Aug. 5, 1952 C. O. LARSON 2,605,520

SLATTED AWNING

Filed Jan. 10, 1948 2 SHEETS—SHEET 1

Fig. 1.

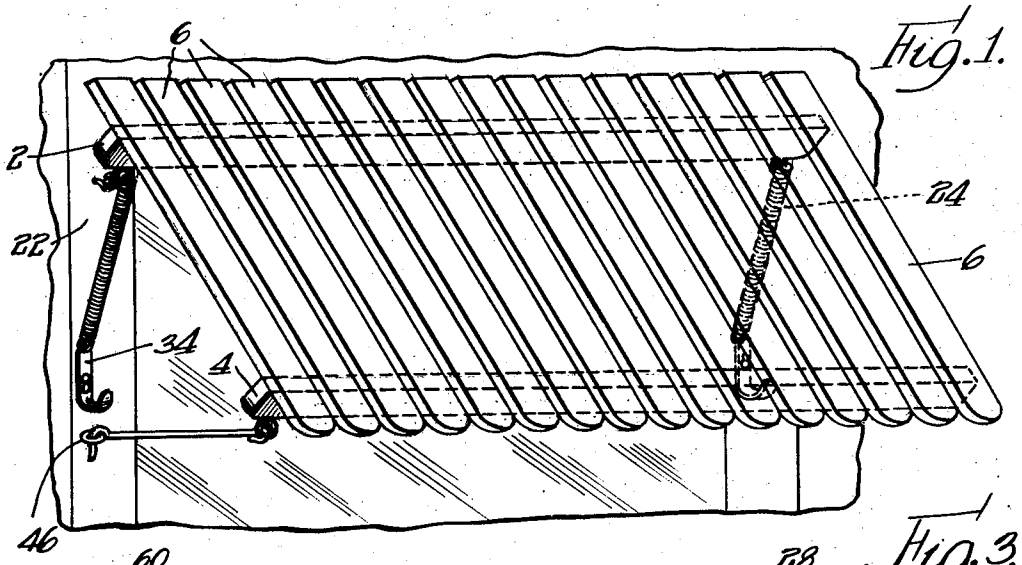


Fig. 2.

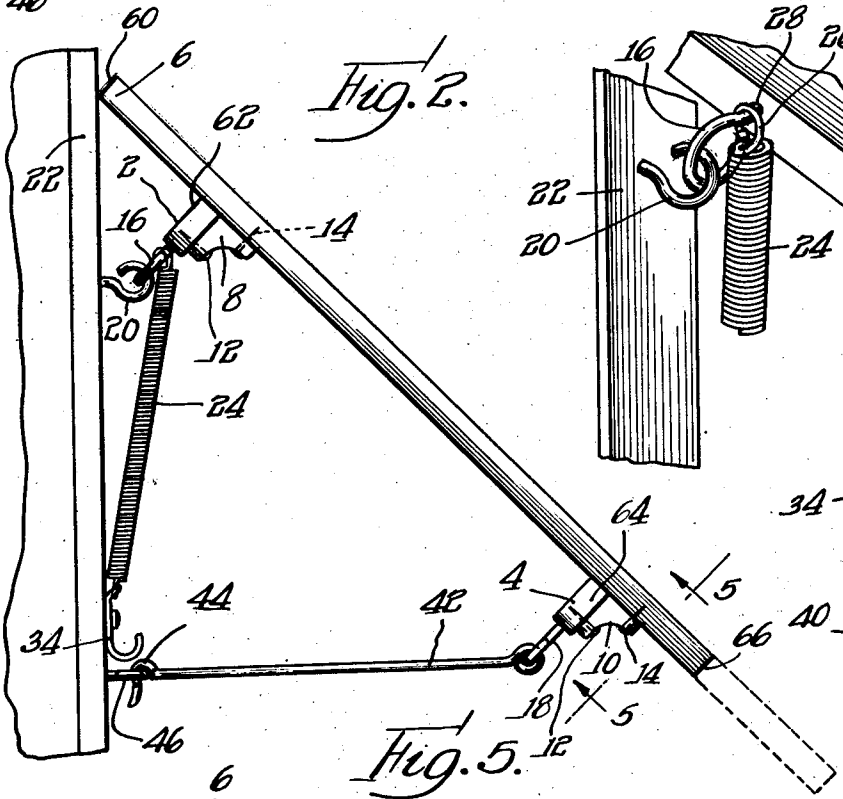


Fig. 3.

