United States Patent [19]

Sprung, Jr.

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[54] **DEMOUNTABLE BUILDING**

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[52] **U.S. Cl.** ..... **52/86**, 135/4 M, 52/222, 52/63

[51] **Int. Cl.** **E04b 1/32**

[58] **Field of Search** ..... 52/63, 86, 222; 135/4 M

[56] **References Cited**

UNITED STATES PATENTS

3,415,260	12/1968	Hall	52/63
2,423,402	7/1947	Olsen	160/378
2,351,419	6/1944	Fuller	52/222
2,806,477	9/1957	Fritsche	135/4 R
2,827,138	3/1958	Roy	52/63
3,215,153	11/1965	Huddle	52/63
3,361,144	1/1968	Folkes	135/1 R

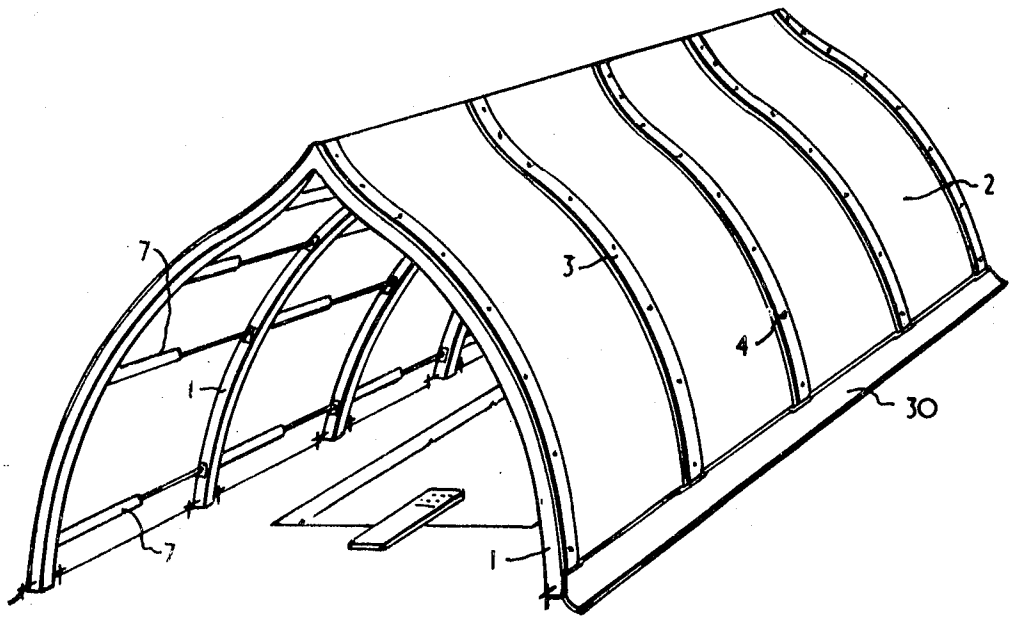
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[57] **ABSTRACT**

A demountable building embodying a fabric covered framework of spaced arch-like members. The fabric is applied in elongated strips laid between adjacent arches and by mounting the bases of the arches for movement longitudinally of the building and interposing extendable devices like screw jacks between the arch members, the several fabric strips can be suitably stretched on adjustment of the jacks.

The fabric strips are provided with thickened or beaded edges by which they are releasably clamped along opposite sides to the respective arch members.

1 Claim, 11 Drawing Figures



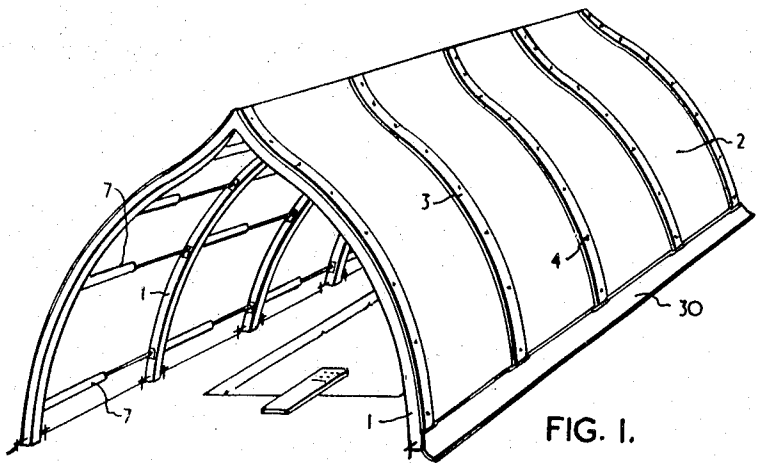


FIG. 1.

