June 21, 1955 O. E. STELZER 2,710,995

AWNING CONSTRUCTION

Filed April 6, 1954 2 Sheets-Sheet 1

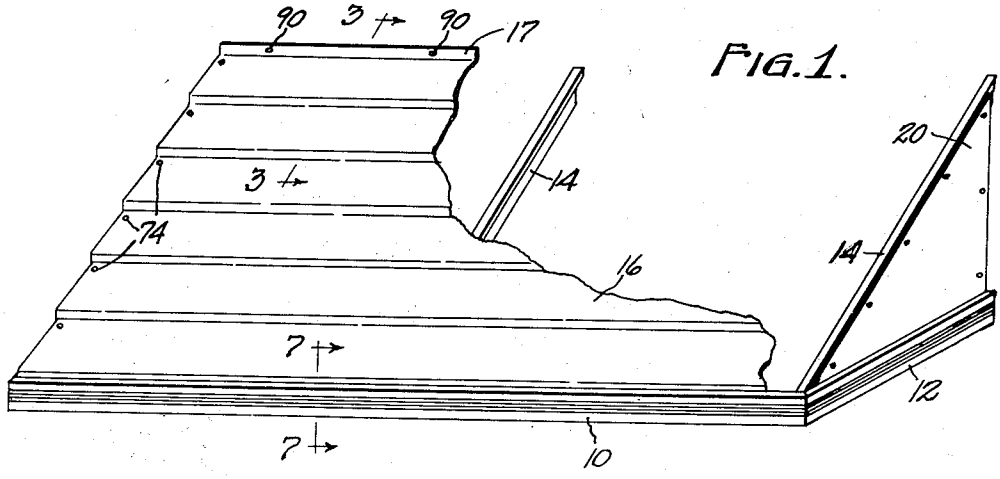


FIG. 1.

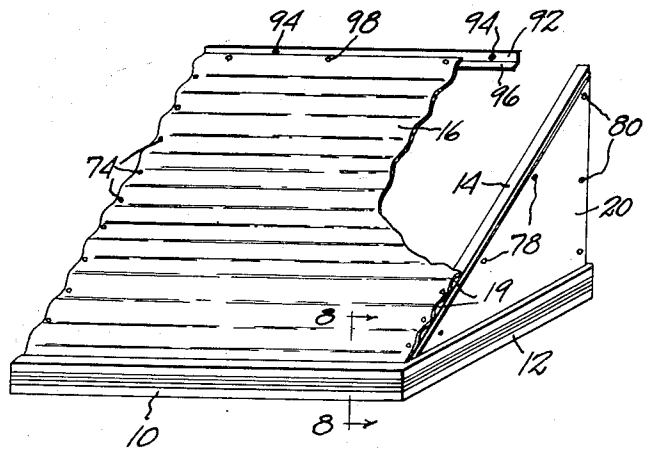


FIG. 2.

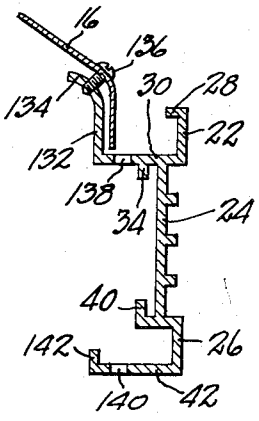


FIG. 11.

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AWNING CONSTRUCTION

Filed April 6, 1954 2 Sheets-Sheet 2

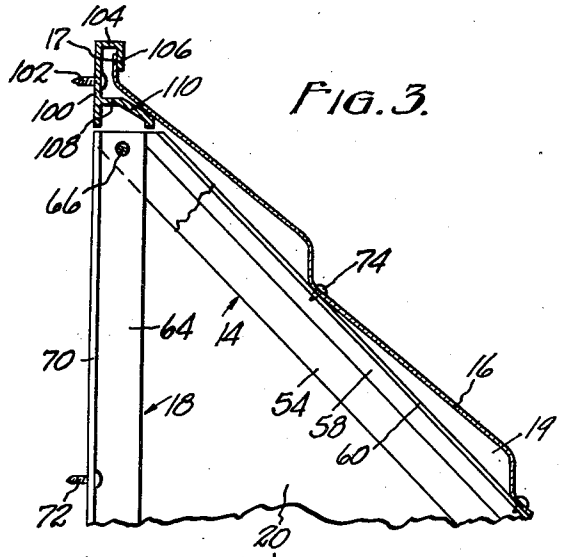


FIG. 3.

