March 21, 1939. J. H. STITES 2,151,244

BUILDING STRUCTURE

Filed April 26, 1937 2 Sheets-Sheet 1

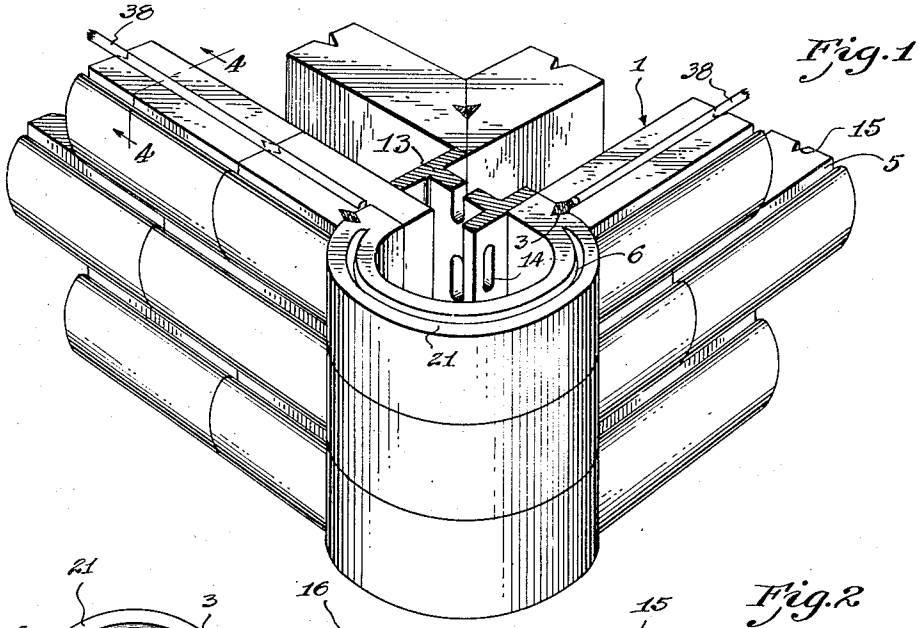


Fig. 1

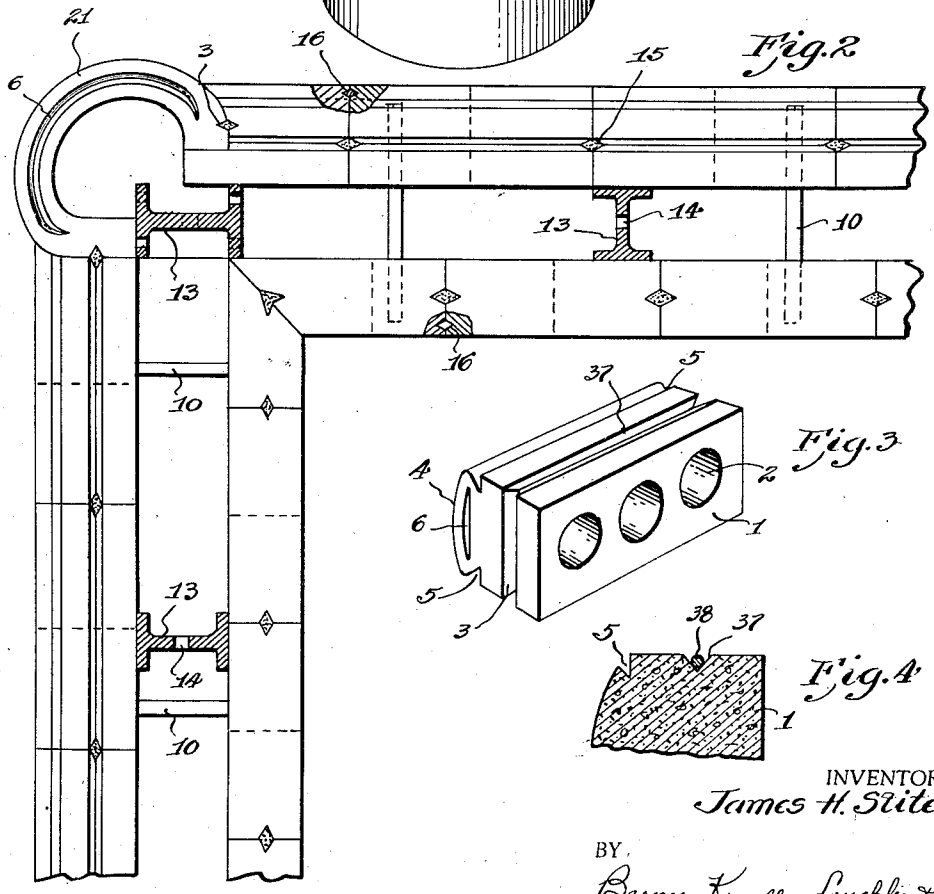


Fig. 2

Fig. 3

Fig. 4

INVENTOR.
James H. Stites

BY.
Barnes, Kisselle, Laughlin & Raiech
ATTORNEYS

March 21, 1939. J. H. STITES 2,151,244

BUILDING STRUCTURE

Filed April 26, 1937 2 Sheets-Sheet 2

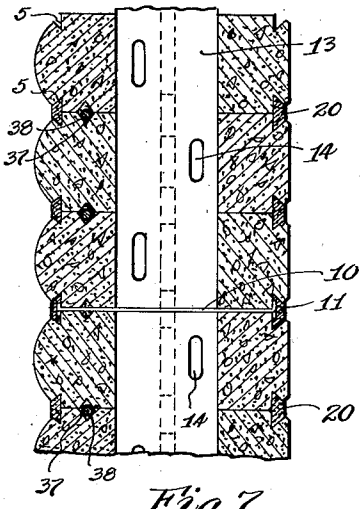


Fig. 7

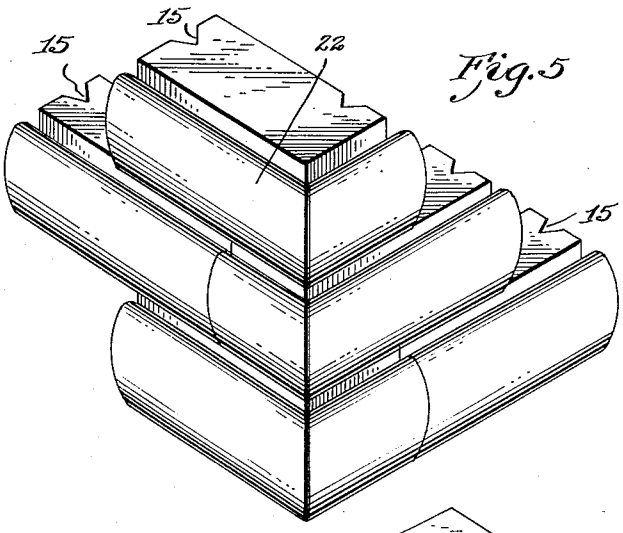


