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Hartnell

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[54] **RAPID LAY BUILDING BRICKS**

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[63] Continuation of Ser. No. 66,440, Aug. 24, 1970, abandoned.

[52] **U.S. Cl.** **52/314,** 52/603

[51] **Int. Cl.** **E04c 1/12**

[58] **Field of Search** 52/314, 311, 316, 98, 421, 52/596, 603, 604, 605, 666, 744, 415

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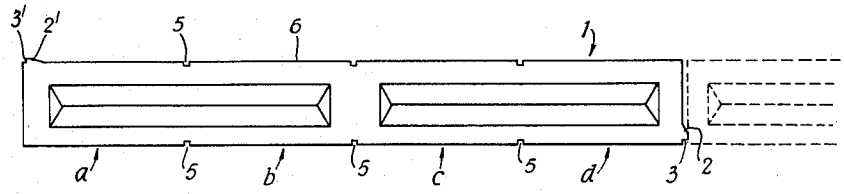
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[57] **ABSTRACT**

A multiple component building brick in which grooves are used to simulate separation of the bricks, the brick being preferably of lightweight concrete material and having a projection or nib on an end face and preferably on a rear face to assist correct spacing corresponding to the grooves, including a set of bricks.

1 Claim, 8 Drawing Figures



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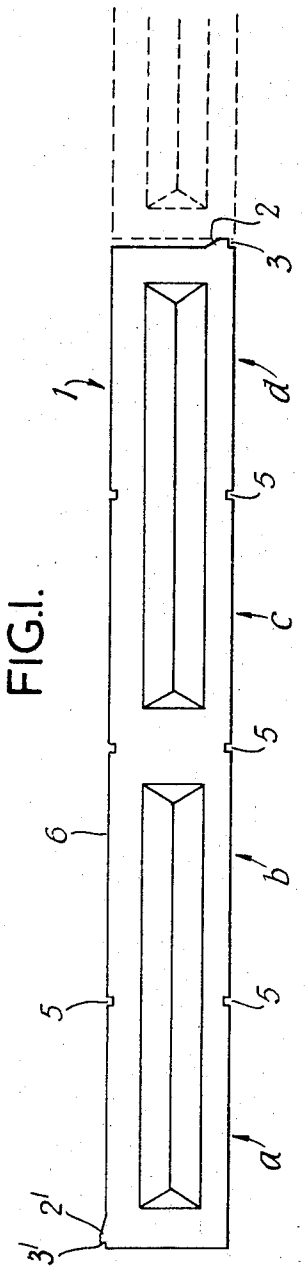


FIG.1.

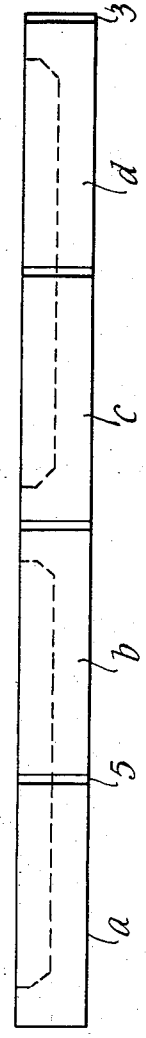


FIG.3.