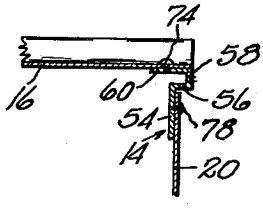


FIG. 9.

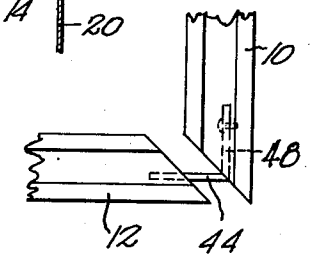


FIG. 10.

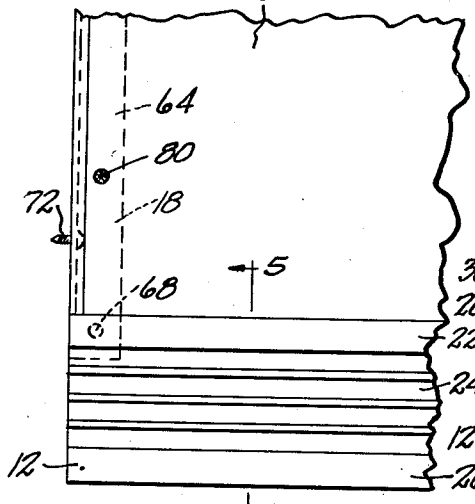


FIG. 4.

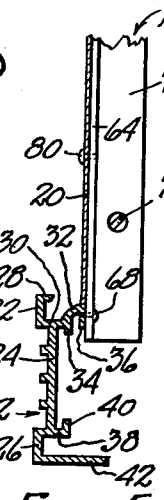


FIG. 5.

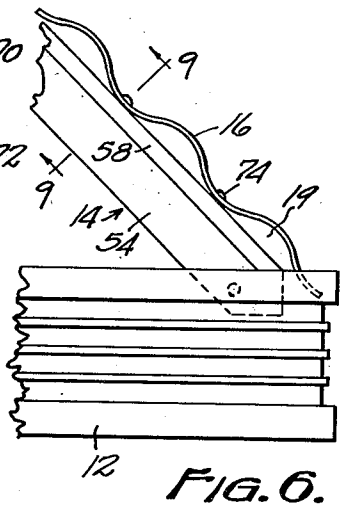


FIG. 6.

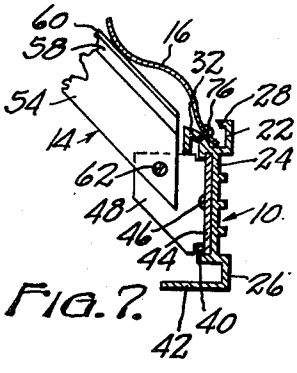


FIG. 7.

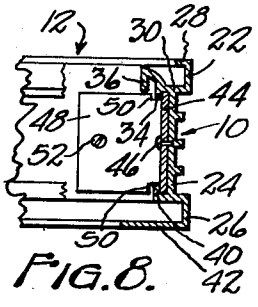


FIG. 8.

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AWNING CONSTRUCTION

Otto E. Stelzer, German Township, St. Joseph County, Ind.

Application April 6, 1954, Serial No. 421,258

10 Claims. (Cl. 20—57.5)

This invention relates to awning constructions, and more particularly to an awning construction formed of rigid and strong material, such as metal and fiber glass, which is adapted to be attached permanently to a building.

The primary object of this invention is to provide an awning of this construction which is light in weight, strong to resist wind damage, which is formed of strong and wear resistant materials, which provides ventilation to prevent heat entrapment therein, which is attractive in appearance, and which is easily and quickly fabricated and mounted.

A further object is to provide an awning of rigid construction which may be prefabricated as a unit and which may be mounted upon a supporting wall by means of a fitting or bracket with which the awning has a releasable supporting hooked connection.

A further object is to provide an awning of this character having a frame formed from a plurality of parts and in which some of the parts have interlocking engagement to facilitate accurate location and positioning of parts relative to each other.

A further object is to provide a device of this character having a frame formed of a plurality of parts, including preassembled end panels and novel brackets for connecting a main panel and main panel-supporting frame piece to said preassembled end members to complete the awning.

A further object is to provide a device of this character having a frame member of novel shape adapted to be assembled with like members and providing means for fixed connection of frame parts and panels thereto, and also providing for an interlocking relation between the same and the panels.

