Nov. 3, 1931. A. F. BEMIS 1,830,382

TOY BUILDING CONSTRUCTION

Filed Dec. 31, 1926 3 Sheets-Sheet 1

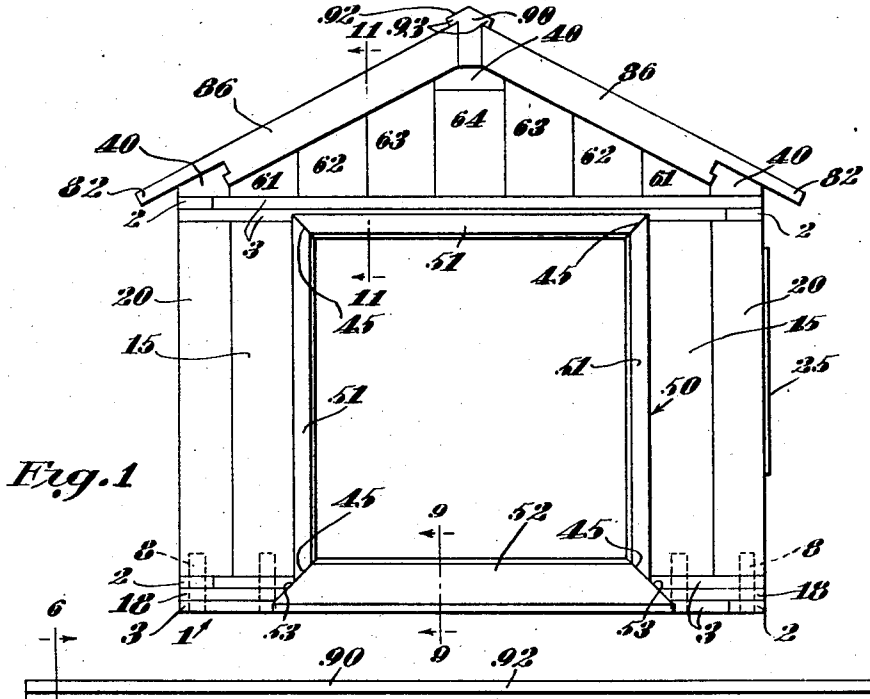


Fig. 1

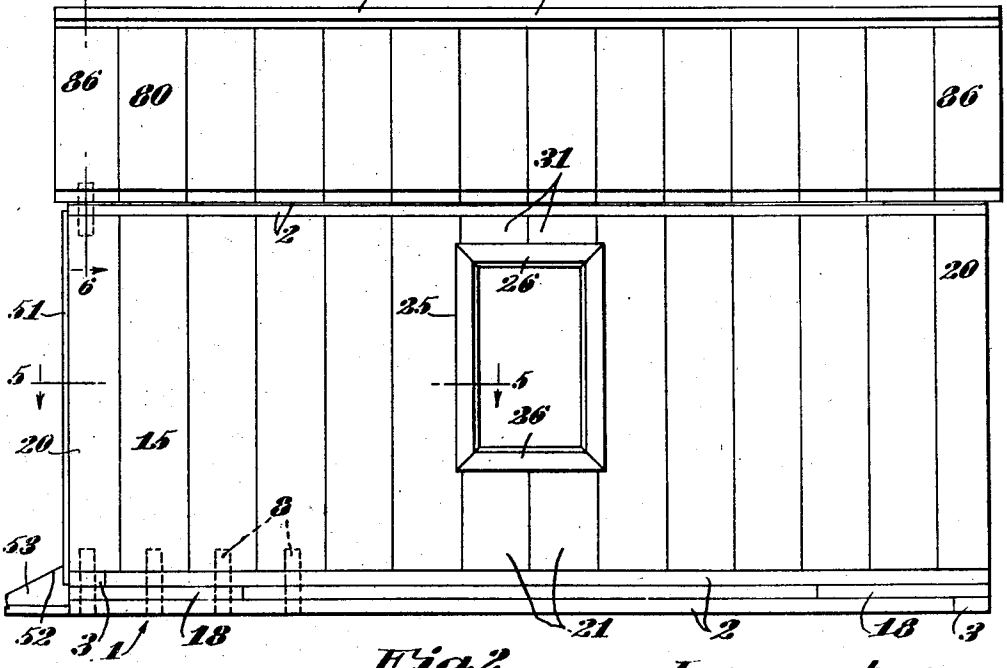


Fig. 2

Inventor
Albert F. Bemis.
by Roberts Cushman & Woodberry
Attys.

