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(54) Brick structure.

(57) A brick structure includes a first brick body (1) and a second brick body (1) connected to the first brick body (1) in an upside-down manner, each of the brick bodies having a first surface (11) with a number of projections (12) formed thereon and a second surface (16) opposite to and substantially parallel with the first surface (11) with a number of recesses (121) corresponding to the projections (12) formed thereon, the projections (12) being corresponding in shape and size to and thus receivable within the recesses (121) so as to have the projections (11) of the first brick body (1) juxtaposing the recesses (121) of the second brick body (1) with upper ends of the projections (11) of one of the first and second brick bodies (1) slightly lower than the second surface (16), on which the recesses (121) are formed, of the other one of the first and second brick bodies. The brick is constituted by a concrete outer shell enclosing therein a buffering core made of polylone (15) with a metal net (14) sandwiched therebetween to provide impact absorption and reinforcement to the brick structure.

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FIELD OF THE INVENTION

The invention relates generally to a brick structure.

BACKGROUND OF THE INVENTION

Bricks are important building elements. Conventional bricks are generally in the form of parallelepiped solid body. Such bricks are easy to move relative to the adjacent bricks in brick laying so that accurate positioning of bricks should be done by manual adjustment. This requires a great amount of labor and time and thus cost.

Since the conventional bricks are parallelepiped bodies which are easy to move relative to each other when laid together, although in laying bricks, mixture of cement and sand is used to adhere the bricks together, the capability of the bricks against external forces may not be satisfactory.

Further, conventional bricks are manufactured by firing clay blocks. Theses clay blocks are generally solid without any substantial cavity therein so as to have quite a weight. This causes inconvenience in the transportation and laying of the bricks.

Moreover, since the conventional bricks are fired solid clay body without any reinforcement or buffering material therein, they may not be strong enough against external impacts acting thereon. Sometimes, the conventional bricks are broken into pieces by the external impacts during transportation.

Furthermore, the conventional bricks are poor in heat-insulation and sound-isolation so that the building that constructed with the conventional bricks is also poor in heat-insulation and sound-isolation.

It is therefore desirable to provide an improved brick structure which overcomes the above-mentioned deficiencies.

SUMMARY OF THE INVENTION

The principal objective of the present invention is to provide an improved brick structure which overcomes the previously-mentioned deficiencies of the conventional brick and to achieve the objective, there is provided a brick structure comprising a first brick body and a second brick body connected to the first brick body in an upside-down manner, each of the brick bodies having a first surface with a number of projections formed thereon and a second surface opposite to and substantially parallel with the first surface with a number of recesses corresponding to the projections formed thereon, the projections being corresponding in shape and size to and thus receivable within the recesses so as to have the projections of the first brick body juxtaposing the recesses of the second brick body with upper ends of the projections of one of the first and second brick bodies slightly lower than the second surface, on which the recesses are formed, of the other one of the first and second brick bodies. Thus, when the brick is laid on a second similar brick, the projections and recesses at the same side of the second brick are received within and receive therein the recesses and the projections of the first brick that are formed on the side thereof facing the second brick. The brick is constituted by a concrete outer shell enclosing therein a buffering core made of polylone (expanded polystyrene) with a metal net sandwiched therebetween to provide impact absorption and reinforcement to the brick structure.

BRIEF DESCRIPTION OF THE DRAWINGS

Other objectives and advantages of the invention will be apparent from the following description of preferred embodiments of the present invention taken in connection with the accompanying drawings wherein:

FIG. 1 is a perspective view showing a building brick constructed in accordance with the present invention;

FIG. 2 is a cross-sectional view of the brick shown in FIG. 1;

FIG. 3 is a longitudinal sectional view of the brick shown in FIG. 1;

FIG. 4 is a perspective view showing the laying of the bricks of the present invention; and

FIG. 5 is a perspective view of another embodiment of the brick constructed in accordance with the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference to the drawings and in particular to FIG. 1, wherein a building brick constructed in accordance with the present invention, generally designated by the reference numeral 100, is shown, the building brick 100 comprises two identical halves 1 integrated together in an inverted manner. Each of the half brick 1 comprises a parallelepiped body 2 having a first surface 11 and a second surface 16 which is opposite to and substantially parallel with the first surface 11.

On the first surface 11 of each of the half bricks 1, a number of projections 12 are formed, preferably in the form of truncated-cone convergent in the direction away from the parallelepiped body 2.

On the second surface 16 of each of the half bricks 1, a number of recesses 121 corresponding in shape and size and number to the truncated-conical projections 12 on the first surface 11 are formed. The projections 12 are receivable within the recesses 121.