Other objects will be apparent from the following specification.

In the drawings:

Fig. 1 is a perspective view of one embodiment of the invention with parts broken away;

Fig. 2 is a perspective view of another embodiment of the invention;

Fig. 3 is an enlarged fragmentary vertical detail sectional view taken on line 3—3 of Fig. 1;

Fig. 4 is a fragmentary side elevational view of an awning illustrating the lower rear portion thereof;

Fig. 5 is a fragmentary vertical sectional view taken on line 5—5 of Fig. 4;

Fig. 6 is a fragmentary side elevational view illustrating the lower front portion of the structure, with end panels omitted;

Fig. 7 is a fragmentary enlarged detail vertical sectional view taken on line 7—7 of Fig. 1;

Fig. 8 is an enlarged vertical sectional fragmentary view taken on line 8—8 of Fig. 2;

Fig. 9 is a fragmentary detail sectional view taken on line 9—9 of Fig. 6, showing an end panel;

Fig. 10 is a fragmentary top plan view illustrating

the manner in which front and side frame members are interconnected; and

Fig. 11 is a fragmentary vertical sectional view taken on line 8—8 of Fig. 2, and illustrating another modified embodiment of the invention.

Referring to the drawings which illustrate the preferred embodiments of the invention, the numeral 10 designates a front frame member, and the numeral 12 designates side frame members. Inclined frame members 14 extend rearwardly and upwardly from the frame member 10 and cooperate therewith to support an inclined main awning panel 16. Upright frame members 18 may connect the end frame members 12 and the upper ends of the inclined end frame members 14 and provide for attachment of the awning structure to a building. End panels 20 may be supported by the members 12, 14 and 18, if desired.

The frame members 10 and 12 are preferably of configured cross-section and preferably are of similar or identical cross-sectional shape. Each has a front or outer wall comprising an upper portion 22, an intermediate preferably inset portion 24, and a lower portion 26. A rearwardly projecting lip 28 is formed at the upper end of the upper portion 22. A substantially horizontal portion 30 is formed at the junction between the parts 22 and 24 and preferably projects rearwardly therefrom and merges with an upwardly rearwardly extending portion 32 which is preferably curved. A lip portion 34 depends from part 30 in rearwardly spaced relation to the central portion 24. A downwardly projecting flange 36 is spaced from the lip 34 and projects at the outer end of the curved portion 32. A horizontal portion 38 projects rearwardly from the junction of the parts 24 and 26 and extends rearwardly from the part 24 to terminate in an upturned lip 40 spaced from the portion 24. A bottom flange 42 extends horizontally from the bottom edge of the lower wall portion 26. The members 10 and 12 are preferably formed of metal, such as aluminum. The parts 32, 34, 36 and 40 are located inwardly relative to the outer wall and are normally substantially concealed.

The members 10 and 12 are preferably mitered as illustrated in Fig. 10 so that their mitered edges abut to form the corner portions of the frame. An angle member serves to interconnect the members 10 and 12. Thus as best illustrated in Figs. 8 and 10 the angle unit has one plate portion 44 of a width substantially equal to the spacing between the parts 30 and 38, and of a width to fit snugly between the plate portion 24 and the lips 34 and 40. This plate may be anchored in fixed position and against sliding in the guides defined by the parts 34 and 40 by a screw or other securing member 46 passing therethrough and anchored in the member 10. The other plate 48 of the angle member is preferably notched at 50 to fit around the lips 34 and 40 and into face engagement with the part 24 of the adjacent frame member 12 for anchorage behind the members 34 and 40 thereof. A securing screw 52 or other securing means is anchored to the member 12 after the two members 10 and 12 have been drawn together with their mitered edges in abutment. Thus it will be apparent that the angle member or bracket, which may be formed of either ferrous or non-ferrous metal or of other material such as plastic, serves effectively to hold together the frame parts 10 and 12 by a combined interlocking action therewith and also by the use of releasable securing members serving principally as means to locate the angle bracket and prevent sliding or displacement thereof relative to the frame members 10 and 12.

