April 28, 1959 A. H. HILL 2,883,719

METAL AWNING

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Fig. 1

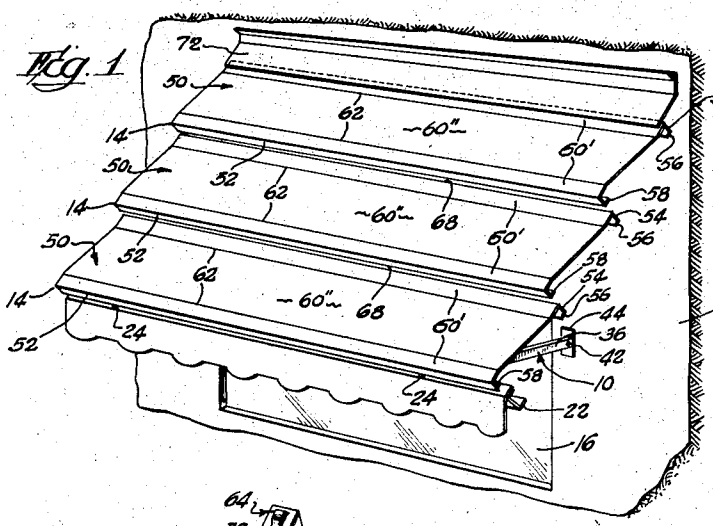


Fig. 5

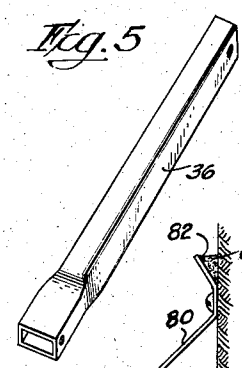


Fig. 3

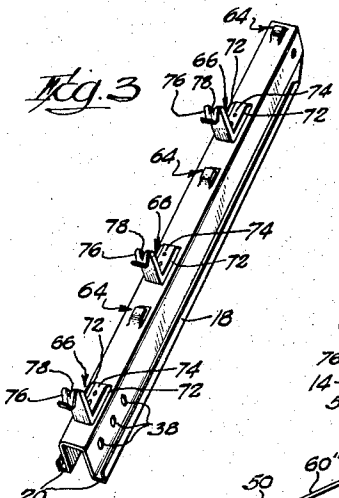
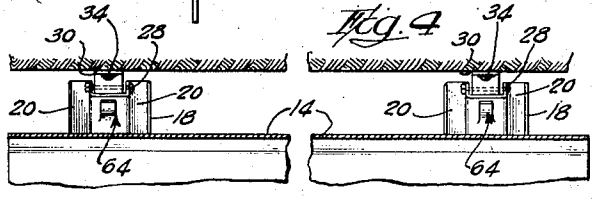


Fig. 2

Fig. 4



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METAL AWNING

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1 Claim. (Cl. 20—57.5)

This invention relates to awnings for shading windows and the like and particularly to a metal awning of improved construction.

Metal awnings are known in the art and comprise, generally, a supporting structure, including supporting arms, or purlins, adapted to be mounted on the exterior wall of a building over the windows to be shaded and a plurality of shade forming members, or pans, secured to the purlins. In assembled condition on a building, the awning projects outwardly from the exterior wall and downwardly so as to place the pans in position to shade the windows from the direct rays of the sun during the greater portion of the day.

A major object of the invention is the provision of a metal awning of the character described embodying an improved manner of assembly of the pans on the purlins.

Another object of the invention is the provision of a metal awning of the character described wherein the pans may be quickly and easily secured to the purlins without the aid of screws and tools.

Still another object of the invention is the provision of a metal awning of the character described which has an improved appearance and a more weather-proof construction owing to the absence of screws or other securing means which have heretofore been employed in the assembly of the pans on the purlins and which detracted substantially from the appearance of the awning as well as produced points which were prone to rapid deterioration by the elements.

Yet another object of the invention is the provision of a metal awning of the character described wherein the pans extend horizontally so as to provide an outward appearance more consistent with the modern lines of present day architecture.

