Aug. 4, 1953 F. C. RUSSELL ET AL 2,647,291

AWNING CONSTRUCTION

Filed Feb. 8, 1949 3 Sheets-Sheet 1

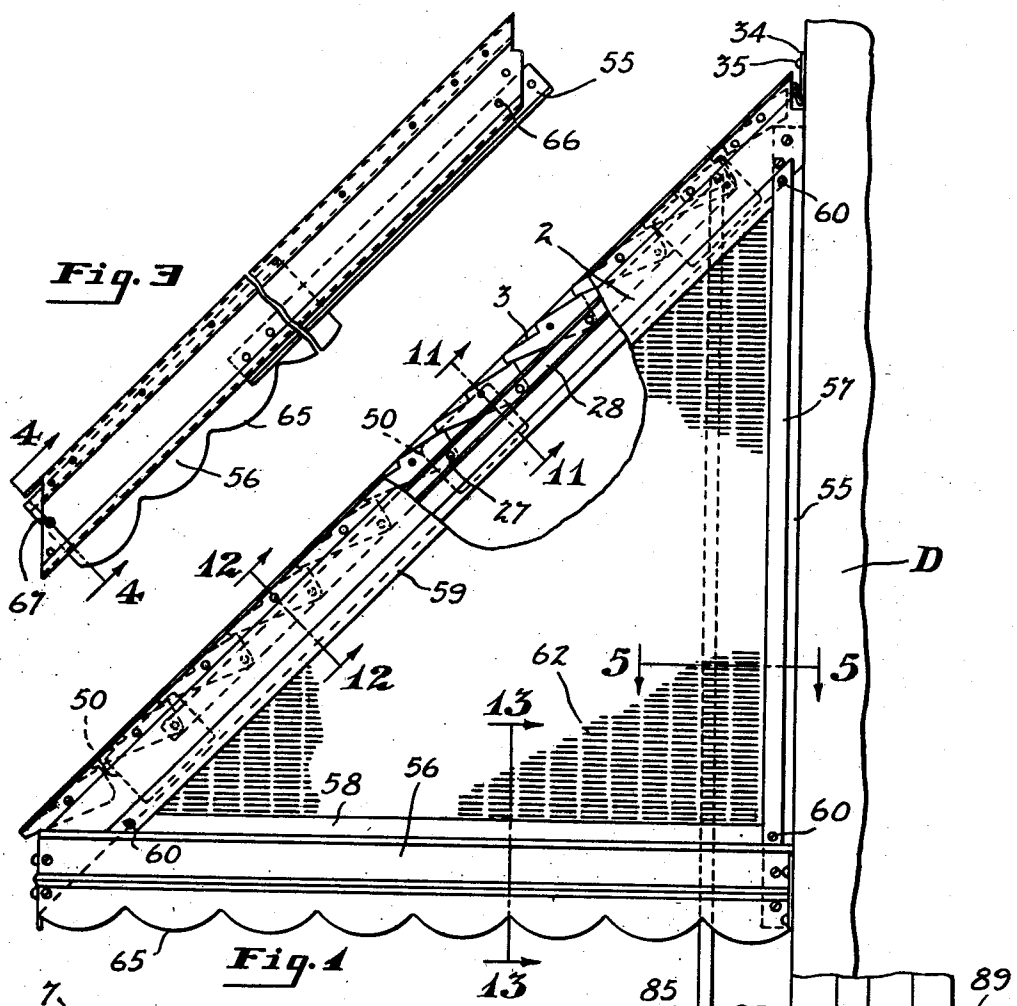


Fig. 3

Fig. 1

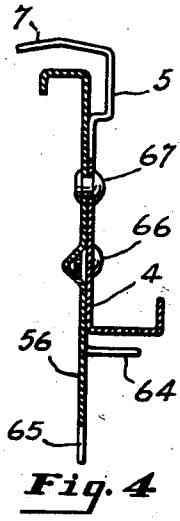


Fig. 4

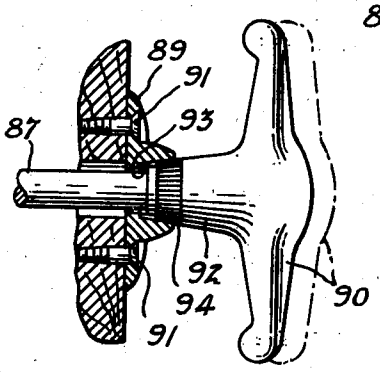
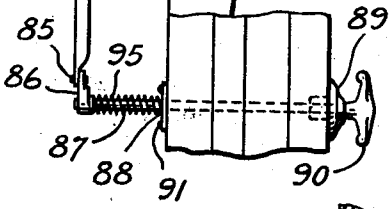


