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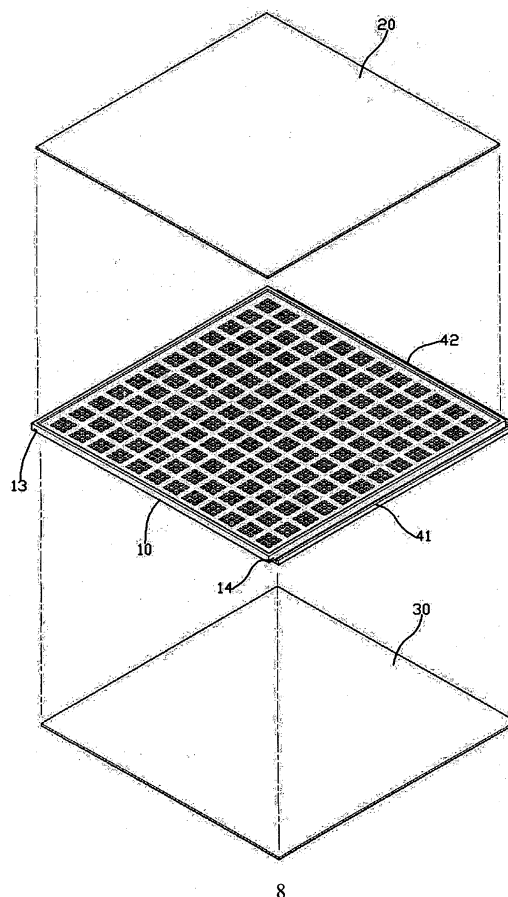
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(54) **NEW TYPE OF PLASTIC GROUND MAT**

(57) The present invention discloses a new plastic floor, which comprises: a rectangular floor body; it is **characterized by** that: a first/second extension side is protruded at two adjacent sides of the floor body and connected to each other; a first/second mating portion is set vertically at outer ends of the first/second extension side; a first/second recessed side is connected at the other two adjacent sides of the floor body and coupled with the first/second extension side; a first/second mated portion is set within the first/second recessed side correspondingly to the first/second mating portion; two adjacent floor bodies are positioned by perpendicular mating of the first/second mating portion and the first/second mated portion. The new plastic floor of the present invention enables perpendicular assembly of floor boards using the flexibility of plastics, so it not only creates a simplest assembly mode of floor, but also reduces the production cost and prevents infiltration of water and other foreign materials through secure mating of floor boards.



Description

BACKGROUND OF INVENTION

1. Field of the Invention

[0001] The present invention relates generally to a building material, and more particularly to an innovative plastic floor.

2. Description of Related Art

[0002] There are a variety of most commonly used floor materials such as ceramic tiles and PVC floors. Such floor materials require more efforts to level the ground and apply cement or glue. For this reason, some kinds of splicing floors have been developed.

[0003] A combined timber floor with overhead pedestal as disclosed in CN 20108 3006Y is illustrated in FIGS. 1 and 2: several pedestals 01 with connecting holes 011 are formed at inner side of the combined timber floor, and some connections 02 with connecting columns 021 are formed at both sides; during assembly of floor boards, connecting columns 021 at both sides of the connection 02 are separately embedded into the connecting hole 011 of the pedestal 01 for two adjacent floor boards. Despite of convenience in assembly, the pedestals 01 are separated from the connections 02, so the connections 02 have to be manufactured independently at a higher cost, leading possibly to loss of connections 02 and problem in floor assembly. After assembly of such floor, water and other foreign materials can infiltrate easily into the joint between two adjacent floor boards, thus bringing about bacteria and corrosion against the floor, and also affecting their service life; in addition, as the timber floor lacks of flexibility, users may find it difficult to fasten securely the connecting columns 021 of the connections 02 and connecting holes 011 of the pedestal 01.

[0004] A combined timber floor with composite tiles as disclosed in CN2523847Y is illustrated in FIG. 3: grooved snappers 031 and inverse L-shaped bucklers 032 are set at two adjacent sides of the underlayer 03, so that two adjacent floor boards are coupled with the interlocking of the snappers 031 and bucklers 032. The snappers 031 and buckler 032 can be prefabricated together with the underlayer 03 to reduce the production cost, but there still exist some problems such as infiltration of water and other foreign materials into the joint between two adjacent floor boards.

CONTENT OF INVENTION

[0005] The purpose of the present invention is to provide a new plastic floor that enables perpendicular assembly of floor boards using the flexibility of plastics; not only can this create a simplest assembly mode of floor, but also reduce the production cost and prevent infiltration of water and other foreign materials through secure

mating of floor boards.

[0006] In other to achieve the above purposes, the new plastic floor of the present invention comprises: a rectangular floor body, a first/second extension side protruded at two adjacent sides of the floor body and connected to each other, a first/second mating portion set vertically at outer ends of the first/second extension side, a first/second recessed side connected at the other two adjacent sides of the floor body and coupled with the first/second extension side, and a first/second mated portion set within the first/second recessed side correspondingly to the first/second mating portion; two adjacent floor bodies are positioned by connecting the first/second mating portion and the first/second mated portion.

[0007] Said first/second mating portion is a continuous protruding strips, and first/second mated portion is a continuous slot.

[0008] Said first/second mating portion is a plurality of circular columns, and first/second mated portion is a plurality of circular indents.

[0009] Said first/second mating portion is a plurality of rectangular protruding blocks, and first/second mated portion is a plurality of rectangular concave holes.

[0010] Said first/second extension side is connected into one piece, first/second recessed side is connected into one piece; the length of the first/second extension side and first/second recessed side is same as the side of the plastic floor.

[0011] A faceplate is set on top of said floor body.

[0012] Said faceplate is embedded into the holding groove on top of the floor body.

[0013] A cushion pad is set at bottom of said floor body.

[0014] The efficacies of the present invention lie in that: the extension side, mating portion, recessed side and mated portion can be prefabricated together with the floor body, thus reducing the production cost and guaranteeing convenient assembly; after splicing of two adjacent floor boards, the lower part of the joint is blocked by the extension side, thus preventing infiltration of water and other foreign materials into the bottom of the floor; in addition, as the mating and mated portions are made of flexible plastics, these two portions can be coupled securely through perpendicular mating under the stress generated by elastic deformation, thereby avoiding loosening of floor boards.

DETAILED DESCRIPTION OF THE INVENTION

[0015] The above is a detailed description of the present invention based on a typical preferred embodiment. However, a variety of embodiments and modifications shall be embraced within the scope of the following claims.

[0016] Referring to FIGS. 4~7, the new plastic floor of the present invention comprises: a rectangular floor body 10, faceplate 20 and non-woven cushion pad 30. Of which, a holding groove 101 is opened at top of the floor body 10, and a hollow slot 102 is set at bottom of the

holding groove 101, making it possible to guarantee the strength of the floor body 10, and save the materials and weight of the floor body 10. The faceplate 20 is movably embedded into the holding groove 101, enabling the users to replace faceplate 20 where necessary; the faceplate 30 can be applied to either of a square floor, man-made stone floor, PVC floor or ceramic floor. It is worthy to note that: the faceplate 20 can also be directly attached to the top of the floor body 10, or the floor body 10 is directly processed into a plate without need of the faceplate 20. The cushion pad 30 is attached to the bottom of the floor body 10 to provide satisfactory shockproofing and buffering effect.

