

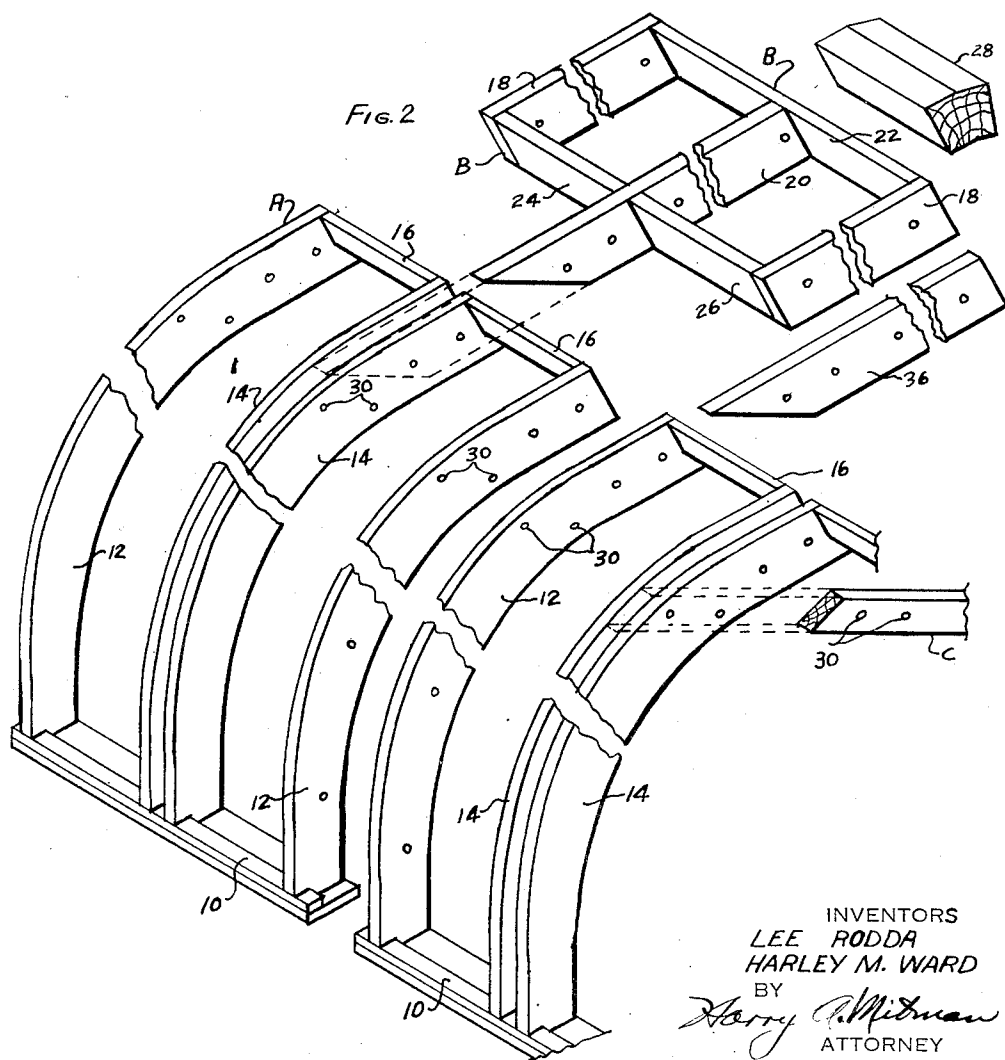
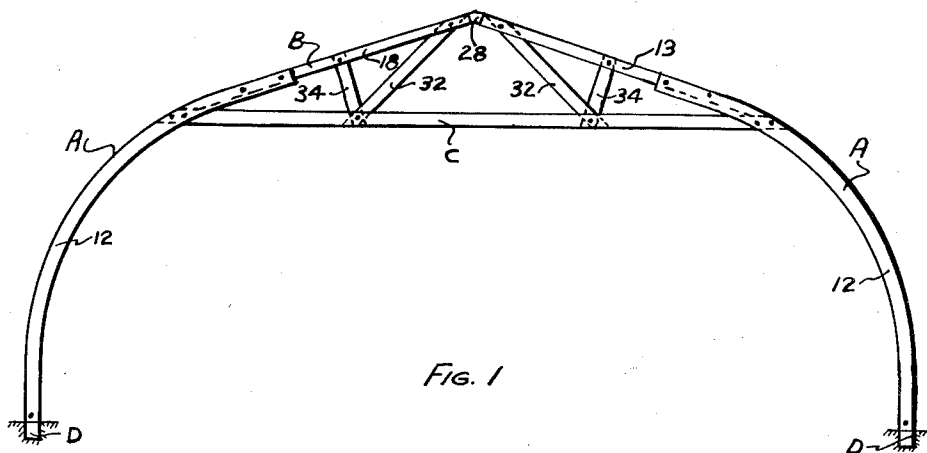
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BUILDING FRAME

