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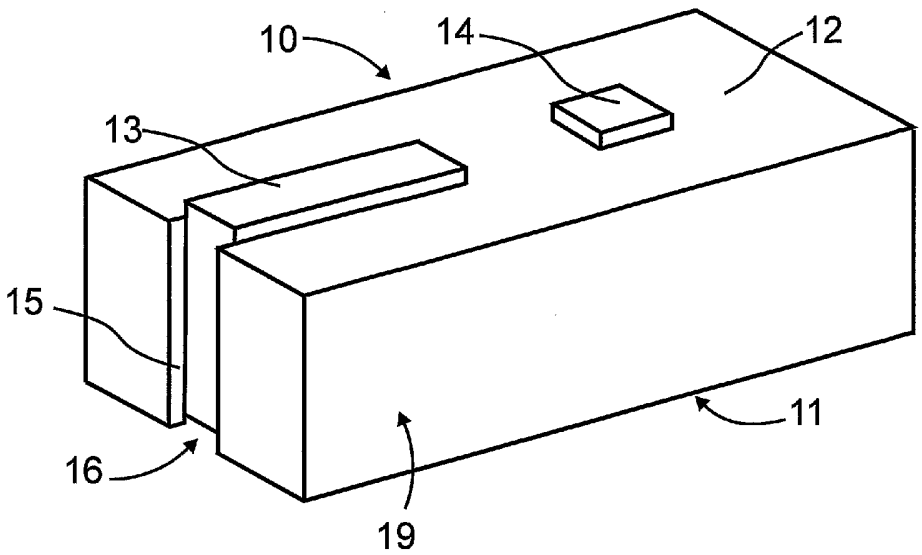
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(54) Title: BUILDING BLOCKS



(57) Abstract: A building block (10) for the erection of walls, said building block being formed substantially as a rectangular parallelepiped having a top side (11), a bottom side (12) opposite the top side, a first gable side and a second gable side opposite the first gable side, wherein said top side is provided with a longitudinal recess (16) and said bottom side is provided with a longitudinal ridge (13, 14) corresponding to the recess. The width of the ridge (13, 14) corresponds to the width of the recess (16). Additionally, the ridge is divided into a first ridge portion (13) extending from the first gable side, and a second ridge portion (14) arranged at a distance from the first ridge portion and at a distance from the second gable side, wherein the length of the second ridge portion corresponds to the width of the recess so that the second ridge portion of an upper building block totally can be received in a lower building block arranged at least perpendicular to the upper building block.

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BUILDING BLOCKS

FIELD OF THE INVENTION

The invention relates to a building block for the erection of different types of walls, said building block being formed substantially as a rectangular parallelepiped having a top side, a bottom side opposite the top side, a first gable side, a second gable side opposite the first gable side, and two opposite faces connecting the gable sides, wherein said top side is provided with a longitudinal first recess and said bottom side is provided with a longitudinal ridge corresponding to the recess.

PRIOR ART

Building blocks formed as a rectangular parallelepiped might be the most common building component. This category comprises bricks made of clay, large or small concrete blocks and different types of lightweight blocks of insulating material. Most types of building blocks are joined by means of a joining material, such as mortar. One common drawback with this type of building blocks is that a joining material must be used to provide stable and lasting building structure assemblies.

Also, building blocks having opposite faces formed for engaging one another can be found. The engagement can be so strong that the joining material can be excluded. This type of building block is particularly useful for garden walls and similar building structures.

One prior art building block disclosed in SE508736 comprises opposite faces having parts for engaging each other for locking in the longitudinal direction of the building blocks when the building blocks are positioned on top of one another. The parts are arranged along two long side faces of the building block and with one intermediate and longitudinal mortar channel for receiving mortar when the building blocks are joined. Similar mortar channels can also be formed in opposite short side faces of the building blocks. The shape of the parts makes it possible to interlock building blocks perpendicular to each other to provide corners.

One problem with the building blocks disclosed in SE508736 is that relative transverse displacement of building blocks is permitted. Hence, in consequence thereof and due to other reasons it is necessary to use the mortar channels and obtain fixed positions of the building blocks.

GB2060026 discloses a building block family. The building blocks can be fitted together quickly and are of low weight since they are formed with internal cavities and are relatively thin (40 mm). Mortar is not required, but glue or another adhesive material is. Opposite faces of a basic building block in the family are formed with a continuous longitudinal ridge and a longitudinal recess, respectively. The ridge as well as the recess is provided with bevelled edges. According to one embodiment particularly adapted to corners, the ridge is divided into two portions, wherein one can be received in the recess when the building blocks are angled.

One drawback is that a great number of differently formed blocks are included in the family and are required to obtain the desired flexibility and stability and the desired appearance. One particular embodiment of the building block is used at corners. One problem is that this embodiment of the building block can not be used anywhere else than at the corners, as the recess does not extend along the entire building block and thus prevents independent positioning of adjacent building blocks.

BRIEF DESCRIPTION OF THE INVENTION

One object of the invention is to overcome the above-mentioned problem and drawbacks. This object is obtained by forming the building block with a ridge and a corresponding recess, wherein the width of the ridge corresponds to the width of the recess. In addition, the ridge is divided into at least one fist ridge portion extending from the first gable side and a second ridge portion arranged at a distance from the first ridge portion and at a distance from the second gable side, wherein the length and position of the second ridge portion corresponds to the width of the recess, so that the second ridge portion of an upper building block totally can be received in a lower building block arranged perpendicular to the upper building block.