Nov. 3, 1931. A. F. BEMIS 1,830,382

TOY BUILDING CONSTRUCTION

Filed Dec. 31, 1926 3 Sheets-Sheet 2

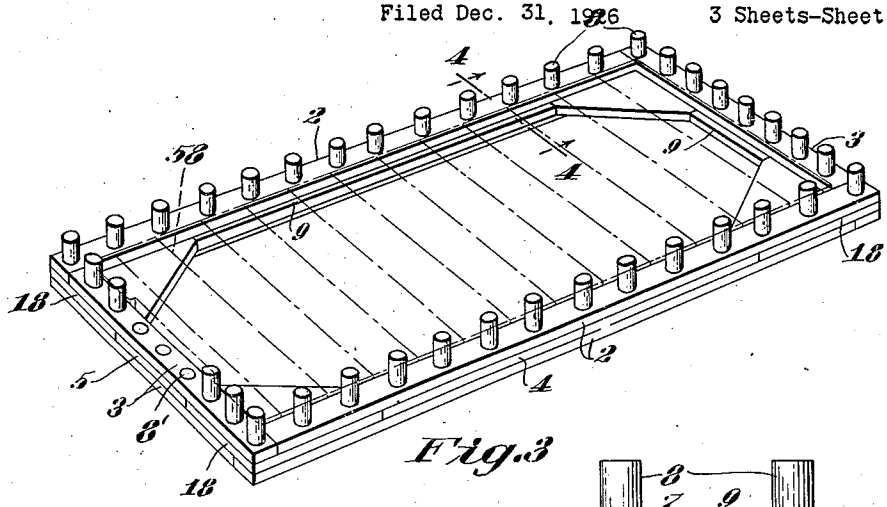


Fig. 3

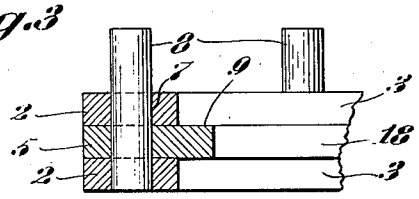


Fig. 4

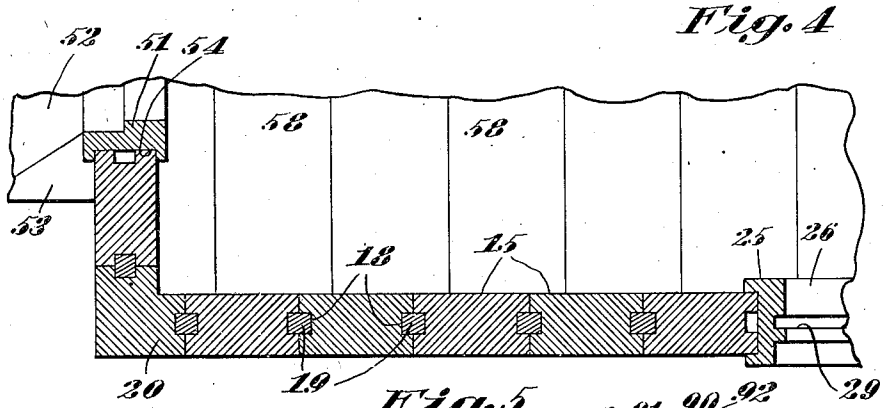


Fig. 5

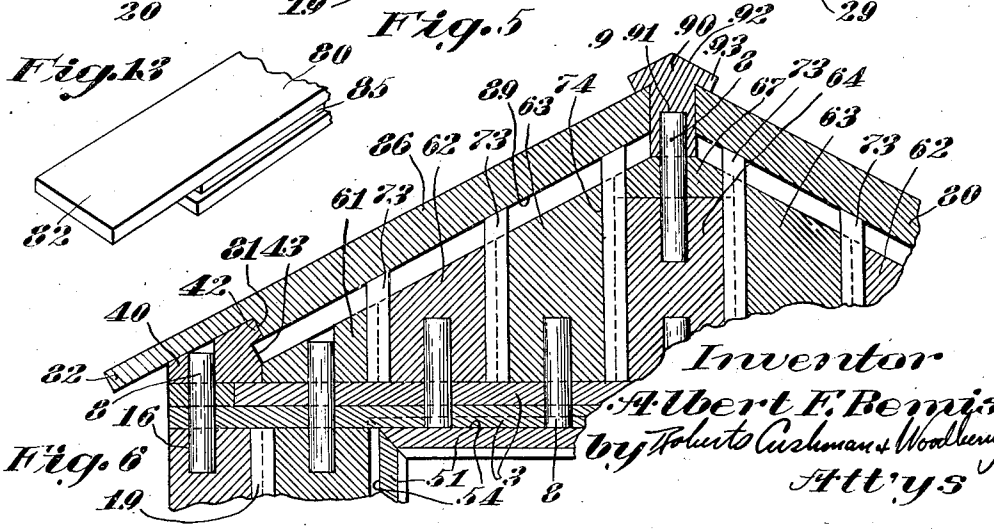


Fig. 13

Fig. 6

Inventor
Albert F. Bemis
by Roberts Cushman & Woodberry
Att'ys

Nov. 3, 1931. A. F. BEMIS 1,830,382

TOY BUILDING CONSTRUCTION

Filed Dec. 31, 1926 3 Sheets-Sheet 3

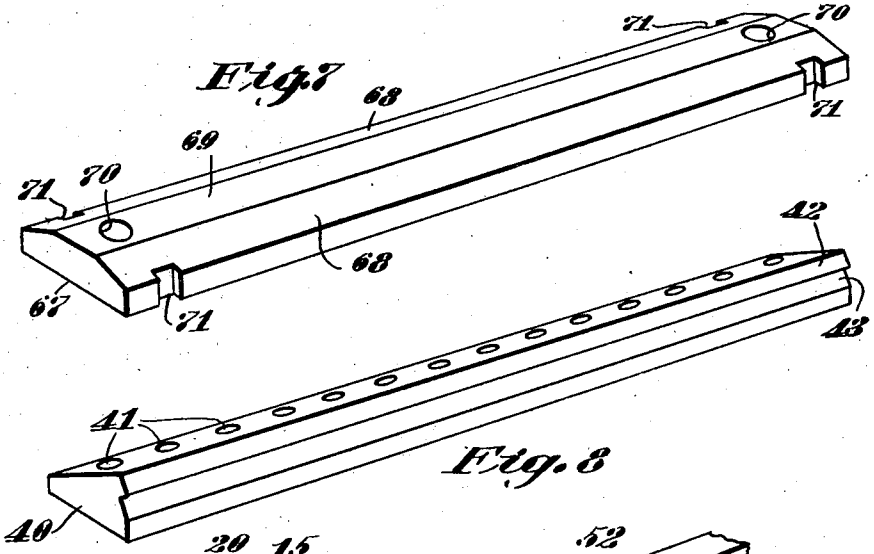


Fig. 7

Fig. 8

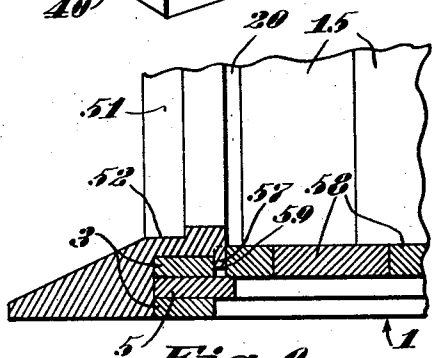


Fig. 9

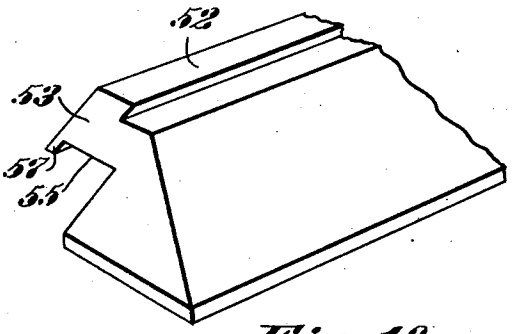


Fig. 10

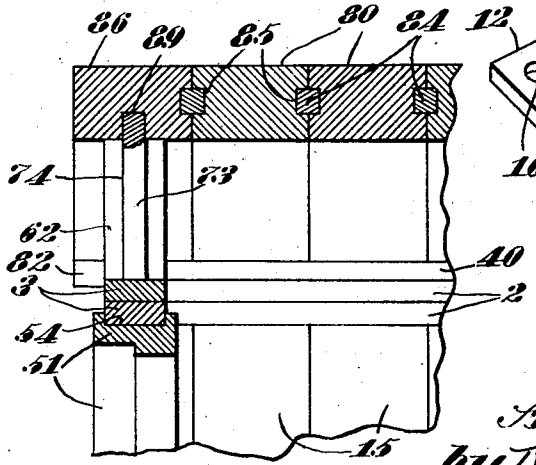


Fig. 11

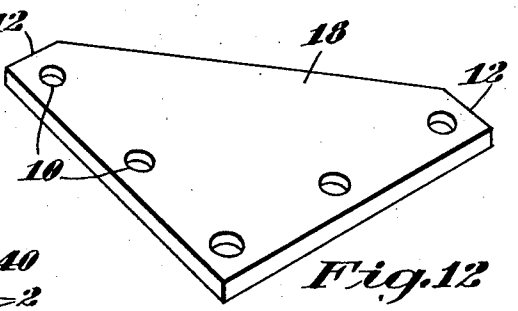


Fig. 12

Inventor
Albert F. Bemis.
by Roberts Cushman & Woodberry
Attys.

Patented Nov. 3, 1931 1,830,382

UNITED STATES PATENT OFFICE