A further object of the invention is the provision of a metal awning of the character described wherein the adjacent ones of the horizontal pans overlap slightly in vetrically spaced relationship so as to permit the ventilation of heated air from below the awning and wherein the pans have such a configuration in cross-section as to preclude the normal flow of rain water to the underside of the awning through said ventilation spaces.

A still further object of the invention is the provision of a metal awning of the character described which is adjustable to vary the slope of the awning as well as to compensate for any inaccuracies in the exterior building wall on which it is mounted.

Yet a further object of the invention is the provision of a metal awning of the character described which embodies improved means for adjustable attachment thereof to a building wall.

And yet another object is the provision of a metal awning of the character described which is pleasing in appearance, complies with all building codes, and which is adapted to rapid and economical manufacture.

The principles and features of the invention may be best understood from the following detailed description

and drawings of a present preferred embodiment of the invention in which drawings:

Fig. 1 is a perspective view of the present awning mounted on the wall of a building;

Fig. 2 is an enlarged side elevation of the awning of Fig. 1;

Fig. 3 is an enlarged perspective view of a purlin embodied in the present awning;

Fig. 4 is a section taken substantially along line 4—4 of Fig. 2; and

Fig. 5 is a perspective view of a spacer arm embodied in the present awning.

The awning illustrated comprises a supporting structure **10**, shown as attached to the wall **12** of a building, to which are firmly attached a plurality of shade forming pans **14** for shading windows **16** of the building from the direct rays of the sun. The supporting structure **10** and pans **14** may be constructed of any suitable, relatively rigid material, such as aluminum, which may be processed to render it immune to the effects of the elements and give it a pleasing color, such as by baking onto the surfaces of the parts a coat of enamel of desired color.

Supporting structure **10** comprises a plurality of supporting arms, or purlins, **18** which for convenience are shown as two in number, but which will vary in number with the width of the awning. These purlins are of generally U-section channel shape in cross-section and have transverse flanges **20** at their open sides. The outer ends of the purlins **18** extend into the channel of a forward channel-shaped cross tie **22**. Screws **24**, extending through the flanges of the cross tie **22** and the transverse flanges **20** and webs of purlins **18**, secure the purlins and cross tie into a rigid assembly. An angulated piece of sheet material **26** has one of its angulated legs affixed to the upper flange of the cross tie **22**, as by the screws **24**, and has its other leg extending downwardly, in a generally vertical plane, in front of the cross tie. This piece **26** is merely for decorative purposes, and to this end may have its lower edge scalloped, or otherwise artistically contoured, as shown.

The side walls of the purlins **18** are apertured adjacent their other, or inner, ends for receiving a pair of bolts **28**. A pair of mounting brackets **30**, comprising straps which are bent to substantially U-shape along two intermediate lines, and along two outer lines to form ears **32**, serve to provide means for hingedly attaching the purlins **18** to the building wall **12**. To this end, the brackets **30** extend into the channels in the purlins so as to straddle the bolts **28**. Also, the ears **32** of the brackets are apertured to receive mounting screws **34** for securing the brackets **30** to the wall.

The purlins **18** are retained in a fixed angular relationship, or slope, relative to the wall **12** by a pair of spacer arms **36** (only one shown), of generally square tubular cross-section. The forward ends of the spacer arms **36** extend into the channels in the purlins, adjacent the forward ends of the latter, said forward ends of the spacer arms being apertured, as shown. The opposite side walls of each purlin are formed with three sets of aligned apertures **38** with any given one of which sets the apertures in the spacer arms may be aligned by movement of the spacer arms along the channels in the purlins. Bolts **40** extend through a selected one of said sets of apertures and through the apertures in the spacer arms for adjustable attachment of the latter to the purlins, for reasons to be presently seen.

The after-ends of the spacer arms are also apertured to receive bolts **42** which are straddled by generally U-shaped brackets **44**, similar to brackets **30**, which extend into the open after ends of the spacer arms. The brackets **44** have apertured ears **46** for receiving screws **48** securing the brackets **44** to the wall **12**. It will be noticed

that the spacing between the ears and web in each pair of brackets 30 and 44 is such as to accommodate adjustment of the purlins and spacer arms toward and away from the wall 12, for reasons to be presently set forth. The parts may be retained in a given adjusted position by tightening the nuts on the bolts 28 and 42 to force the side walls of the purlins and spacer arms into frictional clamping engagement with the side edges of the brackets. To this end, the width of the brackets are only slightly less than the width of the channels in the purlins and openings in the spacer arms, as the case may be, so that no substantial play will exist between the brackets and their respective arms.