The juxtaposition of building blocks on top of one another provides transversal fixing entirely without mortar or any other jointing material. The juxtaposition of building blocks at a corner provides fixing entirely by interlocking. Building blocks of various width can be provided. Due to that jointing material is uncalled for, building structures can be erected and also disassembled very quickly. This possibility can be used for example when emergency dwellings or any other type of elementary homes are needed promptly.

The ridge as well as the recess suitably extends centrally in the top side and the bottom side, respectively, between the gable sides. One advantage with this embodiment is that the building blocks can be turned 180° and still be positioned on top of each other while maintaining accurate lateral position. One single embodiment of the building blocks can be used freely in different positions, such as corners.

According to one embodiment of the invention the recess is formed with a depth exceeding the hight of the ridge, leaving an open space between the bottom of the recess and the ridge when two building blocks are positioned on top of each other. The open space can be used for piping and fitting other types of connections. For applications using joining material this can also be arranged in the open space, possibly together with reinforcement.

The lengths of the first ridge portion and the second ridge portion can be selected in different combinations to obtain different structure designs. According to one embodiment the lengths are selected, so that the total of the distance between the first ridge portion and the second ridge portion, the length of the second ridge portion and the distance between the second ridge portion and the adjacent gable side is constant, independent of the width of the building block. According to this embodiment, building blocks having a different width can be assembled perpendicularly from a wall of standard building blocks while maintaining an effective locking.

According to another embodiment the lengths are selected, so that the total of the distance between the first ridge portion and the second ridge portion, the length of the second ridge portion and the distance between the second ridge portion and the adjacent gable side equals the width of the

building block. According to this embodiment, building blocks having a specific width can be assembled in different configurations while maintaining an effective locking.

Automatic juxtaposition of building blocks for walls and other structures can be found. To facilitate such automatic juxtaposition at least one gable side can be formed with a recess or an indentation, extending in a direction from the top side to the bottom side. By forming only one gable side like this, the faces at a corner of assembled building blocks can be completely smooth.

The ridge can be formed somewhat tapered in a direction out from the bottom side of the building block. This facilitates the positioning of a building block on top of another, since the ridge will be guided into the recess. The widths of the ridge and the recess are small in comparison with the width of the building block. For some applications it may be desirable to have a plane bottom layer in a building structure. This can be obtained by forming building blocks intended for the bottom layer entirely without a ridge and thus providing them with a flat bottom side. Beyond the ridge and the recess, respectively, relatively wide surfaces remain for carrying the load from building blocks arranged above.

Within the scope of the invention the building blocks can be formed in different materials having different prominent characteristics. A suitable material is haydite concrete comprising haydite material pellets. The pellets are joined by cement or similar material. Haydite can be used for the construction of walls which are load-bearing as well as insulating. In this context, haydite is also a homogenous material, wherein no thermal bridges or similar can appear in the material also having excellent heat insulating properties.

So called lightweight concrete can also be used for construction material. Lightweight concrete has favourable load-bearing properties but has poorer insulating effect in certain circumstances. If a favourable insulating effect is to be obtained, without any load-bearing requirements, different types of cellular plastic can be used. All the above-mentioned materials can be moulded or processed to desired shape.

Other embodiments are evident from the following detailed description and enclosed drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will now be described in more detail by means of different embodiments and with reference to the enclosed drawings. The following drawings are part of the present application.

Fig. 1 is a perspective view at an angle from below of one embodiment of a building block according to the invention.

Fig. 2 is a perspective view at an angle from below of the building block according to Fig. 1 from an alternative angle.

Fig. 3 is a plan view from below of one alternative embodiment of a building block according to the invention.

Fig. 4 is a plan view from a short side face of the building block according to Fig. 1.

Fig. 5 is a perspective view of one portion of a corner of building blocks according to Fig. 1 positioned on top of each other.

Fig. 6 is a schematic view from below of a standard width building block according to the invention.

Fig. 7 is a schematic view from below of a first variant standard width building block according to the invention.

Fig. 8 is a schematic view from below of a second variant standard width building block according to the invention.

Fig. 9 is a schematic view from below of one alternative configuration of a building block according to the invention.

Fig. 10 is a schematic view from below of another alternative configuration of a building block according to the invention.

Fig. 11 is a plan view from above of two building blocks formed in accordance with Fig. 1, positioned on top of each other perpendicularly.

Fig. 12 is a plan view from below of two building blocks positioned on top of each other at an angle according to one alternative embodiment of the invention.

THE INVENTION

Fig. 1 illustrates one embodiment of a building block 10 according to the invention in the shape of a rectangular parallelepiped having one rectangular top side 11 (not visible) and one opposite rectangular bottom side 12. The top side and the bottom side are connected by two opposite short side faces and two opposite long side faces. The building block of Fig. 1 is illustrated upside-down in relation to the intended use.