Fig. 5

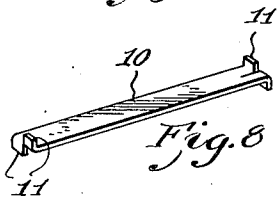


Fig. 8

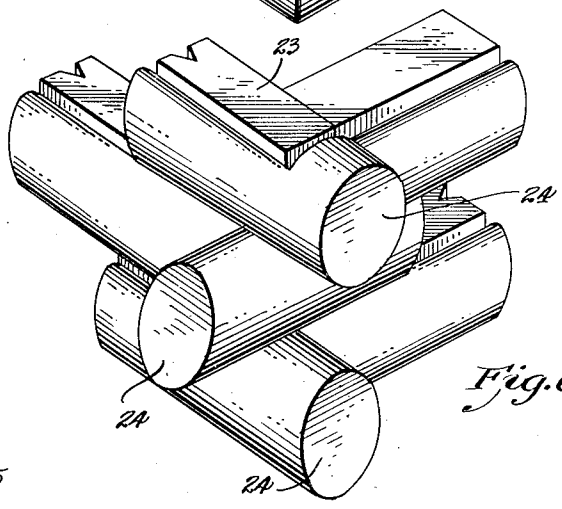


Fig. 6

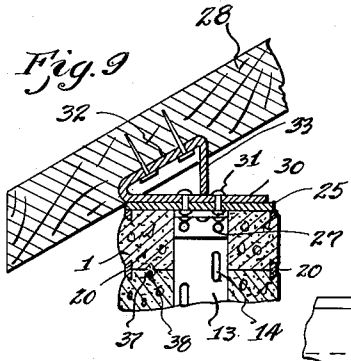


Fig. 9

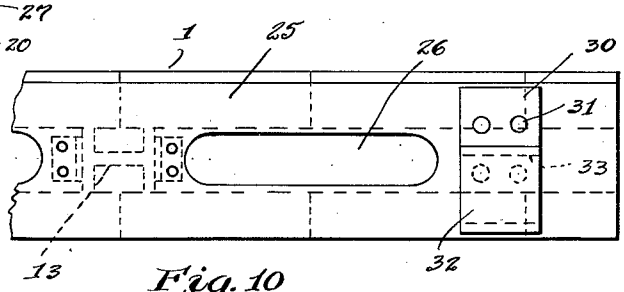


Fig. 10

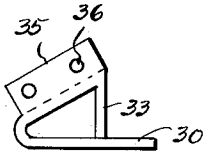


Fig. 11

INVENTOR.
James H. Stites

BY
Barnes, Kisselle, Laughlin & Raiser
ATTORNEYS

Patented Mar. 21, 1939

2,151,244

UNITED STATES PATENT OFFICE

2,151,244

BUILDING STRUCTURE

James H. Stites, Waterford, Mich.

