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2,819,495

METHOD OF MAKING BUILDING BLOCKS

Filed Oct. 3, 1951

2 Sheets-Sheet 1

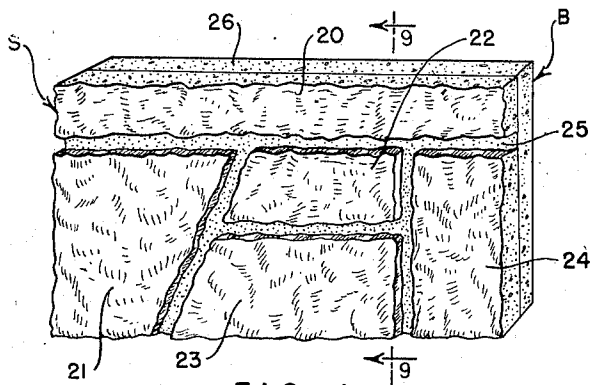


FIG.-1

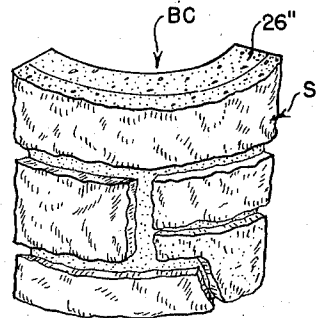


FIG.-3

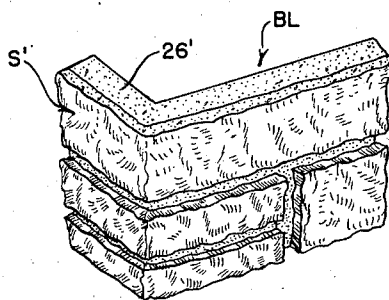


FIG.-2

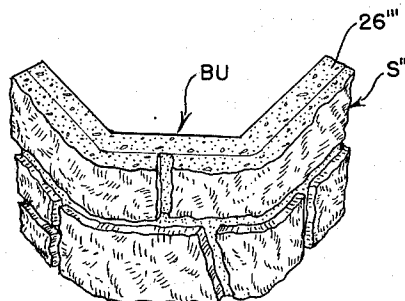


FIG.-4

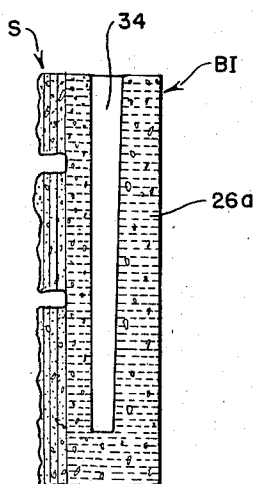


FIG.-9

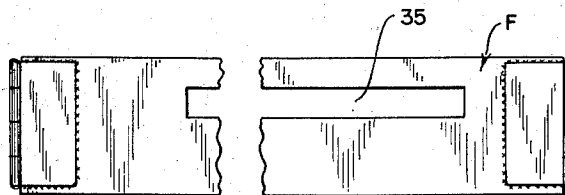


FIG.-11

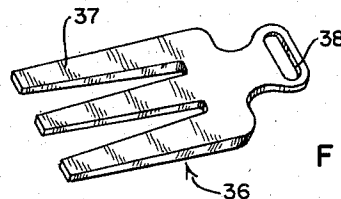


FIG.-12

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2 Sheets-Sheet 2

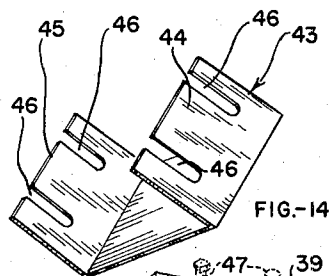
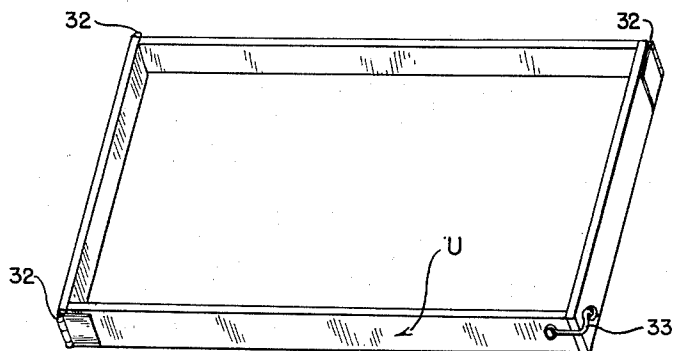


