July 16, 1963 W. B. KELLETT 3,097,449

VENTILATED, ORNAMENTAL SHELTER

Filed Dec. 1, 1959 2 Sheets-Sheet 1

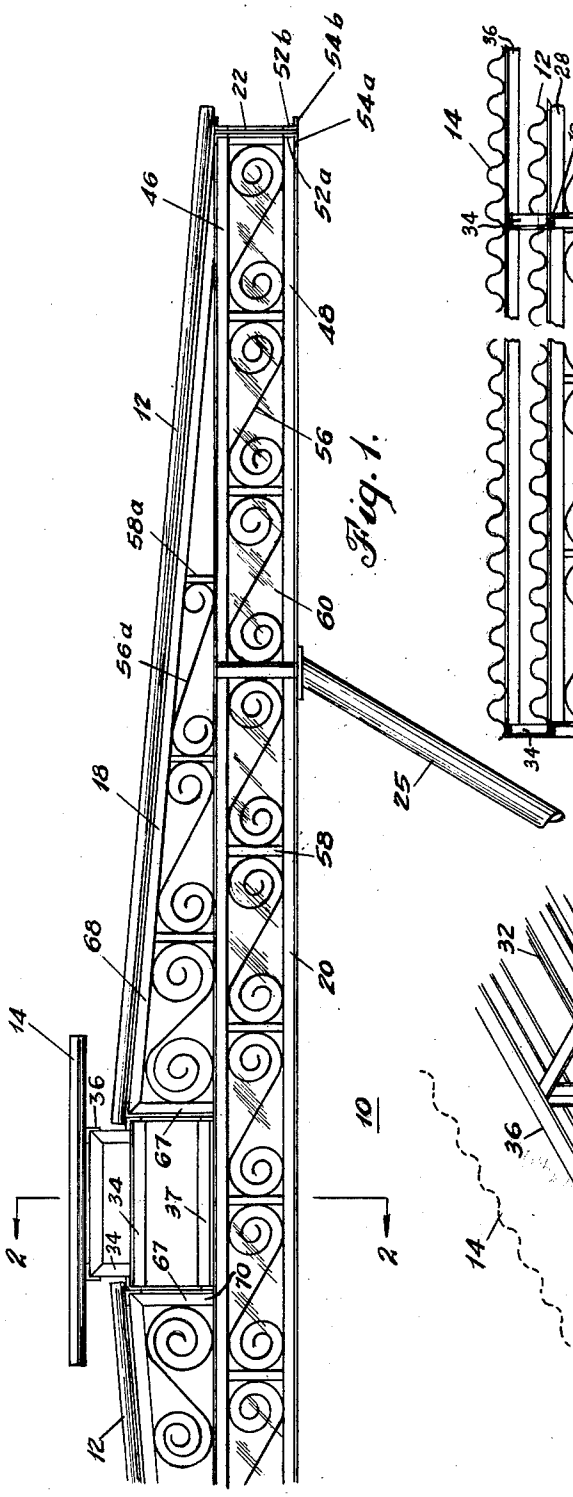


Fig. 1.

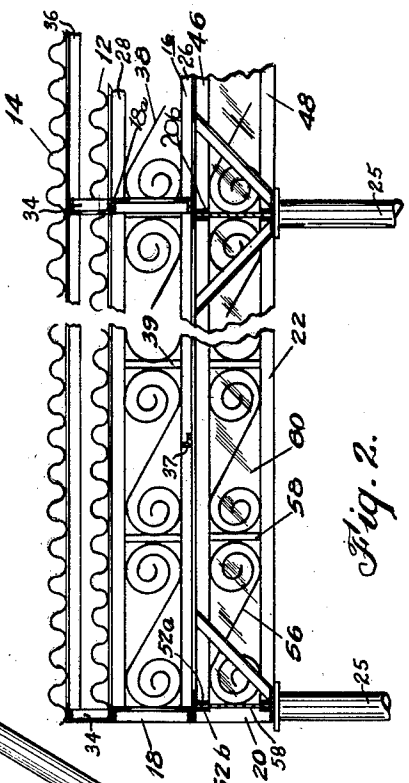


Fig. 2.

