April 27, 1954

J. R. ESTEY

LATH HOUSE

2,676,433

Filed Aug. 26, 1949

3 Sheets-Sheet 1

Fig. 1

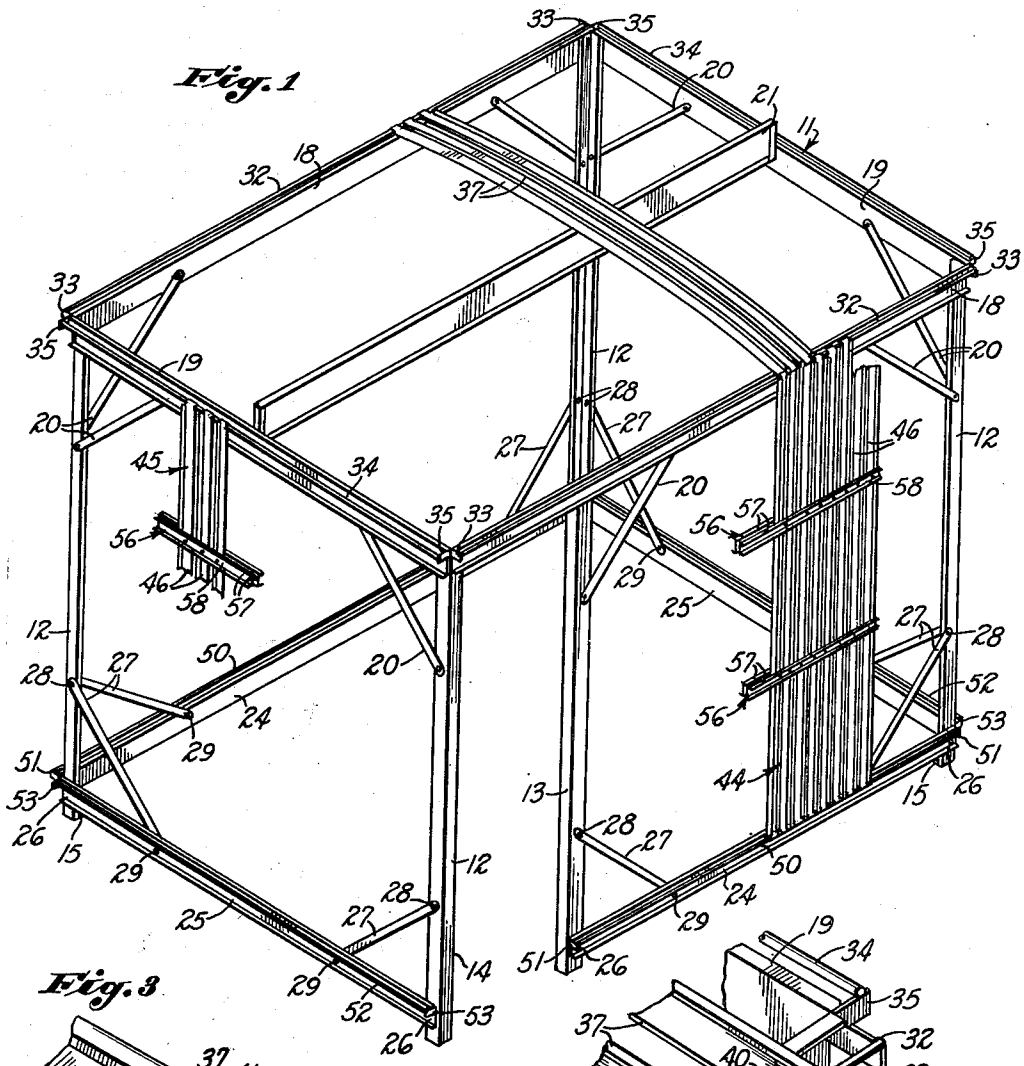


Fig. 3

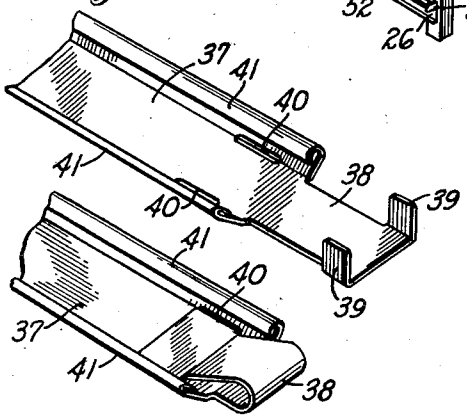


Fig. 4.

