Feb. 19, 1952 F. W. HUGHES 2,586,337

RIGID AWNING

Filed May 6, 1948 3 Sheets-Sheet 1

Fig. 1.

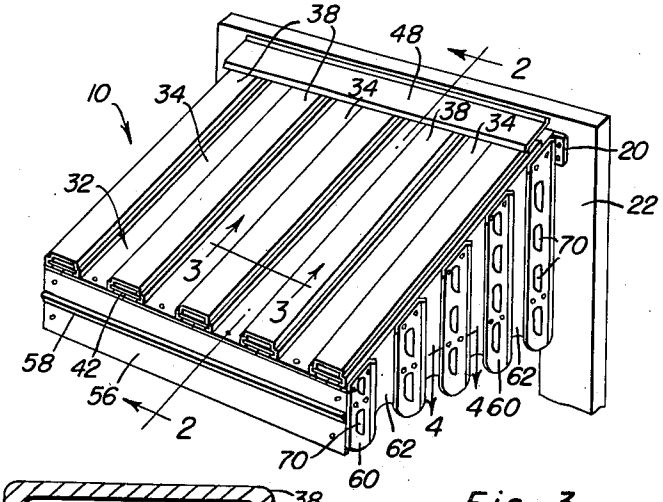


Fig. 3.

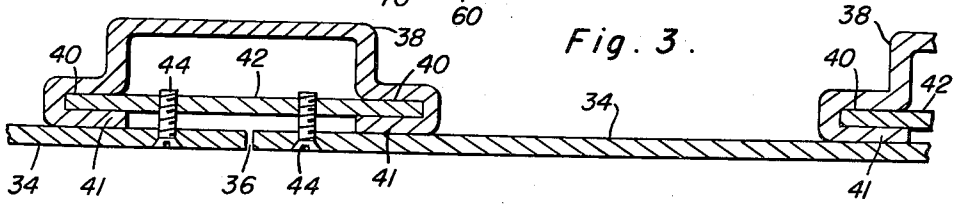


Fig. 4.

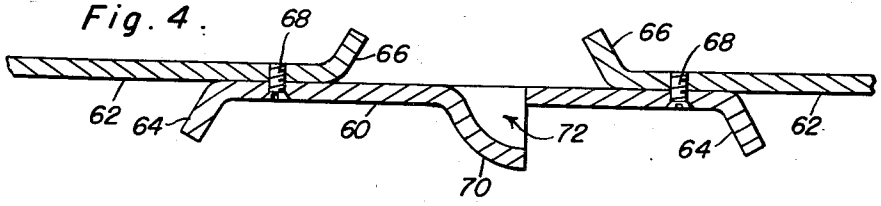
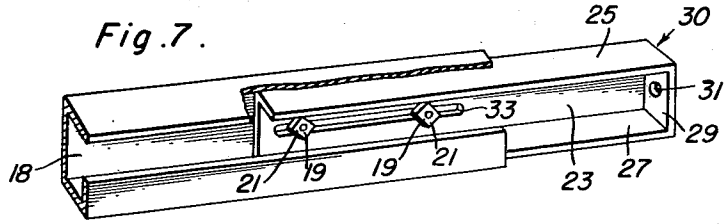


Fig. 7.



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Feb. 19, 1952 F. W. HUGHES 2,586,337

RIGID AWNING

Filed May 6, 1948 3 Sheets-Sheet 2

Fig. 2.

