



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) **EP 0 935 031 A2**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
11.08.1999 Bulletin 1999/32

(51) Int. Cl.⁶: **E04B 2/18, E04B 2/08**

(21) Application number: **99102131.2**

(22) Date of filing: **03.02.1999**

(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: **Zarantonello, Andrea**
36033 Isola Vicentina (IT)

(74) Representative: **Bonini, Ercole**
c/o STUDIO ING. E. BONINI SRL
Corso Fogazzaro 8
36100 Vicenza (IT)

(30) Priority: **06.02.1998 IT VI980022**

(71) Applicant: **Gruppo Effe 2 SpA**
36033 Isola Vicentina (VI) (IT)

(54) **Tile block for bearing walls building**

(57) The invention realizes a tile block (10; 20) suitable to be used in a bearing wall building consisting in a plurality of said blocks connected to one another through grout. Said tile block includes a central body (5; 21) and two lateral wings (6; 7; 22; 23) equally translated according to parallel planes, said body and said wings defining at least a housing space (55) receiving the body of at least a similar second block forming the wall.

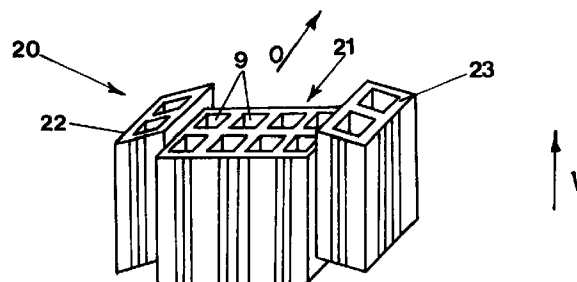


FIG.3

EP 0 935 031 A2

Description

[0001] The invention concerns a tile block suitable to be used in bearing walls building, particularly suitable for the thermic scaffold cut.

[0002] As it is known in the building of bearing walls or anyhow of external plugging, tile blocks generally consisting in hollow tiles connected and staggered through grout are currently used.

[0003] Since the tile blocks have the same height, it happens that the staggering can be realized just arranging rows through non-aligned lower blocks, but between two rows there is a continuous grout layer. As a consequence the grout layer fills all the thickness depth of the block and therefore of the wall.

[0004] The thermal conductivity of the tile with respect to the cement one, or of an equivalent binding material, is very different, even because there are in the tile some air spaces causing a thermal insulation, as well as lightening the tile block. The so-called thermal scaffolds originate since there are continuous grout layers between the out- and the inside of the building. Thermal scaffolds are preferential areas of almost direct heat transfer which are perfectly opposed to the result which is aimed at, that is the insulation through air spaces realized in tiles. There are said thermal scaffolds, as it has been said, in each tile blocks row and therefore it can be understood that the heat transfer surface, that is the resulting whole thermal scaffold, is considerable. In fact, as a measure, a further plugging in order to avoid or reduce the transfer and the loss of heat must be carried out.

[0005] Moreover, as it must be pointed out, since the tile blocks are substantially parallelepiped, they are connected to one another just through the grout binding action. If, for any reason, for example because of vibrations due to an earthquake or to another cause the grout decreases or stops its binding action, the blocks become independent from one another and as a consequence the wall realized with said blocks can collapse rather easily.

[0006] The aim of the present invention is that of overcoming the limits of the current technics.

[0007] A first aim that is wanted to be obtained is that of realizing a tile block suitable to be used in the building of bearing walls or of plugging outside main walls through which a real and effective thermal scaffold cut is granted.

[0008] Another aim that is wanted to be obtained is that the connection between the blocks forming the wall is of the fixed-joint type so that violent vibrational stresses, as the earthquake ones, can cause a considerable increase of the strength of the wall built through tile blocks.

[0009] Another aim is to make the wall realization easier and faster, and especially to simplify the position of the cement adhesive placed among the blocks.