Application April 26, 1937, Serial No. 138,889

2 Claims. (Cl. 72—41)

This invention relates to building structure, and it has to do particularly with a masonry structure which embodies new arrangements and elements and which may be and preferably is so arranged that a masonry building can be erected which simulates a log structure or the like.

The walls of the structure may be made of inner and outer masonry wall portions separated to provide an air space for keeping out the dampness and frost and also for insulating the structure. The structure is preferably reenforced by studding which lies between the inner and outer wall portions, and this studding may be of steel such as I beams or the like and which are preferably provided with apertures for ventilation purposes. A novel structure is provided for the top of the wall and for supporting the rafter of a roof which may be arranged to take care of different roof pitches. The masonry wall structure embodies an arrangement for providing interlocking joints, and cross ties may be used for further strengthening a wall. The masonry blocks used are preferably formed with an outer surface substantially having the contour of and designed to simulate the exposed surfaces of logs. To this end the blocks may be so formed and ornamented superficially to simulate logs with or without bark thereon, or rough hewn timber or the like.

The hollow wall structure makes for a wall which is frost-proof and damp-proof and the masonry and steel structure provides a wall which is fire proof and not subject to rotting or other disintegration, as well as a wall which is tightly closed for the prevention of passage of air currents therethrough.

In the accompanying drawings:

Fig. 1 is a perspective view of a wall structure constructed in accordance with the invention and illustrating one form of corner arrangement.

Fig. 2 is a plan view substantially of the wall structure shown in Fig. 1.

Fig. 3 is a perspective view of a masonry block.

Fig. 4 is a perspective view with parts cut away illustrating a portion of the wall structure.

Fig. 5 is a view of a wall structure showing a different kind of corner.

Fig. 6 is a view similar to Fig. 5 showing a still different form of corner.

Fig. 7 is a vertical sectional view taken through a wall structure made in accordance with the invention.

Fig. 8 is a detail view of a reenforcing tie member.

Fig. 9 is a cross sectional view illustrating the arrangement for supporting a roof rafter.

Fig. 10 is a top plan view illustrating the top plate used under the roof rafter.

Fig. 11 is a view showing a modified form of rafter attaching device.

First refer to Fig. 3: This figure shows a masonry block which may be made up of any suitable material such as concrete, cinder block, or any other suitable material. The block is generally illustrated at 1 and as shown has a portion of rectangular form in cross section, and may be provided with cored-out parts or recesses 2 for lightening the block and for providing a sort of a hollow block structure. The ends of the block are provided with grooves 3, which may be of any desired shape, advantageously the shape as shown. The block has another portion which is to be exposed, and this portion is rounded as shown at 4, taking substantially the form or contour of a log. Grooves 5 are formed between the rounded portion and the rectangular part of the block as illustrated, for forming an interlocking mortar engagement as will presently appear. The end of the block may also have a recess or groove 6 in the outer portion, also for forming an interlocking structure, as will presently appear.

These blocks may be laid to form a wall structure illustrated in Figs. 1, 3 and 7. Preferably, the wall is made double. The inside blocks may be formed to present rather a flat surface, the inside blocks being illustrated at 1a, and each having a flat surface 4a. The inside blocks, however, may be otherwise formed like the blocks 1 with the grooves for interlocking purposes.

At suitable places the inner and outer walls may be tied together by the tie pieces at 10 which may take the form of strap metal with the ends split and with the end portions on opposite sides of each split fashioned angularly as illustrated at 11 to form gripping heads. The tie pieces may extend through the wall structure as illustrated in Figs. 2 and 7 with the heads disposed in the space provided by the meeting grooves 5. Suitable reenforcements may be used between the inner and outer walls preferably in the form of metal studding which may be of I beam or other suitable metal shapes. The studding is illustrated at 13 and is preferably apertured as at 14 so that the entire space between the walls is in gaseous communication for ventilation purposes.

When this wall is erected the blocks are laid in the usual manner and the mortar fills in the spaces between the facing recesses 3 and 6 on the ends of the blocks. This is illustrated at 15 and

16. In finishing the erection, mortar is filled in between the blocks at their outer surfaces; that is between the adjacent vertical edges of each pair of blocks. This mortar preferably has such coloring and consistency as to match or substantially match the surface of the blocks. Thus the vertical joints are rendered more or less imperceptible or subdued. Mortar is also placed in the horizontally extending joints between rows of blocks, and this mortar is filled in as illustrated at 20 in the reentrant groove formed by the grooves 5. Preferably, the blocks are proportioned so as to provide for quite a wide strip of mortar at 20, thus to simulate the relatively wide calking or filling between the logs of a log structure. This is accomplished by having the exterior rounded portion 4 of a vertical dimension less than the vertical dimension of the body of the block, as illustrated in Fig. 7.