[0017] The first/second extension side 11, 12 is protruded separately at lower ends of two adjacent sides of the floor body 10; the first/second mating portion 41, 42 are formed vertically at outer ends of the first/second extension side 11, 12; the first/second recessed side 13, 14 are formed at the other two adjacent sides of the floor body 10 and coupled with the first/second extension side 11, 12; the height of the first/second recessed side 13, 14 is consistent with that of the first/second extension side 11, 12, such that the assembled floor bodies 10 can be flushed to each other; the first/second mated portion 43, 44 are set at inner ends of the first/second recessed side 13, 14 correspondingly to the first/second mating portion 41, 42, and two adjacent floor bodies 10 are positioned by perpendicular mating of the first/second mating portion 41, 42 and the first/second mated portion 43, 44. In this preferred embodiment, the first/second mating portion 41, 42 are a continuous bulge, whilst the first/second mated portion 43, 44 are a continuous groove. The first/second mating portion 41, 42 and first/second mated portion 43, 44 are as long as the first/second extension side 11, 12.

[0018] Referring to FIG. 6, after splicing of the floor boards, two binding bars 50, 51 are set externally onto the combined floor to form an oblique decorative edge for improving its visual effect and avoiding stumbling of the pedestrian. A fastener 501 and a locking groove 511 is set separately at one side of the binding bar 50, 51, and connected with the first/second mating portion 41, 42 and first/second mated portion 43, 44 at outer ends of the floor body 10.

[0019] In the aforementioned preferred embodiment, the first and second extension sides 11, 12 are not interconnected, whilst the first and second recessed sides 13, 14 are also not interconnected. After splicing of several floor boards, the joint between two adjacent floor boards is mostly blocked by the first/second extension side 11, 12, except for the joints at four corners.

[0020] In the preferred embodiment illustrated in FIGS. 8~10, the first and second extension sides 11, 12 are mated, whilst the first and second recessed sides 13, 14 are also mated; the length of the first/second extension side 11, 12 and the first/second recessed side 13, 14 is consistent with the lateral length of the floor body 10. After assembly of such floor boards, the joint between

two adjacent floor boards can be fully blocked by the first/second extension side 11, 12 to realize the optimum effect. It is worthy to note that: the first and second mating portions 41, 42 are not interconnected, as shown in FIG. 9 and 10: in such case, both ends of the first mating portion 41 is flushed with both ends of the first extension side 11; the front end of the second mating portion 42 is flushed with the front end of the second extension side 12, but the spacing between its rear end and the rear end of the second extension side 12 is equivalent to the width of the first extension side 11. The length of the first mated portion 43 is the same with the lateral length of the floor body 10, and the length of the second mated portion 44 is shorter than the lateral length of the floor body 10, with the difference equal to the width of the first extension side 11.

[0021] Referring to FIGS. 11 and 12: when the floor boards are assembled, the floor bodies 10 could be firstly laid onto the ground, and adjacent floor bodies 10 are connected through mating of the first/second mating portion 41, 42 and the first/second mated portion 43, 44; finally the faceplate 30 is embedded easily into the holding groove 101 at top of the floor body 10.

[0022] In the preferred embodiment illustrated in FIG. 13, the difference between the floor body 10 in FIGS. 8-10 is that: said first/second mating portion 41, 42 is a plurality of circular columns, and first/second mated portion 43, 44 is a plurality of circular indents. When assembling the floor, the said first/second mating portion 41, 42 of circular columns is inserted into the first/second mated portion 43, 44 of circular indents

[0023] In the preferred embodiment illustrated in FIG. 14, said first/second mating portion 41, 42 is a plurality of rectangular protruding blocks, and first/second mated portion 43, 44 is a plurality of rectangular concave holes. Others are the same as FIG. 13.

BRIEF DESCRIPTION OF THE DRAWINGS:

[0024]

FIG. 1: an operating status view of an existing combined timber floor;

FIG. 2: a partially exploded view of the rear of FIG. 1;

FIG. 3: a structural view of another floor;

FIG. 4: an exploded perspective view of a preferred embodiment of the present invention;

FIG. 5: an exploded perspective view from another visual angle for a preferred embodiment of the present invention;

FIG. 6: a sectional view of a preferred embodiment of the present invention (together with binding bar);

FIG. 7: a sectional view of a preferred embodiment of the present invention that a floor board is coupled with the another one;

FIG. 8: an exploded perspective view of another preferred embodiment of the present invention;

FIG. 9: an enlarged view of the floor body in FIG. 8;

FIG. 10: an enlarged view from another visual angle for the floor body in FIG. 8;

FIG. 11: an assembled view of the floor body in another preferred embodiment of the present invention;

FIG. 12: an assembled view of the floor body and faceplate in another preferred embodiment of the present invention;

FIG. 13: a structural view of the floor body in the third preferred embodiment of the present invention;

FIG. 14: a structural view of the floor body in the fourth preferred embodiment of the present invention;

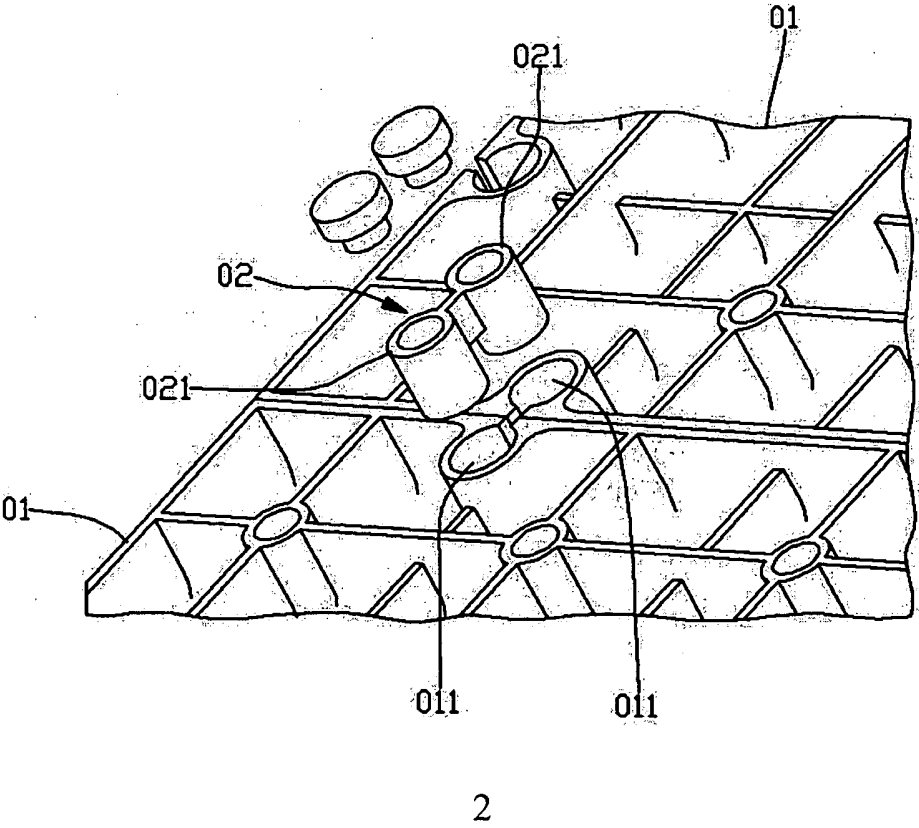
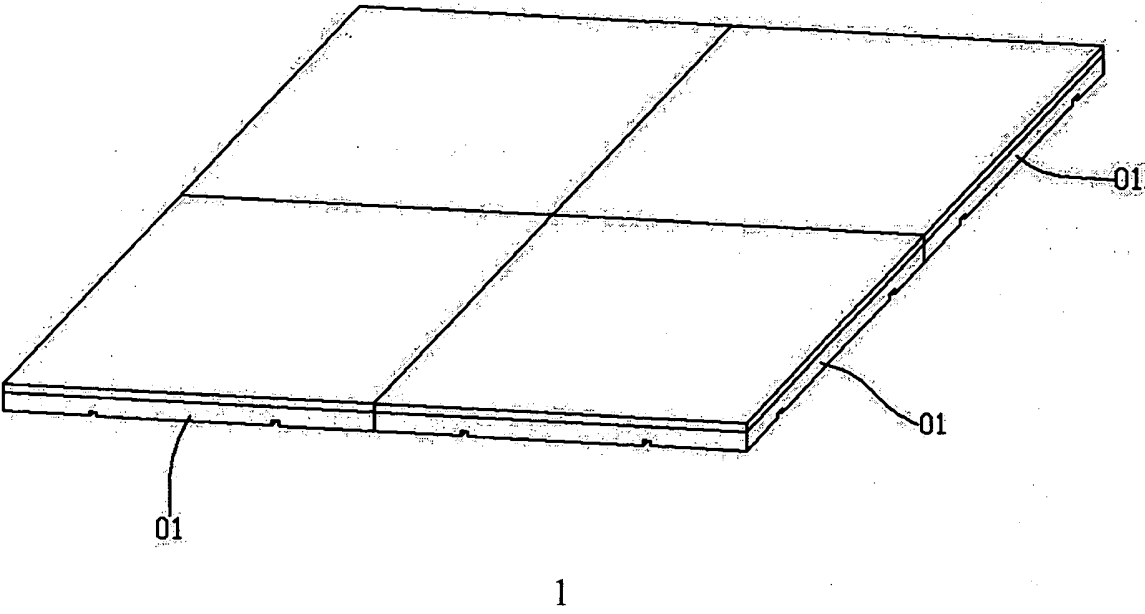
8. The structure defined in Claim 7, wherein said faceplate is embedded into the holding groove on top of the floor body.

