AWNING OR PATIO COVER MOUNTING APPARATUS

Inventor: Larry F. Bamberger, Tucson, Ariz.

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Primary Examiner—Frank L. Abbott
Assistant Examiner—Leslie A. Braun

ABSTRACT
Weather-resistant awning or patio cover attachment apparatus having a flexible flashing element and nongasket wall and end seals for sealably mounting a rigid awning frame to a support wall.

4 Claims, 5 Drawing Figures
AWNING OR PATIO COVER MOUNTING APPARATUS

BACKGROUND OF THE INVENTION

1. Field of the Invention
This invention relates to mounting apparatus for sealably securing a rigid awning or patio cover frame to a support wall with minimal use of mastic materials.

2. Description of the Prior Art
Window and door awnings constructed of various flexible materials have long been known. Rigid awnings fabricated from corrugated panels and the like are also well known and widely used. The rigid awnings are generally constructed of a single panel or a series of interlocking panels fabricated from sheet aluminum, fiberglass or similar light weight rigid materials which are supported in an awning frame that attaches to the exterior wall of a building or a mobile home.

Two elements of support are usually used for attaching rigid awnings to a support wall. One of the elements is a wall bracket which attaches to the support wall and to the awning frame. The other is a support column or similar structure located at the exterior edge of the awning or awning frame and extending to the ground to provide support for the front edge of the awning. Alternatively, support for the front edge of the awning may be in the form of truss elements which attach to the support wall and to the awning frame.

Unlike fabric awnings or rollup awnings, rigid awnings are often not intended to be retracted. As a result, the support element adjacent to the support wall generally positions the awning frame in a single angular position relative to the support wall. In such installations, the awning will typically be mounted to the support wall when it is installed and thereafter will not be moved.

However, in many instances it becomes desirable to allow the awning panel to be pivoted somewhat relative to the support wall. Such is the case, when in attaching the awning to a mobile home or other structure it is desired to choose one of several pitch angles so that proper water runoff is achieved. In addition, when the awning moves or flexes due to wind or the weight of snow, the pivot prevents these movements from being transmitted to the wall bracket which could be loosened as a result. As a result, various methods have been used in the past for pivotally mounting the awning to the support wall. One example of such a mounting means is disclosed in U.S. Pat. No. 3,286,404 by J. K. Harrison where the awning is intended to be swung all the way down to a vertical position.

When pivotable attachment apparatus is used for attaching a rigid awning to a support wall, it is necessary that sealing means be provided to keep water or snow from blowing past the apparatus onto the area beneath the awning. Various methods have been employed in attempting to provide sealing means for such apparatus. The primary element presently utilized for sealing purposes is a mastic material such as caulking or putty compound. Typically, such mastic material is applied between the hinge apparatus and the support wall to prevent the flow of water around the mounting apparatus and down the support wall onto the area beneath the awning. In addition, it has been common for caulking material to be applied along various joints of the mounting apparatus to prevent leakage where metal parts interlock. This is particularly necessary in a pivotted mounting where the metal parts must be free to move with respect to one another and where moisture may creep in between the moving parts and possibly freeze. It has also been common to use various flashing elements which act to cover portions of the hinge apparatus. The flashing elements of which applicant is aware are sealed directly against the support wall by the use of putty or caulking.

In each of these instances, where putty, caulking or other mastic material is used, serious problems have arisen. Because of the use of awnings in various climate extremes, it is common for the caulking material to shrink or become brittle due to the effects of extreme cold, drying wind or sunlight. As a result, the caulking or putty will dry, become dislodged or otherwise allow the rain or snow to seep into the hinge apparatus and onto the area beneath the awning. In addition, the putty or caulking material is particularly troublesome in the case of pivoted mounting apparatus where the parts must continually move with respect to one another due to vibration and the like, causing the caulking to break away, crack or loosen.

SUMMARY

The present invention is an awning attachment apparatus for sealably mounting a rigid awning frame to a support wall with minimal use of mastic materials. It provides an awning rail which can be secured to a support wall at any number of discrete locations. An awning hanger is pivotally secured to the rail such that an awning panel attached to the hinged hanger can be positioned in any one of several angular positions to provide for effective water runoff. A non-mastic sponge seal is provided between the awning hanger and the awning panel.

Cleat members attached to the awning hanger and a corresponding retention lip on the rail provide retaining recesses for a flexible flashing element. These recesses allow the flashing element to be sealably held in place when the awning panel is at any one of several angular positions and effectively prevents rain and snow from seeping through the hinge apparatus. In addition, end-seals are provided for the ends of the hinge apparatus to prevent moisture from entering. A non-mastic sponge seal is inserted between the rail apparatus and the support wall to further prevent the flow of moisture to the sheltered area beneath the awning.

