Jan. 18, 1966 J. C. RENFRO 3,229,432

FRAME CONSTRUCTION HAVING PERIPHERAL SUBFRAME MEMBERS WITH BLOCKS INSERTED THEREIN

Filed July 5, 1963 2 Sheets-Sheet 1

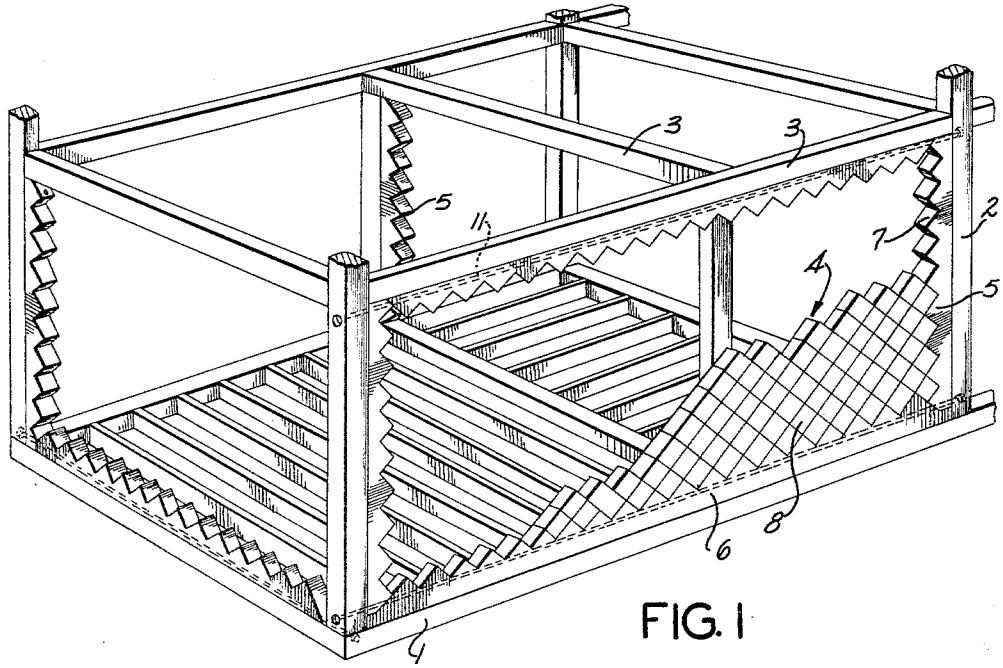


FIG. 1

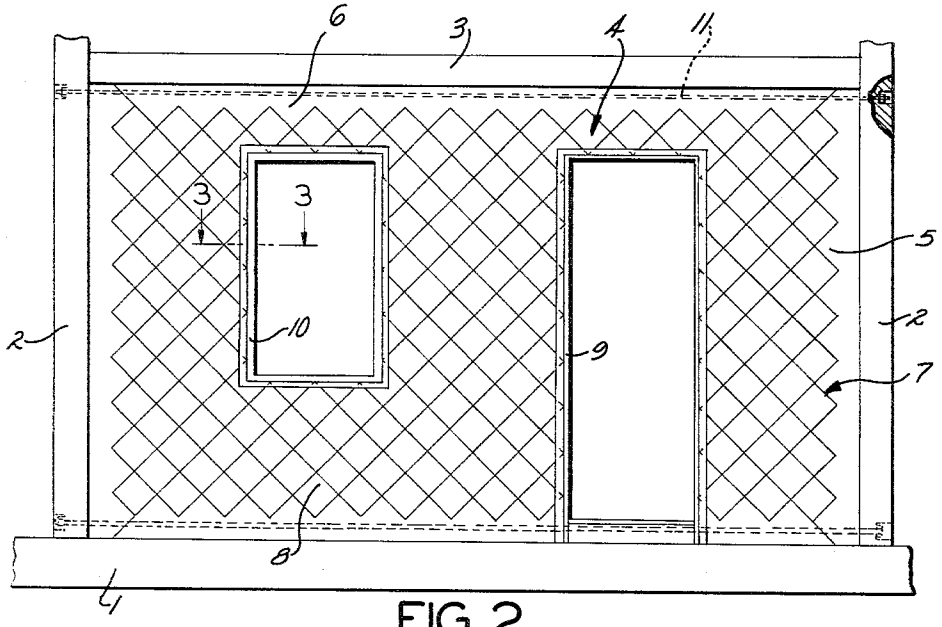


FIG. 2

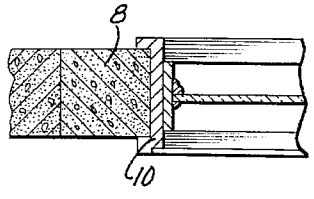


FIG. 3

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FRAME CONSTRUCTION HAVING PERIPHERAL SUBFRAME MEMBERS WITH BLOCKS INSERTED THEREIN

