

Jan. 28, 1964

E. W. MARTIN
DEMOUNTABLE BUILDING

3,119,153

Filed Nov. 7, 1960

2 Sheets-Sheet 1

Fig. 1.

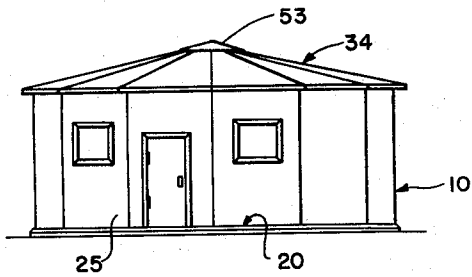


Fig. 7.

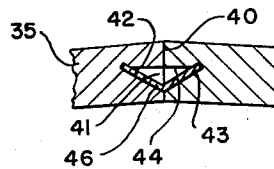


Fig. 6.

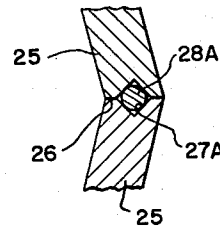


Fig. 5.

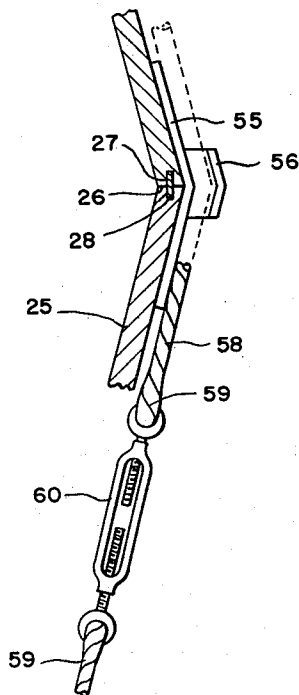
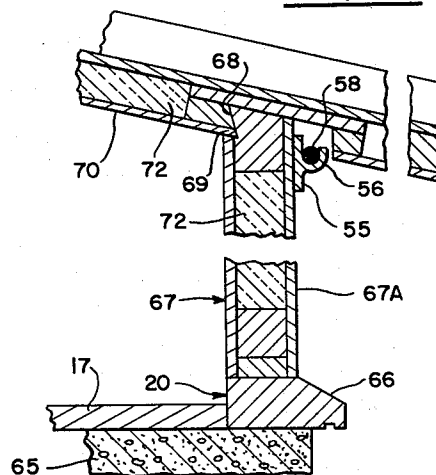


Fig. 9.



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Fig. 3.

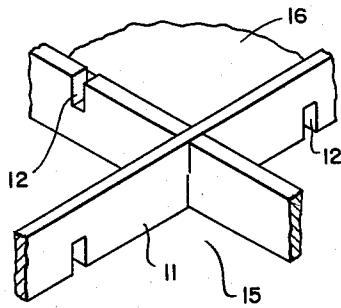


Fig. 2.

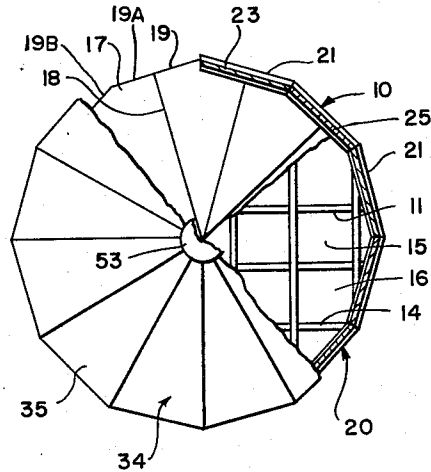
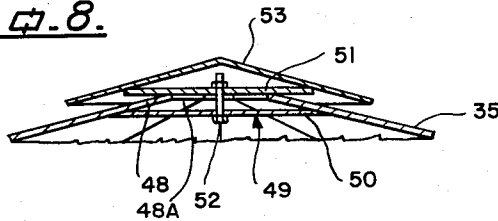


Fig. 8.