Fig. 2



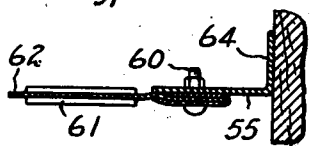


Fig. 5

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AWNING CONSTRUCTION

Filed Feb. 8, 1949 3 Sheets-Sheet 2

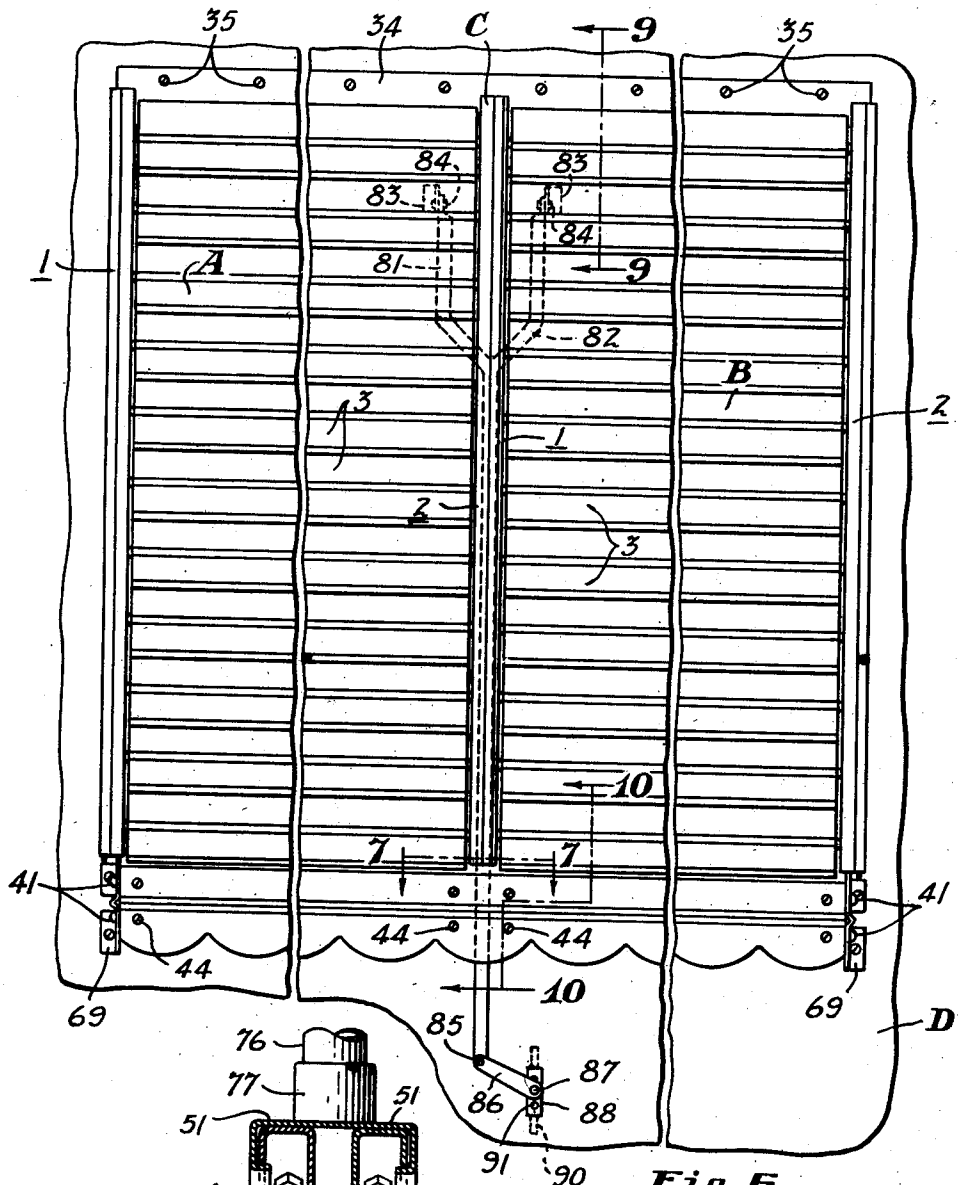


Fig. 6

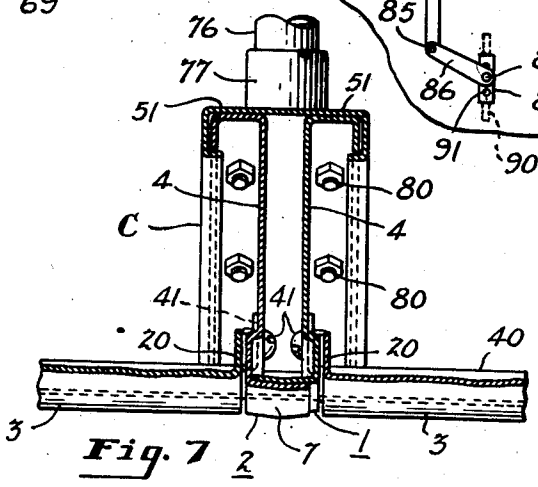


Fig. 7

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Filed Feb. 8, 1949 3 Sheets-Sheet 3