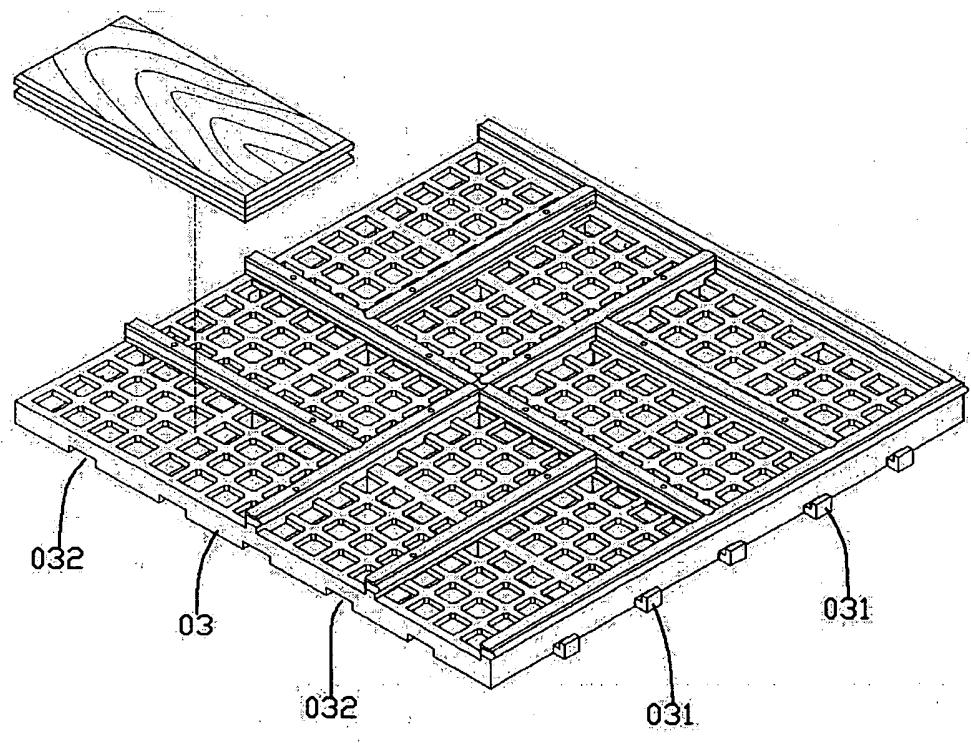
9. The structure defined in Claim 8, wherein said first/second extension side is connected into one piece, first/second recessed side is connected into one piece; the length of the first/second extension side and first/second recessed side is same as the side of the plastic floor.