FIG.-14

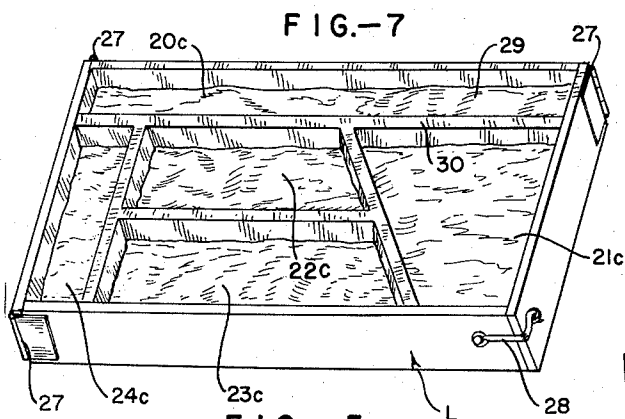


FIG.-7

FIG.-5

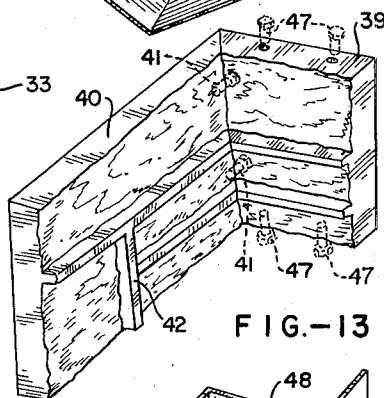


FIG.-13

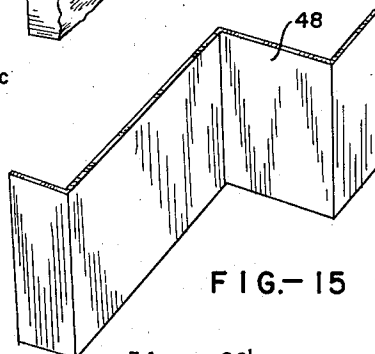


FIG.-15

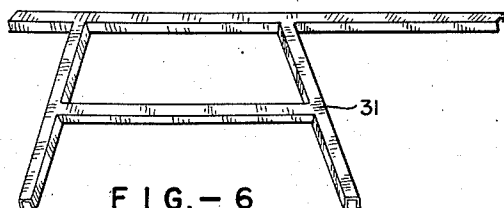


FIG.-6

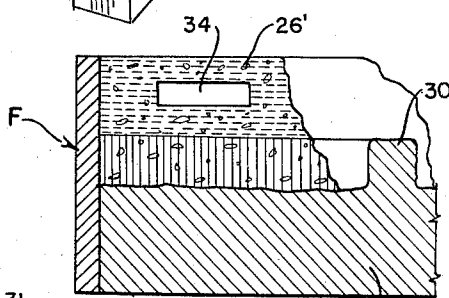


FIG.-10

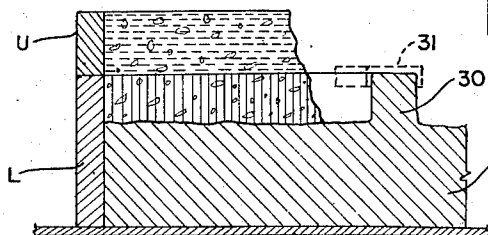


FIG.-8

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METHOD OF MAKING BUILDING BLOCKS

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1 Claim. (Cl. 18—60)

This invention relates to a method of making building blocks and more particularly to a moulded block that it will simulate a plurality of bricks or stones held together by mortar.

