Nov. 22, 1966 J. K. HARRISON 3,286,404

METAL AWNING WITH ADJUSTABLE MOUNTING CONSTRUCTION

Filed March 15, 1965

FIG. 1.

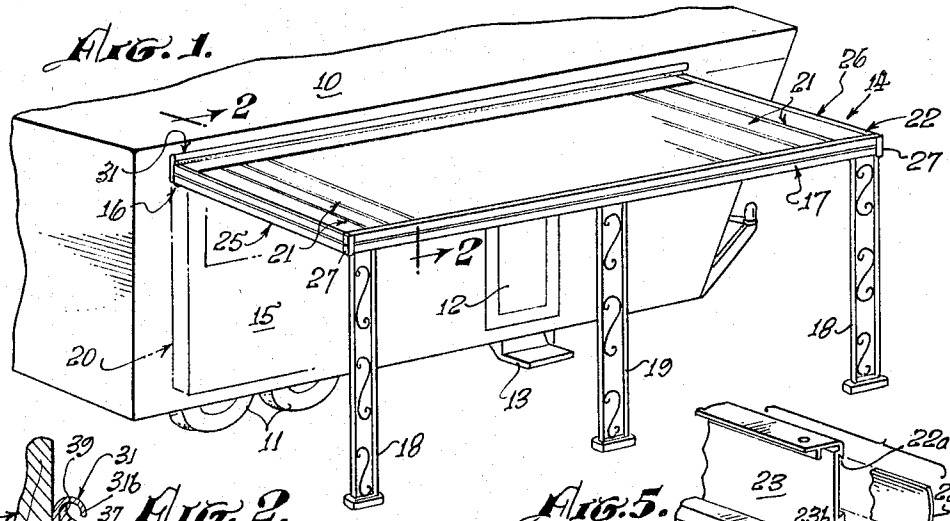


FIG. 2.

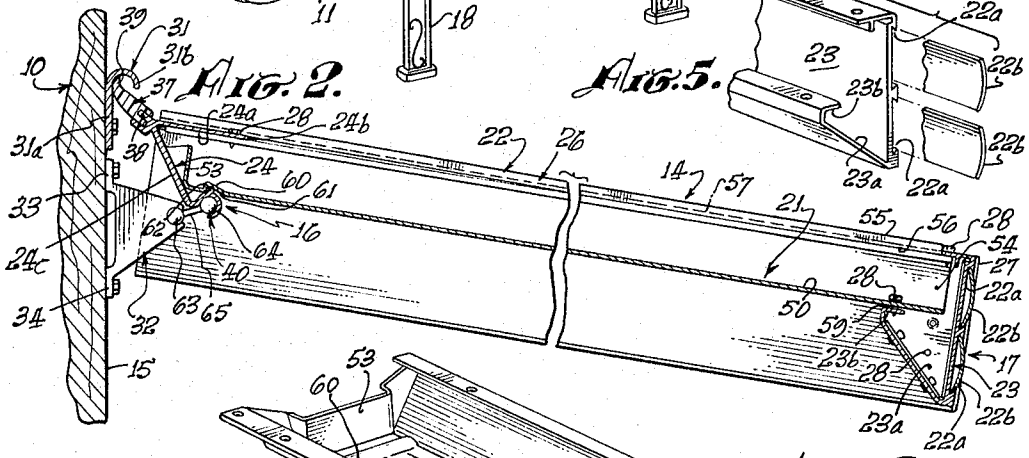


FIG. 5.

FIG. 3.

