

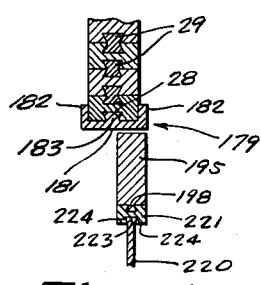
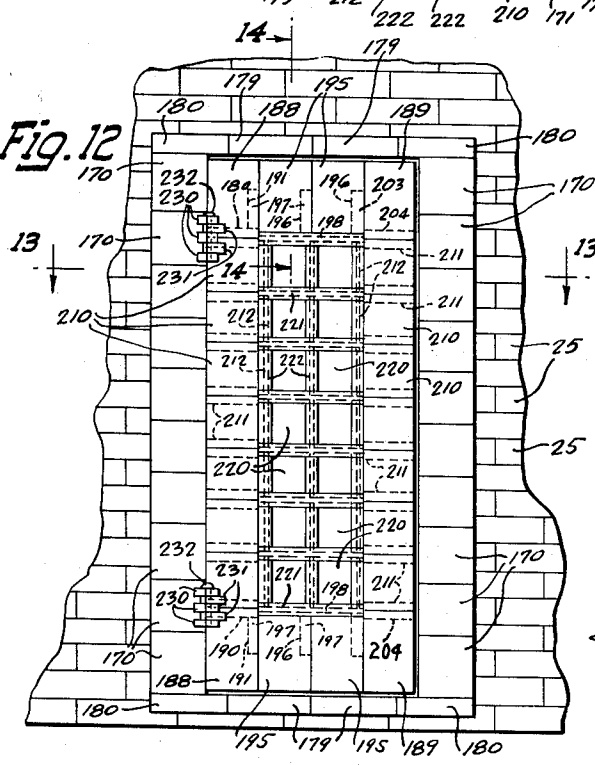
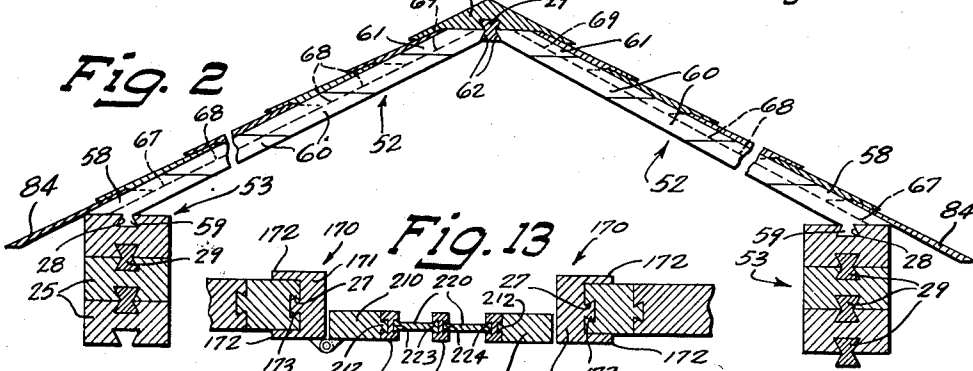
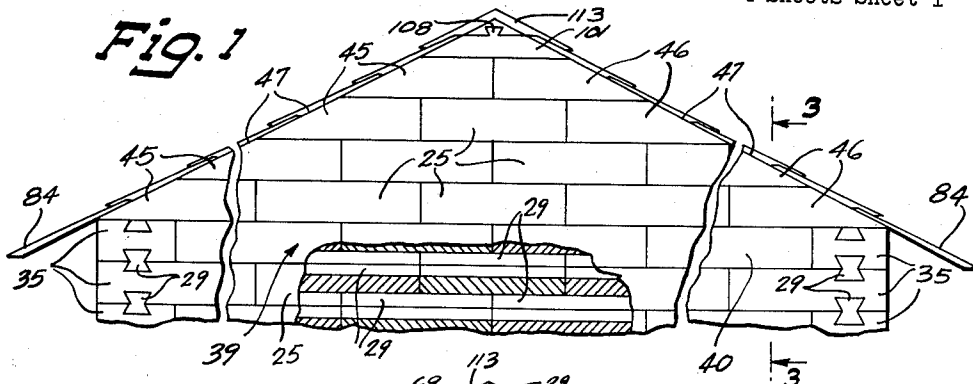
Feb. 5, 1963

S. J. CZECHOLINSKI  
BUILDING BLOCKS

3,076,286

Filed July 15, 1955

4 Sheets-Sheet 1



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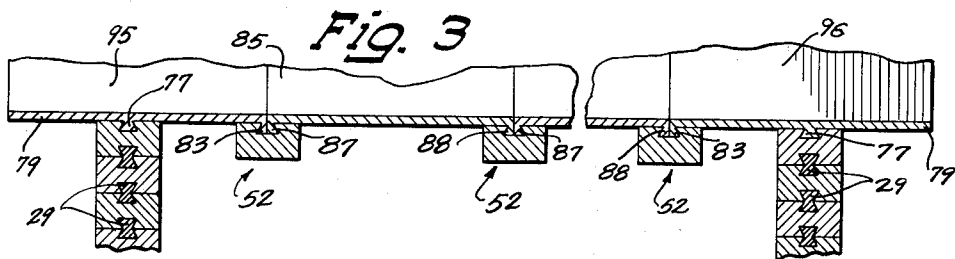


Fig. 4

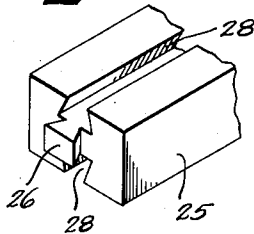


Fig. 5

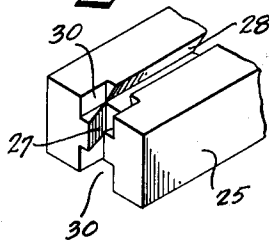


Fig. 6

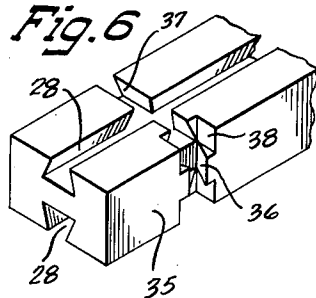


Fig. 7

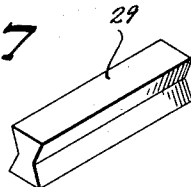


Fig. 15

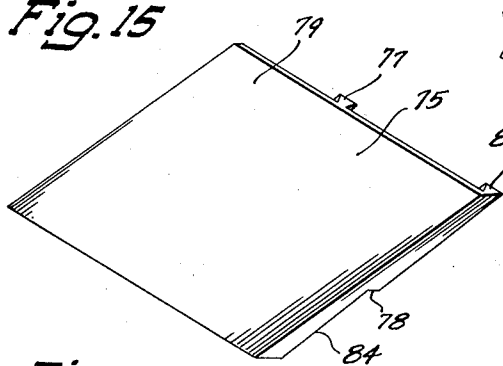


Fig. 16

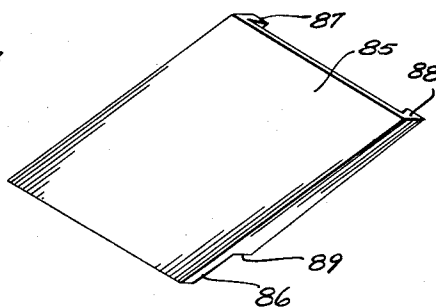


Fig. 17

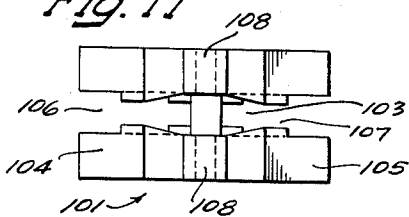


Fig. 19

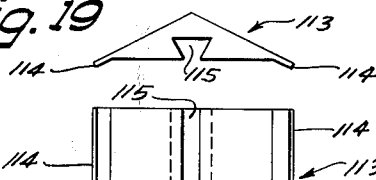


Fig. 20

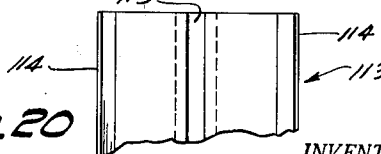
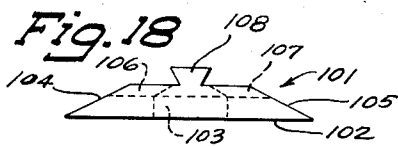


Fig. 18



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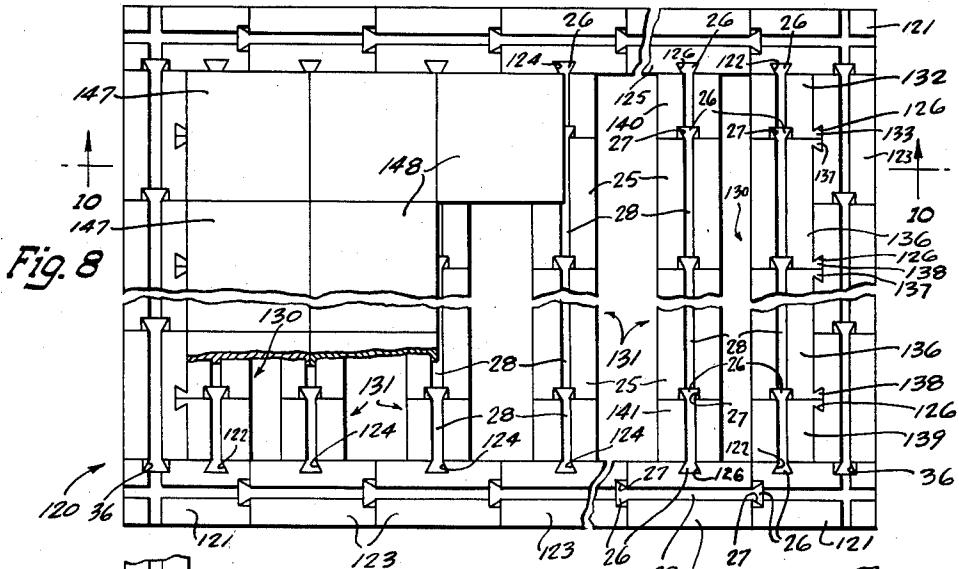