The present weather resistant attachment apparatus allows a rigid awning to be pivotally attached to a building or mobile home. The awning panel can be moved to any one of several positions without degrading the sealing ability provided by the hinge apparatus. The use of flexible flashing elements, a non-mastic seal between the rail and the support wall, and resilient end seals helps prevent the flow of moisture past the hinge apparatus or its accumulation within the hinge apparatus.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a rigid awning mounted to a support wall by the weather resistant attachment apparatus;

FIG. 2 is a side elevational view of the weather resistant attachment apparatus;

FIG. 3 is a partially cut away sectional view along the line 3—3 in FIG. 2;
FIG. 4 is a side elevational view of an alternative embodiment of the weather resistant attachment apparatus; and

FIG. 5 is a perspective view of an end-seal for use with the weather resistant attachment apparatus.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIGS. 1-5, wherein like numerals refer to like structural elements, the awning attachment apparatus 1 is a sealed means for pivotally mounting a rigid awning panel 16 to a support wall 30. The attachment apparatus 1 is comprised of a mounting rail 20 which is attached to support wall 30 and which pivotally supports awning hanger 10 to which is attached the rigid awning panel 16.

Referring to FIGS. 1 and 2, it is seen that the awning panel 16 is a corrugated panel which can be a single panel or a plurality of discrete segments which are joined together to form a shelter for the area below the awning. The awning panel 16 is carried in an awning frame 18 which is generally a rectangular structure having an eave spout (not shown) for carrying off the water which runs off of the panel 16. In alternative embodiments (not shown) the awning hanger may or may not be an integral part of the awning frame.

As is shown in FIG. 2, awning panel 16 is attached to awning hanger 10 by means of screws 16a and 16b. Other suitable means of attachment may also be used. In the preferred embodiment, hanger 10 forms an integral part of awning frame 18. A water resistant sponge seal 17 is inserted between the awning panel 16 and awning hanger 10. This flexible material provides a seal between the panel 16 and hanger 10 which prevents rain or snow from passing through the awning at this assembly joint. Seal 17 may be a sponge-tape or similar flexible, non-mastic material which is resistant to cracking or leaking caused by temperature changes or vibration of the awning. In the preferred embodiment, seal 17 has pre-applied adhesive on the side abutting awning hanger 10. Awnng hanger 10 consists of an extension element 12 which is joined to a vertical element 11 which in turn joins a support element 15. One end of extension element 12 terminates in the rounded hinge bar 14 whose function will be described in detail later and which is one of two pivoting elements which form the hinge for attachment apparatus 1.

Awnng hanger 10 is utilized to mount the awning panel 16 to support wall 30 by means of a mounting rail 20. As is seen in FIG. 2, mounting rail 20 is comprised of a generally flat mounting plate 21 having retention lips 22 and 22a at its upper end and a tubular enclosure element 23 at its lower end. Enclosure element 23 has a hinge opening 24 which is intended to interlock with the hinge bar 14 to form a pivot point between awning hanger 10 and mounting rail 20. The purpose of retention lips 22 and 22a will be described in detail later.

In the embodiment shown in FIGS. 1 and 2, hinge bar 14 and hinge enclosure element 23 both extend the length of the awning panel 16 to provide continuous support for panel 16 on support wall 30. However, in alternative embodiments (not shown) these elements may be of various lengths without impairing their ability to support one another and form a hinge.

An end-seal 26 is placed in hinge opening 24 to prevent the flow of moisture into the hinge from the ends of enclosure element 23. In the embodiment shown, end-seal 26 consists of a resilient tape which adheres to the end of enclosure element 23. A properly contoured plastic plug (not shown) or a pliable putty element (not shown) may also be used for end-seal 26.

Mounting rail 20 is attached to support wall 30 by means of fastening screws 25. In the preferred embodiment, rail 20 is a continuous element which extends the length of the awning panel. Because of the width and breadth of mounting rail 20, screw holes can be inserted in it at any number of discrete locations. This provides versatility for the installation of the awning attachment apparatus 1 in that mounting screw holes can be located at any point where there is a structural member within the support wall 30. Means other than screws 25 may also be used where appropriate. The unitary nature of rail 20 reduces the chance for leaking and the need for sealing.

In the preferred embodiment shown in FIG. 2, a nonmastic water resilient sealing element 31 is inserted between mounting rail 20 and the support wall 30. Sealing element 31 can be fabricated of any one of several non-mastic materials which are water resistant and pliable, but which do not crack or loosen due to vibration or extreme climate. Because sealing element 31 is pliable, when the mounting rail 20 is tightened against support wall 30 the soft material of sealing element 31 tends to fill any voids which would exist at the interface between the two elements. This prevents the passage of moisture along the support wall to the area beneath the awning. Such sealing capability is particularly valuable when the support wall has a grooved or textured surface as with rough-hewn siding, stucco or brick. Sealing element 31 would typically extend the entire length of mounting rail 20 to provide a good water tight seal between the mounting rail 20 and the support wall 30.