The bottom side is formed with an elongated ridge, which is divided into a first ridge portion 13 and a second ridge portion 14. The first ridge portion 13 extends from a first short side and the second ridge portion 14 is detached between the first ridge portion 13 and the second short side. In the embodiment shown, an indentation 15 is formed in the first short side face, which indentation 15 extends over the entire short side face from the top side to the bottom side. In other embodiments, which are not illustrated, the indentation extends only over one part of the short side face. The function of the indentation is primarily to facilitate automatic juxtaposition of building blocks.

On the top side 11 an elongated recess 16 extends between the short sides (see also Fig. 4 and Fig. 5). The recess is formed with a width corresponding to the width of the ridge portions. In the embodiment shown, ridge portions as well as the recess extend centrally along the bottom side and top side, respectively. The building block 10 is also formed with plane faces or long side faces 19, extending between the top side 11 and the bottom side 12.

Fig. 2 illustrates the building block of Fig. 1 from another angle. The first ridge portion 13 and the second ridge portion 14 project from the bottom side 12 of the building block. The recess 16 extends continuously from one short side to the other and is formed with a depth exceeding the height of the ridge portions 13, 14 over the bottom side 12. As the recess extends continuously a building block arranged on top can be positioned freely in the lon-

gitudinal direction of the building block in relation to an underlying building block. Hence, the building block serves as a unit block or a module block, which can be used in any position, also at corners. It is also possible to cut the building block to practically any length.

Fig. 3 illustrates one embodiment of the positions of the first ridge portion 13 and the second ridge portion 14 on the bottom side 12 of the building block. Suitably, the ridge portions are positioned centrally on the bottom side but other embodiments are conceivable as well. The second ridge portion 14 is arranged at a distance from the first ridge portion 13 and the closest side edge, respectively, so that a second building block arranged perpendicularly totally will receive the second ridge portion 14 in its recess 16 (see also Fig. 11 and Fig. 12). As is evident from Fig. 3 the indentation 15 can be formed with bevelled or inclined side edges. The form of the indentation is suitably selected in respect of the design of the machine used for juxtaposition.

Suitably, the building blocks are formed as rectangular parallelepipeds having the length *l* and the width *w*. Depending on application and materials used the dimensions can vary substantially. According to one embodiment *l* = 600 mm and *w* = 400 mm. The dimensions of the building block can be varied more or less freely within the scope of the material strength.

From Fig. 4 the central arrangement of the recess 16 and the second ridge portion 14 in the building block 10 is evident. The remaining of the top side 11 and the bottom side 12 is formed completely plane for favourable contact between building blocks positioned on top of each other. The plane part of the top side and the bottom side beyond the ridge and the recess, respectively, is formed with a relatively large surface, which can bear extensive vertical forces. The recess is formed with a depth *d*. Suitably *d* = 40 mm, or in the same order of magnitude, for example in a range from 30 to 60 mm. The ridge portions 13, 14 is formed with a height *h*. Suitably *h* = 15 mm, if *d* = 40 mm and a space is to be left between the bottom of the recess and the top side of the ridge portions. The depth of the recess and the height of the ridge can vary according to current application.

Fig. 5 illustrates how corners can be built by means of building blocks according to the invention. Suitably, those building blocks which are at the

edge of the corner are positioned so that the indentation 15 faces inwards, wherein a completely smooth outer surface of the wall is obtained. The recess 16 extends along the entire building block and is sufficiently deep for piping, also when the ridge portions of a building block arranged on top are received therein.

Fig. 6 to Fig. 8 illustrate a first system of building blocks formed in accordance with the invention. Fig. 6 illustrates a standard dimension, wherein the width $w = W1$ and the length $l = L$. In Addition, the sum of the distance between the first ridge portion 13 and the second ridge portion 14, the length of the second ridge portion 14 and the distance between the second ridge portion 14 and the adjacent short side equals D. The second ridge portion 14 is arranged centrally in an area between the first ridge portion 13 and the nearest short side.

According to the embodiment of Fig. 7 the width has been reduced to $W2$, while the distance D remains constant. Also, the position of the second ridge portion 14 remains unchanged. According to the embodiment of Fig. 8 the width is reduced further to $W3$, while the distance D remains constant. Also, the position of the second ridge portion 14 remains unchanged. The different building blocks of the first system can all be combined with the standard dimension, when the building blocks are assembled in a T-shape or an L-shape having a connecting wall portion connected perpendicularly to a first wall portion. In any case $L = D$ + the length of the first ridge portion 13.

According to a second system of building blocks, which is illustrated in Fig. 9 and Fig. 10, different groups of building blocks having different widths can be combined with each other within one group. According to the embodiment of Fig. 9 the width has been reduced to $W4$, wherein the distance between the first ridge portion 13 and the second ridge portion 14, the length of the second ridge portion 14 and the distance between the second ridge portion 14 and the adjacent short side simultaneously has been reduced to $V1$. In addition, according to this second system $W4 = V1$. According to this embodiment $L = V1$ + the length of the first ridge portion 13, which length thus being constant, independent of the length of the building block.

When the width is reduced further to *W5*, the distance between the first ridge portion 13 and the second ridge portion 14, the length of the second ridge portion 14, and the distance between the second ridge portion 14 and the adjacent short side is also reduced to *V2*, wherein *W5* = *V2*. This embodiment holds for *L* = *V2* + the length of the first ridge portion 13, which length thus varies with the width of the building block, and is increased when the width is reduced.

