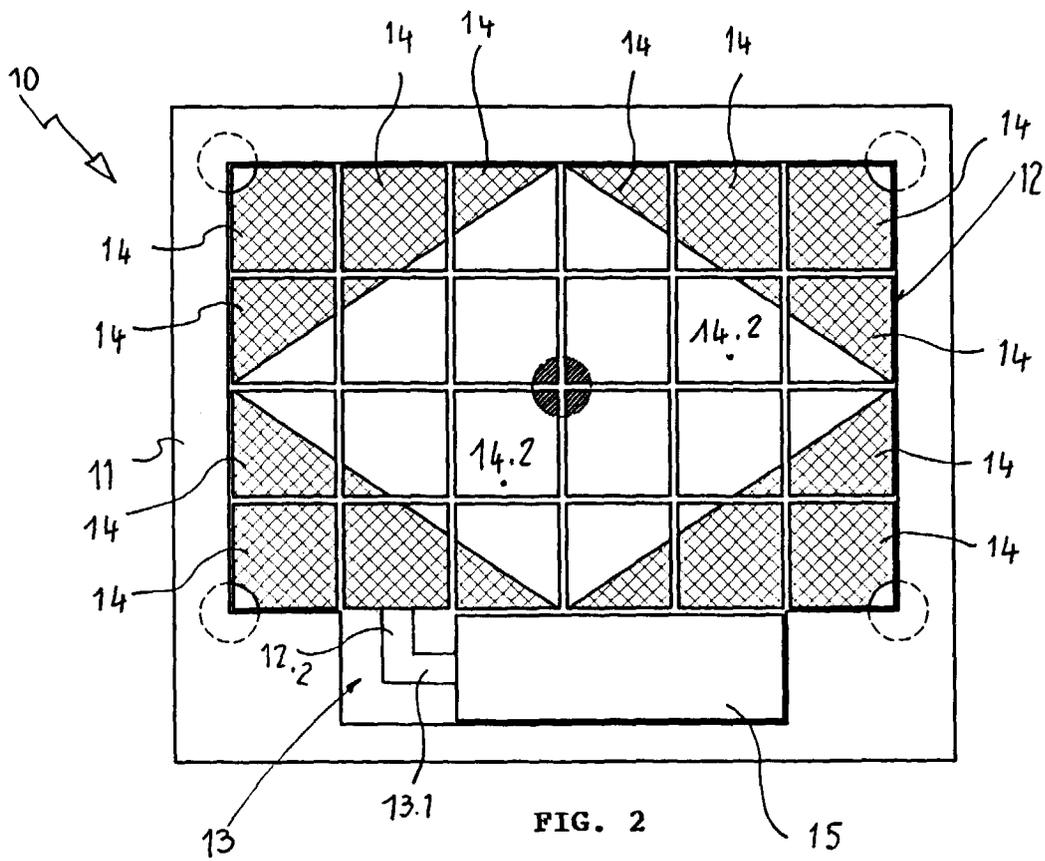
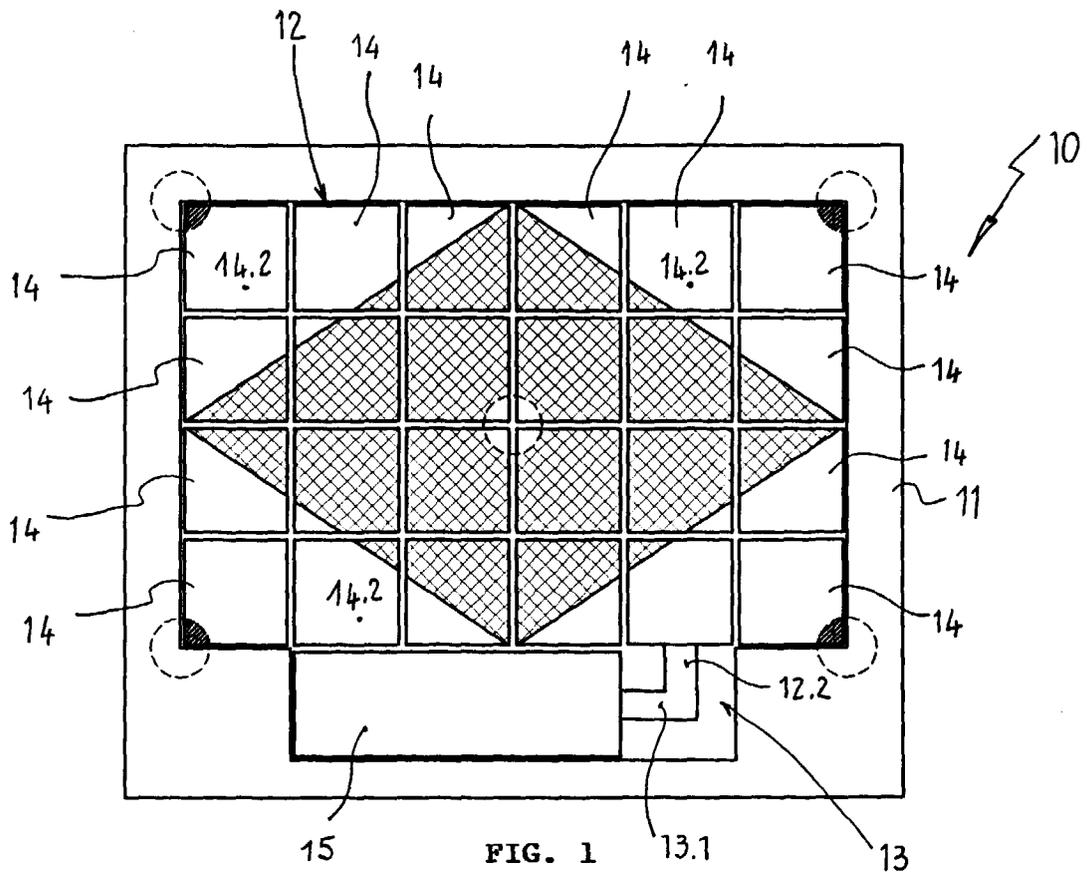
[0032] It goes without saying that the four pegs 17.1 or the peg 17.2 can be made fixed. In this case the difficulty level of the game device cannot be modified.