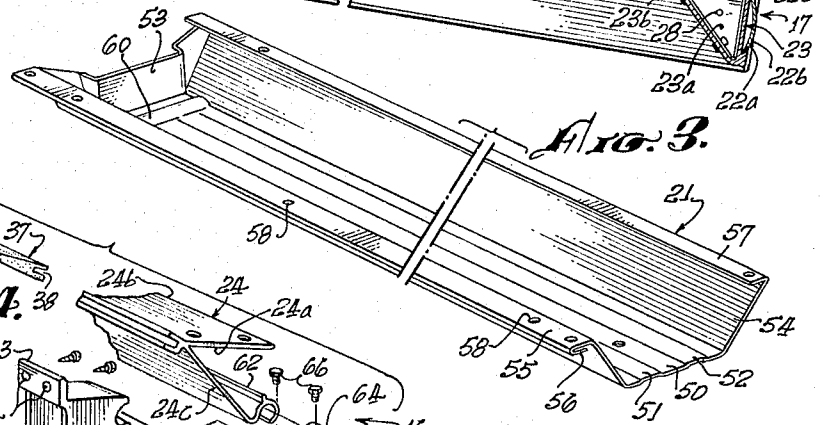


FIG. 4.

FIG. 6.

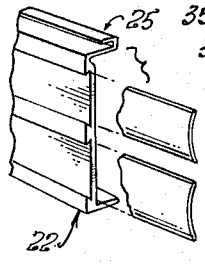
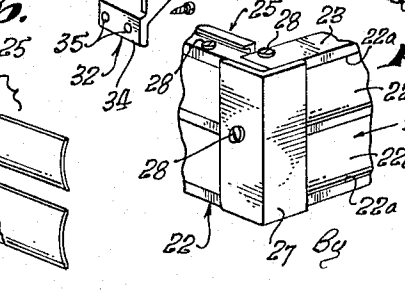


FIG. 7.



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METAL AWNING WITH ADJUSTABLE MOUNTING CONSTRUCTION

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2 Claims. (Cl. 49—384)

This invention relates to the construction of metal awnings assembled from stamped sheet metal and extruded bar stock; the metal commonly employed is aluminum. More particularly, the invention relates to a metal awning intended to be attached along one edge to a building or house trailer, the outer edge being supported by pipe columns, overhead cables, or the equivalent.

The novelty of the invention resides primarily in the construction of the hingeable wall mounting means, which is adjustable to permit mounting at any desired spacing along the edge of the awning, while at the same time providing a watertight joint between the edge of the awning and the building for any awning slope within a substantial range of obliquity.

Lightweight but rigid aluminum awnings have achieved widespread popularity with the owners of all types of house trailers—both the so-called mobile homes and the travel trailers. Such awnings are constructed of an interlocking assembly of stamped sheet metal aluminum pans, usually enameled, and assembled in a frame constructed of aluminum extrusions of various special cross sections. Weather stripping is usually accomplished by means of plastic or neoprene rubber strips which are formed in a cross section specially adapted for a particular awning construction.

Aluminum awnings are not restricted in their use to house trailers. Many such awnings have become permanent replacements for canvas awnings in front of commercial buildings, on homes, or have been employed as a roofing cover on its own supports, independently of any associated building.

Unfortunately, such awnings have usually required the expensive services of skilled specialists each time they have been installed or moved. The awnings are usually light in weight and simple to assemble, so that the unskilled purchaser may assemble his own awning, without too much difficulty; however, when he is confronted with the task of mounting the assembled awning of constructions heretofore known, he runs the risk of damaging the trailer wall, or the awning, in attempting to secure a suitable weathertight mounting.

One of the difficulties associated with mounting has been that attachment should be to the vertical studs within the wall of the trailer (or the wood studs behind stucco in building construction, or the like).

Another difficulty has been that awning constructions of the past had to be mounted at a predetermined pitch angle, or with no pitch at all, so that their drainage of rainwater was inadequate.

In general, the aluminum awning of the past has achieved a watertight joint between the edge of the awning and the edge of the building to which it is mounted by means of a rigid mounting which would not tolerate the operation of folding down the awning against the side wall of the trailer for periods of transport between living locations. Moreover, most of these prior aluminum awnings have been incapable of handling the run-off of substantial quantities of rainwater; most have provided no guttering, or have employed an exposed gutter which detracted from the appearance of the awning, and have been subject, during heavy rainfall, to a discharge of water along the mounting edge of the awning down onto the wall surface of the trailer or building.