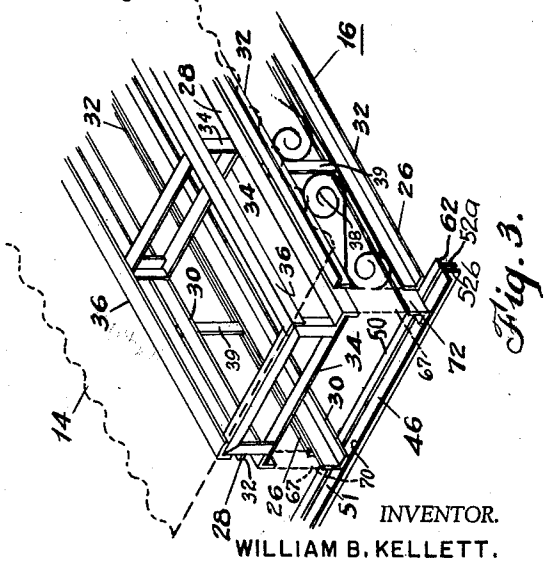


Fig. 3.

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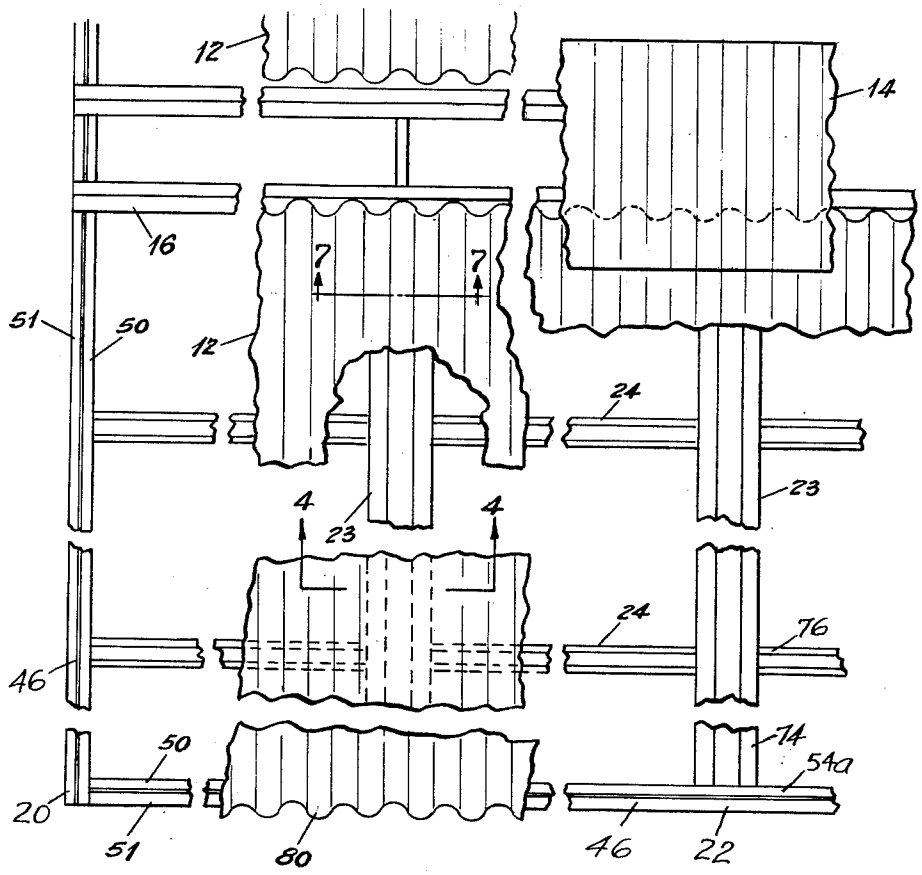


Fig. 6.