[0033] To ensure the correct play position of the pegs 17.1, 17.2, the latter have a head which, in the working position, is juxtaposed against the board 11, while a spring ring 17.4 is mounted on the body of the peg, thus increasing the friction against the wall of the corresponding housing hole.

Claims

1. Educational game device with sliding tiles to arrange in predetermined sequences, comprising a support or board (11), characterized in that it comprises, in the said support (11), two mutually adjacent and communicating tracks (12, 13), a principal track (12) having greater area and an auxiliary track (13) of smaller area, and in that at the beginning and end of the game the principal track (12) is completely occupied by a plurality of tiles (14) positioned side by side in an arrangement of rows and columns, each tile (14) being able to slide in perpendicular directions, while the auxiliary track (13) is occupied only partly by a block (15) that is able to slide in only one direction parallel to one direction of sliding of the said tiles (14) between two positions of play, in each of which the said block (15) leaves in the said auxiliary track (13) an unoccupied space (15.3) of variable position and of dimensions approximately corresponding to the dimensions of one tile (14), so that in each of the said two positions of play of the block (15) a respective tile (14) in the row of tiles adjacent to the auxiliary track (13) is next to the said unoccupied space (15.3), which this tile can be made to occupy by sliding it in a direction perpendicular to that of the said block (15), thereby opening up in the principal track (12) a corresponding unoccupied space between the tiles (14), which - during the game - can be rearranged relative to each other in the principal track (12) by movements in perpendicular directions.