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3,119,153
DEMOUNTABLE BUILDING
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1 Claim. (Cl. 20-2)

My invention relates to improvements in demountable buildings.

The objects of the invention are to provide an extremely economical prefabricated building which may be erected with ease and speed and without the use of conventional framework or special tools and equipment.

Other objects of the invention are to interconnect the several building parts so that they cannot become dislodged during the life of the building but to ensure that structure can be speedily erected or dismantled for shipment to another site.

A still further object is to provide simple and effective means for weatherproofing of the building.

Referring to the drawings in which the views are of several different scales

FIGURE 1 is an elevation of the invention.

FIGURE 2 is a plan view, partly broken away.

FIGURE 3 is a perspective view showing the method of joining the floor grid boards.

FIGURE 4 is a fragmentary vertical section of the building.

FIGURE 5 is a sectional plan view of the abutting side edges of the wall panels.

FIGURE 6 is a similar view of an alternate form of wall spine.

FIGURE 7 is section of side edges of the roof panels.

FIGURE 8 is a vertical section of the roof clamping member.

FIGURE 9 is a fragmentary vertical section of a modified wall panel and adjoining parts.

In the drawings like characters of reference indicate corresponding parts in each figure.

The preferred embodiment of the invention is designed to be erected directly on the surface of the ground although a concrete or other foundation may be used if desired. When the several prefabricated parts are assembled at the site they form a polygonal building 10 of the type shown in FIGURES 1 and 2.

The building 10 has a base made up of boards 11 which are provided along one edge only with suitably spaced notches 12. By fitting the notched portions of the boards together in the manner shown in FIGURE 3 to form half lap joints, a floor grid 14 is provided in which spaces 15 are defined. The spaces 15 are filled with suitable insulating material 16 and the entire sub-flooring is covered by floor panels 17.

The panels 17, preferably of a relatively thick plywood, are substantially triangular in form and have side edges 18 and butt ends 19 which are cut as shown at 19A and 19B in FIGURE 2 only. The cut butt edges 19A and 19B are of equal length and the contained angle between them is such that when placed upon the base the panels 17 assemble to form a regular polygon the length of the sides of which is twice that of a cut edge (19A, 19B), the corners of which are central of the floor panels, being at the junction of the cut edges aforesaid, and the number of sides of which correspond to the number of wall panels, as later described. The edges 18 are provided with grooves 18A and when the flooring is laid the panels are interconnected by metal splines 18B which are received in said grooves.

Mounted on the floor panels 17 so as to slightly overhang their bevelled butt ends 19, is a sill 20 consisting of a plurality of wood lengths 21. Each length 21 is positioned on the floor panels so that its centre is aligned with

the abutting side edges of two adjoining panels. The ends of the lengths, which meet at the centre of the panels, are suitably bevelled to form a polygon, as are the abutting edges of the several wall parts to be hereinafter mentioned.

The lengths 21 are connected to the two underlapping panels by bolts 21A which extend through the top surface 22 of said lengths adjacent the ends thereof. Thus the floor panels and the sill lengths are linked together to form a continuous unitary structure which extends around the polygonal building.

The top surface 22 of each sill length slopes upwardly to a longitudinally extending groove 23 and seated in said groove is a rectangular wall panel 25, also of thick plywood and having side edges 26 which are provided with narrow grooves 27 as shown in FIGURE 5. The adjoining wall panels are keyed together by a flat spline 28 which may be in the form of a metal strip or the like. Alternatively V-shaped grooves 27A may be formed in the side edges 26 as shown in FIGURE 6 and fitted to said grooves is a cylindrical spline 28A of hardwood or the like.

Each wall panel 25 has a narrow groove 30 extending across its outer face and disposed at an angle thereto. As shown in FIGURE 4, a metal flashing strip 31 is inserted into the groove 30 of each panel so as to bear upon the top surface 22 of the adjoining sill length 21 and when so positioned the strips keep moisture from entering the grooves 23.