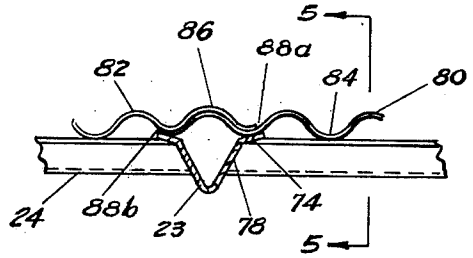


Fig. 4.

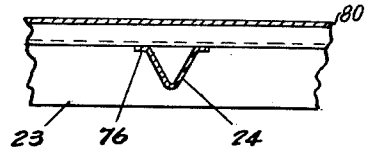


Fig. 5.

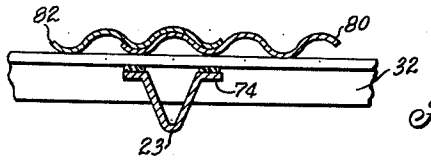


Fig. 7.

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3,097,449
VENTILATED, ORNAMENTAL SHELTER

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1 Claim. (Cl. 50—115)

This invention relates to a wind resistant structure, and more particularly to such a structure suitable for use as protection from extreme heat from the sun. Drive-in cafes in certain parts of the country are faced with the problem in the summertime that the sun becomes so excessively hot that there is no incentive for customers to partake of food in their automobiles. Commercial and private swimming pools have a similar problem in that bathers become extremely uncomfortable when exposed to the full force of the sun. Some drive-in cafes and swimming pools utilize shelters consisting of an awning or other overhead protector. One popular type of shelter is made of wrought iron and fiberglass. While this type of shelter is generally quite useful, it does not completely solve the problem. Heat has a tendency to accumulate under an overhead shelter making it extremely hot. Also, since the attractiveness of such a shelter adds to its value, structural stability often gives way to aesthetic considerations which usually results in a structure having large roof areas exposed to high winds without adequate reinforcement.

Most shelters made of wrought iron and fiberglass employ corrugated sheets of fiberglass. The corrugations in these sheets are so flat and so shallow that wind will drive rain under the lapped edges of adjacent sheets and drip onto the area under the shelter.

I have found that a suitable shelter can be provided which not only has great attractiveness, but it also wind resistant, is comfortable and prevents rain from dripping onto the area under the shelter. I accomplish this by providing a shelter of wrought iron and fiberglass with (1) a gabled roof terminating at both ends in ventilated gables; (2) a longitudinally extending, substantially open, box-type ridge girder having wrought iron scrolls and (3) a series of rafters and purlins which are shaped and arranged to collect any water that may leak through the joints formed by overlapping adjacent corrugations of the individual corrugated sheets used for the roof.

It is an object of my invention to provide an attractive shelter of the type described which affords suitable protection from the sun and which is not susceptible to being destroyed by high winds.

Another object of the invention is to provide a structure of the type described which can be constructed economically without sacrificing its attractiveness while increasing its structural stability and resistance to wind.

A further object of the invention is to provide a wrought iron and fiberglass shelter having a gabled roof, a ventilated ridge girder and ventilated gables.

A still further object of the invention is to provide end gables for a gabled-roof type shelter which have sufficient bracing, are attractive, offer increased ventilation and which carry the ends of a ridge girder.

Another object of the invention is to provide a shelter employing corrugated roofing with rafters and purlins which collect water leaking past the joints formed by overlapping corrugations of adjacent sheets and which offer increased resistance to wind and other loads over conventional rafters and purlins.

Another object of the invention is to provide an improved ridge girder of the open, box type which is attractive, has great strength and which provides a support for a superjacent secondary roof.

With these and other objects in view, the invention comprises certain novel features of construction, as will

be more fully described and particularly pointed out in the appended claim.

The invention will be more readily understood from a reading of the following specification and by reference to the accompanying drawings, wherein:

FIGURE 1 is a partial elevational view of my improved wind resistant, ventilated structure;

FIGURE 2 is a sectional view taken along line 2—2 of FIGURE 1;

FIGURE 3 is a perspective view of one end portion of the ridge girder;

FIGURE 4 is a sectional view taken along line 4—4 of FIGURE 6;

FIGURE 5 is a sectional view taken along line 5—5 of FIGURE 4;

FIGURE 6 is a plan view, with parts broken away, of certain details of construction of the structure of FIGURE 1; and

FIGURE 7 is a cross-sectional view taken along line 7—7 of FIGURE 6.

