

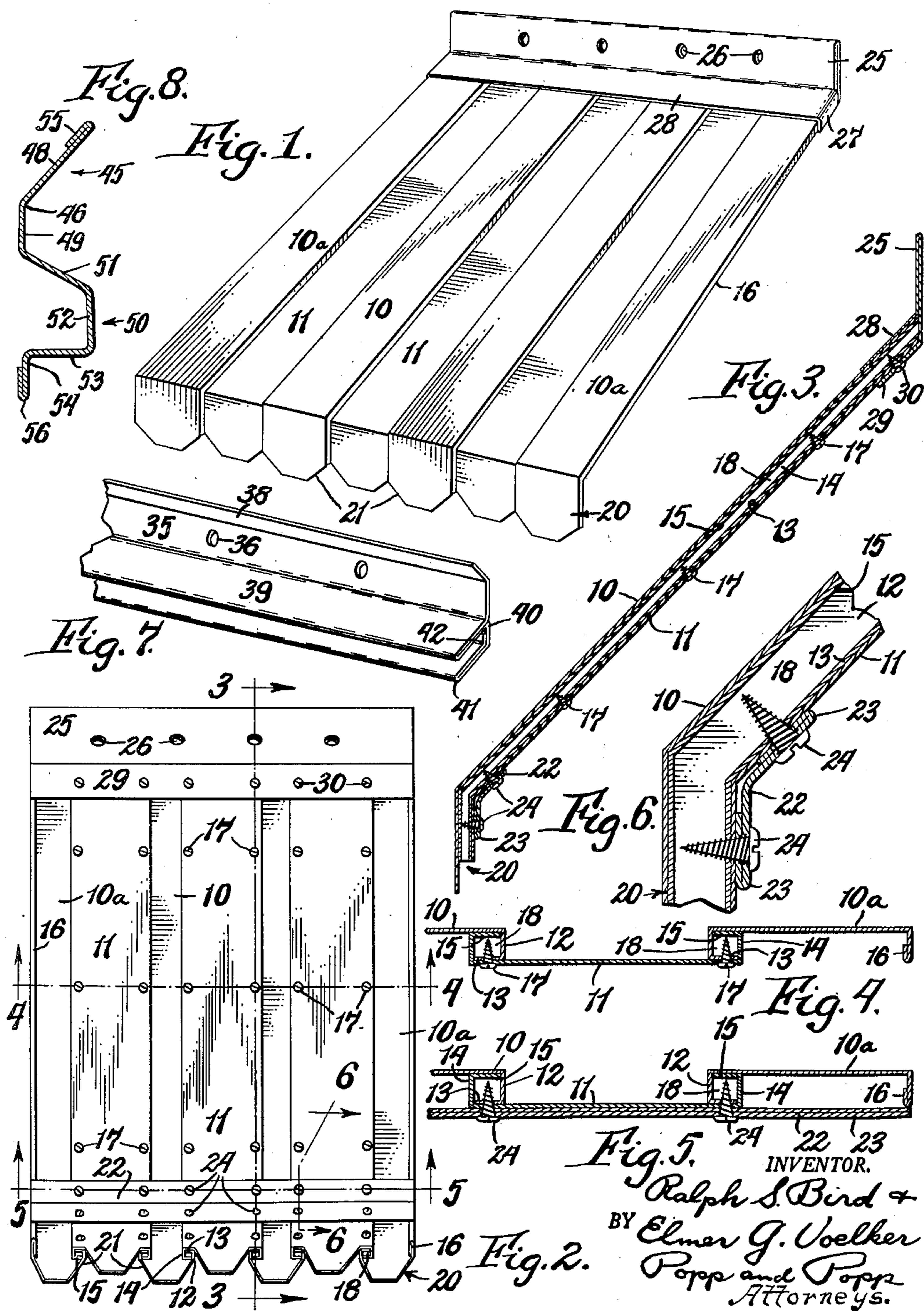
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SHEET METAL AWNING STRUCTURE

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SHEET METAL AWNING STRUCTURE

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This invention relates to a rigid sheet metal awning structure for use over windows, doors and other openings to shade an enclosure from the direct sunlight and to increase privacy as well as to improve the external appearance of homes and commercial establishments.

