

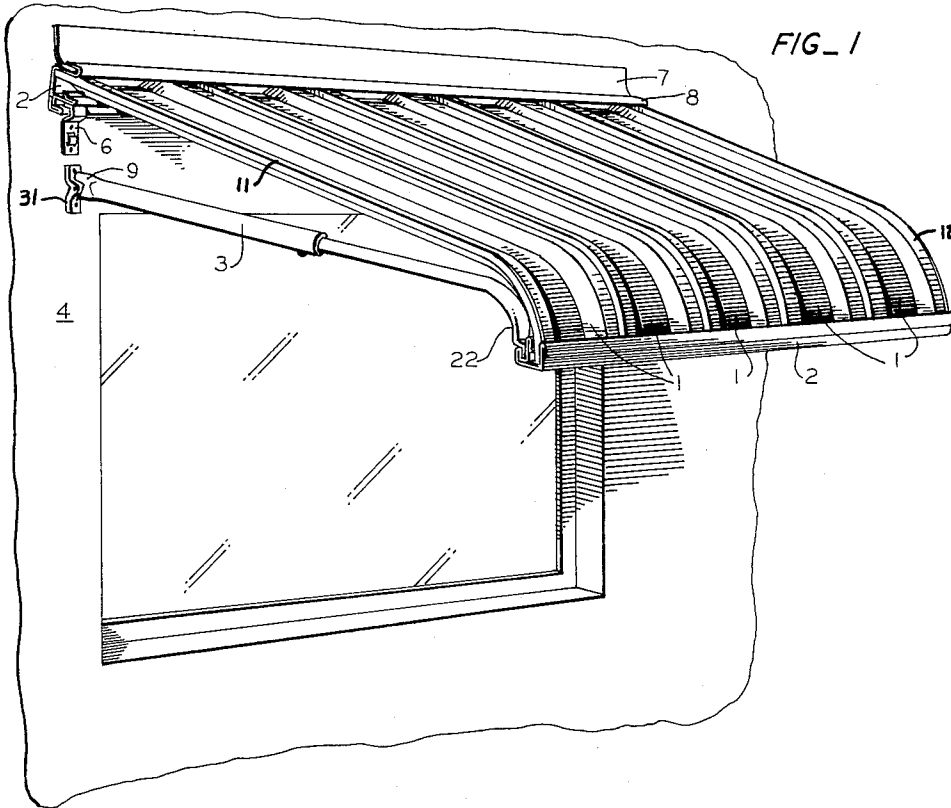
Feb. 15, 1966

A. J. TOTI ETAL  
AWNING CONSTRUCTION

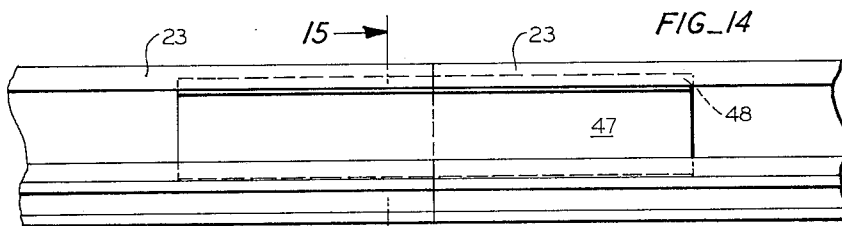
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Filed Dec. 22, 1961

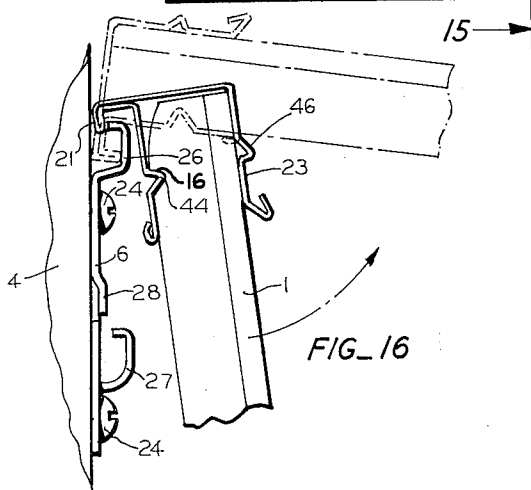
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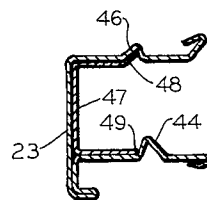
FIG\_1



FIG\_14



FIG\_16



FIG\_15

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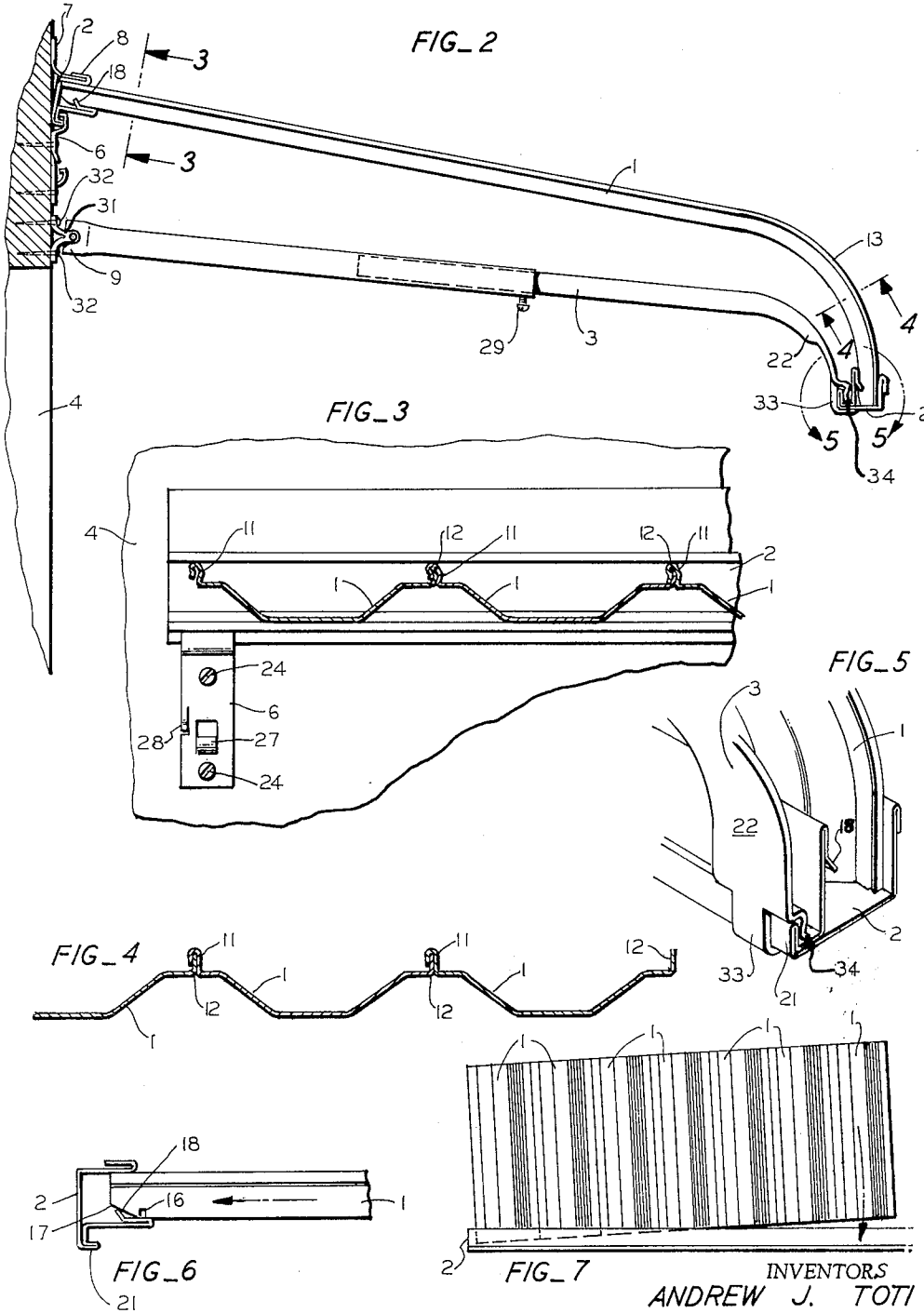
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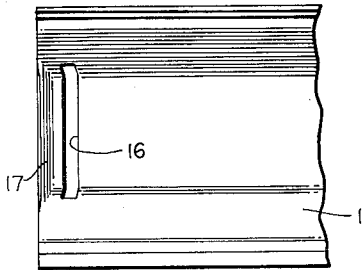
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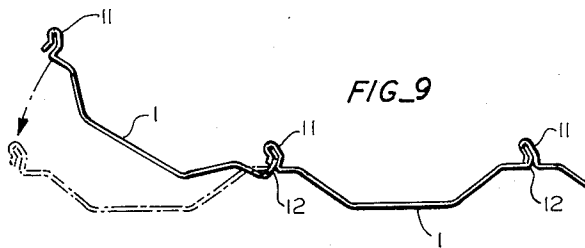
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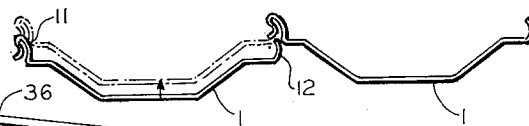
FIG\_8