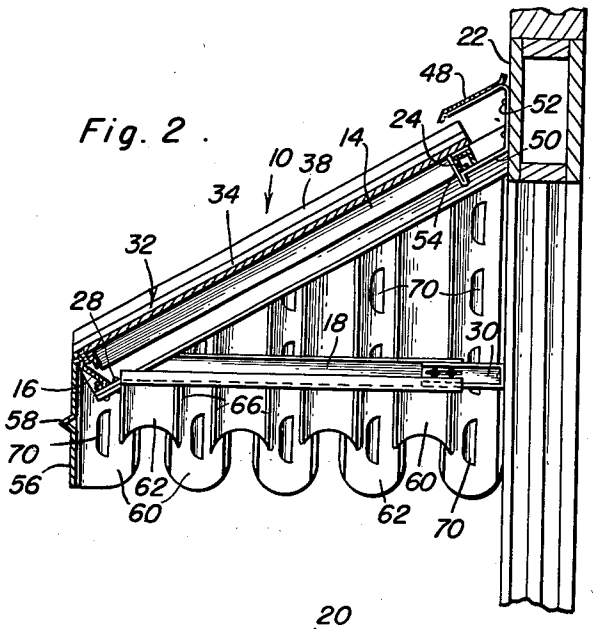


Fig. 5.

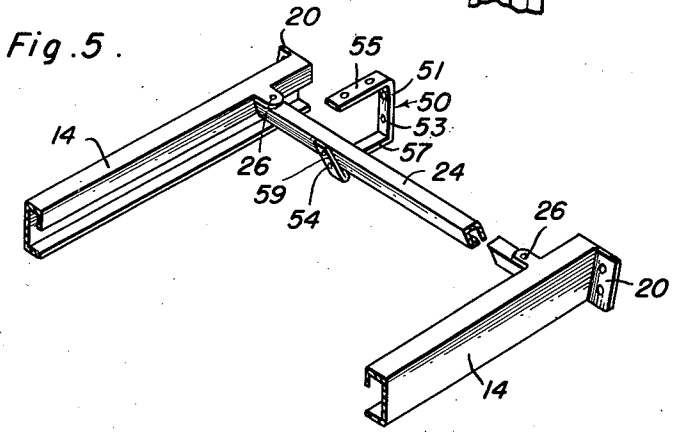
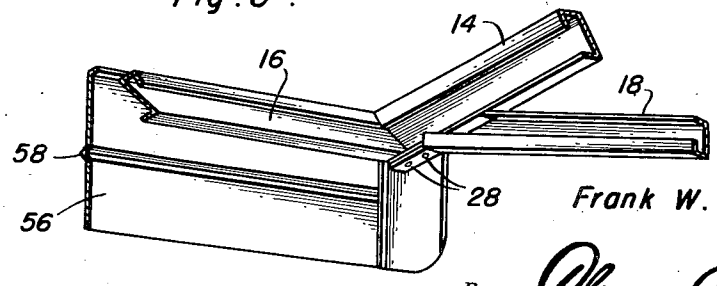


Fig. 6.



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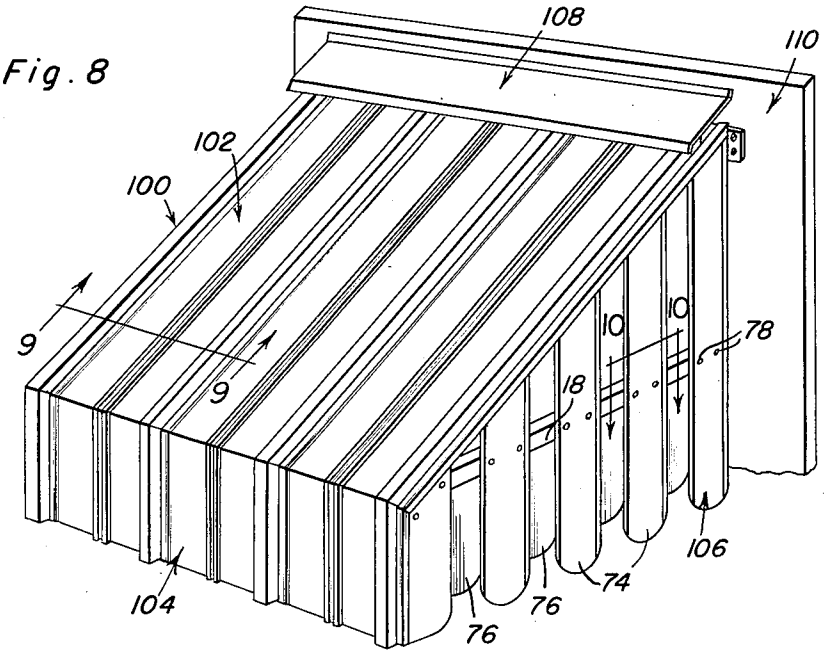
RIGID AWNING