The use of water resistant sealing element 31 would normally eliminate the need for caulking between mounting rail 20 and support wall 30. However, caulking may still be used in certain instances for additional protection, but it is usually unnecessary and undesirable in that it tends to crack and deteriorate in extreme climates and as a result of vibration or flexing of the awning attachment apparatus 1.

To prevent rain or snow from penetrating between the two hinge element 23 and 14, a flexible flashing element 19 is provided. This is shown in FIG. 2 and in an alternative installation embodiment in FIG. 4, which will be described in detail later. Flexible flashing element 19 is fabricated from a thin flexible material such as steel, aluminum or plastic and is held in place between mounting rail 20 and hanger extension element 12 by means of a retention lip 22 and any one of the plurality of cleat members, each designated by the numeral 13. Retention lip 22 is a part of mounting rail 20 and extends generally outwardly and downwardly from mounting plate 21 to form a grooved recess along the length of mounting rail 20. Cleat members 13 are protuberances extending up from extension element 12 and are angled in a direction toward the support wall. Cleat members 13 provide an angled recess along the length of extension element 12.

Flashing element 19 is held in place by inserting its upper edge 19a under either retention lip 22 or 22a and its bottom edge 19b under one of cleat members 13. Flashing element 19 is bent when inserted beneath the retention elements and the internal stresses which the bending produces help retain it in place once it is in-
serted. In the embodiment shown in FIG. 2, flexible flashing element 19 is flexed such that it is convex outward. Because of the stress imparted to flexible flashing element 19 when it is inserted in place a generally tight seal is established between it and retention lip 22 and cleat member 13. This abutting engagement, in addition to the overhanging effect of retention lips 22 and 22a and cleat member 13, helps prevent rain or snow from migrating past flashing element 19 into the hinge apparatus. As a result, an effective weather seal is established.

Three separate cleat members 13 are shown in FIG. 2. While only one cleat is utilized to hold flashing element 19 in place, several different cleat locations provide several different locking positions for flashing element 19. Thus, a particular cleat location may be selected when the awning is moved into any one of several angled orientations with respect to support wall 30. Similarly, a second lip extension 22a is provided on rail member 20. Either lip 22 or 22a may be utilized to properly retain flashing element 19. More retention lips (not shown) may also be utilized. As a result, a single awning hanger 10 and a single rail 20 is provided which accommodates awnings which are positioned at various angular orientations with respect to the support wall 30.

During the installation of the awning 16 on support wall 30 a cleat member 13 is selected which provides the best sealed insertion for flexible flashing element 19. As a result, it is not necessary that various awning hanger designs or various sizes of flashing element 19 be provided. The embodiment shown in FIG. 4 shows flashing element 19 inserted beneath retention lip 22 and cleat member 13 such that it is concave outward, i.e. when viewed from above the awning.

To prevent the passage of rain into the ends of the attachment apparatus 1, a sponge material end-seal 27 covers the end opening formed between flashing element 19, extension element 12 and mounting plate 21. In a preferred embodiment, end-seal 27 is a sponge-like resilient material which can be easily inserted during installation of the awning and can be deformed to take the particular shape of the opening into which it is inserted. This flexibility allows one-sized end-seal 27 to be used regardless of which cleat member 13 is used for retaining flashing element 19.

In installations where it is desired that a more rigid end-seal be utilized to protect the opening between flashing element 19 and extension element 12, an alternative end plug 27a (see FIG. 5) may be utilized. End 27a is comprised of an insert portion 29 which is contoured to exactly fit the opening between the various elements of the attachment apparatus 1. Attached to element 29 is an exterior plate 28 which extends across the outside ends of the hinge elements to provide an attractive covering device. When an end-seal such as 27a is desired, various sizes of insert portion 29 may be provided to fit into the attachment apparatus 1 when flashing element 19 is in any one of the several cleat members 13.

The installation and use of the awning hinge apparatus 1 can be summarized as follows. The mounting rail 20 is attached to a support wall 30 by means of screws 25 or other fastening devices (not shown). Water resilient non-mastic sealing element 31 is positioned between mounting rail 20 and support wall 30 before it is tightened against the support wall. This prevents the flow of moisture between the support wall 30 and rail 20. Because mounting rail 20 extends the length of the awning panel 16, any number of anchoring positions may be chosen on it for securing it to reinforced portions of support wall 30.