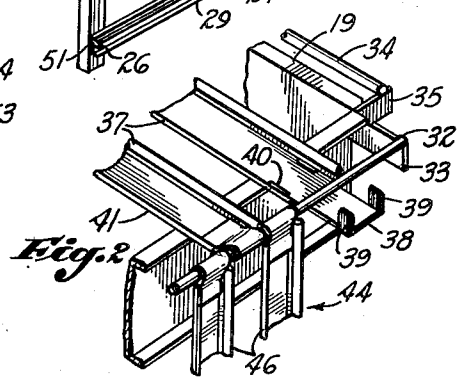


Fig. 2

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Fig. 5

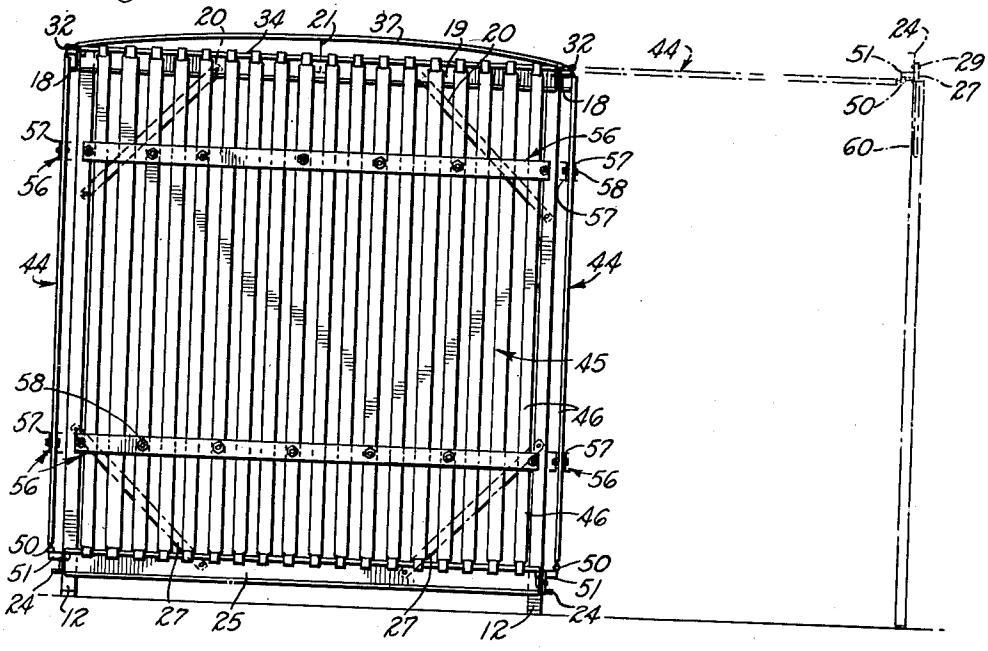


Fig. 7

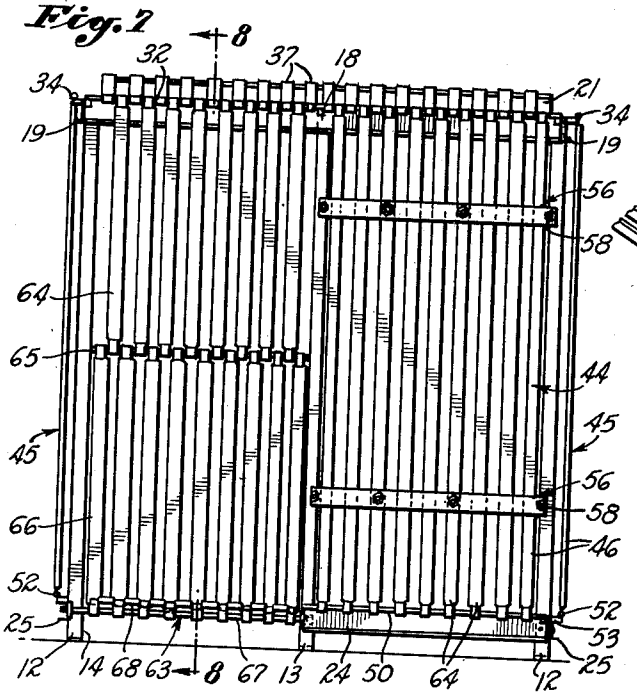
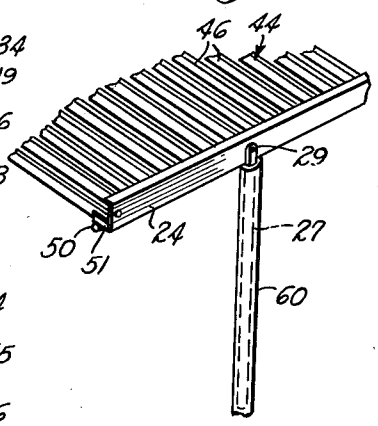