Filed May 6, 1948 3 Sheets-Sheet 3

Fig. 8



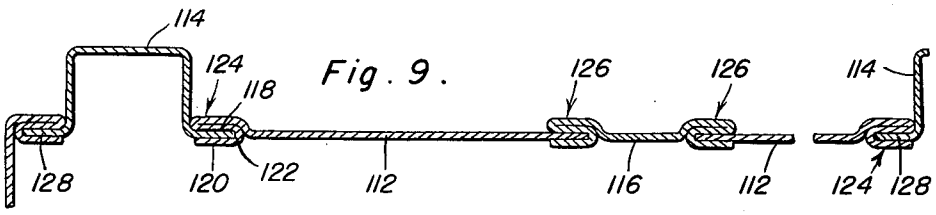
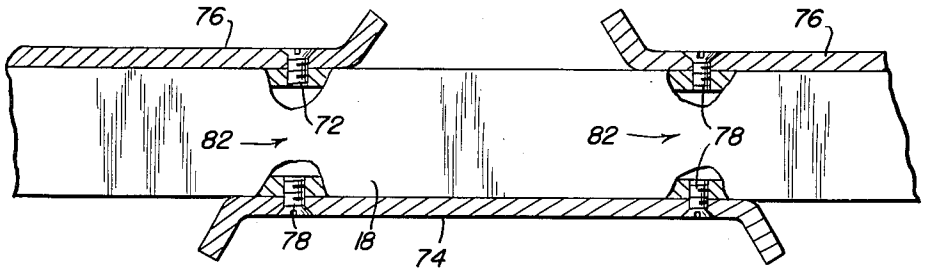


Fig. 9.

Fig. 10.



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Patented Feb. 19, 1952

2,586,337

UNITED STATES PATENT OFFICE

2,586,337

RIGID AWNING

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Application May 6, 1948, Serial No. 25,410

12 Claims. (Cl. 20—57.5)

1

This invention relates to new and useful improvements and structural refinements in rigid awnings, more specifically, awnings fabricated from metallic material, and the principal object of the invention is to combine the advantages of protection against adverse weather conditions with the advantages of ample and efficient ventilation through the structure of the awning itself.

Another very important object of this invention is to provide an article of such construction as to be capable of ready assembly into rigid awnings of various sizes and proportions from relatively light weight, compact and inexpensive standard elements.

A still further important object is to provide an awning structure which is adapted for quick and satisfactory assembly and installation by unskilled labor and with a minimum expenditure of time and effort.

These objects are achieved by the provision of strips or straps of material arranged so as to lend the desired configuration to the awning structure and disposed in spaced overlapped relation in order to provide air slots or openings.

An important feature of the invention resides in its pleasing appearance and in its simple, fabricated construction, which enables the awning to be erected, in size as well as in shape, so as to suit the particular window, door, or the like, which is to be protected.

An additional feature of the invention resides in providing an awning structure which will not easily become damaged and which will readily lend itself to economical manufacture.

A further feature of the invention includes the fabrication of a rigid awning, from a relatively few standard interchangeable units, each of simple and compact construction adapted for minimum cost and ease of transportation and manipulation during assembly.

Another feature resides in the provision of ornamental strips to relieve the flat appearance of the article and constitute strengthening and reinforcement elements, which are applied thereto in a novel, simple and advantageous manner.