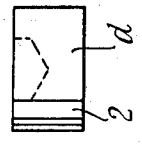
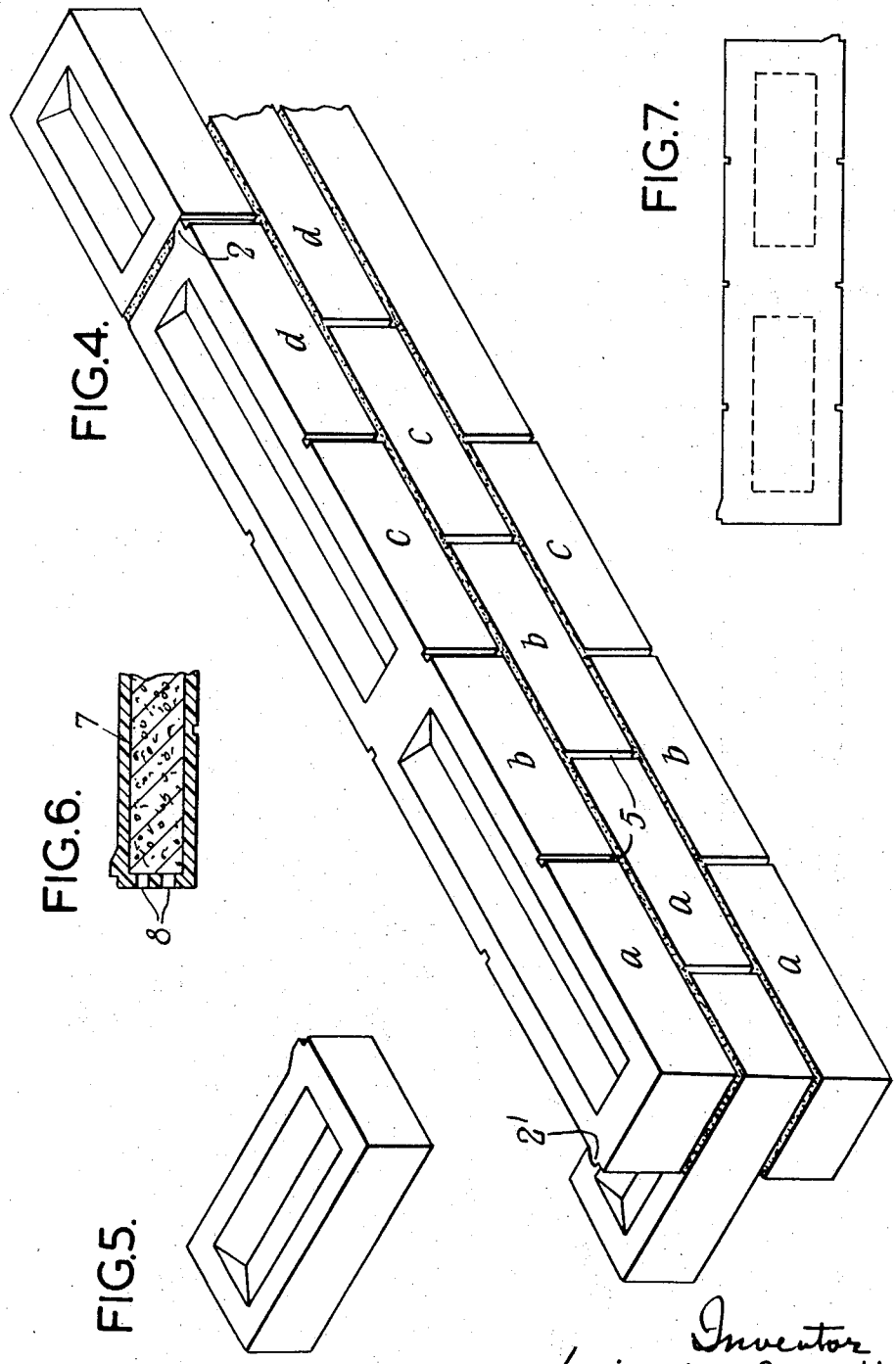


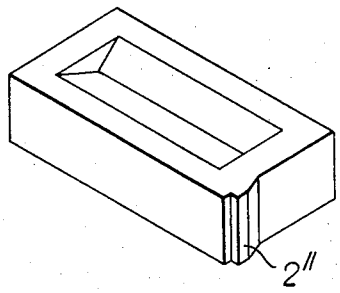
FIG.2.

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FIG.8.



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RAPID LAY BUILDING BRICKS

This is a continuation of application Ser. No. 66,440 filed Aug. 24, 1970, and now abandoned.

INTRODUCTION

The present invention relates to a multiple building brick which facilitates rapid laying.

THE PRIOR ART

Rapid laying techniques and rapid building techniques in general have not obtained a market commensurate with the demand for buildings due to public sentiment being so much in favour of traditional style brickwork. Thus, buildings composed of aerated concrete blocks, sometimes called breeze blocks, for example, have not superceded conventional brickwork in spite of the very great reduction in cost of material and in man hours.

SUMMARY OF THE INVENTION

The invention is aimed at the production of a special type of brick which will facilitate rapid laying and which will have the same external appearance of normal brickwork.

According to the invention there is provided a building brick having a length which is an excess of a multiple of the length of a standard brick, one side of the brick having grooves simulating vertical brickwork joints at positions along the length of the brick dividing the brick into lengths similar to standard brick length, the sum of the widths of the grooves constituting said excess, the brick further comprising a first projection extending from one end face and preferably a second projection extending from the side of the brick opposite to the said one side and close to the opposite end face, the projections projecting a distance substantially equal to the width of the grooves.