10. The structure defined in Claim 9, wherein a cushion pad is set at bottom of said floor body.

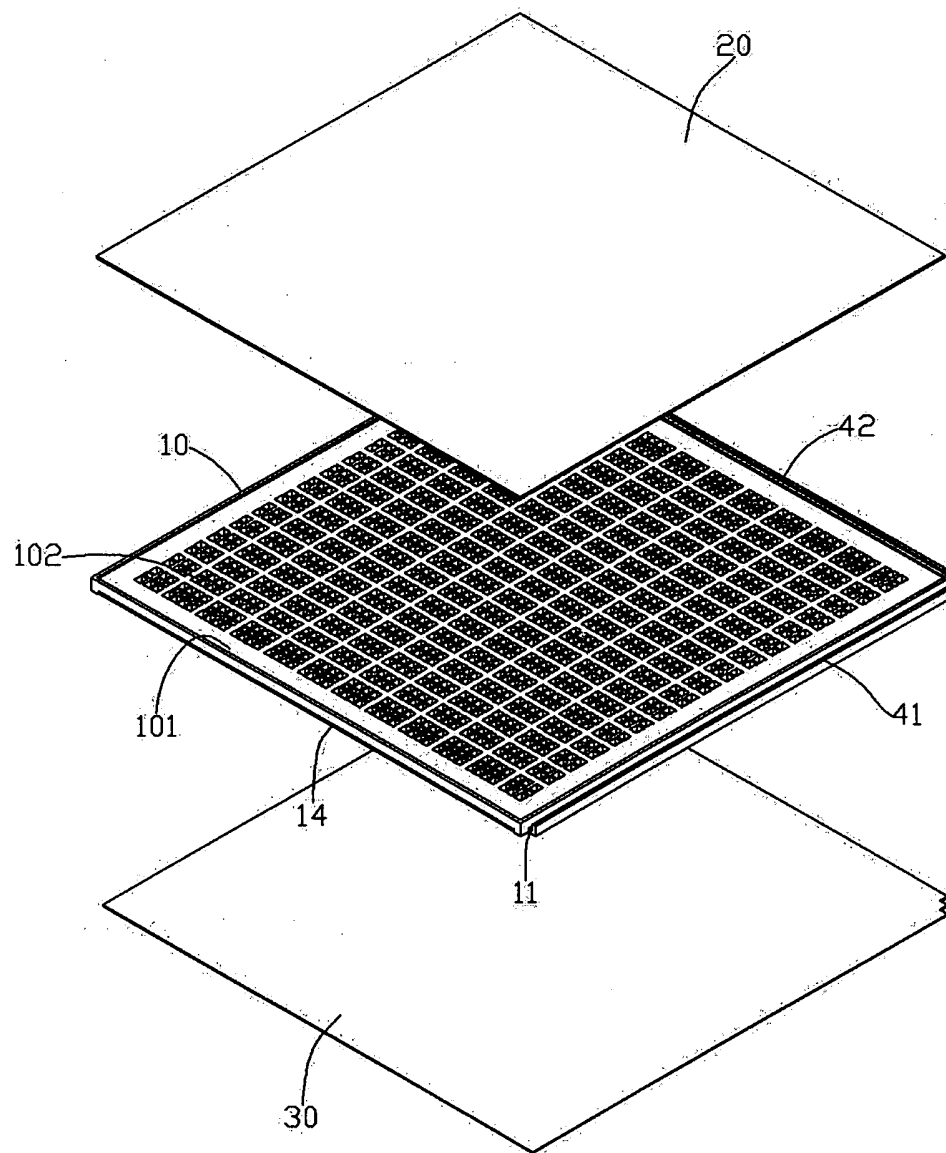
Claims

1. A new plastic floor, comprising: a rectangular floor body, which is **characterized by** that: a first/second extension side is protruded at two adjacent sides of the floor body and connected to each other; a first/second mating portion is set vertically at outer ends of the first/second extension side; a first/second recessed side is connected at the other two adjacent sides of the floor body and coupled with the first/second extension side; a first/second mated portion is set within the first/second recessed side correspondingly to the first/second mating portion; two adjacent floor bodies are positioned by perpendicular mating of the first/second mating portion and the first/second mated portion.
2. The structure defined in Claim 1, wherein said first/second mating portion is a continuous protruding strips, and first/second mated portion is a continuous slot.