Filed July 5, 1963 2 Sheets-Sheet 2

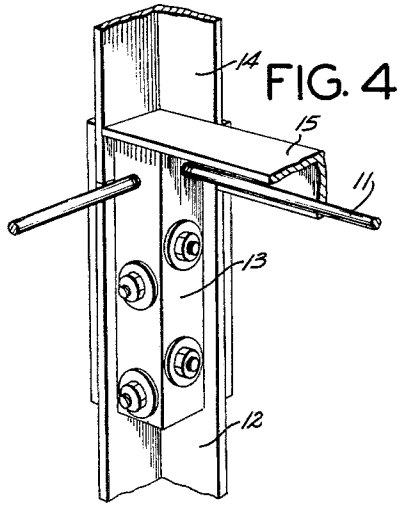


FIG. 4

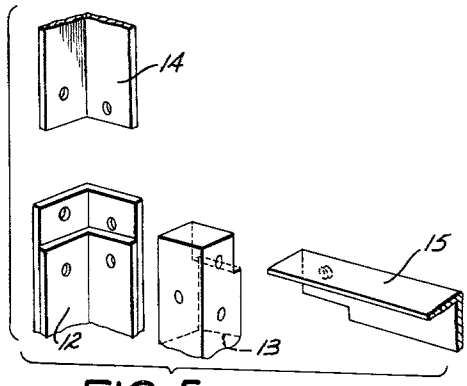


FIG. 5

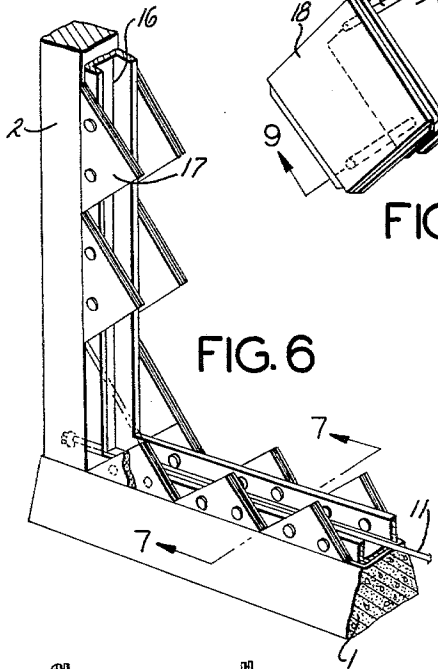


FIG. 6

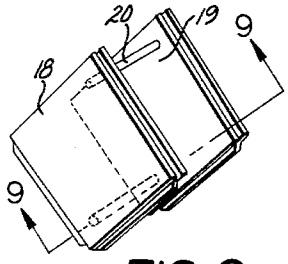


FIG. 8

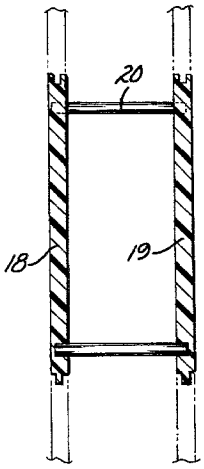


FIG. 9

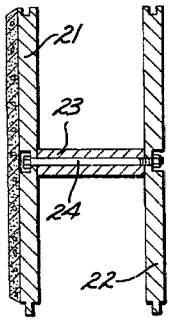


FIG. 11

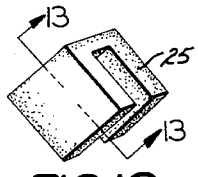


FIG. 12

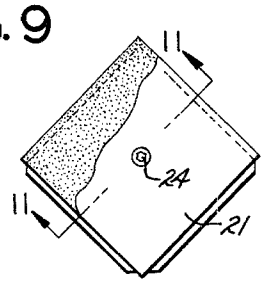


FIG. 10

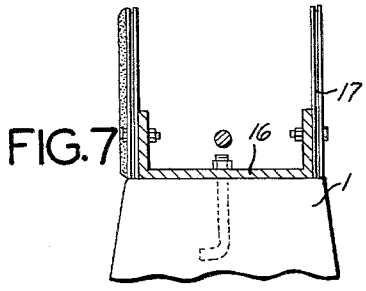


FIG. 7

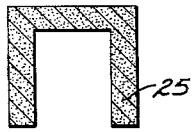


FIG. 13

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3,229,432

FRAME CONSTRUCTION HAVING PERIPHERAL SUBFRAME MEMBERS WITH BLOCKS INSERTED THEREIN

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Filed July 5, 1963, Ser. No. 293,062
4 Claims. (Cl. 52—293)

This invention relates to a building construction, and particularly where the studding between the main frame members of a building are eliminated without reducing the building strength of the wall or building frame members.

An object of my invention is to provide a novel building construction in which a main frame and foundation are first erected, after which the wall structure is set in place, either as a unit or as a built up structure erected by workmen on the job.

Another object of my invention is to provide a building wall structure which is an effective load bearing portion of the building, and which has load bearing properties irrespective of whether it is assembled at a factory or some central point, or whether it is assembled by workmen on the job.

Another object of my invention is to provide a building construction which includes a large number of interengaging and fitted blocks of substantially rectangular shape, and which are arranged with their diagonal dimensions in both a vertical and horizontal plane so that large bearing surfaces are provided between adjacent blocks or rectangular structures.