With the above more important objects and features in view and such other objects and features as may become apparent as this specification proceeds, the invention consists essentially of the arrangement and construction of parts as illustrated in the accompanying drawings, in which:

Figure 1 is a perspective view of one embodiment of the principles of the invention, shown in situ upon a window frame;

2

Figure 2 is a cross sectional view, taken substantially in the vertical plane through the section line 2—2 of Figure 1;

Figure 3 is a cross sectional detail view, taken substantially in the transverse, vertical plane of the section line 3—3 of Figure 1;

Figure 4 is a cross sectional detail view, taken substantially in the horizontal plane of the section line 4—4 in Figure 1;

Figure 5 is a fragmentary perspective view of rafter members forming part of the framework for the invention;

Figure 6 is a fragmentary perspective view showing the interior of the lower left-hand corner portion of the subject shown in Figure 1;

Figure 7 is a fragmentary perspective view, parts being broken away, of one of the adjustable side members of the awning supporting frame;

Figure 8 is a perspective view of another embodiment of the principles of the invention;

Figure 9 is a cross-sectional detail view taken substantially upon the transverse vertical plane of the section line 9—9 of Figure 8; and

Figure 10 is a cross-sectional detail view, taken substantially upon the horizontal plane of the section line 10—10 of Figure 8 through one of the end walls of the awning.

Like characters of reference are employed to designate like parts in the specification and throughout the several views.

Referring now to the accompanying drawings in detail, and to the embodiment of Figures 1–7 in particular, the invention consists of a rigid, all-metal awning preferably of sheet aluminum, designated generally by the reference character 10, the same embodying in its construction a fabricated framework assembly which includes a pair of channel-shaped inclined roof members or rafters 14, a front frame member 16 which is preferably Z-shaped in cross-section and a pair of channel-shaped, horizontally extensible side members 18.

It is to be noted that the roof members or rafters 14 are, as is best shown in Figures 5 and 6, disposed in a spaced parallel relation at the sides of the awning roof, being provided at their upper ends with out-turned ears 20 whereby they may be readily and rigidly secured to any suitable supporting surface, such as the frame 22 of a window, door or the like, which is to be protected by the awning.

The aforementioned front frame member 16,

see Figure 6, connects together the lower ends of the roof members 14, while for purposes of reinforcement, a cross member 24, see Figure 5, is detachably secured to the roof members 14 as at 26 adjacent but spaced inwardly of their elevated extremities, as will be clearly apparent. If desired, cross members 16 and 24 may be of longitudinally extensible construction, similar to frame members 18, as set forth hereinafter.

The forward end portions of the side members 18 are welded, bolted, or otherwise suitably secured as at 28 to the lower end portions of the roof members 14, inwardly from their lower extremities, while the rear ends of the side members 18 are secured by suitable brackets 30 to the window frame 22.

By means of the brackets 30, and the associated construction, the side members are rendered longitudinally extensible. As seen best in Figure 7, the side wall of member 18 is provided with bolts 19 extending into the interior of the channel, to which nuts 21 are secured. The heads of bolts 19, not shown, as well as the heads of any of the other fastening bolts, may of course be countersunk to provide a smooth surface to the awning. The bracket 30 has a vertical wall 23 and integral top and bottom walls 25 and 27 and an end wall 29 having an aperture 31 for securing the bracket to a support surface. The walls 23, 25, 27 are adapted to slidably engage the inner surfaces of the channel members 18, and a slot 33 in the wall 23 slidingly receives the bolts 19 whereby the member 18 is retained securely upon but is adjustable longitudinally of the bracket 30. This construction enables the side frame members to be adapted to inequalities in the various inequalities so often found in the vertical surfaces to which awnings are attached.

An important feature of novelty in the invention resides in the provision of a fabricated covering for the awning framework, this including a fabricated, pre-formed roof panel 32 carried by the inclined roof members 14, the construction of the panel 32 now being described.

The panel 32 consists of a plurality of spaced parallel straps or sheets 34 secured to the aforementioned members 24 and 16, the straps 34 abutting each other to form a series of spaced parallel joints 36, one of which has been shown, greatly exaggerated, in Figure 3.

Alternatively, an integral sheet of material may be employed in place of several of the straps 34, such sheets being placed in edgewise abutting engagement at the joints 36, as will be clearly understood.