3. The structure defined in Claim 1, wherein said first/second mating portion is a plurality of circular columns, and first/second mated portion is a plurality of circular indents.
4. The structure defined in Claim 1, wherein said first/second mating portion is a plurality of rectangular protruding blocks, and first/second mated portion is a plurality of rectangular concave holes.
5. The structure defined in any of Claims 1 to 4, wherein said first/second extension side is connected into one piece, first/second recessed side is connected into one piece; the length of the first/second extension side and first/second recessed side is same as the side of the plastic floor.
6. The structure defined in Claim 5, wherein a cushion pad is set at bottom of said floor body.
7. The structure defined in any of Claims 1 to 4, wherein said faceplate is set on top of said floor body.





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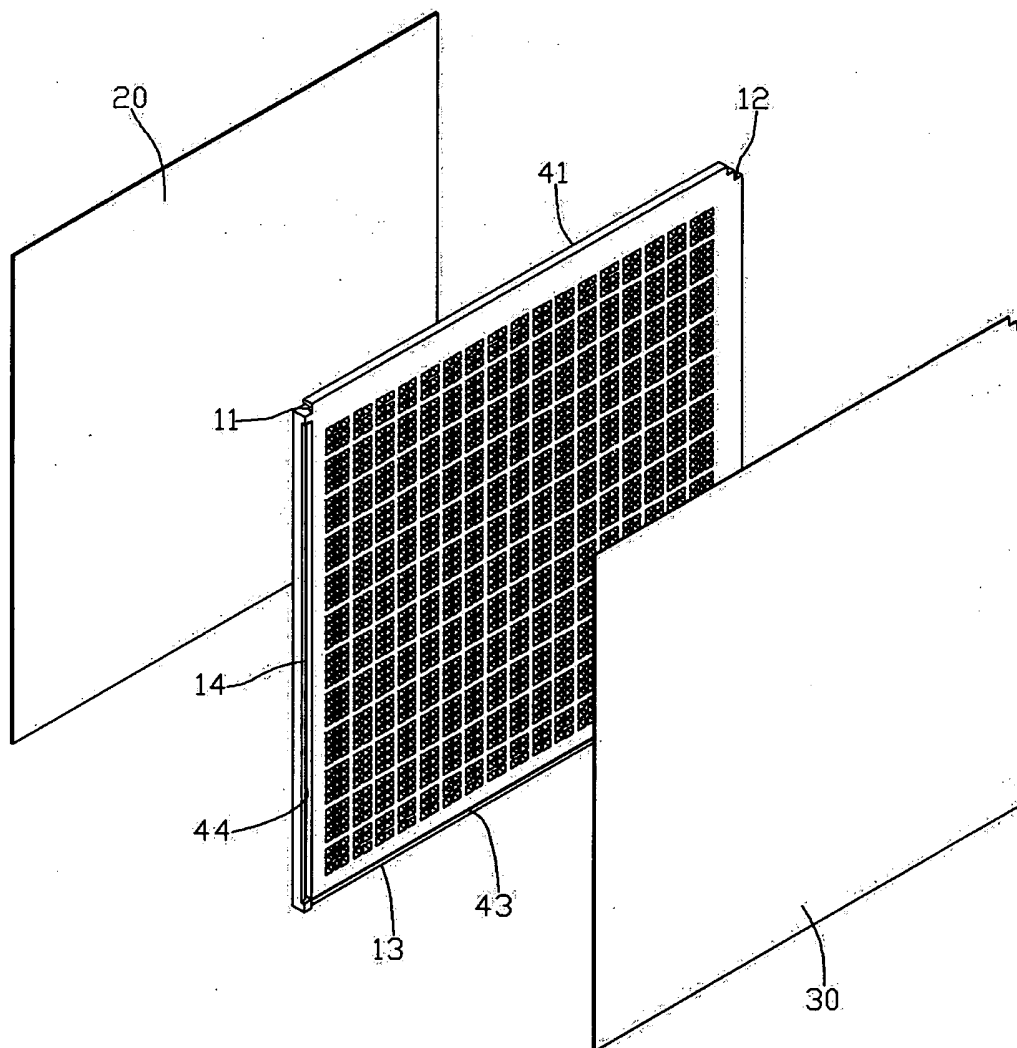
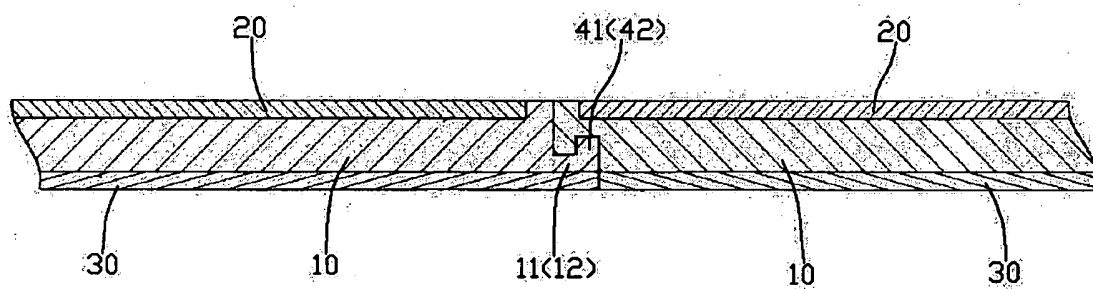
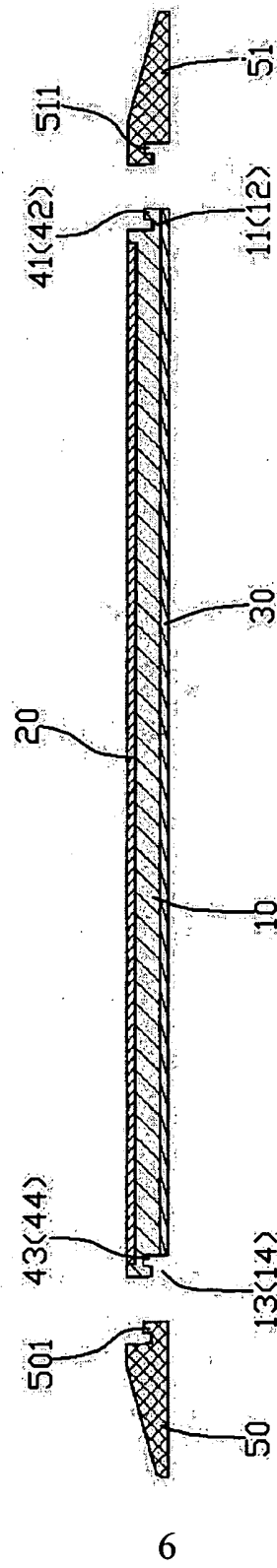
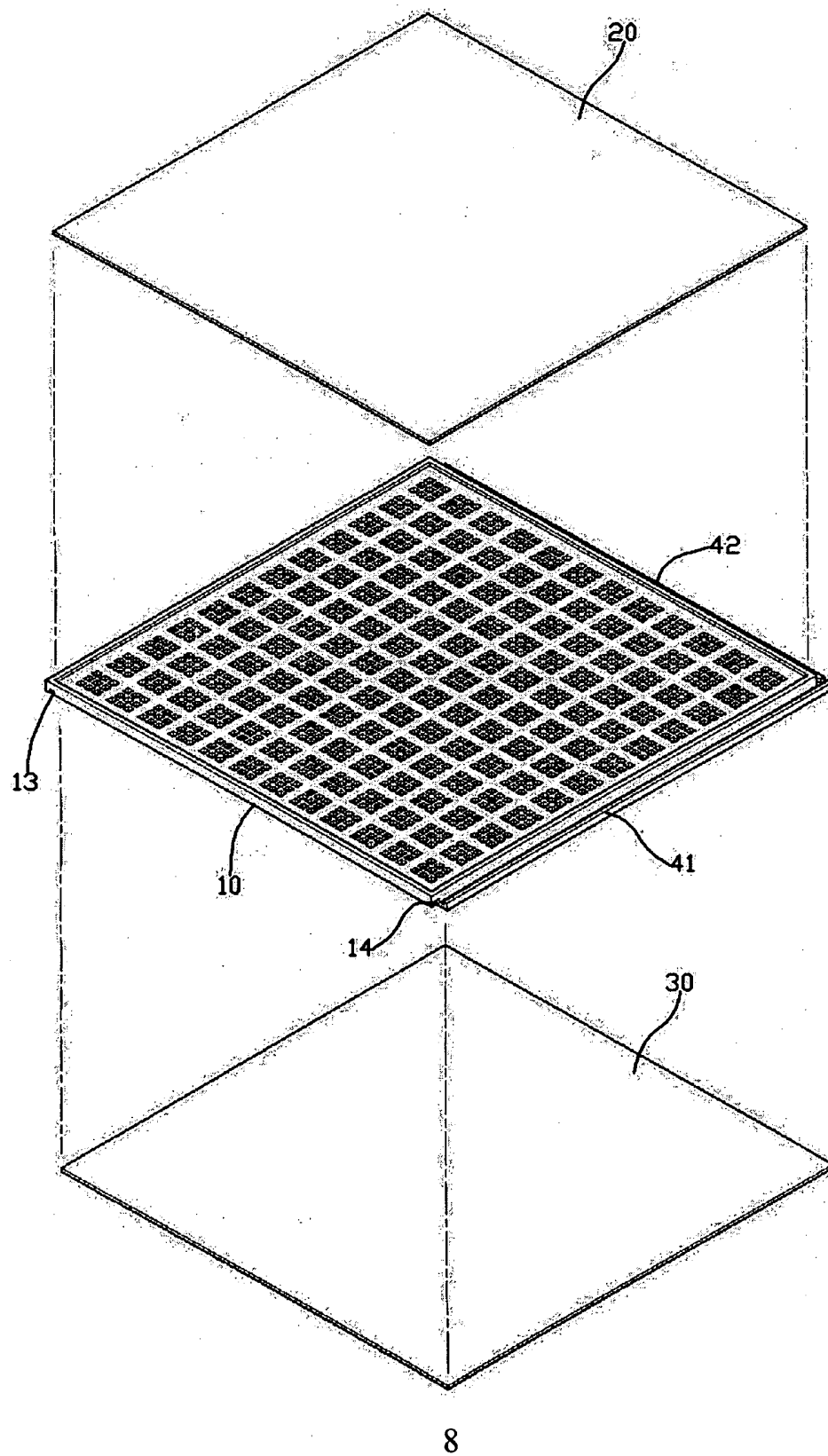