ALBERT F. BEMIS, OF NEWTON, MASACHUSETTS, ASSIGNOR TO BEMIS INDUSTRIES INC., OF BOSTON, MASSACHUSETTS, A CORPORATION OF DELAWARE

TOY BUILDING CONSTRUCTION

Application filed December 31, 1926. Serial No. 158,204.

The present invention relates to the provision of standardized units for the construction of miniature buildings intended primarily for the amusement and instruction of children, but also suited for use as dog houses or for various other purposes to which buildings of this character may be adapted.

The type of building disclosed herein is adapted to be assembled either indoors or outdoors, and in the latter case may be readily weatherproofed in order to provide a semipermanent or permanent structure. The building construction is characterized by the use of elongate wall and roof slabs which may be keyed to each other and which permit the assembly of the building without the necessity of providing many small blocks or similar parts. The building is further characterized by the provision of a rectangular base upon which a floor may be placed or which may be left without flooring in order to permit the interior of the building to open directly upon the ground or other supporting surface, the latter arrangement often being particularly desirable when the building is used for a dog house.

The present invention discloses a type of building which is simple and rugged and does not require a high degree of mechanical ingenuity in building, although requiring a moderate degree of intelligence and skill upon the part of the assembler. The various parts of the building may be easily manufactured and the entire set of units to build the same may be sold at a comparatively low cost. While, as disclosed herein, the building is shown as of one size and as having a single set of dimensions these may be readily varied by providing a few corresponding parts in various ranges of sizes.