Fig. 8

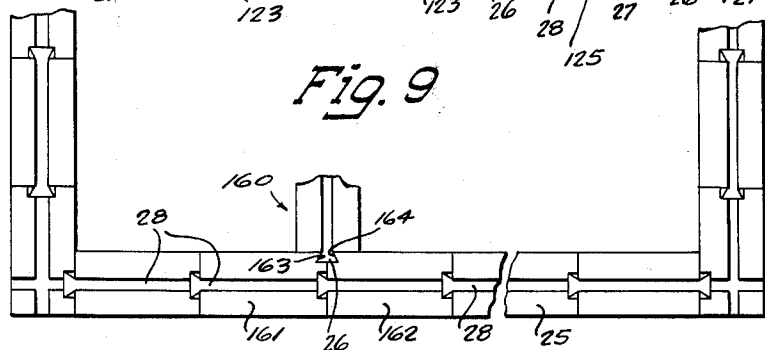


Fig. 9

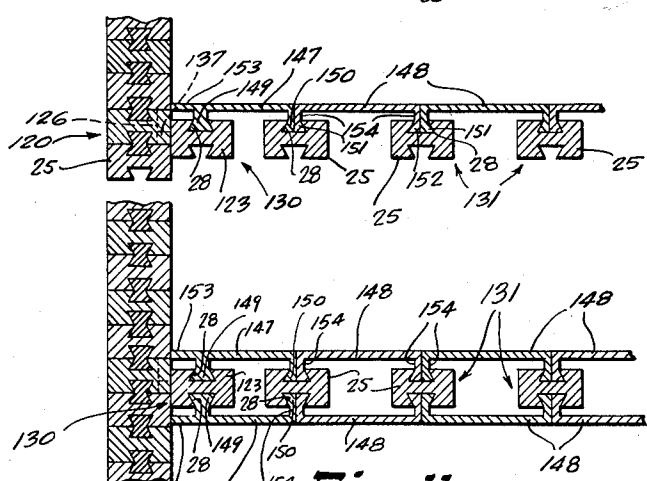


Fig. 10

Fig. 11

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Fig. 21

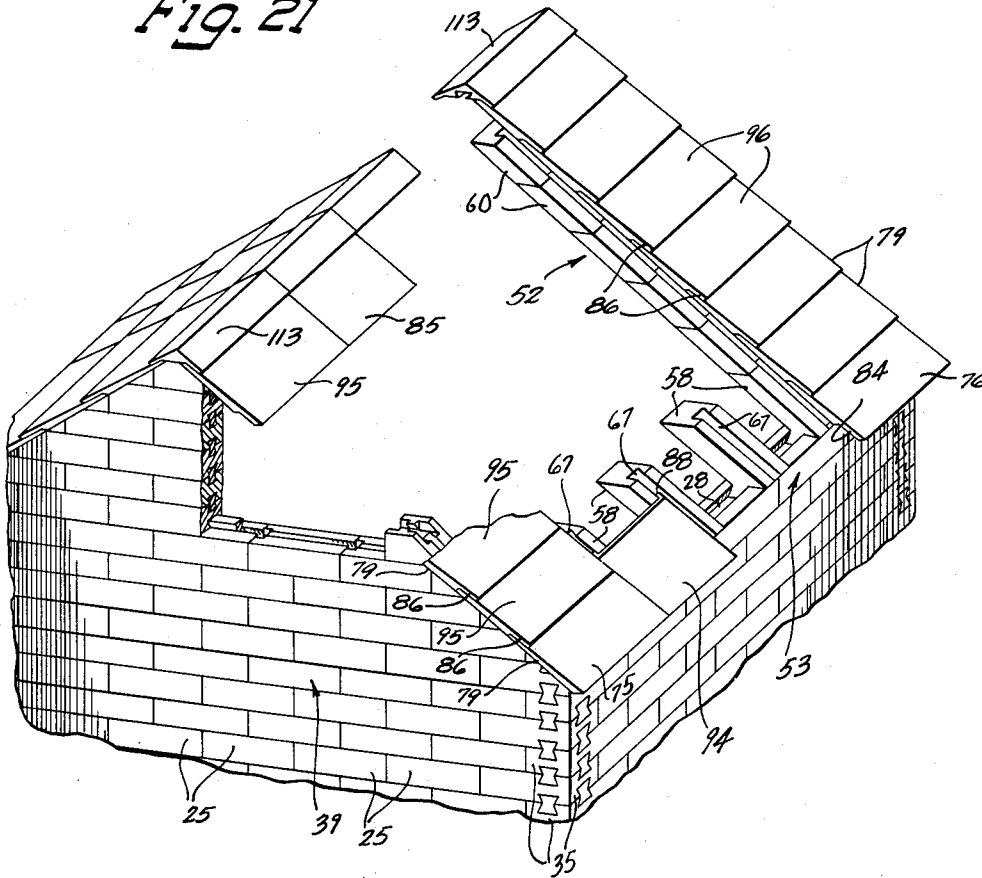


Fig. 22

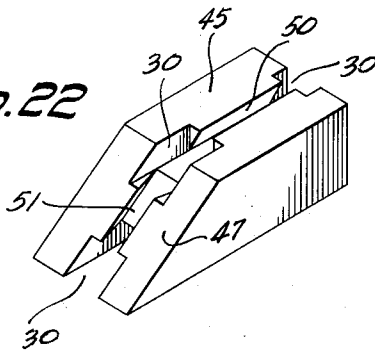
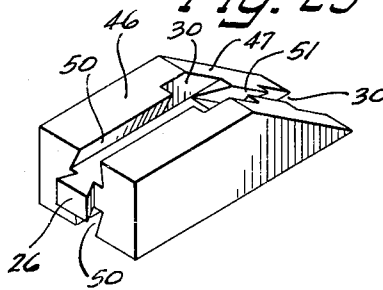


Fig. 23



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**BUILDING BLOCKS**  
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Filed July 15, 1955, Ser. No. 522,248  
11 Claims. (Cl. 46-19)

This invention relates generally to building blocks, and more particularly to an improved system of interlocking building blocks especially adapted to form a full size building or to assemble model buildings of rigid construction that may be handled and moved about without destroying or damaging the assembled structure.

A variety of interlocking building blocks are presently available for full size as well as toy or model building construction but are deficient in that they are interlocked in one direction only. That is, the interlocking structure serves to prevent the displacement of the blocks relative to each other in either the horizontal direction or the vertical direction but not in both directions. Usually such blocks are interlocked to prevent their horizontal displacement only, and the rows of blocks are balanced upon each other. With this arrangement, the slightest disturbance will destroy the balance to cause complete dismantlement of the assembled structure. Obviously, a model building constructed of these blocks cannot be lifted bodily and moved from one place to another unless it is built on a flat board or the like and carefully lifted by means of the board. Furthermore, such blocks are limited to the construction of vertical walls, it being necessary to resort to sheet material for the roof, windows, and doors, thereby limiting the versatility of the blocks and detracting from the appearance of the building. In addition it is usually impractical to construct a floor above the first floor with such presently available building blocks to limit the type of structures that may be assembled.

It is therefore a general object of the present invention to provide an improved system of interlocking building blocks for constructing full size as well as model buildings.

Another object of the present invention is to provide an interlocking system for building blocks which functions to prevent the displacement of the blocks relative to each other in both the vertical and horizontal directions.

Another object is to provide an improved system of interlocking building blocks capable of securely connecting the adjacent walls and the various members of the building together to form a rigid unitary structure.

Another object is to provide an improved system of interlocking building blocks especially adapted to form the various members of a building in accordance with conventional building construction.

Another object is to provide an improved system of interlocking building blocks capable of being assembled to form a model building which may be handled and moved about bodily without causing its destruction or damaging it.

A further object is to provide an improved system of interlocking building blocks capable of forming a structure which will not be inadvertently disassembled by an accidental disturbance.

A still further object is to provide an improved system of interlocking building blocks for constructing full size as well as model buildings of rigid and sturdy construction which may be conveniently assembled and disassembled.

A still further object is to provide an improved system of interlocking building blocks having practically unlimited versatility in the construction of various types of buildings.

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A still further object is to provide an improved system of interlocking building blocks for constructing model buildings which will closely resemble conventional building structures.

According to this invention the improved building blocks are provided with a unique system of tenon and mortise joints especially adapted to prevent the displacement of the blocks relative to each other when assembled, in both the vertical and horizontal directions, and to tie together the various members and adjacent walls of the assembled building to form a rigid unitary structure. Each of the blocks includes a tenon on one vertical end surface, and a mortise on the other vertical end surface. In assembling the blocks, the tenon of one block is inserted into the end mortise of the adjacent block to prevent their horizontal displacement relative to each other. Vertical displacement of these blocks is avoided by providing longitudinal mortises along the entire length of both the top and bottom horizontal surfaces of each of the blocks. As the blocks are assembled, one on top of the other, to form a wall, the top mortises of one row of blocks cooperate with the bottom mortises of the row of blocks directly above to form an opening for receiving an insert which is constructed to occupy the opening formed by the two mortises and tie the two rows of blocks together for the purpose of preventing their vertical displacement relative to each other. The roof of the building is supported by rafters which are formed of individual blocks set end to end. Each of these blocks has a longitudinal mortise along its top surface, and the several blocks of each rafter are tied together by tenons disposed within these mortises and secured to the bottom surface of roof blocks which are shaped to simulate the roof shingles of conventional building construction. The floors are constructed in a similar manner, being supported by joists formed by the same blocks that are used in constructing the wall. The joists are constructed by several blocks laid end to end in a single row. The longitudinal mortises along their top surfaces are occupied by tenons secured to the underside of panel blocks, the tenons being disposed in staggered relationship relative to the blocks to prevent their vertical displacement. The panel blocks form a continuous surface to produce a floor of the building, and may be similarly assembled to the bottom longitudinal mortises of the blocks forming the joist, to produce a ceiling of the building. The joists are tied in to the walls of the building by similar tenon and mortise joints to securely connect the several joists to the building structure. Special blocks are likewise provided to form hinged door and window members.