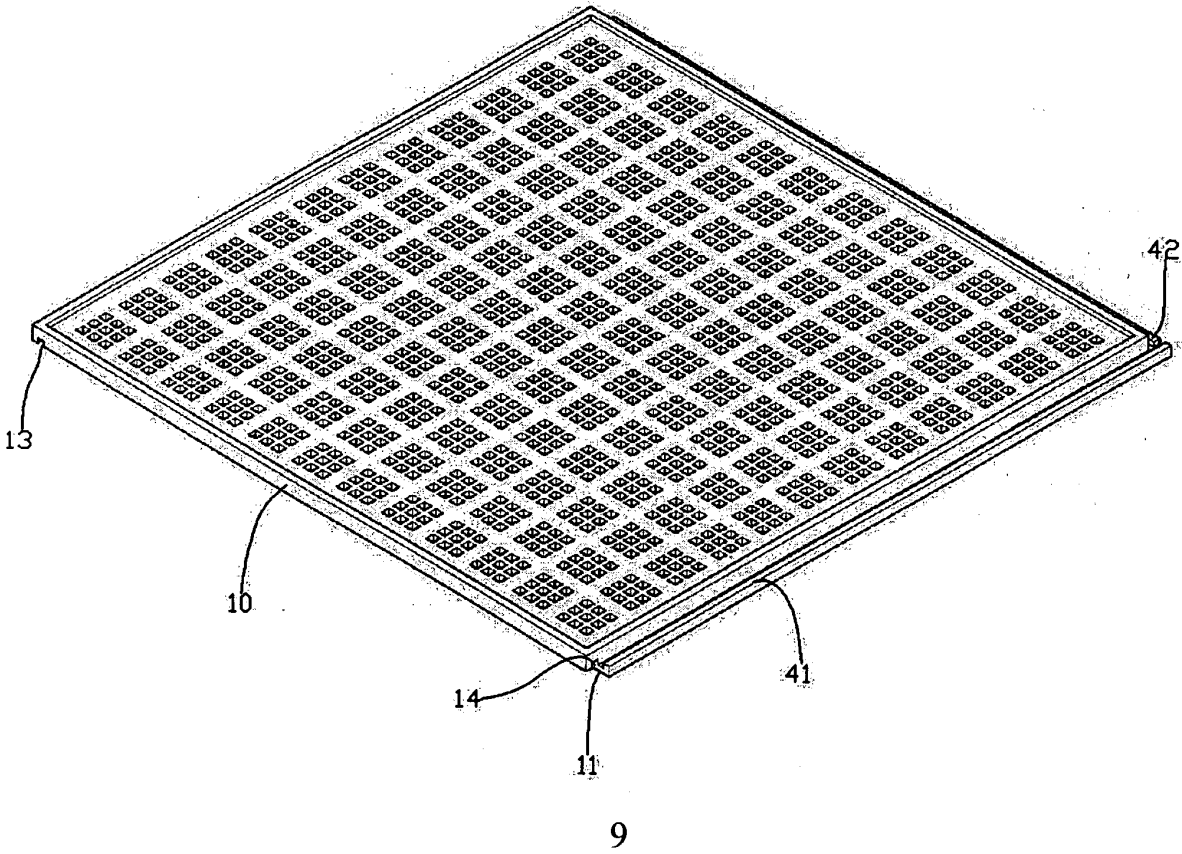
图 5

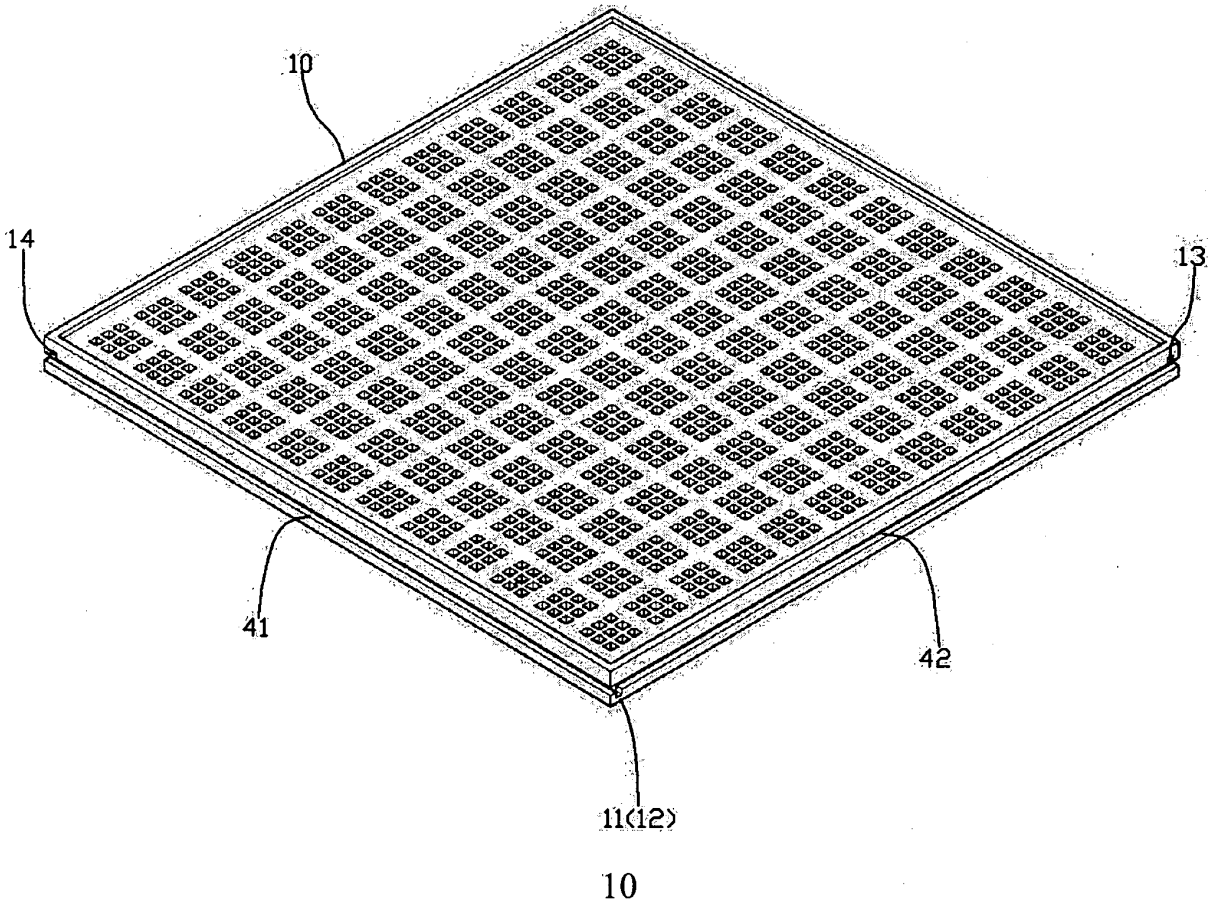


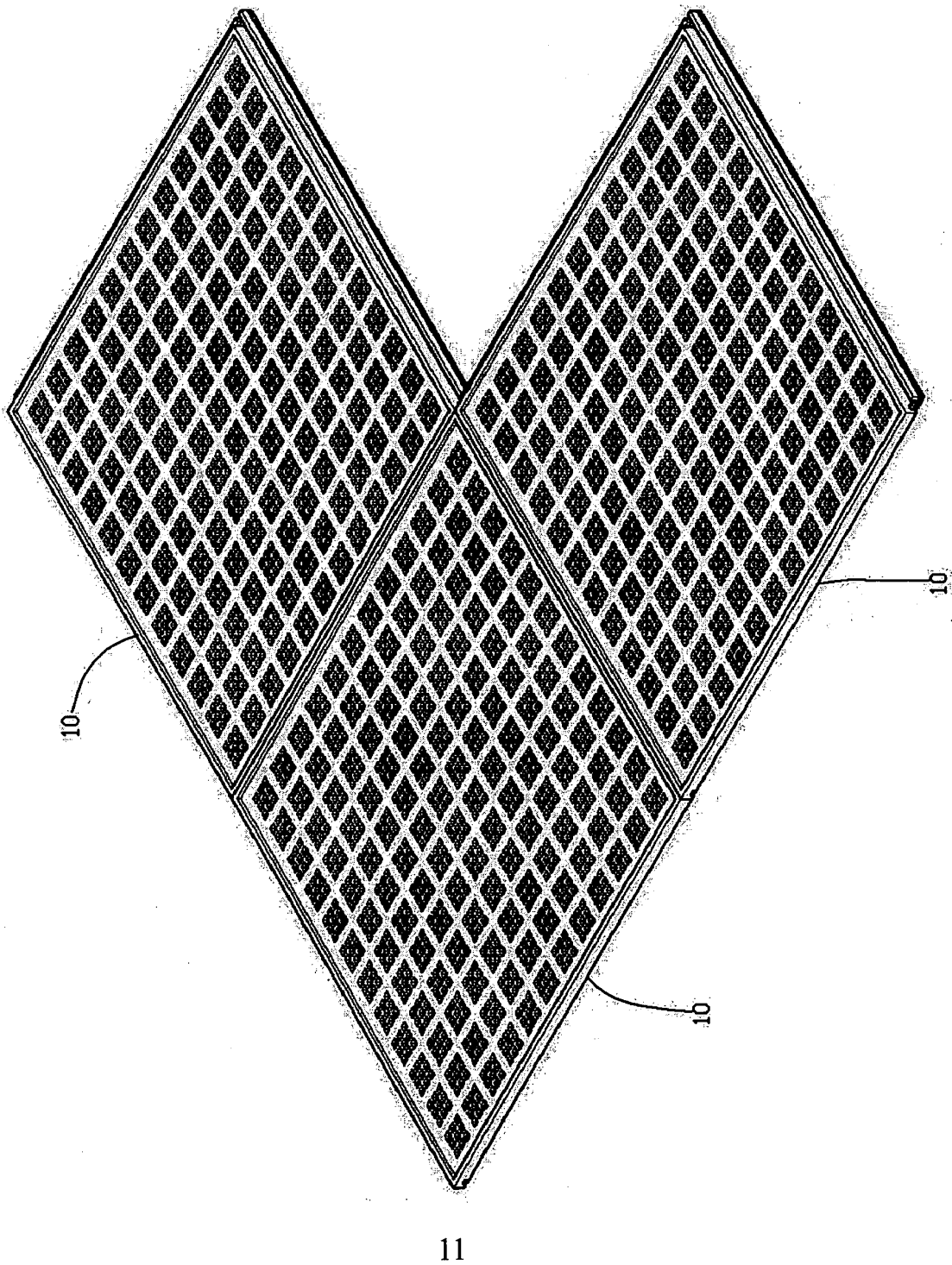