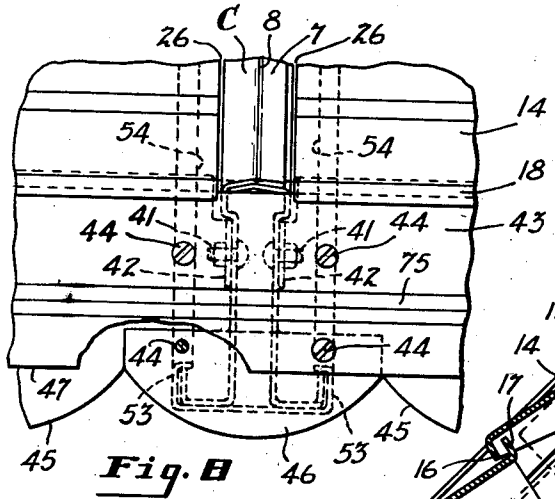


Fig. 8

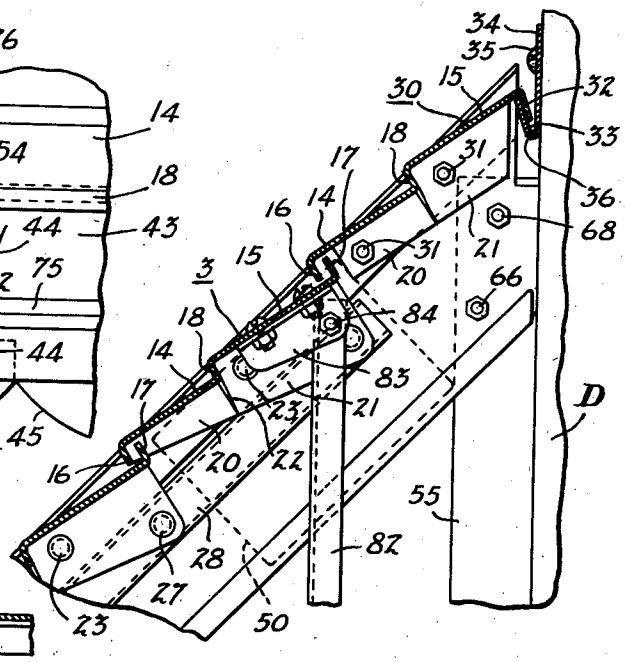


Fig. 9

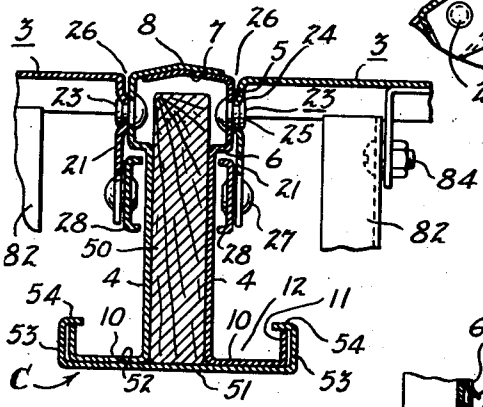


Fig. 11

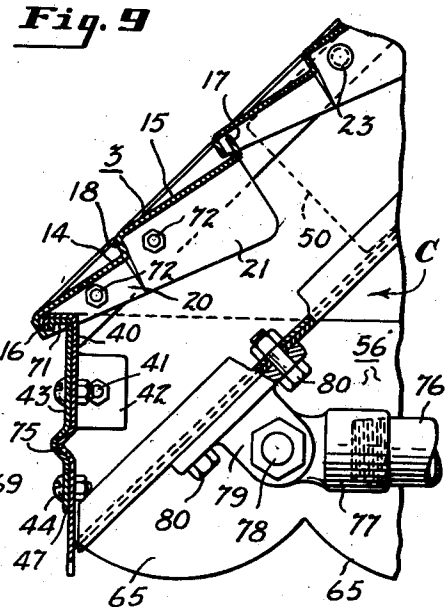


Fig. 10

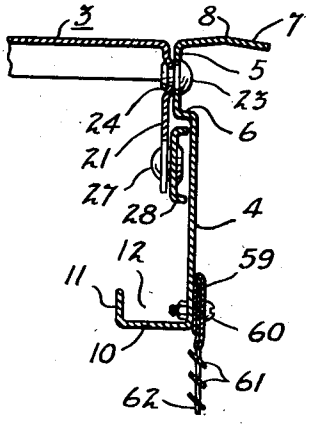


Fig. 12

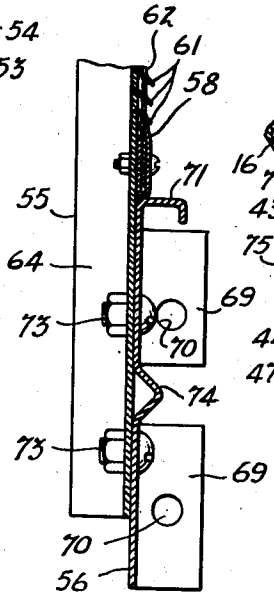


Fig. 13

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UNITED STATES PATENT OFFICE

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AWNING CONSTRUCTION

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Application February 8, 1949, Serial No. 75,262

16 Claims. (Cl. 20—57.5)

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This invention relates to awnings or canopies, more particularly to rigid type sheet metal awnings having movable louvers. Canopies or awnings of the character mentioned are useful in many applications and it is desirable to make them by large scale mass production methods. The numerous sizes of areas to be covered and of doors, windows, and other building openings occurring in architecture makes it also desirable to have an awning or canopy design that provides for the coupling or joining of several units so that requirements for different sizes can be economically satisfied without excessive cost for individual construction of each awning.

It is therefore one of the principal objects of the present invention to provide a generally improved canopy or awning structure of such design that the component parts can be economically mass produced and are easily fabricated into awnings of different sizes. More particularly, it is sought to provide improved awning frame members of uniform section designed for fabrication out of sheet metal by conventional metal forming processes such as bending, rolling and stamping.

Another object is to improve the design of awning frame members to the end that they can be formed of relatively thin sheet metal and yet exhibit adequate strength and rigidity characteristics. More specifically the invention seeks to provide awning frame members of sheet metal having substantially uniform sections throughout their lengths, the sections being formed with a number of parallel bends disposed and arranged to reinforce and strengthen the sheet metal and to incorporate in the frame members elements functioning as drains, spacers and limit stops for movable parts.

Another object is to provide an awning construction wherein a plurality of assemblies or groups of movable louvers are arranged adjacent to one another in side to side relation, the frame members of adjoining louver assemblies serving as companion members of a composite frame structure. As a further refinement of this aspect of the invention, there is provided a composite frame structure wherein frame members of adjoining louver assemblies are held together in predetermined relation by a connecting or closure element, preferably in the form of a strip of uniform section throughout its length. In such an arrangement additional advantages are achieved by the provision of a closure member slidably received along the edges of companion members of adjacent louver groups, the

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closure member being interlocked with the companion members to prevent lateral separation of the parts.

A further object of the invention is to provide an improved operator for actuating in unison a plurality of movable louvers in an awning or canopy of the character mentioned. This object is achieved in an operator incorporating a rotatable rod or shaft which may extend through the wall of a building on which the awning is mounted, the rod carrying an element engageable in a multiplicity of different rotative positions with a mating element carried by the building or rod support. The mating elements desirably are in the form of a plug and socket which preferably are fluted or splined to resist relative turning. Yieldable resilient means hold the mating parts or elements in interlocking engagement save when manually separated for adjustment of the shaft to different rotative positions.

A still further object of the invention is to provide a bank or group of relatively large, movable louvers and a supporting structure for mounting the same on a building, in combination with a bank or group of relatively fine or small louvers, the small louvers being assembled together and framed as a unit and the unit being mounted in the supporting structure for bodily removal and replacement as desired.

Other objects and advantages relating to certain details of construction and arrangements of parts are set forth in the following detailed description of a suitable embodiment of the invention. This description is made in connection with the accompanying drawings forming a part of the specification. Like parts throughout the several views are indicated by the same numerals of reference.

In the drawings:

Figure 1 is an end elevational view of an awning or canopy representative of the present invention secured to an upright face or wall of a building over a window opening in the latter, the view being partly in section with parts broken away and removed;

Fig. 2 is a sectional detail showing the operating handle and related parts of the louver actuating mechanism, this view being enlarged with respect to Fig. 1;

Fig. 3 is an end view of the awning canopy showing the manner in which horizontal and vertical components of the supporting frame structure are folded into parallelism to one another and to the awning frame for shipment or storage;

Fig. 4 is an enlarged sectional detail taken substantially along the line indicated at 4—4 of Fig. 3, the louvers and other parts being removed;

Fig. 5 is an enlarged sectional detail taken substantially along the line indicated at 5—5 of Fig. 1;

Fig. 6 is a front elevational view of the canopy or awning shown in Fig. 1, the several louver banks being foreshortened since they may be made of any desired length;

Fig. 7 is a sectional detail taken substantially along the line indicated at 7—7 of Fig. 6 and enlarged with respect to that figure;

Fig. 8 is an elevational detail at the lower end of the composite or companion rail or frame member between adjacent groups of louvers, this view being on an enlarged scale with respect to Fig. 6;

Fig. 9 is a sectional detail with parts removed, taken substantially along the line indicated at 9—9 of Fig. 6 and enlarged with respect to that figure;

Fig. 10 is a sectional detail with parts removed taken substantially along the line indicated at 10—10 of Fig. 6 and enlarged with respect to that figure;

Fig. 11 is a sectional detail through the composite or companion frame member, with parts removed, taken substantially along the line indicated at 11—11 of Fig. 1 and enlarged with respect to that figure;

Fig. 12 is a sectional detail through one of the side frame members of the canopy, this view being taken substantially along the line indicated at 12—12 of Fig. 1, with parts removed and on an enlarged scale with respect to that figure; and

Fig. 13 is a sectional detail with parts removed, through one of the horizontal members of the supporting structure at one end of the awning, this view being taken substantially along the line indicated at 13—13 of Fig. 1 and enlarged with respect to that figure.