One of the objects of my invention is to produce a building block having a surface to be exposed which will simulate a plurality of stones or bricks in masonry construction so that when such blocks are secured together in edge relation by mortar, a wall will be easily established at a low expenditure for material and labor and the result will be that it will closely simulate a masonry wall totally hand built at the site.

Another object is to produce a building block of the type referred to which will have its surface which simulates stones or bricks of contrasting color to simulated mortar therebetween.

A further object is to produce a new method of manufacturing a building block which will have a surface simulating stone or brick secured together by mortar.

Another object is to provide a new method of constructing a building block so that it will have a surface simulating masonry construction and in which the simulated masonry material and the simulated mortar therefor will have contrasting color.

A further object is to construct a building block simulating masonry construction which can be made either relatively thin for use in veneering construction, or thicker with dead air chambers for use as a complete wall construction unit embodying insulation properties.

Still another object is to provide an improved method and apparatus for making blocks simulating masonry construction which will be readily adaptable to construct different shapes of blocks so that different wall shapes, including those which will be uniformly straight, those which will have square, rounded or other kinds of corners, and those which will have irregular or offset surfaces can be quickly and easily built.

Other objects of my invention will become apparent from the following description taken in connection with the accompanying drawing illustrating novel blocks constructed by my improved methods employing novel apparatus to carry out the same.

In the drawings:

Figure 1 is a view of a building block embodying my invention, said block being made in accordance with my improved method.

Figures 2, 3 and 4 are views of other blocks having different shapes from the rectangular block of Figure 1, which also may be constructed in accordance with my invention.

Figure 5 is a perspective view showing a moulding structure having a removable frame employable in making the rectangular block shown in Figure 1.

Figure 6 is a perspective view of a rail covering structure which is used with the mould structure of Figure 1 during the making of the block.

Figure 7 is another mould frame for mounting on top of the frame of the mould structure of Figure 5 and

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employed to provide a mortar backing on the block which will have contrasting colors to the front portion of the block which will simulate a masonry material.

Figure 8 is a cross sectional view through the moulding structures employed in making the block, said view showing the final structure of the block.

Figure 9 is a cross sectional view through a block made thicker than the block of Figure 1 so as to embody therein dead air chambers for insulation purposes.

Figure 10 is a view showing the manner in which said block of Figure 9 can be made by moulding structure in which only a single frame is employed.

Figure 11 is a side view of one wall of the frame employed in the moulding operation of Figure 10 and showing the slot structure in the upper portion thereof which is to receive a removable member having fingers to form the dead air chambers.

Figure 12 is a perspective view of the removable member having the fingers which are insertable through the slot in the mould frame during the moulding of the block.

Figures 13, 14 and 15 are perspective views of mould structures to be employed in making the L-shaped corner block shown in Figure 2.

Referring first to Figure 1, an example of a building block embodying my invention is shown, it being seen that this block indicated generally by the letter B is of a rectangular shape and the outer surface which will be exposed to view when the block is laid, is such as to simulate pieces of stone of any desirable color and of various shapes. In the particular block shown the stone illustrated is flagstone having a red color. The surface of the block comprising the indicated S section thereof has a simulation of a long, narrow stone strip 20 at its top and four irregular simulated stone pieces 21, 22, 23 and 24 below said strip with such contour that the block will have a rectangular shape. Between all of the simulated stone pieces will be grooves 25 simulating mortar grooves when natural stones of different shapes are mortared together. The block on its rear side is provided with a base portion 26 of the same rectangular dimensions as the finished block, and to this base portion the simulated stone pieces will be secured during the moulding operation. The base in the preferred form will be made from mortar of a contrasting color, and if it is desired, for example, to show that the simulated stones are mortared together by a gray colored mortar, the base portions 26 will be made from this gray mortar which can be merely sand and cement. Of course if a black mortar is desired to be simulated the base portion will be made from a mortar embodying a black coloring material so that the mortar will be black. If the simulated stone should be some other color than red as for example gray or brownish, the simulated mortar may be desired to be red or some other contrasting color, and to provide this the backing portion need only be made from a mortar having the desired color. The grooves 25 of the building block will be of a depth equal to that of the thickness of the simulated stone, and the bottom of the groove will be formed by the material of the backing portion.