Fig. 11 illustrates schematically how two building blocks can be positioned on top of one another in a right-angled relation. The first ridge portion 13 and the second ridge portion 14 of the upper building block illustrated in Fig. 11, are lowered into the recess 16 of the lower building block illustrated in Fig. 11. Both of the building blocks are positioned so that the short side faces having the indentations 15 are turned inward from the corner and, consequently, are not visible.

According to the embodiment of Fig. 12 a second type of building block 17 is illustrated, which is provided with a detached ridge portion 18, which, in contrast to the previously described second ridge portion 14, is formed as an octagon. As a consequence thereof, juxtaposition of building blocks perpendicular to each other as well as at an angle of 45° is possible. The two angle positions are illustrated in Fig. 12 by means of dashed lines. The first ridge portion 13 can be formed similar to the embodiments described above.

Suitably, the building block is solid and is formed in haydite or any other material having corresponding heat insulating properties. No passages or portions of a different material affect the properties of the building block, neither in respect of heat insulation, ability to bear loads or the possibilities of cutting the building block into desired length.

Due to large plane surfaces on the top side and the bottom side beyond the ridge and the recess, respectively, extensive loads can be carried without reinforcement. The large plane surfaces make it also possible to apply girders or specifically designed building blocks above windows and doors.

CLAIMS

1. A building block (10) for the erection of walls, said building block being formed substantially as a rectangular parallelepiped having a top side (11), a bottom side (12) opposite the top side, a first gable side, a second gable side opposite the first gable side, and two opposite faces connecting the gable sides, wherein said top side is provided with a longitudinal recess (16), said bottom side is provided with a longitudinal ridge (13, 14) corresponding to the recess, and the width of the ridge (13, 14) corresponds to the width of the recess (16), *characterised* by

that the recess (16) extends continuously between the first gable side and the second gable side for receiving the ridge in any position in the longitudinal direction, and

that the ridge is divided into a first ridge portion (13) extending from the first gable side, and a second ridge portion (14) arranged at a distance from the first ridge portion and at a distance from the second gable side, wherein the length of the second ridge portion corresponds to the width of the recess so that the second ridge portion of an upper building block totally can be received in a lower building block arranged at least perpendicular to the upper building block, each building block capable of being used at corners as well as other portions of the wall.

2. A building block (10) according to claim 1, wherein the ridge (13, 14) and the recess (16) extend centrally over the bottom side (12) and the top side (11) respectively, in a direction from one gable side towards the opposite gable side.

3. A building block (10) according to claim 1, wherein the recess (16) is formed with a depth (*d*) exceeding the hight (*h*)of the ridge (13, 14), forming an open space between the ridge and the bottom of the recess, when two building blocks are positioned on top of each other.

4. A building block (10) according to claim 1, wherein the total of the distance between the first ridge portion (13) and the second ridge portion (14), the length of the second ridge portion and the distance between the second ridge portion and the adjacent gable side is constant, independent of the width of the building block.

5. A building block (10) according to claim 1, wherein the total of the distance between the first ridge portion (13) and the second ridge portion (14), the length of the second ridge portion and the distance between the second ridge portion and the adjacent gable side equals the width of the building block.

6. A building block (10) according to claim 1, wherein the ridge is outwardly tapered.

7. A building block (10) according to claim 1, wherein an indentation (15) is formed in one gable side, between the top side and the bottom side, to be engaged by a lifting tool.

8. A building block (10) according to claim 7, wherein the indentation (15) is formed in the gable side from which the first ridge portion extends.

9. A building block (10) according to claim 1, wherein the building block comprises haydite.

10. A building block (10) according to claim 1, wherein the building block comprises light concrete.

11. A building block (10) according to claim 1, wherein the building block comprises cellular plastic.

12. A building block (10) according to claim 1, wherein the second ridge portion (18) is formed as a regular octagon, so that the second ridge portion of an upper building block totally can be received in a lower building block arranged perpendicular and at an angle of 45° to the upper building block.

13. A building block (10) according to claim 1, wherein the building block is formed solid.

14. A building block (10) according to claim 1, wherein plane and substantially smooth faces (19) connect the upper side (11) and the lower side (12).