The foregoing and other objects of the invention, which will become apparent from the following detailed description setting forth an illustrative embodiment may be achieved by the particular apparatus depicted in and described in connection with the accompanying drawings, in which:

FIGURE 1 is a fragmentary view in front elevation of the upper portion of a building constructed with the building blocks of the present invention, with a portion of the end wall blocks being broken away to illustrate the position of the double dovetail inserts relative to the blocks forming the wall.

FIGURE 2 is a fragmentary view in vertical section along the width of the building shown in FIGURE 1 to illustrate its roof construction;

FIGURE 3 is a fragmentary view in vertical section along the length of the building shown in FIGURE 1 to illustrate its roof construction;

FIGURE 4 is a detail fragmentary perspective view of one end of the blocks provided for forming the wall of the building;

FIGURE 5 is a detail fragmentary perspective view

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of the opposite end of the block depicted in FIGURE 4;

FIGURE 6 is a detail fragmentary perspective view of a corner block showing the vertical mortise along its side surface provided for tying together the adjacent walls of the building;

FIGURE 7 is a detail perspective view of the double dovetail insert for preventing vertical displacement of the blocks relative to each other;

FIGURE 8 is a plan view of the first floor joists with a portion of the panel blocks assembled thereto for forming the floor surface;

FIGURE 9 is a fragmentary plan view of the wall construction showing the method of connecting an interior portion wall to an exterior wall;

FIGURE 10 is a fragmentary view in vertical section taken along the plane represented by the line 10—10 in FIGURE 8;

FIGURE 11 is a fragmentary view in vertical section illustrating the assembly of the second floor joists with the second floor mounted on top of the joists and the first floor ceiling suspended from the bottom of the joists;

FIGURE 12 is a fragmentary view in front elevation showing a typical door installation in the wall of a building constructed with the building blocks of the present invention;

FIGURE 13 is a fragmentary view in horizontal section taken along the plane represented by the line 13—13 in FIGURE 12;

FIGURE 14 is a fragmentary view in vertical section taken along the plane represented by the line 14—14 in FIGURE 12;

FIGURE 15 is a detail perspective view of a corner roof shingle showing the extensions for forming the end overhang and the eave of the building;

FIGURE 16 is a detail perspective view of a roof shingle without any extensions for forming the main portion of the roof above the bottom row of shingles and between the two end rows of shingles;

FIGURE 17 is a detail plan view of the block provided for forming the peak of the end walls of the building;

FIGURE 18 is a detail view in front elevation of the block depicted in FIGURE 17;

FIGURE 19 is a detail view in front elevation of the block employed for forming the cap of the roof of the building;

FIGURE 20 is a detail fragmentary bottom view of the block shown in FIGURE 19;

FIGURE 21 is a fragmentary perspective view of the building shown in FIGURE 1 with portions omitted to clearly illustrate the assembly of the several members for forming the roof structure;

FIGURE 22 is a detail perspective view of the end blocks provided for one side of the end wall construction to establish the incline of the roof; and

FIGURE 23 is a detail perspective view of an end block similar to the end block shown in FIGURE 22 but employed on the opposite side of the inclined portion of the end wall.

Reference is now made more specifically to the drawings and particularly to FIGURE 1 thereof showing a portion of a wall and roof of a building assembled with blocks constructed in accordance with the teachings of the present invention to create a rigid structure which may be handled and moved about without coming apart by reason of the unique arrangement wherein the blocks are interlocked in two directions so that they will not accidentally separate either vertically or horizontally but may be readily disassembled when so desired. The side walls of the building are built up of a plurality of blocks 25 disposed in staggered relationship in accordance with the conventional method of building a wall with brick or block.

The individual blocks are formed as illustrated in

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FIGURES 4 and 5 where FIGURE 4 depicts one end of the block and FIGURE 5 shows the opposite end of the same block. The novel interlocking system of the present invention is achieved by a unique arrangement of tenon and mortise joints especially adapted to secure the blocks in both a horizontal and vertical direction. To this end, each of the blocks 25 is provided at one end with a dovetail tenon or tongue 26, as best shown in FIGURE 4, and at the other end with a dovetail mortise or socket 27 as clearly depicted in FIGURE 5. As the blocks 25 are placed end to end in a row to build up a wall, the tenon 26 is inserted into the mortise 27 of the adjacent block 25 to securely connect the entire row of blocks together to prevent their horizontal separation.

It is obvious that the engagement of the tenons 26 with their mating mortises 27 will serve to prevent horizontal displacement of the individual blocks 25 relative to each other, but will not function to prevent their vertical displacement. In order to secure the blocks against vertical movement with respect to each other, each of them is provided along both its top and bottom horizontal surfaces with a longitudinal elongated mortise 28 adapted to receive an elongated double dovetail insert 29 which is clearly illustrated in FIGURE 7. Since the blocks 25 are provided with a longitudinal mortise 28 along both their upper and lower surfaces, a row of blocks 25 forming a part of a wall will present along its entire upper surface a dovetail socket extending through the entire length of the wall formed by the several individual mortises 28 in alignment. In similar fashion, the row of blocks 25 directly above will present an elongated dovetail socket through the entire length of the wall along the bottom surface of the row formed by the individual mortises 28 of the bottom surface of the upper row of the blocks 25. The bottom mortises 28 are in alignment with the upper mortises 28 in opposed relationship to form a double dovetail socket with the dovetails extending in opposite directions as shown in the drawings.

The double dovetail socket formed by the two cooperating mortises 28 is adapted to receive the insert 29 which is likewise shaped in the form of a double dovetail, with the dovetails disposed in alignment with each other in opposed relationship. It is clear therefore, that one of the dovetails forming the insert 29 will be inserted into the dovetail mortise of the lower row of blocks 25, and the other dovetail of the insert 29 will at the same time be inserted into the cooperating dovetail mortise of the upper row of blocks 25 to tie the lower row of blocks to the upper row of blocks against vertical displacement. The length of the inserts 29 conforms to the length of the blocks 25, and since the blocks 25 are stacked in staggered relationship in constructing a wall, each of the inserts 29 will extend along the length of one brick, and along half of the length of two bricks either above or below, as clearly shown in FIGURE 1, to add to the rigidity of the structure.

It will be noted that the dovetail tenon 26 does not extend through the entire height of the block 25, but is centrally disposed between the two longitudinal mortises 28 and its height is approximately one third of the entire height of the block 25. Similarly, the dovetail mortise 27 is centrally disposed on the opposite end of the block 25 and its height corresponds with the height of its cooperating tenon 26. It will also be noted from the illustration in FIGURE 5 that both of the longitudinal mortises 28 on each of the blocks 25 are cut away on either side of the dovetail mortise 27 to form cubical recesses 30 for the purpose of providing clearance for the tenon 26 so that the tenon 26 may pass through the recess 30 when placing it in mating engagement with the dovetail mortise 27.

Special corner blocks 35 are provided to form the corners of the building structure and securely tie together the adjacent walls. The construction of the corner blocks 35 is clearly illustrated in FIGURE 6, it being generally similar to the blocks 25, except that the tenon 26 is omit-

ted to present a flat end surface which forms a part of the exterior surface of the wall as illustrated in FIGURE 1. In addition, a side dovetail mortise 36 is formed along the side surface of the block 35, the mortise 36 being identical to the mortise 27 for the purpose of receiving a tenon 26 of the cooperating block 25 along the adjacent wall of the building. A lateral dovetail mortise 37 is also formed along the width of the block 35 at both its top and bottom surfaces in alignment with the mortise 36 to permit the insertion of the inserts 29. In order to provide clearance for the passage of the tenons 26, the dovetail mortise 37 is cut away in the same manner that the dovetail 28 is cut away to form a cubical recess 38 above and below the dovetail mortise 36 in the same manner that the cubical recesses 39 are formed above and below the mortise 27. Only one end of the block 35 is depicted in FIGURE 6, the other end being identical to the mortise end of the block 25 as illustrated in FIGURE 5 for the purpose of receiving the tenon 26 as previously described.

It will be noted, as illustrated in FIGURE 1, that the corner blocks 35 are stacked along the corner of the building with alternate blocks being positioned 90° relative to each other so that while one block 35 extends longitudinally along one wall of the building, its two adjacent blocks above and below it will extend along the adjacent wall. With this arrangement, alternate blocks 35 will be tied in to the first wall by tenons 26 in engagement with their dovetail mortises 27, and on the adjacent wall by tenons 26 in engagement with their dovetail mortises 36. The other alternate blocks 35 will be secured to the first wall by tenons 26 in engagement with their mortises 36, and along the adjacent wall by tenons 26 in engagement with their mortises 27. Thus, it is obvious, that all the corner blocks 35 are tied in to both adjacent walls for rigid and unyielding construction in a horizontal direction. Since the inserts 29 are in engagement with the longitudinal mortises 28 in the manner previously described, the corner blocks 35 are also prevented from displacement in a vertical direction.

Since the corner blocks 35 are provided with mortises 27 and 36 only, and no tenons 26, the blocks forming the rest of the wall must be adapted accordingly so that a tenon 26 is always available to engage the mortises of the corner blocks 35. Thus, attention is invited to the row of blocks generally identified by the reference numeral 39 in FIGURE 1 where the corner block 35 on the left side of the wall as viewed therein, presents a side dovetail mortise 36 for engagement with a tenon 26 on the left end of the first block 25. On its right end the first block 25 presents a dovetail mortise 27 for engagement with the tenon 26 on the left end of the second block 25. Similarly the second block 25 presents a dovetail mortise 27 on its right end for engagement with the tenon 26 on the left end of the third block 25. In like manner, the third block 25 presents a dovetail mortise 27 at its right end for engagement with the tenon 26 at the left end of a block 40. Since the block 40 has its right end in abutment with the interior side of the corner block 35 at the right end of the row 39, it must also present a tenon 26 at its right end for engagement with the side dovetail mortise 36 of the cooperating corner block 35. Therefore, the block 40 is identical to the blocks 25, except that the dovetail mortise at one end has been replaced in favor of another dovetail tenon 26 so that it is provided with a tenon 26 at each end rather than a tenon 26 at one end and a mortise 27 at the other end as are the blocks 25.