The inclined frame members 14 may be of any cross-sectional shape found suitable, such as an angle member,

although I prefer to employ members of the cross-sectional shape illustrated in Fig. 9, wherein one flange or wall portion **54** has a narrow flange **56** extending perpendicularly therefrom in one direction and carrying a flange portion **58** substantially parallel to the flange **54** but offset therefrom and terminating in a flange **60** spaced from and parallel to the flange **56** and of a greater width than the flange **56**. Each of the end frame members **14** is preferably secured to the flange portion **36** of side member **12** adjacent to the front thereof as shown in Fig. 7 and similarly to the manner in which the member **18** is illustrated as being secured to the member **12** in Fig. 5. In instances where the awning is of such a length as to require one or more supports **14** for the panel **16** intermediate the length thereof, such intermediate members **14** may be secured to the front frame member **10** by securing members **62** secured to the flange **48** of an angle bracket whose flange or plate **44** is interlocked with the front frame member by the lips **34** and **40** and which is positioned at a selected location along the length of the frame member **10** by the securing member **46**.

The upright frame members **18** preferably constitute angles, each having a leg or flange **64** thereof extending in a plane parallel to the flange portion **54** of an inclined member **14** and preferably in face engagement therewith so as to be secured thereto by securing members **66**. The leg **64** is secured at its lower end to the flange **36** of the side frame member **12** by securing member **68**. The other leg or flange **70** of each upright frame member **18** is provided with apertures at spaced points through which screws or other securing members **72** may extend for anchoring the same to a wall or other supporting structure.

The panels **16** are of rectangular outline and preferably are formed of corrugated shape. The corrugations may be of different shapes, and it will be observed that that illustrated in Figs. 1 and 3 is of a stepped shape, whereas that illustrated in Figs. 2 and 6 is of a substantially uniform reversely curved shape. The panels **16** are secured at opposite side margins to the inclined frame members **14** by the securing members **74**. The lower horizontal marginal portion of each panel **16** preferably bears against the rear inclined flange portion **32** at the top of the front frame member **10** and is preferably secured thereto by securing members **76**, as seen in Fig. 7. Observe that the lower edge of the panel **16** preferably extends to a level adjacent to the molding portion **30** and below the level of the molding flange **28** so that the securing member **76** is substantially concealed. A plurality of securing members **76** will preferably be spaced uniformly along the length of the member **10**.

The end panels **20** may be of corrugated material but preferably are of flat material, as illustrated in Figs. 1 and 2. These panels are secured at **78** to the inclined end members **14** and are secured at **80** to the flanges **64** of the upright frame members **18**, as seen in Fig. 5. The bottom edge of each panel **20** may bear upon the flange **32** of the side frame members **12**. However, if corrugated material is used for the end members **20**, a portion thereof may extend into the channel defined by the molding frame parts **22**, **30** and **32** similarly to the arrangement illustrated in Fig. 7.

Each of the panels **16** and **20** is rigid and preferably is formed of strong, light weight sheet material. I prefer to use synthetic resin sheets reinforced by glass fibers to make up the panels **16** and **20** so as to take advantage of the strength and weather resistance of such material as well as its light weight and its decorative appearance. The panels **16** and **20** may also be characterized by a certain limited degree of translucence, depending upon the amount of pigment incorporated in the resin thereof, and thus serving to regulate the amount of light which may pass therethrough to eliminate glare without completely shutting out light. One of the advantages of the use of the corrugated material for the panels **16**, and for the panels **20** where used therein, is that openings **19** are provided between the margins of such panels and the frame members which support them through which air may pass or circulate, so that entrapment of air beneath the awning structure is avoided and so that hot air cannot be pocketed by the awning.

In the fabrication of the awning the end units, consisting of an end frame member **12**, end inclined member **14** and the end vertical member **18**, and the panel **20** connecting the same, where such a panel is used, may be preassembled as a unit. These end units, together with the front end frame member **10** and the main panel **16**, can be transported in flat knocked-down condition to consume only a small amount of space. They can be assembled easily on the job or at any other location by the use of the angle fittings **44**, **48** as illustrated in Figs. 8 and 10, and by securing the panel **16** to the inclined frame members **14** through the medium of the securing members **74**. This, of course, is optional and the complete awning may be assembled at a factory and shipped or transported in erected shape.