In any event, a plurality of inverted, open-ended channels 38 are included in the structure of the roof panel 32, each of these channels covering one of the joints 36 and each channel being formed at the longitudinal edges thereof with spaced, doubled portions defining interior grooves 40 which are disposed laterally from the interior walls of the channels 38, and inturned flanges 41.

Suitable retaining clips 42, assuming the form of short straps or plates of rigid character, are slidably receivable in the grooves 40 of each of the channels 38, the clips 42 being secured by suitable bolts or screws 44 to the straps 34 and bridging the joints 36, to thereby clamp the flanges 41 of the channels 38 to the straps 34, as is best illustrated in Figure 3.

It will be apparent that in this manner the channels 38 are effectively retained in position,

being easily inserted or removed by merely loosening the screws 44.

It should be here recognized that this channel and clip construction serves three distinct functions. The foremost is the provision of an easily applied or removed fastening means for firmly uniting the various sheet metal elements 34 of the awning, thereby facilitating the assembling or the taking down of the device by a workman on a ladder, as well as the convenient transportation and storage of its components. A second function is the provision of reinforcing members to render the sheet metal awning stronger and more rigid in its entirety, enabling the thin sheet metal parts to be serviceably and satisfactorily employed in relatively large awnings without danger of damage from their own weight, size or exterior forces such as wind, snow or the like. Finally, the channels provide a pleasing ornamental finish or embellishment, since they may be appropriately colored to form ornamental effects, break up the flat appearance of the roof to form a corrugated effect, serve as rain channels and the like.

Rain, or the like, is prevented from gaining access into the interior of the channel members 38 whose upper ends rest and terminate on the cross bar 24, by means of a deflector plate 48 which extends transversely of the panel 32 and covers the upper, open ends of the channel 38, and the space between the cross member 24 and the awning supporting surface 22, the plate 48 being carried by suitable brackets 50, secured to the awning supporting surface, as the window frame 22 as at 52 and also detachably secured to the aforementioned cross member 24 as at 54.

The space between the ends of the straps 34, the cross member 24 and the support surface 22 is provided to permit the escape of the heated air rising up the inclined under surface of the roof panel 32, to thus effect a circulation of air with a resultant cooling and better ventilation of the space beneath the awning.

The bracket 50 includes an intermediate, vertical portion 51, apertured at 53 to receive the supporting fasteners 52, and substantially parallel, sloping upper and lower apertured arms 55 and 57, the former carrying the deflector plate or rain shield 48. The arm 57 is terminally upturned as at 59 and supports the cross member 24, which is secured thereto as at 54.

A downwardly extending flap or strip 56 is provided at the front edge of the awning (being secured to the front member 16) and the flap 56 may be formed with a peaked bead 58 for purposes of ornamentation and stiffening.

A set of louvre strips 60, 62 is provided at each end of the awning to form the sides thereof, these louvre strips being secured to the side faces of the framework members 14, 18 and, for purposes of ornamentation, being provided with laterally angulated, vertical edge portions 64, 66, respectively.

It is to be noted that louvre strips 60, 62 are disposed at and mounted on the outer side or face of the members 14, 18, and that they are arranged in a staggered, butt-lapped formation, being secured together and to members 14 and 18 by means of suitable screws 68 to form end panels.

Moreover, the louvre strips 60, that is, the alternate strips in the sets are formed with struck-out portions 70 providing air openings 72 for purposes of ventilation.

Alternatively, the louvre strips may be ar-

ranged on opposite sides of and individually attached to members 14 and 18 as shown in the accompanying Figure 10, representing a modified end panel construction of the invention.

In this modified embodiment, the louvre strips 74, 76, corresponding to the aforementioned strips 60, 62, respectively, are disposed in a spaced, staggered and overlapped formation, alternately at the inner and outer sides of the members 14, 18 of the framework, to which they are secured by suitable screws 78, the adjacent surfaces of strips 74 and 76 being thus spaced from each other instead of in the butt-lapped assembly of members 60 and 62 in Figure 4.