The canopy or awning of the present invention may comprise a single bank or group of louvers or it may incorporate a number of louver banks arranged in side by side relation with their adjacent or companion frame members coupled to form composite frame assemblies. The illustrative embodiment has two banks or groups A and B of movable louvers 3. Each bank includes a pair of spaced side frame members 1 and 2, which carry the louvers 3. The side frame member 2 of the louver group A and the frame member 1 of the louver group B are combined in a common or composite frame member C. Awning groups of any desired number can be arranged in adjoining relation, the adjacent frame members of each adjoining pair being arranged into composite frame members corresponding to the frame member C.

The side frame members 1 and 2 are of thin sheet metal and are of uniform section throughout their lengths. Formed metal strips of the same shape are used alternatively for either the frame members 1 or the frame members 2.

Each frame member comprises a substantially flat upright body portion 4 and an offset louver mounting portion 5 which extend the full length of the strip. The mounting portion is narrower than the body portion 4, the two portions being integrally joined throughout the length of the strip by a connecting portion 6. The body portion 4 and the louver mounting portion 5 of each frame member are preferably disposed in parallel planes or substantially so.

A cap flange 7, crowned or bowed along its length to increase its rigidity and to form a water shed, is integrally formed along the upper edge of the louver mounting portion 5 and extends laterally at an angle to the latter. The crowning of the cap flange may be in the form of a continuous curve or, as shown, by a longitudinal crease or bend indicated at 8.

An integral base flange 10 is formed along the lower edge of each of the frame members. Edge portions 11 of these base flanges are bent upwardly and disposed in spaced parallel relation to the corresponding body portions 4 of the frame members providing longitudinally extending drainage channels 12. The cap flange 7 and the base flange 10 of each frame member are oppositely directed, the cap flange intersecting and extending through and beyond the plane of the frame body portion 4. The base flange intersects and extends through and beyond the plane of the louver mounting portion 5. The extent or height of the upwardly bent edge portions 11 of the base flanges 10 is restricted for rigidity and to avoid being engaged by the louvers 3 when the latter are turned to different positions as will later appear. Preferably the height of the upwardly bent edges of the flanges 11 is less than the width of the horizontally disposed portions of the base flanges 10.

Each of the louvers 3 comprises longitudinally extending portions 14 and 15 arranged in stepped relation in offset parallel planes and integrally joined by longitudinally extending connection portions 18. Along the edges of the louvers are angularly disposed flanges 16 and 17, the flanges 16 being downturned along the lower edge of the louver portions 14 and the flanges 17 being upturned along the upper edges of the louver portions 15. When the awning louvers are closed, Figs. 1, 6, and 9, the louver edges and the flanges 16 and 17 overlap one another, the flanges being disposed in abutting relation against the louver portions 15 and 14 respectively.

At the ends of the louvers the portions 14 and 15 are formed with right angle depending flanges 20 and 21 respectively. These end flanges are coplanar and the adjacent edges of each pair abut one another along a line indicated at 22. If desired, the abutting edges may be welded or otherwise secured together although for most applications it is unnecessary to do so. In fact, the slight springing of the individual louvers along the region of the connecting portions 18 which is permitted during closing of the louvers by reason of the separation of the flanges 20 and 21 allows the edge flanges 16 and 17 to seat snugly in effecting tight weather seals. The depending lower edge flange 16 of each louver and the end flanges 20 of the same louver come together at the louver corners and may be welded if desired, to form a box like corner structure to receive the upstanding flange 17 of the adjacent louver.

The louvers are pivotally supported by rivets 23 received in apertures provided therefor in the louver mounting portions 5 of the side frame members. To reduce sliding and friction loss, one of each pair of the relatively turning parts, preferably the louver flanges 21, are dimpled as indicated at 24 to provide clearance spaces 26 between the flanges and the frame member portions 5. The rivets 23 have portions of different diameters providing shoulders 25 which

serve as stops that seat against the dimpled portions 24 of the pivot flanges. The rivet ends are upset in the dimpled portions of the flanges to secure the rivets against turning relative thereto, the larger diameter portions of the rivets being rotatably received in the apertures of the side frame portions 5 with the rivet heads inside the frame members.

At points remote from the pivot rivets 23 the louver end flanges 21 receive rivets 27 which connect the louvers to a common operating bar 28 disposed between the louver end flanges and the body portions 4 of the side frame members. The inner faces of the operating bars are substantially flush with the inner faces of the corresponding louver mounting portions 5 of the frame members. The rivets 27 for the operating bar are shouldered similarly to the pivot rivets 23 and may be similarly secured in dimpled portions of the louver flanges or, as shown, may be free turning in the flanges and secured in the spaced apertures of the bars 28.

At the top of the awning is a cross member 30 which is similar to the louvers 3 to harmonize therewith. At its ends the cross member 30 is rigidly secured to the side frame members 1 and 2 by bolts 31 extending through aligned apertures in the end flanges 20 and 21 and the mounting portions 5 of the side frame members. Along its upper edge the cross member 30 is formed with a depending hook flange 32 in lieu of the upstanding flange 17 on each of the louvers. This hook flange is received in a V-shaped channel 33 formed along the bottom edge of a support member 34 that is attached as by screws 35 to building B on which the awning is mounted. The hook receiving channel 33 may be formed as by a reversely bent flange 36 upturned along the bottom edge of the support member 34, the flange being disposed at an acute angle to the body of the support member. A channel so formed serves not only as a retainer for the hook flange 32 of the awning cross member but also as a conductor for carrying water that runs down the side of the building B to the ends of the awning, preventing such water from entering under the awning.