One of the principal objects of the invention is to provide a rigid sheet metal awning structure which can be readily fabricated in any desired width and which is so constructed as to be strong and durable in construction to withstand heavy winds and snow loads.

Another object of the invention is to provide such an awning structure which is pleasing and highly decorative in appearance and in particular is free from unsightly fastenings or weldments as viewed from the outside of the awning.

Another object is to provide a simple and secure mounting for attaching the rigid sheet metal awning to the wall of the house or business establishment to which it is applied.

Another object is to provide such an awning which is secure against leakage, both within the awning itself and also between the awning and the wall to which it is applied.

Another object is to provide such an awning which can be produced in quantity at low cost.

Another object is to provide such an awning which will stand up under conditions of severe use and in all seasons and which will not get out of order or require repair.

Other objects and advantages of the invention will appear from the following description and drawings in which:

Fig. 1 is a perspective view of a rigid sheet metal awning embodying the present invention.

Fig. 2 is a bottom view thereof, viewed from an angular plane parallel with the major or body portion of the awning structure.

Fig. 3 is a vertical sectional view taken on line 3—3, Fig. 2.

Fig. 4 is an enlarged fragmentary sectional view taken on line 4—4, Fig. 2.

Fig. 5 is an enlarged fragmentary view taken on line 5—5, Fig. 2.

Fig. 6 is a fragmentary vertical elevation taken on line 6—6, Fig. 2.

Fig. 7 is a fragmentary perspective view of a modified form of attaching strip or channel by means of which the awning is secured to the wall of a building.

Fig. 8 is a vertical sectional view through a modified form of reinforcing bar fitting the crotch between the top or main body part of the awning and its valance.

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The awning structure is made up of a plurality of alternately arranged, parallel outer and inner sheet metal channels 10 and 11, respectively. The longitudinal edge of each outer channel 10 adjacent each inner channel 11 is bent to provide reversely extending C-shaped flanges, these being formed by the provision of an inwardly projecting flange 12 and a terminal flange 13 projecting laterally from the edge of this inwardly projecting flange along and generally parallel with the body part of its outer channel and spaced from the inner side thereof. The longitudinal edge of each inner channel 11 adjacent each outer channel 10 is formed to provide a reversely extending upstanding C-shaped flange provided by an outwardly projecting flange 14 and a terminal flange 15 projecting laterally from the edge of this outwardly projecting flange 14 along and generally parallel with the body part of its inner channel 11 and spaced from the outer side thereof. The outer and inner channels 10 and 11 are arranged in interfitting relation with the terminal flanges 13 of the outer channels 10 engaging the outer sides of the body parts of the inner channels 11 and disposed beneath the terminal flanges 15 of the inner channels 11. The free edges of the outermost channels 10a are flanged and beaded as indicated at 16 to provide the desired strength and pleasing appearance, these outermost channels 10a being otherwise identical to the channels 10.

The several outer and inner channels 10 and 11 are secured in this relation by a plurality of screws 17. Each of these screws is applied from the inner side of the awning structure with its head bearing against the inner face of the corresponding inner channel 11 and with its shank extending through the body part of this inner channel 11 and through the corresponding terminal flange 13 of the companion outer channel 10. These screws 17 are arranged in rows along the meeting portions of the outer and inner channels 10 and 11 and since they are applied from the under or inner side of the awning structure and since their shanks terminate in the spaces 18 defined by the companion flanges 12, 13, 14 and 15 of the several outer and inner channels 10 and 11, it will be seen that they securely hold these channels in assembled relation and at the same time are not seen from the outside of the awning so that the appearance of the awning is not marred by unsightly rows of fasteners or weldments.

For decorative purposes, it is desirable that the lower edge of the awning structure terminate

in a vertical valance indicated generally at 20. The body of the awning is arranged at the inclination shown in Figs. 1 and 3, and to provide the valance 20 the lower ends of the outer and inner channels 10 and 11 are bent downwardly at an angle to the body of the awning to provide vertical depending ends which are joined together in the same manner as previously described to provide the valance 20. For decorative purposes, the lower extremity of the valance 20 can be provided with a series of angular or round indentations 21, these indentations preferably extending upwardly to the lines of juncture of the several outer and inner channels 10 and 11.