2. Game device according to Claim 1, characterized in that the said principal track (12) comprises a network of longitudinal (12.1) and transverse (12.2) straight perpendicular intersecting slideways, while the said auxiliary track (13) comprises a single straight slideway (13.1) that is parallel to the said longitudinal ways (12.1) and lies between two transverse ways (12.2), with which this way (13.1) communicates at its ends.
3. Game device according to Claim 2, characterized in that at the beginning and end of the game each tile (14) is arranged in the principal track (12) at its own intersection between a longitudinal way (12.1) and a transverse way (12.2).
4. Game device according to Claim 1, characterized in that the said principal track (12) is basically quadrilateral and the said tiles (14) have one face visible from the outside that is at least partly coloured, so that at the beginning of the game the said adjacent tiles form, in the corners of the track (12), a geometrical arrangement of four identical right-angled triangles having mirror symmetry and having the same colour, and in the centre of the track a rhombus whose sides coincide with the hypotenuses of the four right-angled triangles (Fig. 1), while the object of the game is, by moving the said tiles (14) and the said block (15), to exchange the colour of the rhombus with that of the right-angled triangles inscribed within said track (12) (Fig. 2).
5. Game device according to Claim 1 or 4, characterized in that the said tiles (14) each comprise an external face having a surface that is at least partly irregular, for example knurled or provided with depressions and/or reliefs, so that the game device can also be used by the visually disabled.
6. Game device according to one or more of the preceding claims, characterized in that it comprises at least one peg (17.1, 17.2) that prevents any of the said tiles (14) from correctly occupying the position corresponding to it in the said track (12), and in that it comprises at least one modified tile (14') (cutout 14.3) so that it can be placed against said peg and correctly occupy the position corresponding to that peg in the principal track (12).
7. Game device according to Claim 6, characterized in that it comprises at least one moveable peg (17.1, 17.2) that can be moved between two different positions with respect to the said principal track (12), a rest position and a working position, in which working position it prevents any of the said tiles (14) from correctly occupying the position corresponding to the said peg in the said track (12), and in that it comprises at least one modified tile (14') (cutout 14.3) so that it can be placed against said peg and correctly occupy the position corresponding to that peg in the principal track (12).
8. Game device according to Claim 7, in which the said principal track (12) is basically quadrilateral, characterized in that it comprises five moveable pegs (17.1, 17.2) arranged respectively in the four corners and in the centre of the said principal track (12), and eight modified tiles (14'), so that the difficulty of the game can be increased, from the rest situation of the said pegs (difficulty level 1), by bringing into the working position the pegs (17.1) that are in the corners of the said track (12) (difficulty level 2), or still further increased by placing the central peg (17.2) in the working position (difficulty level 3), while the pegs (17.1) that are in the corners of the said principal track (12) are at rest.



