Jan. 25, 1955 R. GILDE 2,700,295

BUILDING BLOCK AND MOUNTING THEREOF

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Fig. 1.

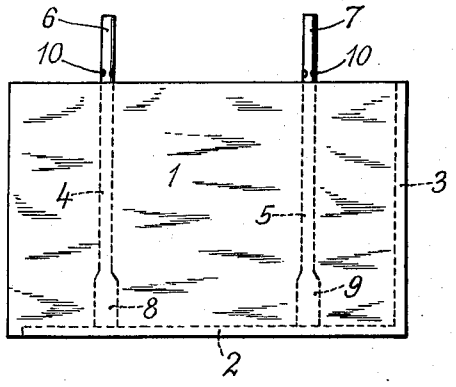
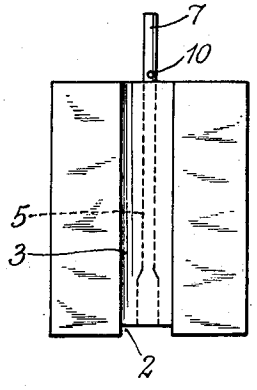


Fig. 2.



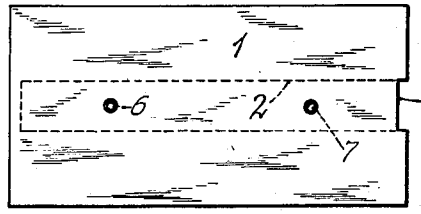
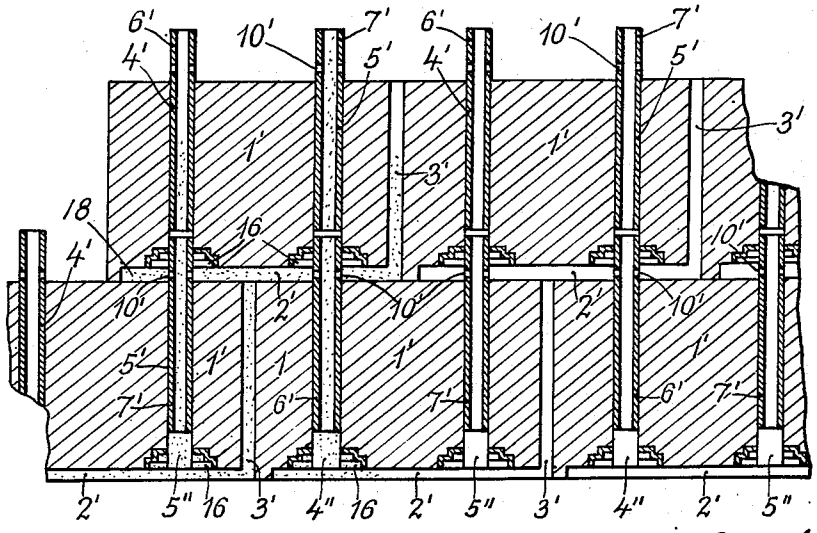


Fig. 3.

Fig. 6.



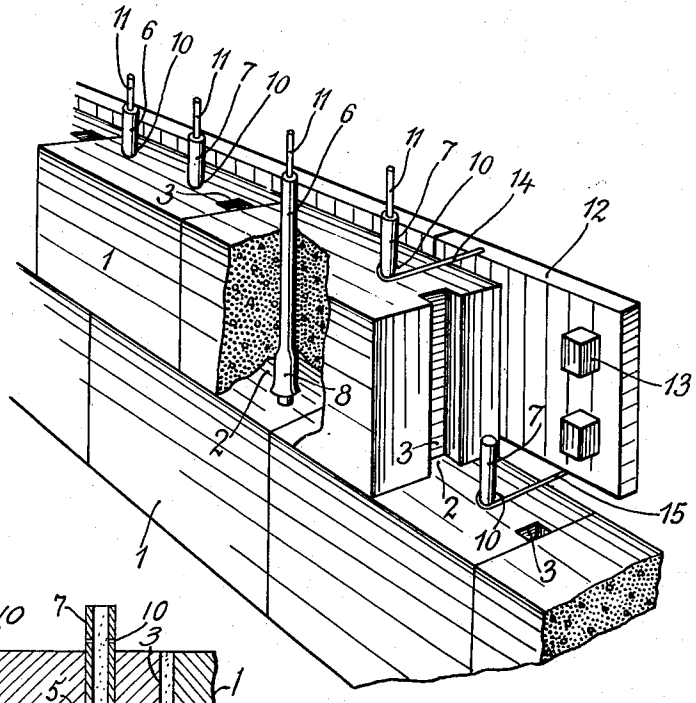
Inventor:
Rolf Gilde,
By: Pierce, Scheffler & Parker,
Attorneys.

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Fig. 5.