The above and further objects and advantageous features attributable to the invention will be apparent to those skilled in the art upon a reading of the subjoined description and claims in conjunction with the accompanying drawings, in which:

Fig. 1 is a front elevational view of a miniature building, such as a toy garage built in accordance with the principles of this invention;

Fig. 2 is a side elevational view of the same;

Fig. 3 is a perspective view of the base of the building with the floor slabs shown in dot and dash lines;

Fig. 4 is a section on line 4—4 of Fig. 3;

Fig. 5 is a section on line 5—5 of Fig. 2;

Fig. 6 is a broken section on line 6—6 of Fig. 2;

Fig. 7 is a perspective view of a saddle piece used in the roof construction;

Fig. 8 is a similar view of a girt member;

Fig. 9 is a section on line 9—9 of Fig. 1;

Fig. 10 is a perspective detail of a portion of the runway or threshold for the door of the building;

Fig. 11 is a section on line 11—11 of Fig. 1;

Fig. 12 is a perspective detail of a sill corner member; and

Fig. 13 is a perspective of an end of a roof slab.

Referring to the accompanying drawings and more immediately to Fig. 3 thereof, it may be seen that the toy building is formed upon a rectangular base 1 composed of elongate strips 2, 3, 4, and 5, each of which is provided with a longitudinal row of holes or openings 7 which are spaced at modular distances apart and are adapted to receive pins 8 to 8′ of wood, metal, fiber or the like with a fairly tight frictional fit. The base is preferably so assembled that it is composed of three layers of material, the bottom and top layers each being formed of elongate strips 2 and 3 defining the sides and ends respectively of the building, with the end of one strip in abutting relation with the side of an adjoining strip at each corner and preferably with the breaks thus formed in the upper and lower layers in staggered relation to each other, as shown. Between these upper and lower layers is interposed an intermediate layer comprising strips 4 and 5 located in the sides and ends of the frame and having a width somewhat greater than that of the strips 2 and 3, the openings 7 therein preferably being so disposed that their outer surfaces are flush with those of the upper and lower strips so that an inwardly projecting ledge 9 is provided for supporting floor slabs

or the like (Fig. 4). At the ends of the intermediate strips 4 and 5 are located the corner pieces 18 which may form continuations of ledges 9 and which are of substantially right triangular form with the acute angular portions removed to provide square ends 12 (Fig. 12) adapted to abut the adjoining ends of strips 3 and 4. The margins of the corner pieces have openings 10 of a size to engage pins 8, these openings being disposed to form continuations at the same spacing of the longitudinal rows of openings in the adjoining strips 4 and 5. Thus a singularly rigid and strong framework may be assembled out of light standardized units, the reinforcements 18 at the corners providing an unusually firm and rigid construction at this part of the structure. At one portion of the frame, e. g. at the left as viewed in Fig. 3, the pins 8′ may have a height restricted to the thickness of the base itself, while about the remainder of the rectangular frame the pins 8 project upwardly for a suitable distance to engage the wall structure.

The wall structure preferably is composed of a series of elongate slabs designated in general by the numeral 15 and having a length which approximately corresponds to the height of a story of the miniature building. Preferably the ends of these wall slabs are formed with openings 16 to receive pins 8 while their longitudinal edges are provided with grooves 18 which are adapted to receive splines 19 having a cross-sectional size substantially equaling that of two adjoining grooves and thereby serving to hold the wall slabs together in a continuous comparatively rigid row. At the corners of the building may be located elongate corner members 20 of L-shaped cross section (Fig. 5), which have a height similar to that of the slabs 15 and are similarly provided with openings 16 to receive pins 8 projecting upwardly from the base. Both ends of members 15 and 20 have similar openings 16 so that they may be used interchangeably with either end up.

In order to permit the interposition of a window frame 25 at any convenient part of the wall, various short slabs designated by numeral 21 are located upon the base. A window frame member 26 is then disposed above the short slabs 21 being grooved to receive the ends of these members while the sides of the adjoining slabs 15 are engaged by the frame in a similar manner (Fig. 5). The members of this window frame preferably are assembled with ends beveled in the conventional manner, as shown, and the frame may be provided with an internal groove 29 to receive a small piece of glass or a piece of cardboard with the representation of a window sash printed thereon. Above the window frame 25 are disposed short slab members or blocks 31 in order to fill the space between the window frame and the top of the wall. The members 31 and 21 preferably have openings to engage pins 8 and may have suitable longitudinal grooves and splines of corresponding length in a manner analogous to that described with reference to the remaining wall units.