It is a major object of the present invention to provide an aluminum (or metal) awning (or roof) which can be mounted at its upper edge to a wall (or column) structure having any spacing and irregular spacing, and which can be mounted at any pitch within a suitable range of pitch, without special fabrication and without requiring the services of a skilled installer.

It is another major object of the invention to provide an awning which may be folded about the point of mounting to either an erected position (supported on columns or by cables) or to a vertical position against the mounting wall—for example, during the transport of a house trailer.

It is a further object of the invention to provide an interlocking construction of aluminum awning of foldable type which can carry away heavy rainfall through its own concealed guttering, without leakage to the trailer wall or the covered area through the joints of the awning structure.

The awning construction of the invention employs an interlocking assembly of formed sheet metal pans, which are held within a frame constructed of extruded metal bars, the assembly being fastened together by screw fasteners in a manner generally similar to previously known awning assemblies. However, unlike previous assemblies, the awning of the invention is comprised of a mounting bar structure of novel design, which provides, in combination, a watertight interlocking construction with the upper ends of the pans, a longitudinally adjustable hinge mounting means, and a weather stripping seal at the wall surface which tolerates folding of the awning, and provides weathertight sealing over a substantial range of awning pitch.

The invention achieves the foregoing and other objects and advantages by a combination of structural features which may be best understood from a description of one preferred specific embodiment, illustrated in the accompanying drawings, in which:

FIGURE 1 is a perspective view of the right side of a house trailer, to the side wall of which a foldable awning, constructed according to the present invention, has been mounted;

FIGURE 2 is a transverse sectional view through the awning, as viewed at a vertical plane indicated by the arrow **2—2** in FIGURE 1;

FIGURE 3 is a perspective view of a single pan of the type employed in interlocking construction within the awning of FIGURE 1;

FIGURE 4 is a perspective view, as seen from the back or mounting side, of the mounting bar frame, its associated hinge mounting means, and its associated weather strip;

FIGURE 5 is a perspective view of a section out of the front frame member of the awning of FIGURE 1;

FIGURE 6 is a perspective view of a short section out of a side frame member of FIGURE 1; and,

FIGURE 7 is an enlarged perspective detail view of a front quarter of the awning assembly of FIGURE 1, showing the assembled construction of a corner.

In FIGURE 1, a typical travel trailer is indicated generally by the numeral **10**, but is shown only fragmentarily, and without detail, except that wheels **11**, door **12**, and step **13** suggest a typical construction.

A foldable awning **14**, constructed according to the invention, is shown mounted to the right side trailer wall **15** at a hinge-mounting indicated generally by the numeral **16**, and supported along its front or outboard edge **17** by a pair of columns **18** and **19**, which are indicated as being of ordinary pipe column type, but which may be decorative wrought iron, wood, or any other column structure desired. It will be further appreciated that, upon buildings, tie rods or cables might support the awning from

above, thus dispensing with the requirement of any column supports whatever.

When it is desired to transport travel trailer **10** over the highway, the columns **18** and **19** are simply removed, and the awning **14** is dropped into a vertical position, folded against the trailer wall **15** as indicated by the dashed lines **20**.

The awning of FIGURE 1 is constructed in an assembly as seen in the sectional view of FIGURE 2, which is comprised principally of a number of interlocking pans **21** (see FIGURE 3), and a frame which may be designated generally by the numeral **22**, and is comprised principally of a front gutter member **23**, a hinge-mounting bar member **24**, and end bar members **25** and **26**, illustrated in FIGURES 1, 6, and 7.

