Dec. 2, 1952 J. R. BOTTOM 2,619,691

METAL AWNING

Filed July 11, 1949 2 SHEETS—SHEET 1

FIG. 1.

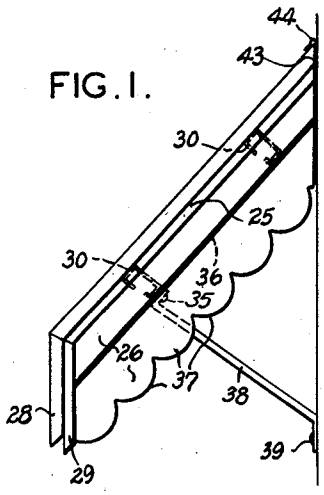


FIG. 2.

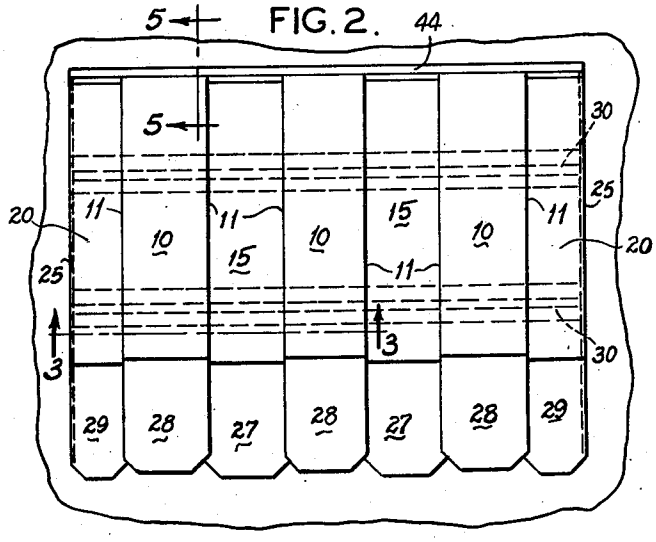


FIG. 4.

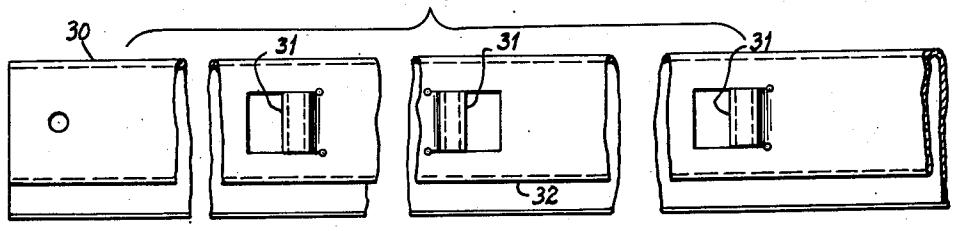
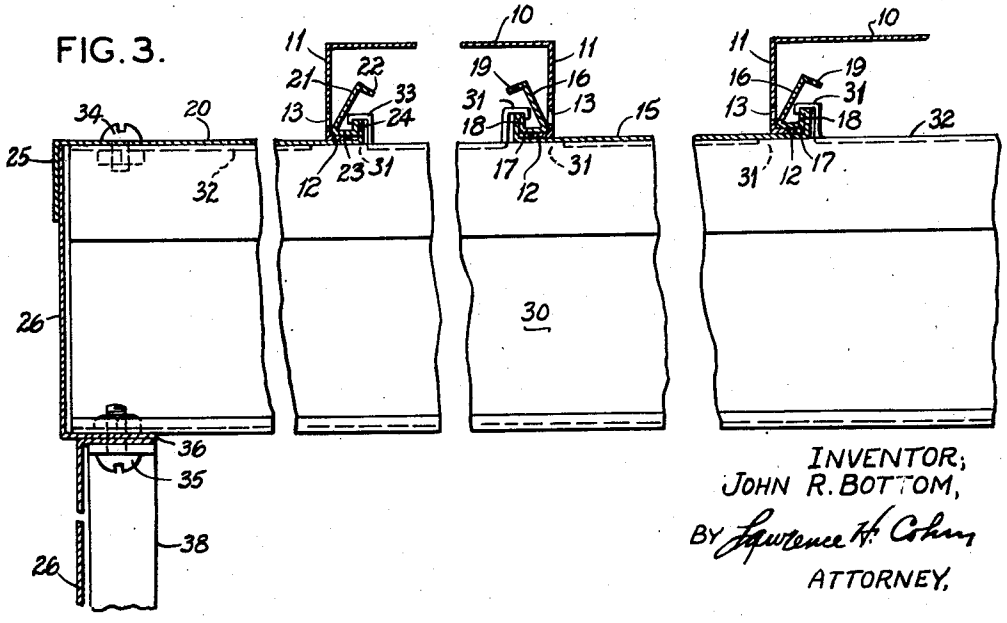


FIG. 3.