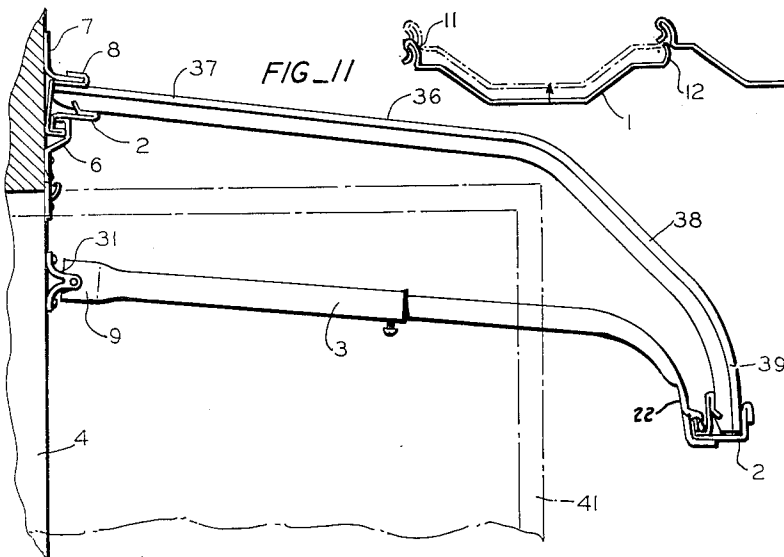
FIG\_9



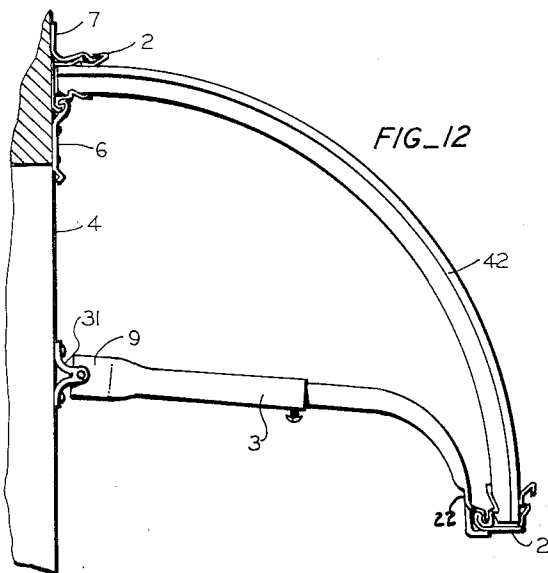
FIG\_10



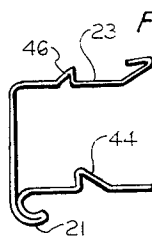
FIG\_11



FIG\_12



FIG\_13



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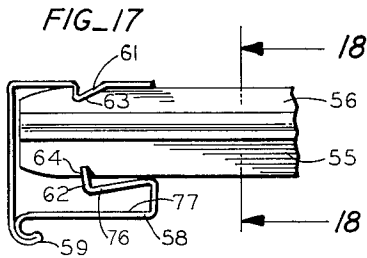
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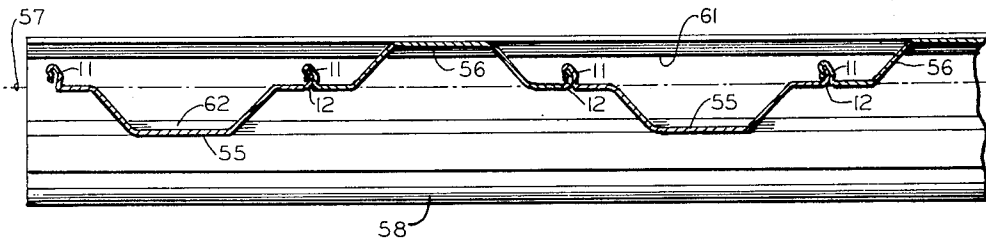
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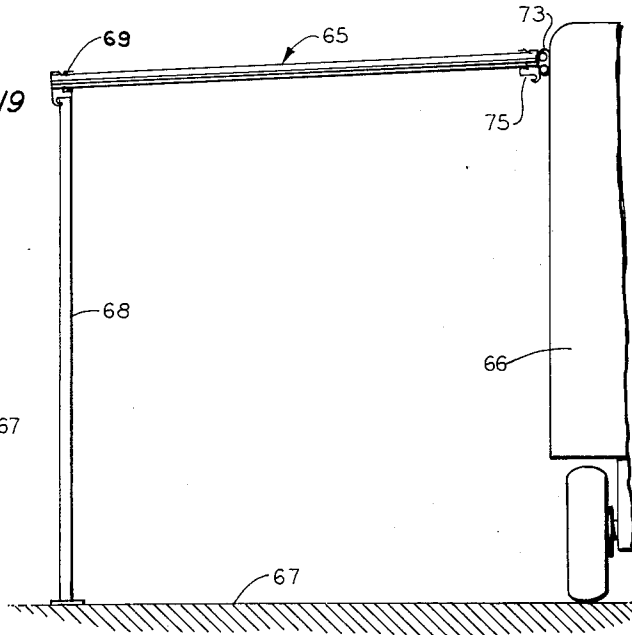
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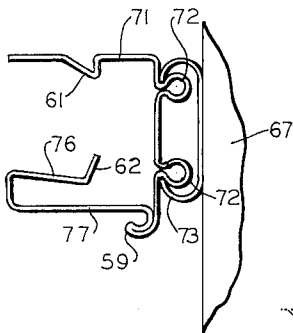
FIG\_18