The building block need not be made in a rectangular shape as shown in Figure 1 as it can be made in other shapes. For example, Figure 2 illustrates an L-shaped building block BL embodying my invention which is made for use at a square corner. This block has the simulated stone face portion S' and the rear base portion 26'. Figure 3 illustrates a building block BC also embodying my invention, and having a curved shape for producing round corners. The face portion S'' simulates stone pieces and these are on a base portion 26''. Figure 4 illustrates corner block BU of general U-shape with

its legs diverging and the connecting portion being substantially straight. This block has the simulated stone face S and the backing portion 26'''.

Referring now to Figures 5 to 8, the method of moulding a block such as that illustrated in Figure 1, together with the apparatus employed will now be described. The moulding structure consists of a lower frame member L and an upper frame member U. Both of these frame members will have the same rectangular dimensions so that they can fit together and mould a block which will have smooth edge surfaces. The lower frame member has its sidewalls hinged together by three hinges 27 at three of the corners. The fourth corner has associated therewith a connecting hook whereby the frame can be opened at this corner and removed from the block portion which has been moulded within the frame.

Within the lower frame member is a mould block structure 29 having rectangular dimensions corresponding to the inside of the frame. The mould structure has an irregular top surface to simulate a rough surface of a stone. Projecting above the rough top surface of the block will be rectangular ridges 30. The moulding block 29 can be made of any suitable material such as metal or even plaster of Paris. These ridges will be of a number and arrangement to provide the grooves 25 in the building block which are to simulate the mortar grooves thereof. The ridges will establish the various compartments 20c, 21c, 22c and 24c by means of which the simulated stones 20 to 24 will be moulded.

With the frame mounted around the moulding block 29, as illustrated in Figure 5, the removable ridge covering member 31 will be mounted to cover the ridges. It will be noted that this member, illustrated in Figure 6, has the same configuration as the ridges 30 and is made of one piece. The material will be thin and it will be noted that the member is so made that not only the top of all ridges 30 will be covered but also a small part of the sidewalls so that the covering member won't shift. To do this each section member which covers a ridge will be inverted U-shaped as illustrated.

The compartments formed by the ridges 30 will now be filled with the desired color of mortar which will be mixed from sand, cement and a coloring material if necessary. In the particular simulated red flagstone block of Figure 1 the color will be red. The mortar will have a relatively dry consistency so that the face surface, that is, that surface which will be formed by the top surface of the mould block 29, will be of a rough texture to simulate stone, particularly stone which has been broken or had its surface chipped. The mortar will be tamped into the compartments. All of the mortar in the various compartments will be leveled with the top of the frame member L which will also be substantially flush with the top of the covered ridges 30.

The covering member 31 will now be removed from the top of the ridges and following this the upper frame member U shown in Figure 7 will be placed on top of the frame member L. This frame member also has its wall members connected by three hinges 32 at the three corners and the fourth corner will be provided with a connecting hook structure 33 to hold the frame members together but permitting them to be opened up for easy removal of the frame. With the frame member U in position, it will be filled with mortar having a desired dry consistency and this mortar will be tamped in the frame member so as to make a union with the mortar which has already been placed in the compartments formed by the ridges 30. This operation produces the backing portion 26 of the building brick. All the top surfaces of the ridges 30 will be clean due to the fact that none of the colored mortar which was placed in the compartments formed by the ridges could engage with the top surfaces of the ridges since these surfaces were covered by the cover member 31. The mortar placed

in the top frame member will have a contrasting color to that placed in the compartments, this color being in the particular block shown a gray color and being made from ordinary gray masonry cement and sand. If colors other than gray should be desired for the simulated mortar between the simulated stones, a coloring material can be added to this mortar which is going to form the backing member of the block. Whatever colored mortar is used in the frame U, it will directly engage with the top surface of the ridges 30.