To strengthen the awning structure, it is reinforced along its underside at the crotch between the main portion of the structure and its valance 20. To this end a strip of metal 22 which is V-shaped in cross section to conform to the angular relation between the main portion of the awning structure and its valance 20, is arranged against the underside of the awning structure with its apex fitting the crotch between the main portion of the awning structure and its valance 20. For greater strength, this transverse reinforcing strip 22 can have its opposite edges folded over, as indicated at 23, to provide a double thickness of metal and through each of these double thicknesses of metal screws 24 extend, the heads of these screws being arranged against the exposed or inner face of the transverse reinforcing strip 22 and the shanks of these screws extending through the body parts of the inner channels 11 and the terminal flanges 13 of the outer channels 10 and terminating in the spaces 18 in the same manner as with the screws 17 previously described. It will therefore be seen that the transverse reinforcing strip 22 is securely united to each of the channels 10 and 11 by screws which are invisible from the exterior of the awning and that this strip not only provides a channeled or angular reinforcing member extending the entire width of the awning structure but also holds the valance 20 firmly in a vertical position in relation to the body of the awning.

To attach the awning to the wall of the building over a window or other opening therein, the awning structure as above described is secured to an attaching member which in turn is attached to the wall. In the form of the invention shown in Figs. 1-6, this attaching member is constructed as follows:

The attaching member is made of a strip of metal which is folded longitudinally to provide a vertical upstanding part 25 of double thickness having a row of holes 26 by means of which it can be attached, as by screws (not shown) to the wall of a building. The fold is along the upper edge of this strip and the outer leg of the fold is bent downwardly and laterally at an angle to provide a flange 28 which overlays the outer surfaces of the outer channels 10. As its opposite extremity this flange 28 is formed with depending lips 27 which embrace the beaded ends 16 of the outermost outer channels 10a. The inner leg of the upstanding fold 25 is extended downwardly across the upper extremities of the outer and inner channels 10 and 11 and is angularly formed to provide a longitudinal flange 29 which underlays and engages the inner faces of the inner channels 11 at the upper ends thereof. The upper ends of the channels 10 and 11 are

thereby interposed between the angular flanges 28 and 29 of the attaching member and to securely unite these channels to this attaching member a plurality of screws 30 are provided, each of which has its head bearing against the under face of the flange 29 and its shank extending through this flange, the body part of the corresponding inner channel 10 and the terminal flange 13 of the corresponding outer channel 10 and terminating in the corresponding space 18 in the same manner as with the screws 17.

In the modified form of attaching member shown in Fig. 7, this attaching member comprises a strip of metal formed to provide an upstanding flange 35 having a row of screw holes 36 by means of which it can be attached to the wall of a building. The upper extremity of this flange 35 can incline forwardly, as indicated at 38, to provide a groove into which caulking (not shown) can be forced to insure a leak-tight joint between this flange and the building. At the lower edge of the upstanding flange 35 the attaching member is formed to provide a reversely folded downwardly angled flange 39 of double thickness which overlays the upper ends of the outer channels 10 in the same manner as with the flange 28 in the form of the invention shown in Figs. 1-6. The lower fold of this flange 39 is extended downwardly, as indicated at 40, in line with the upstanding flange 35, and the lower extremity of this vertical part 40 is reversely folded to provide a double thickness longitudinal flange 41 which is angularly disposed and fits against the under side of the inner channels 11, in the same manner as with the flange 29 of the form of the invention shown in Figs. 1-6. The upper fold of the flange 40 terminates in an upstanding lip 42 which is arranged against the face of the vertical part 40 with the channel provided by the angular flanges 39 and 41.