A bottom cross member 40 extends between the lower ends of the side frame members 1 and 2 and is secured to the latter as by bolts 41 which pass through integral flanges 42 formed on the ends of the cross member and through aligned openings in the body portions 4 of the frame members. A reinforcing strip 43 is disposed flatwise against the front of the cross member 40 and is attached to the latter as by bolts 44. The reinforcing strip 43 is of sufficient length to extend across both louver groups A and B, preferably being continuous from end to end of the awning, however many louver groups may be assembled together. Thus the reinforcing strip serves as a connecting or bridging means, tying and integrating together the several groups of louvers. In the case of the assembly of a large number of awning groups such that a single reinforcing strip would be inconvenient or awkward, it is satisfactory to use a series of reinforcing strips arranged in end to end relation, the abutting ends being located intermediate the side frame members 1 and 2 of the louver groups so that the joints between the reinforcing strips 43 are staggered in relation to the joints at the ends of the bottom cross members 40.

If desired, ornamental scallops 45 may be formed along the bottom edges of the cross members 40. A filler element 46 formed of sheet metal and having a length corresponding to that of the individual scallops is fitted across the joint between the ends of the adjacent bottom cross members, being held in place by the bolts 44. Such a filler is used at the joint between each companion pair of awning groups in multiple groups assemblies. Desirably the filler element 46 is inserted between the cross members 40 and the reinforcing or bridging strips 43, giving a continuous unbroken appearance to the front of the awning. Bottom edges 47 of the reinforcing strip or strips are straight and continuous across the entire length of the awning assembly.

In the composite assembly of several louver groups, the side frame members of adjacent groups are disposed in back to back companion relation and their cap flanges 7 are overlapped, as illustrated in Fig. 11. At spaced intervals along the length of the coupled frame members, wooden spacing blocks 50 are interposed between the frame member body portions 4. Extending longitudinally of the companion frame members, preferably co-extensive in length therewith, is a sheet metal closure member or strip 51 in the form of a shallow channel. Bottom 52 of the channel is disposed flatwise against the flanges 10 of the companion side frame members while channel flanges 53 are disposed on the outside of and embrace the upturned frame flanges 11. The upper edge portions of the channel flanges 53 are flanged inwardly as indicated at 54, providing confronting lateral recesses along the sides of the closure channel for receiving the edge flanges 11 of the frame members. The height of the recesses in the closure 51 is substantially equivalent to the height of the upstanding edge flanges 11 on the frame members so that the latter, by engagement against the inside of the inturned flange edges 54 of the closure channel, retain the bottom 52 of the latter snugly against the base flanges 10 of the frame member.

The wooden spacing blocks 50 prevent collapsing of the frame members 1 and 2 toward one another, thus serving to hold the frame member flanges 11 within the recesses of the closure strip. In assembly, the closure strip or strips are slid into place longitudinally from one end of the coupled side members. This feature facilitates factory assembly of the individual awning groups, the units being coupled together at the building site by means of the closure strips. The louver groups, each comprising a pair of side frame members 1 and 2 to which the louvers are pivoted, and top and bottom cross frame members 30 and 40, are received at the site of use as assembled units. As a preferred procedure the reinforcing strips 43 and the filler elements 46 are placed after the louver group units are hung onto the support member or members 34 and after the closure channels 51 are slid into place. The gaps or openings closed by the filler elements 46 provide clearance spaces for accommodating the closure strips 51 as the latter are slid endwise onto the base flanges of the companion side members. The filler elements, when subsequently positioned across the ends of the composite frame members prevent endwise sliding of the closure strips and retain the parts in assembled relation.

At the ends of the awnings, upright frame members 55 and horizontal frame members 56 form, with the adjacent side frame members 1

and 2, triangular openings across which are disposed supplemental frames also of triangular shape. These supplemental frames comprise vertical, horizontal, and diagonal members 57, 58 and 59, respectively, each formed of a folded over or reversely bent sheet metal strip or element. At the corners of the supplemental frame the strips are overlapped in interfitting relation and held together by bolts 60. Across the triangular opening in the supplemental frame is stretched a louver type screen comprising a multiplicity of relatively small, generally horizontally extending, flat louver elements 61 parallel to one another and oblique to the plane of the screen. A number of supporting uprights or strands 62 carry and space the louver elements. This louvered screening is formed as by stamping thin sheet metal to the desired louver configuration, or the horizontal louver elements may be thin sheet metal strips held together by twisted wires which constitute the uprights 62. The margins of the triangular louver type screen are clamped between the sides of the narrow channel like supplemental frame members 57, 58 and 59. The bolts 60 for holding the supplemental screen frame members together also extend through the body portions 4 of the adjacent side frame members and through the awning frame uprights 55 which carry the supplemental louvered screens to support the screens in the triangular end openings of the awning assembly.

The awning upright 55, formed of rolled sheet metal, is substantially L-shaped in cross section, having an angularly disposed flange 64 which is received flatwise against the building to which the awning is attached. The horizontal member 56 of the awning frame is of the same shape and cross section as the bottom member 40, having a series of ornamental scallops 65 along its bottom edge.

In factory assembly of the awning groups, the vertical frame members 55 and the horizontal frame members 56 are individually attached to the ends of the side frame members 1 and 2 by single bolts or rivets 66 and 67 respectively. These single bolts, while locating the vertical and horizontal frame members on the side frame members, constitute hinges which permit such frame members to be swung into the plane of the louver group and of the side frame members, as shown in Fig. 3. In this folded or collapsed condition the awning requires only minimum space and can be readily handled in storage and shipment. In assembly at the site, the frame members 55 and 56 are swung away from the folded or collapsed position shown in Fig. 3 to the open positions of Fig. 1. Supplemental fastening elements such as rivets or bolts, one of which is shown at 68, Fig. 9, are then connected through aligned apertures provided therefor in the frame parts and spaced from the pivot bolts 66 and 67 to secure the awning end frame structures in open position. The ends of the horizontal frame members 56 adjacent the building, in addition to being secured to the vertical frame members 55 by bolts 73, Fig. 13, are formed with integral angularly disposed flanges 69 that are disposed flatwise against the face of the building and are apertured at 70 to receive fasteners such as screws for attaching the awning frame to the building.

