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PRECAST BLOCK AND WALL CONSTRUCTION

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Fig. 1.

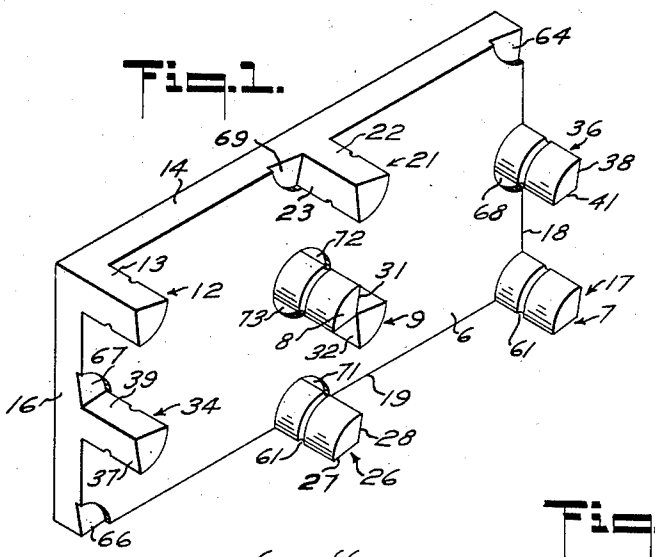
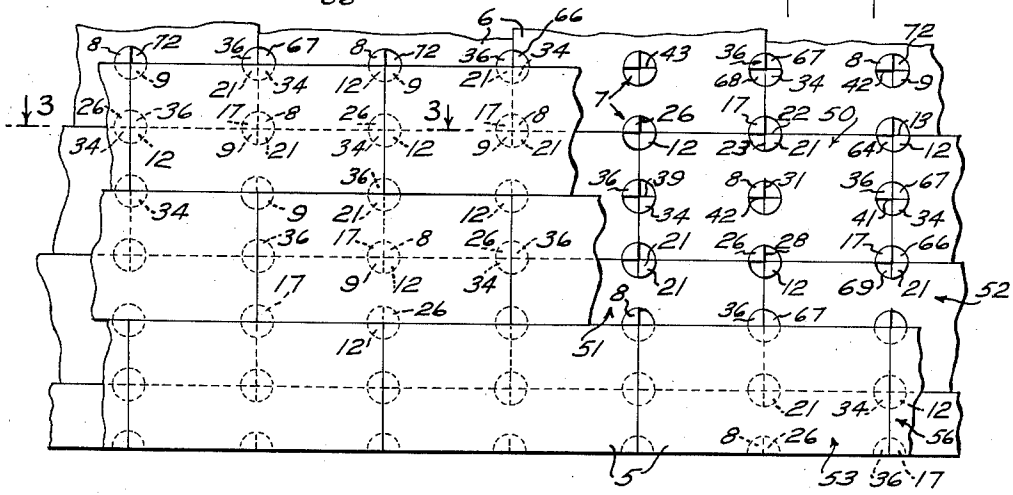



Fig. 2.



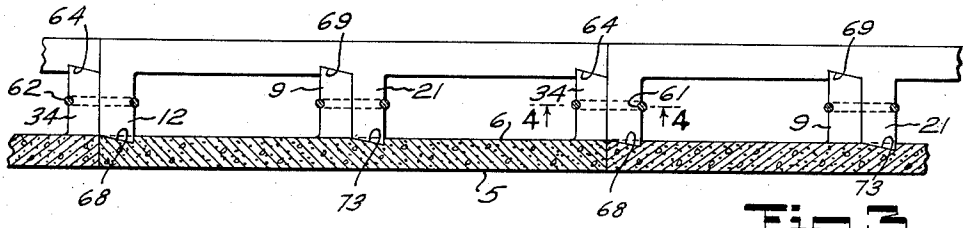
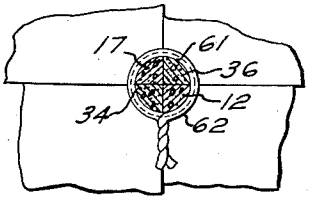




Fig. 3.

Fig. 4.




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# PRECAST BLOCK AND WALL CONSTRUCTION

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This invention generally relates to precast concrete blocks and to the art of constructing walls therewith, and is more particularly directed towards a wall construction formed of a number of interlocking blocks or similar elements.

The idea of constructing walls or other structural members by means of separate blocks which are anchored together in some suitable manner has been suggested by numerous prior patents. However, such patents and the methods disclosed therein have failed to disclose any commercially practical blocks or system for performing the foregoing while still retaining the benefits of a monolithic type of construction.

It is accordingly an object of the present invention to provide a wall which is formed of a number of individual precast novel block elements, such elements being interconnected and secured together in a manner to provide a wall possessing superior strength characteristics.