FIG\_19



FIG\_20



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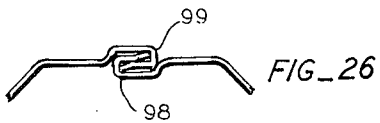
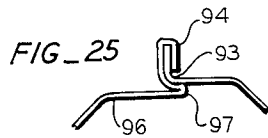
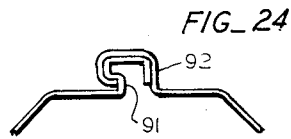
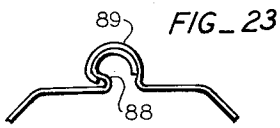
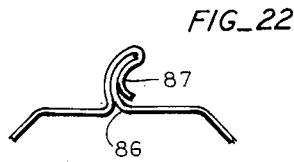
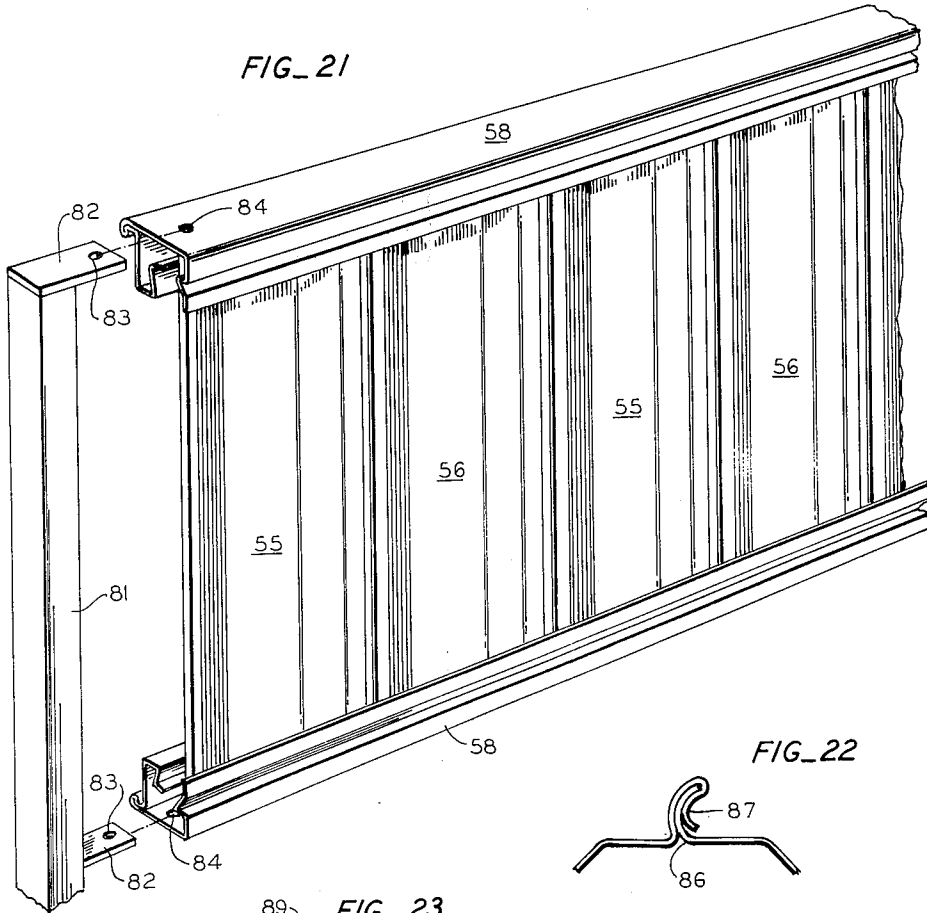
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**AWNING CONSTRUCTION**

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Filed Dec. 22, 1961, Ser. No. 161,590  
16 Claims. (Cl. 52—75)**

This invention relates generally to a cover structure, and more particularly to an awning construction or assembly which is adapted to be positioned in projecting relationship relative to a supporting structure, such as a house or mobile trailer home or other building over a window or door provided therein.

Still more particularly, this invention relates to an awning construction which may readily be manually assembled from a plurality of discrete fully preformed components by an unskilled person without requiring fasteners or special tools. In this connection, the subject awning assembly is designed so that fasteners and simple tools are required only in affixing an assembled awning construction to a supporting structure.

To provide an awning assembly that is extremely rigid and sturdy in the absence of connecting fasteners, interengageable means are provided along the contacting edges of certain awning components with which the components may be securely snap-locked together. This snap-lock interengagement feature distinguishes this invention from prior art awnings in which the components are slidably interengaged. By preforming the components of this awning for snap-lock interengagement, a secure fit between the respective components is insured so that chattering and looseness in the awning is positively precluded. In prior art awnings employing a sliding interengagement, looseness results because of the necessity to provide sufficient clearance between the respective components to permit sliding.

A further important feature of this awning assembly resides in the fact that the awning is defined by a minimum of parts, including preformed snap-lock interengageable slats which may be connected to define a broad continuous canopy, channel members to be extended transversely across and securely snap-interlocked with opposite ends of each of the respective slats of the canopy, brackets for securing the awning when assembled to a supporting structure when other securing means are not provided on the structure, and brace means for supporting the outer free end of the awning when the same is positioned in engagement with a supporting structure. As noted previously, the only fasteners required in such an assembly are employed for securing one end of the brace means and the brackets to the supporting structure when such brackets and brace means are employed. In a preferred embodiment of the awning assembly, each slat of the assembly is identical to all other slats to be employed. In this embodiment, the channel members preferably also are identical and accordingly the canopy of the awning is defined by only two types of parts, namely, slats and the channel members. To complete such an assembly, it is only necessary to provide brace means and bracket means where required.

In another embodiment of the invention, alternate slats of the canopy may be modified somewhat as will be described to provide an even more rigid and sturdy canopy. However, even with this modified construction, only two types of slats are required while the channel members employed preferably are identical.

The subject awning assembly has been designed so that the same may be employed in so-called "do it yourself" projects. That is, a home owner or the like may go to an awning outlet and purchase necessary components from which an awning of a given size may be assembled to meet his particular needs.

