PORTABLE AND COLLAPSIBLE SUMMER HOUSE

Fig. 1.

Fig. 2.

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1 Claim. (Cl. 20—2)

This invention appertains to a collapsible and portable house or shelter particularly designed for use in summer and of such a character that when the house is in its collapsed, folded condition the same will occupy a minimum amount of space for storage or transportation, such as on the top of an automobile.

One of the primary objects of my invention is the provision of a collapsible house embodying side and end walls formed from like panels of a certain dimension hingedly connected together whereby the four walls can be folded with the panels resting one on top of the other and novel roof rafters for bracing the walls and for forming a support for a flexible removable top or roof.

Another salient object of my invention is the provision of means for forming the roof rafters and ridge beams, wherein these parts can be folded into a small compass and whereby the rafters will effectively grip and hold the ridge beam when the house is in its set up position.

A further important object of my invention is the provision of novel removable brackets or stirrups for fitting over the upper edges of the side walls at the meeting points of the panels to form braces therefor, so that the panels of the side walls will be held in line against accidental swinging movement on their hinges and for detachably supporting the roof rafters, whereby the rafters will be firmly united with the walls.

Another further important object of my invention is the provision of novel means for constructing the panels whereby the panels will form an adequate protection against the elements and still permit desired ventilation on warm, sunny days.

A still further object of my invention is to provide a folding, collapsible house of the above character, which will be durable and efficient in use, one that will be simple and easy to manufacture and one which can be placed upon the market at a reasonable cost.

With these and other objects in view, the invention consists in the novel construction, arrangement and formation of parts, as will be hereinafter more specifically described and claimed and illustrated in the accompanying drawings, in which drawings:

Figure 1 is a perspective view of the folding collapsible house in its set up condition, ready for use, parts of the flexible top being shown broken away and in section;

Figure 2 is a view similar to Figure 1, but showing the flexible top entirely removed to illustrate structural detail of the roof rafters, ridge beam and the like;

Figure 3 is a top plan view of the house prior to the connection of the roof rafters, ridge beam, and top thereto, the view showing the novel means of hingedly connecting the panels of the side and end walls together;

Figure 4 is a detail vertical sectional view through one of the panels illustrating a preferred construction thereof, the section being taken on the line 5—5 of Figure 1, looking in the direction of the arrows, the view being taken on a larger scale than the previous figures;

Figure 5 is a horizontal sectional view through a fragment of one of the side walls, showing the means of connecting the panels together to permit folding thereof one on top of the other, the section being taken on the line 5—5 of Figure 1, looking in the direction of the arrows, the view being on the same scale as Figure 4;

Figure 6 is an end elevational view showing one of the side walls in its collapsed folded condition, the view being on the same scale as Figure 3;

Figure 7 is a fragmentary detail end elevational view showing the end roof rafters in their set up position and gripping the ridge beam;

Figure 8 is a view similar to Figure 7 with the ridge beam removed and the sections of the rafters in their folded condition;

Figure 9 is a detail fragmentary vertical sectional view, taken on the line 9—9 of Figure 2, looking in the direction of the arrows, and showing the intermediate pair of rafters, the rafter being in its set up position gripping the ridge beam;

Figure 10 is a fragmentary longitudinal sectional view through a portion of the ridge beam illustrating one means of securing sections thereof together, the sections being folded, the view being taken on the line 10—10 of Figure 2, looking in the direction of the arrows;

Figure 11 is a detail longitudinal sectional view taken at right angles to Figure 10 and on the line 11—11 of Figure 10, looking in the direction of the arrows;

Figure 12 is a detail fragmentary vertical sectional view taken on the line 12—12 of Figure 2, looking in the direction of the arrows and illustrating a corner stirrup or bracket for the side and end walls and the means for connecting an end rafter to the stirrup;

Figure 13 is a detail perspective view of a corner stirrup or bracket, and

Figure 14 is a detail perspective view of one of the side stirrups or brackets.

