This invention relates broadly to awnings especially of the substantially rigid multi-sectioned type and is more particularly directed to certain novel improvements in construction and assembly of such types of awnings.

Awnings of the multi-sectioned type are generally known in the art, their advantages and attributes having been acknowledged by general acceptance and use in modern housing and particularly on residences. The present invention contemplates the provision in awnings of this general type of certain structural improvements directed to conservation of material as well as ease of assembly tending toward economy in manufacture and ultimate financial benefit to the user.

In addition to the foregoing the present invention has as an object to provide a multi-sectioned semi-rigid awning with cushioned separators conceived and located to quiet the action of the multiple sections during opening and closing thereof. Simultaneously with the aforesaid quieting feature, this invention has the additional advantage of minimizing wear and tear on the awning structure reducing maintenance costs thereof and rendering the same useful over a longer period of time than would be possible with prior known awnings of the same general structure.

It is another object of this invention to provide a multi-sectioned semi-rigid awning having independent sections all calculated for action about a common pivotal axis and diminishing or increasing in size in modules such that from the smallest to the largest sections a selected group thereof serves, when assembled, to provide a complete awning structure suitable for a particular height of window or door opening.

A further object of this invention is to provide in an awning structure of the type referred to with uniform top and side edges conducive to assembly with top bridging members selected according to the width of an opening to receive such awning. Along these lines the instant invention also contemplates a structure suitable for assembly with corner brackets of common design adapted for use with any particular section of the awning structure irrespective of its location within the modular range of sizes of such section in accordance with the invention herein.

These and other objects and advantages of the present invention will become apparent in the following description when read in connection with the drawing herein in which:

Fig. 1 is an enlarged fragmentary section through an awning structure embodying the present invention.

Fig. 2 is a side elevation of a bracket and pivot arrangement for the awning sections shown in Fig. 1 and disposed on the drawing complementary thereto so as to depict the awning sections as radially disposed relative thereto.

Fig. 3 is a schematic illustration of one group of awning sections in accordance with the present invention.

Fig. 4 is a half front elevation of the awning sections illustrated in Figs. 1 through 3.

Fig. 5 is a half front elevation complementary to that of Fig. 4 showing the awning sections thereof in nested or raised condition.

Fig. 6 is a horizontal cross section through the nested awning sections shown in Fig. 5 and taken substantially along line 6—6 thereof.

Fig. 7 is a fragmentary composite section through the upper portion and along the back margin of a group of awning sections in nested position as shown in Fig. 5 and taken substantially along line 7—7 thereof.

Fig. 8 is a cross section through an upper side corner of one awning section shown in Fig. 7 and taken substantially along line 8—8 thereof.

Fig. 9 is a partial plan of the arrangement detailed in Fig. 8 and as seen from above in Fig. 1 from line 9—9 in the latter.

Fig. 10 is a fragmentary detail section of Fig. 1 taken from line 10—10 thereof.

Fig. 11 is a front elevation of the bracket and pivot shown in Fig. 2 and taken substantially along line 11—11 thereof showing the side walls of the awning sections associated therewith in vertical section.

Fig. 12 is a fragmentary perspective view of an upper inner corner of one awning section showing the common bracket or brace therefor.

At the outset, the broad general characteristics of a multi-sectional awning structure as known in the art will be briefly explained with the use of alphabetical reference characters. Such multi-sectioned awnings indicated A comprise a plurality of substantially U-shaped sections U each invented with the extremities E of its arms disposed for mounting on pivot pins P for movement about a common axis. The arms of each U-shaped section U comprise a pair of sides SR and SL, usually of wedge shape when viewed from one side, and the bight portion of the U-shaped section constitutes a top T which bridges between the upper ends of the sides SR and SL and cooperates therewith to provide a shading member.