[0010] All the above-mentioned aims and other which

will be better underlined later on are achieved by a tile block suitable to be used in a bearing wall building consisting in a plurality of said blocks connected to one another through grout, said block according to the content of the first claim being characterized in that it includes a central block and two lateral wings equally staggered according to parallel planes, said body and said wings defining at least a housing space receiving the body of at least a similar second block forming the wall.

[0011] According to a particular embodiment of the invention the lateral wings of the tile block are translated with respect to the central body according to the vertical direction.

[0012] In another embodiment the lateral wings are translated both in the vertical direction and in the horizontal one.

[0013] Further features and peculiarities of the invention will be better underlines in the description of two preferred embodiment of the invention given approximately but not restrictively and shown in the enclosed drawings where:

- fig. 1 shows a tile block for a building according to the prior art;
- fig. 2 shows a first embodiment of the tile block according to the invention in a perspective view;
- fig. 3 shows an executive variant of the tile block according to the invention;
- fig. 4 shows a perspective and scrap view of a wall built through the tile blocks of the invention;
- fig. 5 is a section of the wall of fig. 4.

[0014] Referring to the mentioned drawings it can be observed that fig. 1 shows a tile block for the prior art walls building, marked with 1 as a whole. Such a block, substantially parallelepiped, has a series of vertical ducts 2 helping both the block lightening, and the realization of an air space, and therefore the thermic insulation too. It can be observed that the lateral walls 3 and 4 have a surface with projecting and concave walls so that it creates a fixed-joint between the blocks belonging to the same horizontal row.

[0015] Fig. 2 shows a perspective view of a tile block according to the invention having substantially the same dimensions of the prior art tile block shown in fig. 1, but in which there is a central body 5 having hollow ducts 9 having two lateral wings 6 and 7 which are equally staggered with respect to the central body 5 according to parallel planes and, in the case of fig. 2, both are staggered upwardly. This arrangement of the tile block, marked with 10 as a whole, allows the definition of a space included between the upper plane 51 of the central body 5 and the vertical planes 61 and 71 of the lateral wings 6 and 7, where there is a layer grout, marked with 8 in fig. 5.

[0016] As it can be observed in fig. 2, the upper part of each wing 6 and 7, marked with 62 and 72 respec-

tively, and the power part, marked with 63 and 73 respectively, are decreasingly inclined planes outwards from the central body.

[0017] As it can be observed in fig. 5, the effect of the inclined course of the terminal surfaces of the lateral wings is twofold, that is preventing the rain or anyhow the water, coming from the outside, from going in the masonry and increasing the faying surface between two blocks and therefore granting as much as possible the two blocks sealing without the interposition of the grout. In fact, as it can be observed in fig. 5 and according to what has been said above, the grout is placed just in the space defined on the upper plane of the central body, and marked with 55 as a whole. The arrangement of the grout 8 just in the above-mentioned space 55 causes the cutting of the thermal scaffold that the layer 8 would have made between the external and the internal part of the masonry, marked respectively with E and I if it had been spread on both sides.

[0018] In fact it is clear that the inclined planes 72 and 73 stop the heat transfer from the outside to the inside and vice versa since they substantially grant the continuity of the air ducts 9 in the tile block 10.

[0019] Another effect due to the inclined planes 62 and 63, 72 and 73 consists in the fact that, as it can be observed in fig. 5, the block 10 cannot be removed easily even through the action of strong stresses because it is fixed, independently of the grout 8 action, between the upper and lower blocks.

[0020] The fixed-joint effect can be stressed further if the tile block of the invention takes the shape shown in fig. 3. In such a case the tile block, marked with 20 as a whole, has a central body 21 and two lateral wings 22 and 23 which are translated with respect to the central body according to the vertical direction, marked with V, but are translated according to the horizontal direction, marked with O, as well. In such a case it is clear that the block 20 is fixed not only vertically, but also horizontally, that is according to the wall building row, through identical blocks. This can be observed in a perspective view of fig. 4 showing some blocks 20 connected to one another and realizing a bearing wall.

[0021] Of course if the blocks of the invention form the first row 30 or the last row 40, as it is shown in fig. 5, the lower surface or the upper one, respectively of the rows 30 and 40, will be flat so that they can grant a bearing on the floor plane, in the case of the first row, and the plugging closing, in the case of the higher row.