The brick of the invention is normally of the height and width of a standard brick. However, one embodiment is composed of lightweight thermally insulating or concrete type material and may be of the width of two normal bricks, or more, so as to form the whole width of a wall, since a cavity will no longer be necessary between individual bricks. If desired such a brick may be formed with one or more central cavities to increase the insulation in the wall.

Preferably the or each projection is in the form of a nib extending over the height of the brick and spaced respectively from the said one side and/or the said opposite end face by a distance substantially equal to the depth of the grooves.

Preferably the bases of the grooves are of different colour from that of the side of the brick in which they are formed.

The grooves may be formed on both sides of the brick or simply on one side and one or more frogs may be formed on one face, either the upper or lower face of the brick. Alternatively, apertures may be formed through the brick from the lower to the upper face to form keys for cement or the like.

The preferred brick is of the length of four standard bricks. From the weight point of view, as well as from cheapness, it is preferred to make the brick of lightweight concrete or aerated concrete. To further simulate conventional brickwork, the concrete may be pigmented for example with a brick colour. Alternatively,

the face or faces containing the grooves and intended to form the front face may be coated with coloured material. Preferably, however, the bases of the grooves are of different colour from that of the side of the brick in which they are formed. They may be of the colour of the main material of the brick which will simulate cement or grouting material.

The main component or material of the brick may be surrounded on the normally vertical faces and ends by a jacket of plastics material. This may be perforated or otherwise treated at the end faces to enable it to bond with cement or mortar.

The invention includes a set of bricks including bricks as described above, together with a handed special of the size of one component of the multiple brick and having a projection nib in a front face in mirror image relationship to said nib on the end face of said multicomponent bricks.

The bricks may be made by simply moulding a lightweight or aerated concrete composition to the specified shape and, if necessary, firing. Thus the grooves may be formed in the moulding operation. Alternatively, however, they may be formed after the moulding operation by cutting, for example, with a saw or grinder. The brick may be coated with a colouring material on the desired side or sides prior to the cutting of the grooves, which will then appear of different colour. Alternatively, the brick may be coloured after the forming of the grooves, for example, by roller coating so as to avoid colouring the grooves.

A preferred form of the invention is hereafter described with reference to the accompanying drawings, in which:

BRIEF DESCRIPTION OF DRAWINGS

FIG. 1 is a plan view of a four component brick in accordance with the invention,

FIG. 2 is an end elevational view taken from the right-hand side of FIG. 1,

FIG. 3 is a side elevational view taken from the lower side of FIG. 1,

FIG. 4 is a view of a section of wall built up from the brick of FIG. 1 and components of conventional shape,

FIG. 5 is a perspective view of a handed special,

FIG. 6 is a horizontal sectional view of a portion of a brick showing an alternative form of construction,

FIG. 7 is a plan view of another embodiment and

FIG. 8 is a perspective view of another form of special brick.

DETAILED DESCRIPTION OF DRAWINGS

Referring to the drawings there is shown in FIGS. 1 to 3 a four component brick in accordance with the invention which may, for example, be moulded of aerated concrete material. The four components are marked *a*, *b*, *c*, *d*. Each component is of the length of a conventional standard brick. By standard brick or length of a standard brick is meant a component which may be recognized by the general public as pertaining to a conventionally sized brick in the particular area or country in which they abide, particularly when the bricks are cemented together in the form of a wall, as for example shown in FIG. 4. For example, the average brick being used today in Great Britain is 2⅝ inches high by 4½ inches wide by 8¾ inches long. Thus the brick of FIG. 1 for use in Great Britain may be consid-

ered to be 2⅝ inches high by 4½ inches wide by a length which is four times 8¾ inches plus four times an allowance for the joints which is normally about ⅜ inch. Thus the brick will be about 1 yard long.

Since FIG. 1 may be considered to be viewed as looking downwards upon the top surface of the brick, it will be seen that there are formed in the upper surface indentations called frogs. In the embodiment shown, a single frog is used for each two components *a* and *b* and *c* and *d* but a single frog may be used or one frog for each component.