The plurality of sections U of each awning A are joined at the extremities E of their side members SR and SL on right and left hand pivot pins P, respectively, and in order to afford collapsibility, i. e., nesting, of the several sections thus assembled, each section removed inwardly from an outer section diminishes in size so as to be telescopically received and to receive the next section inwardly of itself. In this arrangement the outer or larger section U is considered the base member B of the awning adapted to be secured as by screws or the like to a window or door frame for supporting the entire awning relative thereto. With the base member B thus secured, each of the other sections grouped therewith is provided with an interlocking means L for limiting each inner adjacent section from extending more than its full dimension beyond the section from which it is supported. In this manner each outer section retains its inner adjacent section in extended relation relative to itself whereby the several sections U provide the shading required of the completed awning.

The awnings A are usually provided with mechanism for raising the several sections U into collapsed or non-shading condition which mechanism might consist of cranks, gears, and the like. In the present disclosure it consists of a draw cord or Cable C to facilitate manual operation of the awning. Such draw cords as known in the prior art are linked to each separate section so...
that each section is drawn upwardly with the others upon pulling of the cord after which the latter is snubbed on a binding post (not shown) to hold the awning in raised position.

The present invention contemplates structural characteristics and features outlined above in the statement and objects of the invention and now to be described in specific detail.

Each section U, in accordance with the present invention, comprises a sheet metal panel 10 having an inturnd flange 11 along its rearmost edge and an offset bend 12 formed along its foremost edge. The upper edge of the panel 10 is provided with an inturnd flange 13. The lower extremity E of the panel 10 is rounded and provided with a hole 14 for receiving a bolt shank 15 in turn supported on a bracket 16 constituting the pivot P for the awning sections (see Figs. 2 and 11). Suitable separators 15* in the form of washers are disposed on the bolt shank 15 between the lower extremities of adjacent side panels 10 to maintain the latter in proper spaced relation with respect to each other.

It should here be noted that the inturnd flange 11 terminates just short of the rounded extremity E of each panel 10 to provide clearance for the inturnd ear 17 of the bracket 16 which is secured by screw 17* or the like to the frame F upon which the awning is to be mounted. In this connection it will be understood that the upper end of the rearmost or base awning section is also adapted to be secured to the frame F by screws or the like extended through the inturnd flange 11 adjacent the upper inner corner of such base awning section.

The right and left panels 10 of an awning section are the sides SR and SL hereinafore mentioned to which the top T is secured as best illustrated in Figs. 8, 9 and 10. In accordance with the present invention the top T is a sheet metal panel 18 having an arched shape substantially conforming to a segment struck on a radius from the pivotal axis of the section U. It should here be noted that each top panel 18 is of substantially the same width from front to rear. Consequently the upper edge of each side panel 10 is of identical dimension from front to rear irrespective of its distance radially from its pivotal axis F. In other words, despite the variation in length, each side panel is upturnable and flange 13 is identical regardless of what grouping it may be in.

The manner of uniting the top panel 18 with the respective side panels 10 embodies the use of a corner binder 20 made of a single piece of metal of a length substantially comparable to the width of the top panel 18 as well as the upper flanges 13 of the side panels 10. Widewise the binder 20 comprises top and bottom portions 21 and 22 bent back upon a mid portion 33 in the form of an S to provide upper and lower sockets 24 and 25 for receiving one edge of the top panel 18 and the flange 13 of a side panel respectively as shown in Fig. 8. As shown in Figs. 1 and 3 the top panel 18 is upturned as at 26 at its rearmost edge and then forwardly at 27 to provide an upstanding channel open to the fore edge. The foremost edge of the top panel 18 is formed into a half circle bend 28 which is open only to the rear interiorly of the particular section U of which it is a part. As best seen in Fig. 9, the back end of the corner binder 20 bears against the upturned portion 26 of the top panel 18 and has its fore end secured by a screw 29 to a tab 30 bent inwardly from the outer edge of the top panel 18 along the fore edge of the side panel 10. It will thus be seen that both edges of the top panel 18 and the flange 13 of the side panel are interlocked firmly with the corner binder which is wedged against the upturned portion 26 and secured to the side panel and the single screw 29.