Referring to the drawings, a ventilated shelter **10** comprises primary roof sections **12**, secondary roof sections **14**, a substantially open, longitudinally extending, box-type ridge girder **16**, substantially open end gables **18**, rectangular end valances **20**, rectangular side valances **22**, rafters **23** and purlins **24**. A plurality of posts **25** support the shelter **10**.

The ridge girder **16** comprises spaced, longitudinally extending lower primary rails **26** and spaced, longitudinally extending upper primary rails **28**. The primary rails may be constructed in any suitable manner and are shown for purposes of illustration as inner angle irons **30** and outer angle irons **32** rigidly affixed together in back-to-back relation, as shown in FIGURE 3. A plurality of upstanding, rectangular supports **34** are affixed at their ends to the upper, primary rails **28**. Longitudinal secondary rails **36** are affixed to the upper ends of the upstanding supports **34**. The secondary roof **14** may be attached to the secondary rails **36**. The lower primary rails **26** are maintained in spaced relation by short lengths of angle iron **37** which may be rigidly affixed to the upper surface of the horizontal lip or leg of the inner angle iron **30**. A plurality of scrolls **38** and struts **39** are attached to the ridge girder **16** between the rails **26** and **28** to enhance the appearance of the girder **16** and to strengthen it without materially limiting the free passage of hot air and wind therethrough. Such hot air and wind then passes through the space between the primary roof **12** and the secondary roof **14**. In practice, it has been noted that hot air escaping through this space creates a mild draft which makes the area beneath the shelter **10** much cooler than the area beneath conventional shelters.

The rectangular valances **20** and **22** include upper and lower horizontal members **46** and **48**. The horizontal members **46** and **48** may be fabricated of inner angle irons **50** and outer angle irons **51** rigidly affixed together in back-to-back relation. The vertical lips or legs **52***a* and **52***b* of the angle irons **50** and **51**, respectively, define the inner perimeters of the valances **20** and **22** and the horizontal lips or legs **54***b* of the outer angle irons **51** define the outer perimeters of the valances **20** and **22**. The ends of the valances **20** and **22** are joined together by removing the equivalent of one width of the horizontal leg **54***a* of the side valances **22** from the horizontal legs **54***a* and **54***b* at the ends of valances **20**. Horizontal legs **54***a* of the side valances **22** may then be welded to the ends of valances **20** in place of the removed material. A plurality of scrolls **56** and struts **58** may be rigidly affixed to the edges of the vertical legs **52***a* and **52***b* of the horizontal members **46** and **48** to impart rigidity to the valances **20** and **22** without detracting from their attrac-

tiveness. If desired, the appearance of the valances **20** and **22** may be further enhanced by placing colored, translucent panels **60** behind the scrolls **56** and within the perimeter defined by the inner faces **62** of the horizontal legs **54***b* of the inner angle irons **50**. The panels **60** may be secured in any suitable manner, not shown, to the vertical legs **52***a* of the inner angle irons **50**. Of course it is obvious that the translucent panels **60** may be placed in front of the scrolls **56** by attaching them to the vertical legs **52***b* of the outer angle irons **51**.

The end gables include vertical legs **67** which are rigidly affixed, in spaced relation to each other, to the upper horizontal members **46** of the end valances **20**. A sloping member **68** is rigidly affixed at one end to the upper end of each leg **67** and at the other end to the horizontal members **46**. A plurality of scrolls **56***a* and struts **58***a*, similar to, and serving the same functions as, the scrolls **56** and struts **58**, are rigidly affixed to the sloping member **68** and the horizontal member **46**. The scrolls **56***a* are not covered so that high winds and heat may pass freely through the gables **18**.