In the illustrated embodiment, the blocks are shown adapted to form a common gable roof on the building structure as shown in FIGURES 1, 2, 3 and 21. As best seen in FIGURE 1, each of the rows of blocks above the row 39 is provided with an end block 45 on one end and an end block 46 on the opposite end which present inclined end surfaces 47 to establish the pitch of the roof. It will be understood, of course, that all of the blocks are

constructed with modular dimensions so that they may cooperate to form the various features of the building. In this instance, the several inclined surfaces 47 unite to form a continuous inclined surface at the top of the end wall of the building for receiving the roof structure.

The end blocks 45 and 46 are illustrated in detail in FIGURES 22 and 23 respectively and are similar in construction except that the block 45 is provided with a dovetail mortise 27 (not shown) at its end opposite the inclined surface 47 formed in the same manner that the mortise 27 is formed on the block 25 and also having the cubical recesses 30 on either side of the mortise. The block 46, on the other hand, is provided with a tenon 26 of the same construction as the tenon 26 on the blocks 25 at its end opposite the inclined surfaces 47. Obviously, the block 45 is employed when its adjoining block presents a tenon 26 for connection thereto, and the block 46 is utilized where its adjoining block presents a mortise 27 for connection thereto. In FIGURE 1, the blocks 45 are shown as being employed on the left side of the wall while the blocks 46 are represented as being located on the right side of the wall but all of the blocks in the row could be reversed without adversely affecting their functioning. The blocks 45 and 46 have formed in their top and bottom surfaces a longitudinal dovetail mortise 50 for the purpose of cooperating with each other or with the longitudinal dovetail mortises 28 of the other blocks to form the double dovetail opening for receiving the insert 29 as previously described. In addition, the blocks 45 and 46 are provided with inclined dovetail mortises 51 along their inclined surfaces 47 for tying in the shingles of the roof as will be subsequently described.

In conventional gable roof construction, roof rafters are employed for supporting the roof covering, and the system of building blocks of the present invention includes blocks adapted to form structural members representing roof rafters for supporting the roof covering which in this instance is formed of blocks simulating roof shingles. The rafters are generally identified in FIGURES 2 and 21 by the reference numeral 52 and are spaced at equal intervals between the end walls of the building structure. The rafters 52 are formed of a series of blocks disposed end to end and function in pairs with the two rafters of a pair being oppositely disposed. One rafter 52 of each pair is tied in to the top of one side wall while the other rafter of the pair is tied in to the opposite sidewall. The two rafters of each pair are inclined toward each other and joined at the peak to form a rigid structure for supporting the roof covering.

The top rows of blocks of the side walls of the building structure are generally identified by the reference numeral 53 and are in alignment with the rows 39 of the end walls of the building. The rows 53 are formed of the blocks 25, 35 and 40 as previously described, and therefore present a dovetail mortise along the entire top edge formed by the longitudinal mortises 28 of the blocks 25, 35 and 40. This longitudinal mortise at the top edge of the rows 53 is taken advantage of to connect the roof rafters to the side walls. To this end a bottom block 58 of each rafter 52 is provided with a dovetail tenon 59 disposed at an angle to the longitudinal surfaces of the block 58 and is adapted to be inserted into the longitudinal mortises 28 of the top row of blocks 53 as best seen in FIGURE 2. With the tenon 59 thus disposed at an angle to the longitudinal surfaces of the block 58 and located within the longitudinal mortise 28 of the top row of blocks 53, the exterior surface of the block 58 will be disposed at an angle to the side walls of the building to conform to the pitch of the roof.

A series of rafter blocks 60 are placed above the bottom block 58 successively end to end with the number of blocks 60 depending on the length of the rafter 52. The upper end of the rafter 52 is completed by a top rafter block 61 which differs from the blocks 60 in that it is provided with a bevel 62 at its upper interior corner

disposed to cooperate with the bevel 62 on the top rafter block 61 of the opposite rafter 52 of the pair to form a dovetail opening for receiving the lower dovetail of the double dovetail insert 29. The bottom rafter block 58 has a longitudinal dovetail mortise 67 formed along its exterior surface and a similar longitudinal dovetail mortise 68 is formed along the exterior surface of each of the rafter blocks 60. In like manner, a longitudinal dovetail mortise 69 is formed in the exterior surface of the top rafter block 61. With the several rafter blocks assembled in position to form the rafter 52, the longitudinal dovetail mortises 67, 68 and 69 are in alignment to form an elongated dovetail mortise adapted to receive dovetail tenons formed in the roof shingles to hold the several rafter blocks together as will be presently described.

The roof covering is comprised of a series of blocks formed to simulate the roof shingles of a conventional roof and are supported by the end blocks 45 and 46 and the rafters 52, with the shingle blocks being adapted to tie the several blocks of the rafters 52 together. A lower corner shingle 75 is illustrated in detail in FIGURE 15, the shingle 75 being constructed to constitute the lower left corner shingle of the roof as viewed in FIGURE 21. A similar shingle 76 of opposite hand is provided to form the lower right hand corner of the roof. Since the shingles 75 and 76 are of opposite hand but otherwise identical in construction, a description of the shingle 75 will serve to also describe the shingle 76.

The shingle 75 includes a dovetail tenon 77 which extends from the top edge of the shingle to a line 78 for insertion into the inclined dovetail mortise 51 of the blocks 45 or 46. The tenon 77 is reduced in length so that it occupies only the lower portion of the dovetail mortise 51. With the tenon 77 in engagement with the mortise 51, a laterally extending portion 79 of the shingle 75 will overhang the end wall of the building in accordance with conventional roof construction. The right edge of the shingle 75 as viewed in FIGURE 15 is provided with a half of a dovetail tenon 83 protruding from the under surface of the shingle 75 and extending from its upper edge to the line 78 as does the tenon 77. It is equal in length to the tenon 77 so that it likewise occupies only the lower half of the mortise 67 of the bottom rafter block 58. Furthermore, since the tenon 83 is only half of a dovetail, it occupies only one half of the lower portion of the dovetail mortise 67. The portion of the shingle 75 extending downwardly beyond the line 78, overhangs the side wall of the building to form an eave 84 in accordance with standard building construction.

FIGURE 16 depicts a shingle 85, a plurality of which form the central portion of the roof covering. The shingle 85 differs from the shingle 75 in that the laterally extending portion 79 is eliminated, and the eave portion 84 is replaced by a substantially shorter overlapping portion 86 which is provided to overlap the upper edge of the top surface of the shingle directly below it. A half of a dovetail tenon 87 protrudes from the bottom surface of the shingle 85 along one side, and a similar half of a dovetail tenon 88 protrudes from the bottom surface of the shingle 85 on the opposite side. The half of a dovetail tenons 87 and 88 extend from the upper edge of the shingle 85 to a line 89 which constitutes the beginning of the overlapping portion 86. The half of a dovetail tenons 87 and 88 conform in length to the length of the mortises 67 and 68 of the rafter blocks 58, 60 and 61 with which they cooperate. Since the tenons 87 and 88 are only half of a dovetail, they must cooperate in pairs to form a complete dovetail which occupies one dovetail mortise.

The space between the bottom corner shingles 75 and 76 is occupied by a plurality of bottom shingles 94 which are identical to the shingles 85 with the exception that the overlapping portion 86 is replaced by an eave portion

conforming to the eave portion 84 of the shingle 75, and the half of a dovetail tenons 87 and 88 are shortened to the same length as the tenons 77 and 83 of the shingle 75 so that they occupy only one half of the length of the dovetail mortises 67 of the blocks 58.

A row of end shingles 95 are placed above the bottom corners shingle 75, and similarly a plurality of end shingles 96 are disposed above the bottom corner shingle 76. The end shingles 95 and 96 include the overhanging portion 79 to form a continuous overhang over the end walls of the building but differ from the shingles 75 and 76 in that the eave portion 84 is eliminated in favor of the shorter overlapping portion 86 as shown on the shingle 85 in FIGURE 16, and the tenons 77 and 83 are of the same length as the tenons 87 and 88 of the shingle 85.

The roof is assembled from the bottom up and it may be more convenient to assemble the roof progressively as the upper tapered portions of the end wall are being constructed. After the side walls are completed and before the tapered upper portion of the end walls are begun, the bottom rafter blocks 58 are placed in position with their tenons 59 in engagement with the dovetail mortises 28 of the top row of blocks on the side wall. With the bottom rafter blocks thus positioned and the assembly of the upper tapered portion of the end walls initiated, the construction of the roof may begin. Thus, with particular reference to FIGURE 21, the shingle 75 is placed in position with its dovetail tenons 77 in engagement with the dovetail mortise 51 of the block 45 or 46, and its half of a dovetail tenon 83 inserted in the dovetail mortise 67 of the first bottom rafter block 58. Since the tenons 77 and 83 are only one half the length of the mortises 51 and 67, they will occupy only one half of the length of the mortises so that the shingle above them may overlap two of the rafter blocks for holding the rafter blocks of each rafter together.

After the corner shingle 75 is thus positioned, a bottom shingle 94 is assembled to its right in juxtaposition with it and with its half of a dovetail tenon 87 being disposed in the same mortise 67 that the half of a dovetail tenon 83 of the shingle 75 is positioned in. The half of a dovetail tenon 83 and the half of a dovetail tenon 87 thus cooperate to form a full dovetail tenon which occupies the shingle dovetail mortise 67. The half of a dovetail tenon 88 on the right side of the shingle 94 will be located in the mortise 67 of the second bottom rafter block 58. Since the half of the dovetail tenons 87 and 88 of the shingle 94 are shortened to approximately one half of the length of the mortises 67, they will only occupy the lower half thereof in the same manner that the tenons of the shingle 75 occupy the lower half of their cooperating mortises. A second shingle 94 will then be placed to the right of the first shingle 94 in juxtaposition therewith, and its half of a dovetail tenon 87 will be placed in the same mortise 67 that contains the half of the dovetail tenon 88 of the first shingle 94, the two halves of a dovetail tenon cooperating to form a full dovetail tenon contained in the mortise 67. The half of a dovetail tenon 88 of the second shingle 94, of course, will be inserted into the mortise 67 of the third bottom rafter block 58 and several bottom shingles 94 will be assembled successively in the same manner along the length of the roof to form a continuous eave, and the corner block 76 on the right side of the roof will then be assembled in the same manner that the corner block 75 was assembled to complete the lower row of shingles of the roof.