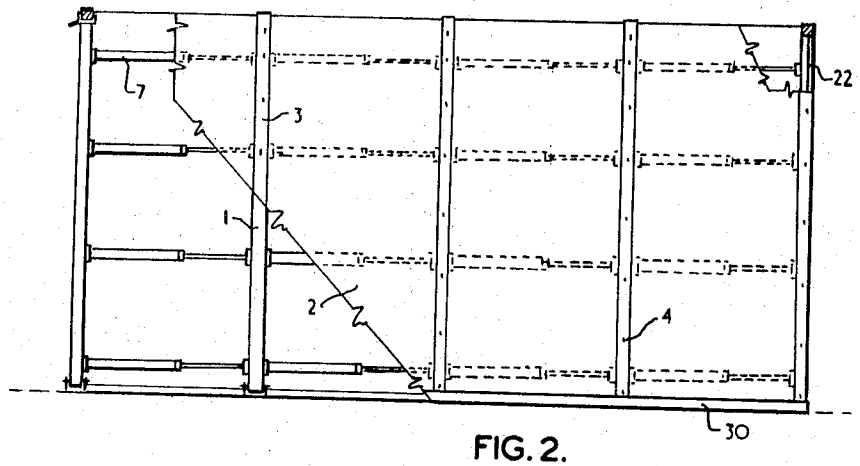


FIG. 2.

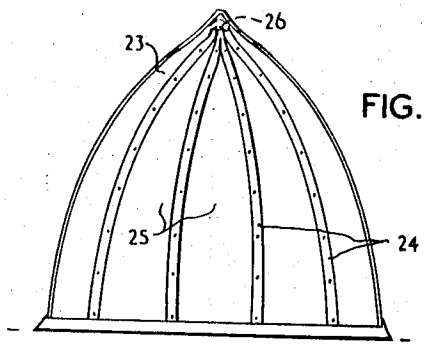


FIG. 3.

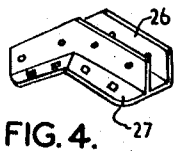


FIG. 4.

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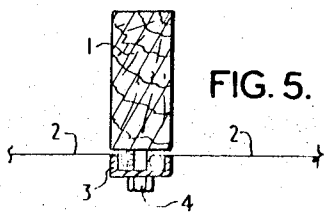


FIG. 5.

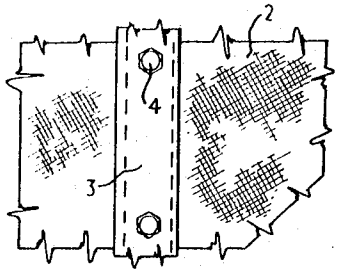


FIG. 6.

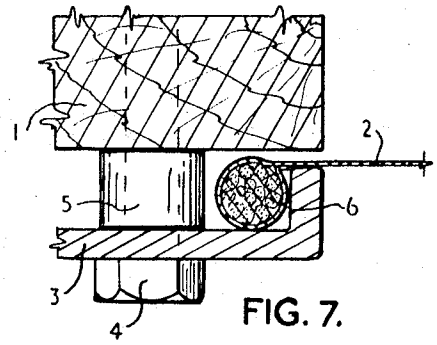


FIG. 7.

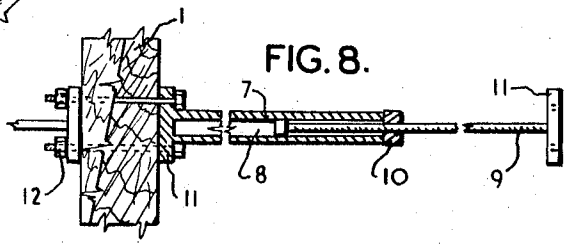


FIG. 8.

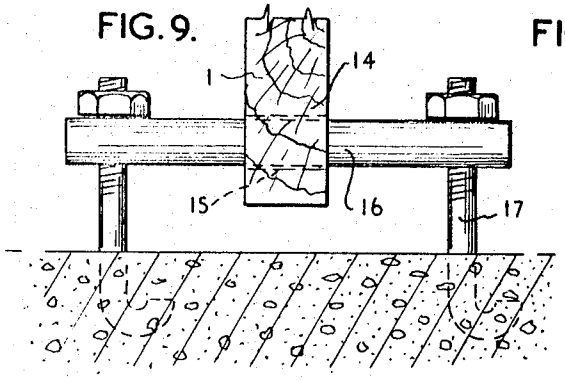


FIG. 9.

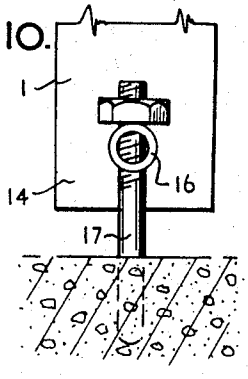


FIG. 10.