Another object of my invention is to provide a building construction in which an entire wall panel between vertical building posts of the building are formed with peripheral subframe members, which are toothed or serrated in shape, so that they will act as a guide and foundation for the subsequent placement of blocks of rectangular shape, and which fit into the serrated subframe members to provide a complete building wall, and the building wall has both exterior and interior completed surfaces.

Still another object of my invention is to provide a novel building construction in which the main corner posts or frame members of the structure may be extended, either horizontally or vertically or both, as might be required to provide additions to a building.

Still another object of my invention is to provide a novel building construction in which appropriate rod or cable tensioning members are provided which extend horizontally and vertically of the building in the building walls, to effectively tie the adjacent structural posts of the building, as well as the subframe wall structure into one cohesive unit.

Still another object of my invention is to provide a novel building construction in which the main frame members of the building, and also the subframe members, may be formed of metal structural shapes, to provide space in which electrical conduits and water pipes may be easily placed.

Other objects, advantages and features of invention may appear from the accompanying drawing, the subjoined detailed description and the appended claims.

In the drawing:

FIGURE 1 is a schematic perspective of a building structure embodying my invention.

FIGURE 2 is a fragmentary side elevation of a single wall or panel embodying my building construction.

FIGURE 3 is an enlarged sectional view taken on line 3—3 of FIGURE 2.

FIGURE 4 is a fragmentary perspective view of a main frame corner construction.