The two brick bodies 2 are so connected together, with one of them upside down, to form the brick unit 100 that the truncated ends 122 of the projections 12 of one of the brick bodies 2 are substantially flush with or, preferably, lower than (FIGS. 2 and 3) the second surface 16 of the other one of the brick bodies 2 so as to allow the brick unit 100 to be matchable with a second similar brick unit 100' (FIG. 4) with the projections 12 of the first brick unit 100 received within the recesses 121 of the second brick unit 100' and the recesses 121 of the first brick unit 100 receive the projections of the second brick unit 100' therein, as shown in FIG. 4, and more particularly, the first surface 11 of the first brick unit 100 in contact engagement with the second surface 16 of the second brick unit 100' that faces the first surface 11 of the first brick unit 100 in matching the two brick units 100 and 100' to form a bond therebetween.

Referring to FIGS. 2 and 3, which show sections of the brick structure 100, the brick 100 comprises an outer shell 13, made of, for example, concrete material, inside which a buffering material core 15 is disposed with a metal net 14 tightly sandwiched therebetween. Preferably, the metal net 14 comprises net constituted by iron or steel wires and the buffering material that constitutes the core 15 is polylone (expanded polystyrene).

The metal net 14 is used to reinforce the brick structure 100 and the buffering core 15 serves to absorb impact energy acting upon the concrete outer shell 13 so as to provide the brick 100 with a great strength in enduring external impacts acting thereon. Further, the polylone core 15 is also capable to absorb, at least partly, sound and heat transmitted through the brick 100 so as to allow the brick 100 to provide a better sound and heat absorption effect.

Due to the polylone core 15 which is itself light weight, the overall weight of the brick unit 100 is greatly reduced. This not only helps in the transportation of the brick 100, but also cuts down the weight of a building constructed with the bricks 100 of the present invention.

Furthermore, with the arrangement of the projections 12 and the recesses 121 that are opposite to each other, in laying the brick units 100 together, no positioning adjustment is required for the brick units 100 relative to the adjacent brick units 100' so that the labor and cost in laying bricks can be greatly cut down and the efficiency of laying bricks can be heightened.

The opposite projection-recess pair can also be applied to a conventional parallelepiped brick 100'', see FIG. 5. With the upper surface of a conventional parallelepiped brick 100'' having truncated-conical projections 12 formed thereon and the opposite lower surface having the recesses (not shown in FIG. 5) formed thereon, the parallelepiped bricks 100'' can be laid on each other with projections 12 of a first brick 100'' received within the recesses of the second brick 100''.

It is apparent that although the invention has been described in connection with the preferred embodiment, those skilled in the art may make changes to certain features of the preferred embodiment without departing from the spirit and scope of the invention as defined in the appended claims.

Claims

1. A brick structure comprising at least a brick body having a first surface with a number of projections formed thereon and a second surface opposite to and substantially parallel with the first surface with a number of recesses corresponding to the projections formed thereon, said projections being corresponding in shape and size to and thus receivable within said recesses so that when said brick is laid on a second similar brick, the projections of said second brick are received within the recesses of said first brick to provide a precise positioning of said first brick relative to said second brick.

2. A brick structure as claimed in Claim 1 further comprising a second brick body connected to the first brick body in an upside-down manner so as to have the projections of said first brick body juxtaposing the recesses of said second brick body with upper ends of the projections of one of the first and second brick bodies slightly lower than the second surface, on which the recesses are formed, of the other one of said first and second brick bodies and thus when said brick is laid on a second similar brick, the projections of the first brick body of said second brick are received within the recesses of the first brick body of said first brick and the projections of the second brick body of said first brick are received within the recesses of the second brick body of said second brick to provide a precise positioning of said first brick relative to said second brick.

3. A brick structure as claimed in Claim 1 wherein said brick body comprises a concrete

outer shell enclosing a buffering core therein with a metal net sandwiched therebetween to provide impact absorption and reinforcement to the concrete shell.

4. A brick structure as claimed in Claim 3 wherein said buffering core is made of polylone.

5. A brick structure as claimed in Claim 2 wherein said brick constituted by the first and second brick bodies comprises a concrete outer shell extending to both the first and second brick bodies, enclosing a buffering core therein with a metal net sandwiched therebetween to provide impact absorption and reinforcement to the concrete shell.

6. A brick structure as claimed in Claim 5 wherein said buffering core is made of polylone.

7. A brick structure as claimed in Claim 1 wherein said projections comprises truncated cones convergent in the direction away from the first surface of said brick body.

8. A brick structure as claimed in Claim 2 wherein said projections comprises truncated cones convergent in the direction away from the first surface of each of said brick bodies.