Above the short pins 8′ at one end of the building or at any other convenient point, if desired, may be located a door frame 50 comprising similar frame members 51 upon either side and at the top, and a runway or threshold 52 at the bottom. The frame members 51 preferably have ends beveled at 45 to engage each other and the outwardly inclined end surfaces 53 of the member 52. As disclosed more particularly in Figs. 5 and 11, the frame members 51 may each be conveniently provided with longitudinal grooves 54 adapted frictionally to engage either the edge of an adjoining wall slab 15 or girt strips 3, the arrangement of which will presently be described.

The runway 52 comprises a member having a groove 55 adapted to fit over the base 1 and having an inclined or beveled end 53 (Fig. 10). Preferably the bottom of member 52 is adapted to rest upon the ground or other surface which supports the building, while the groove 55 is disposed between this portion of the runway and a downwardly extending flange 57. Floor slabs 58 may rest upon the ledge 9 provided by the units 4 and 5 and the corner pieces 18, one floor unit being cut away to engage the depending portion 57 of the threshold as designated by the numeral 59 (Fig. 9).

About the top of the wall is disposed a girt course of elongate strips 2 and 3 which may conveniently be similar to and interchangeable with the strips 2 and 3 which are used in forming the base, and similarly the breaks occurring at the corners of the girt course may be staggered in order to afford a more rigid structure. Pins 8 located at the upper end of the wall project upwardly from the units 15, 20, and 21 through the girt strips 3 and 4 and at either side of the building are adapted to engage the girt members 40 (Figs. 1 and 8). Each of these girt members 40 has a longitudinal row of openings 41 to engage the pins 8 and has a diagonally inclined upper surface, the plane of which forms an angle with the lower surface of the member which corresponds to the pitch of the roof of the completed building. The edge of the girt member which is to be located towards the inner side or ridge of the building is preferably provided with an outstanding rib 42 defined by its upper surface and an undercut portion 43, the rib 42 and the portion 43 each having surfaces at right angles to the diagonal top surface of the member (Figs. 6 and 8).

At either end of the building above girt strips 3 are located a series of slabs 61, 62, 63 which have their upper ends diagonally cut to correspond to the pitch of the roof, these members 61, 62 and 63 being placed at either side of a middle slab 64, the height of which is somewhat less than the maximum height of the largest of these units (indicated by numeral 63). Referring to Fig. 6, it may be seen that these members receive upwardly projecting pins 8 which hold them in firm engagement with the girt members 3 and with the wall.

Between the members 63 at either end of the wall and above the member 64 is a space occupied by the end of a saddle 67 which is shown individually in Fig. 7 and which is adapted firmly to tie the ends of the building together. This saddle comprises a plane lower surface adapted to rest upon the top of slab 64 and is provided with inclined upper surfaces 68 having an angular relation to the surface 67 corresponding to the pitch of the roof; between surfaces 68 is a flat upper surface 69 parallel to the surface 67. At either end of this saddle, openings 70 are adapted to receive pins 8 which project upwardly from each slab 64. Notches 71, upon either side of the saddle member near either end thereof, are adapted to engage splines 73 which extend upwardly from the grooves 74 in the edges of units 64 and 63. Corresponding splines engage similar grooves at the adjoining longitudinal edges of units 63 and 62 as well as units 62 and 61 respectively.

Roof slabs 80, preferably of a cross-section similar to that of the wall slabs, are provided to engage the girt member 40 and to have their upper ends rest upon the inclined surfaces 68 of saddle 67. One end of each of these slabs has a groove 81 (Fig. 6) which is adapted to fit the rib 42 of a girt member 40. The slabs have extensions 82 at one side of the groove 81 in order to provide a continuous surface for the pitched roof which will overhang girt member 40 upon either side of the building (Fig. 6). Preferably, the longitudinal edges of roof slabs 80 are provided with marginal grooves 85 which are adapted to receive splines or keys 84 in order more firmly to tie the slabs together in a continuous row. The slabs at either end of the roof, designated by the numeral 86, may have their outer sides plain or without a longitudinal groove in order to afford a finished end for the roof and have a groove 89 adapted to receive the upwardly projecting ends of the splines 73 at either end of the building, thereby more firmly holding the assembly together and preventing endwise movement of the roof members.