Fig. 6



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Fig. 8

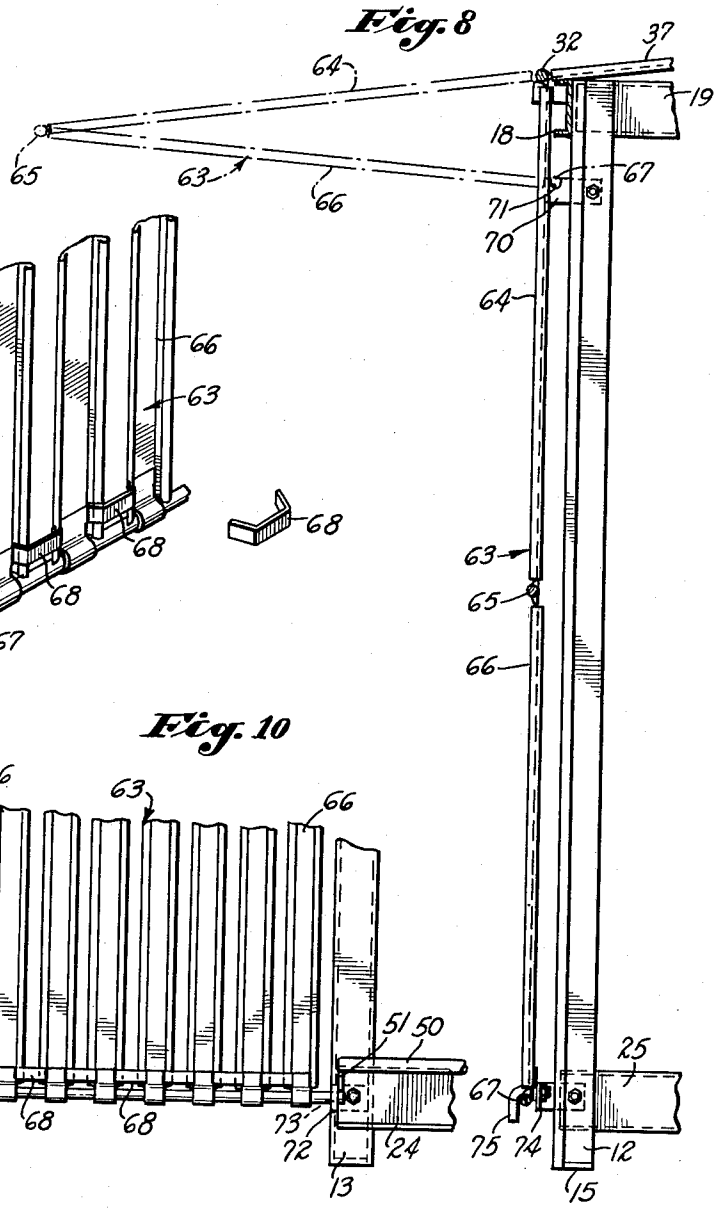


Fig. 9

Fig. 10

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UNITED STATES PATENT OFFICE

2,676,433

LATH HOUSE

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3 Claims. (Cl. 47—26)

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My invention relates in general to lath houses and a primary object thereof is to provide a structure of this nature which may be employed to shade a relatively small area and which may be expanded to shade much larger areas. The lath house of my present invention includes structural features disclosed and claimed in my copending application Serial No. 9822, filed February 20, 1948, reference to which is hereby made.

More specifically, an object of the invention is to provide a lath house having wall panels which are hinged to the frame of the structure along their upper edges so that they may be rotated into generally horizontal positions to increase accessibility to the interior of the structure and to increase the shaded area. A related object is to provide a structure wherein any number of the sides of the lath house may be raised to vary the shaded area as desired.

An important object is to provide a lath house wherein the wall panels comprise vertical laths having their upper ends looped around horizontal rods carried by the frame to provide the desired hinged connections between the wall panels and the frame, the wall panels being rotatable about the axes of the respective rods.

Another object is to provide a lath house wherein the rods forming elements of the hinges for the wall panels are spaced outwardly from the frame. With this construction, the frame may be substantially completely enclosed by laths, which is an important feature.

Another object is to provide a structure wherein the laths of the wall panels are connected at their lower ends to horizontal frame members which are detachable from the main frame to permit raising the wall panels.

Another object is to provide a construction wherein the aforementioned frame members are hinged to the wall panels along their lower edges. A related object is to provide the frame members with horizontal rods about which the lower ends of the laths are looped to provide the desired hinged connections between such frame members and the wall panels.