15. A building block (10) according to claim 1, wherein the building block (10) is formed with plane faces (19).

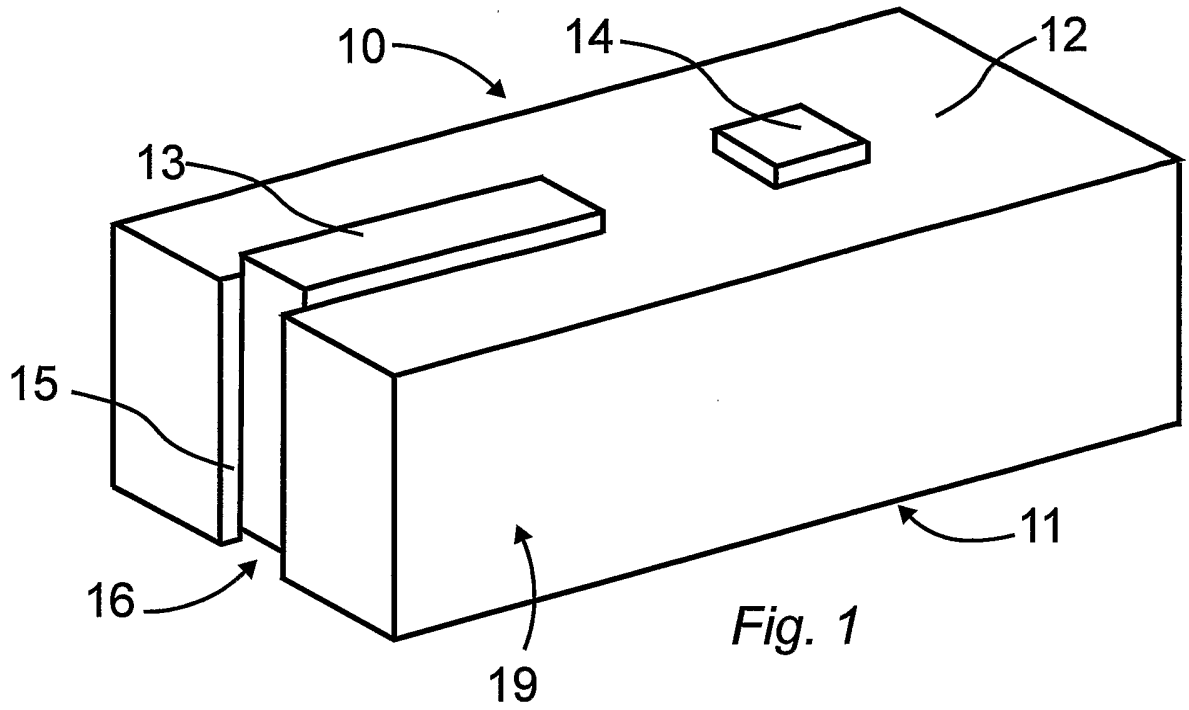


Fig. 1

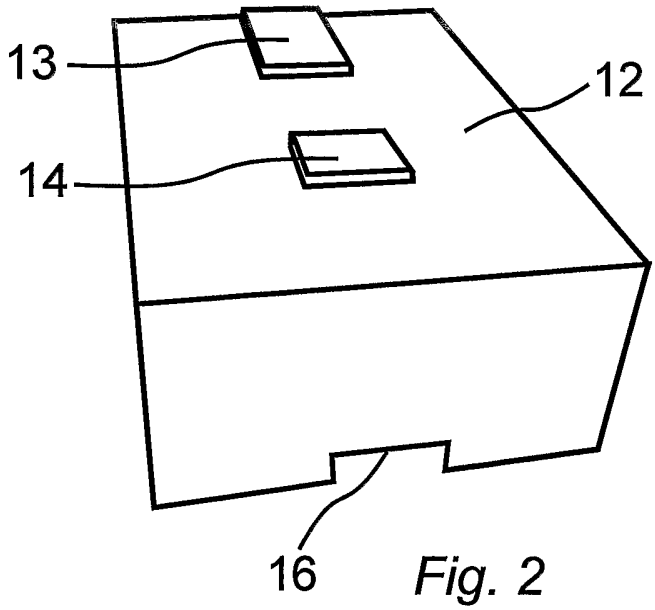


Fig. 2

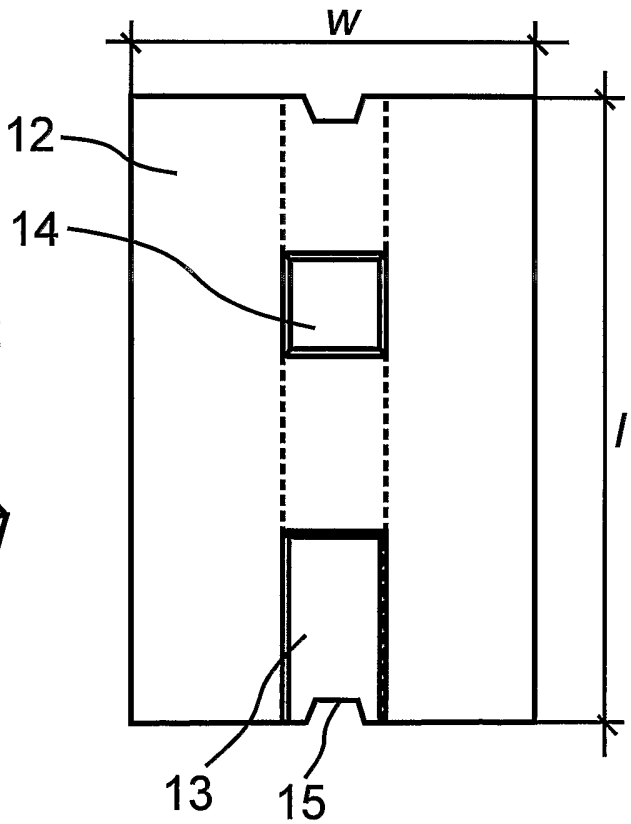


Fig. 3

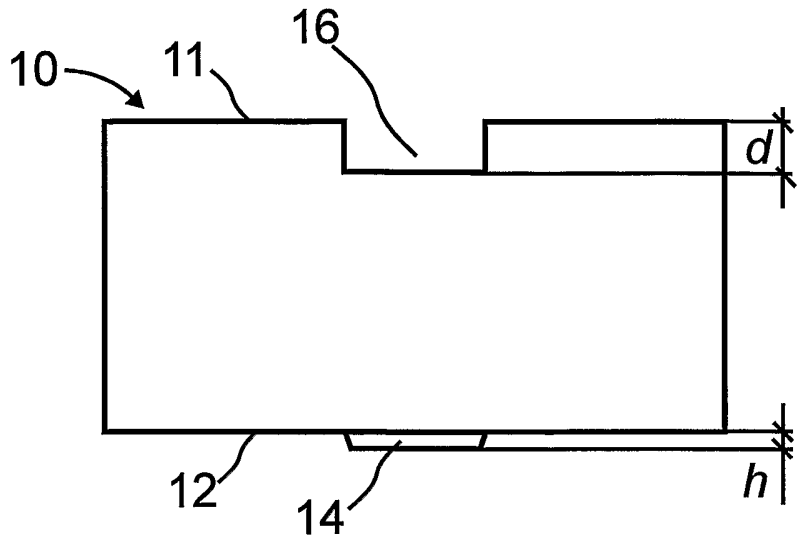


Fig. 4

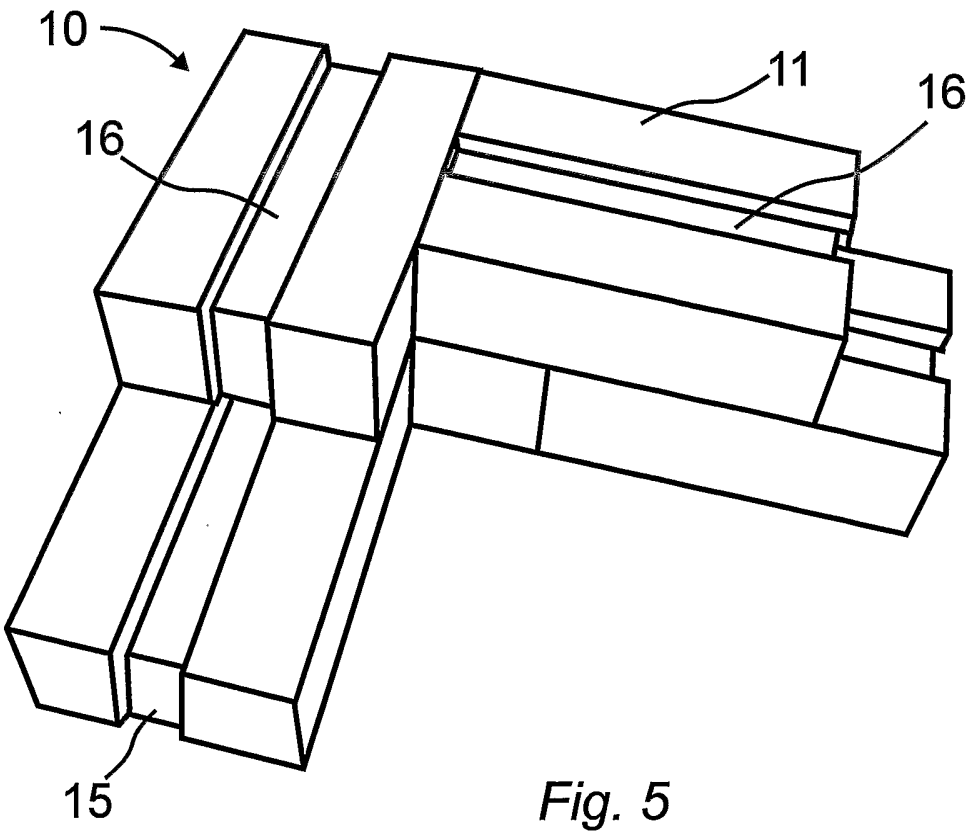


Fig. 5

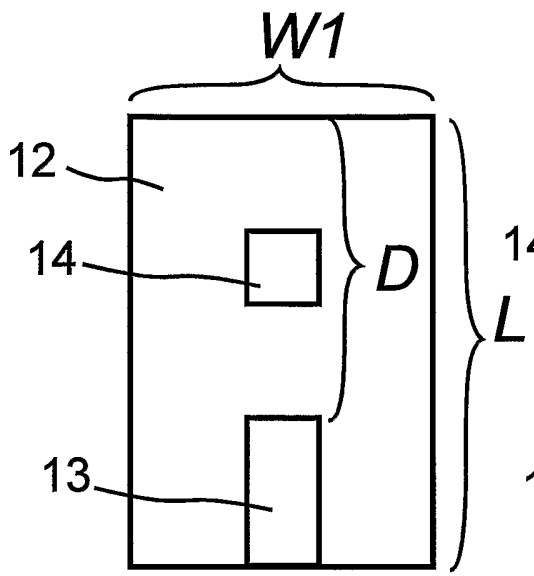


Fig. 6

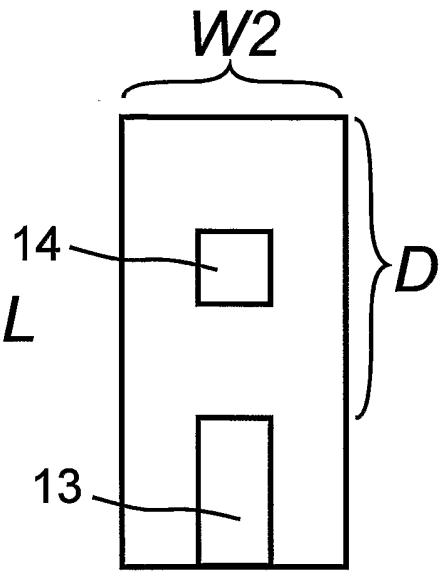


Fig. 7

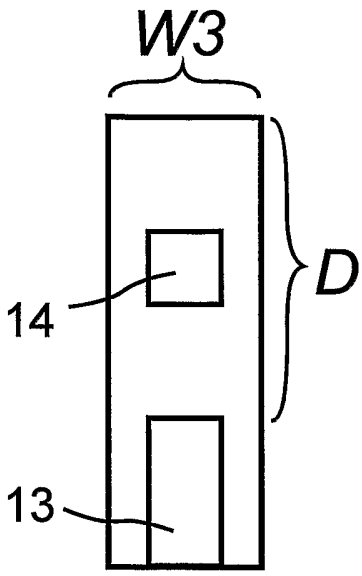


Fig. 8

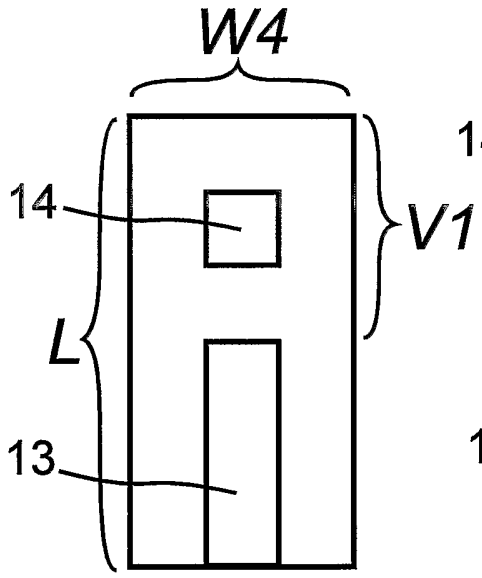


Fig. 9

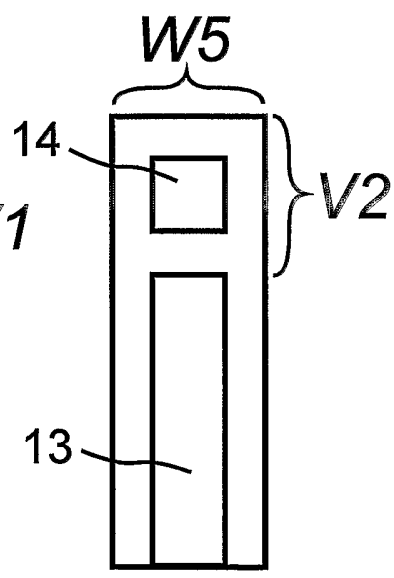


Fig. 10

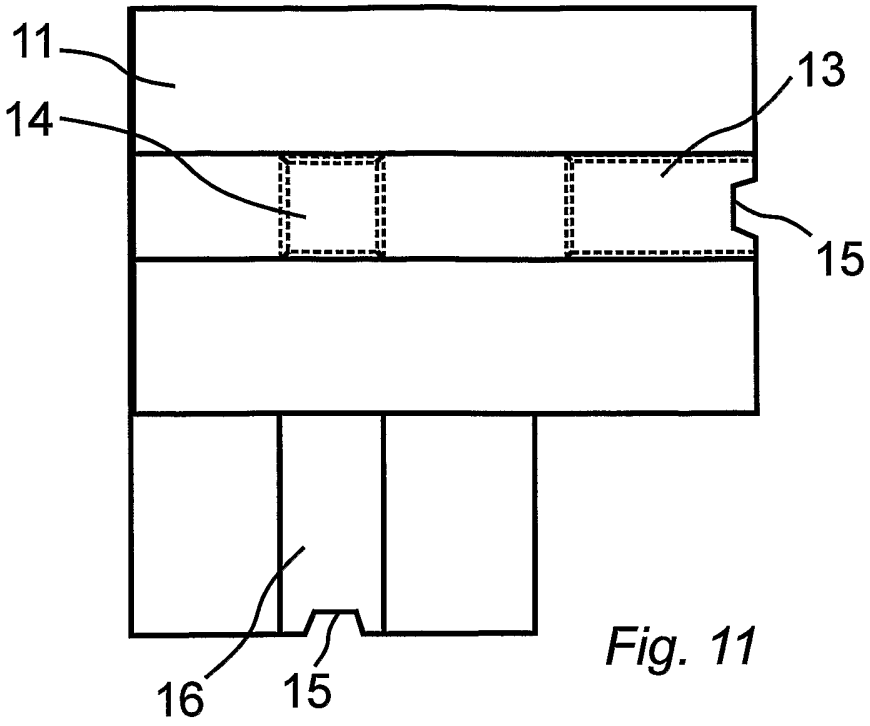


Fig. 11