INVENTOR;
JOHN R. BOTTOM,
BY Lawrence H. Cohn
ATTORNEY.

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FIG. 5.

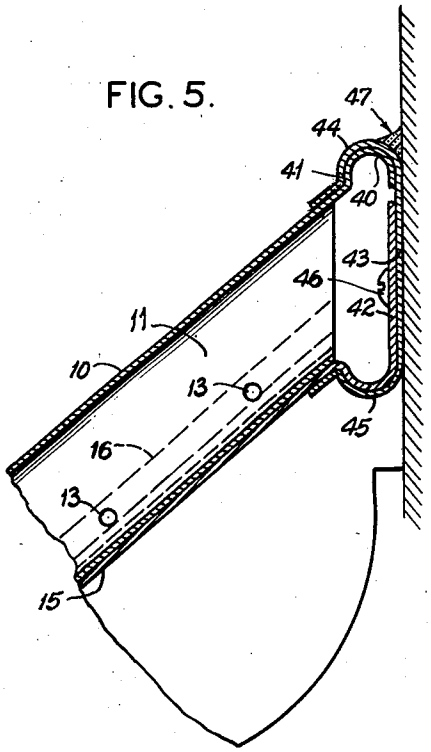


FIG. 6.

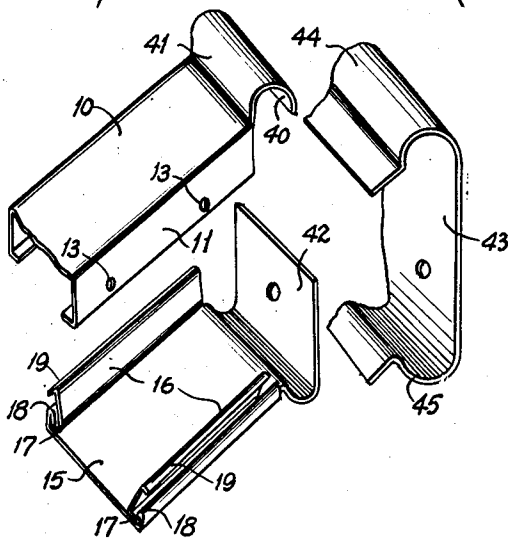
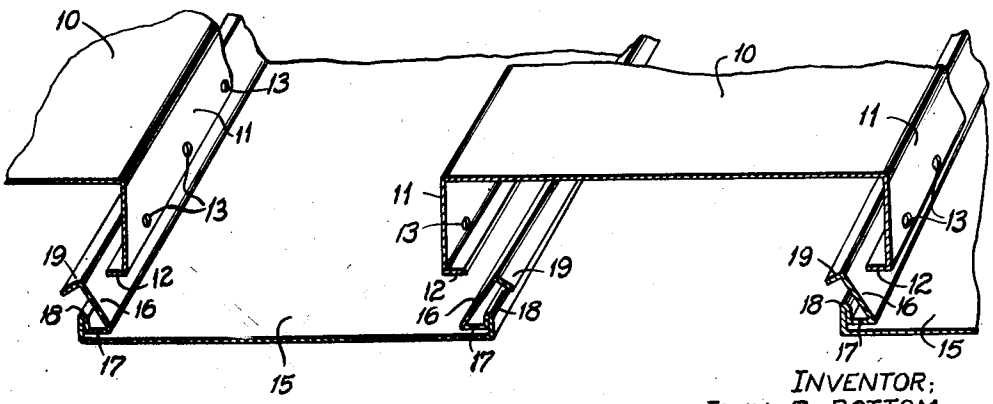


FIG. 7.



INVENTOR:
JOHN R. BOTTOM,
BY Laurence V. Cohen
ATTORNEY.

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METAL AWNING

John R. Bottom, St. Louis, Mo.