The upper ends of the members 80 and 86 are beveled in order to engage the sides of a ridge 90 which is disposed upon surface 69 of saddle member 67, the pins 8 projecting upwardly through this member and into depressions 91 at either end of the ridge 90. Preferably, this ridge is provided with an inclined upper surface 92 at either side, which substantially corresponds to the pitch of the roof and is provided with extensions 93 overlapping the ends of the members 80 and 86 in order to hold them more firmly in position and to afford a more finished and weather-proof structure.

Obviously the type of building assembled from units of this character may be varied to suit various conditions and may be made use of in various ways. For example, it may be desirable to use the units to make collapsible dog houses, omitting the floor members in many locations. It is obviously feasible to vary the number and location of window frames and to place the door at the side rather than at the end of the building. The building may be provided in various sizes and styles by merely providing members such as the elongate strips 3 and 4 and the ridge and girt members in various graduated sizes or sets which may be used in various combinations with each other, the dimensions of the wall slabs, roof slabs, etc. generally being the same for buildings of various dimensions. When it is desired to make buildings of this character weather-tight, the various joints may be calked or may be treated with cementitious binding material, or in certain cases it may be desirable to cover the roof slabs with roofing material such as sheet metal, roofing paper, or the like.

I claim:

1. A toy building construction comprising elongate members having a length substantially corresponding to the dimension of a room, elements for an interlocking engagement at adjoining longitudinal edges of the members, pins adapted to project from said members, and a plurality of elongate aligning strips having openings at modular distances corresponding to the spacing of said pins when the members are juxtaposed in a row, whereby said members may be held aligned in a row.

2. A toy building construction comprising a row of elongate members having a length substantially corresponding to a dimension of a room, the adjacent longitudinal edges of the members being juxtaposed along the inner and outer surfaces of these members, these adjacent longitudinal edges having opposed recesses extending longitudinally thereof to receive interlocking means, interlocking means disposed in said recesses, a plurality of elongate aligning elements adapted to hold a row of the elongate members in alignment, and means providing an interlocking engagement between said members and said elements.

3. A toy building construction, comprising a row of elongate members having a length

substantially corresponding to the dimension of a room, elements for an interlocking engagement at adjoining longitudinal edges of the members, pins adapted to project from said members, a plurality of elongate aligning strips extending longitudinally of the row of elongate members and across the ends of the latter, these strips being arranged in superposed relation with the adjacent ends of longitudinally aligned strips substantially in abutment, the aligning strips when so arranged having registering openings at modular distances therealong corresponding to the spacing of said pins, whereby the pins may be mounted in said registering openings and the aligning strips may be effective for holding the elongate members aligned in a row.

4. A toy building construction, comprising a row of elongate members having a length substantially corresponding to the dimension of a room, elements for an interlocking engagement at adjoining longitudinal edges of the members, pins adapted to project from said members, a plurality of elongate aligning strips extending longitudinally of the row of elongate members and across the ends of the latter, these strips being arranged in superposed relation with the adjacent ends of longitudinally aligned strips substantially in abutment, the points of abutment of longitudinally aligned strips being staggered with relation to similar points of abutment of laterally adjacent strips, the aligning strips when so arranged having registering openings at modular distances therealong corresponding to the spacing of said pins, whereby the pins may be mounted in said registering openings and the aligning strips may be effective for holding the elongate members aligned in a row.

5. A toy building construction, comprising upper and lower rows of elongate members, the members of the respective rows having lengths corresponding to dimensions of a toy building, elements for an interlocking engagement at adjoining longitudinal edges of the members of each row, a plurality of elongate aligning strips interposed between the rows and extending longitudinally thereof across the opposed ends of the members of the rows, members of the rows and the interposed aligning strips having registering openings to receive pins, and pins disposed in these registering openings for holding the parts together in assembled relation.

Signed by me at Boston, Massachusetts, this 20th day of December, 1926.

ALBERT F. BEMIS.