Another object is to provide a lath house wherein the attachment means for the detachable frame members along the lower edges of the wall panels includes braces each of which is detachably connectible at one end to the main frame of the lath house and which is pivotally connected at its other end to one of the detachable frame members.

With the foregoing construction, the frame members may be rotated relative to the wall

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panels and the braces may be rotated relatively to the frame members into positions such that the braces extend downwardly from the frame members when the wall panels are raised. Thus, the braces may be employed as means for engaging struts for supporting the wall panels in their raised positions, the struts preferably being tubular to permit insertion of the downwardly extending braces thereinto.

Another object of the present invention is to provide a lath house having a door which is hinged to the frame of the structure along its upper edge to permit rotation of the door into an elevated position in somewhat the same manner as the wall panels.

Another object is to provide a door which is hinged intermediate its upper end lower edges so that it may be jackknifed as it is rotated into its raised position.

Another object is to provide a door comprising vertical upper and lower laths having ends which are looped around horizontal rods at the upper edge of the door and intermediate the upper and lower edges of the door to provide the aforementioned hinges. A related object is to provide a construction wherein the horizontal rod at the upper edge of the door comprises part of one of the rods forming the hinges for the wall panels.

Another object is to provide means carried by the frame of the structure for supporting the door in its raised position and for latching the door in its lowered position.

Another object is to provide a lath house having a roof composed of laths which extend from eave line to eave line of the roof and which are bowed upwardly intermediate their ends for drainage purposes. A related object is to provide a lath house wherein the frame includes a ridge member which is located at a higher level than the eave lines of the roof so as to bow the roof laths upwardly intermediate their ends. Another object in this connection is to provide a roof wherein the laths are secured to the frame only at their ends and merely rest on the ridge member.