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6 Claims. (Cl. 20—57.5)

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The present invention relates to improvements in metal awnings and the like.

The invention is primarily concerned with metal awnings having top members formed of a plurality of sheet metal strips or channels which are arranged in parallel, side-by-side relationship and adapted to be mounted over an opening in a building wall with the strips extending slopingly at right angles to the said wall. This type of construction yields a number of important manufacturing advantages and is used to a considerable extent in the industry. However, a disadvantage of the composite awning roof from the manufacturer's standpoint is the great amount of time and labor involved in assembling the component channel parts and in securing them together and to supporting members. Machine screws or rivets together with special brackets and clips have been generally used for the purpose. Such means afford adequate securement of the awning parts, but the use thereof is an important factor in high production costs. A further disadvantage in many instances, is that the screw holes which are required in the sheet metal strips or plates tend to produce points of water leakage.

An important object of this invention is to provide an awning having a roof structure comprising strips or channels which are formed, secured together and secured to supporting members, in an improved, extremely simple and economical manner, such that the manufacturing cost of the awning may be substantially reduced.

Another important object of the invention is to provide an improved metal awning construction such that the parts thereof may be easily and quickly assembled, and the assembled awning readily mounted for service by persons without previous experience, special skill or training. The achievement of this objective reduces the assembly cost when the awning is manufactured complete at the factory and also renders it practical for the awnings to be shipped, and sold in unassembled form at a relatively low price, for subsequent assembly and installation by the purchaser.

Another object is directed to the provision of an improved ventilated awning of the described character.

Another object of the invention is achieved in the provision of a metal awning construction which affords improvement in strength and durability as compared to similar awnings of former constructions. In such other awnings the individual strips or channels are fastened together

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at two or possibly three spaced points, whereas in the awning of the present invention the channel members are fastened, or seamed together along their entire adjoining edges.

A further feature of the invention is the improved mounting provisions for the awning.

The invention hereof resides in an awning having a roof structure made up of a plurality of elongate, channel-shaped sheet metal members, arranged in alternate, relatively inverted relation and connected together at their adjoining edges so as to produce a top of substantially corrugated form. One group of said members, for convenience referred to as covers, constitute the ridge portions of the said corrugated top, and the other members, called pans, form the furrow portions and serve to conduct rain water to the outer edge of the awning. The present invention is directed to improving the construction of ventilated awnings, and especially to improved provisions that enable the cover and pan channel members to be assembled and fastened together and to supports in an extremely rapid, simple, and effective manner. Other objects, advantages and features of the invention will be more fully described and explained as the description of an awning embodying these features and advantages proceeds.

In the drawing:

Fig. 1 is a side view of an awning constructed in accordance with the invention hereof;

Fig. 2 is a front view of the awning shown in Fig. 1;

Fig. 3 is an enlarged cross-sectional view taken at line 3—3 of Fig. 1, with certain portions removed to facilitate illustration;

Fig. 4 is a fragmentary plan view showing one of the supporting frame members, also referred to as a runner;

Fig. 5 is a cross-sectional view as taken at line 5—5 of Fig. 2, showing the construction at the upper end of the awning and provisions for fastening the same to a wall;

Fig. 6 is an exploded view showing the parts illustrated in Fig. 5, and

Fig. 7 is an enlarged view of upper and lower channel members or pans and showing the preferred manner in which they are assembled together.

Referring now by characters of reference to the drawings, the awning of the present invention includes a top or roof structure which is made up of an assembly of channel-shaped strips arranged in parallel, side-by-side relationship and having marginal portions of their flanges inter-

locked in the formation of a strong connecting seam. The channels are alternately inverted such that one set of alternate channels, designated 10, have their web portions disposed uppermost and their flanges 11 depending from the web portions. The members 10, for convenience of identification referred to as cover channels, have the marginal portions of their flanges 11 turned inwardly in the formation of lip flanges 12. The flanges 11 may desirably be provided with air vent openings 13. These openings allow heated air from below the awning to escape, and further relieve the awning of excessive and damaging pressures such as might be created by the wind acting thereon.