Referring to the drawings in detail, wherein similar reference characters designate corresponding parts throughout the several views, the letter H generally indicates my improved collapsible folding house, and the same includes like side walls 15 and 16 and end walls 17 and 18. In the present instance, the end wall 17 is to be considered as the front of the house. The side walls 15 and 16 each include a number of like panels 19, and the end walls 17 and 18 also include like panels 20. All of the panels 19 and 20 are of a certain exact dimension, say three feet wide by six feet tall, and there can be any desired number of panels at the side and end walls. In the present instance, the side walls 15 and 16 each include four panels, while the end walls 17 and 18 each include three panels.

As the end wall 17 is to be considered as the front of the house, one of its panels 20, preferably the central panel now identified by the reference character 21, is provided with a door 22 and this panel 21 will be later more particularly defined. All of the panels 19 and 20 are of the same construction, and each includes a marginal frame 23. Each frame 23 includes spaced parallel side rails 24, and top and bottom connecting rails 25 and 26. The inner faces of the side rails 24 are provided respectively with spaced parallel vertical grooves 27 and 28. The lower portion of each panel is closed by a canvas covering 29, or other light weight sheet material, and this canvas covering is provided with a metal marginal rim 30, so that the same can be flexed and sprung into the lower portions of the grooves 27. The bottom rail 26 can also be provided with a groove to receive the lower part of the canvas covering 29 and its rim. The upper part of each panel is closed by a window screen 31 and this screen is also enclosed by a light, marginal rim 32, which can be flexed so that the screening can be sprung into the upper part of the grooves 27. The upper rail 25 can also be provided with a groove to
receive the upper portion of the rim of the screen. In order to close the opening covered by the window screen during inclement or cold weather, a wooden sliding section 33 is mitered into the grooves 25 and this section can be slid up and down to cover or uncover the wire screening. Latches, not shown, can be provided for holding the sliding sections 33 in their raised or partially raised position. All or certain of the sliding sections 33 of the various panels can be provided with window glass 34.

Now referring more particularly to the side walls 15 and 16, the panels 19 thereof have their meeting edges connected together by reversely positioned inner and outer hinges 35, so that when the side and end walls are disconnected from one another, the panels of the side walls can be folded one upon the other, as shown in Figure 6.

The panels of the end walls 17 and 18 are also hingedly connected together by reversely positioned hinges 36 and hence when the side and end walls are disconnected the panels of the end walls can be folded one upon the other. It is proposed to form the panels of a very narrow width so that when the panels are folded one upon the other, a minimum amount of space will be occupied by the side and end walls. A box or chest, not shown, is also to be provided with the house, so that the side and end walls, when the same are in their folded position can be placed in the box or chest and this box or chest is to be made of such a size as to receive various other parts of the house, which will be later described.

Now referring to the panel 21 which carries the door 22, it is to be noted that this panel also includes a marginal frame 27, and this frame has hingedly mounted therein the door 22 which can be constructed in the same manner as the panels heretofore described, and that the door also will include a marginal frame having a lower canvas part, an upper wire mesh screen part and a sliding sash.

The end panels of the side walls 15 and 16 and the end panels 20 of the walls 17 and 18 carry mating leaves 38 and removable pintles 39 fit in the barrels of these leaves so as to interconnect the side and end walls together when the house is in its set up position.

Considering that the side and end walls are set up, as shown in Figure 3, then the next step is the association with the panels of a novel roof structure, which will now be described. This roof structure includes side stirrups or brackets 40 (see Figure 14) and each of these of a U-shape in cross section and is preferably, but not necessarily, cut from light channel iron. The brackets or stirrups 40 are slotted over the upper edges of the side walls at the points of juncture of the panels 19 with one another so that accidental swinging movement of the panels on their hinges is eliminated, and these brackets or stirrups hold the panels in direct longitudinal line. Formed on the upper face of each stirrup or bracket is a triangular shaped ear 41 having an opening 42 therethrough. The ears and the stirrups form supports for certain roof rafters, as will now appear. To securely hold the corners of the house together against accidental movement, I provide corner stirrups or brackets 43 (see Figure 13). Each of these brackets or stirrups includes right angularly extending branches 44 and 45, and these branches are of an inverted U-shape and are slotted over the corners of the building, as best shown in Figures 1 and 2. These corner stirrups 43 also carry triangular shaped ears 46, and the said ears are provided with openings 47. The corner brackets 43 with their ears 46 form means for supporting end roof rafters, as will also now appear.