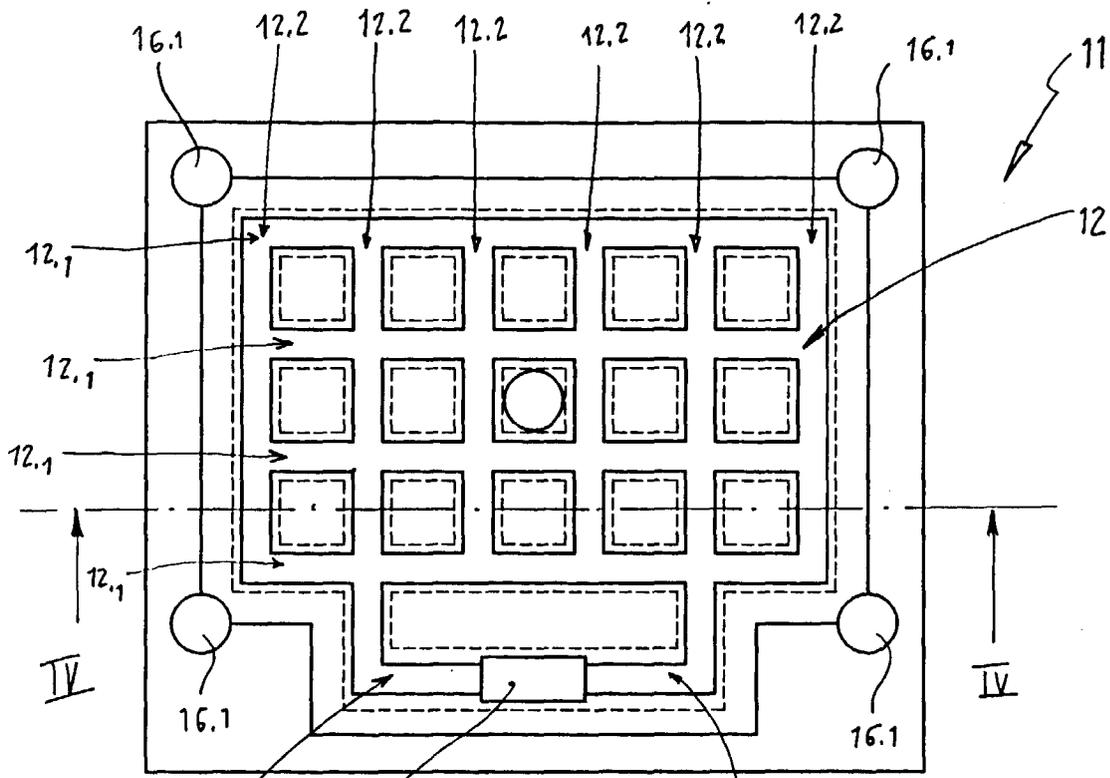


FIG. 3

13.2 13.1 13

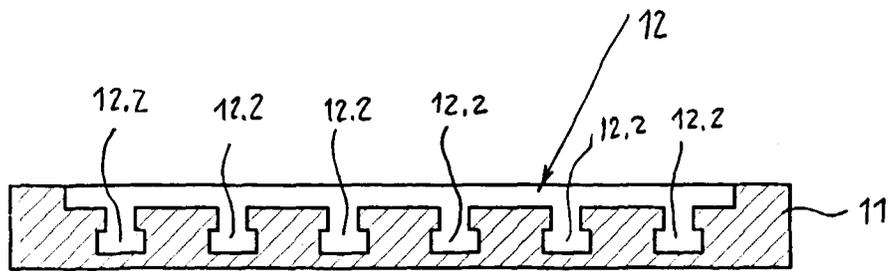


FIG. 4

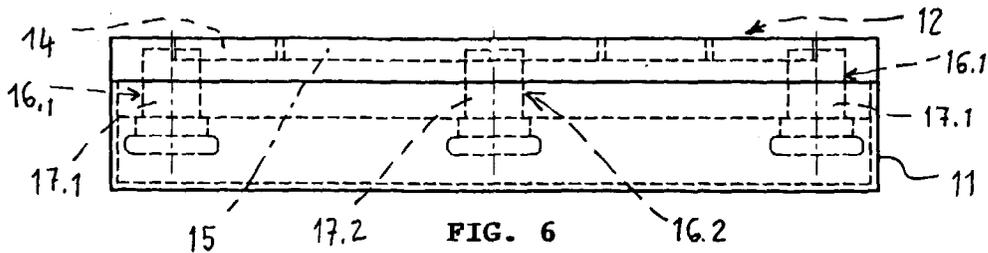


FIG. 6

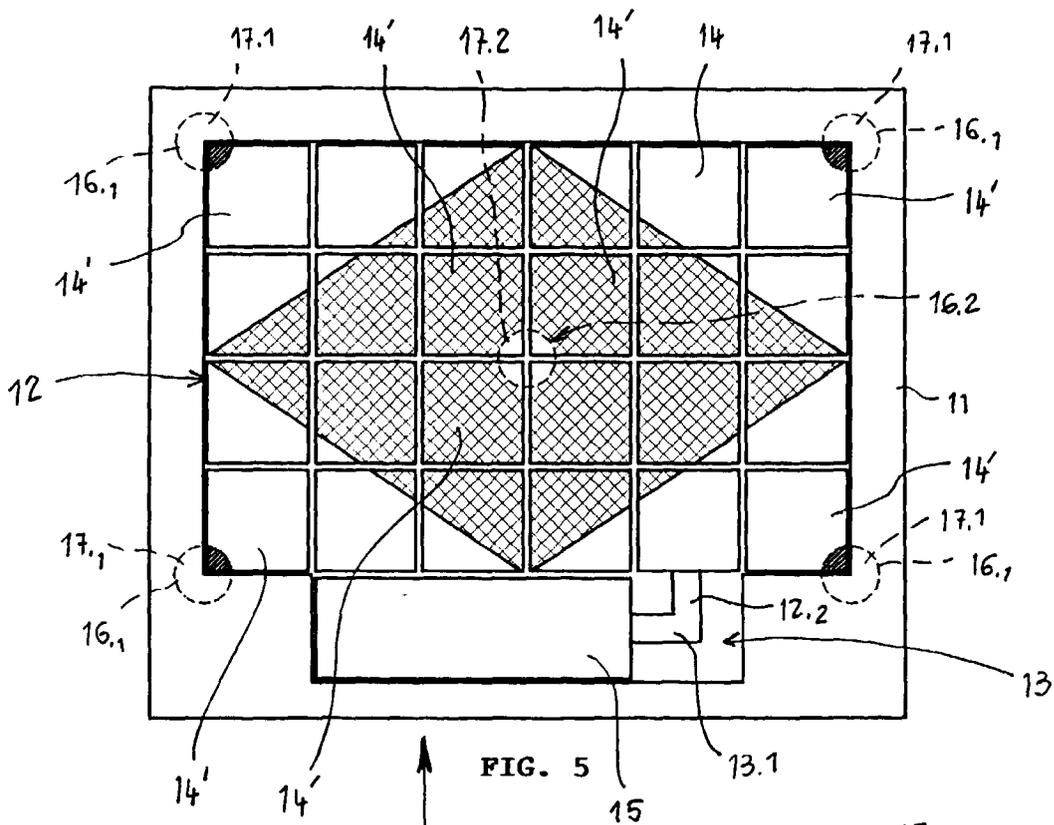