FIGURE 5 is a fragmentary exploded view of the corner construction shown in FIGURE 4.

FIGURE 6 is a fragmentary perspective view of a modified form of subframe construction.

FIGURE 7 is a sectional view taken on line 7—7 of FIGURE 6.

FIGURE 8 is a perspective view of one type of block utilized in my building construction.

FIGURE 9 is a sectional view taken on line 9—9 of FIGURE 8.

FIGURE 10 is a side view of another modified form of building block utilized in my construction.

FIGURE 11 is a sectional view taken on line 11—11 of FIGURE 10.

FIGURE 12 is a perspective view of still another shape of building block utilized in my building construction.

FIGURE 13 is a sectional view taken on line 13—13 of FIGURE 12.

Referring more particularly to the drawing, the numeral 1 indicates a building foundation which is normally concrete and upon which the entire building rests. A plurality of vertical posts 2 rise from the foundation 1, and these posts comprise part of the main frame of the building and are spaced substantial distances apart, for example, one on the corner of a building, or if the spans are too great they could be placed closer together. The frame also includes horizontal beams 3, which extend between the columns 2 and are an additional load carrying member of the building.

Between the columns 2 and the beams 3, I provide rectangular wall structures which substitute for the normal studding in a building and which also are load bearing, as will be subsequently described. The wall structures 4 comprise a peripheral subframe, including vertical members 5 and horizontal members 6. The inner edges of both of the subframe members 5 and 6 are toothed or serrated, as shown at 7. The subframe members 5 and 6 are placed inside of the main frame members 2 and 3 and the subframe constitutes a part of a vertical wall of the building. The wall is completed by placing cubicle blocks 8 into the serrations 7 and then fitting the cubes one against the other, as shown in FIGURES 1 and 2, to form the completed wall. The cubes 8 may be solid or hollow as desired, but they form the completed wall as well as the outer and inner surfaces of a building wall. The blocks can be secured together by means of dowels, cement, or the like, as might be desired. The serrations 5 of the subframe members act as a guide and base for the cubes 8, so that the entire structure is uniform and has a neat and pleasing appearance. The diagonal axes of all of the cubes 8 are placed in vertical and horizontal planes so that a wedging action is provided between adjacent cubes or blocks, and also this construction provides a greater bearing surface to sustain both vertical and horizontal loads. Suitable door frames 9 and window frames 10 can be provided at intervals as desired, and the door and window frames are both shaped to receive the blocks 8 as shown in FIGURE 3. To tie the completed wall 4 into the main frame members 2–3 I provide cables or rods 11 which extend horizontally or vertically or both, and tie the subframe and wall into the main frame members 2 and 3 to provide a rigid and effective wall structure which will act as an effective load bearing unit.

In FIGURE 4 I have shown a main building frame structure which includes a vertical angle member or post 12, at the upper end of which a block 13 is securely fastened by means of bolts or the like. This block is spaced from the main beam so that a vertical beam extension 14 can be fitted between the block 13 and the bottom post 12. The block 13 also acts as a seat for a horizontal beam 15, which also fits between the bottom post 12 and the block, as shown in FIGURES 4 and 5. In

this manner the building can be extended both horizontally and vertically, as might be required to increase the size of the structure.

In FIGURE 6 I have shown a modified form of subframe, which includes metal channels **16** which extend parallel to the main frame members **2–3**, and the foundation **1**. Triangular members **17** are bolted or otherwise attached to both sides of the channel **16** to form the toothed or serrated subframe construction, which is required in my building. These triangular members are bolted or welded or otherwise attached to the channel **16**. The method of assembling the balance of the wall construction, and the method of holding the subframe and wall within the main frame of the building, is the same as previously described.