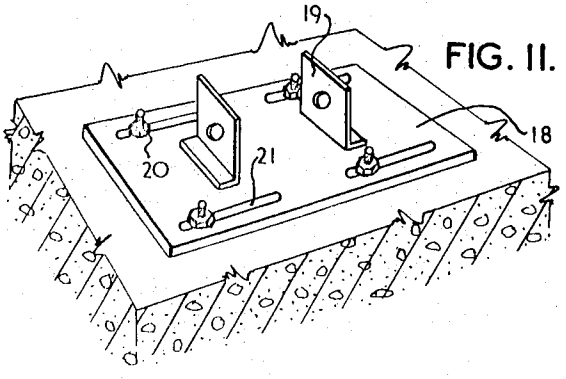


FIG. 11.

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DEMOUNTABLE BUILDING

My present invention relates to improvements in a demountable building and appertains particularly to a fabric covered arch framework.

Though buildings embodying this novel idea may assume many shapes and forms, be constructed of various materials and adaptable to a wide variety of uses, — amusement, domestic, commercial and even industrial, — the invention has for its object to provide a demountable building that is light in weight and composed of separable components that can be easily and quickly erected or demounted.

A further object of the invention is to provide a demountable building of the character described comprising components of corrosive-resistant materials, with strong load-bearing qualities and good thermal-insulating properties.

A further object of the invention is to provide a demountable building having a fabric covering that can be stretched tight for rain shedding, strength and/or appearance as may be desired because of changed weather conditions.

A further object of the invention is to provide a demountable building having a fabric covering that may be translucent thereby eliminating the need for windows or alternatively, if the fabric be opaque, allowing insertion of windows therein.

A still further object of the invention is to provide a demountable fabric covered building embodying a supporting frame comprising a plurality of spaced arch members between which the fabric covering in elongated strips is stretched, wherein the bases of the several arch members are mounted for movement longitudinally of the building.

To the accomplishment of these and related objects that shall become apparent as the description proceeds, the invention resides in the construction, combination and arrangement of parts as shall be hereinafter more fully described, illustrated in the accompanying drawings and pointed out in the appended claims.

In drawings which illustrate embodiments of the invention,

FIG. 1 is an isometric view of a structure suitable for enclosing a swimming pool embodying the invention, with the near end removed;

FIG. 2 is a sectional side elevational thereof;

FIG. 3 is an end elevation, in reduced scale, of a modified, rounded end closure;

FIG. 4 is an enlarged isometric view of a bracket for attaching the peak of such rounded end closure to the arch frames;

FIG. 5 is a transverse section of an arch member showing the fabric strips clamped thereto;

FIG. 6 is a plan detail thereof;

FIG. 7 is an enlarged sectional detail of the fabric clamping device shown in FIG. 5;

FIG. 8 is a sectional elevation of a spreader jack attached to an arch member;

FIGS. 9 and 10 are side and end elevations of an arch base mounting members; and

FIG. 11 is an isometric view of a modified form of arch base mounting member.

Referring in detail to the embodiment of the invention shown in FIGS. 1 and 2, it will be seen that the building comprises basically a plurality of vertically erected, parallel, longitudinally spaced arch frames 1 that rise from a wide base to a peak by describing a reverse curve on each side consisting of a large diameter convex arc at the bottom that flows into a smaller diameter concave arc at the top, as seen from the outside. These arch frames are preferably laminated wooden beams but may be of metal, either steel or aluminum. The covering 2 is a fabric, desirably a coated nylon but any of a wide variety of fabric materials may be used such as weatherproof textile, rubberized cloth, polyethylene plastic or the like.

The fabric covering 2 consists of elongated strips laid between adjacent arch frames 1, their opposite sides being thickened to provide a bead-like edge for clamping attachment to the outside of the arch frames 1 on either side. In FIGS. 5, 6 and 7 the fabric attaching device is shown as an inverted U or channel strip 3 having a base approximately the width of the beam 1 and a spaced pair of shallow sides. The channel is secured to the beam by lag screws 4 through the base with a spacing washer 5 between the channel and the beams. Within the channel 3 and on each side of the lag screw and washer the beaded edge of a fabric strip 2 is captured, the fabric edge being here thickened by enveloping a rope 6. This structure provides a simple and effective way of releasably clamping the elongated fabric strips to the spaced arch frames and is moreover related to the feature of so mounting the arches that the building can be longitudinally extended by adjustably spreading the arches and thereby enable the stretching of the fabric transversely of the strip. In the event that hollow metal arches are employed instead of laminated wooden ones, a groove for the beaded edge of the fabric can be welded on or cast in the metal arch and welded studs can replace the lag screws.