The disposition of the strips 74, 76 at the inner and outer sides or faces of the members 14, 18 results in the provision of air passages 82 between the louvre strips, as will be clearly apparent, thus obviating the need for louvred openings corresponding to the openings 72.

The hereinbefore described construction has particular utility for ease of installation or transportation as well as the requirements for unusual sizes of awnings are present. However, in certain instances where these considerations are less critical a more completely prefabricated construction, such as that disclosed in Figures 8–10 may be deemed to be preferable.

In this arrangement, the awning 100, including a roof panel 102, front flap 104, side panels 106 and a rain shield 108 is mounted upon a supporting surface 110 by the same supporting framework as in the preceding embodiment. Either of the end panel constructions of Figures 4 and 10 may be employed, the latter being illustrated in Figure 8.

The roof panel 102 is preferably of a rigid, permanently united construction, consisting of a plurality of flat strips 112 and channel members 114 together with connector strips 116, united by a conventional joint well known in the sheet metal art as a "Pittsburgh seam." Thus one edge of each strip 112 is folded back on itself as at 118 and terminates in a refolded flange 120 providing a groove or channel 122 with the fold 118 forming a seam joint 124. Similar seam joints 126 are provided on both edges of the connector strips 116. As will be readily understood, the unformed edges of the members 112 and the lateral base flanges 128 of the channel members 114 are received in the grooves or channels 122 and being secured by compressing in any suitable manner the folds 118 and 120.

When once assembled, the components of the roof panel 102 thus form a rigid, permanently united sheet. However, the channel members 114 possess the same advantages and have the same three functions as accrue to the corresponding elements 38 of the previously described embodiment. Moreover, the connector strips 116 likewise partake of these functions.

In this embodiment, the front flap 104 is fabricated in the same manner as the top panel 102, with its channels and strips in effect registering with and forming a continuation of the corresponding elements of the roof panel. In fact, if desired, the flap 104 may comprise an integral part of the roof panel.

It should be especially noted that the coloration and architectural effect imparted to this awning by the channels 38 or 114 and the connector strips 116 may be harmonized with the strips of other adjacent awnings or other architectural features of a house by selecting the appropriate coloration for the channels and strips and by cutting or forming them with the requisite widths during the construction or their assembly and installation.

It is believed that the advantages and use of the invention will be clearly understood from the foregoing disclosure, and, accordingly, further description thereof at this point is deemed unnecessary.

While in the foregoing there has been shown and described the preferred embodiment of this invention, it is to be understood that minor changes in the details of construction, combination and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as claimed.

Having described the invention, what is claimed as new is:

1. In a rigid metal awning a multi-sectional rigid panel comprising a set of flat elongated straps disposed in side by side relation forming joints therebetween, a second set of elongated straps extending longitudinally of and overlying said joints, each of the straps of said second set having downwardly extending portions at its longitudinal edges, said portions resting upon the surfaces of the adjacent parts of juxtaposed straps of said first set, said portions having longitudinally extending recesses in their inner sides, a clamp for each strap of the second set having its side edges received in the recesses, said clamp being rigidly secured to both of said juxtaposed straps, said clamps having its side edges spaced from said first set of straps, and comprising a flat plate.

2. In a rigid metal awning, a multi-sectional sheet metal panel comprising a set of elongated straps in side by side relation forming joints, a set of elongated channel members disposed longitudinally of and overlying said joints, each channel member having a web spaced above said joint and side walls, each side wall having an inturned flange on the lower end, said flanges abutting and resting upon the adjacent portions of a pair of juxtaposed straps, a longitudinal groove in the inner surface of each side wall, a fastener having side portions slidable in the grooves of each channel member, means adjustably and non-slidably securing said fastener to said adjacent portions of juxtaposed straps and clamping said flanges to said straps.

