June 29, 1948. M. O. GROAT 2,444,133

BUILDING UNIT OF GENERALLY RIGHT TRIANGULAR FORMS

Filed May 11, 1943 2 Sheets-Sheet 1

FIG.1.

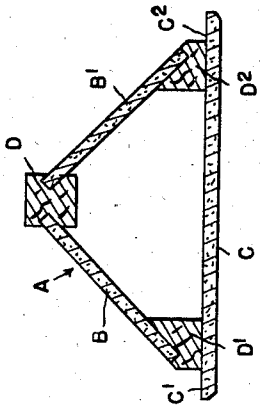


FIG.2.

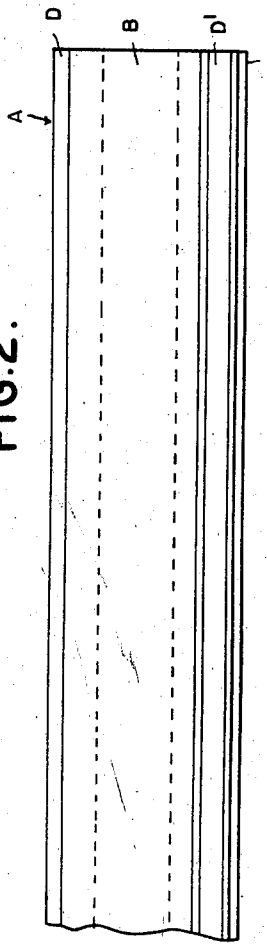


FIG.5.

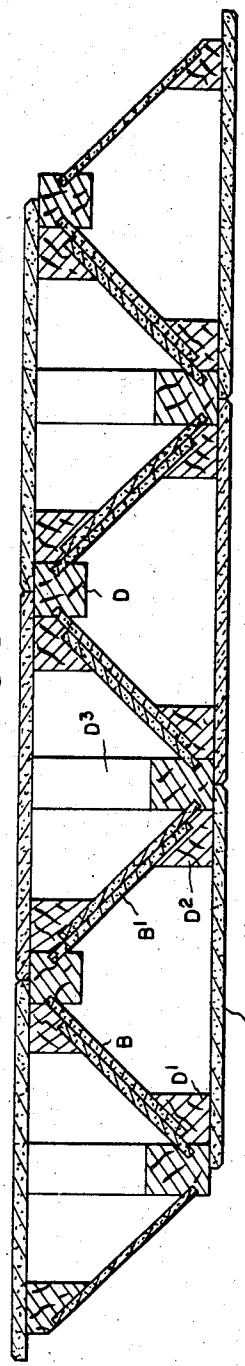
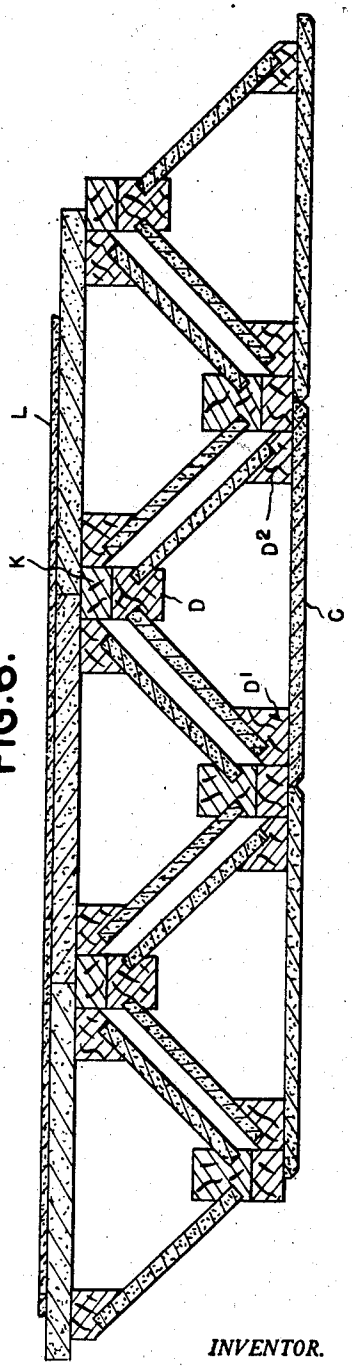


FIG.6.