The second row of shingles may then be assembled with an end shingle 95 placed directly above the corner shingle 75, having its dovetail tenon 77 in overlapping engagement with the dovetail mortises 51 of the two end blocks 45 or 46, and its half of a dovetail tenon 83 in engagement with the upper exposed portion of the mortise 67 of the first bottom rafter block 58. A shingle 85 is then assembled to the right of the end shingle 95 and in



juxtaposition therewith, with its half of a dovetail tenons 87 and 88 in engagement with the dovetail mortises 67 of the first and second bottom rafter blocks 58 respectively, with the tenons occupying the upper half of the length of the mortises 67 since the lower portion of these mortises are occupied by the tenons of the bottom row of shingles. In this manner several of the shingles 85 are assembled successively side by side through the length of the roof, and the second row of shingles is completed by the positioning of the shingle 96 on the right side of the roof as viewed in FIGURE 21.

It will be noted from the previous description that the tenons of the bottom row of shingles are only half the length of their associated mortises, while the tenons of all the shingles above the bottom row are equal in length to the length of the mortises. Therefore, the tenons of the bottom row of shingles will occupy only the lower half of the length of the mortises 51 and 67 leaving the upper half exposed for the reception of the tenons of the second row of shingles. Since the shingles above the first row of shingles are provided with full length tenons, these tenons will occupy the upper half of the first row of mortises 51 and 67 and the lower half of the second row of mortises 51 and 67 for an overlapping arrangement as previously mentioned to connect the several rafter blocks together.

In view of the fact that the rafter blocks 60 are held together only by the tenons of their associated shingles it is necessary to assemble the second row of shingles to the bottom rafter blocks 67 before the first row of rafter blocks 60 are assembled to the rafters 52. Since the tenons of the shingles overlap the rafter blocks as described above, only the lower half of the length of the tenons of the second horizontal row of shingles will be in engagement with the tenons 67 of the bottom rafter blocks 58, and the upper half of the tenons of the second row of shingles will be exposed. The first rafter block 60 at the bottom of each rafter 52 is then assembled to these exposed portions of the tenons so that the lower half of the mortises 68 of the rafter blocks 60 will be placed in engagement with the exposed portions of the tenons of the second horizontal row of shingles. The upper half of the mortises 68 of the first row of rafter blocks 60 will then remain unoccupied for the reception of the tenons of the third horizontal row of shingles which will be assembled in the same manner as described for the second row of shingles. This process is then continued in the same manner until all of the shingles have been assembled on the roof, and the top rafter blocks 61 are placed in position to complete the rafters 52. With the top rafter blocks 61 thus positioned, the inserts 29 are inserted between the bevels 62 of each pair of rafters 52 as illustrated in FIGURE 2.

Before the top row of shingles are placed in position, the end walls must be completed by the assembly of a peak block 101 which is illustrated in detail in FIGURES 17 and 18 and assembled to the end wall in FIGURE 1. As best seen in FIGURES 17 and 18, the peak block 101 has a bottom surface 102 adapted to rest upon the top surfaces of the blocks 45 and 46 when assembled. A dovetail mortise 103 is formed along the central portion of the bottom surface 102 for the purpose of receiving the upper dovetail of the insert 29, the lower one of which is in engagement with the dovetail mortises 50 of the blocks 45 and 46. The engagement of the insert 29 with the dovetail mortise 50 and the dovetail mortise 103 of the peak block 101 will serve to restrain the latter from vertical movement.

The peak block 101 also includes two oppositely inclined side surfaces 104 and 105 disposed in alignment with the inclined surfaces 47 of the end blocks 45 and 46. A shortened dovetail mortise 106 is formed along the upper portion of the inclined surface 104 and another inclined dovetail mortise 107 is similarly formed along the upper portion of the inclined surface 105. The inclined mortises 106 and 107 are provided to receive the dovetail tenons

77 of the top row of end shingles 95 and 96 which are also in overlapping engagement with the dovetail mortises 51 of the end blocks 45 and 46 to secure the peak block 101 against horizontal movement, with the latter functioning at the same time to assist in supporting the shingles. An upstanding centrally disposed dovetail tenon 108 is formed on the upper surface of the peak block 101, and when the block is assembled in position, the dovetail tenon 108 is in alignment with the upper dovetail of the inserts 29 which are being held in position between the bevels 62 of the top rafter blocks 61.

With the peak block 101 in place on the end walls of the building structure and the top row of shingles assembled, the roof may be completed by the insertion of a plurality of cap blocks 113 which are placed on the peak of the roof to achieve a finished appearance. The cap block 113 is shown in detail in FIGURES 19 and 20 and comprises an elongated block of substantially triangular cross-section with overlapping longitudinal end portions 114 which overlap the top portion of the uppermost shingles on either side of the roof. A longitudinal dovetail mortise 115 is formed along the length of the base of the cap block 113 through its entire length. To assemble the cap blocks 113 to the roof structure, they are slid along the peak of the roof with the dovetail mortise 115 passing over the dovetail tenon 108 of the peak block 101 into engagement with the upper dovetail of the inserts 29 which are being held in position between the bevels 62. The two end cap blocks 113 will overhang the end walls of the building structure by an amount equal to the overhang 79 of the end shingles 95 and 96, so that their dovetail mortises 115 will engage both the upper dovetail of the insert 29 and the dovetail tenon 108 of the peak block 101. With the entire peak of the roof covered by the cap blocks 113 the roof is completed and given a finished appearance very similar to the appearance of conventional building roofs.

It will be noted from the view in FIGURE 2 that the several roof rafter blocks 58, 60 and 61 have their end surfaces inclined to the top and bottom longitudinal surfaces so that the end surfaces are in a substantially horizontal position when assembled to form the rafter 52. Such construction produces greater bearing surfaces for engagement with each other than if the end surfaces were formed at 90° to the longitudinal surfaces. In addition, with this arrangement, any tendency of the rafter blocks to slide relative to each other will cause a wedging action with the shingles to affect a tight engagement of the several associated elements and thereby form a rigid structure.

The building blocks of the present invention are also adapted to be employed for constructing floors and ceilings within a building as illustrated in FIGURES 8, 10 and 11. In conventional building construction, parallel support members termed joists are placed across the width of the buildings for supporting the floors and ceilings, the floors being secured to the top surfaces of the joists and the ceilings being attached to the bottom surfaces of the joists. The building blocks of the present invention have therefore been arranged to permit the construction of joists across the width of a building for the purpose of supporting panel blocks which may be secured to the top of the joists to represent a floor, or may be suspended from the bottom of the joists to represent a ceiling.

In order to support the joists, the course of blocks forming the outside wall at the level of the joists are especially adapted for this purpose. Thus, FIGURE 10 is a view in vertical section illustrating the first floor and its associated joists. The second course of blocks from the bottom is generally identified by the reference numeral 120, a plan view of this course being shown in FIGURE 8. It will be observed from the view in FIGURE 8 that the blocks comprising the course 120 are identical to the blocks previously described for constructing the side and end walls of the building, except that a

dovetail mortise has been added to each of them, the additional dovetail mortise extending through their height at one longitudinal side.

Thus, the row of blocks in the course 120 on the side wall shown at the bottom of FIGURE 8 includes two corner blocks 121. The corner block 121 is identical to the corner block 35 previously described and illustrated in FIGURE 6 except that a dovetail mortise 122 has been added to it, the mortise 122 extending along the height of the block at the same side in which the mortise 36 has been formed. The course of blocks 120 along this same side wall also includes three blocks 123, each of which is constructed in accordance with the construction of the block 25 previously described and illustrated in FIGURES 4 and 5, except that a dovetail mortise 124 has been added. The mortise 124 extends through the height of the block and is centrally disposed on one longitudinal side of the block which is placed to the interior of the building. The course of blocks 120 along this side wall also includes a block 125 which is generally similar to the block 40 previously described in that it is provided with a dovetail tenon 26 at each end rather than a dovetail tenon 26 at one end and a dovetail mortise 27 at the other end as are the blocks 121 and 123. The block 125 with two tenons 26 is necessary in this location to accommodate the mortise 27 presented by the adjacent block 123 and the mortise 27 presented on the other side by the adjacent corner block 121. The block 125 differs from the block 40 only in that it is also provided with a dovetail mortise 126 centrally located on one longitudinal side and extending through its height.

The course of blocks 120 along the other side wall and two end walls is likewise formed of the blocks 121, 123 and 125 and all of these blocks are placed so that their side mortises 122, 124, and 126 respectively, are on the interior side of the walls. These side mortises are utilized for supporting the joists as will be presently described.

As clearly shown in FIGURE 8, the joists extend across the width of the building in parallel relationship, and are connected to the side and end walls of the building by the dovetail mortises 122, 124, and 126 as previously mentioned. A joist is placed along each end wall in juxtaposition therewith, being referred to as end joists and generally identified in the drawing by the reference numeral 130. A plurality of joists 131 are disposed between the end joists 130 and also extend across the width of the building.

The end joists 130 are formed of a plurality of blocks generally similar to the blocks 25 and 40 for constructing the walls of the building except that side tenons have been added at the extremities of one side with each of the tenons being formed in the shape of a half of a dovetail. Thus, a block 132 forms parts of the joist 130 and it is similar in construction to the block 25 except that it is half the length of the block 25 and has half of a dovetail tenon 133 formed at the extremity of one of its sides. In other respects the block 132 is identical to the block 25 and has its dovetail tenon 26 in engagement with the dovetail mortise 122 of the corner block 121 as shown in the upper right hand corner of FIGURE 8. The half of a dovetail tenon 133 is in engagement with one half of the dovetail mortise 126 of the end wall block 123.