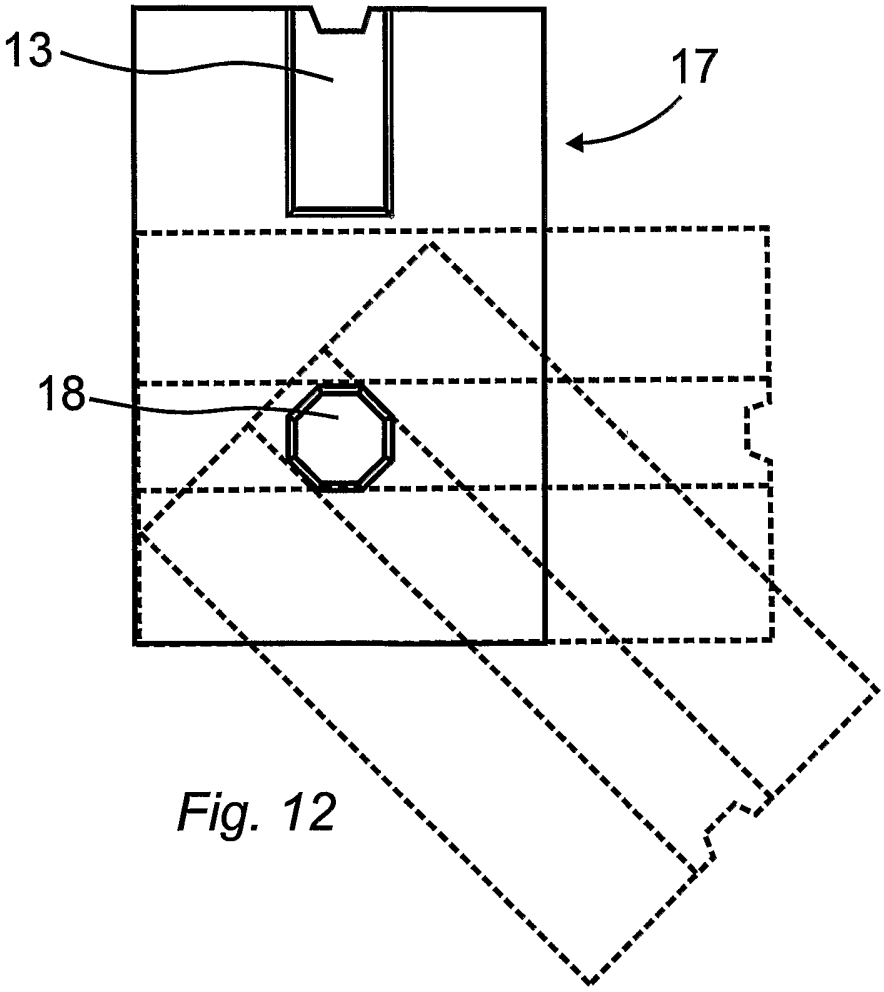


Fig. 12

INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE 2004/001088

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: E04B 2/08, E04C 1/00
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)

IPC7: E04B, E04C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-INTERNAL, WPI DATA, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB 2060026 A (JOSE COELHO DOS SANTOS), 29 April 1981 (29.04.1981), page 4, line 126 - page 5, line 23; page 5, line 73 - line 78, figures 27,27',28,33 --	1-15
A	US 5647185 A (E.J. FORLINI), 15 July 1997 (15.07.1997), column 3, line 9 - line 65, figures 3,4,5 --	1-15
A	GB 2283996 A (COLIN CAMERON GREEN), 24 May 1995 (24.05.1995), figures 1,3, abstract --	1-15