An important feature of the invention lies in the provision of projections which allow exact spacing of the bricks; thus, near the bottom right-hand corner of the brick as shown in FIG. 1 there is formed a vertically extensive nib 2 which extends outwardly from the end face. The face 3 of the nib which faces downwardly in FIG. 1 towards what will be the front face of the brick is set back from the front face 4 by an amount substantially equal to the depth of one of the three vertical grooves 5 which are formed between the components, *a*, *b*, *c*, *d*, to simulate brickwork joints. The next adjacent brick in the wall is shown at the right-hand side of FIG. 1 and it will be apparent that when cemented in place, the nib will produce with the next brick a groove identical with the grooves 5. Thus the bricks may be very rapidly laid and the correct spacing is ensured. The space on the side of the nib opposite to the groove may be filled with cement or mortar.

A similar nib 2′ is formed on the rear side 6 of the brick of FIG. 1 in mirror image relationship to the nib 2, that is to say on the rear face near the left-hand end face of the brick and with the groove face 3′ facing towards the end face instead of towards the rear face.

In the embodiment of FIGS. 1 to 3, grooves 5′ similar to the grooves 5 are formed in the rear face 6, opposite the grooves 5. These are not a necessary feature of the invention but facilitate cutting of the bricks with a trowel into component lengths which may be necessary for certain purposes and enable for example a brick section with one nib to be cut off. They will allow the rear face to be used as a front face with the nib removed.

FIG. 4 illustrates how the bricks may be assembled and joined together to form a wall. At the corners, a long brick may be used inverted and placed against a nib of the end brick of the wall. To allow the bricks to be more readily used in the inverted sense, frogs may be completely omitted or may be formed in the upper and lower faces, or they may be replaced by apertures which extend through the bricks from the lower to the upper face to allow the keying of the cement.

Instead of using a long brick at the corner, a brick of conventional length may be used as, for example, seen in the centre section of the left-hand end of the wall of FIG. 4. This may be a normal conventional brick or may be made of the same material as the long bricks of the invention. In certain circumstances, it may be necessary to use a handed special which is a brick in which one of the nibs is formed in mirror image relationship to the nibs on the long bricks. Such a handed special is illustrated in FIG. 5 and it will be seen that the nib on the rear face is formed near the right-hand end instead of near the left-hand end as shown in FIG. 1. Thus, the brick projecting rearwardly from the left-hand end of the central section in FIG. 4 will normally be a handed special as illustrated in FIG. 5 so that the correct spacing from the next adjacent brick will be developed by the nib on the handed special.

As already described, the bricks may be made from lightweight concrete or aerated concrete. The density of the bricks will be related to the number of components joined together in a single brick of the invention, since unduly long bricks will be cumbersome and heavy. A four component brick of lightweight or aerated concrete can be handled quite readily by one workman. The bricks may be directly moulded or the grooves may be cut in after moulding by means, for example, of a grinder. The face which is intended to form the front face of the wall is preferably coloured to simulate ordinary bricks but the faces of the grooves are preferably of different colour to make them stand out. If a pigment is not used in the material of the brick itself, then the side or the two opposite sides may be coated with a coating composition which may, for example, be a pigmented cement mixture or an enamel composition adapted to be vitrified by firing and it may contain a synthetic resin such as a polyester or polyurethane resin. A coating may be sprayed on or it may be applied with rollers in which case the grooves may be cut in prior to application of the coating. However, it is not normally very important to ensure that the grooves are of different colour since they normally stand out in shadow. In a particular form of the invention illustrated in FIG. 6, the main composition is surrounding by a jacket 7 of plastics material, for example, PVC or polyurethane. This may be moulded to form the nibs as shown and subsequently filled with the material of the brick. Thus the grooves may be formed solely in the plastics jacket as shown. Alternatively, the plastics material may be adhered around a basic unit which will contain no grooves or nibs and the grooves may, if desired, be cut through the material of the plastics jacket into the interior material after adherence of the jacket to the interior material. Thus, if the jacket is comparatively thin, the nibs may be formed in the interior material and simply covered over with the jacket material.

The end faces of the jacketed brick are preferably formed with slots 8 to allow penetration of cement. Alternatively, the end face may be coated with an adhered coating of sand or the like to ensure a good adhesion to the next brick.

While the interior face of the nibs is shown chamfered or sloping to provide extra strength, this is not strictly necessary. Cement may be applied by scraping the cement off the trowel against the rear face of the nibs. This further facilitates rapid laying.