The end joists 130 also includes a plurality of blocks 136 which conform to the construction of block 25 with the exception that a half of a dovetail tenon 137 has been added to the extremity of one side, and another half of a dovetail tenon 138 has been added to the other extremity of the same side, the two tenons being disposed in opposed relationship. Thus, the block 136 adjacent to the block 132 has its dovetail tenon 26 in engagement with the dovetail mortise 27 of the block 132, and its half of a dovetail tenon 137 is disposed within the same dovetail mortise 126 that is partially occupied by the half of

a dovetail tenon 133 of the block 132. The two half of a dovetail tenons 133 and 137 cooperate to form a full dovetail tenon which fully occupies the dovetail mortise 126 of the block 123. In the same manner, the other half of a dovetail tenons of the several blocks forming the end joists 130 cooperate in pairs to form a complete dovetail to fully occupy one of the dovetail mortises presented in the end wall for engagement therewith.

The end joists 130 are completed by a half length block 139 which differs from the half length block 132 only in that it has two dovetail tenons 26 instead of a tenon 26 at one end and a mortise 27 at the other end, the two tenons being provided to cooperate with the two mortises presented for engagement therewith by the block 136 and the corner block 121. It is apparent therefore that the end joists 130 are supported along one side by the end walls of the building through the tenon and mortise connections described above as well as at their ends by the tenons 26 in engagement with the mortises 122 of the corner blocks 121.

The joists 131 are formed of the same blocks that are employed for constructing the walls of the building. For example, the first joist 131 from the right, as viewed in FIGURE 8, includes a half block 140 at one end which is identical to the block 25 except that it is half the length. The block 140 has its tenon 26 in engagement with the mortise 126 of the side wall block 125 to connect the joist to the side wall. The half block 140 is followed by a plurality of blocks 25 connected to each other by their tenons 26 and mortises 27 in the same manner as previously described with the first block 25 having its tenon 26 in engagement with the mortise 27 of the half block 140. The other end of the joist includes another half block 141 which is identical to the half block 140 except that it is provided with two tenons 26 for engagement with the mortise 27 of the adjacent block 25 and the mortise 126 of the block 125 disposed on the side wall. It is obvious therefore that the joists 131 are supported at both ends by the side walls through the engagement of the tenons 26 with the mortises 126 or 124 of the side wall blocks 125 or 123 respectively.

It should be noted at this point that the side wall and end wall dovetail mortises 122, 124 and 126 of the blocks 121, 123 and 125 respectively extend through the entire height of the blocks while the various tenons in engagement therewith have a height only one third the height of the blocks and are centrally located along the height of the blocks at their ends. The tenons will therefore drop to the bottom of their cooperating mortises to rest upon the top surface of the course of blocks directly beneath the course 120. The joists 130 and 131 will therefore not be in alignment with the course of blocks 120 but will be located at a level below the level of the course of blocks 120 as clearly shown in FIGURE 10. As there shown, the tenon 137 is disposed within the mortise 126 but is resting upon the top surface of the block 25 directly beneath the course of blocks 120. The joist 130 is therefore depressed with respect to the level of the course of blocks 120 by a distance equal to one third of the height of the blocks.

The floor surface is formed by a plurality of panel blocks 147 and 148, the panel blocks 147 being utilized along the end walls while the panel blocks 148 cover the area between the two rows of panel blocks 147. As best seen in FIGURE 10, the panel block 147 includes a longitudinal dovetail tenon 149 extending along the depth of the block, and a half of a dovetail tenon 150 extending along one side of the panel block 147 parallel to the dovetail tenon 149. The panel blocks 148 are provided with a half of a dovetail tenon 151 extending along one side of the block and another half of a dovetail tenon 152 extending along the opposite side of the block with the two dovetail tenons being oppositely disposed and parallel to each other.

The individual blocks forming the joists 130 and 131

are all provided with the longitudinal dovetail mortise 28 along both their top and bottom surfaces as previously described so that each joist has a longitudinal dovetail mortise extending through its entire length along both its top and bottom surfaces. In constructing the walls of the building these longitudinal mortises are employed for receiving the inserts 29, but when the blocks are used as joist members the mortises 28 are occupied by the several tenons of the panel blocks 147 and 148. Thus, the tenon 149 of the several panel blocks 147 along the left end wall as viewed in FIGURE 10, are inserted into the longitudinal mortises 28 of the blocks forming the end joists 130. The tenon 149 is displaced to the right of the left side of the panel block 147 as viewed in FIGURE 10 to form an extension 153 which extends from the tenon 149 to the interior surface of the end wall so that the entire area is covered by the panel blocks. The half of a dovetail tenon 150 is inserted in the longitudinal mortise 28 of the adjacent joist 131. The other half of the longitudinal mortise 28 is occupied by the half of a dovetail tenons 151 of the panel blocks 148 while the other half of the dovetail tenons 152 of the blocks 148 are inserted into the longitudinal mortise 28 of the succeeding adjacent joist 131.

The several half of a dovetail tenons therefore cooperate in pairs to occupy one dovetail mortise 28 of the rafters 131 to retain the several panel blocks tightly together in order to form a smooth surface constituting the floor of a building structure. Thus, as viewed in FIGURE 10, the half of a dovetail tenon 150 of the block 147 and the half of a dovetail tenon 151 of the block 148 occupy the dovetail mortise 28 of the first joist 131 from the left end wall. The dovetail mortise 28 of the next joist 131 to the right is occupied by the half of a dovetail tenon 152 of one block 148 and the half of a dovetail tenon 151 of the next block 148.

It will be recalled that both end blocks of each joist are half length blocks. The panel blocks 147 and 148 on the other hand, correspond in length to the full length blocks, and therefore an overlapping arrangement is achieved as clearly shown in FIGURE 8. The first row of panel blocks 147 and 148 in the upper portion of FIGURE 8 are placed into abutment with the adjacent side wall and extend over the first half length block and one half of the succeeding full length block of each joist. The second row of panel blocks 147 and 148 will then extend over one half of the first full length blocks and one half of the second full length block of each joist to overlap two blocks. This relationship is continued through the full length of the joist with the last row of panel blocks 147 and 148 overlapping the half length block of each joist shown in the lower portion of FIGURE 8 and half of the first full length block directly above. With this arrangement, the tenons of the panel blocks 147 and 148 serve to secure the several blocks of the joists against vertical displacement, while the engagement of the tenons and mortises of the individual blocks forming the joists prevent their horizontal displacement so that a rigid unitary structure is achieved.

The entire floor assembly may be constructed separately by building the joists and assembling the panel blocks 147 and 148 to the joists as described to form the unitary structure. With the unit thus assembled, the floor will be completed with the several tenons extending on all four sides of the floor. These tenons may then be placed into the dovetail mortises presented along the interior side of all four walls by the course of blocks 120 as described, and the entire floor assembly will then be in position within the building.

The above description referred to a first floor of a building, but a ceiling may be similarly constructed by suspending the panel blocks 147 and 148 in like manner from the bottom longitudinal mortises 28 of the joists 130 and 131. Such construction is shown in FIGURE 11 where the second floor of a building is illustrated,

the floor being the second floor of the building, and the ceiling beneath it being the ceiling of the first floor.

It will be observed from the views in FIGURES 10 and 11 that the tenons of the panel blocks 147 and 148 are spaced from the panels by an extension 154 for the purpose of maintaining the modular dimensioning to permit interior partitions to be constructed between the floors and ceilings. Thus, in FIGURE 10 it will be noted that the top of the floor is above the juncture line of the two courses of blocks by a distance equal to the thickness of the panel forming the floor. It will also be observed from the view in FIGURE 11 that the top of the ceiling is likewise located above the juncture of two courses of blocks by a thickness equal to the thickness of the panels forming the ceiling, these panels, of course, being the same thickness as the panels forming the floor since they are formed of the same panel blocks 147 and 148. With this arrangement a modular dimension is obtained between a floor and the ceiling above it so that a full number of rows of blocks may be stacked between the floor and the ceiling.

As previously mentioned, provisions have been made for constructing interior partitions to establish rooms within the building. These partitions are constructed of the same blocks employed for constructing the exterior walls of the building and are tied to the exterior walls by their tenons 26 in engagement with a mortise extending through the height of the partition at the location of the partition. The view in FIGURE 9 illustrates a portion of such partition generally identified by the reference numeral 160 and tied in to a side wall by its several tenons 26. In order to form the mortise along the interior surface of the exterior wall for connecting the partition, special blocks 161 and 162 are provided for the side wall at the desired position of the mortise. The blocks 161 and 162 have notched corners 163 and 164 respectively, with each of the notches shaped to form a half of a dovetail mortise, and to cooperate when the two blocks 161 and 162 are laid end to end, to form a full dovetail mortise for receiving the tenons 26 of the end blocks of the partition.

The two blocks 161 and 162 are used at every second course, the alternate courses being occupied by the blocks 123 or 125 with their side dovetail mortises 124 or 126 respectively in alignment with the dovetail mortises formed by the notches 163 and 164. This arrangement is provided to form a continuous dovetail mortise through the height of the partition while at the same time maintaining the staggered relationship of the blocks forming the exterior wall so as not to interfere with the exterior appearance of the building.

Suitable openings may be formed in the building walls for the purpose of creating the door and window openings of a building, and special blocks are included to form suitable pivotable closure members for insertion into such openings to serve as doors and windows. For example, a typical door construction is illustrated in FIGURES 12, 13 and 14. The building blocks previously described for the exterior wall construction are employed to outline the door or window opening, except that the blocks are so arranged that those blocks along the sides of the opening present a dovetail mortise 27 along their exposed ends which establish the sides of the opening. With the blocks thus arranged they cooperate to form a continuous dovetail mortise at the edge of the wall about the sides of the opening through the entire height of the opening.

