July 24, 1951 M. HARRISON ET AL 2,562,092

METAL AWNING CONSTRUCTION

Filed Dec. 15, 1945

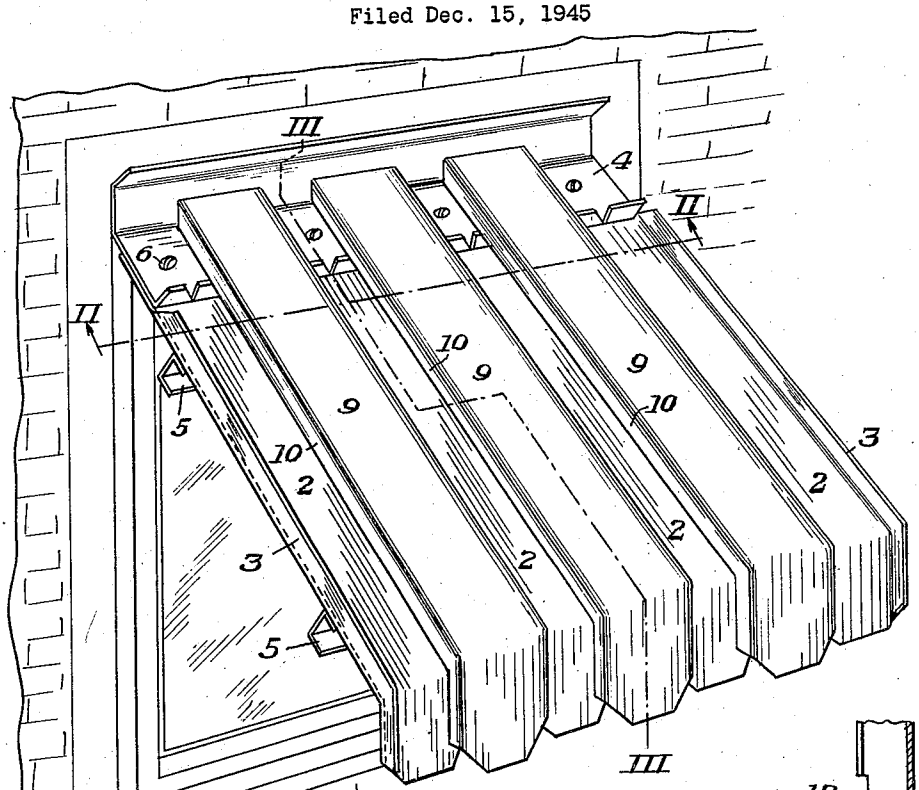


Fig. 1.

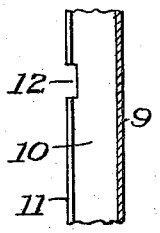


Fig. 5.

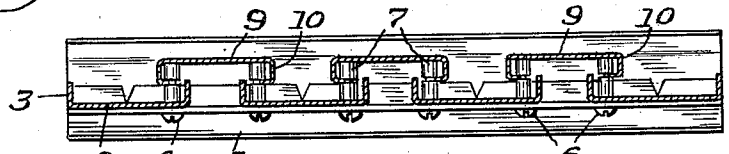


Fig. 2.

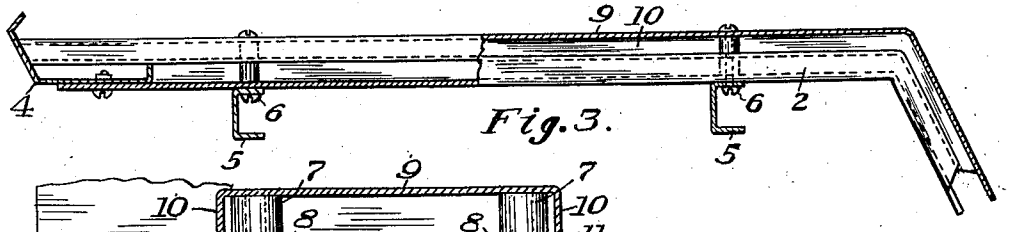


Fig. 3.