In addition, the front corners of the frame **22** are provided with corner members **27**, and the entire assembly is fastened together by means of screw fasteners **28**. Weatherproof but foldable mounting to trailer wall **15** is achieved at hinge mounting **16** by means of a hinge mounting means best viewed in FIGURES 2 and 4. A metal eave bar **31** is permanently screwed to the trailer wall **15** along the horizontal line near the roof, suitable mastic sealing or the like being used if necessary between the back of the eave bar **31** and the surface of trailer wall **15**.

It will be seen that the eave bar is comprised of a vertical mounting flange portion **31***a* and an overhanging eave portion **31***b*. Mounting support at the wall is achieved by means of a number of hinge brackets **32**, preferably constructed of aluminum castings. The hinge brackets **32** are provided with upper and lower mounting flanges **33** and **34**, so that they may be attached by means of screws through screw holes **35** to the surface of trailer wall **15**. The vertical location of hinge brackets **32** is determined by the lower edge of the eave bars **31**, but the horizontal spacing must be adapted to the location of studs in the particular trailer construction, however irregular that spacing may be, in order to achieve a structurally sound mounting attachment.

The hinge bracket **32** projects horizontally outward from the trailer wall **15** a distance sufficient to permit the awning **14** to be folded by rotation about the hinge pin location indicated by the numeral **40**. The horizontal projection distance will be determined by the vertical dimension of the frame members of frame **22**, the greater vertical thickness of this frame, the greater the horizontal projection required to permit folding.

It will be noted from FIGURE 2 that hinge bar **24** is spaced a substantial distance away from the eave bar **31**, this spacing being sufficient to allow substantial adjustment in the angle of pitch of the awning **14**. The space is covered by a resilient Neoprene weatherstrip **37**, shaped in cross section to be tightly received in a mating groove **38**, in the upper edge of hinge bar **24**, and tapering to a resiliently yielding lip **39**, which is received in the inverted slot **31***b* of eave bar **31**.

The front gutter member **23**, and the end bar members **25** and **26** may be provided with face slots **22***a* as indicated in FIGURE 5, for the insertion of decorative facing strips **22***b*. The latter may be flexible aluminum strips enameled in a desired color. These front and end members are best formed as inwardly facing channels, with end members having channel edges designed to interlock with side flanges on the interlocking pans **21** as described hereinafter.

In FIGURE 3, one of the interlocking pans **21** is illustrated in an enlarged perspective view, with the central portion broken away in order to indicate that the pan **21** may be of any desired length within the range of awning projection. Preferably, the pans **21** are fabricated by cold forming from aluminum sheet.

As seen in FIGURE 3, a pan **21** forms a trough **50**, preferably reinforced by alternate, longitudinal ridges and grooves **51** and **52**. The upstream end of the pan **21** is folded up to form a transverse rain barrier **53**, but the downstream end is open as indicated at **54**, and discharges into interior gutter channel **23***a* of the gutter member **23**, as may be seen from the sectional view of FIGURE 2.

The pans **21** are assembled by interlocking flanges at their right and left sides. Left side flange **55** is folded outward of the pan **21**, and folded under to form a slot **56**, which closely receives an inwardly folded left side flange **57** of an adjacent like pan. Screw holes are provided as indicated at **58** to accommodate assembly screws, such as screw **28**. By this means, adjacent pans **21** are locked to each other by screws passed through interlocking flanges **57** and **58**, and the downstream ends of the pans **21** are screwed to a pan support flange **23***b* on the front gutter member **23** as indicated at **59** in FIGURE 2.

It will also be noted that the upstream bottom of the pan **21** is provided with a transverse upward deformation **60** which provides, on the undersurface of the pan **21**, a transverse recess **61**, which firmly seats on a co-operating shoulder **62** provided on the interior of hinge-mounting bar member **24**. (See FIGURE 4.)

Hinge bar member **24** is formed with a pan-reception recess **24***a* between an overhead covering flange **24***b* and an upstream closure-flange **24***c*. (See FIGURE 4.)