[0022] The advantages resulting from the invention are several.

[0023] As it has been said the tile block of the invention allows the thermal scaffold cut, as it has been underlined, since grout is limited to the space concerning the central body of the tile block. Therefore the application of the grout is easier and more limited.

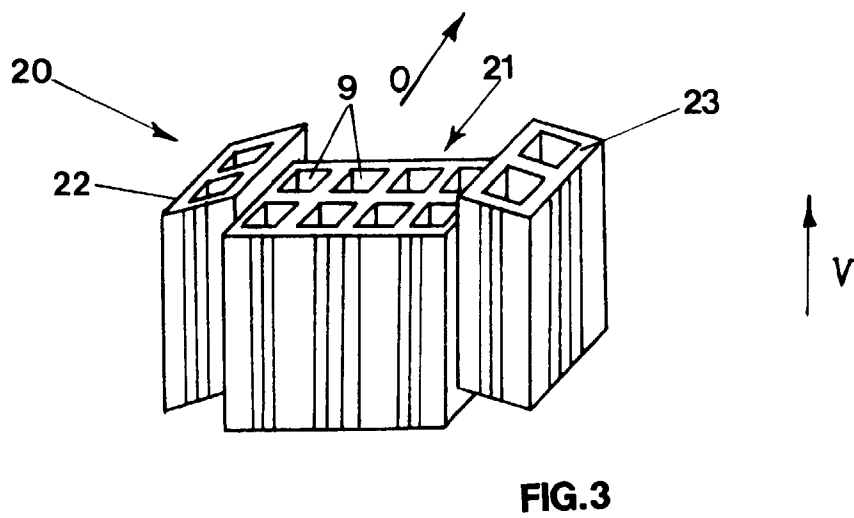
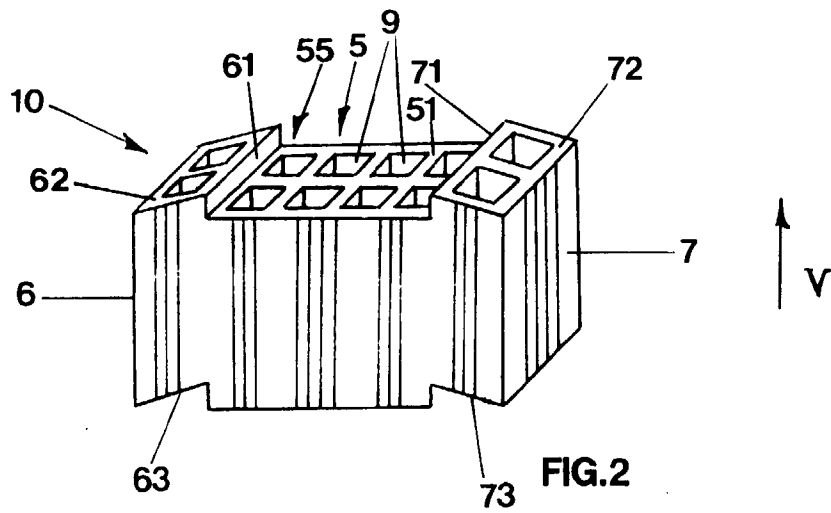
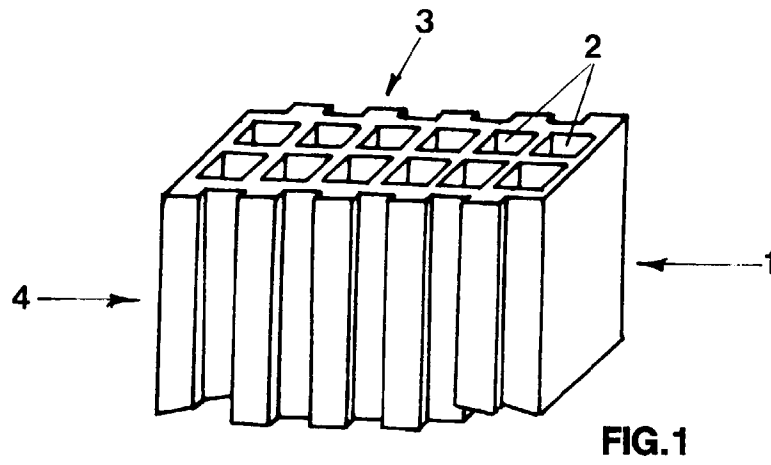
[0024] Another advantage resulting from the invention is that the installation of a wall realized through the tile blocks of the invention is considerably quickened since