Still another object is to provide a construction wherein the roof laths have their ends respectively looped around two of the rods forming elements of the hinges for the wall panels, the roof laths and the wall laths connected to such rods being arranged in staggered relation.

Another object is to provide a lath house whose components may be completely prefabricated to facilitate erection of the structure. A related

object is to provide a lath house which may be erected readily with only a few simple tools.

The foregoing objects and advantages of the present invention, together with various other objects and advantages which will become evident in the light of the disclosure which follows, may be attained through the employment of the exemplary embodiment which is illustrated in the accompanying drawings and which is described in detail hereinafter. Referring to the drawings:

Fig. 1 is an isometric view of the lath house of the invention with substantially all of the wall and roof laths removed to reveal the structure of the frame of the lath house;

Fig. 2 is an enlarged fragmentary perspective view taken at one end of one of the eave lines of the lath house and illustrating the manner in which the wall and roof laths are attached to the frame;

Fig. 3 is an enlarged, fragmentary perspective view of one end of one of the laths incorporated in the lath house;

Fig. 4 is an enlarged, fragmentary perspective view which is similar to Fig. 3 but which shows one end of one of the laths formed into a loop for attachment to the frame;

Fig. 5 is an elevational view of the lath house showing one side thereof in a raised position;

Fig. 6 is an enlarged, fragmentary perspective view showing a portion of the lower edge of one of the sides of the lath house in a raised position and showing means for supporting it in such a position;

Fig. 7 is a front elevational view of the lath house showing a door which forms part thereof;

Fig. 8 is an enlarged, fragmentary sectional view taken along the broken line 8—8 of Fig. 7;

Fig. 9 is an enlarged, fragmentary perspective view of the lower end of the door; and,

Fig. 10 is an enlarged, fragmentary elevational view showing the lower end of the door and showing a latching means therefor.

Referring particularly to Fig. 1 of the drawings, the numeral 11 designates the frame of the lath house of the invention, the frame being of rectangular plan in the particular construction illustrated. As will be apparent, the frame 11 includes columns 12 at its corners and includes an additional column 13 which is spaced from one of the corner columns 12 to provide a doorway 14. The columns 12 and 13 are provided at their lower ends with feet 15 which may rest on the ground or on suitable foundations (not shown). If desired, the feet 15 may be bolted or otherwise secured to such foundations as is well known in the art.

Bolted or otherwise secured to the upper ends of the columns 12 and 13 and extending between the corner columns 12 are pairs of frame members 18 and 19, the frame members 18 being regarded as eave members for convenience. In order to rigidify the frame, diagonal braces 20 extend between and are bolted or otherwise secured to the columns 12 and 13 and the frame members 18 and 19. A ridge member 21 is disposed intermediate and parallel to the eave members 18 and extends from one of the frame members 19 to the other, the ridge member being bolted or otherwise secured to the frame members 19. The ridge member 21 projects above the eave members 18 for a reason to be discussed hereinafter.

The frame 11 also includes pairs of frame members 24 and 25 respectively located beneath

the frame members 18 and 19 and detachably connected to the columns 12 and 13 adjacent their lower ends, as by bolts 26. It will be noted that one of the frame members 24 is shorter than the other and terminates at the column 13 so as to leave the doorway 14 clear. The frame members 24 and 25 are further connected to the columns 12 and 13 by diagonal braces 27 to rigidify the frame 11, the braces 27 being detachably connected to the columns, as by bolts 28, and being pivotally connected to the frame members 24 and 25, as by bolts 29.

The eave members 18 respectively carry eave rods 32 which are spaced outwardly from the frame 11 as best shown in Fig. 2 of the drawings, the eave rods being welded or otherwise secured to horizontally projecting lugs 33 on the frame. Rods 34 are carried by the frame members 19 and, as best shown in Fig. 2 of the drawings, are also spaced outwardly from the frame 11, the rods 34 being secured to horizontal lugs 35 which are similar to the lugs 33.