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BUILDING FRAME

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This invention relates to improvements in building frames, with particular reference to the frames of farm buildings and other buildings known as utility buildings, although the invention is applicable to any buildings in which frame construction requirements are similar to the described invention. More particularly, the invention relates to building frames made up of prefabricated units designed to be readily assembled and disassembled and arranged compactly for storage and shipping.

Briefly stated the invention comprises a building frame which combines the principles of the arch with that of a truss having a center ridge, and the arch and the truss being made up of prefabricated units. The prefabricated units may be assembled from short length pieces of material thus greatly contributing to economy and at the same time obtaining assembled units of great strength. The arched units may be the same for various width buildings; the dimensions of the units comprising the truss may be varied to obtain units suitable for different width buildings. Such prefabricated units may readily be assembled by unskilled labor to make a low cost and strong building frame.

The units comprising the building frame are preferably made of wood and the description herein will be directed to wooden units although it will be clear that other construction materials as for example steel may be used in making the prefabricated units.

With the above considerations in view, it is an object of our invention to provide a building frame comprised of prefabricated units adapted to support a wall which provides maximum area within the wall enclosure with minimum obstruction by supporting members such as posts or beams. It is also an object to provide a building frame composed of prefabricated units having laminated and trussed wooden members reinforced by shear members in a manner to prevent buckling and twisting of the frame members. A further object is to provide a frame wherein the units resting on the foundation are made up of prefabricated arched units, and the arched members support prefabricated rectangular shaped units in the upper portion of the frame with the rectangular shaped units abutting against a center ridge. An additional object is to provide a building frame made up of prefabricated units which may be made up of short length pieces of material and the units may conveniently be assembled as by bolting, gluing or nailing by unskilled labor.

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The various objects and advantages of the invention will be apparent in view of the following description with reference to the accompanying drawings, wherein

Figure 1 is an end view of a building having a frame made in accordance with the invention.

Figure 2 is a perspective exploded view showing the prefabricated units and the relative position the prefabricated units occupy in assembling the building frame.

Referring to Figure 2 of the drawing, A represents a prefabricated arched unit having a base member 10 and an even number of parallel curved upright members. The side curved members 12 are spaced slightly inwardly on the base in order to provide space for receiving other tying in members to be described below. The inner curved members 14 are also spaced to receive tying in members to be described below. The outer members 12 and inner members 14 are connected by cross pieces 16.

With further reference to Figure 2, B represents a prefabricated rectangular shaped unit having side members 18, an intermediate member 20 extending from the upper member 22 to and beyond the lower members 24 and 26. The portion of member 20 which extends beyond members 24 and 26 is adapted to project and tie in between the inner curved members 14 of unit A. The upper member 22 abuts against the ridge 28 of the frame and the lower members 24 and 26 abut against the cross pieces 16 of unit A when the frame is assembled.

Chords C extend from one side of the frame to the other as shown in Figure 1 and are fastened between the adjacent curved members of units A. Such chords may be placed between all the curved members if considered necessary. Using the chord C as the base, braces 32 and 34 are fixed between the chord and the side member 18 and/or intermediate member 20 of unit B to prevent buckling and twisting of the frame.