Saddles **70** are formed by the inner sides of the vertical legs **67** and the upper surface of the portions of the horizontal members **46** lying between the legs **67**. The saddles **70** receive the ends of the ridge girder **16**. As shown in FIGURE 3, extensions **72** of the lower primary rails **26** have their horizontal legs rigidly affixed to the horizontal members **46** and their vertical legs rigidly affixed to the lower portions of legs **67**. The extensions **72** of the upper primary rails **28** have their horizontal legs rigidly affixed to the lower ends of supports **34** and their vertical legs rigidly affixed to the upper portions of the legs **67**. This not only firmly anchors the ridge girder **16**, but reinforces it against skewing or twisting. Additional gables **18** and valances **20** may be affixed to posts **25** which are set on suitable centers, such as 20 feet, within an extra long shelter, as shown at **18***a* and **20***b* in FIGURE 2.

As shown in FIGURES 4 and 6, the rafters **23** are substantially V-shaped in cross section with integral flanges **74** sloping outwardly and upwardly from the top of each leg of the V. The rafters **23** have one end attached to the ridge girder **16** and the other end to the side valances **22**. The rafters **23** may be affixed to the ridge girder **16** by welding the upper surface of flanges **74** to the underside of the horizontal leg of the outer angle iron **32** of the upper primary rail **28**, as shown in FIGURE 7. The rafters **23** may be affixed to the side valances **22** by welding the upper surface of flanges **74** to the underside of the horizontal legs **54***a* of the inner angle irons **50**.

As shown in FIGURE 5, the purlins **24** are also V-shaped with flanges **76** extending outwardly from the top of each leg of the V. The purlins **24** are placed normal to the rafters **23** and are rigidly held in place by welding the upper surface of flanges **76** to the underside of flanges **74**. The ends of the purlins **24** may be cut on an angle as shown at **78** in FIGURE 4 so that they will fit the slope of the legs of the V-shaped rafter **23** to make a more rigid and neater appearing roof structure.

The primary roof sections **12** may be made of any suitable material, such as colored, translucent corrugated fiberglass sheets **80**. As will be noted in FIGURE 4, each sheet **80** has relatively flat ridges **82** and shallow valleys **84**. Adjacent sheets **80** are usually lapped to form a joint

86 having an edge **88***a* exposed to driving rain which may flow under edge **88***a* and past the edge **88***b*. The rafters **23** are spaced so that the joints or sections **86** are centered over the widest part of the V. This arrangement places the edges **88***a* and **88***b* of the section **86** over the sloping flanges **74** so that any water leaking past the edge **88***b* will collect in the trough of the V-shaped rafter **23**. Water which collects in the rafters will either flow by gravity with the slope of the roof and drain out the end of the rafters or evaporate therefrom.

It will be seen that I have invented a new and useful shelter of the type described which is attractive, is not likely to be damaged by high winds, employs a ventilated roof structure and employs rafters designed to collect water which may leak through the roof at overlapping corrugations.

I claim:

In a ventilated structure having first and second primary corrugated roof sections and a secondary corrugated roof section superjacent said primary roof sections, an improved frame for supporting said roof sections in such a manner that air currents will be induced to flow from the interior of said structure to the exterior thereof comprising:

a pair of substantially open end gables;

an open-ended ridge girder having an end connected to each gable, said girder including first and second upper rails and first and second lower rails, a first set of horizontal members connecting said upper rails together in spaced relation, a second set of horizontal members connecting said lower rails together in spaced relation, a first set of vertical members connecting said first upper and lower rails together in spaced relation and a second set of vertical members connecting said second upper and lower rails together in spaced relation;

first and second pluralities of V-shaped rafters having one end connected to said first and second upper rails, respectively, said rafters being spaced along said upper rails between said gables for supporting said first and second primary roof sections, respectively, in such a manner that air currents are free to flow from the interior of said structure to the exterior thereof through said girder;

means supporting the other ends of said V-shaped rafters; and

framing means attached to the upper side of said girder for supporting said secondary roof section in spaced relation above said primary roof sections.

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