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HOLLOW BUILDING BLOCK AND BUILDING BLOCK SYSTEM

The invention relates to a building block system and a building block made from concrete or similar material and adapted to be assembled by engageable tongue and groove means.

It is known to make wall blocks from concrete or similar material and it is also known to provide such wall blocks with tongues and grooves for controlled assembling. However, the brick-laying itself by the previously known embodiments was rather time-consuming and there was no possibility of reinforcing the wall in any simple way. In addition the previously known wall blocks made from concrete were relatively heavy in weight and they would require considerable extra insulation against heat transfer.

French patent No. 1 319 058 thus describes a hollow building block having tongues and grooves in one direction and otherwise provided with smooth side surfaces.

It is further known from French patent No. 1 525 575 to produce building blocks designed for mosaic assembling and having a relatively complicated form which will make the production of the brick rather difficult.

The present invention has as its main purpose to provide a hollow building block and building block system made from concrete or similar material and enabling the reinforcing of the assembled product possibly even after the assembling and of a design which will reduce the construction time remarkably at the same time as the block is lighter in weight compared with usual wall blocks, but still has sufficient strength and does not require the same amount of insulation against heat conduction as it is the case for known wall blocks. The hollow building blocks according to the invention may be fully or partly filled with cast reinforcement and/or insulation.

In accordance with the invention the hollow building block comprises two laterally spaced side walls interconnected by at least one web means and having at least one cavity open at the top and bottom of the block, horizontal and vertical edge surfaces of the side walls being provided with tongue and groove means, each side wall having in a first pair of adjacent edge surfaces tongue means

and in the other pair of adjacent edge surfaces groove means, the tongue and groove means in each of the side wall edge surfaces being dimensioned so as to be closely receivable in groove and tongue means of adjacent blocks, and wherein the tongue and groove means are arranged in the edges of said side walls such that for one side wall the corner formed between the adjacent edge surfaces having tongue means is diagonally opposite to the corner of the other side wall formed between adjacent edge surfaces having tongue means, this also applying to the corners formed between edge surfaces having groove means.

The invention will be better understood from the following more detailed description with reference to the drawings, wherein:

Figure 10 shows a modification of the hollow building block in front view and rear view,

Figure 11 shows four blocks of Figure 10 stacked on one another and having cavities formed by said stacked blocks filled with insulation mats,

Figure 12 shows a horizontal row of four blocks of Figure 10 forming an open groove for insertion of insulation mats,

Figure 13 shows the use of the Figure 10 blocks in connection with a concrete floor by addition of an adapting slab,

Figure 14 shows a wall constructed with the

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hollow building block of Figure 10, the upper cavity having been filled with concrete and reinforced,

Figure 15 shows a further modified embodiment of the block,

5 Figure 16 shows a modification of the block of Figure 15, and

Figure 17 shows a block with an additional intermediate wall.

10 The block construction system of the invention comprises insulation blocks B_I as shown in Figures 10-14 suitable for the construction of a wall in the so-called dry form and providing an effective sound and thermal insulation.

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 Figures 10 to 12 illustrate hollow building blocks B_I comprising two laterally spaced side walls 20, 30 interconnected by web means, 40 and having cavities with open top and bottom. Horizontal and
20 vertical edge surfaces of said side walls are provided with tongue and groove means 2, 1. Each side wall has in a first pair of adjacent edge surfaces tongue means 2, 2a and in the other pair of adjacent edge surfaces groove means 1, 1a the tongue and groove means in each
25 of the side wall edge surfaces being dimensioned so as to be closely receivable in groove and tongue means of adjacent blocks B_I . The tongue and groove means 2,

2a, 1, 1a are arranged in the edges of said side walls
20, 30 such that for one side wall the corner formed
between the adjacent edge surfaces, having tongue means
2, 2a is diagonally opposite to the corner of the other
5 side wall (30, 20) formed between adjacent edge surfaces
having tongue means. This also applies to the corners
formed between edge surfaces having groove means.

This arrangement permits the use of only one
10 single block form which may be assembled with like
blocks in different orientations.

The blocks of Figure 10 are S-shaped in view of
the double L-shaped form of the web 40 interconnecting
15 the two side walls 20, 30.

The Figures 11 to 14 show some examples of
construction using the insulation block B_I described
hereinbefore.

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Figure 13 for instance shows how a wall is
constructed with the insulation blocks B_I when passing
a floor 10 without interrupting the insulation and it
will be seen that this problem is easily solved by the
25 use of an adaptor slab 9 having a height equal to the
thickness of floor 10.

It should be noted that within the scope of the invention the insulation block is not bound to having an S-formed cross-section, but may have a cross section formed like a double "S", an "M" or a double "M".

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It will be obvious to a person skilled in the art that the internal corners of all cavities in practice will be slightly rounded and not sharp, to avoid stresses and possible breakages at these points.

10 Accordingly the drawings are to be considered as merely illustrated schematical sketches.

The blocks according to the invention are made by moulding of concrete and provide a simplest possible
15 adaptation to the various construction methods. The blocks may be stacked in dry condition or be connected by binding (as in brick-laying) and standard mats may be used as insulation material for instance divided simply in halves.

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The most important advantages in a system of hollow construction blocks according to the invention is found in the fact that blocks are very light in weight and at the same time have sufficient strength and in
25 themselves provide considerable insulation. Furthermore the blocks can be manufactured at low cost and afford the possibility of constructing a wall or similar

structure in a simple, quick and safe way. A completed wall or the like may be surface treated in a known manner to provide a ready-made front.

5 Referring now to Figure 15, a double S block 50 is shown having side walls 20, 30 provided with grooves and tongues arranged as described hereinbefore with respect to the insulation block B_I of Figure 10. The web 52 interconnecting the two side walls is
10 substantially U-shaped to form block 50 of double S-form.

 The block 60 shown in Figure 16 also corresponds to the insulation block B_I of Figure 10 as far as the arrangement of the grooves and tongues in the side walls
15 is concerned, but it has a modified web 62 which is generally O-shaped to form a block of double H form.

 Finally, the block 70 of Figure 17 also has the grooves and tongues arranged as explained hereinbefore
20 with respect to the block of Figure 10 but it comprises an intermediate wall 72 between the side walls 71, 73 and three webs 74 interconnecting the intermediate wall 72 and the side walls 71, 73

CLAIMS

1. Hollow building block comprising two laterally spaced side walls interconnected by at least one web means, and having at least one cavity with open top and bottom, wherein horizontal and vertical edge surfaces of said side walls are provided with tongue and groove means, each side wall having in a first pair of adjacent edge surfaces tongue means and in the other pair of adjacent edge surfaces groove means, the tongue and groove means in each of the side wall edge surfaces being dimensioned so as to be closely receivable in groove and tongue means of adjacent blocks, and wherein the tongue and groove means are arranged in the edges of said side walls such that for one side wall the corner formed between the adjacent edge surfaces having tongue means is diagonally opposite to the corner of the other side wall formed between adjacent edge surfaces having tongue means, this also applying to the corners formed between edge surfaces having groove means.

2. Hollow building block according to claim 1, characterised in that said integral web is shaped so as to provide a block having an S, a double S, an M or a double M form.

3. Building block according to claim 1, characterised in that an intermediate wall is disposed between said laterally spaced side walls, said intermediate wall being connected by web means to both of said spaced side walls.