In this regard, it is visualized that the slats of the awning will be preformed in various standard widths, such as three inches, six inches and nine inches, so that an awning canopy of any given width may be readily built up merely by interconnecting a predetermined number of slats. In conjunction with this concept, it is also visualized that awning slats of predetermined standard length also will be provided, such as three feet, four feet, four and one-half feet and the like. In making the slats available in various widths and lengths, substantially all consumer needs may be easily met.

It is also contemplated that a brace employable with the awning will be made adjustable to accommodate and be useful with awnings of varying lengths. Similarly, the transverse locking channel members also will be pre-cut in various standard lengths to be useful with canopies of predetermined widths.

As a result, a home owner or the like with a given awning problem need only present his awning dealer with the size of the window or door he wishes to protect. He then can purchase, either in packaged kit form or as individual components, the awning assembly to meet his needs. Such an assembly may be easily assembled by him without requiring special training and skill and requiring only a conventional screw driver to secure the assembled canopy to a supporting structure.

Because of the simple construction of this awning and the minimum number of its parts, it has the important advantage of being producible at very low cost. This awning has wide applicability and possesses these additional advantages: awnings of any given size may be easily assembled by selecting the suitable number of components for a given job; no fasteners are required in interconnecting the canopy components, nor are special tools required; no special training or skill is required for the assembly; an awning is provided which may be sold in packaged kit form ready for assembly; a secure non-chattering interfit between the various components of the awning is insured because the components are designed to snap-lock together as opposed to sliding together; and awning slats of various curved longitudinal contours may be employed because the slats are snap-locked together. In this latter regard, the term "snap-lock" is intended to cover all constructions in which the awning components are interfitted with each other without longitudinal movement relative to each other. While in awnings of extremely small size, some longitudinal movement might be permitted, in larger size awnings, and in awnings with longitudinally curved slats, only a snap-interlock, rather than a sliding-interlock, is possible.

In view of the foregoing, objects of this invention include: the provision of a low cost, easily assembled awning which may be assembled by an unskilled person without requiring special tools or training; the provision of a method of assembling such an awning; the provision of an awning construction which is defined by a minimum number of parts; the provision of an awning in which the various principal components are snap-lockable together to insure secure interengagement; and the provision of an awning in which the slats may be formed with longitudinal configurations of innumerable designs and configurations.

These and other objects will become apparent from a study of the following disclosure, in which reference is directed to the attached drawings.

FIG. 1 is an isometric view of an assembled awning construction of this invention positioned over the window of a supporting structure;

FIG. 2 is a side elevational view of the awning of FIG. 1;

FIG. 3 is a sectional view through the awning taken in the plane of line 3—3 of FIG. 2;

3

FIG. 4 is a sectional view taken in the plane of line 4—4 of FIG. 2;

FIG. 5 is an isometric view illustrating the interengagement of the brace means of the awning with the free end thereof;

FIG. 6 is a side elevation illustrating one manner of snap-lock interengaging slats with a channel member;

FIG. 7 is a plan view illustrating a modified manner of snap-lock interengaging a plurality of interconnected slats with a channel member;

FIG. 8 is a plan view of an end of an awning slat;

FIGS. 9 and 10 are end views of awning slats illustrating alternate methods of snap-lock interengaging adjacent slats with each other;

FIGS. 11 and 12 are side elevational views of awning constructions in which the slats have modified longitudinal configuration;

FIG. 13 is an end view of a modified slat locking channel member;

FIG. 14 is a front elevational view of a pair of channel members interconnected with each other;

FIG. 15 is a sectional view taken in the plane of line 15—15 of FIG. 14;

FIG. 16 is a side elevational view illustrating the manner in which an assembled awning canopy may be attached to a supporting structure;

FIG. 17 is a side elevational view of a modified awning construction;

FIG. 18 is a sectional view taken in the plane of line 18—18 of FIG. 17;

FIG. 19 is a generally schematic view of a modified awning construction shown attached to a mobile trailer home;

FIG. 20 is a side elevational view on an enlarged scale showing the manner in which the awning assembly of FIG. 19 may be attached to a mobile trailer home;

FIG. 21 is an isometric view illustrating the application of this invention into a fence structure;

FIGS. 22 through 26 are end views of pairs of interengaged slats having modified snap-lock interengaging means provided along edge portions thereof.

Referring now to the embodiment of the invention shown in FIGS. 1 through 5, it will be noted that the awning when assembled consists essentially of a series of snap-locked interengaged slats 1, all of which preferably are identical in cross sectional configuration, as best seen in FIGS. 3 and 4. Extending transversely of the interengaged slats 1, at opposite ends thereof are a pair of channel members 2 which also are preferably identical. These channel members are engaged with each slat of the series and impart transverse rigidity to the slat series. In this regard, the channel members interlock with opposite ends of the interengaged slats, as described more fully hereinafter, and thereby define opposite ends of the awning canopy. The locking members are basically U-shaped in cross-section defined by opposed side walls and a connecting bottom end wall. Each slat end is received in the opening between the opposed side walls of an associated channel member so that such channel member is positioned over the end of such slat in secure straddling engagement therewith, as seen in FIGS. 2, 5 and 16, for example.

A brace 3 is interposed between the free outer end of the awning canopy defined by the slats and channel members and the wall surface 4 of a supporting structure from which the canopy projects. Preferably, a pair of such braces 3, one adjacent each edge, are employed with each awning, although with awnings of large size more than two braces may be required. Brackets 6 are employed to secure the inner end of the awning canopy to the wall 4 of the supporting structure. Preferably, at least two such brackets 6 are employed for this purpose adjacent opposite edges of the awning. Desirably, a strip of weather stripping 7, which may be metal or rubber, is engaged beneath a reversely bent shoulder 8

4

of the channel member at the inner end of the awning. See FIGS. 1 and 2. This weather strip precludes rain seepage between wall 4 and the channel member.

An important feature of this invention which should be evident from FIGS. 1 to 5 is that the only fasteners required in the use of the subject awning are employed to secure the brackets 6 and the inner end 9 of the braces 3 to the wall 4 of the supporting structure. That is, in the awning canopy itself no fasteners are required or employed, and the slats and channel member which define the canopy are securely interlocked with each other in snap-lock fashion.

Preferably, the slats and channel members are fully preformed from a sturdy yet readily formable material which possesses at least some inherent resiliency, such as sheet aluminum. While other sheet metals may be employed, aluminum is preferred because it may easily be formed on rolling machines into intricate shapes, and because it may be painted prior to forming so that the finished components do not require subsequent decorative treatment. The brace means employed preferably are formed from hollow tubes of aluminum or steel, while it is preferred that the brackets be formed from a strong material such as steel.

Each slat 1 is provided with a concave cross section for its full length to impart increased longitudinal rigidity and strength thereto. While it should be understood that such slats could be transversely generally flat, the concave configuration is preferred. Along opposite longitudinal edge portions of the respective slats are provided means by which each slat of the canopy may be snap-interlocked with an adjacent slat. For this purpose one edge portion of each slat is provided with preformed longitudinal groove structure 11, while the opposite edge portion of the slat is provided with a fully preformed lip structure 12. The groove structure 11 illustrated is defined by an upwardly and reversely bent edge of the slat which forms a somewhat arcuate groove, while lip structure 12 illustrated is defined by an upwardly bent somewhat arcuate flange. The width of the groove is generally equal to the thickness of the flange so that a snug fit is insured.