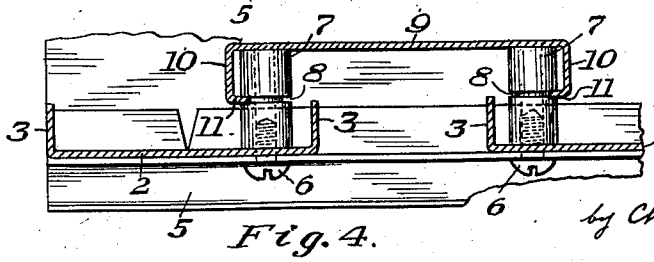


Fig. 4.

Inventors
Meyer Harrison
Samuel B Korman

by Christy, Parmelee and Strickland
ATTORNEYS

Patented July 24, 1951 2,562,092

UNITED STATES PATENT OFFICE

2,562,092

METAL AWNING CONSTRUCTION

Meyer Harrison and Samuel B. Korman, Pittsburgh, Pa., assignors, by mesne assignments, to American National Bank and Trust Company of Chicago, as trustee

Application December 15, 1945, Serial No. 635,214

11 Claims. (Cl. 20—57.5)

1

This invention relates to metal awnings and is for an improvement in awnings of the general type disclosed in Houseman Re-issue Patent No. 20,975 of January 1, 1939, and the present invention discloses in part elements which are disclosed in a copending application filed by us on December 15, 1945 Serial No. 635,213, Patent No. 2,442,891.

Awnings of the type referred to have a sloping roof section or panel which is comprised of a series of spaced alternately reversed light sheet metal channels. One series of channels have the side flanges upturned so as to form troughs, and they are commonly referred to in the art as "pans." The pans are spaced at regular intervals from one another. Spanning the openings between the pans and overlapping the flanges of the pans are inverted channels which are referred to in the art as "covers." They are in vertical spaced relation to the pans so that air immediately under the awning which is warmed by contact with the awning surface may escape to some extent from under the awning. At the same time the overlapping of the flanges on the covers of the pans prevents direct rays of the sun from entering between the covers and pans, even when the rays are slanting at a considerable angle, and prevents the wind-driven rain from beating through the space between the lower pans and the upper covers.

The pans are commonly supported on cross members under the awning cover. The cover elements in turn are usually supported on brackets extending upwardly from the side flanges of the covers. In any event, the bolts or screws which secure the lower pan members to the cross bars are concealed under the covers, but the screws or bolts which hold the covers in place as heretofore constructed are visible at the front of the awning, and are exposed to the weather, and mar the appearance of the awning. Also the passage of exposed screws or bolts through the covers may result in leakage.

The present invention has for its object to provide an awning of this type which is of improved construction, and wherein the means for holding the covers in place are entirely concealed. An incidental advantage of the present construction resides in the fact that not only are there no bolts or screws through the cover members, but the cover members are more rigid than the channel elements heretofore used, the invention thus contributing to the strength of the awning which is an important factor, where light gauge sheet metal is used.

2

Our invention may be more fully understood by reference to the accompanying drawings, in which:

Fig. 1 is a perspective view of an awning embodying our invention, but with the customary end frames or the curtains of the awning removed;

Fig. 2 is a transverse section in substantially the plane of line II—II of Fig. 1;

Fig. 3 is a longitudinal staggered section in substantially the plane of line III—III of Fig. 1;

Fig. 4 is a fragmentary view similar to Fig. 2, but on a somewhat larger scale; and

Fig. 5 is a fragmentary view with a modification showing one of the inner edge portions of one of the cover members.

In the drawings, the awning as illustrated comprises a plurality of sheet metal channel elements 2 having upwardly-turned flanges 3. The upper ends of these channels are secured to a transverse flash member or skirt 4, as more fully described in our copending application above referred to. They are also supported by transversely extending parallel cross channels of light section, these cross members being designated 5. They are secured to the channels by means of bolts 6 that pass through one of the horizontal flanges of the cross channels 5, and through the webs of the channel members 2, as most clearly shown in Figs. 2, 3 and 4. The sloping sheet metal channels 2 are the so-called pans, and they are spaced from one another at regular intervals. The screws 6 pass through the pans near the side flanges 3, and as clearly shown in Fig. 4, they are threaded into the lower ends of tubular posts 7, which may be either metal or plastic. These posts, which are preferably, but not necessarily cylindrical, have grooves 8 in the peripheries thereof, the grooves being at or near the level of the top of the flanges 3 of the pans.