The sheet metal strip material forming the horizontal frame members 56 may be of the same general cross sectional shape as that used for the bottom cross members 40. Preferably, this strip material is shaped to provide angularly disposed reinforcing flanges 71 along the upper edges of the members. In the case of the bottom cross member 40 the flange 71 is received in the angle between the body portion 14 and the flange 16 of the lowermost louver, such louver being rigidly connected to the side frame members as by bolts 72 in lieu of pivotal mounting. The flange 71 of the horizontal frame member serves as a support for the horizontal supplemental frame element 58 of the awning end screen.

The strip material for forming the bottom and horizontal frame members is also formed as by embossing or rolling between shaped wheels with an upstanding longitudinally extending ridge 74. This ridge preferably comprises flat portions angularly disposed to one another and to the body of the member. A similar and matching ridge 75 is formed along the reinforcing strip or strips 43, the hollow or concave side of the latter receiving the ridges 74 of the bottom cross members in interfitting relation to resist relative vertical sliding and twisting of the parts.

When a number of the present type of awning groups are assembled into relatively large units, it is desirable to provide individual supports or struts for each of the companion or intermediate frame assemblies. Such struts desirably take the form of tubular round sectioned pipes one of which is shown at Fig. 10. These struts extend horizontally between the lower ends of the companion frame members and the building on which the awning is mounted. The building end of each pipe strut is conventionally attached to the face of the building and the outer end thereof threadedly receives a socket fitting 77 formed with an eye which receives a bolt 78 in a clevis bracket 79. The apertured base of this bracket is fastened against the underside of the closure member 51 as by screws which may be engaged in one of the spacing blocks 50 or, as shown, by bolts 80 which extend through both the closure member 51 and the base flanges 10 of the companion frame members.

To operate the movable louvers a reciprocable link is connected between one of the upper louvers and a crank that can be manipulated from within the building. Desirably the links for operating the louvers of adjacent groups are secured together in the form of a yoke as shown in Fig. 6, wherein the link for the louver group A is indicated at 81 and the link for the louver group B is indicated at 82. These links, formed of angle section metal strips rolled or stamped to the desired shape, are secured together in side by side relation as by welding or bolting. Their upper ends are offset and spaced apart and are connected by pivot bolts 84 to brackets 83 bolted to the body portions 15 of corresponding upper louvers of the adjacent louver banks or groups. The lower ends of the links 81 and 82, secured together as one, are connected by a pivot bolt or pin 85 carried in the outer end of an arm 86 that is secured on the outer end of a horizontally disposed rod or shaft 87 that extends through the building wall D.

Supporting plates 89 and 88 are secured by screws 91 against the inside and outside faces respectively of the building and provide journals for mounting the shaft. Inside the building, an operating handle or crank 90 is secured on the shafts 87 so that the latter may be readily turned in manipulating the arm 86 to shift the links 81 and 82 in opening and closing the louvers. So that the louvers may be retained in any desired position a splined or interfitting connection is

provided between the parts, preferably between the inner journal plate **89** and the hub **92** of the hand wheel or crank **90**.

A superior construction employs a tapered socket in the journal plate **89**, the socket being concentric to the journal aperture for the shaft and being internally formed with finely cut flutes or serrations **93** in its sidewalls. The journal socket receives the tapered base portion of the handle hub **92** which is formed with mating serrations **94**. The shaft **87** is longitudinally shiftable in the support plates **88** and **89** so that the splined handle hub may be readily dis-engaged from the splined socket **93** of the plate when it is desired to rotate the shaft in adjusting the louvers to different positions. The splined parts are yieldingly held in interlocked relation by helical coil spring **95** received about the shaft **87** between the link actuating arm **86** and the outer journal plate **88**.

The awning of the present invention by reason of simplicity and similarity in section of component parts lends itself to economical factory assembly into unit components by mass production methods. The units can then be quickly and easily attached together in side by side relation at the site of use by relatively unskilled labor. The erected awning, although easily manipulated from within the building to any desired position of adjustment of the louvers, is capable, when closed, of providing an effective water shed which minimizes water running down the inside of the awning or dropping between adjacent banks or groups of louvers. Such water as enters between the louver end flanges and the side frame members **1** and **2**, enters the channels **12** formed in the frame members and is conducted by such channels to the bottom of the awning.

Use of the supplemental rigid frames for supporting the louvered screen material in the end openings of the awning permits these sun shading screens to be readily removed and replaced as desired. For storage or shipment the awnings are readily separated into the sub-assemblies of individual louver groups with vertical and horizontal members **55** and **56** folded into the plane of the louvers, as shown in Fig. 3.

In accordance with the patent statutes, the principles of the present invention may be utilized in various ways, numerous modifications and alterations being contemplated, substitution of parts and changes in construction being resorted to as desired, it being understood that the embodiment shown in the drawings and described above is given merely for purposes of explanation and illustration without intending to limit the scope of the claims to the specific details disclosed.

What we claim and desired to secure by Letters Patent of the United States is:

1. In a movable louver type awning, a plurality of louvers, a sheet metal frame member of substantially uniform section along its length, said member comprising a substantially flat body portion, a substantially flat louver attaching portion disposed substantially in a plane offset from and substantially parallel to the plane of the body portion and integrally connected to the latter along a line spaced inwardly from and substantially parallel to the outer margins of the frame member, means spaced along the length of the offset louver attaching portion for pivotally supporting the louvers, a laterally extending cap flange disposed along one margin of the offset portion of the frame member, and a base flange

disposed along one margin of the body portion of the frame member and spaced from the line of integral connection between the body and offset portions, said base and cap flanges extending in opposite directions laterally from the planes of the body and louver attaching portions respectively, the cap flange intersecting the plane of the body portion and the base flange intersecting the plane of the offset louver attaching portion.

2. In a movable louver type awning, a plurality of louvers, a sheet metal frame member of substantially uniform section along its length, said member comprising a substantially flat body portion, a substantially flat louver attaching portion disposed substantially in a plane offset from and substantially parallel to the plane of the body portion and integrally connected to the latter along a line spaced inwardly from and substantially parallel to the outer margins of the frame member, means spaced along the length of the offset louver attaching portion for pivotally supporting the louvers, a laterally extending cap flange disposed along one margin of the offset portion of the frame member, a base flange disposed along one margin of the body portion of the frame member and spaced from the line of integral connection between the body and offset portions, said base and cap flanges extending in opposite directions laterally from the planes of the body and louver attaching portions respectively, the cap flange intersecting the plane of the body portion and the base flange intersecting the plane of the offset louver attaching portion, and the base flange having along its length an angularly disposed edge portion, said edge portion being substantially uniformly spaced from the body portion to provide between the body portion and the angularly disposed edge portion of the base flange a water conducting channel along the length of the frame member.

