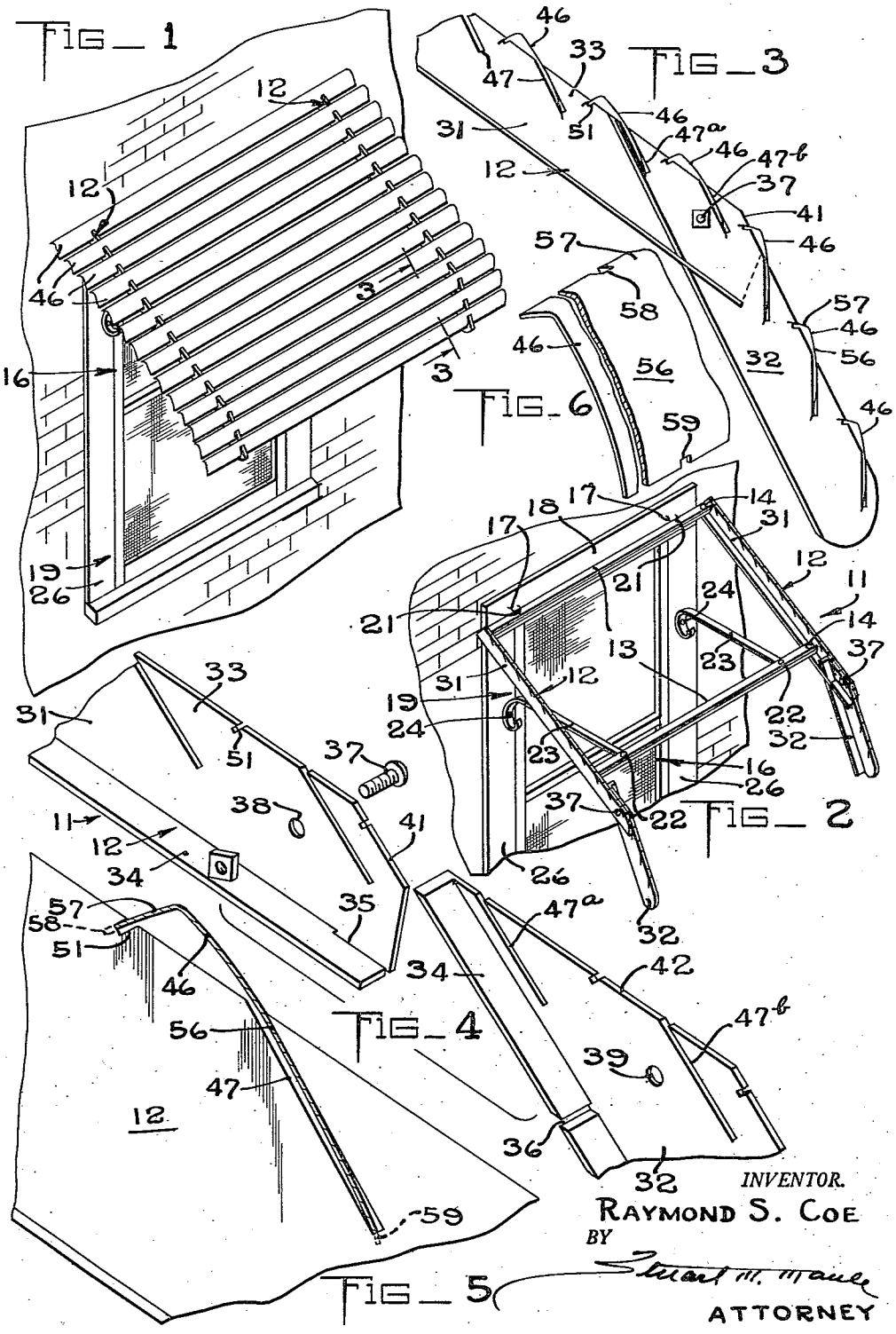
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SLAT TYPE AWNING CONSTRUCTION

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SLAT TYPE AWNING CONSTRUCTION

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This invention relates to awning constructions, and more particularly to outside window and doorway awnings of the slat type.