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Filed May 11, 1943 2 Sheets-Sheet 2

FIG. 4.

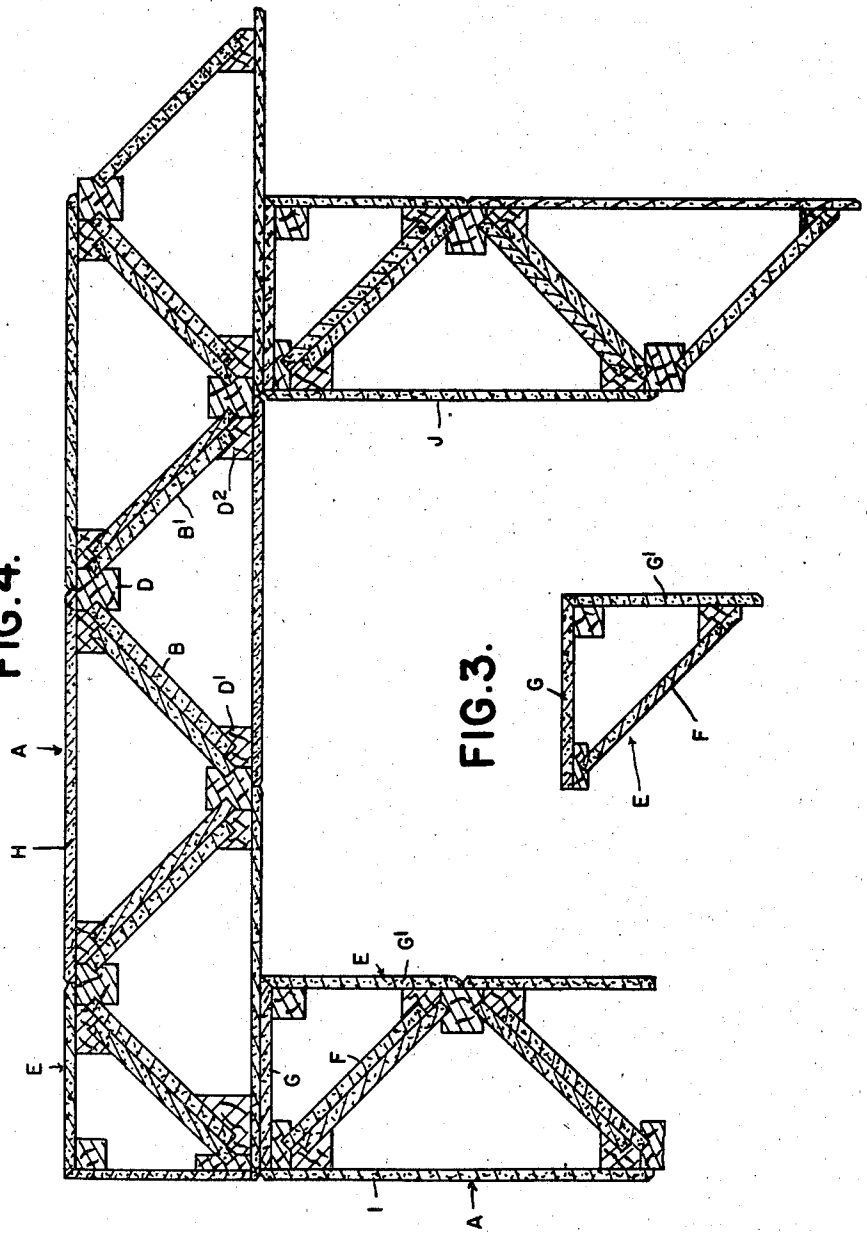


FIG. 3.

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BUILDING UNIT OF GENERALLY RIGHT TRIANGULAR FORM

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Application May 11, 1943, Serial No. 486,567

8 Claims. (Cl. 108—1)

1

The invention relates to building units and has for its object the obtaining of a construction which may be used in forming the walls, partitions, floors, ceilings and roofs of buildings.