The roof structure includes end rafters 48 and 49 and a series of intermediate roof rafters 50. Now the roof rafters 48 and 49 are of a like construction and are preferably formed from light angle iron and each of these rafters includes companion sections 51 hingedly connected at their upper ends by mating hinge ears 52 (see Figures 7 and 8). Thus, the sections 51 can be swung toward and away from one another to a collapsed or open operative position. When the sections 51 are in their open set up position, the same can be held against accidental closing by a cross strut 53. If desired, the cross strut 53 can be pivotally secured to the section 51 and detachably secured to the other section 51 by a pin and hook or the like, not shown. The lower ends of the sections 51 receive the ears 46 of the corner brackets or screws or bolts 54 extend through the lower terminals of the sections 51 and into the openings 47. It is to be noted that the sections 51 being formed from angle iron, include a front depending flange and a top right angularly extending flange and this forms a smooth corner for receiving a flexible canvas top 55.

The intermediate rafters 56 are of like construction, and each of these rafters (see Fig. 9) includes sections 56 hingedly connected together at their upper ends by mating hinge ears 57. Thus, the sections 56 can be swung toward one another to a closed collapsed position or away from one another to an open operative position.

The sections 56 are preferably formed from light T-irons. When the sections 56 of the rafters 56 are in their open set up position, the same are held against collapsing by struts 58, and if desired the struts can be pivoted to one section 56 and hook over a pin carried by the other section 56. The lower terminals of the sections 56 receive the ears 41 of the bracket or stirrups 40 (see Fig. 12), and bolts 55 extend through the rafter sections and through the openings 41 in the ears 41.

In connection with the roof rafters, I utilize a ridge beam 60 and this ridge beam includes a plurality of sections 61 united by bracket or face plate 62. The bracket plates 62 can be welded to one section and connected to the other section by removable bolts 63. The ridge beam is of a T-shape and includes a central depending flange 64 and top downwardly inclined flanges 65. Inverted U-shaped stirrups or bracket plates 66 can be utilized with the end walls and these members are placed over the upper edges of the end walls at the points of juncture of the panels of the end walls together to hold these panels in line.

In assembling the roof, the rafters 50 and 51 are spread to their open positions, and after which the depending flange 64 of the ridge beam 60 is slipped in between the upper terminals of the sections of the roof rafters. Obviously, upon further spreading of the rafters, the sections thereof tend to grip and hold the ridge beam in place.

The flexible cover 55 is then interlaced, preferably formed from canvas or cloth and placed over the assembled roof and is then connected with the side and end walls, in any desired way, such as through the use of buttons and button holes, or a preferred type of fastener. As the cover 55 is formed from flexible material, the same can be easily folded into a compact bundle.

Other advantages can be provided for the house, such as a canvas floor, not shown, and where such floor is used, the same can be provided with loops mating with eyes on the lower ends of the walls, and stakes or the like can be driven through the eyes and loop and into the ground.

Changes in details may be made, without departing from the spirit or scope of this invention, but what I claim as new is: A folding and collapsible home comprising side and end walls, each of said walls including a plurality of upright panels hingedly connected together, corner brackets of a U-shape in cross section with depending flanges on the edges of adjacent panels of the side and end walls, inverted U-shaped brackets fitted over the upper edges of the side walls at the meeting points of the panels, all of said brackets being provided with upwardly projecting lugs, folding roof rafters having their lower ends receiving the lugs, means detachably connecting the lugs with the lower ends of the rafters, said rafters including like sections hingedly connected together at their upper ends, and a longitudinally extending ridge beam including a central depending
flange received between the upper inner ends of the said sections of the rafters and top downwardly inclined flanges overlying portions of said upper ends of said sections of the rafters.

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