Each section U is further strengthened by a corner bracket 31 (Fig. 12) suitably secured by rivets 32 to the upturned portion 26 on the top panel 18 as well as the inturnd back flange 11 on the side panel 10. These corner brackets 31 are at both upper corners of each section U for maintaining the side panels 10 (SR and SL) in assembled relation with the bridging top panel 18. Moreover, these corner brackets 31 rigidify the U sections and maintain the side panels 10 in perpendicular relation to the top panel 18 thereof.

From the foregoing it will be seen that each pair of side panels 10 and their associated top panels are simply assembled and secured together by the few rivets 32 and the single screw 29. For reasons later to be made apparent, each corner bracket 31 excepting the ones on the base member B of the awning, has a rearwardly bent flange 33 at its upper as well as its side edges.

As previously explained each section U diminishes in size for reception within the next largest unit with which it is grouped. In this connection, note that the forwardly inturnd flange 27 of an inner unit is so disposed as to swing below the half circle bend 28 on the fore edge of the top T of the next largest section U. This affords good clearance between adjacent sections in each group thereof to facilitate ventilation beneath the open awning. In order to interconnect the several sections U of each group together for interlocking means L of the present invention is provided, see Figs. 1 and 10.

The arm portion in conjunction with the previous one comprises novel inturnd abutments 34 associated with cam edges 35 serving to center an inner section U with the next adjacent larger section U. Both the abutment 34 and the cam edge 35 associated therewith are formed on a metal bracket 36 having an upturned flange 37 suitably secured by rivets or the like to the inner face of the respective side panels 10. As best seen in Figs. 1 and 10 these metal brackets 36 are secured as aforesaid just to the rear of the offset bend 12 and in a position radially from the pivot P to be struck by the upstanding portion 26 of the next adjacent inner section U. Consequently, as each inner section U is lowered into open condition its forward movement is stopped when the inwardly projecting abutments 34 on the sides of the next adjacent outer section U engage the upstanding flange 26 of the inner section U.

Morover, as each inner section U is lowered as aforesaid the side edge of the upstanding portion 26 of the top T is adapted to engage the cam edge 35 (see dotted illustration Fig. 10) so as to guide the inner section U toward centered relation with respect to the outer section of sheet metal U. Consequently, as a group of sections U forming an awning structure is lowered, all such sections U will be automatically centered relative to each other in conformance with the separators 15* at the pivots P giving a neat appearance to the open awning.

As previously stated, a draw cable C is provided for raising the awning structure of the present invention. As shown in Fig. 1, this cable C has one of its ends secured to the web of the bracket 31 on the foremost section U and its opposite end trained through a pulley suspended from the bracket 31 on the base member B. Thus as the foremost section U is drawn up it bears against the web of bracket 31 on the next adjacent section U and so on to raise all sections upon pulling in the cable C.

It should here be noted that each of the side panels 10 is provided with a pair of rubber cushions 38 which serve as separators to prevent adjacent side panels 10 of the next sections U from bearing on each other. A similar rubber bumber 39 (Fig. 10) is press fit through a hole provided in the upturned portion 26 at its zone of contact with the inwardly projecting abutment 34 of the next adjacent outer section U. This rubber bumber 39 has an enlarged head which engages the rear edge of the abutment 34 to maintain the latter in a spaced relation with respect to the upturned portion 26.
and to prevent scratching thereof by normal contact with the abutment member 34. Each rubber bumper 39 has a rearwardly extending shank portion (Fig. 7) which extends slightly rearwardly of the rearwardly bent flanges 33 on the corner bracket 31 adjacent the same. Thus it will be seen that as the several awning sections U are raised into nested relation, the shank portion of the bumper 39 on an innermost section U engages the web of the corner bracket 31 on the next adjacent section U. In this manner the enamel finish on each of the sections U is protected against scratching and ultimate rusting. By the same token the cushioning effect of the rubber separates 38 as well as the rubber bumpers 39 serve to prevent metal to metal contact between the sections U and to quiet the action of the several awning sections U during opening and closing of the awning structure.