After the mortar material has been placed in the upper frame member, the moulding of the block is completed and the two frame members may be removed immediately due to the relatively dry mortar used. The removal of both frame members is easily accomplished by merely unhooking the hook structure and swinging the frames outwardly away from the mould block 29, such being facilitated by the hinges at the corners. After the frame members are removed the moulded block B can be picked off from the top of the mould block 29. The block will have simulated stones formed by the mortar placed in the various compartments between the ridges. Since the mortar, forming the base portion 26 moulded in the upper frame member U, directly engages the top of the ridges 30, which are clean, the grooves formed by the ridges between the simulated stone will have their bottoms the same color as the mortar used in the base portion and thus the block when viewed from the front will have an appearance similar to a hard constructed masonry structure which has been made by mortaring together natural or artificial stones of irregular shapes. When the building blocks B have their edge secured together by mortar to form a wall this wall will have the appearance of being made wholly from separate stones secured together by mortar.

The building block B can be made of any thickness desired and can be relatively thin when it is to be used for veneering purposes. If it is desired to have the block relatively thick, such as the thickness of a brick or greater so that a complete wall can be built therefrom, this is easily done by a proper dimensioning of the width of the wall portions forming the upper frame U. When the building block is formed thin for veneering, it can be mortared directly against a cinder block wall structure or onto a thinly stuccoed wall or any other wall structure. The back surface of the backing portion 26 of the building block can be made with irregular depressions so that any mortar placed therein will have better adhering qualities.

Although I have illustrated the use of two frame members in accomplishing the moulding of my block, a single frame member could be employed if desired, and in such case the single frame member will be of a height equal to the combined height of both the frame members U and L illustrated. However, by using two frame members it is easier to level off the colored mortar which is placed in the compartments formed by the ridges 30 to simulate the stone.

It may be desired to construct the building block so as to have it provided with dead air spaces and thus embody therein insulating properties. Such a block is illustrated in Figure 9 which is a cross sectional view of a building block indicated by the letters BI. It will be noted that the backing portion 26a for the face portion S is of considerably greater thickness than the backing member 26 of the block in Figure 1. In this thicker backing portion will be a plurality of chambers 34 which run in from one longitudinal edge of the block. In moulding the block shown in Figure 1, either double or single moulding frame can be employed. In Figures 10 and 11 there is illustrated a moulding structure in which only one mould frame will be employed, this frame being indicated by the letter F. In the base of this frame will be placed the mould block 29 having the ridges 30 on its upper surface to form the compartments. The upper part of the frame

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member F around the moulding block will have one of its longer side walls provided with a longitudinally extending slot 35 as shown in Figure 1. After the compartments formed by the ridges 30 are filled with the mortar simulating the desired color stone and the covering member 31 is removed from the ridges, mortar will be filled into the frame to form the backing portion 26a' of the building block. After a portion of this mortar is placed in the frame F, a moulding member or members will be inserted through the slot 35 so as to form the dead air chambers 34. A suitable member is illustrated in Figure 12 and indicated by the numeral 36. It will be noted that this member is a flat structure having a plurality of spaced apart fingers 37 extending in one direction and a suitable handle 38 at the base end of the fingers. When the member 36 is inserted in the slot the fingers 37 will extend across the frame and upon placing in the rest of the mortar in the frame structure and tamping it down, mortar will completely surround the fingers 37 and these fingers will form the chambers 34 upon removal of the moulding member 36. The moulding member can be easily removed as soon as the mortar is in by merely grasping the handle 38 and pulling it back out of the slot. Fingers 37 will taper towards their outer end so that the moulding member can be easily withdrawn.

If it should be desired to make a building block in which the simulated mortar grooves between the simulated stone is not of contrasting color, then of course the use of the ridge covering member 31, shown in Figure 6, could be eliminated during the making of the block. In such a procedure, a single mould frame would be used with the mould block 29 and the mortar would be placed in the frame up to the top of the single mould frame. In such a block the dead air chambers could either be incorporated therein or not, as desired.