Referring to FIGS. 3, 4, 9 and 10, it is seen that the lip structure 12 of one slat may be snap-lock interengaged with the groove structure 11 of an adjacent slat. In FIG. 9, one manner of snap-lock interengagement is illustrated in which the lip structure of one slat is arranged for generally pivotal snap-interengagement with the groove structure of another slat; while in FIG. 10, the slats to be interengaged are generally aligned, and the slats are moved directly into engagement with each other without pivoting of one relative to the other. In this latter regard, because the slat material chosen possesses a certain degree of resilience, temporary distortion of the groove structure of one slat and the lip structure of the other slat during interengagement is permitted.

Referring now to FIG. 3, the interengaged lip and groove structures of adjacent slats are securely interconnected without looseness or spacing therebetween so that a rigid assembly is provided. It should be understood that to build up a canopy of any given size, it is merely necessary to interengage a predetermined number of slats with each other. Because of the tight fit between the lip and groove structures, longitudinal sliding movement between the same is precluded, so that separation of the slats from each other may be accomplished only by reversing the procedure shown in FIGS. 9 or 10. Accordingly, lateral separation of interconnected slats is positively precluded by the lip and groove structures employed.

As seen in FIGS. 3, 9 and 10, it is preferred that the lip structure 12 and groove structure 11 on the respective edge portions of the slats are somewhat arcuate in cross section so that inadvertent disengagement thereof is precluded. In this embodiment of the awning the outer ends 13 of the slats are provided with a curved configuration. Accordingly, to facilitate interengagement at the

outer ends, it is preferred that, as seen in FIG. 4, the flange of the lip structure and the groove of the groove structure are generally straight.

As should be understood, it is not necessary for the slats to be provided with curved ends, as shown in FIG. 2, and if desired the slats may be generally straight from end to end thereof. In such case, the braces 3 employed also would be generally straight. That is, the braces preferably conform generally to the longitudinal contour of the respective slats.

After a plurality of slats have been snap-lock interengaged with each other in the manner described, opposite ends of the respective slats are snap-locked into engagement with the aforementioned channel members 2. In this connection, it should be noted from FIGS. 6 and 8 that each slat is provided adjacent its respective opposite ends with transverse slots 16 for the purpose to be described. Also, as seen from FIGS. 6 to 8, each end of the slat preferably is provided with a tapered nose portion 17 to facilitate interengagement of the respective slats with a given channel member.

While the channel members may take various cross sectional configurations, an important aspect of the channel member irrespective of its particular configuration is that the same is provided with an inwardly extending longitudinal projection which is to be snap-locked into secure engagement with the preformed slot 16 adjacent a given end of each slat of the series which define the canopy. In the channel member embodiment shown in FIGS. 1, 2 and 6, this projection is designated 18 and is defined by a reversely folded edge portion of the channel.

It should be understood, as shown in FIG. 6, that a series of interengaged slats may be snap-locked into engagement with a channel member merely by moving the channel and the slats at right angles relative to each other until the projection 18 is snugly received in each slat of the series. Alternatively, if a large awning construction is being assembled, rather than moving the slats at right angles relative to the channel member during the interengaging operation, the assembled slats may be angularly related to the channel member and the slats then progressively moved into the channel member in the manner shown in FIG. 7.

Upon interconnection of a pair of channel members with a series of interengaged slats, a rigid canopy is provided which may be handled as a unit during positioning of the same on a supporting structure.

From the foregoing, it should be understood that it is a simple matter for an unskilled person to manually assemble an awning of this invention merely by, first, interengaging a plurality of slats of the desired number to provide a slat series of the desired width; secondly, to engage a channel member with one end of the assembled slat series; and thirdly, to assemble another channel member with the other end of the slat assembly so that a completed awning canopy ready for attachment to a supporting structure is provided. Thereafter it is merely necessary to attach the desired number of brackets to the supporting structure and to position braces, when required, between the free end of the awning canopy and the supporting structure in the manner shown in the drawings.

Each channel member includes another important section, namely, a reversely bent longitudinal securing flange portion 21, by means of which the channel member may be secured to the aforementioned brackets 6, and by means of which end 22 of each brace 3 may be connected with the channel member at the free outer end of the awning construction.

In this regard, reference is directed to FIG. 16 in which an assembled canopy, which includes a modified channel member 23, to be described, is shown being attached to the wall 4 of a supporting structure. For this purpose, bracket 6 has previously been secured to the wall by screw fasteners 24. As seen, each bracket 6 is provided adjacent its upper end with a preformed hook portion 26 with which the preformed securing portion 21

of the channel member is engageable. The end of the hook portion 26 of the bracket is spaced outwardly from the wall so that the channel member may be inserted between the hook portion and the wall. Thereafter, the canopy may be pivoted as a unit in the manner shown in dotted lines in FIG. 16 to any predetermined angle of inclination desired relative to the supporting structure.

After the canopy has been located in a predetermined angle of inclination, it is a simple matter to attach a brace 3 between the canopy and the supporting structure.

Referring first, however, to FIGS. 3 and 16, it should be noted that bracket 6 also preferably is formed with a second integral hook portion 27 which is incorporated therewith for permitting attachment of a canopy thereto when the bracket is secured in a generally horizontal position, such as when the bracket is secured in engagement with the roof overhang of a house. The second hook portion 27 permits a modified use of the bracket. In conjunction with the second hook portion 27 is provided a bendable tab 28 designed to preclude separation of a channel member from the hook portion 27 when the alternative mounting arrangement just mentioned is employed.

Referring now to FIGS. 2 and 5, it will be noted that each brace 3 preferably comprises two telescoped tubular sections which are operatively interconnected by fastener 29 passing through one section and engaged with the inner section. As a result, the brace may be extended or retracted to any desired length merely by releasing the fastener 29, adjusting the sections, and subsequently tightening down the fastener. The adjustable length of the brace makes the same usable with varied awning constructions in which the slot lengths vary.

Inner end 9 of the brace is flattened as seen in FIGS. 1 and 2, and a bracket 31 is pivotally connected therewith. Such bracket 31 is secured by fasteners 32 to the wall of the supporting structure. The opposite end 22 of the brace also is flattened and is provided with a series of bent fingers 33 and 34 which are to receive therebetween the preformed securing portion 21 of the channel member 2 at the outer end of the awning canopy.

Fingers 33 and 34, as best seen in FIGS. 2 and 5, are so dimensioned that they snugly engage the securing portion 21 of the channel member. In this regard, it has been found preferable that the fingers 33 and 34 of the brace with the awning precludes the use of fasteners so that the brace may be positioned at any predetermined location along the length thereof. In this manner, any number of braces found necessary may be employed as may be determined by the width of the awning construction. Normally, however, two braces have been found adequate with one brace being positioned adjacent each edge of the assembled awning. This interfitting of the brace with the awning precludes the use of fasteners as is common with prior art awnings.