The appearance of the wall formed by the bricks is shown in FIG. 4 and this forms a part of the invention. As illustrated, this will resemble very closely a wall formed from standard bricks. The grooves may, if desired, be grouted after formation of the wall but this will not normally be necessary.

Although the bricks have been described as being preferably formed from lightweight or aerated concrete, it is feasible to form the bricks from clay. For example, if formed from lightweight London clay, a brick of five components in length can be handled by one man. If heavy vitrified clay is used it is desirable to cut the length down to three components.

While the protrusions are preferably in the form of vertically extending nibs as shown, they may be of any

desired shape which will allow rapid spacing of the bricks. Depending on the shape of the protrusions it may be necessary to grout the vertical joints between two bricks.

FIG. 7 shows a plan view of an embodiment which has the width of two normal or standard bricks. This type of multicomponent brick, which again in the embodiment shown has the length of four components of standard bricks, can be used where the material is of lightweight insulating material where cavities will no longer be required in the brickwork. If desired, cavities as indicated by the broken lines may be formed in the brick.

In addition to the materials already described, the brick may be composed, for example, of crushed stone and a cement bonding agent. Furthermore, the closing nibs may be slightly smaller than the widths required for the normal perpendicular joints. If this is done, some latitude will be available for altering the length of a wall of bricks. The two bricks with a closing nib in between need not be precisely abutted.

Where projections or nibs are formed only in an end face of the long brick, a projection equivalent to the projection 2' may be provided in the end face of another form of special brick as illustrated in FIG. 8 which may be of similar size to a standard brick but having the projection in its end face so that it would appear in the position shown at 2'' in the wall construction illustrated in FIG. 4 when the standard brick is placed at the corner above the handed special illustrated in FIG. 4. Various other forms of special brick may be included such as a special having projections or nibs in the same positions as in the long brick of FIG. 1, the brick, however, being of standard size or a brick as illustrated in FIG. 5 but having the nib in mirror image relationship. In such special bricks of standard size, and which may include bricks having the width of two standard bricks, the nibs or projections may be made in any end face as desired or in all end faces so that they can be chipped off as required in any particular building situation.

Although it is preferred to make the brick of lightweight concrete or aerated concrete, any concrete or concrete type material can be used.

Although, again, it is preferred that the main bricks are multiples of standard sized bricks, the standard sized components being marked off by grooves so that the finished wall will resemble ordinary brick-work, nevertheless it is within the scope of the invention for the grooves to be omitted, in which case the bricks may be of any desired length, having regard to the density of the material used. However, projections on one end are essential as an aid to rapid laying of the bricks and these are preferably in the form of the nibs illustrated.

More specifically the invention will include a building brick having upper and lower faces, a front face, a rear face and two end faces characterized in that there is formed on one end face a projection in the form of a nib extending over the height of the brick from the lower face to the upper face and spaced from the front face by a distance approximately equal to the distance of projection, the nib extending rearwardly over a distance less than half the distance from the front face to the rear face.

A similar nib may be formed on the rear face near the end opposite to the end containing the first projection.

What I claim is:

1. A rectangular prismatic building brick having two planar end faces, two side faces and an upper and a lower face, at least one vertical groove formed in one side face of the brick positioned so as to divide the side face into parts of equal length and shaped to simulate a vertical brickwork joint and a rib extending outwardly from one of said planar end faces of the brick a distance substantially equal to the width of said groove and substantially across the said one end face, and a surface on the said first rib set back from the said one side face by a distance equal to the depth of said groove whereby the said surface is adapted to form a groove bottom between two adjacent bricks in a wall structure, the depth of the rib measured from the said surface being substantially less than the width of the said end face whereby the said rib serves to space the said end face from an adjacent brick to form a gap therebetween for mortar,

further comprising a second rib extending outwardly from the other side face of the brick a distance equal to the width of the groove and substantially across the said other side face and a surface on the said second rib set back from the other end face of the brick by a distance equal to the depth of the said groove, the depth of the rib, measured from the said other end face of the brick being substantially less than the width of the said other end face of the brick whereby the said rib serves to space the said other side face of the brick from an adjacent brick at a corner of a wall structure to form a gap therebetween for mortar or the like,

the brick being surrounded on the normally vertical end faces and side faces by a jacket of plastics material, the plastics jacket at the end faces being perforated so as to bond with mortar.

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