An object of the invention is to provide an improved slat type awning construction.

Another object is to provide an awning of the slat type employing an improved, simplified, and inexpensive connection between the slats and their supporting ribs.

A more detailed object in this connection is to provide an awning construction in which a plurality of metal slats are mounted on and secured to transversely spaced supporting ribs by being seated in slits cut into the ribs at the angle that imparts the desired pitch to the slats, and at the spacing that attains the desired overlapping relation of adjacent slats.

Another object is to provide an awning construction wherein slats are attached to supporting ribs by being seated within obliquely extending slits, as described, and wherein the accidental displacement of the slats is prevented by the engagement of edge flanges of the slats within notches provided for their reception in the ribs at suitable spacing from the slits.

Another object is to provide a novel slat type awning construction in which the slats are held in place solely by frictional engagement between the slats and their supporting ribs, thus eliminating the necessity of bolts, rivets, or other fastening means for the purpose, and permitting assembly of the awning by simply snapping the slats in place, without requiring any tools.

A further object is to provide a slat type awning as described, the slats of which are readily removable from the supporting ribs, to permit cleansing, repair, or replacement when the occasion demands.

Another object of the invention is to provide an awning construction of the character described, in which a plurality of slats are attached to supporting ribs solely by friction as described and yet so securely that their accidental displacement from the ribs is prevented, as is also vibration of the slats at the area of their attachment to the ribs, and the rattling noise that otherwise would be apt to develop under windy conditions.

The invention possesses other objects and valuable features, some of which, with those enumerated, will be set forth in the following description of the preferred embodiment of the invention illustrated in the drawings accompanying and forming part of the specification. It is to be understood that I do not wish to be limited to the showing made by the said drawings and description as I may adopt variations of the preferred embodiment within the scope of the invention as defined by the appended claims.

Referring to the drawings:

Figure 1 is a perspective illustrating a typical installation of a slat type awning incorporating the principles of the present invention.

Figure 2 is a view similar to Fig. 1 but showing the frame of the awning before installation of the slats.

Figure 3 is an enlarged vertical section taken along the lines 3—3 of Fig. 1, with the direction of view as indicated.

Figure 4 is an exploded, detail view showing a portion of one of the supporting ribs of the awning, illustrating the manner of interconnection between the upper portion of the rib and the lower extension member of the same.

Figure 5 is an enlarged detail view in vertical section through one of the slats of the awning and showing the manner of its mounting upon one of the supporting ribs.

Figure 6 is a perspective showing constructional detail of one of the slats, portions of the figure being broken away to reduce its size.

That modification of the invention which has been chosen for illustration and description herein includes a frame member 11 comprising a plurality of transversely spaced, parallel ribs 12; and whereas in the modification illustrated there are but two ribs 12, it is to be understood that any number of ribs 12 may be employed to meet the requirements of any particular installation. The ribs 12 are interconnected by transversely extending frame members 13 rigidly connected to the ribs 12 by any suitable fastening means such as rivets or machine screws 14. The ribs 12, as well as the transversely extending frame members 13 may conveniently be constructed of angle bars since the flanges of such bars provide convenient means for attaching the ribs and the transversely extending frame members 13 together; and whereas the frame members 12 and 13 can be constructed of any suitable material, it is preferred that they be composed of aluminum because of the ease with which such material can be fabricated and because of its non-rusting characteristic which makes it ideally suited for outdoors installation.

Any suitable means may be employed for mounting the awning in operative association with the window opening 16 or in any other suitable and desired location. The mounting means illustrated comprises a pair of transversely spaced hooks 17 screwed into and extending outward from the upper transverse member 18 of the window frame 19 and engaged within suitably positioned holes 21 in the upper transverse member 13 of the frame 11. The lower transverse member 13 is likewise provided with suitable holes (not shown) through which bolts or rivets 22 may extend to secure the outer ends of brackets 23 to the lower transverse member 13. The inner ends of the brackets 23 are rigidly attached as by wood screws 24 to the side members 26 of the window frame 19.