the particular configuration of the tile blocks eliminates the need of a plumb-line that is of the blocks alignment. In fact each block is fixed in the adjacent one and in the following one without any problem and without any adjustment.

[0025] Another advantage of the invention consists in the aseismic quality of the building, deriving from the blocks fixed-joints and this independently from the connection realized by the grout.

Claims

1. Tile block (10;20) suitable to be used in a bearing wall building consisting in a plurality of said blocks connected to one another through grout, **characterized in that** it includes a central body (5; 21) and two lateral wings (6; 7; 22; 23) equally translated according to parallel planes, said body and said wings defining at least a housing space (55) receiving the body of at least a similar second block forming the wall.
2. Block according to claim 1) **characterized in that** the two lateral wings (6, 7) are equally translated with respect to the central body according to the vertical direction.
3. Block according to claim 1) or 2) **characterized in that** the two lateral wings (22, 23) are equally translated with respect to the central body according to the horizontal direction.
4. Block according to any of the preceding claims **characterized in that** the space defined between the upper plane (51) of the central body and the vertical walls (61, 71) of the lateral wings (6, 7) houses a layer of grout or of an equivalent material in order to bind a block to the following one.
5. Block according to any of the preceding claims **characterized in that** the upper and the lower wall of each wing is inclined downward through a decreasing course outwards from the central body.