Another object of the invention is to provide a wall construction as above described in which the respective block elements comprising the wall are disposed in generally spaced relation so that upon completion of the wall structure the same possesses a space extending between the opposed elements for the reception of plumbing, electrical conduits or other members, or which may be subsequently filled with concrete or other flowable material after completion of the structure.

A further object of the invention is to provide a novel building block for use in a wall or the like in which each block is adapted to engage a plurality of adjacent opposed blocks so as to provide for added stability, and in which means are provided for effectively locking the blocks together against relative displacement.

The invention possesses other objects and features of advantage, some of which, with the foregoing, will be set forth in the following description of the preferred form of the invention which is illustrated in the drawing accompanying and forming part of the specification. It is to be understood, however, that variations in the showing made by the said drawing and description may be adopted within the scope of the invention as set forth in the claims.

Referring to said drawing:

FIGURE 1 is a perspective view of the building block of the present invention.

FIGURE 2 is a front elevational view with portions broken away of a section of a wall constructed with the blocks shown in FIGURE 1.

FIGURE 3 is a cross sectional plan view of the wall on an enlarged scale and taken substantially in the plane indicated by the line 3—3 of FIGURE 2.

FIGURE 4 is a cross sectional view taken substantially in the plane indicated by the line 4—4 of FIGURE 3 and showing a method of locking confronting panels together.

As hereinabove suggested, the wall disclosed herein is constructed substantially solely from the building block of the present invention, and accordingly, reference may first be had to FIGURE 1 of the drawing wherein said block is best disclosed. As will be seen in the figure, the block is of generally rectangular configuration and has a substantially planar base portion having opposed surfaces 5 and 6 respectively. As will be later explained when the block is installed in a wall, the same will be generally vertically disposed and will cooperate with the base portions of opposed blocks so as to provide a space between the confronting surfaces 6, the surfaces 5 defining



the outer surfaces of the wall as shown in FIGURE 3. Extending generally normally from the base surface 6 are a plurality of short projections or pegs 7, such pegs being adapted to cooperate with the pegs of opposed blocks when the blocks are brought into cooperative interengaging relationship. While there are various cross-sectional shapes that the projections might assume, the particular cylindrical segment form presently to be described has been found to be particularly advantageous from both a manufacturing and constructional standpoint. With the arrangement disclosed herein, when the blocks are interengaged, the pegs of the various blocks will cooperate to define a cylindrical post member which may be readily locked or tied in position. Accordingly, it will be noted that all of the projections comprise ninety degree segments of cylinders.

Commencing with the central portion of the block, two such segments 8 and 9 are provided and disposed in radially opposed relationship along a diagonal of the block, each having its center of curvature at the center of the block, thus leaving open areas of 90 degrees between each side of the opposed segments, and as will be later explained in more detail various segments of other blocks are adapted to fit into these open spaces between the flat surfaces of the respective segments. An upper left hand projection 12 as viewed in FIGURE 1, will be seen to constitute a like 90 degree segment with the flat surfaces 13 thereof being coplanar with the edges 14 and 16 of the base and similarly a diagonally opposite projection 17 has its flat surfaces extending along the other base edges 18 and 19. Thus, the center of curvature of each projection 12 and 17 is positioned at diagonally opposite corners of the block.

An upper central projection 21 is provided and has one flat surface 22 of the segment coplanar with edge 14 and the other surface 23 extending at right angles therefrom, and similarly a lower projection 26 has a surface 27 coplanar with the bottom edge 19 and the other surface 28 extending upwardly at right angles thereto. As will be best seen in FIGURE 2 of the drawing, the surfaces 23 and 28 of the respective segments 21 and 26 fall along a line bisecting the central axis of the block and it will be also observed from FIGURE 2 that a surface 31 of the central segment 8 and the corresponding surface 32 of the adjacent segment 9 likewise fall along this common line, as do the center of curvature of projection 8, 9, 21 and 26.

Similar projections 34 and 36 are provided along the opposite edges 16 and 18 of the block and each comprises a 90 degree segment with their outer faces 37 and 38 respectively coplanar with such edges and the other faces 39 and 41 lying along a bisecting line extending longitudinally of the base and such line including the other surfaces 42 and 43 of the central segments 8 and 9.