The lath house includes a roof composed of a plurality of roof laths 37 which extend between and are connected at their ends to the eave rods 32 in a manner to be described. The roof laths 37 are spaced apart to admit some sunlight, the spacing and width of the roof latchs being determined by the amount of shading desired.

As best shown in Fig. 2 of the drawings, the roof laths 37 are connected to the eave rods 32 by looping end portions of the laths around the rods. Referring particularly to Fig. 3 of the drawings, each roof lath 37 includes a tongue 38 having a pair of tabs 39 extending perpendicularly therefrom, these tabs being insertable into slots 40 in the lath. As best shown in Fig. 4 of the drawings, the lath 37 is attached to one of the rods 32 by binding the tongue 38 around the rod and inserting the tabs 39 into the slots 40, the ends of the tabs subsequently being clinched to lock them in place.

As will be apparent from Fig. 1 of the drawings, the roof laths 37 are secured to the frame 11 only at their ends by looping the tongues 38 thereon around the eave rods 32 in the foregoing manner, the roof laths merely resting on the ridge member 21 intermediate their ends. Since, as previously pointed out, the ridge member 21 projects above the eave members 18, the roof laths 37 are bowed upwardly intermediate their ends to provide a roof which slopes downwardly from its ridge line toward its eave lines so that rain falling on the roof laths drains toward the eave lines. This reduces the amount of rain reaching the interior of the structure.

In order to rigidify the roof laths 37, which are preferably formed of a relatively thin sheet metal such as aluminum, for example, they are preferably made channel shaped, as best shown in Fig. 3 of the drawings. Further rigidity is provided by doubling the arms of the channels back on themselves, as indicated by the numerals 41. In order to secure better drainage of rain falling on the roof laths 37, the laths are preferably installed with the channels facing upwardly.

Considering the wall structure of the lath house, it comprises side walls 44 and end walls 45, one of the side walls 44 being shorter than the other and terminating at the column 13 to leave the doorway 14 clear. Each of the walls 44 and 45 comprises a plurality of spaced, vertical wall laths 46 which are substantially identical to the roof laths 37, the wall laths being looped around the rods 32 and 34 at their upper ends in sub-

stantially the same manner as the ends of the roof laths 37 are looped around the rods 32. This construction provides hinges along the upper edges of the walls 44 and 45 to permit rotation of the walls upwardly about the axes of the respective rods into elevated positions as will be discussed in more detail hereinafter.

As best shown in Fig. 2 of the drawings, the ends of the roof laths 37 and the wall laths 46 forming the side walls 44 are looped around the eave rods in alternating relation so that such wall laths are staggered with respect to the roof laths. The tongues 38 at the ends of the roof laths 37 and the corresponding tongues at the ends of the wall laths 46 forming the side walls 44 are preferably arranged in abutting relation so that such tongues maintain predetermined spacings between the laths. As will be apparent, the lath spacings may be varied by varying the tongue widths with this construction.

The lower ends of the wall laths 46 forming the side walls 44 are looped around rods 50 in substantially the same manner as the ends of the roof laths 37 are looped around the eave rods 32. The rods 50 are secured to horizontally projecting lugs 51 on the frame members 24 and are thus spaced outwardly from the frame 11 in the same manner as the eave rods 32, the rods 50 preferably being in substantially the same vertical planes as the respective eave rods. The lower ends of the wall laths 46 forming the end walls 45 are similarly looped around rods 52 secured to horizontally projecting lugs 53 on the frame members 25. Thus, the rods 52 are also spaced outwardly from the frame 11 and are preferably disposed in substantially the same vertical planes as the respective rods 34.