The complementary roof members 15, also by preference of channel form, are relatively inverted with respect to the members 10, being arranged with their flanges 16 projecting upwardly from the web portions. The members 15 are characterized by flat ribs 17 that project laterally outwardly in substantially the plane of the web, the ribs 17 being formed by bending or folding the material upon itself with sufficient space remaining between the plies of the folds snugly to accommodate the inturned lip flanges 12 of the members 10. The outer extremities of the ribs 17 are crimped and turned upwardly in the provision of short, upstanding flanges 18, useful in connection with the means for securing the members 10 and 15 to the frame supports, as will be hereinafter described and explained. The flanges 16 are formed as continuations of the upper plies of the ribs 17. These flanges slope upwardly and outwardly and terminate at their upper edges in outwardly turned flanges 19, the chief function of which is to reinforce the flanges 16.

In addition to the pan and cover channels heretofore described, the top structure of the awning includes a pair of end members 20, which are called starting pans. Each of the starting pans 20 have flange and rib formations at their inner side margins which are similar to corresponding formations at one end of each of the pan channels 15. That is to say, each starting pan has at one side edge thereof a sloping flange 21 terminating upwardly in a reinforcing lip 22, and a flat rib 23 having a short upstanding lip 24. As will be understood, these flange and rib formations on the starting pans provide for the securement of the outer sides of the outermost cover channels 15. At the opposite or outer edges of each starting pan there is a downturned flange 25 that extends over the upper edge portion of a side skirt member 26, as shown in Fig. 3. The awning is also provided with a front skirt constituted by the vertical forward end portions 27, 28 and 29 respectively of the pan and cover channels and the starting pans above described.

The roof members 10, 15 and 20 are supported by and secured to the runners 30, two or more of which are provided. The runners 30 are arranged in parallel spaced relation below the said members and at right angles thereto. The runners 30 are preferably channel-shaped metal beams, as best appears in Figs. 4 and 1, and are provided with clips 31 by which the roof members are secured thereto. The clips 31 in the present embodiment are formed integrally with the runners and consist of tongues of metal struck upwardly from the top flange 32 of the runner and bent to the form of hooks as shown. The clips or hooks 31 are related in pairs, the clips of each pair being formed and arranged to extend over and engage the upstanding lip flanges 18 of a pan channel 15, as appears in Fig. 3. The clips 31 are of height to accommodate the said lip flanges without vertical play such that the clips will retain the pan channels tightly against the upper surface of the runner. An additional unpaired clip 33 is provided near each end of the runner for engaging the single lip flange 24 of a starting pan 20. Screws 34 fasten the outer sides of the starting pans to the runners.

The runners 30 are secured at their ends by screws 35 to inward flanges 36 formed on the side skirts 26. These side skirts give a finished appearance to the sides of the awning, having, for ornamental purposes scalloped lower edges 37 as shown. They also constitute structural members and take the place of end frames such as are customarily provided in other metal awnings.

Angle braces 38 are secured at their upper ends to the flanges 36 of the side skirts 26 shown in Fig. 1, and are adapted to be secured at their lower ends to a building wall, as by lag screws 39.

Fig. 5 illustrates simple and effective means of presently preferred character for attaching the awning at its upper horizontal edge to a wall of a building, or to the lintel of a door or window, and for preventing rain water from leaking through the awning at the wall junction. Pursuant to the illustrated provisions, the cover pans 10 have end portions of their flanges 11 removed, the end of the web remaining as a projecting tongue 40. Such tongue is bent, arcuately in the present example, but so as to present a shoulder 41 that rises above the normal level of the cover channel. Similarly, an end projecting tongue 42 is formed on the pan channels 15, which tongue is bent upwardly as shown. The upper end portions of the channels, with their said tongue formations, are adapted to fit within a channel shaped flashing strip 43. The upper flange 44 of that strip is shaped to embrace the shouldered tongues 41 of the cover channels, and the lower flange 45 forms a seat to receive the ends of the pan channels. The channel flashing strip 43 is applied by snapping the same over the end tongues 40 and 41, the metal being sufficiently resilient to permit of this method of assembly. Securement is attained by lag screws 46 or the equivalent that extend through the flashing strip and through the pan channel tongues 42 and into a wall or lintel member. The corner above the flashing strip may be filled with caulking or other sealing composition, indicated at 47.