Since the blocks for forming the wall all include a longitudinal dovetail mortise 28 along both their top and bottom surfaces, the blocks outlining the top of the opening all present a longitudinal dovetail mortise 28 along their bottom surfaces to form a continuous dovetail mortise at the edge of the wall outlining the top of the opening. In similar manner the blocks forming the edge of the bottom of the opening present a dovetail mortise

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28 along their top surfaces to form a continuous dovetail mortise at the edge of the wall outlining the bottom of the opening. It is obvious therefore, that the blocks of the wall forming the opening in the wall present a continuous dovetail mortise about the entire periphery of the opening.

The mortise about the periphery of the opening is provided for the purpose of securing casing blocks in position to form a door casing about the opening. The sides of the casing are formed by side casing blocks 170 set one upon the other along both sides of the openings. As illustrated in FIGURE 13, the side casing blocks 170 are formed of a body portion 171 with two overlapping portions 172 extending laterally therefrom to overlap the sides of the wall. A dovetail tenon 173 is formed along the interior edge of the body portion 171 centrally disposed between the two overlapping portions 172 for the purpose of engaging the dovetail mortises in the edge of the wall along both sides of the opening as previously described. In this manner the several blocks 170 are secured along both sides of the opening to form the sides of the casing.

In the same manner the top and bottom of the casing is formed by casing blocks 179 and corner casing blocks 180. As depicted in FIGURE 14 the casing blocks 179 are formed in the same manner as are the side casing blocks 170 except of different proportions, having a body portion 181 and two overlapping portions 182 extending laterally therefrom for the purpose of overlapping the wall at the top and bottom of the door opening. A longitudinal dovetail tenon 183 is provided along the interior edge of the body portion 181 centrally disposed between the two overlapping portions 182 to engage the dovetail mortises 28 presented along the edge of the wall at both the top and bottom of the door opening.

The corner casing blocks 180 are similar to the casing blocks 179 except that the body portion 181 is shorter so that the overlapping portions 182 extend from the end thereof to overlap the walls at the corner and thereby form the corners of the casing. Thus, it is apparent that the several casing blocks form a complete casing around the entire periphery of the door opening to present a smooth surface about the edges of the opening and otherwise simulate the trim about a door or window opening in regular building construction.

The door itself has its top and bottom edges formed by corner blocks 188 and 189 especially adapted to form the corners of the doors. The blocks 188 are provided with a dovetail mortise 190 along one edge and another dovetail mortise 191 extending partially along one side of the block. Thus, in the top row of blocks forming the door shown in FIGURE 12, the corner block 188 has its dovetail mortise 190 at its bottom edge and its mortise 191 along its right side. In similar fashion the corner block 189 at the bottom of the door has its dovetail mortise 190 at its top edge and the mortise 191 along its right side.

In the door illustrated in FIGURE 12, two door blocks 195 are assembled between the two corner blocks 188 and 189 although any number of blocks 195 can be utilized in accordance with the desired dimension of the door. The blocks 195 are provided with a dovetail mortise 196 extending along one side through a portion of its length, and a dovetail tenon 197 on the opposite side extending along the same portion of its length so that the dovetail tenon 197 is of the same length as the dovetail mortise 196. Another dovetail tenon 198 is formed along the entire width of one end of the block 195. The corner block 189 includes a dovetail tenon 203 extending partially along one side of the block and a dovetail mortise 204 extending along the full width of one end of the block.

Thus, the top row of blocks of the door illustrated in FIGURE 12 is formed by two corner blocks 188 and 189 and two blocks 195 disposed between the corner

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blocks. These four blocks are connected to each other by their tenon and mortise joints with the mortise 191 of the block 188 being engaged by the tenon 197 on the left side of the block 195 adjacent to it. In like manner, the first block 195 to the right of the corner block 188 has its mortise 196 engaged by the tenon 197 of the succeeding block 195 to the right, and the latter block has its mortise 196 engaged by the tenon 203 of the corner block 189. These joints prevent horizontal displacement of the several blocks and their vertical displacement is prevented in a similar manner as will be presently described. The bottom row of blocks of the door illustrated in FIGURE 12 is assembled in the identical manner as described above for the top row of blocks.

The vertical sides of the door between the two corner blocks 188 and the two corner blocks 189 are formed of side door blocks 210, each of which presents a dovetail mortise 211 along its top and bottom ends, and a dovetail tenon 212 along its interior side, the latter being clearly shown in FIGURE 13.

Thus, the corner blocks 188 and the side door blocks 210 between them present adjacent dovetail mortises 190 and 211 into which the double dovetail inserts 29 of suitable length are inserted, to prevent the vertical displacement of the blocks. In like manner, the corner blocks 189 and the side door blocks 210 on the opposite side of the door present adjacent dovetail mortises 204 and 211 for receiving the double dovetail inserts 29 to prevent their vertical displacement.

The central portion of the door is formed of panel blocks 220 and connector members 221 and 222, the connector members 221 and 222 being of the same construction but of different lengths. The panel blocks 220 have dovetail tenons 223 formed on all four sides, while the connector members 221 and 222 have longitudinal dovetail mortises 224 formed along two opposite sides.

It will be recalled that the side door blocks 210 were assembled to present a dovetail tenon 212 along their interior sides. Each of these tenons 212 is placed into engagement with one of the dovetail mortises 224 of the connector members 222, and the other mortise 224 of the same connector members 222 are engaged by the dovetail tenons 223 of the panel blocks 220. The dovetail tenons 223 on the opposite side of the panel blocks 220 are similarly engaged by connector members 222 so that the two vertical rows of panel blocks 220 illustrated in FIGURE 12 are connected to each other and to the two outside rows of side blocks 210 by connector members 222 which are all disposed in a vertical position. The panel blocks 220 are connected to each other in the opposite direction and to the door blocks 195 by the horizontally disposed connector members 221 with the top and bottom tenons 223 of the panel blocks 220 being in engagement with the respective connector members 221.

It will be recalled that the two top blocks 195 present a dovetail tenon 198 along their bottom ends and the bottom blocks 195 present a dovetail tenon 198 along their top ends. These tenons are similarly engaged by one of the dovetail mortises 224 of the top and bottom connector members 221 respectively, with the other dovetail mortises 224 of these top and bottom connector members 221 being engaged by the top and bottom dovetail tenons 223 of the top and bottom panel blocks 220 respectively. It is therefore apparent that the several blocks forming the door are securely attached to each other by the tenon and mortise joints which serve to prevent their displacement relative to each other in both the horizontal and vertical directions.

The door assembly is hingedly connected to the casing to render it pivotable with respect to the building in accordance with the usual door construction. To this end two of the side casing blocks 170 are provided with three ears 230 to cooperate with similar ears 231 to form a hinge. An ear is mounted on each of the corner blocks 188 and another ear 231 is attached to each of the side

door blocks 210 adjacent to the corner blocks 188. The ear 231 on one of the corner blocks 188, and the ear 231 on its adjacent side door block 210 form a part of one hinge, being disposed in the spaces between the ears 230. The ears 230 and 231 have vertical apertures formed in them which are placed in alignment to receive a pin 232 which pivotably supports the door to the casing or wall of the building.

From the foregoing detailed description of the structure and operation of the illustrative embodiment of the present invention, it will be apparent that a new and improved system of building blocks has been provided which is especially adapted to form the various structural and functional members of conventional buildings with an interlocking arrangement which prevents their inadvertent displacement in both a horizontal and vertical direction to form a sturdy unitary structure which may be handled and moved about without causing the collapse of the assembly.

Although the illustrative embodiment of the present invention has been described in considerable detail for the purpose of making a full disclosure of a practical operative arrangement by means of which the invention may be practiced, it is to be understood that the various novel features of the invention may be incorporated in other arrangements without departing from the spirit and scope of the invention as defined in the subjoined claims.

The principles of the invention having now been fully explained in connection with the foregoing description of embodying structure, I hereby claim as my invention:

1. In a system of interlocking building blocks adapted to be stacked upon each other in rows for constructing the walls of a building, a body having a longitudinal dovetail mortise along both its top and bottom surfaces with a pair of recesses formed at the same end of the block at the termination of each of said longitudinal mortises, said body also having an end dovetail mortise at one end, formed between the two recesses, a dovetail tenon extending from the end of said body opposite the end in which said end dovetail mortise is formed, said dovetail tenon being located between the two longitudinal dovetail mortises in position to engage the end dovetail mortise of the block adjacent to it in the same row for preventing their horizontal separation, and a double dovetail insert formed of two longitudinal dovetails oppositely disposed and joined at their narrow edges with one dovetail of said insert engaged with the top longitudinal dovetail mortise of one block and the other dovetail of said insert engaged with the bottom longitudinal mortise of the block above it to prevent vertical separation of the blocks, whereby said blocks are interlocked in two directions to prevent both their horizontal and vertical separation.

2. In a system of interlocking building blocks especially adapted for constructing the sloping roof of a building, bottom rafter blocks having a longitudinal top surface that extends along the slope of the roof, each bottom rafter block having a longitudinal dovetail mortise along its top surface, a dovetail tenon extending from one end of each of said bottom rafter blocks for connecting them to a side wall of the building, said dovetail tenons being disposed at an angle to the axis of said longitudinal dovetail mortise in accordance with the pitch of the roof, a plurality of interior rafter blocks having a longitudinal top surface that extends along the slope of the roof in alignment with the top surface of said bottom rafter blocks, each of said interior rafter blocks having a longitudinal dovetail mortise along its top surface, said bottom rafter blocks and interior rafter blocks being positionable end to end to form roof rafters, shingle blocks for placement on said roof rafters to form the covering of the roof, and a pair of dovetail tenons extending from the underside of each of said shingle blocks and engageable with the longitudinal dovetail mortises of said bottom rafter blocks and said interior

rafter blocks with each of said tenons engaging a portion of the mortises of each of two adjacent rafter blocks to hold the several blocks of each rafter together and to secure the shingle blocks to the rafters to form a unitary structure.

3. In a system of interlocking building blocks especially adapted for constructing the roof of a building, rafter blocks for placement end to end to form roof rafters, a plurality of dovetail tenon and mortise joints, each engageable to connect one of said rafters to a side wall of the building, shingle blocks for placement on said rafters to form a roof covering, and a plurality of dovetail tongue and socket joints connectable to hold together the several blocks of each rafter and to secure the shingle blocks to the rafter to form a unitary structure.