[X] Further documents are listed in the continuation of Box C. [X] See patent family annex.

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB 150312 A (M. FATIO), 20 October 1921 (20.10.1921), whole document --	1-15
A	GB 2091775 A (ROSTAMALI GULAMALI), 4 August 1982 (04.08.1982), figures 1-4, abstract -- --------	1-15

GB	2060026	A	29/04/1981	AR	228263	A	15/02/1983
				AT	373955	B	12/03/1984
				AU	6212980	A	30/04/1981
				BE	885692	A	02/02/1981
				BR	8005896	A	19/05/1981
				CA	1142773	A	15/03/1983
				DE	3016963	A	30/04/1981
				DK	415480	A	17/04/1981
				EG	16304	A	30/10/1987
				ES	260831	U,Y	16/07/1982
				ES	263907	U,Y	16/11/1982
				ES	263908	U,Y	16/11/1982
				FI	803197	A	17/04/1981
				FR	2467929	A	30/04/1981
				IL	61169	D	00/00/0000
				IN	154189	A	29/09/1984
				IN	160429	A	11/07/1987
				IT	1128608	B	28/05/1986
				IT	8049890	D	00/00/0000
				JP	56064057	A	01/06/1981
				LU	82807	A	15/12/1980
				MC	1351	A	22/06/1981
				MT	876	A	28/02/1983
				MW	4080	A	10/03/1982
				MX	150842	A	30/07/1984
				OA	6639	A	31/08/1981
				PH	24422	A	25/06/1990
				PT	70322	A	01/11/1979
				SE	8007224	A	17/04/1981
				YU	258580	A	30/06/1983
				ZA	8006384	A	28/10/1981
				ZM	8280	A	21/09/1981
US	5647185	A	15/07/1997	NONE			
GB	2283996	A	24/05/1995	GB	9323682	D	00/00/0000
GB	150312	A	20/10/1921	NONE			
GB	2091775	A	04/08/1982	NONE			