From the foregoing it should be obvious that this invention includes a novel and simple method for providing an awning assembly which includes the simple steps of providing a plurality of preformed slats each of which has snap-lock interengageable means along opposite edge portions thereof. The number of such slats provided will be determined by the width of the awning to be assembled. By snap-lock interengaging respective slats until a canopy of the desired width is provided and by thereafter snap-lock interengaging a channel member with opposite ends of the canopy, an awning construction may easily be effected without requiring the use of tools or fasteners.

Following the assembly of the awning construction in the manner described, it is a simple manner to pivotally connect the awning with a bracket or brackets previously secured to a wall structure in the manner shown in FIG. 16, and to thereafter interpose a brace or braces between the supporting structure and the outer end of the awning.



Having thus described one preferred embodiment of the invention, it should be obvious that numerous modifications thereto may be provided. For example, comparing FIG. 11 with FIG. 2, it should be noted that the awning slats may be provided with a longitudinal contour of any suitable configuration for a given purpose. In the embodiment shown in FIG. 2, the awning slats are generally straight for the majority of their length with a curved end 13 being provided therewith for increased sun protection and added decorative effect. In FIG. 11, however, the awning slats 36 illustrated are generally straight for a predetermined part 37 of their length and are provided with two discrete bent sections 38 and 39. Such a canopy construction is provided so that the same can be placed in projecting relationship over a pivotal swing-out window 41 shown in phantom lines. Similarly, with respect to the showing of FIG. 12, the respective slats 42 are generally arcuately curved continuously for their full length. The brace 3 employed with a given awning construction will conform generally to the contour of the slats as is apparent from FIGS. 2, 11 and 12.

Because the awning of this invention is designed so that its components will snap-lock together, rather than slide together, intricate non-straight configurations of the respective slats is made possible. Obviously the slats of the awning shown in FIGS. 2, 11 and 12 could not be longitudinally slid into engagement with each other because of the non-straight configuration thereof. However, by providing snap-lock interengageable means on the respective edge portions of the slat, the slats may be provided with a wide variety of longitudinal configurations to meet any given need.

Referring now to FIGS. 13 and 16, the aforementioned modified channel member 23 shown therein will be described. In general, this channel member is basically the same as the aforementioned channel members 2 in that both channel member embodiments have longitudinal projections which are snap-lock interengageable with the preformed slot in the respective slats of the awning construction. However, comparing FIG. 6 with FIG. 13, it will be noted that the longitudinal projection 18 of the channel species of FIG. 6 is formed by the free edge of the channel member folded back upon another portion thereof. In the embodiment of FIG. 13, the projection is provided by forming a longitudinal, inwardly directed V-shaped portion 44 which extends the length of the channel member. In either case, however, the channel member is snap-lock engageable into the groove 16 of each slat of the series.

Channel member embodiment of FIG. 16 also includes in the portion thereof opposite from the projection 44 a further longitudinal groove 46 best seen in FIGS. 13 and 16. This groove is provided so that a pair of channel members may be connected end to end as shown generally in FIGS. 14 and 15. That is, if it is desired to build up an awning construction of a width greater than the width of a pre-cut channel member, it is a simple matter to interconnect two channel members 23 end to end as seen in FIG. 14. For this purpose, a generally U-shaped connector 47 is provided which is slidably interfittable within and between the abutting ends of the channel members. The U-shaped connector 47 is provided with an outwardly bent lip 48 which extends into the grooves 46 provided in the respective channel members.

By positioning a portion of the connector 47 in each channel member, an operatively continuous channel member may be built up from two separate sections. The lip 48 in groove 46 and the other end 49 of the connector which abuts the projection 44 of the respective channel members precludes separation of the members. It should be understood, of course, that the connector 47 is dimensioned to snugly fit within the respective channel members being connected. However, as seen in FIG. 15, the

connector in no way interferes with the snap-lock interengagement of slats with the interconnected channel members.

Thus far, attention has been directed to embodiments of the invention in which all slats of the awning construction are identical, that is, in which each slat is provided with a cross sectional concavity which extends in the same direction relative to the lip and groove structures provided along edge portions thereof. FIGS. 17 and 18, however, illustrate a modified awning construction in which alternate slats 55 and 56 are formed so that their concavities project in opposite directions. That is, as viewed in FIG. 18, alternate slats of the canopy are formed so that the concavity of one slat extends downwardly relative to a reference plane 57 extending there-through, while the next slat 56 projects upwardly relative to such reference plane. This arrangement gives added strength to the awning construction, and is designed for use in awnings of larger sizes.

With this arrangement, it is necessary to employ a further modification of a channel member, which is best shown at 58 in FIG. 17. Such channel member includes a reversely bent securing portion 59, by means of which the same may be attached to a bracket 6 of the type described previously. However, channel member 58 also includes opposite upper and lower longitudinal projections 61 and 62, which are engageable in the respective preformed slots 63 and 64 of the alternate slats. The upper projection 61 is formed by an inwardly depressed V-shaped groove portion of an upper planar surface of the channel member, while the lower projection 62 is formed by the upwardly bent free edge of the preformed channel member. A snap-lock interengagement between the slat series and the channel member may be effected in the same manner described previously with respect to the other modifications of the invention.

With the embodiment of FIG. 18, interengageable groove and lip structures 11 and 12 of the type described previously may be employed, or any of the alternative constructions to be described herein after may be employed.

FIGS. 19 and 20 illustrate a specific application for the awning embodiment of FIGS. 17 and 18. In this connection, the awning canopy defined by alternate slats 55 and 56 (generally designated 65 in FIG. 19) is shown attached to and projecting from a mobile trailer home 66 to serve as a patio cover therefor. The trailer home is positioned on a supporting structure 67 and brace means in the form of a post or series of posts 68 is interposed between the supporting structure and the canopy at the outer end 69 of the canopy. Any suitable means may be employed for connecting the posts 68 with the awning canopy.

Now referring to FIG. 20, a modified channel member 71 is provided which in most respects is the same as channel member 58 illustrated in FIG. 17. However, for use with this specialized installation, channel member 71 is provided along one surface with a pair of longitudinal bulbous projections 72. Most modern mobile trailer homes are provided with a generally U-shaped channel bracket 73 which is welded or bolted to the trailer when the same is manufactured. This bracket 73 is provided so that a canvas awning or the like may be attached thereto. By providing the channel member 71 of this invention with bulbous projections 72, use may be made of the bracket 73 already attached to the trailer so that the subject invention may be employed therewith.

It is only necessary after an awning canopy has been assembled to include a modified channel member 71 to slidably position the projections 72 into the bracket 73 attached to the trailer home. Thereafter, it is merely necessary to secure the supporting posts 68 to the free end of the awning in any suitable manner. In this way an awning or patio cover arrangement may be provided for a trailer home.