The preferred form for hinges **16** is shown in the illustrations, FIGURES 2 and 7. The hinge **16** is comprised of a pair of cylindrical hinge pin members **63** and **64** which are integral with a rigid web **65**. The web **65** provides spacing of the hinge mounting bar member **24** from the hinge bracket **32**. The hinge pin **63**, once mounted in hinge **32**, is retained by retainer screws **66**, inserted at each end of the pin **63**, outward of the side walls of bracket **32**.

While I have described many preferred details of one specific embodiment, it will be understood that my invention is not to be interpreted as being limited to an assembly of all those details. Any improvements, modifications, of my invention departing substantially from the illustrative embodiment may be made without departing from the scope of the invention itself, as defined in the appended claims.

What is claimed is:

1. A foldable awning assembly for hingeable and weatherproof mounting on a mounting-wall surface, which assembly includes:

a frame assembly comprised of a hinge-bar member adjacent said mounting-wall surface, an outboard member at lower elevation at the outboard edge of said awning, and end members at each end of said frame;

a series of troughs disposed within said frame, side by side, each inclined from an upstream end supported by said hinge-bar member to a downstream end supported by said outboard member, said troughs having their side edges formed into interlocking flanges for interlocking assembly with adjacent troughs, the upstream end of each of said troughs having a transverse closure barrier, and a transverse recess on the under side;

walls in said hinge-bar member forming a recess for the reception of the upstream ends of said troughs, and comprising a continuous overhead flange for covering the upstream ends of said troughs, and a continuous shoulder for supporting said upstream ends by reception into said transverse recesses;

walls in the underside of said hinge-bar member forming a hinge-reception slot continuous for the length of said member;

a plurality of hinge brackets mountable to said mounting-wall surface;

hinge means for hingeable connection of said hinge bar member to said hinge brackets, said hinge means being slidable in said hinge-reception slot to accommodate said hinge bracket locations;

and a resilient weatherstrip means along the edge of said hinge bar member, said weatherstrip means being spaced above said hinge means and extending upwardly toward mounting wall surface, and providing a weatherproof cover above said hinge means.

2. A foldable awning assembly for hingeable and weather-proof mounting on a mounting-wall surface having internal vertical studs, which assembly includes:

a frame assembly comprised of a hinge-bar member adjacent said mounting-wall surface, a gutter member at lower elevation at the outboard edge of said awning, and inwardly facing channel members at each end of said frame;

a series of troughs disposed within said frame, side by side, each inclined from an upstream end supported by said hinge-bar member to a downstream end supported by said gutter member, said troughs having their side edges formed into interlocking flanges for interlocking assembly with adjacent troughs, the upstream end of each of said troughs having a transverse closure barrier, and a transverse recess on the underside, and the downstream end having a discharge opening;

walls in said hinge-bar member forming a recess for the reception of the upstream ends of said troughs, and comprising a continuous overhead flange for covering the upstream ends of said troughs, and a continuous shoulder spaced below said flange for supporting said upstream ends by reception into said transverse recesses;

walls in said gutter member forming a continuous recess for the reception of the downstream ends of said troughs, and comprising an overhead flange for attachment to the downstream ends of said troughs;

walls in the underside of said hinge-bar member forming a hinge-reception slot continuous for the length of said member;

a plurality of hinge brackets mountable to said internal vertical studs from the exterior of said mounting-wall surface;

hinge means for hingeable connection of said hinge bar member to said hinge brackets, said hinge means being slidably retained in said hinge-reception slot and locatable to accommodate said hinge bracket locations;

an eave-member mountable on said mounting-wall surface above said hinge bracket location for the length of said awning frame, and having an outwardly overhanging eave portion above said awning frame;

and a resilient weatherstrip means along the upper edge of said hinge bar member, said weatherstrip means extending upwardly under said overhanging eave portion, and providing a weather-proof cover above said hinge means for diverting rainwater downwardly over said overhead flange and into the upstream ends of said troughs.

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