3. In a movable louver awning of the type in which banks of louvers are disposed in side by side relation, a composite frame member assembly for supporting juxtaposed ends of the louvers of adjacent banks, the composite frame member assembly comprising a pair of elongated sheet metal frame members disposed alongside one another in back to back relation, each frame member being of uniform section and having a substantially flat body portion parallel to the corresponding body portion of the other frame member, each frame member having a longitudinally extending louver attaching portion integrally connected to the body portion of the same frame member along a line spaced inwardly from the outer margins of the frame member, said louver attaching portions of the frame members being offset in opposite directions from the planes of the corresponding body portions of the frame members in the provision of a clearance space extending longitudinally of the composite assembly between the louver attaching portions of the frame members, louver attaching means spaced along the length of each of the louver attaching portions and extending into said clearance space, a base flange extending laterally from the body portion of each frame member, the base flanges of the frame members extending in opposite directions, and a sheet metal closure member of substantially channel section extending along the frame members and spanning the base flanges of the latter, said base flanges being received within the channel of the closure member and the closure member having means at its edges

providing an interlock with the base flanges of the frame members.

4. In a movable louver awning of the type in which banks of louvers are disposed in side by side relation, a composite frame member assembly for supporting juxtaposed ends of the louvers of adjacent banks, the composite frame member assembly comprising a pair of elongated sheet metal frame members disposed alongside one another in back to back relation, each frame member being of uniform section and having a substantially flat body portion parallel to the corresponding body portion of the other frame member, each frame member having a longitudinally extending louver attaching portion integrally connected to the body portion of the same frame member along a line spaced inwardly from the outer margins of the frame member, said louver attaching portions of the frame members being offset in opposite directions from the planes of the corresponding body portions of the frame members in the provision of a clearance space extending longitudinally of the composite assembly between the louver attaching portions of the frame members, louver attaching means spaced along the length of each of the louver attaching portions and extending into said clearance space, a cap flange extending laterally from the body portion of each frame member, the cap flanges of the frame members being overlapped across said clearance space, a base flange extending laterally from the body portion of each frame member, the base flanges of the frame members extending in opposite directions, and a sheet metal closure member of substantially channel section extending along the frame members and spanning the base flanges of the latter, said base flanges being received within the channel of the closure member and the closure member having means at its edges providing an interlock with the base flanges of the frame members.

5. In a movable louver awning of the type in which banks of louvers are disposed in side by side relation, a composite frame member assembly for supporting juxtaposed ends of the louvers of adjacent blanks, the composite frame member assembly comprising a pair of elongated sheet metal frame members disposed alongside one another in back to back relation, each frame member being of uniform section and having a substantially flat body portion parallel to the corresponding body portion of the other frame member, each frame member having a longitudinally extending louver attaching portion integrally connected to the body portion of the same frame member along a line spaced inwardly from the outer margins of the frame member, said louver attaching portions of the frame members being offset in opposite directions from the planes of the corresponding body portions of the frame members in the provision of a clearance space extending longitudinally of the composite assembly between the louver attaching portions of the frame members, louver attaching means spaced along the length of each of the louver attaching portions and extending into said clearance space, a cap flange extending laterally from the body portion of one of the frame members, said cap flange being directed toward the plane of the body portion of the other frame member and extending across said clearance space to serve as a cover for the latter, a base flange extending laterally from the body portion of each frame member, the base flange of the frame members extending in opposite directions, and a sheet metal closure member of substantially channel section extending along the frame members and spanning the base flanges of the latter, said base flanges being received within the channel of the closure member and the closure member having means at its edges providing an interlock with the base flanges of the frame members.

6. In a movable louver awning of the type in which banks of louvers are disposed in side by side relation, a composite frame member assembly for supporting juxtaposed ends of the louvers of adjacent banks, the composite frame member assembly comprising a pair of elongated sheet metal frame members disposed alongside one another in back to back relation, each frame member being of uniform section and having a substantially flat body portion parallel to the corresponding body portion of the other frame member, each frame member having a longitudinally extending louver attaching portion integrally connected to the body portion of the same frame member along a line spaced inwardly from the outer margins of the frame member, said louver attaching portions of the frame members being offset in opposite directions from the planes of the corresponding body portions of the frame members in the provision of a clearance space extending longitudinally of the composite assembly between the louver attaching portions of the frame members, louver attaching means spaced along the length of each of the louver attaching portions and extending into said clearance space, a cap flange extending laterally from the body portion of one of the frame members, said cap flange being transversely arched and directed toward the plane of the body portion of the other frame member in the provision of a water shedding cover for the said clearance space, a base flange extending laterally from the body portion of each frame member, the base flanges of the frame members extending in opposite directions, and a sheet metal closure member of substantially channel section extending along the frame members and spanning the base flanges of the latter, said base flanges being received within the channel of the closure member and the closure member having means at its edges providing an interlock with the base flanges of the frame members.

7. In a movable louver awning of the type in which banks of louvers are disposed in side by side relation, a composite frame member assembly for supporting juxtaposed ends of the louvers of adjacent banks, the composite frame member assembly comprising a pair of elongated sheet metal frame members disposed alongside one another in back to back relation, each frame member being of uniform section and having a substantially flat body portion parallel to the corresponding body portion of the other frame member, each frame member having a longitudinally extending louver attaching portion integrally connected to the body portion of the same frame member along a line spaced inwardly from the outer margins of the frame member, said louver attaching portions of the frame members being offset in opposite directions from the planes of the corresponding body portions of the frame members in the provision of a clearance space extending longitudinally of the composite assembly between the louver attaching portions of the frame members, louver attaching means spaced along the length of each of the louver attaching portions and extending into said clear-

ance space, cap flanges extending laterally from the body portions of the frame members, the cap flanges each being transversely arched and being overlapped to provide a watershedding arched cover over said clearance space, a base flange extending laterally from the body portion of each frame member, the base flanges of the frame members extending in opposite directions, and a sheet metal closure member of substantially channel section extending along the frame members and spanning the base flanges of the latter, said base flanges being received within the channel of the closure member and the closure member having means at its edges providing an interlock with the base flanges of the frame members.