From the foregoing it will be appreciated that we have provided certain novel structural improvements in multi-sectioned awnings of the substantially rigid type. Moreover, by providing uniformity in construction of certain parts of such awnings we have achieved a low cost in production. In other words, by making the sections U of diminishing or increasing increments all of our side panels are interchangeable one with another in sequence. That is to say, when a specific window height is to have one of our awnings placed thereon, the closest side panel 19 to such window height is selected as the base member B. The next diminishing increments of side panels 19 will then fit within such selected base member without special cutting or fitting.

In addition to the foregoing, the top panels 18 for any group of awning sections are all uniform in width, i.e., from front to rear. Their length is determined by the width of window opening suitably increased by the prescribed base member B as explained above. Since the upper inturned flange 13 of all side panels are identical and the top panels 18 are of uniform width, the corner binders 20, in all cases are identical and can be mass produced. Moreover, since the side panels 10 are stepped down in equal increments relative to each other, the placement of the cam and abutment brackets 36 on each side panel 10 is the same and therefore can be accomplished in one and the same jig irrespective of the size of such side panel.

While we have described the invention herein in specific detail, it will be apparent to those skilled in the art that it is susceptible to variations, modifications and/or alterations without departure from the spirit of our invention. We therefore desire to avail ourselves of all variations, modifications, and/or alterations as fairly come within the purview of the appended claims.

What we claim as new and desire to protect by Letters Patent is:

1. In an awning of the rigid multi-section type including a plurality of U-shaped sections each adapted to be received within the next larger section and to receive the next smallest section for opening and closing action about a common axis; the combination in each said section of a pair of side walls of wedge shape having an upper base edge of a length comparable to that of all other sections of said awning, an inturned flange on the upper base edge of each of said side walls, a top panel having its ends secured to the inturned flanges on the upper base edge of each of said side walls, said top panel having an upturned portion on its aft edge, an inwardly extending abutment on each said side wall adjacent its upper fore corner adapted to engage the upturned portion on the top panel of the next smallest section for limiting movement thereof to less than its full dimension beyond the fore edge of the top panel secured to said side wall, a resilient bumper press fitted into said upturned portion for cushioning engagement of the same with said abutment and a cam formed on each said side wall to the rear of and adjacent to said abutment for engaging the free end of the upturned portion at the aft end of said top panel of the next smallest of said U-shaped sections for guiding the same into centered relation between the side walls of the U-shaped section provided with said cams.

2. In an awning of the rigid multi-section type including a plurality of U-shaped sections each adapted to be received within the next larger section and to receive the next smallest section for opening and closing action about a common axis; the combination in each said section of a top panel having an upturned portion on its aft edge, an inwardly extending abutment on each said side wall adjacent its upper fore corner adapted to engage the upturned portion on the top panel of the next smallest section for limiting movement thereof to less than its full dimension beyond the fore edge of the top panel secured to said side wall, and a cam adjacent the aft edge of said abutment for engaging the side extremity of the upstanding portion on the top panel of the next smallest section for guiding the same into centered relation with respect to the awning section next adjacent the same.

3. In an awning of the rigid multi-section type including a plurality of independent U-shaped sections each having wedge shaped side walls pivotally mounted at their lower ends for movement about a common axis; the combination in each said section of a top panel having an upturned portion on its aft edge, a corner bracket secured to said upturned portion and the aft edge of said each side wall, an abutment member extending inwardly from the upper fore corner of each said side wall in the path of movement of the upstanding portion of the top panel of the next smallest section for limiting movement thereof beyond full width extension beyond the top panel to which said side wall is secured, and a cam edge formed integrally with said abutment member along the aft edge thereof for engaging and guiding the upstanding portion on the next smallest awning section into properly spaced relation with respect to the side wall from which said abutment member extends.

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