The pans 14 are identical and of a length to provide the desired awning width. Each pan may be described as being of generally channel-like construction to provide on each pan a web portion 50 and, along the longitudinal edges, side flanges 52 and 54. The free, or lower edge portions of the side flanges 52 and 54 are inwardly bent normal to their respective side flanges, to form lips 56 and 58.

Webs 50 of the pans extend normal to the side flanges 52 and 54 for a distance inwardly from the latter equal substantially to the width of the flanges, as shown at 60'. The webs are folded along lines, indicated at 62 and defining the inner terminations of said normally extending web portions 60', in a manner to form intermediate, inclined or angulated portions 60'' of the webs. The channels formed by the web portions 60' flanges 52 and 54, and lips 56 and 58 are, thereby, offset a distance in a direction parallel to the side flanges, the latter and the lips 56 and 58 being parallel.

Pans 14 are fixedly mounted on the purlins by clip type fastening means, generally indicated 64 and 66. For each pan 14, there will be provided, on each purlin, one of each of the means 64 and 66. Each of the fastening means 64 comprises a tongue which may be punched upwardly from the web of the respective purlin a distance substantially equal to the thickness of the material from which the pans are made, and, in the assembled condition of the parts, the several tongues overlie the lips 56 on the pans, as shown. The tongues 64 on each purlin are equally spaced with the tongues on one purlin being aligned with the corresponding tongues on the other purlin so that the pans will extend perpendicularly to the purlins. As shown, most clearly in Fig. 2, the spacing between the tongues 64 is such that with the lips 56 positioned thereunder, the outer edge of one pan will overlap the inner edge of the next outer pan a distance substantially equal to the width of the outer lips 58. Also, because of the aforedescribed folding of the webs 50 of the pans along lines 62, the lower surface of the outer lip 58 on one pan will be spaced above the inner normal web portion 60' of the outer pan so as to form a plurality of ventilation openings 68 to prevent the entrapment of heated air at the under side of the awning.

Each of the fastening means 66 comprises a generally L-shaped member 70 which may be of channel section to provide side flanges 72 and a web 74. One leg of the member 70 is rigidly fixed to the upper surface of the respective purlin in any suitable manner, as by spotwelding. The web 74 of the member 70 extends beyond the side flanges 72 of the other leg of the member and is formed into a substantially S-shaped finger 76. The web 74 may be embossed with a reinforcing rib 78 extending on opposite sides of the first or upper bend in the S to lend rigidity to the member. In the assembled condition of the pans on the purlins, the last mentioned upper bend in each S bears against the under side of its respective pan web, approximately at the outer fold line 62 in the latter, while the other, or lower, bend in the S seats in the trough defined by the outer lip 58 and outer side flange 52 of the pan, the free leg of the S bearing flatly against the inner surface of said forward side flange, as shown. The spacing between the lip 58 and

the outer normal portion 60' of the web is less than the vertical spacing between bends in the S so that in the assembled condition of the parts, shown in Fig. 2, the outer side flange 52 will be flexed slightly outwardly of its normal unstressed position so that the pan will be firmly, but resiliently retained on the clip member 70.

In assembly of the pans on the purlins, the inner lips 56 of the pans are inserted under the tongues 64 and the outer portions of the pans are forced downwardly over the clip member 70 until the forward lips 58 snap into position under the lower bends in the S of the clip members, as shown in Fig. 2. The spacing between the clips 70 and their associated tongues 64 is such that the pans will be firmly locked in position on the purlins against accidental separation. However, the pans may, if desired, be readily removed by disengaging them from the clips 70 and then from the tongues 64. Conversely, assembly of the pans on the purlins may be rapidly and easily accomplished in the manner just described without the aid of screws or tools.