8. In combination in an awning structure, a frame for attachment to the side of a building over a window or the like, a plurality of louvers mounted in the frame for tilting movement about parallel axes, said frame including a generally horizontal sheet metal member arranged to extend outwardly from the building and an oblique member arranged to extend downwardly and outwardly from the building, the oblique member being connected to the horizontal member at a point of the latter spaced from the building in the definition of a generally triangular end opening in the awning structure between the frame members and the building, said horizontal frame member comprising a substantially flat body portion disposed substantially in the vertical plane of the triangular end opening and a flange extending outwardly from said plane, a closure for the end opening, said closure comprising elongated frame elements connected together at their ends in the provision of a supplemental frame, panel means carried by the supplemental frame, and means connecting the supplemental frame to the frame members for facile removal and replacement of the closure, one of the frame elements of the closure being disposed along and in contact with the top of the outwardly extending flange of the horizontal frame member for support by the latter.

9. In combination in an awning structure, a frame for attachment to the side of a building over a window or the like, a plurality of louvers mounted in the frame for tilting movement about parallel axes, said frame including a generally horizontal sheet metal member arranged to extend outwardly from the building and an oblique member arranged to extend downwardly and outwardly from the building, the oblique member being connected to the horizontal member at a point of the latter spaced from the building in the definition of a generally triangular end opening in the awning structure between the frame members and the building, said horizontal frame member comprising a substantially flat body portion disposed substantially in the vertical plane of the triangular end opening and a flange extending outwardly from said plane, a closure for the end opening, said closure comprising elongated substantially U-shaped channel frame elements connected together at their ends in the provision of a supplemental frame, reticulated screen panel means carried by the supplemental frame, said screen panel means having marginal portions retentively received within the channels of the frame elements, and means connecting the supplemental frame to the frame members for facile removal and replacement of the closure, one of the frame elements of the closure being disposed along and in contact with the top of the outwardly extending flange of the horizontal frame member for support by the latter.

10. In combination in an awning structure for attachment to the side of a building over a window or the like, a frame comprising side and cross members connected at their ends and disposed in a common plane to define an open louver receiving area, a plurality of louvers supported by the frame and disposed across said area, a support member receivable against and securable to a building to which the structure is to be attached, the support member and one of the cross members of the frame being formed to provide an interlocking hinged connection for suspending the frame swingably on the support member, vertical and horizontal end frame members pivotally connected at their ends to opposite ends of one of the side members of the frame, the end frame members being swingable on their pivots between a closed transit and storage position in which they are disposed substantially in the plane of the louver receiving area and an open use position in which the end frame members and the side frame members to which they are attached define a generally triangular end opening in the structure, and means connecting together the ends of the vertical and horizontal end frame members remote from their pivotal connections for retention of the pivotally connected frame members in the open use position.

11. In combination in an awning structure for attachment to the side of a building over a window or the like, a frame comprising side and cross members connected at their ends and disposed in a common plane to define an open louver receiving area, a plurality of louvers supported by the frame and disposed across said area, a support member receivable against and securable to a building to which the structure is to be attached, the support member and one of the cross members of the frame being formed to provide an interlocking hinged connection for suspending the frame swingably on the support member, vertical and horizontal end frame members pivotally connected at their ends to opposite ends of one of the side members of the frame, the end frame members being swingable on their pivots between a closed transit and storage position in which they are disposed substantially in the plane of the louver receiving area and an open use position in which the end frame members and the side frame members to which they are attached define a generally triangular end opening in the structure, a closure for the end opening, said closure comprising elongated frame elements connected together at their ends in the provision of a supplemental frame, panel means carried by the supplemental frame, means connecting the supplemental frame to the members defining the triangular end opening for facile removal and replacement of the closure, and means connecting together the ends of the vertical and horizontal end frame members remote from their pivotal connections for retention of the pivotally connected frame members in the open use position.

12. In awning construction, in combination, a plurality of adjacent assemblies of movable louvers each assembly including sheet metal frame members each having oppositely directed longitudinally extending flanges one at its top edge and the other at its bottom edge, frame members of adjacent assemblies being positioned in side by side companion relation with their top flanges in overlapped relation, louver supporting

pivots carried by each frame member and spaced along the length thereof, and a sheet metal closure embracing the bottom flanges of the companion frame members.

13. In awning construction, in combination, a plurality of adjacent assemblies of movable louvers each assembly including sheet metal frame members each having oppositely directed longitudinally extending flanges one at its top edge and the other at its bottom edge, frame members of adjacent assemblies being positioned in side by side companion relation with their top flanges in overlapped relation and with their bottom flanges substantially coplanar, louver supporting pivots carried by each frame member and spaced along the length thereof, and a sheet metal closure channel received flatwise against the bottom flanges of the companion frame members.

14. In awning construction, in combination, a plurality of adjacent assemblies of movable louvers each assembly including sheet metal frame members each having oppositely directed longitudinally extending flanges one at its top edge and the other at its bottom edge, frame members of adjacent assemblies being positioned in side by side companion relation with their top flanges in overlapped relation and with their bottom flanges substantially coplanar and oppositely directed, louver supporting pivots carried by each frame member and spaced along the length thereof, and a sheet metal closure channel received flatwise against the bottom flanges of the companion members, said closure channel having reversely bent edge portions embracing the edges of the companion frame member bottom flanges.

15. In awning construction, in combination, a plurality of adjacent assemblies of movable louvers each assembly including sheet metal frame members each having an integral reversely turned bottom edge portion providing a water conducting trough, the louvers of the assemblies having ends extending into overlying relation to the troughs, pivot means carried by the frame members and connected to the louver ends to support the louvers, frame members of adjacent assemblies being positioned in side by side companion relation with their edge portions turned in opposite directions, and a sheet metal closure embracing the troughs of the companion members.

16. In awning construction, in combination, a plurality of adjacent assemblies of movable louvers, each assembly including sheet metal frame members each having an integral reversely turned bottom edge portion providing a water conducting trough, the louvers of the assemblies having ends extending into overlying relation to the troughs, pivot means carried by the frame members and connected to the louver ends to support the louvers, frame members of adjacent assemblies being positioned in side by side companion relation with their edge portions turned in opposite directions, and a channel shaped sheet metal closure strip embracing and extending longitudinally of the troughs of the companion members, said closure channel having reversely bent edges embracing the water conducting troughs of the companion frame members.

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