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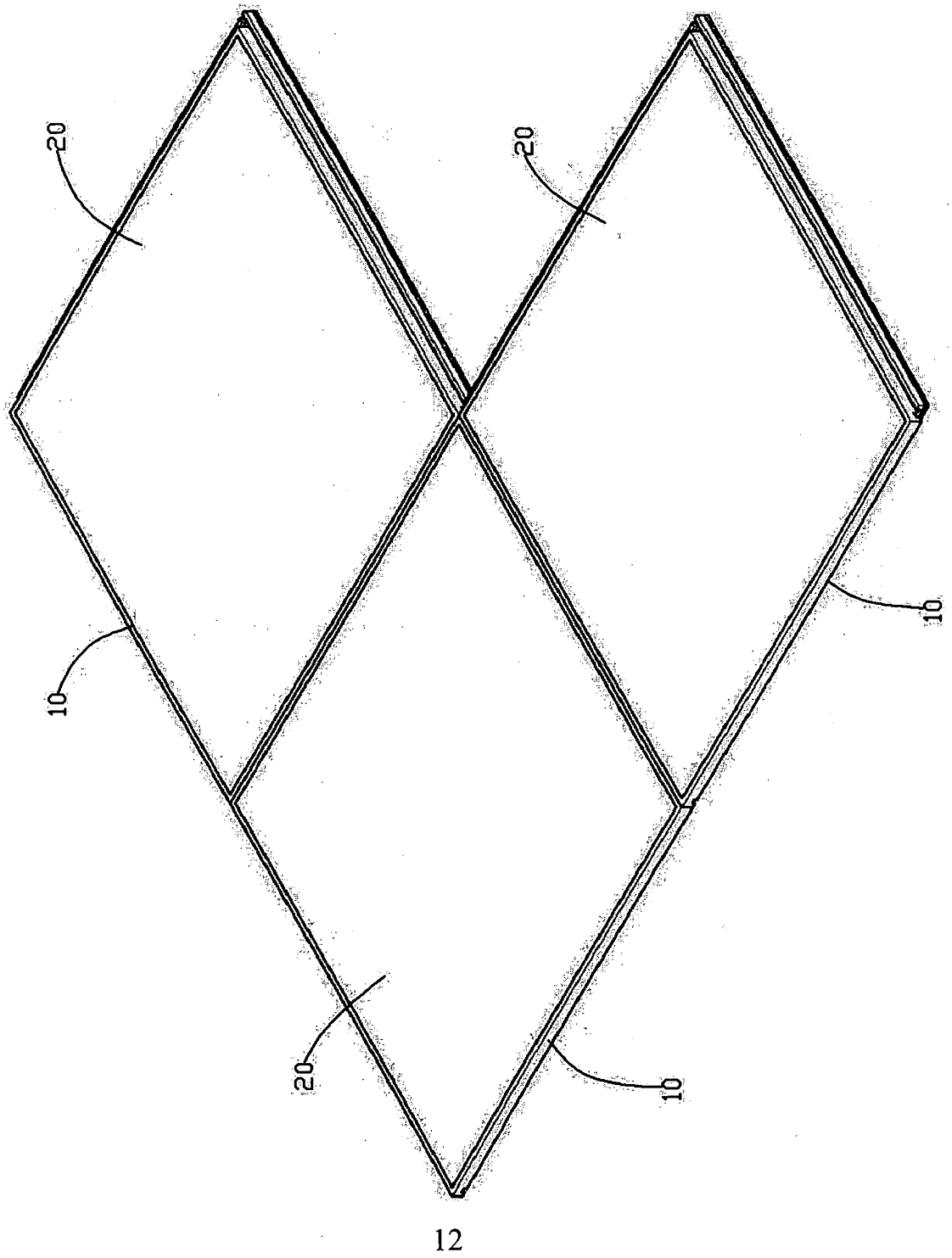