It is a further object to obtain a construction which is economical in the use of material, is also light and strong and may be easily assembled with cooperating units. With these objects in view the invention consists in the construction as hereinafter set forth.

In the drawings:

Fig. 1 is a cross section through one of the units;

Fig. 2 is a side elevation thereof;

Fig. 3 is a cross section similar to Fig. 1 of a half unit;

Fig. 4 is a horizontal section illustrating a portion of an outer and an inner wall formed from units;

Fig. 5 is a vertical cross section through a floor and ceiling construction formed from units; and

Fig. 6 is a similar view illustrating a roof and ceiling construction.

My improved unit may be formed of various materials such as wood, composition board, ply board, etc. In cross section it has the general form of a right angle triangle, the sides and hypotenuse of which are formed from separate members united by strips at the three angles. Longitudinally the unit may be of any desired length but preferably of certain standard lengths which are suitable for its various uses.

In detail and as illustrated in Fig. 1, A is a unit comprising the side members B and B' and the hypotenuse member C of a right triangle. D, D' and D^2 are corner strips which are mortised or rabbeted to receive the opposite edge portions of the sides A and B and to hold the same in right angular relation to each other. The member C bears against the strips D' and D^2 and extends slightly beyond the same to leave rectangular recesses C' and C^2 adjacent to said strips. The members D, D' and D^2 are preferably formed of wood but the members A, B and C may be formed of various materials such as wood, composition board, ply board and other materials. The strip D is of rectangular form to project beyond the planes of the outer faces of the members B and B'.

Fig. 3 is a cross section of a smaller unit E which is one half the size of the unit in Fig. 1. In other words, the hypotenuse F is equal in width to each of the sides B and B' of the unit A while the sides G and G' are one-half the length of the hypotenuse C of the unit A. Thus, two of the units E when placed together will be equal

2

in cross section to the unit A or by placing the unit E with its hypotenuse adjacent to one of the sides B, B' of the unit A, a rectangle will be completed.

The building of vertical walls from these units is illustrated in Fig. 4. H is an outer side wall which is formed from the units A with a unit E at its corner. I is an outer side wall at right angles to the wall H which also is formed of units A with a unit E completing the rectangle to form the joint with the wall H. An inner or partition wall J is formed in the same manner and it will be noted that this partition may be placed in any position limited only by the fact that it must be so located as to accommodate the unit spacing of any intervening partition. For example, with two parallel partitions connected by a third partition perpendicular thereto, the distance between the parallel partitions must be equal to the summation of the units used to form the third partition, or the summation of the units plus one-half unit. It will also be noted that adjacent units are reversely facing and that the corner strip D of a unit facing in one direction lies between the corner strips D', D^2 of an adjacent oppositely facing unit filling respectively the recesses C' and C^2.

For building of floors the units A may, if desired, be modified by substituting for the strip D a strip D^3 of sufficient width to extend to the hypotenuse member C. Thus, the strips D^3 form in effect floor joists which contribute additional strength and rigidity to the floor structure. Also the members C of the upper units are preferably formed of wood instead of composition board. Otherwise, the floor is formed in the same manner as the walls with the units A alternately reversed in position. The members C of the downturned units A form the ceiling and may, if desired, be formed of plywood.

Fig. 6 illustrates a roof and ceiling construction which, in general, is the same as the floor and ceiling shown in Fig. 5 but differs therefrom by a slight spacing of the upper and lower units. This spacing may be accomplished by the use of spacer strips K at the several angles of the units which separate the sides B, B' of one unit from the corresponding sides of the adjacent unit. The members C of the upturned units are preferably formed of insulation board and are covered with any suitable roofing material as indicated at L.

The sides and the hypotenuse members of the unit are secured to the strips D, D', D^2 preferably by nailing but they may also be glued to-

gether if so desired. Adjacent similarly turned units may be secured to each other by nailing the extensions of the hypotenuse members C thereof to the strip D of the adjacent reversely turned unit which strip they overlap so as to abut against each other.