In order to maintain the desired spacing between the wall laths 46 of the walls 45 and to assist in maintaining the desired spacing between the wall laths of the side walls 44, I prefer to employ clamping devices 56 each of which includes a pair of clamping members 57 disposed on opposite sides of the wall laths and secured together by bolts 58. The clamping devices also serve to rigidify the walls 44 and 45 by tying the wall laths together, and further serve to prevent strumming of the wall laths in the wind, which are other features of the invention.

As a matter of convenience in considering the manner in which the side walls 44 and 45 may be rotated into elevated positions and supported in such positions, the disclosure will be limited to a consideration of one of the side walls 44, it being understood that the remaining walls may be elevated and supported in a similar manner. Preparatory to elevating one of the side walls 44, it is necessary to detach the corresponding frame members 24 from the frame 11 and to detach the corresponding diagonal braces 27 from the frame 11. This may be accomplished by removing the corresponding bolts 26 and 28, which may be provided with wing nuts (not shown) to facilitate detachment. Subsequently, the detached side wall 44 is rotated upwardly into a generally horizontal position, as indicated in phantom in Fig. 5 of the drawings, about the axis of the corresponding eave rod 32, the looped ends of the wall laths 46 and the eave rod providing a hinge means permitting such rotation. As indicated in Figs. 5 and 6, the frame member 24 is rotated relative to the wall laths 46 of the elevated side wall 44 through an angle of approximately 90° about the axis of the corresponding rod 50. Thereafter, the braces 27 carried by the frame

member 24 under consideration are rotated downwardly until they are substantially perpendicular to the frame member. Subsequently, the braces 27 may be inserted into the upper ends of tubular struts 60 for supporting the side wall 44 in its elevated position. The remaining side wall 44 and the end walls 45 may be elevated and supported in a similar manner.

It will be apparent that the area shaded by the lath house may be varied throughout a wide range by varying the number of walls which are raised in the foregoing manner, the shaded area being a minimum when none of the walls are raised and being a maximum when all of them are raised. Also, when all of the walls 44 and 45 are raised, the interior structure is relatively free of obstructions because of the fact that all of the lower frame members 24 and 25 are elevated out of the way.

Referring to Figs. 7 to 10 of the drawings, the lath house includes a door 63 for closing the doorway 14, the door being hinged to the frame 11 along its upper edge so that it may be rotated into an elevated position, and being hinged intermediate its upper and lower edges so that it may be jackknifed as it is elevated. The door 63 includes a plurality of laths 64 having their upper ends looped around a portion of one of the eave rods 32 above the doorway 14 in the manner hereinbefore described, the lower ends of the laths 64 being looped around a horizontal rod 65 intermediate the upper and lower edges of the doors. The looped upper ends of the laths 64 and the looped ends of the roof laths 37 are arranged in alternating relation so as to maintain predetermined spacings between the laths 37 and the laths 64 in the manner previously discussed. The upper ends of additional laths 66 are also looped around the intermediate rod 65 in alternating relation with the lower ends of the laths 64 so that the laths 64 and 66 are staggered with respect to each other. As previously pointed out, this alternating relation serves to maintain the desired spacing between the laths 64 and 66. The lower ends of the laths 66 are looped around a lower horizontal rod 67.

In order to maintain the desired spacings between the laths 66 adjacent the lower rod 67, I provide channel-shaped clips 68 which, as best shown in Fig. 9 of the drawings, are adapted to span the spaces between the laths 66. Each arm of each clip 68 is inserted into one of the slots for receiving the tabs at the ends of the tongues on the laths 66 and is subsequently clinched (not shown).

As best shown in Fig. 8 of the drawings, the upper portion of the door 63 is rotatable upwardly into a generally horizontal position about the axis of the eave rod 32 to which it is connected, and the lower portion of the door is rotatable upwardly into a generally horizontal position about the axis of the intermediate rod 65, the two portions of the door being adapted to jackknife as shown. In order to maintain the door 63 in its elevated, jackknifed position, I provide horizontally projecting lugs 70 on the column 12 and the column 13 defining the doorway 14, these lugs being provided with downwardly extending notches 71 therein to receive the lower rod 67. Thus, when the door 63 is elevated into its jackknifed position as shown and the lower rod 67 is dropped into the notches 71 in the lugs 70, the latter will hold the door in such position. Alternatively, the lower rod 67

may rest on the lower flange of the channel-shaped eave member 18, as will be apparent from Fig. 8.