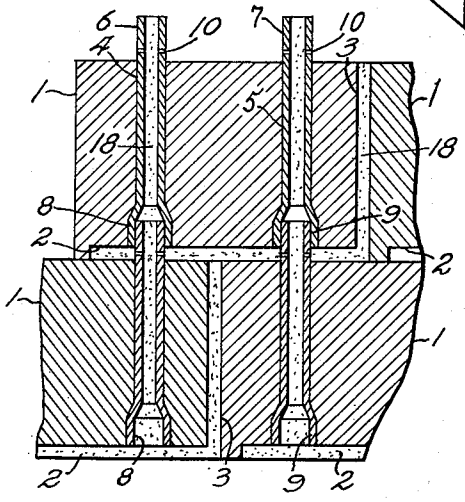


Fig. 4.

Inventor:
Rolf Gilde,
By: Pierce, Scheffler & Parker,
attorneys.

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BUILDING BLOCK AND MOUNTING THEREOF

Rolf Gilde, Trondheim, Norway

Application September 20, 1951, Serial No. 247,430

9 Claims. (Cl. 72—30)

This invention relates to building blocks and methods of mounting the same.

One of the objects of the invention is to provide building blocks having inserted therein through tubes and provided with grooves along surfaces thereof in such manner that when blocks are mounted upon each other in dry condition communicating channel systems are formed extending along all adjacent faces of the blocks. After the blocks having been so mounted upon each other, cement or beton slurry is driven through said tubes into all channel systems, whereby tight joints are obtained.

Another object of the invention is to provide simple means ensuring that the several blocks will always be mounted in correct relation to each other. According to the invention this is obtained by providing said tubes with protruding end portions at one side, the other end of each tube being given such an inner dimension that it is adapted to receive a protruding end of a tube of an adjacently mounted block.

The mounting of the blocks thus will be controlled by such guiding means and when the latter have been correctly embedded in the blocks at the manufacturing plant, the wall or the like to be built will get exactly desired form and position without the use of measuring apparatus and without special workman's skill being necessary.

When the blocks are mounted thus a tube construction extending vertically through the blocks is obtained, such tube construction consisting of telescopically interconnected tube sections. Where the tubes extend through the grooves the tube walls are provided with holes through which mortar may pass into the grooves when pressed into the tube.

In the above it has been supposed that the tubes embedded in the blocks are so formed that they may be telescopically introduced into each other. This presupposes that one end of the tube is so widened out that the inner diameter thereof corresponds to the outer diameter of the other end of the tube.

Even if such an embodiment of the tube construction may be of advantage, the manufacture of such special tube becomes dear, where mass production is not used. Therefore the problem may be solved in the manner that ordinary tube sections having approximately the same length as the height of the block are embedded into the block in such manner that one end of the tube section protrudes past one block surface whereas at the opposite side of the block there is formed an enlarged channel or hole in the block mass proper, such channel forming an extension of the tube and being adapted to receive the protruding end of a tube of the block next below, when the blocks are mounted.

In order to ensure that the circumference of said hole shall not become damaged one may provide an annular sleeve that is embedded when manufacturing the block.

Based upon the above described constructive embodiments of the building block the invention further comprises a method of erecting walls. The method consists therein that the building blocks are first placed upon each other whereafter they are bonded together by pressing in of beton slurry or other plastic mass through said tubes. According to the invention reinforcement iron may be inserted through the telescopically interconnected tubes after the beton slurry having filled up the space between the blocks, so that the tubes in combination with the beton slurry and the reinforcement iron form rigid, vertical reinforcing posts.

During mounting of walls the tube ends may suitably be used as attachments for other building elements, which are attached by straps of suitable material.

In the preferred embodiment of a building block according to the invention the block is of generally rectangular shape and of usual size. Preferably it consists of gas beton, whereby the density may be reduced to 0.7–0.8. Blocks of such density may very well have a bottom area of 40 x 20 cms. and a height of 20 cms. or more. This block is provided with the above mentioned through tubes, which extend somewhat above the top surface of the block, the bottom and one side face being provided with a groove to receive mortar.

The use of such through tubes brings a number of advantages, among which are the following:

(1) The protruding tube ends may during mounting of the wall be used as handles when the block is to be placed.

(2) The lower part of the tube forms a centering hole for the block, the hole being placed over a tube end protruding from a block below;

(3) The tubes form together a tube system utilizable for pressing through of bonding material such as beton slurry, for bonding of the wall;

(4) The vertical channels formed through the wall may receive reinforcing irons extending vertically, and

(5) The protruding tube ends serve for safe anchoring of facing slabs which are placed at the outer side of the wall, or for attachment of other building elements.

In order that the invention shall be easily understood it is below described with reference to the annexed drawings, which illustrate the same by way of example.

Fig. 1 is a side view of a building block according to the invention.

Fig. 2 an end view thereof and

Fig. 3 is a top view of the same.

Fig. 4 is a vertical section showing a portion of a wall constructed from the blocks illustrated in Figs. 1–3.

Fig. 5 is a perspective view, partly in section, illustrating a section of a wall during the building up thereof and which further includes a facing panel secured to the wall.

Fig. 6 is a vertical section showing a few blocks with a modified construction of their tubes, according to the invention.