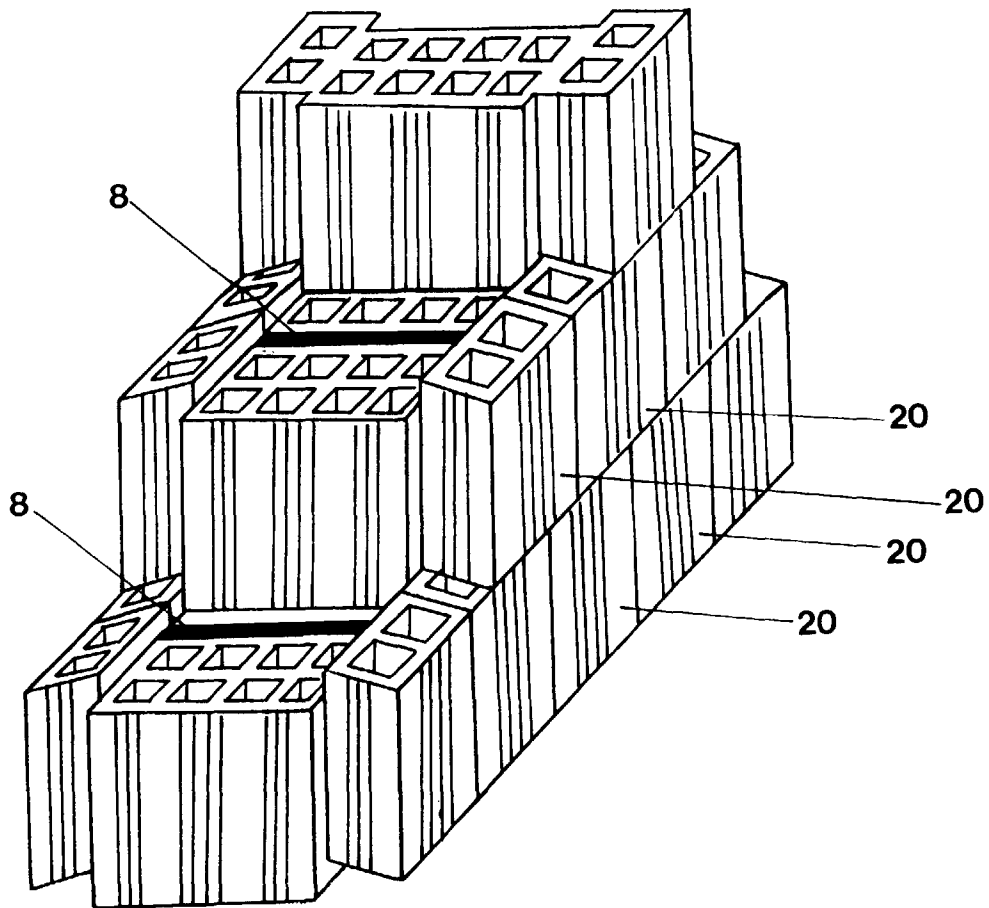


FIG.4

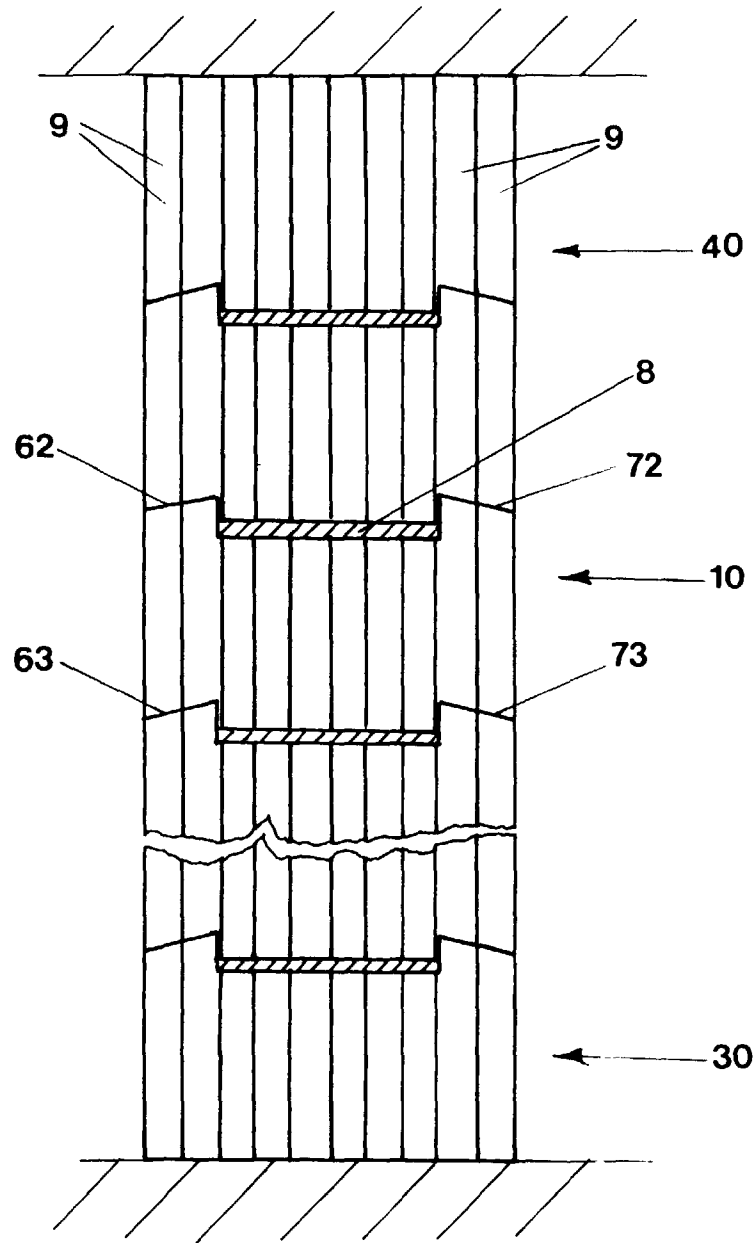


FIG.5