Spanning the space between each two pans there is an inverted sheet metal channel or cover member 9. The cover members 9 have downwardly turned flanges 10 on each end thereof. According to the present invention the depending lower edges of the flanges 10 are turned inwardly, the inwardly turned portions being designated 11. The inwardly turned portions 11 are received in the grooves 8 of the posts 7 and the posts 7 are of a height such as to maintain the proper spacing between the flat portions of the webs and covers. The width of the covers 9 with the downwardly turned flanges 10 and inwardly turned lips 11 is such that in order to secure the pans or covers in place, the side flanges 10 must

be sprung outwardly so as to be sprung tightly into the grooves 8, and once the assembly is made, the channels are held by great friction against relative endwise movement. The covers can only be displaced either by springing them off, or by pulling them endwise with very considerable force. To more accurately hold the covers against endwise displacement, the inwardly turned flanges 11 may, as shown in Fig. 5, be provided with notches 12 at a proper location to engage the posts, the notches permitting the flange 11 to embrace the post to some extent, and thus positively lock the cover members against endwise movement.

The arrangement thus described provides an awning in which the screws 6 for attaching the pans or lower series of channels to the cross braces are located under the overhang of the covers and are entered into the supporting posts 7, and the posts 7 are screwed down tightly against the surface of the pans to clamp the metal constituting the pans between the heads of the screws 6 and the lower ends of the posts 7, protecting the holes for the screws against corrosion and providing a water-tight connection. The posts 7 in turn provide elements for supporting the cover 9 at the proper elevation above the pans. The inwardly turned lips on the flanges 10 of the covers give increased longitudinal rigidity to the pans, tending to support the awning against sagging between the upper and lower ends, even in relatively long awnings, and enabling light gauge sheet metal to be used. Additionally, the inter-engagement of the lips 11 with the grooves 8 in the supporting posts holds the covers against upward movement and endwise movement. As previously indicated, additional holding against endwise movement may be provided by notches 12.

While we have shown and described one present preferred embodiment of our invention, it will be understood that this is by way of illustration, and that various changes and modifications may be made within the contemplation of our invention and under the scope of the following claims.

We claim:

1. An awning comprising a lower series of spaced channels having upwardly turned flanges, an upper series of channels overlapping the edges of the lower series, the upper channels having downwardly turned flanges with inwardly turned lips thereon, and elements projecting above the tops of the lower channels supporting the upper channels and having a portion beneath which the said lips are hooked for securing the upper channels in place.

2. An awning comprising a lower series of spaced channels having upwardly turned flanges, an upper series of channels overlapping the edges of the lower series, the upper channels having downwardly turned flanges with inwardly turned lips thereon, post elements on the lower channels bearing against the webs of the upper channels, the post elements having grooves therein intermediate the ends thereof for receiving the lips of the upper channels to anchor the upper channels in place.

3. An awning comprising a lower series of spaced channels having upwardly turned flanges, an upper series of channels overlapping the edges of the lower series, the upper channels having downwardly turned flanges with inwardly turned lips thereon, post elements on the lower channels bearing against the webs of the upper channels, the post elements having grooves therein intermediate the ends thereof for receiving the lips of the upper channels to anchor the upper channels in place, the lips being notched where they enter the grooves in the posts.

4. An awning comprising a lower series of spaced channels having upwardly turned flanges, an upper series of channels overlapping the edges of the lower series, the upper channels having downwardly turned flanges with inwardly turned lips thereon, post elements on the lower channels bearing against the webs of the upper channels, the post elements having grooves therein intermediate the ends thereof for receiving the lips of the upper channels to anchor the upper channels in place, cross braces under the lower series of channels, and screws attaching the lower channels to the cross braces and also holding the posts in place.