Various arrangements may be made for connection of the awning to a wall or building, and one thereof is shown in Fig. 1, wherein the stepped type panel **16** terminates in an upturned flange or step **17** which projects above the upper end of each of the inclined frame members **14**. This flange may be apertured at spaced points along its length to receive screws or other securing means **90**. This anchorage of the upper edge of the panel **16** cooperates with the anchorage of the frame members, as at the flanges **70** of the uprights **18** anchored to the support by securing screws **72**. It will be observed that these two anchorages firmly affix the awning to a supporting wall structure, and it further will be observed that the securing screws **90** cooperate with the securing screws **74** at the sides of the panel **16**, and the securing screws **76** at the lower edge of the panel **16**, to firmly anchor each of the four margins of the panel **16**. In the event uprights **18** are omitted, angle members, such as shown in Fig. 8, may be used to connect the rear end of each frame member **12** to the building wall. In the assembly or erection of an awning as illustrated in Fig. 1, it will be understood that caulking material will preferably be used along the upper margin of the flange **17** to prevent collection of moisture behind the flange **17** and also to prevent the leaking of rain between the awning and the building wall.

The construction shown in Fig. 2 entails a modified support for and connection of the upper margin of the panel **16** to the building. Thus a structural member **92**, such as an angle member, is secured by securing members **94** to the building wall or other surface with a flange **96** thereof projecting outwardly from the building wall to receive and support the upper margin of the panel **16**. Securing screws **98** may be employed to anchor the upper margin of the panel **16** to the flange member **96**. As in the construction previously mentioned, the securing members at **94** and **98** will be supplemented by the securing members **72** or other members for anchoring parts of the frame to the building spaced below the top margin of the awning.

Fig. 3 illustrates the preferred arrangement for anchoring the upper margin of the panel **16** to the building wall. A bracket is employed which preferably has a plate portion **100** adapted to be anchored to the wall by securing members, such as screws **102**. At its top the bracket has a horizontal portion **104** from which extends a substantially vertical depending flange **106** which preferably terminates above the level of the apertures which receive the securing members **102**. A flange **108** projects from the part **100**, preferably at a level spaced below the openings receiving the securing members **102** and above the bottom edge of the plate **100**. This flange extends outwardly for a distance substantially equal to the width of the flange **104** and thence extends downwardly and angu-

larly in a terminal portion **110**. This member is mounted upon the building wall at the desired elevation and location, as is accomplished easily prior to connection of the awning unit therewith. When the member **100—110** has been secured in place, the awning is applied thereto by inserting the flange **17** at the top of the panel **16** through the opening between the parts **106** and **108** so as to bear against the rear face of the flange **106**. This is accomplished while the awning is held at a position with the right-hand end thereof as viewed in Fig. 3 at a higher elevation than is illustrated. The awning assembly is then lowered so that the rear ends of the frame members **12** and the rear edges of the uprights **18** may bear against the building wall. When the awning reaches that position, the upper margin of the panel **16** bears upon the bracket part **110** and the awning is held firmly in suspended relation to the bracket. The installer can then proceed to apply the securing members **72** to complete the installation and the anchorage of the unit to the building without being required to support the weight of the awning while doing so. In other words, the entire weight of the awning is borne by the fitting **100—110** after the hooked connection has been effected. This is particularly advantageous in cases where the awning is being applied to a building surfaced with brick or stone in which holes must be drilled to receive the securing means or expansion members to receive securing means. In such a case the awning is suspended from the bracket **100** while the installer marks the location at which the securing members **72** are to be located. Then he removes the awning and proceeds to drill or form the openings for the securing members **72** without interference from the awning. Final installation is completed by suspending the awning from the bracket **100** and then applying the securing members **72**.

In the event the awning construction omits the upright parts **18** and the end panels **20**, so that the only connection between the main frame and the inclined frame members occurs at the lower ends of the inclined frame members, the assembly or mounting of the awning to the building wall where the bracket **100—110** is provided proceeds substantially as described above. In this instance, however, a certain amount of free play or angular movement can occur between the inclined members **14** and the frame members **10**, **12**, and, therefore, the position of the lower frame members **10**, **12** must be determined after the upper end **17** of the panel has been interlocked with the bracket **100—110**. As previously explained, in this instance anchorage of the frame parts to the building wall is effected through the angle units **44—48** located at the rear ends of the end frame members **12**, with one flange thereof substantially flush with and projecting inwardly from the end of the member **12** to engage the wall surface and to receive securing means passing into the wall.