Various corner structures may be used. As illustrated in Figs. 1 and 2, the corner structure is of the vertical rounded post type. Here a plurality of substantially semi-circular blocks 21 are used at the corner to provide a vertical post structure, and these blocks may be notched also as at 3 and 6, to provide a locking mortar joint with the other blocks of the wall and with each other. The so-called miter corner may be used as illustrated in Fig. 5, in which case specifically formed corner blocks 22 may be used. A so-called log cabin form of corner may be used as illustrated in Fig. 6. In this case corner blocks 23 may be used which have cylindrical-like extensions 24 which project from the corner and simulate the ends of the projecting logs.

The top of a wall structure is illustrated in Figs. 9 and 10. One advantageous, and the preferred structure, is that of providing a plate 25 placed on top of the wall, this plate preferably having apertures 26 therein so that a full circulation of air may be had through the space in the wall and through the top wall. This top plan may be secured to the studding, as for example, by means of angle clips 27. A rafter is illustrated at 28, and the rafters may be secured to the top plate by means of suitable fastening devices which may take the form of sheet metal members fashioned to form a base 30 which may be secured to the top plate by rivets or the like 31 and which is then bent upon itself to provide an inclined portion 32, and again bent to provide a strut 33 extending downwardly and making contact with the base 30. The angularity of the part 30 may be varied for use with roofs of different pitches. In Fig. 11 the angle plate is shown as being modified by the addition of a flange 35. A wooden rafter may be placed upon the inclined part 30 flush up against the flange 35, and nails or the like may be driven through the flange which is apertured as at 36 for this purpose. However, either form of these clips may be used with metal rafters.

It will be understood that a number of top plates 25 may be used along the length of a wall, depending upon its length, and that the rafter clips will be spaced along the plates at the location of the rafters.

In some structures it may be desirable to further reenforce the wall structure, particularly the outside wall section. Such reenforcement may reenforce the outside walls against lateral pressure, as for example where the wall is subjected to outside pressure where the wall is used for basements, or where the wall is subjected to any other pressure or liable to be subjected to any pressure of an excess nature, such as high wind pressure. The structure particularly reenforces the wall sections between the studding. For this purpose each block, especially the blocks for the outer wall, is provided with longitudinally running grooves 37, and these grooves are designed to cooperate to form a closed channel as illustrated in Fig. 7 for the reception of reenforcing rods of steel or the like 38. Where the reenforcing rod structure is used the rods may be cut or caused to terminate for the passage of the cross ties 11. However, as illustrated in Fig. 7, the reenforcing rods may not be used between the courses where the cross ties are used. The grooves 37 are preferably pretty well filled in with mortar surrounding the rods to make a tight reenforcing joint structure.

I claim:

1. In a masonry wall structure, a plurality of masonry blocks, each block having a portion rectangular in cross section and said portions being laid in superposed relation to form a wall structure, each block having a second projecting portion on the exposed side of the block extending substantially throughout the horizontal length of the block and having an outer face substantially on a vertical radius, said second portion having a vertical dimension less than the vertical dimension of the block, the ends of the blocks being in substantially abutting relationship so that the projecting portions of blocks in a tier present elongated unbroken surfaces lengthwise of the wall, each block having a groove formation substantially at the line of connection between the portions and mortar between the second named portions of superposed blocks substantially filling a reentrant recess formed by the facing grooves of superposed blocks, said mortar being exposed for a substantial vertical distance to divide the said unbroken surfaces presented by the projecting portions.

2. In a masonry wall structure, a plurality of masonry blocks, each block having a portion rectangular in cross section and said portions being laid in superposed relation to form a wall structure, each block having a projecting second portion on the exposed side of the block extending substantially throughout the horizontal length of the block and having an outer face substantially on a vertical radius, said portion having a vertical dimension less than the vertical dimension of the block, the ends of the blocks being in substantially abutting relationship so that the projecting portions of blocks in a tier present elongated unbroken surfaces lengthwise of the wall, each block having a groove formation substantially at the line of connection between the portions and mortar between the second named portions of superposed blocks substantially filling a reentrant recess formed by the facing grooves of superposed blocks, said mortar being exposed for a substantial vertical distance to divide the said unbroken surfaces presented by the projecting portions, said blocks having grooves at their ends arranged to substantially face each other for the reception of mortar to form an interlocking joint.

JAMES H. STITES.