There now follows an explanation of the preferred manner for assembling the parts heretofore described, in the formation of the awning. The two runners 30 are placed in parallel relation on a flat surface, with the clips 31 and 33 disposed uppermost, and then the pan channels 15 and the starting pans 20 are placed on the runners, with their upstanding lip flanges 18 and 24 in hooked engagement with the clips 31 and 33. This operation is easily accomplished, the dimensions of the said lip flanges and clips providing for clearance merely adequate to facilitate their assembly. The runners may then be adjusted so as to space them apart a distance predetermined by the spacing of preformed holes in the starting channels which are to receive the screws 34. Such screws may then be inserted

and the ends of the runners **30** thereby fastened to the starting pans **20**.

The next step consists in the application of the cover channels **10**. This is done by inserting an inturned lip flange **12** at one side of the cover channel into the gap formed in the rib fold **17** at a corresponding side of a pan channel. The opposite lip flange rests upon the sloping surface of the pan flange **16**. Now, by striking the cover channel a sharp downward blow with the hand the opposite lip flange is caused to slide down the sloping surface, both flanges yielding sufficiently to permit this, and to snap into place in the gap formed by the opposite rib fold **17**. Thus the cover pan is caused to lock itself in place. During the last described procedure the pan channels adjust themselves within the limits permitted by the clips **33**, to spacings best suited to accommodate the cover channels and are themselves locked in place with respect to the runners and the cover channels by the latter members.

It is desired to point out that the sloping flanges **16** afford what may be regarded as camming surfaces for the flanges **11** of the cover channels during the assembly operations and thereby greatly facilitate those operations. The flanges **16** serve additional purposes of strengthening the roof structure, and of forming a baffle wall for the obstruction of any rain water that may pass through the air-vent apertures **13**. It is also to be noted that the ribs **17** have the dual function of providing a connecting seam by which the pan and cover channels are united, and of presenting a projecting lip or ledge for engagement by the clips on the supporting runners **30**.

The awning structure is completed by applying the side skirts **26** and the angle brace rods **38**, and then the flashing strip **48**, the manner of assembling these parts being apparent from the foregoing description.

The invention hereof has been described with reference to a particular awning construction which contains the essential features of the invention. It is understood that certain changes may be made in construction of parts and method of assembly herein described without departing from the spirit and full intendment of the invention defined in the following claims.

I claim:

1. In a metal awning, a plurality of pan channels having upwardly directed flanges, and a plurality of cover channels having downwardly directed flanges, said pan and cover channels being arranged in parallel, alternate, overlapping relation in the formation of a corrugated top structure, said pan channels having longitudinal ribs projecting outwardly from the lower margins of the flanges thereof, said ribs being formed to provide longitudinal grooves therein, said cover channels having inwardly directed lips on the lower margins of the flanges thereof, said lips being securely disposed within said rib grooves.

2. A metal roof structure as set forth in claim 1 and including a supporting member underlying and extending transversely of said channels, and means fastening the outwardly projecting ribs of the pan channel to said supporting member.

3. A sheet metal roof structure comprising in combination, pan and cover channels arranged in alternate, laterally overlapping relation, said pan channels having upwardly divergent flanges, and grooved ribs formed at the base of said flanges, said cover channels having lip flanges secured within said grooved ribs, supporting members extending below said channels and fastening means on said supporting members engaging the ribs of said pan channels.

4. In an awning, a sheet metal roof structure comprising pan and cover channels arranged in alternate, overlapping relation, said pan channels having upwardly divergent flanges and ribs formed at the base of said flanges, said cover channels having inturned lip flanges projecting into and securely held by said ribs, supporting members extending below said channels transversely thereto, said supporting members having tongues projecting upwardly into the space below said cover channels, said tongues having bent end portions engaging said ribs.

5. A metal roof structure as defined in claim 1 wherein the flanges of said cover channels are provided with air-vent apertures located therein below the level of the upper edge of the pan channel flanges.

6. A metal awning comprising a series of laterally spaced pan channels having upturned flanges, a series of laterally spaced cover channels having downturned flanges disposed in staggered, overlapping relation to said pan channels, means connecting the lower marginal portions of said pan and cover channel together, said means comprising a grooved rib formed in said pan channel, extending substantially the length thereof, and a projecting tongue on said cover channel extending into said grooved rib, supporting runners transversely below said channels, means fastening said runners to said ribs of the pan channels, and a channel-shaped wall mounting strip extending transversely of the said pan and cover channels at one end of the assembly thereof, said mounting channel strip having the ends of said pan and cover channels received between and engaged by the flanges thereof.

JOHN R. BOTTOM.

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