It is also within the scope of my invention to construct such a block as above described without the use of the ridge covering member 31 shown in Figure 6 and yet obtain a contrasting color for the simulated mortar groove, if such were desired. After a building block is constructed without the use of the ridge covering member 31, the grooves 25 formed in the block between the simulated stones can then be partially filled with a contrasting mortar to thus give the desired contrasting color effect. For example, the whole block could be made of a gray mortar material and then the grooves, after the block is removed from the mould, partially filled with a darker gray mortar material, or a black mortar material.

When an L-shaped corner block is to be built, as for example the L-shaped corner block shown in Figure 2, a mould block will be provided which will also be L-shaped. Such a mould block is shown in Figure 13, being constructed of two pieces 39 and 40 to be held together by bolts 41. This mould block has the ridges 42 thereon to form the mortar grooves. In moulding the mould block piece 39 will be placed in a mould frame with its ridges 42 covered by a covering member similar to that shown in Figure 6. The mould block piece 40 can remain attached to the piece 39 and when the latter is in the mould frame it will project upwardly from the frame. The desired colored mortar is then placed in the compartments of the mould piece 39 formed by the ridges and up to the top of the ridges. After this the ridge cover is removed and an upper frame employed to mould the backing portion of mortar having a contrasting color. The frames are then removed and the cover structure 43 shown in Figure 14 employed. The cover structure has end flanges 44 and 45 provided with slots 46 for adjustably attaching it to the mould piece 39 by the suitable screw bolts 47 shown in dashed lines in Figure 13. This cover structure now holds all the mortar on the mould piece 39 so that the mould block can be handled and the mould piece 40 placed in the proper frame structure to finish moulding the L-shaped block BL which will be done in a manner already described, it being understood that the ridges 42 on

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the moulding pieces 40 will be suitably covered during the placing of the mortar in the compartments. After removing the frame structure from the moulding piece 40 the cover 43 will be removed. The moulded block can now be laid with its backing portion 26' on the drying or curing plate 48 shown in Figure 15, said drying plate having the desired zig-zag shape to receive the back portion 26' of the block and also flanges to receive the end edges of the block.

The other building blocks shown in Figures 3 and 4, as examples of the shapes in which the blocks can be made, can all be moulded in manners already described. If it is desired that any of the blocks illustrated in Figures 2, 3 and 4 have dead air chambers, these can also be formed in the blocks in a manner already described in connection with making of the block shown in Figure 9.

In describing my improved building block, together with the method and apparatus employed for moulding the same, I have illustrated only blocks which simulate a stone. It is of course obvious that blocks can be made which simulate any other building material, such as ordinary brick, Roman brick, etc.

Being aware of the possibility of modification in the building blocks shown as embodying my invention and also modifying the steps in the method of making as well as the apparatus employed all without departing from the fundamental principles involved, it is to be understood that the scope of the invention is not to be limited in any manner except in accordance with the appended claim.

What is claimed is:

A method of forming an L-shaped building block having on its outer sides a simulation of a plurality of masonry elements held together by mortar, which comprises forming a molding block having a pair of legs disposed in perpendicular relation, each said leg being provided with a surface corresponding to that of the masonry elements to be simulated and extending ridges corresponding to the grooves between said masonry elements; placing said mold block with one leg in horizontal position; placing mortar of a color corresponding to the masonry elements to be simulated on said horizontal leg and up to the level of said ridges; placing additional mortar on said mortar first applied and on said ridges of said horizontal leg, said additional mortar having a color corresponding to that of the groove mortar normally showing in the grooves between such masonry elements; placing a cover over said mortar on said horizontal legs; placing said mold block with said one leg elevated and the other leg horizontal; placing mortar of a color corresponding to the masonry elements to be simulated on said other leg and up to the level of said ridges; placing additional mortar on said mortar last applied and on said ridges of said other leg, said additional mortar having a color corresponding to that of the groove mortar normally showing in the grooves between such masonry elements; removing said cover; placing a zig-zag plate, having a configuration corresponding to the ends and the surfaces of said mortar opposite said legs, against said mortar; supporting said mortar by said plate; removing said molding block; and curing said mortar while supported by said zig-zag plate.

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