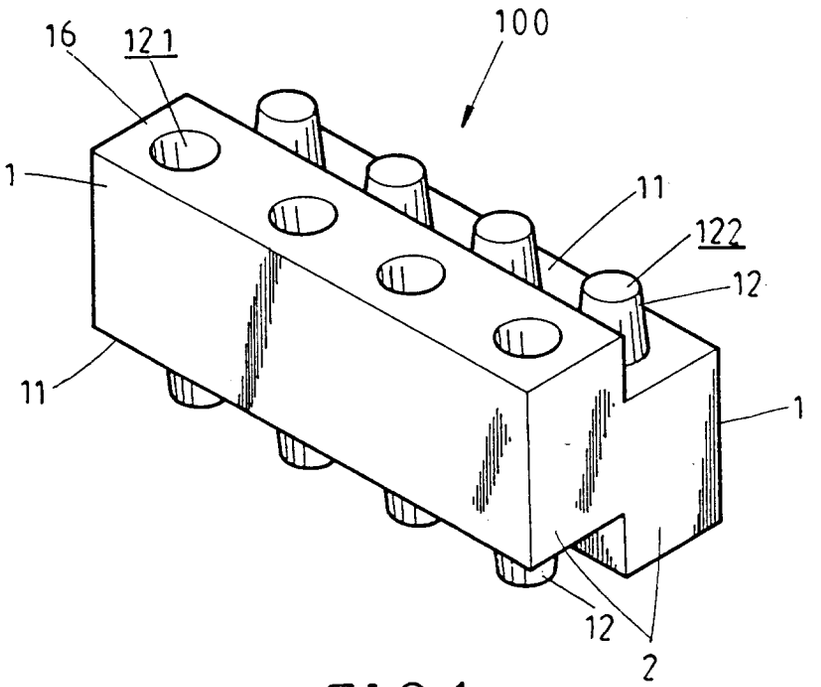

FIG.1

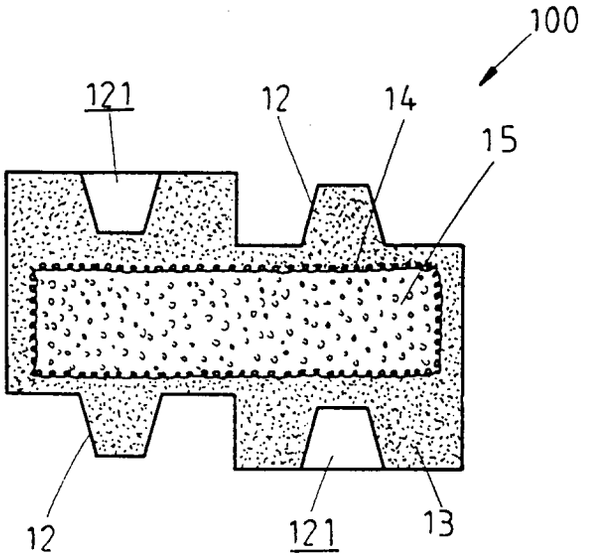

FIG. 2

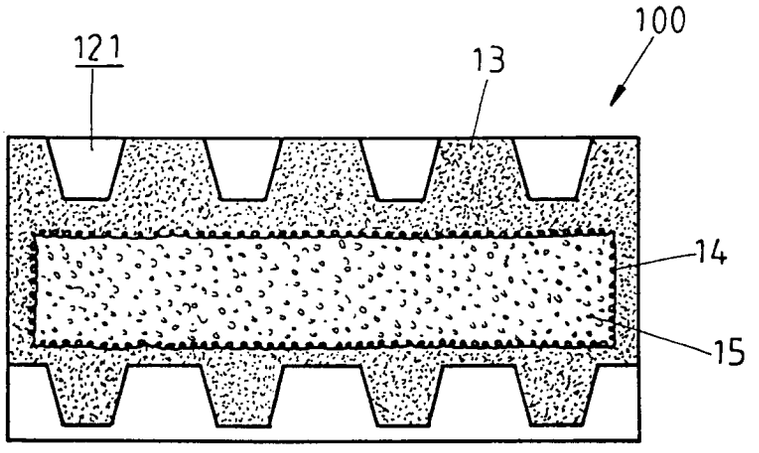

FIG. 3

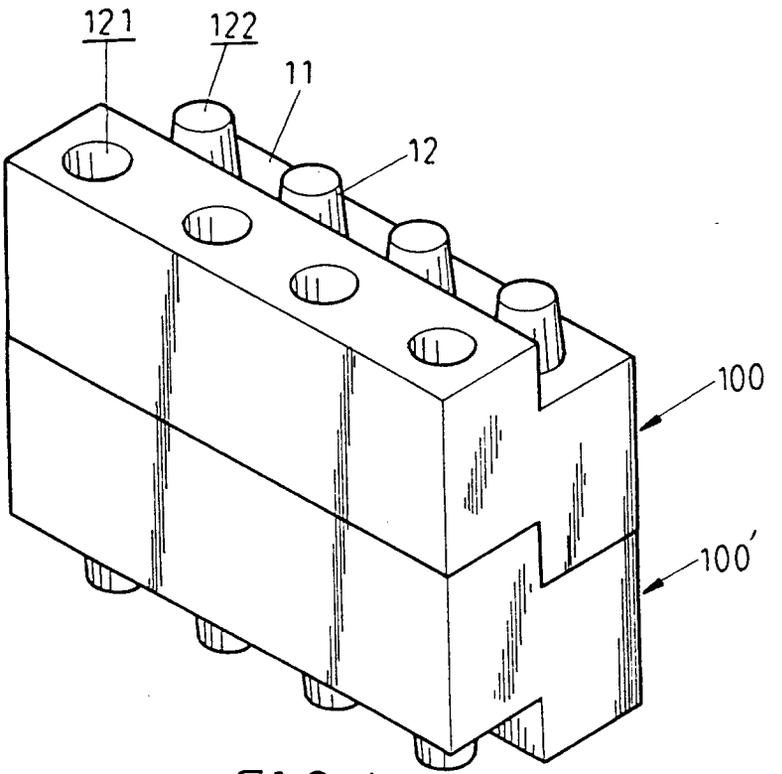

FIG. 4

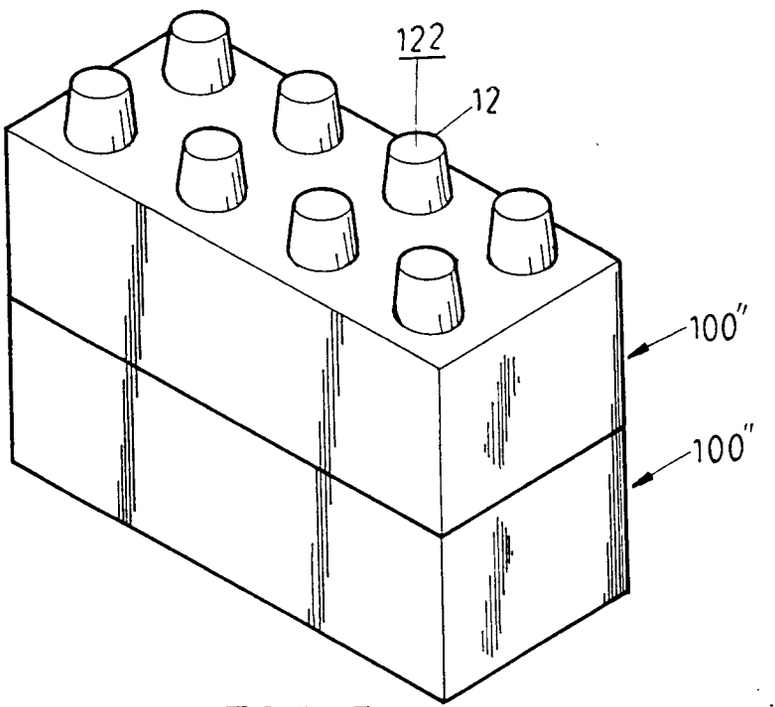

FIG. 5

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EUROPEAN SEARCH REPORT

Application Number
EP 93 11 6440

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.6)
X Y	FR-A-2 550 568 (G. PIAZZA ET AL) * claims 1-8; figures 1-5 *	1,7 2-6,8	E04B2/18 E04C1/40
Y	US-A-1 618 780 (G. P. REINTJES) * claim 1; figures 1-3 *	2,5,6,8	
Y	DE-A-27 56 820 (MASO-THERM CORP.) * page 23, paragraph 2 - page 24, paragraph 1 * * page 18, paragraph 2 - page 21, paragraph 1; claims 1,13,14; figures 1-3 *	3-6	
A	US-A-1 769 844 (E. H. KLEIN) * page 1, line 94 - page 2, line 5; figures 2,3 *	2	
A	FR-A-2 586 736 (P. C. J. ROPAGNOL ET AL) * abstract; figures 1,4 *	1-4	
A	EP-A-0 146 529 (M. LEIER) * page 3, line 5 - line 27 *	4,6	TECHNICAL FIELDS SEARCHED (Int.Cl.6) E04B E04C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
BERLIN	14 March 1994	Bousquet, K

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

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