Each of the ribs 12 of the frame 11 comprises an upper portion 31 which, when installed as illustrated in Figs. 1 and 2, is disposed in an outwardly and downwardly inclining position with relation to the window frame 19, to impart the desired pitch to the complete awning. Each rib 12 likewise includes a lower extension 32 which also inclines outwardly and downwardly with relation to the window frame 19, but at a steeper inclination than the upper portion 31, as clearly shown in Fig. 2. The upper portion 31 and the lower extension 32 each includes a relatively wide vertical flange 33 and a narrower lateral flange 34, although in some instances the lateral flange 34 of the lower extension member 32 may be omitted, provided the extension 32 is of such short length that it does not require the lateral rigidity which is imparted by such a laterally extending flange. The upper portion 31 and the lower extension 32 are interconnected with the lower end of the vertical flange 33 of the upper portion 31 overlapping the upper end of the vertical flange 33 of the lower extension 32. In the event that the lower extension 32 includes the lateral flange, the flanges are notched as indicated at 35 and 36 in Fig. 4, to accommodate the vertical flange 33 of the lower extension 32

and the lateral flange 34 of the upper portion 31, respectively, as illustrated at the right hand end of Fig. 2. The two vertical flanges 33 are rigidly interconnected by means of a machine screw 37, rivet, or the like, extending through aligned holes 38 and 39 in the vertical flanges 33 of the upper portion 31 and the lower extension 32, respectively. The upper end of the vertical flange 33 of the extension 32 is beveled as indicated at 41 so that it aligns the upper edge of the vertical flange 33 of the upper portion 31 of the rib, adjacent the lower end of the upper portion 31.

The slats 46 of the awning are attached to the ribs 12 by being inserted into slits 47 cut into the vertical flanges 33 of the ribs in such arrangement that they incline downwardly and forwardly, i. e., outward with relation to the vertical plane of the structure upon which the awning is mounted. These slits 47 are disposed at equally spaced intervals throughout the length of each rib 12 and the slits 47 of the several ribs 12 are situated at corresponding locations therein so as to preserve the parallel relationship of the several slats 46 and to hold them in positions extending horizontally between and for a short distance beyond the ribs 12.

As is most clearly shown in Fig. 3, the slits 47 in the upper portion 31 of each rib are parallel to each other and extend obliquely into the vertical flange 33 from the upper edge thereof. All but the upper two of the slits 47 in the lower extension 32 of the rib are likewise parallel to each other and their obliquity with respect to the longitudinal dimension of the lower extension 32 is the same as that of the slits 47 with respect to the longitudinal dimension of the upper portion 31. Consequently, these slits 47 in the lower extension 32 are inclined more steeply—in fact, they are almost, if not quite, vertical, as clearly shown in Fig. 3. The two uppermost slits 47 of the lower extension 32 are formed at lesser pitch than the slits 47 adjacent the lower end of the extension 32. These slits, indicated at *47a* and *47b*, extend from the obliquely cut upper end 42 of the vertical flange 33 of the lower extension 32 and their obliquity with respect to the longitudinal dimension of the lower extension 32 is such that they correspond in inclination, when the extension 32 is in operative position upon the upper portion 31, to the obliquity of the slits 47 of the upper portion 31. This permits the slits *47a* and *47b* to overlie the two lowermost slits 47 in the upper portion 31 of the ribs so that the slats 46 adjacent the intersection of the upper portion 31 and the lower extension 32 of the ribs are adapted to engage simultaneously slits 47 and *47a* or slits 47 and *47b* in the two rib members 31 and 32 and thereby add to the rigidity with which the two rib members are joined together. This arrangement permits interconnection between the upper and lower portions 31 and 32 of each rib with a single machine screw 37 or rivet and still assure retention of the two rib members 31 and 32 at the exact position of angularity with respect to each other for which the awning is designed.