3. The combination of claim 2 wherein said fastener comprises a flat plate.

4. The combination of claim 2 wherein said side walls have an outturned flange coextensive and parallel with said inturned flange, said flanges forming said grooves.

5. In a rigid metal awning, a multi-sectional sheet metal panel comprising a set of elongated straps in side by side relation forming joints, a set of elongated channel members disposed longitudinally of and overlying said joints, each channel member having a web spaced above said joint and side walls, each side wall having an inturned flange on its lower end, said flanges abutting and resting upon the adjacent portions of a pair of juxtaposed straps, a fastener having side portions slidable in the grooves of each channel member, means adjustably and non-slidably securing said fastener to said adjacent portions of juxtaposed straps and clamping said flanges to said straps.

6. In a rigid metal awning, a multi-sectional sheet metal panel comprising a set of elongated straps in side by side relation forming joints, a set of elongated channel members disposed longi-

tudinally of and overlying said joints, each channel member having a web spaced above said joint and side walls, each side wall having an inturned flange on its lower end, said flanges abutting and resting upon the adjacent portions of a pair of juxtaposed straps, a longitudinal groove in the inner surface of each side wall, a fastener having side portions slidable in the grooves of each channel member, means adjustably and non-slidably securing said fastener to said adjacent portions of juxtaposed straps and clamping said flanges to said straps, said channel members being open at their ends to form an air passage.

7. In a rigid metal awning, a multi-sectional sheet metal panel comprising a set of elongated straps in side by side relation forming joints, a set of elongated channel members disposed longitudinally of and overlying said joints, each channel member having a web spaced above said joint and side walls, each side wall having an inturned flange on its lower end, said flanges abutting and resting upon the adjacent portions of a pair of juxtaposed straps, a fastener having side portions slidable in the grooves of each channel member, means adjustably and non-slidably securing said fastener to said adjacent portions of juxtaposed straps and clamping said flanges to said straps, said channel members being open at their ends to form an air passage.

8. A rigid metal awning including a multi-sectional rigid panel composed of a plurality of parallel elongated straps disposed in edgewise side by side relation with their adjacent edges coplanar and forming joints therebetween, a channel member extending longitudinally of and overlying each of said joints and resting upon the surfaces of adjacent straps, fastening means supported by and spaced from juxtaposed portions of adjacent straps housed within and secured to said channel member, said channel members being open at their ends to form an air passage.

9. In a rigid metal awning, a roof panel, a supporting framework for said roof panel comprising a pair of relatively inclined side rails, one of said side rails including slidingly telescoping members, one member consisting of a box girder of rectangular cross section having a longitudinal opening on one side, the other member comprising a channel member slidable in said box girder, means for securing the telescoping members in adjusted position.

10. In a rigid metal awning, a roof panel, a supporting framework for said roof panel comprising a pair of relatively inclined side rails, one of said side rails including slidingly telescoping members, one member consisting of a box girder of rectangular cross section having a longitudinal opening on one side, the other member comprising a channel member slidable in said box girder, means for securing the telescoping members in adjusted position, said last means comprising a longitudinal slot in said channel member, bolts carried by one wall of said box girder and extending through said slot, said longitudinal opening registering with said bolts.

11. In a rigid metal awning, a roof panel, a supporting framework for said roof panel, side panels mounted on said framework, said side panels each comprising spaced side bars, a plurality of vertically disposed slats carried by said bars, said slats being in two rows in back to back arrangement with the slats of one row overlapping and staggered with respect to those of the other row, the edges of the slats of each row being turned outwardly from those of the other row and being acutely angled with respect to the slats.

12. In a rigid metal awning, a roof panel, a supporting framework for said roof panel, side panels mounted on said framework, said side panels each comprising spaced side bars, a plurality of vertically disposed slots carried by said bars, said slats being in two rows in back to back arrangement with the slats of one row overlapping and staggered with respect to those of the other row, the edges of the slats of each row being turned outwardly and from those of the other row and being acutely angled with respect to the slats, said rows of slats being on opposite sides of said side bars.

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