The building 10 has a conical roof 34 consisting of a number of triangular plywood panels 35. Each wall panel 25 is bevelled on its upper edge as at 36 to receive one of the roof panels and adjacent said edge both the wall and roof panels are provided with narrow grooves 37. A diagonally extending metal brace 39 is fitted to the grooves 37 so as to lock the two panels against displacement and to prevent moisture from reaching the interiors of the building between the panels.

As shown in FIGURE 7 the abutting side edges 40 of the roof panels are provided with triangular recesses 41 which extend the entire length of the panels. Each recess 41 has an inner side edge 42 which is aligned with a groove 43 and an outer side edge 44. The complementary recesses of adjoining panels house a strip of galvanized angle which forms a gutter 46. The gutters are seated on the edges 42 of the recesses and extend into the grooves 43 so as to serve as splines which lock the several panels together.

The inner ends or tips 48 of the roof panels, FIGURE 8 are truncated as indicated by the numeral 48-A to provide a small central polygonal opening. The truncated ends, are received in a clamping member 49 consisting of a lower disc 50 and an upper disc 51 which are secured together by means of a bolt 52. A conical cap 53 of flashing material may be fitted to the disc 51 so as to cover the clamped tips of the roof panels and seal this portion of the roof against the entrance of moisture.

In FIGURES 4 and 5 it is shown that the adjoining wall panels 25 are fitted with a plate 55 which conforms to the angular disposition of the panels and extending from said plate is a projecting bracket 56. A cable 58 encircles the building 10 and is seated in the brackets 56. The ends 59 of the cable are fitted with a turnbuckle 60 and by tightening this fitting the wall panels are securely bound together. It will be noted that the several parts of the building are interlocked in such a way that when the cable 58 is tightened said parts are bound together much in the manner of a length of wood stave pipe or a barrel.

In the modification of the invention shown in FIGURE 9 the building is erected on a concrete floor slab 65 and the sill 66 is laid thereon to support the polygonal wall 67. The wall 67 is made up of hollow panels 67A which are connected together by splines 28 in the manner pre-

viously described. The wall panels are rebated as at 68 to receive the angularly cut ends 69 of the roof panels 70. The roof panels of the modified building are also hollow and are splined and clamped together as before.

The hollow wall and roof panels may enclose insulating material 72 which may be aluminum foil or other suitable material. It has been found that a building constructed and insulated in this manner will provide warm accommodation even in the most inclement weather.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

A demountable building of polygonal shape, having a base, and including the following elements cooperating to form a unitary structure,

- (a) upon the base a floor composed of a number of identical generally triangular panels of equal size each panel having side edges and butt edges, the panels assembled upon the base with their apices inwards and side edges contiguous, the butt edges cut to define a projection centrally of each panel, the butt edges being disposed perpendicularly to adjacent side edges so that the assembly forms a regular polygon the corners of which are defined by said projections and being central of the floor panels at the junction of the cut butt edges aforesaid,
- (b) upon each edge of the floor polygon a sill member extending from projection to projection of two adjacent panels, the sill members forming a unitary continuous sill at the periphery of the polygon, bolt means securing each sill member to two adjoining floor panels, each said sill having an upper surface, a groove in the upper surface extending the full length of the sill member,
- (c) a wall comprising panels of equal size and shape in number equal to the number of sides of the floor polygon, each wall panel having top and bottom edges and side edges bevelled so that adjacent edges shall be superficially contiguous, corresponding grooves in each side edge receiving a spline interconnecting adjacent wall panels, a cable encircling the wall and means to tighten the cable,

- (d) a roof supported upon the wall, the roof including identical generally triangular panels equal in number to the number of wall panels aforesaid, each roof panel having side edges and butt edges, the panels assembled with their tips inwards and their side edges contiguous, the tips of the roof panels truncated to form a small central opening, a clamping member having a lower disc and an upper disc, bolt means securing the discs together, a diagonally extending brace securing each roof panel to a supporting wall panel at the top edge thereof.

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