Each of the ribs 12 is provided with a notch 51 in association with each of the slits 47. The notches 51 are spaced upwardly from the upper end of their respectively associated slits 47; and preferably each of the notches 51, though of relatively shallow depth, is inclined in the opposite direction with respect to the longitudinal dimension of the rib as compared with the direction in which the slits 47 are inclined, as most clearly shown in Figs. 4 and 5.

Each of the slats 46 is composed of suitable metal having a substantial degree of inherent resiliency. Hard aluminum has been found quite satisfactory for this purpose. Each of the slats 46 comprises a body portion 56 of arcuate cross-section when not subjected to external forces tending to distort the same from such arcuate form. An angularly extending flange 57 extends along one edge of the body portion 56 throughout the entire length of the slat. This flange 57 not only adds substantially to the stiffness of the slat, but it also provides convenient means for locking the slat 46 in assembled relation with its supporting rib 12.

Each of the slats 46 is attached to each rib 12 by having its body portion 56 seated within one of the slits 47 of the rib. The normal curvature of the slat 46 is so proportioned, however, with relation to the width of the slit 47, that the body portion 56 must be flattened substantially and hence placed under considerable tension in order to seat the body portion within the slit 47 as illustrated in Fig. 5. When so disposed within the narrow slit 47, the inherent resiliency of the material of which the slat 46 is composed, constantly urges the slat to resume its normal arcuate configuration and thereby causes the slat to press firmly against the opposite edges of the slit 47 and thus so firmly secure the slat to the rib that vibration and consequent rattling of the slats are precluded even under such adverse circumstances as when exposed to relatively severe winds.

The security of the engagement between the slats 46 and the ribs 12 is further enhanced by engagement of the distal edge of each flange 57 within one of the notches 51 of each rib 12, as clearly shown in Fig. 5. Here again, the parts are so proportioned that the slat must be distorted slightly to permit the outer edge of the flange 57 to snap into the notch 51 with the result that the natural tendency for the slat to resume its normal, unstressed configuration, tightens the engagement between the slat and the rib. This is accomplished by spacing each notch 51 at a slightly shorter distance from the associated slit 47 than that which would permit the flange 57 to enter the notch 51 without flexing the flange 57 toward the body portion 56 of the slot. Accordingly, the seating of the flange 57 within the notches also serves to retain the slat seated at full depth within the slits 47 and thereby assures parallel relationship of all of the slats 46 of the assembled blind.

Longitudinal shifting of the slats, i. e., movement thereof transversely with respect to the ribs 12, is prevented by notches 58 in the distal edges of the flange 57 of each slat, which engage the ribs 12 at the bottoms of the notches 51. Similar notches 59 may be provided in alignment with the notches 58, but in the lower edge of the body portion 56 of each slat, to engage the ribs at the bottoms of the slits 47.

I claim:

1. In an awning construction a rib mounted in downwardly and forwardly inclined position and having a slit sloping downwardly and forwardly therein from the upper edge thereof and a notch spaced upwardly and rearwardly from the upper end of the slit, and a slat including a body portion and a flange extending along one longitudinal edge of the body portion in a plane extending angularly with respect to the same, the body portion of said slat being seated in said slit and having the distal edge of its flange engaged within the said notch, the body portion of said slat being transversely arcuate except where engaged within the slit and the region of the body portion adjacent the rib being stressed by the rib to a more nearly flat configuration and exerting pressure against the edges of the slit to tighten the engagement of the slat with the rib.

2. An awning construction comprising a plurality of transversely spaced ribs, means for mounting said ribs in downwardly and forwardly inclined position, each of said ribs having a plurality of spaced slits sloping downwardly and forwardly therein from the upper edge thereof and a notch spaced upwardly and rearwardly from the upper end of each slit, and a plurality of slats extending between said ribs, each of said slats including a body portion and a flange extending along one longitudinal edge of the body portion in a plane extending angularly with respect to the same, the body portion of each of said slats being normally arcuate in cross section and in the re-

gion of each slat adjacent each of said ribs being deformed to a more nearly flat configuration and seated in the associated slit, the body portion of each slat being pressed against both sides of each associated slit by the resiliency of the material of the slat urging the associated flattened region of the slat back toward the normal arcuate form thereof.