Awnings hanger 10 is attached to mounting rail 20 by tilting hanger 10 upwardly and inserting the leading edge 14a of hinge bar 14 into hinge opening 24. When awning hanger 10 is pivoted downwardly to the desired installation angle, hinge bar 14 automatically locks into position within hinge opening 24. Attachment may also be accomplished by sliding hinge bar 14 into hinge opening 24 on mounting rail 20. The generally cylindrical interface between hinge enclosure element 23 and hinge bar 14 provides a pivot for the attachment apparatus 1. After the awning panel 16 or the frame 18 upon which it is mounted is located in the desired angular position relative to support wall 30, flexible flashing element 19 is inserted by flexing it such that its ends are inserted beneath a retention lip (22 or 22a) and a cleat member 13. When the flex is released on the flashing element 19, enough tension remains in it to provide a tight engagement between it, retention lip 22 or 22a and the cleat member 13.

To shield the end of attachment apparatus 1 from rain and snow end-seal 26 is inserted in hinge opening 24 and end-seal 27 is inserted between flashing element 19 and extension element 12. End-seal 27 can be either a pliable sponge-like material which can be formed to completely enclose the opening beneath flashing element 19 or it can be a semi-rigid element 27a which is specially contoured to fit into the opening beneath flashing element 19. With these various elements in place, awning panel 16 or awning frame 18 is securely attached to support wall 30 in a weather-resistant manner without need for extensive use of mastic sealants such as caulking or putty.

Channel 15a extends the width of awning panel 16. It is intended as a channel to receive a snap-in splice bar (not shown) which would be inserted to hold two adjoining panel units in alignment. In addition, screw channel 15b extends the width of hanger 10 to allow the sections of panel 16 to be anchored in place at any location by means of screws 16b.

What is claimed is:

1. An awning or patio cover attachment apparatus for sealably mounting a rigid awning panel to a support wall with minimal need for caulking, comprising:
   a. a unitary awning rail member attachable to the support wall;
   b. an awning hanger for supporting the awning panel, said hanger attached to the edge of the awning panel which is adjacent the support wall;
   c. hinge means for pivotally attaching said hanger to said rail member;
   d. shielding means to prevent the passage of rain through said hinge means, said shielding means including:
      i. a flexible flashing element having first and second opposed edges, said flashing element extending between said rail member and said hanger;
      ii. at least one retention lip attached to said rail member and forming a recess for retaining the first edge of said flashing element in generally sealed mechanical engagement therewith; and
      iii. at least one cleat member attached to said awning hanger and forming a recess for retaining...
the second edge of said flashing element in generally sealed mechanical engagement therewith;
e. non-mastic means for attaching said flashing element to said rail member and said awning hanger in a generally sealed relationship thereto when the awning frame is positioned in any one of several pitch orientations; and
f. a flexible, non-mastic water resistant sealing element sealably attached to said rail member and abuttable against the support wall, said sealing element being compressible to conform to the contour of the support wall thereby preventing the flow of moisture therebetween.

2. The attachment apparatus of claim 1 wherein said flashing element is formed from a resilient material which can be flexed to produce stress therein, said flashing element opposed edges insertable beneath said retention lip and said cleat member in a flexed mode to be retained therebetween by the elastic stresses in the flashing element.

3. The attachment apparatus of claim 1 wherein there are provided a plurality of retention lips attached to said rail member in a generally vertical array and wherein there are a plurality of cleat members attached to said awning hanger in a generally vertical array, said retention lips and said cleat members serving to retain said flashing element in sealed relationship when the awning frame is positioned in any one of several pitch orientations.

4. Awnning or patio cover attachment apparatus for sealably mounting a rigid awning panel to a support wall with minimal need for caulking, comprising:
a. a unitary awning rail member attachable to the support wall;
b. a flexible, non-mastic water resistant sealing element sealably attached to said rail member and abuttable against the support wall, said sealing element being compressible to conform to the contour of the support wall thereby preventing the flow of moisture therebetween;
c. an awning hanger for supporting the awning panel, said hanger attached to the edge of the awning panel which is adjacent the support wall;
d. hinge means for pivotally attaching said hanger to said rail member;
e. shielding means to prevent the passage of rain through said hinge means, said shielding means including a flexible flashing element having first and second opposed edges, said flashing element extending between said rail member and said hanger;
f. non-mastic means for attaching said flashing element to said rail member and said awning hanger in a generally sealed relationship thereto when the awning frame is positioned in any one of several pitch orientations;
g. a first water resistant end-seal insertable in the end opening formed by said flashing element, rail member and awning hanger near the end of said flashing element to prevent the passage of moisture therein; and
h. a second water resistant end-seal attachable to the end of said hinge means to prevent the passage of moisture into said hinge means, said second end-seal being a pliable water resistant element having adhesive on one side for abuttable sealed engagement with the end of said hinge means.

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