Referring to Figs. 1–4 numeral **1** designates a single block according to the invention. This block is of rectangular cross section and is along its bottom end surface provided with a groove **2** and along an adjacent end surface, i. e. at the side of the block with another groove **3** communicating with said groove **2**. Through the block extends two vertical channels **4** and **5** respectively. Each of these channels is lined by a tube **6** and **7** respectively, the top end of which protrudes for some distance above the top surface of the block and the lower ends **8**, **9** of which, located within the block, have a bell shape to establish an internal dimension that corresponds to the external dimension of the protruding tube ends **6** and **7** respectively. The protruding ends **6** and **7** are each provided with apertures **10** through their walls, just above the top surface of the block. When blocks are laid in courses one over each other for example in assemblage, as shown on Fig. 4, said apertures **10** thus will open into the channel formed by groove **2** above the top surface of the block **1** next below, thereby establishing passageways through which bonding material **18**, such as beton slurry forced down into the tubes, will be forced along the horizontal grooves **2** and thence into the vertical grooves **3** communicating with grooves **2** at the corner of the block.

Through the tubes 6 and 7 are, as shown on Fig. 5, inserted reinforcing rods **11**. These rods extend for the entire height of the wall and form, together with the tubes a rigid armature. Between tubes **6** and **7**, within the blocks, may if desired be provided in a manner known per se, transversely extending reinforcement (not shown).

In connection with a wall may eventually be used facing slabs **12**. Each slab may have an area corresponding to the side area of a block **1** and is provided with suitable projections or legs **13** serving to determine the distance

between the outer surface of the wall proper and the inner surface of the slab **12** proper. The slabs are fastened to the wall by means of straps **14** and **15** which are passed around the protruding tube ends **7**, for example in the manner shown on Fig. 5.

In the same manner as shown for covering slabs also other construction elements may be attached to the wall.

Referring to the modified construction shown in Fig. 6 each block **1'** is along its bottom face provided with a groove **2'** and along an end face with another groove **3'** communicating with groove **2'**. Through the block are provided two vertical channels **4'** and **5'**. These channels are lined with tubes **6'** and **7'**, the top ends of which protrude for a suitable distance above the top face of the block, their bottom ends opening into continuations **4''** and **5''** of the channels **4'** and **5'** respectively. Said continuations **4''** and **5''** serve, as will be seen from the drawing, to receive protruding ends of the tubes in the lowermost layers of blocks. In the walls of the protruding tube parts **6'**, **7'** are provided holes just above the top surface of the block, so that when the blocks **1'** are mounted upon each other, for example as shown on the figures, these holes **10'** will open into the channel formed by groove **2'**. Around the bottom opening of each continuation **4''**, **5''** of the channels **4'**, **5'** may be provided an annular sleeve **16**, ensuring that the edge of the opening is not damaged during transport or storing.

The drawings disclose embodiments of entire or full blocks only. In practice it will also be necessary to use some half blocks also. These will be formed as exactly the half of one of the blocks shown.

I claim:

1. Building material comprising a rectangular block having at least two adjacent end surfaces each provided with a groove between the edges thereof extending for substantially the entire length of the end surface and spaced channels extending through said block perpendicular to one of the grooved end surfaces and communicating with the groove in such end surface and the surface of the opposite end of the block, and a tube lining each of said channels and having one end portion protruding beyond said opposite end surface, said end portion being provided with apertures extending through the wall of the tube and spaced from said opposite end surface a distance less than the depth of said groove for discharging bonding material into the joint between end surfaces of adjacent blocks.

2. A building block as defined in claim 1 wherein the other end portion of each tube terminates within the body of the block and has an internal diameter generally corresponding with the external diameter of the protruding end portion so as to permit a telescoping connection with the protruding end portion of the tube of another block.

3. A building block as defined in claim 1 wherein the length of each tube corresponds approximately to the distance between the opposite end surfaces in the direction of the channels, and the other end portion of each tube terminates short of the end of its respective channel in order that the end of the channel may receive the protruding end portion of the tube of another block.

4. A building block as defined in claim 3 wherein a lining sleeve is provided at the end portion of each channel communicating with the groove.

5. A building wall comprising a plurality of blocks as defined in claim 1 laid in courses and offset from each other, the tubes of the blocks of adjacent courses being aligned and forming continuous channels throughout the entire height of the wall and bonding material in the tubes and extending outwardly through the apertures in the tubes into the grooves along the surfaces of the blocks.

6. A building wall as defined in claim 5 and which further includes reinforcing rods extending through the tubes defining the continuous channels.

7. A building wall as defined in claim 5 and which further includes facing slabs for said wall and straps extending from said slabs and anchored to the protruding portions of the tubes in said blocks.

8. A building block as defined in claim 1 wherein the grooved end surfaces are constituted by the lower surface and one side surface of the block and said grooves meet at the corner of the block defined by the intersection of such surfaces.

9. A building block as defined in claim 8 wherein the groove in the lower surface of said block terminates short of the other side surface of the block.

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