4. In a system of interlocking building blocks especially adapted for constructing the sloping roof of a building, a plurality of rafters secured to the side walls of the building and extending upwardly therefrom at an angle thereto to establish the pitch of the roof, each of said rafters comprising a bottom rafter block having a longitudinal dovetail mortise along its longitudinal top surface which extends along the slope of the roof, a dovetail tenon extending from the bottom end of said bottom rafter block for connecting it to a side wall of the building, said tenon being disposed at an angle to the axis of said longitudinal mortise in accordance with the pitch of the roof, a top rafter block in position to constitute the uppermost portion of the rafter, said top rafter block having a horizontally extending bevel along the interior corner of its top end and a longitudinal dovetail mortise along its longitudinal top surface which extends along the slope of the roof, a plurality of interior rafter blocks disposed end to end between the ends of said bottom rafter block and said top rafter block to complete the rafter, each of said interior rafter blocks having a longitudinal dovetail mortise along its longitudinal top surface which extends along the slope of the roof in alignment with the top surfaces of said bottom rafter block and said top rafter block, said rafters being disposed in pairs with the two rafters of each pair being oppositely disposed in alignment with each other so that their uppermost ends meet at the peak of the roof with said bevels of the two top rafter blocks cooperating to form a dovetail shaped opening, shingle blocks on said roof rafters to form the covering of the roof, a pair of dovetail tenons extending from the underside of said shingle blocks to engage the longitudinal mortise of said several rafter blocks with each of said tenons engaging a portion of the mortises of each of two adjacent rafter blocks to hold the several blocks of each rafter together and to secure the shingle blocks to the rafters, a plurality of double dovetail inserts each of which is formed of two longitudinal dovetails oppositely disposed and joined at their narrow edges, the lower dovetails of said inserts being disposed within the dovetail openings formed by the bevels of said top rafter blocks and the upper dovetails of said inserts extending above said top rafter blocks, and a plurality of cap blocks to form the cap of the roof, each of said cap blocks having a longitudinal dovetail mortise along its bottom surface in engagement with the upper dovetail of said inserts for securing the cap block to the top of the roof, whereby the several members forming the roof are securely connected together to form a unitary structure.

5. In a system of interlocking building blocks especially adapted for constructing the sloping roof of a building, a plurality of rafters positionable to be inclined upwardly from the side walls of the building toward its center to establish the pitch of the roof, each of said rafters having a longitudinal dovetail mortise along the entire length of its longitudinal top surface that extends along the slope of the roof, a dovetail tenon extending from the bottom end of each of said rafters to engage

a dovetail mortise of a side wall of the building for connecting it to the side wall, said dovetail tenon being disposed at an angle to the axis of said longitudinal dovetail mortise in accordance with the pitch of the roof, a plurality of shingle blocks for placement on said roof rafters to form the covering of the roof, and a pair of parallel dovetail tenons extending from the underside of each of said shingle blocks to engage the longitudinal dovetail mortises of said rafters for securing the shingle blocks to the rafters.

6. In a system of interlocking building blocks especially adapted for constructing the floor of a building, wall blocks forming a course of blocks in the exterior walls of the building, said wall blocks having a vertical mortise along one side to present vertical mortises at intervals about the interior of the building with the height of the vertical mortises extending through the height of the course of blocks formed by said wall blocks, a plurality of joist members to extend across the width of the building in spaced relationship, each of said joists presenting a longitudinal mortise along the entire length of its top surface, tenons extending from both ends of each of said joists for engagement with said vertical mortises in the exterior walls for supporting the joists in position, a plurality of panel blocks for placement on said joist members to form a flat surface representing the floor of a building, and tenons extending from the bottom surface of said panel blocks to engage the longitudinal mortises of said joists for securing the panel blocks to the joists, whereby the entire floor assembly is securely attached to the building structure.

7. In a system of interlocking building blocks especially adapted for constructing the floor of a building, wall blocks having a vertical dovetail mortise along one side to form a course of blocks in the exterior walls of the building presenting vertical dovetail mortises at intervals about the interior surface, a plurality of blocks for placement end to end across the width of the building to form joist members, each of said blocks having a longitudinal dovetail mortise along its top surface, dovetail tongue and socket joints engageable to connect the several blocks of each joist together, a plurality of panel blocks for placement on said joist members to form a flat surface representing the floor of a building, dovetail tenons extending from the bottom surface of said panel blocks and engageable with the longitudinal dovetail mortises of said joist blocks with each of said tenons engaging a portion of the mortises of each of two adjacent joist blocks to prevent the vertical separation of the several blocks of each joist, and dovetail tenons extending from the ends of the two end blocks of each joist for engagement with the vertical dovetail mortises in said course of blocks to support the joists on the building walls, whereby the entire floor assembly is securely attached to the building structure.

8. In a system of interlocking building blocks especially adapted for constructing the floor and ceiling of a building, a course of blocks for placement in the exterior walls of the building, said blocks having vertical mortises formed therein on one side to present vertical mortises at intervals about the interior surface, a plurality of blocks for placement end to end across the width of the building to form joist members, each of said blocks having a longitudinal mortise along its top surface and a second longitudinal mortise along its bottom surface, tongue and socket joints engageable to connect the several blocks of each joist together, a set of panel blocks for placement on said joist members to form a flat surface representing a floor of a building, tenons extending from the bottom surface of said panel blocks for engagement with said top longitudinal mortises of said joist blocks with each of said tenons engaging a portion of the mortises of each of two adjacent joist blocks to prevent the vertical separation of the several blocks of each joist, a second set of panel blocks for suspension from the

bottom surfaces of said joist members to form a flat surface representing a ceiling of a building, tenons extending from the top surfaces of said second set of panel blocks for engagement with the bottom longitudinal mortises of said joist blocks for attaching the second set of panel blocks to the joists, and end tenons extending from the ends of the two end blocks of each joist and engageable with the vertical mortises in said course of blocks to support the joists and their associated panel blocks on the building walls whereby the entire floor and ceiling assembly is securely attached to the building structure.

9. In a system of interlocking building blocks, wall blocks adapted to be stacked upon each other in courses for constructing the walls of a building, each of said wall blocks having an end dovetail mortise at one end and a longitudinal dovetail mortise along both its top and bottom surfaces in alignment with each other so that as the blocks are stacked one upon another the top longitudinal dovetail mortise of a block will be disposed directly beneath the bottom longitudinal dovetail mortise of the block above it, a dovetail tenon extending from the end of each of said wall blocks opposite the end having said end dovetail mortise to engage the end dovetail mortise of the block adjacent to it in the same row to prevent horizontal separation of the blocks, a plurality of double dovetail inserts, each of said inserts being engageable with said top longitudinal dovetail mortise of one wall block and the bottom longitudinal dovetail mortise of the wall block directly above it to prevent their vertical separation, a plurality of bottom rafter blocks each having a longitudinal dovetail mortise along its top surface, a dovetail tenon extending from one end of each of said bottom rafter blocks for engagement with a top longitudinal dovetail mortise of the top course of wall blocks to connect the bottom rafter blocks to the side walls of the building, said bottom rafter block tenons being disposed at an angle to the axis of the longitudinal dovetail mortise of the bottom rafter blocks in accordance with the pitch of the roof, a plurality of interior rafter blocks each of them having a longitudinal dovetail mortise along its top surface, said bottom rafter blocks and interior rafter blocks being positionable end to end to form roof rafters, shingle blocks for placement on said roof rafters to form the covering of the roof, and a pair of dovetail tenons extending from the underside of each of said shingle blocks and for engagement with the longitudinal dovetail mortises of said bottom rafter blocks and said interior rafter blocks with each of said tenons engaging a portion of the mortises of each of two adjacent rafter blocks to hold the several blocks of each rafter together and to secure the shingle blocks to the rafters to form a unitary structure.

10. In a system of interlocking building blocks, wall blocks adapted to be stacked upon each other in courses to construct the walls of a building, each of said wall blocks having an end dovetail mortise at one end and a longitudinal dovetail mortise along both its top and bottom surfaces, a dovetail tenon extending from the end of each of said wall blocks opposite the end in which said end mortise is formed to engage the end mortise of the block adjacent to it in the same course for preventing their horizontal separation, a double dovetail insert formed of two elongated dovetails joined at their narrow edges with one dovetail of said insert being engageable with the top longitudinal mortise of one block and the other dovetail of said insert being engageable with the bottom longitudinal mortise of the block above it to prevent the vertical separation of the blocks, a plurality of rafters for placement to be inclined upwardly from the side walls of the building to establish the pitch of the roof, each of said rafters having a longitudinal dovetail mortise along the entire length of its longitudinal top surface which extends along the pitch of the roof, a dovetail tenon extending from the bottom end of each of said rafters to engage a top longitudinal dovetail mortise of

the top course of wall blocks on the side walls of the building to connect the rafter to the side wall, said dovetail tenon being disposed at an angle to the axis of the longitudinal mortise of the rafter in accordance with the pitch of the roof, a plurality of shingle blocks for placement on said roof rafters to form the covering of the roof, and a pair of parallel dovetail tenons extending from the underside of each of said shingle blocks for engagement with the longitudinal dovetail mortises of said rafters to secure the shingle blocks to the rafters.

11. In a system of interlocking building blocks, wall blocks adapted to be stacked upon each other in courses to construct the walls of a building, dovetail tongue and socket joints on said blocks to link adjacent blocks in a course together for preventing their horizontal separation, a second set of dovetail tongue and socket joints to link adjacent courses of blocks together to prevent their vertical separation, a plurality of roof rafters positionable to be inclined upwardly from the side walls of the building toward its center to establish the pitch of the roof of the building, a third set of dovetail tongue and socket joints operable to connect the rafters to the side walls of the building, shingle blocks for placement on said rafters to form a roof covering, and a fourth set of

dovetail tongue and socket joints connectable to secure the shingle blocks to said rafters.

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