It will be understood that the construction of the frame members **10** and **12**, as heretofore illustrated and described, is illustrative and may be varied at will. One alternate construction is illustrated in Fig. 11, wherein parts similar to the molding previously described bear the same reference numerals, and wherein small changes occur. One change is the formation of a substantially vertical flange **132** projecting upwardly from the rear part of the portion **30** and preferably terminating in a rearwardly upwardly curved part **134** which may extend to a level above the level of the flange **28** at the front of the molding. The panel **16** may be anchored at the curved part **134** as by a securing member **136** which projects into the channel. An aperture **138** is preferably formed in the flange **30** between the flange **132** and the lip **34**. Similarly, one or more apertures **140** may be formed in the bottom flange **42**, said apertures preferably being located adjacent the opposite ends of the front frame member **10** and at any desired point along the length of the end frame members **12**. The bottom flange **42** may be reinforced by an upturned rear end flange **142**, if desired.

This construction includes the rear lip **40** cooperating with the rear lip **34** to define a guide passage for the reception of an interlocking connection and support of an angle member. The only change which this construction necessitates, as compared to that described previously, is that the frame parts secured to the upper part thereof, such as the lower ends of the inclined end members **14** and the lower ends of the flanges **64** of the vertical frame members **18**, must be anchored at the inner face of the flange **132** so as to avoid interference of the rear curved flange portion **134** with such connected frame members.

While the preferred embodiments of the invention have been illustrated and described herein, it will be understood that changes in the construction may be made within the scope of the appended claims without departing from the spirit of the invention.

I claim:

1. An awning construction comprising a frame having rigid front, side and inclined members, said front and side frame members having an outer wall portion and an inner portion, a rigid panel secured to and spanning said inclined frame members and anchored to the inner portion of said front frame member, and means for interconnecting said frame members including connectors each having an interlocking connection with the inner portion of at least one frame member.

2. An awning construction comprising a frame having rigid front, side and inclined members, a rigid panel secured to said inclined frame members and anchored to said front frame member, and means for interconnecting said frame members including connectors each having an interlocking connection with at least one frame member, said interconnecting means spacing the lower front ends of said inclined frame members rearwardly from said front frame member to accommodate location of the lower front edge of said panel between said front frame member and inclined frame member.

3. An awning construction comprising a frame having rigid front, side and inclined members, a rigid panel secured to said inclined frame members and anchored to said front frame member, and means for interconnecting said frame members including connectors each having an interlocking connection with at least one frame member, said front frame member having a rearwardly projecting part defining a groove at its upper margin, the lower margin of said panel extending into said groove.

4. An awning construction comprising a frame having rigid front, side and inclined members, a rigid panel secured to said inclined frame members and anchored to said front frame member, and means for interconnecting said frame members including connectors each having an interlocking connection with at least one frame member, said front frame member having a rearwardly projecting flange spaced below its upper edge, and means securing said panel to said flange.

5. An awning construction comprising a frame having rigid front, side and inclined members, a rigid panel spanning and secured to said inclined frame members and anchored to said front frame member, and means for interconnecting said frame members including connectors each having an interlocking connection with at least one frame member, said front frame member having longitudinal guide flanges projecting from its rear face at its upper and lower margins, said connectors being slidably retained by said flanges.

6. An awning construction comprising a frame having rigid front, side and inclined members, a rigid panel secured to said inclined frame members and anchored to said front frame member, and means for interconnecting said frame members including connectors each having an interlocking connection with at least one frame member, said front frame member including a laterally rearwardly projecting flange spaced below the top thereof and an upwardly projecting flange cooperating to define a longitudinal panel-receiving channel open at its upper end.

7. An awning construction as defined in claim 6, wherein said upwardly projecting flange is inclined upwardly and rearwardly, and a rearwardly projecting flange extends from the top of said front frame member to partially span the mouth of said panel-receiving channel.

8. An awning construction as defined in claim 6, wherein said upwardly projecting flange is inclined upwardly and rearwardly and a flange depends from the rear upper part of said inclined flange.

9. An awning construction comprising a frame having rigid front, side and inclined members, a rigid panel secured to said inclined frame members and anchored to said front frame member, means for interconnecting said frame members including connectors each having an interlocking connection with at least one frame member, and means for securing said frame to a support, said front and side frame members having outer portions in end abutment concealing said frame interconnecting means.

10. An awning construction comprising a frame having rigid front, side and inclined members, a rigid panel secured to said inclined frame members and anchored to said front frame member, means for interconnecting said frame members including connectors each having an interlocking connection with at least one frame member, said panel having an upturned flange at its upper end, and means for securing said awning to a support including a bracket secured to the building and having substantially continuous hooked engagement with the upturned flange of said panel, said bracket having a lower shoulder and an upper down turned hook portion, the portion of said panel adjacent said upturned flange bearing on said shoulder, said upturned flange seating behind said hook portion.

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