The door 63 may be latched in its lowered, or closed, position in a manner about to be described. As best shown in Fig. 10 of the drawings, projecting from the column 13 is a horizontal lug 72 having a hole 73 therethrough to receive one end of the lower rod 67. Projecting horizontally from the corner column 12 adjacent the doorway 14 is a lug having a flange 74 which carries a rotatable hook 75, the latter being adapted to hook over the opposite end of the lower rod 67, as best shown in Fig. 9 of the drawings. As will be apparent, the lower rod 67 may be released to permit raising the door 63 by rotating the hook 75 through 90° and by withdrawing the lower rod from the hole 73.

As previously mentioned, the various components of the lath house are preferably completely prefabricated so that erection of the lath house merely involves assembly of its various components at the site without any necessity for employing skilled labor or special tools and equipment. Also, the lath house can be erected readily with a minimum expenditure of time. It will be appreciated that, since labor costs are responsible for a large part of the cost of erecting any structure, very substantial savings in labor costs for erecting purposes may be attained with the structure hereinbefore described. The various components of this structure can, of course, be manufactured relatively economically, particularly if large quantities are involved.

Although various materials may be employed, I prefer to utilize aluminum and/or aluminum alloys for the various components of the lath house, and particularly for the laths themselves. The principal advantage of employing aluminum and/or aluminum alloys is that the resulting structure is extremely light, thus facilitating erection thereof and avoiding any necessity for supporting extremely large weights in the completed structure. Also, aluminum is easily formed, thereby facilitating bending the ends of the laths around the corresponding rods.

Although I have described an exemplary embodiment of my invention herein for illustrative purposes, it will be appreciated that various changes, modifications and substitutions may be incorporated therein without departing from the spirit of the invention, and I hereby reserve the right to all such changes, modifications and substitutions as properly come within the scope of the appended claims.

I claim as my invention:

1. In a lath house, the combination of: a frame; a generally horizontal upper rod carried by said frame and spaced outwardly thereof in a horizontal direction; a frame member detachably connectible to said frame in a generally horizontal position beneath said upper rod; attachment means for detachably connecting said frame member to said frame in said position; a generally horizontal lower rod carried by said frame member and spaced outwardly thereof in said horizontal direction when said frame member is in said position, said upper and lower rods being substantially parallel and being in substantially the same vertical plane when said frame member is in said position; and a plurality of laths extending between said upper and lower rods, said laths being looped around said upper rod at their upper ends and being looped around said lower rod at their lower ends to provide for pivotal movement of said laths relative to said frame about the axis of said upper rod and to provide for pivotal movement of said frame member relative to said laths about the axis of said lower rod.

2. A lath house according to claim 1 wherein said attachment means includes a brace detachably connectible at one end to said frame and pivotally connected at its other end to said frame member, said brace being rotatable relative to said frame member into a position substantially perpendicular thereto.

3. In a lath house, the combination of: a frame; a wall panel including a plurality of laths; attachment means for detachably connecting said wall panel to said frame adjacent the lower edge of said panel; generally horizontal hinge means for pivotally connecting said wall panel to said frame adjacent the upper edge of said panel to permit upward rotation of said panel into a generally horizontal position upon detachment of the lower edge thereof from said frame; and a brace detachably connectible to said frame and pivotally connected to said wall panel adjacent the lower edge of said panel, said brace being rotatable into a downwardly extending position for engagement with a strut when said wall panel is in said generally horizontal position so as to support said panel in said generally horizontal position.

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