Spacing members 36 are secured between the arched units A and rectangular units B to obtain proper spacing and assist in strengthening the building frame.

In assembling the prefabricated units to form a building frame, arched units A are placed adjacent to each other on the foundation D and the bases 10 of the units are anchored to the foundation. Chords C are secured between the curved members of units A as by bolts through holes 30. Following positioning of the chords C, rectangular units B are positioned so that base members 24 and 26 abut cross members 16 of units A and

the projection of members 20 extends between the curved members 14 of units A. Members 22 of units B abut the center ridge 28 of the building frame. Spacer members 36 and braces 32 and 34 are then positioned and secured to make the framework rigid. Where desired, filler members cut to the shape of the arched members 12 and 14 may be applied therebetween to fill the space and to acquire greater strength and rigidity in the framework.

Through assembly of the prefabricated units as described, the advantages of the arch and truss are obtained through low cost units and assembly by unskilled labor.

In the above, the description has been applied primarily to prefabricated arched units and rectangular units in building a building frame. Such prefabrication of units and assembly is preferred because of low cost and ease for assembly of the building frame. It will be clear however that the separate members of each unit may be assembled in place. As for example, the separate curved members of the arched units may be erected on the foundation thus having opposed rows of curved members, and the chord members extended between opposing curved members and the ends thereof secured to the curved members. Such modifications in erection procedure are not preferred, but it will be obvious that the procedure may be varied to suit conditions, as may be the construction of the several units without departing from the spirit or scope of the invention as defined and limited by the claims.

We claim:

1. A building frame comprising opposed rows of arched units having spaced curved upright members, a base and cross pieces, chord members extending between the curved upright members of said arched units at a distance below the upper extremities thereof, rectangular units having side members, an upper member, lower members and an intermediate member extending from the upper member and beyond the lower members and secured between the curved upright members of the arched units, and brace members extending between the chords and the side and intermediate members of said rectangular shaped units.

2. A building frame comprising opposed rows of arched units having spaced curved upright members, a base and cross pieces, chord members extending between and secured to the curved upright members of said arched units at a point below the upper extremities thereof, rectangular units having side members, an upper member, lower members and an intermediate member extending from the upper member and beyond the lower members and secured between the curved upright members of the arched units, said lower members of the rectangular units abutting against said cross pieces of the arched units, a center ridge, said upper member of each rectangular unit abutting against the center ridge, and brace members extending between the chords and the side and intermediate members of the rectangular shaped units.

3. A building frame unit comprising pairs of opposed upright arched frame units and pairs of opposed rectangular rafter units, each of said upright arched frame units consisting essentially of a central pair of parallel upright curved members and an exterior pair of similar parallel upright curved members spaced apart from the central pair of upright members and connected thereto at their upper extremities by transverse members, all of the upright members of each unit being attached to a unitary base, each of said rectangular rafter units consisting essentially of an upper ridge-receiving member, parallel side members spaced apart to coincide with the upper extremities of the exterior upright frame members, an intermediate member extending beyond the lower extremities of said side members and received between and connected to the central pair of upright frame members, and lower members connecting said side members with said intermediate member.

4. A building frame comprising opposed upright arched frame units, opposed rectangular rafter units, a center ridge, chord members connecting said upright arched frame units, and brace members extending between said chords and the rectangular rafter units, each of said upright arched frame units consisting essentially of a central pair of parallel upright curved members and an exterior pair of similar parallel upright curved members spaced apart from the central pair of upright members and connected thereto at their upper extremities by transverse members, all of the upright members of each unit being attached to a unitary base; each of said rectangular rafter units consisting essentially of an upper ridge-receiving member, parallel side members spaced apart to coincide with the upper extremities of the exterior upright frame members, an intermediate member extending beyond the lower extremities of said side members and received between and connected to the central pair of upright frame members, and lower transverse members connecting the side members of each rectangular rafter unit with said intermediate member thereof; the chord members extending between and secured to the upright curved members of said upright arched frame units, and said brace members extending between the chords and the side and intermediate members of the rectangular rafter units.

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