With respect to the channel members shown in FIGS. 17 and 20, a further important feature thereof results from their particular construction, namely, the same can serve as rain-troughs for carrying water laterally of the awning construction through the channel member at the outer awning end. That is, as seen in FIGS. 17 and 20, each channel member adjacent its lower projection 62 is provided with a depressed portion 76 along which rain water passing from the slats of the assembly may flow laterally. Any overflow from this depressed portion 76 may run over into the hollow interior 77 of the channel member to be carried laterally therealong. Because at least alternate slats are arranged with their concavity extending downwardly, rain falling on the canopy will flow in the slats into the channel member. In this way, water is carried to the sides of the awning so that entry or departure of a person through a door protected by the canopy is not made difficult by water dripping from a central portion of the awning.

A further embodiment and specific application of this invention is illustrated in FIG. 21. That is, an interengaged channel member and slat assembly may be employed as a fence or wind break merely by forming the channel members and slats of sufficient size and by providing post means for supporting the construction in a generally vertical position. The term awning, as used herein, is intended to apply equally to the use of this invention as a fence or like arrangement. The fence construction illustrated in FIG. 21 corresponds generally to the alternate arrangement shown in FIGS. 17 and 18. This arrangement is preferred because the same, as noted previously, has added strength over the arrangement described previously in which the concavity of all slats extends in the same direction. To modify the arrangement of FIGS. 17 and 18 for use as a fence, it is merely necessary to provide a pair of fence posts (only one shown in FIG. 21) designated 81, each of which is provided adjacent its opposite ends with a laterally projecting bracket 82 intended to be received within the respective channel members 58 of the construction. Any suitable means may be employed for connecting the assembly to the posts, such as by providing aligned holes 83, 84 in the channel members and the brackets 82, as shown in the drawing, through which fasteners may be extended.

While heretofore only one specific embodiment of the interengageable groove and lip structures of the invention has been shown, reference is now directed to FIGS. 22 through 26 for modifications which may be employed. While the purpose of these figures is to illustrate that numerous interengageable means may be provided along the respective edge portions of interlockable slats of the awning construction, it should be noted that all of the alternate modifications illustrated include a secure interengagement by means of which lateral separation of the respective slats is positively precluded. It should be understood, of course, that with each arrangement illustrated, the lip structure of one slat is snap-lockably received in the groove structure of the associated slats in such manner that slidable interengagement therebetween is generally precluded. That is, the lip structures are dimensioned to be received snugly in the groove structures, so that secure interengagement between the respective slats is insured, and so that looseness and chattering in an assembled awning construction is positively precluded.

In FIG. 22, lip structure 86 is arcuately curved and is received in arcuate groove structure 87. FIG. 23 shows a bulbous lip structure 88 snugly received in a correspondingly shaped groove structure 89. The arrangement of FIG. 24 is generally similar to that of FIG. 23 except the bulbous lip structure 91 and groove structure 92 are formed with sharp bends.

FIG. 25 shows an arrangement in which a straight lip structure 93 is received within a straight groove structure 94. However, the slat edge portion 96 along which the groove structure is formed is reversely bent at 97

to provide a stop shoulder for precluding inadvertent separation of the structures. FIG. 26 shows yet another modification in which identical but reversely oriented structures 98 and 99 are snap lock interengaged.

5 Because the slats possess inherent resiliency, the structures illustrated herein may be interengaged without permanent distortion.

From the foregoing it should be understood that this invention relates to an awning construction which employs a minimum number of parts, and which may be assembled in a short period of time by unskilled persons rapidly and easily without requiring the use of fasteners and special tools.

10 Other modifications to this invention which may become apparent to one skilled in the art are contemplated as falling within the scope of this invention as set out in the appended claims.

We claim:

1. An awning construction comprising an awning canopy and means attachable to opposite ends of said canopy for supporting said canopy in operative position; said canopy comprising a plurality of elongated preformed slats each of which has a generally concave cross-section, each of said slats having preformed groove structures and preformed lip structures extending the full length thereof along corresponding longitudinal edge portions thereof, said slats being interengaged with each other for their full lengths with the lip structure of one slat received securely in the groove structure of an adjacent slat, and a pair of locking channel members extending transversely of and interlocked with said interengaged slats at said opposite ends of said canopy, each of said channel members being received over and straddling an end of each of said interengaged slats with each such slat end snugly engaged in such channel member, and co-operable locking means on each of said channel members and on opposite ends of each of said slats; said locking means comprising a slot extending laterally of each slat adjacent each end thereof and a longitudinal projection internally of each channel member, each projection of each channel member being securely engaged in a slot of each said slat received within such channel member; said interengaged lip and groove structures of said slats of said canopy positively precluding lateral separation of said slats, and said channel members positively precluding longitudinal separation of said slats, whereby the need for separate fasteners and supports to maintain said canopy assembled is obviated.

2. The awning construction of claim 1 in which both of said channel members are of substantially identical construction, and wherein all said slats are of substantially identical construction, whereby said canopy is defined by only two types of components.

3. The awning construction of claim 1 in which each of said channel members includes an integral flange extending longitudinally externally thereof, each such flange providing means securely engageable directly with and by said means attachable to opposite ends of said canopy for supporting the same in operative position without requiring separate fasteners to effect such engagement.

4. The awning construction of claim 1 in which said interengaged slats are arranged in said canopy with alternate slats having their concavities facing in opposite directions.

5. The awning construction of claim 4 in which each of said channel members includes a pair of longitudinal projections internally thereof which extend along opposed walls thereof, and in which said lip and groove structures of said slats are interengaged with each other at a location between and spaced from said opposed projections.

6. An awning construction comprising an awning canopy and means attachable to opposite ends of said canopy for supporting said canopy in operative position projecting from a supporting wall; said canopy comprising a plurality of elongated preformed slats all of which

are substantially identical so that said canopy includes only one type of slat, each of said slats being non-straight in its lengthwise direction and having a generally concave cross-section, all said slats in said canopy being arranged with their concavities facing in the same direction, each of said slats having preformed groove structures and preformed lip structures extending substantially the full length thereof along corresponding longitudinal edge portions thereof, said slats being interengaged with each other for substantially their full lengths including the non-straight portions thereof with the lip structure of one slat received securely in the groove structure of an adjacent slat, and a pair of locking channel members extending transversely of and interlocked with said interengaged slats at said opposite ends of said canopy, each of said channel members being received over and straddling an end of each of said interengaged slats with each such slat end snugly engaged in such channel member, and cooperable locking means on each of said channel members and on opposite ends of each of said slats; said locking means comprising a slot extending laterally of each slat adjacent each end thereof and a longitudinal projection internally of each channel member, each projection of each channel member being securely engaged in a slot of each slat received within such channel member; said interengaged lip and groove structures of said slats of said canopy positively precluding lateral separation of said slats, and said channel members positively precluding longitudinal separation of said slats, whereby the need for separate fasteners and supports to maintain said canopy assembled is obviated.