The modified form of reinforcing bar or strip 45 shown in section in Fig. 8 is designed to supplant the reinforcing strip 22 in the crotch between the top or main body part of the awning structure and its valance 20 where still greater strength and rigidity of the awning structure is desired. To this end the reinforcing bar or strip 45 is made of a sheet of metal bent along a longitudinal line 46 to provide an upper flange 48 which fits against the underside of the top or main body part of the awning structure and a vertical flange 49 which fits against the inner face of the valance 20 as with the reinforcing strip 22. This vertical flange is, however, further reinforced by an inward offset corrugation 50 provided by an upper extension 51 projecting laterally and downwardly from the lower edge of the vertical flange 49, a vertical extension 52 projecting downwardly from the opposite edge of the extension 51, a horizontal extension 53 projecting from the lower edge of the extension 52 to the inner face of the valance 20 and a vertical terminal flange 54 projecting downwardly from the extension 53 in line with the flange 49. The edge extremities of the flanges 48 and 54 can be folded over, as indicated at 55 and 56 and the reinforcing strip 45 can be secured in the same manner as with the strip 22, that is by rows of the screws 24 extending through the double thickness parts 55 and 56 of the reinforcing strip and the shanks of these screws extending through the body parts 10 of the inner channels 11 and the terminal flanges 13 of the outer channels 10 and terminating in the spaces 18.

It will be seen that the form of reinforcing bar shown in Fig. 8 is the same as the reinforcing strip 22 with the depending flange of the strip 22 provided with the inwardly offset corrugation 50.

From the foregoing it will be seen that the present invention provides a metal awning which can readily be provided in any desired width by selecting a corresponding number of channels to be attached together and that the same is of pleasing and decorative appearance achieved in part by the concealment of the various screws 17, 24 and 30 as well as by the distinct ridged effect provided by the offset relation between the outer and inner channels 10 and 11. It will further be seen that the awning is very strong in construction and weather-tight so as adequately to resist the destructive effects of the elements without requiring frequent repair to maintain it in operative condition.

We claim:

1. A rigid awning structure, comprising a plurality of alternately arranged, parallel inner and outer sheet metal channels, the longitudinal edge of each outer channel adjacent each inner channel being bent to provide a reversely extending inwardly projecting L-shaped flange the outer extremity of which is generally parallel with the body part of said outer channel and spaced inwardly therefrom, and the longitudinal edge of each inner channel adjacent each outer channel being bent to provide a reversely extending outwardly projecting L-shaped flange the outer extremity of which is generally parallel with the body part of said inner channel and spaced outwardly therefrom and fits into the corresponding L-shaped flange of the adjacent outer channel, a plurality of fasteners connecting said body parts of said inner channels with said L-shaped flanges of said outer channels and each having its shank projecting outwardly through said body part of the corresponding inner channel and through said outer extremity of the corresponding L-shaped flange of the adjacent outer channel and terminating in the space between the corresponding interfitted L-shaped flanges, the ends of said inner and outer channels adjacent one end of the structure being bent downwardly along a common transverse line to provide a generally vertical valance and to provide an angular transversely extending crotch in the underside of the awning structure, a metal reinforcing strip of angular cross section corresponding to the angularity of said crotch and fitted into said crotch against said body parts of said inner channels

on opposite sides of said crotch, and means securing said reinforcing strip, comprising a row of fasteners extending transversely of the awning structure and each having its shank projecting outwardly through said reinforcing strip and through the body part of the corresponding inner channel and through the outer extremity of the corresponding L-shaped flange of the adjacent outer channel and terminating in the space between the corresponding L-shaped flanges of the valance of the awning structure, and a second row of fasteners generally parallel with said first row and each having its shank projecting outwardly through said reinforcing strip and through the body part of the corresponding inner channel and through the outer extremity of the corresponding L-shaped flange of the adjacent outer channel and terminating in the space between the corresponding L-shaped flanges of the main part of the awning structure.

2. A rigid awning structure comprising a plurality of parallel interfitted sheet metal channels extending downwardly at an angle to the horizontal, the lower ends of said plurality of channels being bent vertically downwardly to provide a valance and to provide a transversely extending crotch in the underside of said awning structure, a metal reinforcing strip of angular cross section corresponding to the angularity of said crotch and fitted into said crotch against said channels on opposite sides of said crotch, a horizontally projecting corrugation formed in that part of said strip engaging said valance, a row of fasteners securing the lower edge of said corrugated part of said strip to said valance and a second row of fasteners securing the opposite edge of said strip to the upper part of said channels.

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