With the foregoing construction in mind, it may be now explained the manner in which a wall may be constructed utilizing a plurality of such blocks. Referring to FIGURES 2 and 3, a complete block is indicated and designated by the numeral 50. This block is shown without any cooperative engagement with opposed blocks so that the various projections may be readily disclosed thereon. Immediately below the block 50, but laterally offset one-half the length of the same, are similar blocks 51 and 52, and in this case it will be seen that a block 53 is disposed in opposed symmetrical relationship to the corner half of the blocks 51 and 52, with the upper corners thereof disposed at the central point of the blocks 51 and 52. In other words, the block 53 overlies or is in opposed relationship to only one quarter of the blocks 51 and 52. A similar block 56 engages another quarter of the block 52. Thus, all of the base portions on one side of the wall are disposed in coplanar relation-

ship, but each of such blocks is offset so that one edge **16** of a block is aligned with the central projections of the block above and below the same. Now, however, when the opposed blocks are placed in confronting relationship with the first mentioned blocks, a corner projection of one of the blocks is placed within the opening defined by the surfaces **31** and **43** of the central segment **8** and **9**. Then, the corner of another block will occupy the other opening between the segment surfaces **32** and **42** providing a complete circumferentially extending cylindrical post which will be secured together in a manner presently to be described. Likewise, the other 90 degree segments will be engaged by the corner or edge segments other than the central segments **8** and **9**, it will be appreciated that the projection **12**, for example, will actually engage segments of three other blocks thereby assuring a stronger and more unitary construction than if the same only engaged one or possibly two confronting blocks.

With the blocks disposed as shown in FIGURE 2, the various projections will, as previously explained, provide substantially continuous cylindrical posts formed of projections from three or four blocks, and in this form the respective segments are particularly well adapted to be secured together against further movement. Means are provided for locking the segments together and as here illustrated, each of the arcuate portions of the respective projections is provided with a peripheral groove **61** and such grooves will come into alignment when the blocks are interlocked or interfitted together, thus providing a single continuous groove in which a piece of wire **62** may be positioned and tightened by twisting or the like as illustrated in FIGURE 4. This, will of course prevent separation of the respective confronting blocks in a direction normal to the general plane of their base portions. Insofar as lateral displacement is concerned, the interfitting of the respective projections will effectively prevent any lateral displacement, but to further lock the respective members together further means are provided which will now be explained.

Again referring to FIGURE 1, it will be noted that the corners of each block in which no projections are provided, are provided with segmental notches **64** and **66** respectively, and such notches are designed to receive the ends of the projections which will engage such corners. Likewise, adjacent the flat surface **39** of projection **34** is a segmental notch **67** and projection **36** has a similar indentation **68**; the projections **21** and **26** have indentations **69** and **71** respectively and in the openings between the segments **8** and **9** are indentations **72** and **73**. By way of example, the segment **9** of one post may be engaged in the indentation **64** of its confronting post, the projection **17** being engaged in the groove **72**, etc. Also, to provide for more ready assembly, the outer or distal end of each projection is tapered as best shown in FIGURE 3 and the indentations likewise taper from the adjacent projection flat surface to a maximum depth remote therefrom.

From the foregoing description, both the method of assembly as well as the details of construction of the block and of the wall should be apparent, and it will be appreciated that by virtue of the interfitting and interlocking relationship that a wall may be rapidly constructed and the wall may be either left hollow for the purpose of providing conduit space or the like, or may be subsequently filled with any suitable material.

By way of example only, the blocks may be molded from concrete and have an overall dimension of 16 inches by 32 inches, the base being approximately 2 inches thick



and the projections being 4 inches in length. This will result in a total wall thickness of 8 inches with a 4 inch space between the confronting base portions which is adequate to receive most pipes or conduits which may be placed therein. Obviously, for corners or edges, portional blocks will be provided.

What is claimed is:

1. A building block including a substantially rectangular planar base having a length in excess of the width thereof, a plurality of projections extending generally normal to said base, each of said projections constituting a one-quarter segment of a cylinder, a pair of said projections being disposed with their respective centers of curvature at the center of said base and lying along a diagonal of said base with adjacent sides of the respective projections defining a right angle, a projection disposed at the corners of said base containing said diagonal with the centers of curvature at said corners, and a projection positioned at each edge of said base at the center thereof with the center of curvature being disposed at the respective edge, said latter central edge projections each being oriented relative to said base substantially identically to the corner projection disposed along the same edge as the respective central edge projection.

2. A block as set forth in claim 1 in which said projections are provided with peripherally extending means adapted to receive a tie wire for locking the projections of confronting blocks against separation in a direction axially of said projections.

3. A building block comprising a substantially rectangular planar base having a length in excess of the width thereof, a plurality of stub projections extending generally normal to said base, said projections each having a pair of surfaces normal to said base and intersecting one another substantially perpendicularly to form a right angular corner, a pair of said projections each being disposed with the respective surfaces thereof positioned along one of two medial lines of said base, said medial lines being normal to one another and each being parallel to two edges of said base and spaced equidistant therefrom, said pair of projections being disposed along a diagonal of said base, a second pair of projections each disposed at the corners of said base containing said diagonal and having their surfaces extending along the edges of said base intersecting said diagonal, and one of said projections each being positioned at each edge of said base at the center thereof with one of said surfaces extending along the respective edge and the other surface extending along the medial line intersecting said edge, said latter central edge projections each being oriented relative to said base substantially identically to the corner projection disposed along the same edge as the respective central edge projection.


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