In mounting of the awning, the brackets 30 are secured to the wall 12 at the upper edges of the windows 16, and the brackets 44 are secured to said wall at the sides of the windows and in a vertical position such that the spacer arms 36 will be substantially horizontally disposed. The aforedescribed adjustment of the purlins on the brackets 30 toward and away from the wall permits adjustment of the awning to compensate for any unevenness in the wall surface, such as when a depression in the surface exists at the point of attachment of one bracket to the wall. Compensating adjustment of the awning is also accommodated by the aforedescribed adjustability of the lower brackets 44 in the spacer arms 36. After desired positioning of the awning has been achieved, the respective bolts 28 and 42 are tightened to secure the awning in its adjusted position.

Adjustment of the slope of the awning is accomplished by passing the fastening bolts 40 through a selected one of the sets of apertures 38 in the purlins, which, as is apparent, has the effect of varying the downward inclination or slope of the awning. Thus, the apertures might be spaced to provide slopes of 35°, 40° and 45°.

In hurricane areas, the fastening bolts 40 may be removed and the awning dropped so as to hang vertically in front of the windows. The awning could then be lashed in that position for protection of both the awnings and windows.

Slight adjustment of the awning to permit positioning of the upper inner and lower outer pans parallel respectively, to the upper and lower sills of the window when such sills are not themselves accurately parallel, may be achieved by adjustment of the spacer arms 36 on the brackets 44 to, in effect, warp the awning slightly to bring said pans into parallelism with their respective sills.

An inspection of Fig. 2 will show that in the mounted condition of the awning, the inner normal web portions 60' of the pans are slightly upwardly inclined. This upward inclination in conjunction with the aforedescribed overhang of adjacent pans excludes the normal or natural flow of rain water through the ventilation openings to the underside of the awning so that a relatively good rain-tight construction is provided. Resistance to the elements, as well as appearance, are also substantially enhanced by the fact that no screws or bolts are exposed at the upper sides of the pans 14 so that the outwardly exposed surfaces of the pans have unbroken lines undistracted by bolts or screw heads. A drip pan 80 may be secured to wall 12 to prevent the entrance of rain to the underside of the awning through the space between the inner pan 14 and wall 12. This pan 80 may be formed to define with wall 12 a trough 82 which can be filled with calking compound 84 to provide a watertight joint between said pan 80 and the wall.

The presently preferred embodiment of the invention, just disclosed, is for illustrative purposes only, it being

apparent that numerous modifications in design and arrangement of parts is possible within the scope of the following claim.

I claim:

In an awning of the character described, a pair of spaced, generally parallel purlins having normally upper surfaces and inner and outer ends, means for attaching the inner ends of the purlins to the wall of a building, a plurality of pans overlying and extending substantially normal to said purlins, each of said pans being generally channel-shaped in cross-section and having a web and flanges of substantially equal width along the linner and outer longitudinal sides of the web, said flanges extending toward said purlins, said web being folded along longitudinal fold lines spaced slightly from the inner and outer sides of the web to form a pair of substantially parallel inner and outer web portions along said sides of the web and an inclined web portion between said parallel web portions, the normally lower edge portions of said flanges being turned inwardly to form inner and outer lips substantially paralleling and underlying said inner and outer web portions, respectively, said inner lip of each pan resting flatly against the upper surfaces of the purlins and said inclined web portion of each pan inclining away from said purlins toward the outer ends of the latter to space the outer lip on each pan from the purlins, said purlins having pairs of tabs aligned lengthwise of said pans, each tab extending lengthwise of its respective purlin and having its outer end joined to the purlin and its inner end spaced above the upper surface of the purlin a distance substantially equal to

the thickness of the inner lip on said pans to define a pan-lip-receiving slot which opens toward the inner end of the purlin, each pair of aligned tabs engaging over the inner lip on one of said pans to hold the latter lip flat against the upper surfaces of said purlins, a pair of upstanding clips fixed to said purlins adjacent and underlying the outer side of each pan and aligned lengthwise of said pans for securing the outer sides of the pans to the purlins, each clip comprising a generally S-shaped finger which extends outwardly of the purlins and downwardly from the upper extremity of the clip, each finger having an upper bend which bears against the underside of the web of the adjacent pan just inwardly of the outer fold line of the web and a lower bend which engages over the outer lip on the adjacent pan, said finger of each clip between its upper and lower bends being spaced from the outer flange and web portion of the adjacent pan.

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