7. The awning construction of claim 6 in which each said channel member includes an integral flange extending longitudinally externally thereof, and in which said means attachable to opposite ends of said canopy for supporting the same in operative position includes at least one brace interposable between said supporting wall and the channel member which defines the outer end of said canopy, said brace having finger means at its outer end engageable directly with said integral flange of said last mentioned channel member, whereby the need for separate fasteners to secure said brace to said canopy is obviated.

8. The awning construction of claim 7 in which said means attachable to opposite ends of said canopy for supporting the same in operative position also includes at least one bracket securable to said supporting wall, said bracket having hook means thereon engageable directly with the integral flange of the channel member which defines the inner end of said canopy, whereby the need for separate fasteners to secure said canopy to said bracket is obviated.

9. An awning construction comprising an awning canopy and means attachable to opposite ends of said canopy for supporting said canopy in operative position projecting from a supporting wall; said canopy consisting essentially of a plurality of elongated preformed slats all of which are substantially identical and a pair of end locking channel members both of which are substantially identical whereby said canopy includes only one type of slat and one type of channel member, each of said slats being non-straight in its lengthwise direction and having a generally concave cross-section, each of said slats having preformed grooved structures and preformed lip structures extending substantially the full length thereof along corresponding longitudinal edge portions thereof, said slats being interengaged with each other for substantially their full lengths including the non-straight portions thereof with the lip structure of one slat received securely in the groove structure of an adjacent slat, said pair of locking channel members extending transversely of and interlocked with said interengaged slats and defining said opposite ends of said canopy, each of said channel members being received over and

straddling an end of each of said interengaged slats with each such slat end snugly engaged in such channel member, and cooperable locking means on each of said channel members and on opposite ends of each of said slats, said locking means comprising a slot extending laterally of each slat adjacent each end thereof and a longitudinal projection internally of each channel member, each projection of each channel member being securely engaged in a slot of each slat received within such channel member; said interengaged lip and groove structures of said slats of said canopy being snap locked together with said slats, whereby the need for separate fasteners to maintain said canopy assembled is precluded; each of said channel members at said canopy opposite ends including a longitudinal flange integral therewith and extending lengthwise thereof; said means attachable to opposite ends of said canopy comprising brackets and braces securable to said supporting wall, said brackets and braces each including means interengageable directly with said flanges of said channel members so that the need for separate fasteners to effect such interengagement is obviated.

10. An awning canopy construction consisting essentially of a plurality of elongated preformed interengaged slats and a pair of elongated preformed locking channel members interlocked with said interengaged slats at opposite ends of said canopy; all of said slats being substantially identical so that said canopy includes only one type of slat, each of said slats being generally concave in cross-section and having preformed groove structures and preformed lip structures extending substantially the full length thereof along corresponding longitudinal edge portions thereof, said slats being interengaged with each other for substantially their full lengths with the lip structure of one slat received securely in the groove structure of the adjacent slat; said pair of locking channel members being substantially identical so that said canopy includes only one type of locking member, said channel members extending transversely of said interengaged slats at said opposite ends of said canopy, each of said channel members being securely engaged directly with an end portion of each of said interengaged slats without employing separate fasteners, and cooperable locking means on each of said channels members and on opposite ends of each of said slats for effecting such interengagement; said locking means comprising interengaged recesses and projections formed on said slats adjacent the ends thereof and internally of said channel members, said recesses and projections being securely interlocked with each other within said channel members; said interengaged lip and groove structures of said slats precluding lateral separation of said slats, and said channel members precluding longitudinal separation of said slats, whereby the need for separate fasteners and supports to maintain said canopy assembled is obviated.

11. An awning canopy construction consisting essentially of a plurality of elongated preformed interengaged slats and a pair of elongated preformed locking channel members interlocked directly with said interengaged slats at opposite ends of said canopy; each of said slats being non-straight in its longitudinal direction and including at least one curved portion intermediate its ends which imparts such non-straight configuration thereto, each said slat having preformed groove structures and preformed lip structures extending substantially the full length thereof along corresponding longitudinal edge portions thereof, said slats being interengaged with each other for substantially their full lengths including the curved portions thereof with the lip structure of one slat received securely in the groove structure of an adjacent slat, said slat curved portions precluding longitudinal sliding between adjacent slats so that such slats must be snap locked into engagement with each other, said pair of locking channel members extending transversely of said interengaged slats at

13

said opposite ends of said canopy, each of said channel members being securely engaged directly with an end portion of each of said interengaged slats without employing separate fasteners, and cooperable locking means on each of said channel members and at opposite ends of each of said slats for effecting said interengagement therebetween, said locking means comprising interengaged recesses and projections formed directly on said slats and on said channel members, said recesses and projections securely interlocking each end of each slat with an associated channel member at such slat end, whereby the need for separate fasteners and supports to maintain said canopy assembled is obviated.

12. The awning canopy of claim 11 in which all of said slats are substantially identical, and in which both of said locking channel members are substantially identical, whereby said canopy is defined by only two types of principal components.

13. An awning canopy construction consisting essentially of a plurality of elongated preformed interengaged slats and a pair of elongated preformed locking members interlocked directly with each of said interengaged slats at opposite ends of said canopy, each of said slats having preformed interengageable structures along edge portions thereof, said slats being interengaged with each other by said structures in the absence of separate fasteners along substantially their entire lengths so that the slats are held against lateral separation by said structures, said pair of locking members extending transversely of said interengaged slats at said opposite ends of said canopy, and cooperable locking means on each of said locking members and at opposite ends of each of said slats for effecting said interlocking therebetween in the absence of separate fasteners, said locking means comprising interengaged recesses and projections formed directly on said slats and on said locking members, said recesses and projections securely interlocking each of said slats with said channel members, whereby the need for separate fasteners and supports to maintain said canopy assembled is obviated.

14. An awning canopy construction according to claim 13 in which said locking members are channel-shaped having opposed side walls and a connecting bottom wall, and in which the projections of said cooperable locking

14

means are formed on said locking members internally thereof and extend longitudinally therealong, each said projection extending laterally inwardly from one side wall of its associated locking member toward the opposite side wall thereof at a location spaced from the bottom wall thereof, said recesses of said cooperable locking means being formed in each of said slats at opposite ends thereof for receiving the projections of said locking members.

15. An awning canopy construction according to claim 13 in which said locking members are open channel-shaped and each has an integral flange which extends longitudinally therealong, each said flange projecting laterally away from a wall of its associated channel-shaped locking member and having a generally reversely extending portion thereon defining an open recess between said portion and said wall which opens in generally the same direction as the opening in its associated open channel-shaped locking member.

16. An awning canopy construction according to claim 13 in which said structures for interengaging said slats include a preformed longitudinal groove along one longitudinal edge of each slat and a preformed lip along the other longitudinal edge of each slat, each said groove being defined by a reversely bent slat edge portion which extends upwardly from the slat and which is curved to form a groove having a generally arcuate cross-section, each said lip being defined by a slat edge portion which is bent upwardly from the slat and which is curved to form a flange having substantially the same cross-sectional configuration as its associated groove.

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