After the fabric strips 2 are clamped to the spaced arch frames 1, in relatively loose or slack condition, the arch frames are spread to suitably tighten the respective fabric strips by the use of extendable means interposed between confronting arches. A form of jack screw serves as a suitable adjustable spreader 7 and as seen in FIG. 8 consists of a hollow female tube 8 with an extendable threaded male rod 9 slidable therein and carrying a nut 10 bearing against the open end of the tube whereby the jack may be extended. The remote ends of the tube and rod respectively have drilled flanges 11 that are secured by bolts 12 to the arch beams 1 and a number of these adjustable spreaders are vertically spaced between each pair of confronting arches.

To enable the arches to be spread, that is moved longitudinally of the building, in the stretching of the fabric, each of the opposite feet 14 of an arch frame 1 has a transverse bore 15 that slidably accommodates a longitudinally extending horizontal tube 16 mounted on a spaced pair of anchor bolts 17 that pass vertically therethrough. An alternative form base mounting is shown in FIG. 11, consisting of a plate 18 with a spaced pair of upstanding lugs 19 between which the arch frame foot is firmly bolted, the plate being adjustably mounted on a ground base by fixed bolts 20 that project upwards through elongated slots 21 in the plate 18. The end closure of my fabric covered, arch frame building may be of any desired shape or design depending on the nature and size of the structure and the use for which it is intended. In FIG. 2, the end on the right side is a flat vertical panel 22 secured at its perimeter except along the bottom to the end arch frame 1. A modified rounded end closure 23 is shown in FIG. 3, its

several arcuate beams or ribs **24** that support the sector shaped fabric strips **25** converge toward and are supported at the upper end by a channel-like bracket **26,** shown in FIG. **4,** that fits on the underside of the end arch frame and is secured thereto by transverse bolts, a lip **27** projecting from the base of the bracket channel being apertured for connection of the arcuate end beams **24.**

If the fabric strips are translucent no windows may be needed but if the fabric be opaque plastic windows may be readily welded in as desired.

Attached along the sides and across the ends of the building is a ground engaging apron **30** that may be anchored by a pipe (not shown) if desired. While a building so constructed has good heat-insulating qualities, in territories with severe climatic conditions, a second layer of fabric entrapping a dead air space can be employed for additional insulation.

Various changes in the size, shape and arrangement of parts may be made to the form of invention herein shown and described, without departing from the spirit of the invention or scope of the claims.

What is claimed as new is:

1. A demountable building comprising a plurality of longitudinally spaced transversely arranged arch frame members, each having a pair of opposite feet; a ground base for each foot of said arch frame member; fixed anchor bolts projecting upwardly from said ground base; a plate with a spaced pair of understanding lugs between which the arch frame foot is firmly bolted, said plate having elongated slots to accommodate said upwardly projecting fixed anchor bolts whereby said plate is adjustably mounted on said ground base allowing limited movement of the arch foot relative to the ground base in a direction longitudinally of the building; covering in the form of individual elongated fabric strips stretched between each adjacent pair of said arch frame members; releasable means securing the opposite edges of said individual fabric strips to said respective pairs of members; and extendable means interposed between each pair of said members for individually adjustably spreading the same to individually stretch the intermediate fabric strip; the longitudinally sliding movement afforded the arch frame member foot with respect to its ground base being limited to that allowed it on the spreading action of said extendable means by the width of the tautly stretched fabric strip; wherein opposite sides of each of said elongated fabric strips have a rope enclosed therein to provide thickened, bead-like edges for respective attachment to the outer sides of an adjacent parallel pair of relatively movable arch frame members; each said fabric strip securing means disposed on the outer side of an arch frame member comprising an inwardly facing channel having a base and shallow sides, lag screws through the base of said channel securing it to and adjusting it toward and away from said arch frame member, and spacing washers on said screws between the channel and arch frame member being of greater length than the depth of the channel sides whereby the channel shallow sides, terminating short of the arch frame member, releasably capture the confronting beaded edges of an adjacent pair of elongated fabric strips; and extendable means interposed between adjacent arch frame members for individually adjustably spreading the same consisting of a number of vertically spaced jack screws each consisting of a hollow female tube, an extendable male rod slidable therein, a nut on said rod bearing against the open end of said tube, said tube and rod each having a drilled flange on its remote end whereby they are secured to confronting sides of adjacent arch members, on such tube and one such rod being removably connected in back-to-back relationship on opposite sides of an arch member by a common set of nuts and bolts wherein the bolts extend through the respective drilled flanges and the intermediate arch member.

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