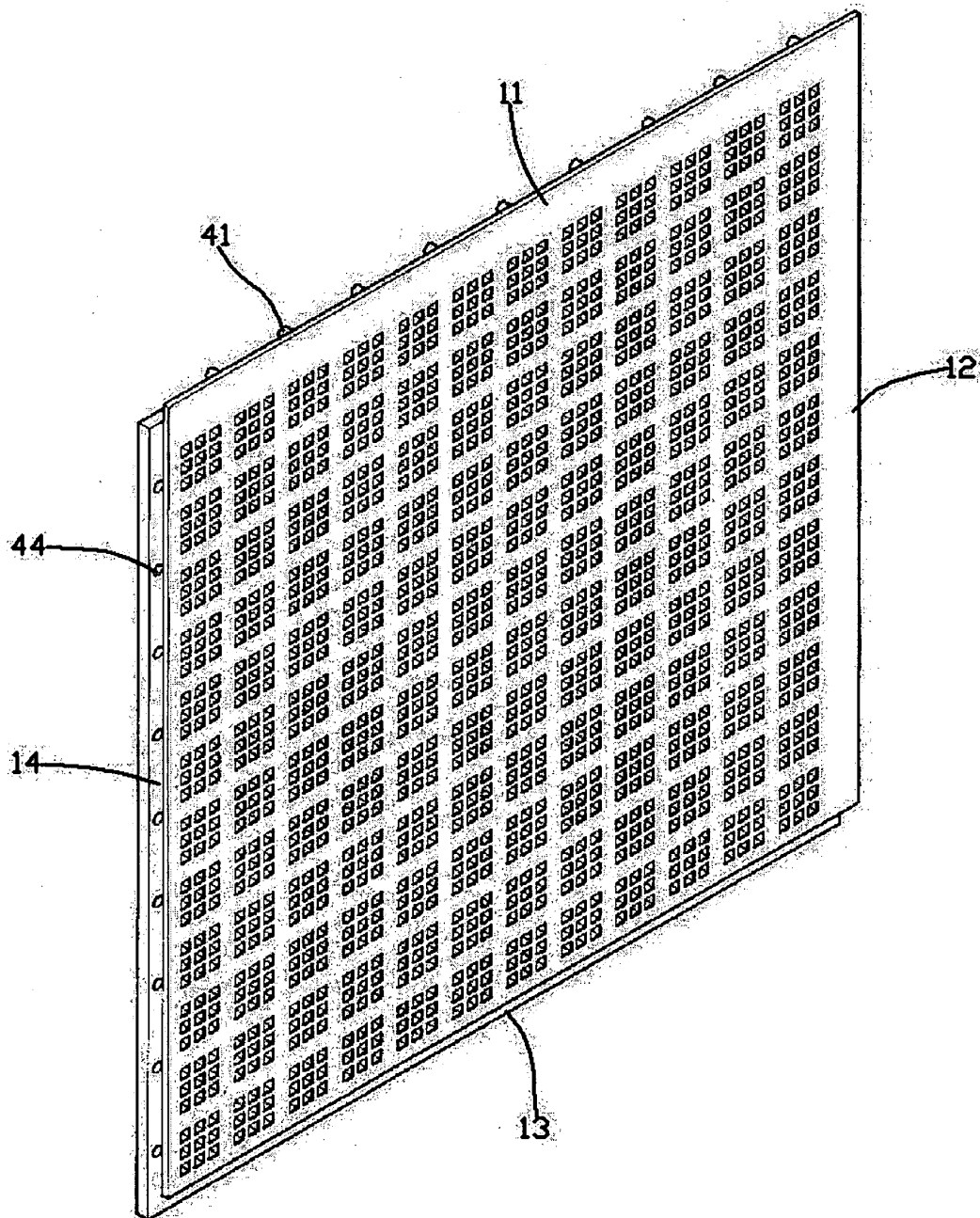




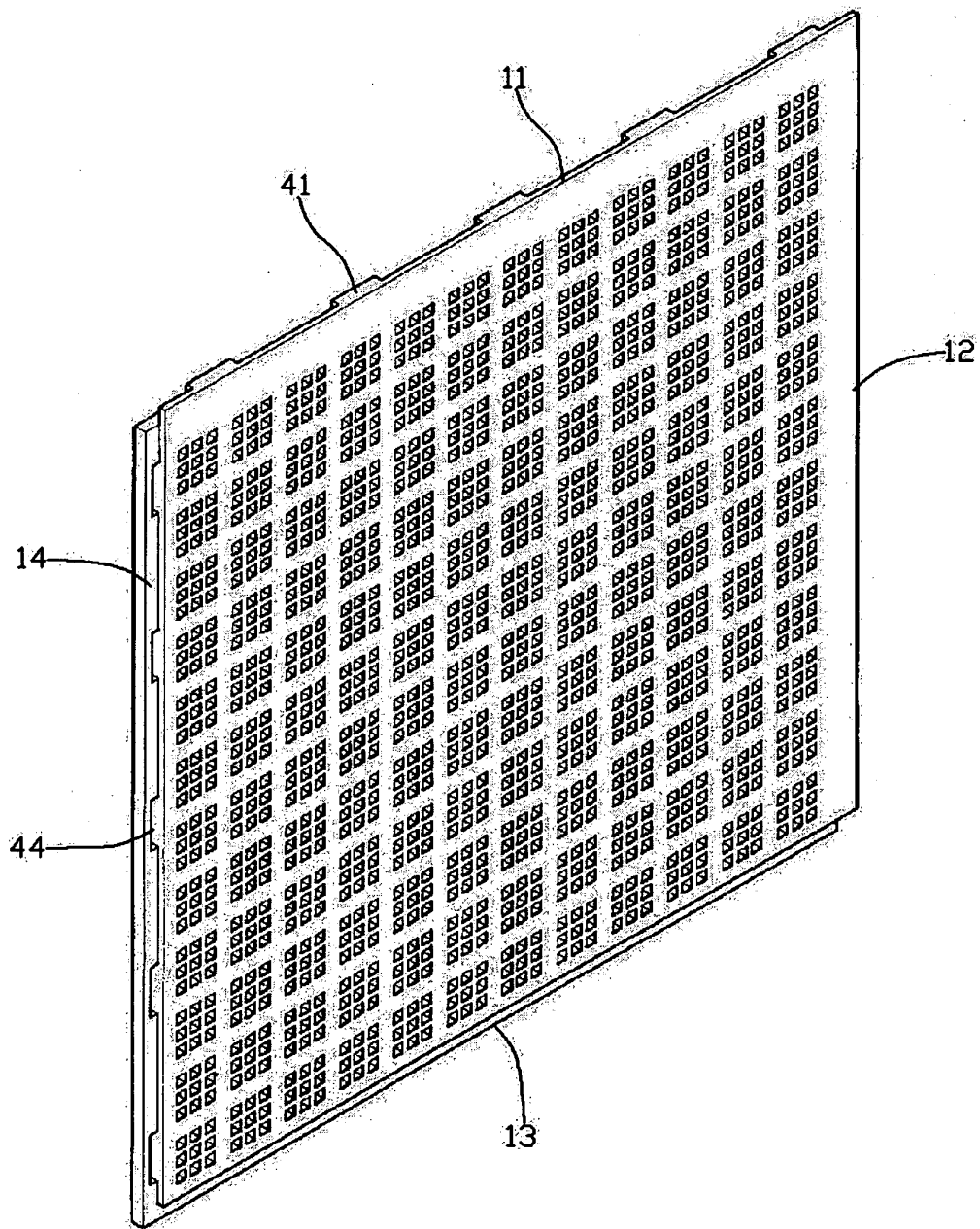








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INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2008/001983

A. CLASSIFICATION OF SUBJECT MATTER		
E04F 15/10 (2006.01) i		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols)		
IPC: E04F15/10, E04F15/02, E04F15/00, E01C5/22, E01C5/00, EC: E04F15/10, E04F15/02, E04F15/02A		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
CNPAT,CNKI, WPI, EPODOC, PAJ: mat, ground, floor, board, groove?, tongue?, plastic		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE20307578U1(SCHULTE-FUHRES, Josef)10 Jul. 2003(10.07.2003) abstract, figures 1-4	1-7
Y		8-10
Y	US6343451B1(CHIH, Su Chin et al.)05 Feb. 2002(05.02.2002)figures 1-2, column 2	8-10
A	CN2370096Y(CHEN, Baoxu)22 Mar. 2000(22.03.2000) the whole document	1-10
A	CN2328736Y(TANG, Yuanwen)14 Jul. 1999(14.07.1999) the whole document	1-10
A	CN1181445A(LI, Wenxun)13 May 1998(13.05.1998) the whole document	1-10
☒ Further documents are listed in the continuation of Box C. ☒ See patent family annex.		
* Special categories of cited documents: “A” document defining the general state of the art which is not considered to be of particular relevance “E” earlier application or patent but published on or after the international filing date “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) “O” document referring to an oral disclosure, use, exhibition or other means “P” document published prior to the international filing date but later than the priority date claimed “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 “X” document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone “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 “&”document member of the same patent family		
Date of the actual completion of the international search 17 Jul. 2009(17.07.2009)		Date of mailing of the international search report 06 Aug. 2009 (06.08.2009)
Name and mailing address of the ISA/CN The State Intellectual Property Office, the P.R.China 6 Xitucheng Rd., Jimen Bridge, Haidian District, Beijing, China 100088 Facsimile No. 86-10-62019451		Authorized officer CHEN, Yaofeng Telephone No. (86-10)62412882

Form PCT/ISA/210 (second sheet) (April 2007)

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2008/001983

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
D, A	CN201083006Y(LAI, Yingguang)09 Jul. 2008(09.07.2008) the whole document	1-10
D, A	CN2523847Y(CHEN, Zhonggu)04 Dec. 2002(04.12.2002) the whole document	1-10

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/CN2008/001983

Patent Documents referred in the Report	Publication Date	Patent Family	Publication Date
DE20307578U1	10.07.2003	NONE	
US6343451B1	05.02.2002	NONE	
CN2370096Y	22.03.2000	NONE	
CN2328736Y	14.07.1999	NONE	
CN1181445A	13.05.1998	NONE	
CN201083006Y	09.07.2008	CN1948662A	18. 04.2007
		CN101139863A	12.03.2008
CN2523847Y	04.12.2002	NONE	

Form PCT/ISA/210 (patent family annex) (April 2007)

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- CN 201083006 Y [0003]
- CN 2523847 Y [0004]