The blocks which fit together and which form the completed wall may have various shapes, other than the cubes **8** previously described. The shapes may include those shown in FIGURES 8 to 13 inclusive. In FIGURE 8 I have disclosed two rectangular plates **18–19** which are suitably spaced by means of dowels **20** extending through both of these plates. The plates are provided with tongue and groove shapes on their peripheries so that they will fit into adjacent plates to form a smooth and interlocking type of wall block. In FIGURES 10 and 11 I have shown the spaced plates **21–22** which may be held together by a single spacer **23** and a bolt **24**. The plates **21** and **22** also are provided with tongue and groove structures to interlock with adjacent plates, as previously described. In FIGURES 12 and 13 a channel shaped cubicle block **25** is shown which can be assembled in the same manner as the cubes **8**, but which provides a substantially hollow wall structure, or one having air spaces therein which might be desirable for certain structures. The blocks **25** may be formed of cement or tile for structures such as fences and the like.

It will be obvious that my wall structures are not necessarily limited to exterior walls alone, but interior non-load bearing walls could also be formed in the same way if it is found advantageous.

Having described my invention, I claim:

1. A building construction for a structure including a foundation, spaced columns extending vertically from the foundation and fixedly attached thereto, and beams extending between said columns, said beams and columns being fixedly secured together,

a wall structure comprising,

a rectangularly shaped subframe positioned within the confines of the foundation, the beams, and the columns, means fixedly securing the subframe to the foundation, the beams, and the columns,

said subframe including metal structural members extending parallel to the foundation, and the columns and beams,

a plurality of triangular members fixedly attached to both sides of said channel to form tooth shaped edges of the subframe,

a plurality of separate blocks fitted in said tooth shaped edges of the subframe, said blocks being cemented together to form the wall.

2. A building construction for a structure including a foundation, spaced columns extending vertically from the foundation and fixedly attached thereto, and beams extending between said columns, said beams and columns being fixedly secured together,

a wall structure comprising,

a rectangularly shaped subframe positioned within the confines of the foundation, the beams, and the columns, means fixedly securing the subframe to the foundation, the beams, and the columns,

said subframe including metal structural members extending parallel to the foundation, and the columns and beams,

a plurality of triangular members fixedly attached to both sides of said channel to form tooth shaped edges of the subframe,

a plurality of separate blocks fitted in said tooth shaped edges of the subframe, said blocks being cemented together to form the wall,

each of said blocks including horizontally spaced plates, and means fastening the plates together to form a unitary structure.

3. A building construction for a structure including a foundation, spaced columns extending vertically from the foundation and fixedly attached thereto, and beams extending between said columns, said beams and columns being fixedly secured together,

a wall structure comprising,

a rectangularly shaped subframe positioned within the confines of the foundation, the beams, and the columns, means fixedly securing the subframe to the foundation, the beams, and the columns,

said subframe including metal structural members extending parallel to the foundation, and the columns and beams,

a plurality of triangular members fixedly attached to both sides of said channel to form tooth shaped edges of the subframe,

a plurality of separate blocks fitted in said tooth shaped edges of the subframe, said blocks being cemented together to form the wall,

a metal rod extending horizontally through the subframe and through adjacent shaped columns to tie the subframe and the columns together.

4. A building construction for a structure including a foundation, spaced columns extending vertically from the foundation and fixedly attached thereto, and beams extending between said columns, said beams and columns being fixedly secured together,

a wall structure comprising,

a rectangularly shaped subframe positioned within the confines of the foundation, the beams, and the columns, means fixedly securing the subframe to the foundation, the beams, and the columns,

said subframe including metal structural members extending parallel to the foundation, and the columns and beams,

a plurality of triangular members fixedly attached to both sides of said channel to form tooth shaped edges of the subframe,

a plurality of separate blocks fitted in said tooth shaped edges of the subframe, said blocks being cemented together to form the wall,

a metal rod extending horizontally through the subframe and through adjacent spaced columns to tie the subframe and the columns together,

each of said blocks including horizontally spaced plates, and means fastening the plates together to form a unitary structure.

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