3. An awning construction comprising a plurality of transversely spaced ribs, means for mounting said ribs in downwardly and forwardly inclined position, each of said ribs having a pluraity of spaced slits sloping downwardly and forwardly therein from the upper edge thereof and a notch spaced upwardly and rearwardly from the upper end of each slit, and a plurality of slats of resilient material extending between said ribs, each of said slats including a body portion and a flange extending along one longitudinal edge of the body portion in a plane extending angularly with respect to the same, the body portion of each of said slats being seated in a slit in each of said ribs and being deformed against the urging of the inherent resiliency of said material to snap the distal edge of its flange into the associated notches, each of said notches being inclined downwardly and inwardly in a direction substantially perpendicular to that of the associated slit whereby its upper edge is presented to the flange in a direction substantially parallel to the associated slit to lock the body portion of the slat seated at maximum depth within the associated slit.

4. An awning construction comprising a plurality of transversely spaced ribs, means for mounting said ribs in downwardly and forwardly inclined position, each of said ribs having a plurality of spaced slits sloping downwardly and forwardly therein from the upper edge thereof and a notch spaced upwardly and rearwardly from the upper end of each slit, and a plurality of slats of resilient material extending between said ribs, each of said slats including a body portion of arcuate cross-section and a flange extending along one longitudinal edge of the body portion in a plane extending angularly with respect to the same, the body portion of each of said slats being seated in a slit in each of said ribs and having the distal edge of its flange engaged within the associated ones of said notches, the body portion of each slat being deformed toward flattened configuration in the regions adjacent said ribs and pressing against the edges of the slits to tighten the engagement of the slats within the slits.

5. An awning construction comprising a plurality of spaced ribs, each including an upper inclined portion, a lower more steeply inclined extension, and fastening means interconnecting the upper portion and the extension at a location below their upper edges, said upper portion and said extension having slits therein extending downward from their upper edges and registering with each other, and a slat interconnecting said ribs and seated in said registering slits of each of said ribs to mount the slat on the ribs and to immobilize each of said extensions with respect to the upper portion of the rib.

6. An awning construction comprising a plurality of spaced ribs, each including an upper inclined portion, a lower more steeply inclined extension, and fastening means interconnecting the upper portion and the extension at a location below their upper edges, said upper portion and said extension having slits therein extending downward from their upper edges and registering with each other, and a slat interconnecting said ribs and seated in said registering slits of each of said ribs to mount the slat on the ribs and to immobilize each of said extensions with respect to the upper portion of the rib, said slat being of curved cross-section and the edges of said slits of the ribs exerting flattening stress on the slat and thereby tightening the engagement between the slat and the ribs.

7. An awning construction comprising a plurality of spaced ribs, each including an upper inclined portion, a lower more steeply inclined extension, and fastening means interconnecting the upper portion and the extension at a location below their upper edges, said upper portion and said extension having slits therein extending downward from their upper edges and registering with each other, and said upper portion and said extension having registering notches therein spaced from the slits, and a slat interconnecting said ribs and seated in said registering slits of each of said ribs to mount the slat on the ribs and to immobilize each of said extensions with respect to the upper portion of the rib, said slat having an angularly extending flange and the distal edge of the flange being seated within the registering notches of each of said ribs.

8. An awning construction comprising a plurality of spaced ribs, each including an upper inclined portion, a lower more steeply inclined extension, and fastening means interconnecting the upper portion and the extension at a location below their upper edges, said upper portion and said extension having slits therein extending downward from their upper edges and registering with each other, and said upper portion and said extension having registering notches therein spaced from the slits, and a slat interconnecting said ribs and seated in said registering slits of each of said ribs to mount the slat on the ribs and to immobilize each of said extensions with respect to the upper portion of the rib, said slat having an angularly extending flange and the distal edge of the flange being seated within the registering notches of each of said ribs, said slat being of curved cross-section and the edges of said slits of the ribs exerting flattening stress on the slat and thereby tightening the engagement between the slat and the ribs.

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