What I claim as my invention is:

1. A building unit comprising an extended structure of a general right triangular cross section and composed of flat hypotenuse and side members joined to each other by integral corner strips recessed to receive the opposite edges of the side members and rigidly secured thereto the strip at the right angle corner being of rectangular cross section and projecting outward beyond the sides, said hypotenuse member extending at its opposite ends beyond the corner strips to which it is attached to form recesses for receiving the projecting rectangular corner strip of an adjacent reversely facing unit.

2. A building unit comprising an extended structure of a general right triangular cross section and composed of flat hypotenuse and side members joined to each other by integral corner strips recessed to receive the opposite edges of the side members and rigidly secured thereto the strip at the right angle corner being of rectangular cross section and projecting outward beyond the sides, said hypotenuse member extending at its opposite ends beyond the corner strips to which it is attached to form recesses for receiving the projecting rectangular corner strip of an adjacent reversely facing unit and so as to overlap said strip and abut against the hypotenuse member of an adjacent unit facing in the same direction.

3. A building structure formed of a plurality of building units, each unit comprising an extended structure of a general right triangular cross section and composed of flat hypotenuse and side members joined to each other by integral corner strips and rigidly secured thereto, said units being arranged to be alternately reversely facing with the hypotenuse member of one unit overlapping and secured to the strip securing the sides of the adjacent reversely facing unit.

4. A building structure formed of a plurality of building units, each unit comprising an extended structure of a general right triangular cross section and composed of flat hypotenuse and side members joined to each other by integral corner strips and rigidly secured thereto, said units being arranged to be alternately reversely facing with the hypotenuse member of one unit overlapping and secured to the strip securing the sides of the adjacent reversely facing unit and a half unit similar in form to the aforesaid unit for completing a rectangular end of said building structure.

5. A floor and ceiling building structure formed of a plurality of building units, each unit comprising an extended structure of a general right triangular cross section and composed of flat hypotenuse and side members joined to each other by integral corner strips and rigidly secured thereto, said units being arranged to be alternately reversely facing with the hypotenuse member of one unit overlapping and secured to the strip securing the sides of the adjacent reversely facing unit, certain of the upwardly facing units having the central corner strip thereof extended to abut against the hypotenuse member and to form in effect a floor joist.

6. A floor and ceiling building structure formed of a plurality of building units, each unit comprising an extended structure of a general right triangular cross section and composed of flat hypotenuse and side members joined to each other by integral corner strips and rigidly secured thereto, said units being arranged to be alternately reversely facing with the hypotenuse member of one unit overlapping and secured to the strip securing the sides of the adjacent reversely facing unit, certain of the upwardly facing units having the central corner strip thereof extended to abut against the hypotenuse member and to form in effect a floor joist, the hypotenuse members of the upwardly facing units forming the floor and the hypotenuse members of the downwardly facing units forming the ceiling.

7. A roof and ceiling building structure formed of a plurality of building units, each unit comprising an extended structure of a general right triangular cross section and composed of flat hypotenuse and side members joined to each other by integral corner strips and rigidly secured thereto, said units being arranged to be alternately reversely facing with the hypotenuse member of one unit overlapping and secured to the strip securing the sides of the reversely facing unit, the hypotenuse member of each upwardly facing unit being formed of insulating material and roofing material laid upon said insulating hypotenuse members.

8. A roof and ceiling building structure formed of a plurality of building units, each unit comprising an extended structure of a general right triangular cross section and composed of flat hypotenuse and side members joined to each other by integral corner strips and rigidly secured thereto, said units being arranged to be alternately reversely facing with the hypotenuse member of one unit overlapping and secured to the strip securing the sides of the reversely facing unit, the hypotenuse member of each upwardly facing unit being formed of insulating material, spacer strips arranged between the adjacent corner strips of the upwardly and downwardly facing units to space the roof portion from the ceiling portion, and roofing material laid upon the upwardly facing units.

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