FIG. 5

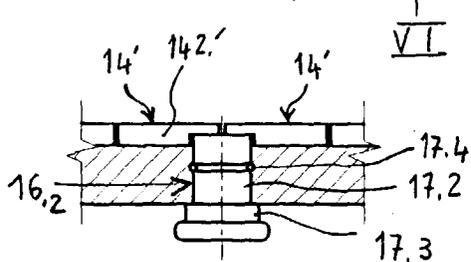


FIG. 7

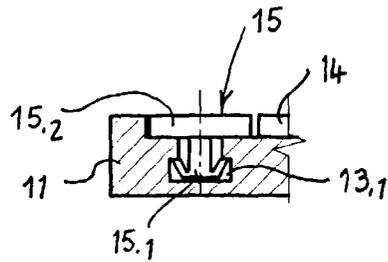


FIG. 10

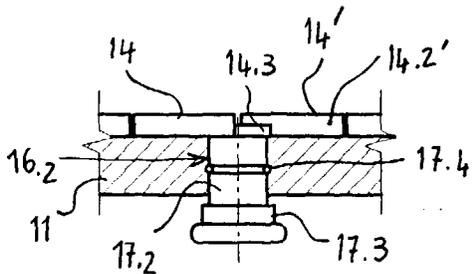


FIG. 8

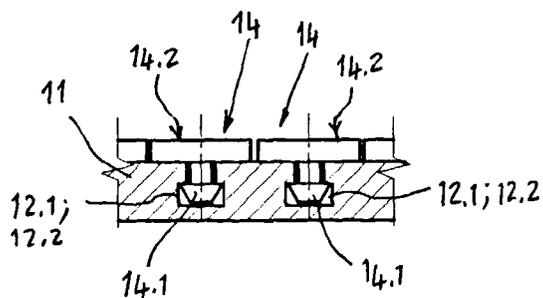


FIG. 9