5. An awning of the class described having a supporting frame structure and a roof surface formed of alternately reversed upper and lower channels, the upper channels each having a web with a down-turned flange at each side thereof, the down-turned flanges each having an inwardly-extending lip thereon which is spaced from the web of the channel of which it forms a part, and means on the lower channels and extending above the flanges of the lower channels with which the lips interlock to hold the upper channels in place, the webs of the upper channels resting on said last-named means for supporting the upper channels in spaced relation to the lower ones.

6. An awning of the class described having a supporting frame structure and a roof surface formed of alternately reversed upper and lower channels, the upper channels each having a web with a down-turned flange at each side thereof, the down-turned flanges each having an inwardly-extending lip thereon which is spaced from the web of the channel of which it forms a part, and means on the lower channels and extending above the flanges of the lower channels with which the lips interlock to hold the upper channels in place, the webs of the upper channels resting on said last-named means for supporting the upper channels in spaced relation to the lower ones, said last-named means having a shoulder under which the lips are sprung.

7. An awning of the class described having a supporting frame structure and a roof surface formed of alternately reversed upper and lower channels, the upper channels each having a web with a down-turned flange at each side thereof, the down-turned flanges each having an inwardly-extending lip thereon which is spaced from the web of the channel of which it forms a part, and means on the lower channels with which the lips interlock to hold the upper channels in place, the webs of the upper channels resting on said last-named means for supporting the upper channels in spaced relation to the lower ones, said last-named means having a shoulder under which the lips are sprung, the lips being shaped to interlock with said last-named means to restrain the upper channels against endwise movement.

8. An awning having alternately reversed overlapping vertically spaced channels, the lower channels having upwardly turned flanges, the upper channels having downwardly turned flanges, inwardly turned lip elements on the flanges of the upper channels spaced from the webs of the channels, and means securing said upper channels in position with respect to

said lower channels comprising fastening elements having a lower part secured to the webs of the lower channels with the upper parts of the elements in engagement with the under surface of the webs of overlying upper channels and a holding means in the mid portions of said elements so positioned that the inwardly-turned lips of overlying channel flanges hook into said means to hold the upper channels in fixed position.

9. An awning having spaced alternate upper and lower channels with the edges of adjacent upper and lower channels overlapping, the upper channels each having a web with downwardly turned flanges along its edges and lip elements projecting inwardly from the free edges of said flanges, each of said lip elements being spaced by its flange from a web of an upper channel to provide an upper surface facing such web, and means securing the upper channels in fixed position over the lower channels comprising fastening elements secured to the upper face of the web of the lower channels and extending upwardly a substantial distance above the tops of the flanges on the lower channels into engagement with the under faces of the webs of overlying channels and notches formed in the mid portions of said elements positioned to make locking engagements with the lips on flanges of the overlying channels.

10. The awning structure defined in claim 8 in which the lower channels are secured to supporting members extending transversely of the channels by screws that pass through the members and webs of the lower channels into the bottom of the fastening elements.

11. An awning construction which comprises a

series of spaced lower channels having upwardly-turned flanges, a staggered series of upper channels having their webs mounted over the spaces between the first series of channels with downwardly-turned side flanges, the free edges of which have laterally inturned lips that form ledges substantially parallel with the webs of the channels on which they are carried, and of a width several times the thickness of the metal from which the channels are formed, and elements mounted wholly between the overlapping web portions of the upper and lower channels and secured to and carried by the lower channels adjacent the flanges of the lower channels, said elements extending into the space between the ledges and webs of the upper channels and having faces under which the ledges formed by the lips of the upper channels are locked whereby the upper channels are locked against upward movement and restrained against sidewise movement.

MEYER HARRISON.
SAMUEL B. KORMAN.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
537,569	Flatau	Apr. 16, 1895
612,024	Drake	Oct. 11, 1898
615,178	Hooper	Nov. 29, 1898
1,196,133	Moister	Aug. 29, 1916
1,330,493	Perrusi	Feb. 10, 1920
1,606,434	McAfoos	Nov. 9, 1926
1,770,063	Bloss	July 8, 1930
2,256,941	Crawford	Sept. 23, 1941