Fig. 4.

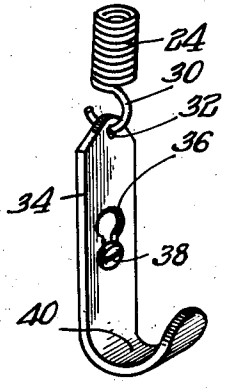
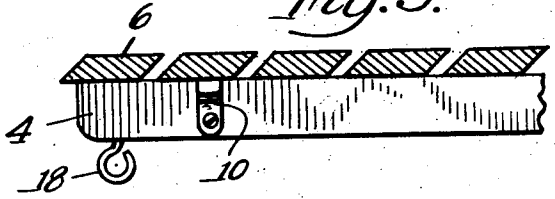


Fig. 5.



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Fig. 6.

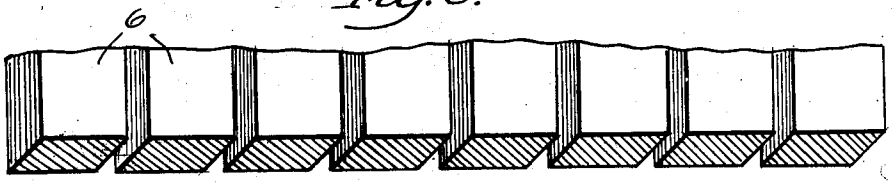


Fig. 7.

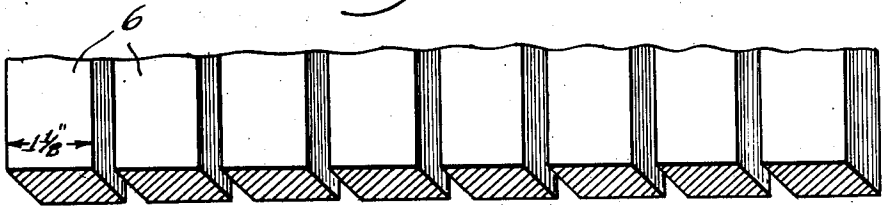


Fig. 8.

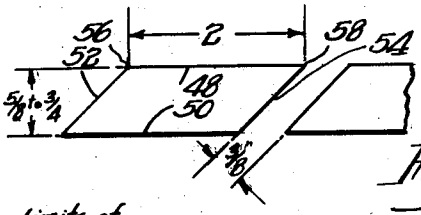


Fig. 9.

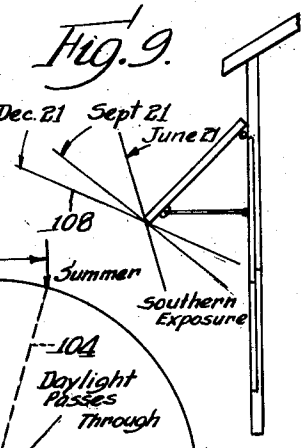
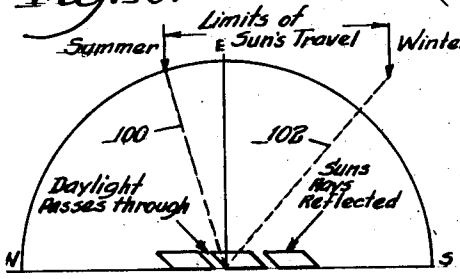
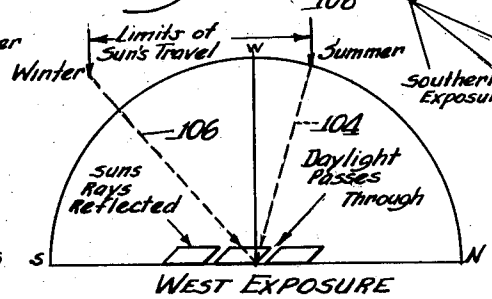


Fig. 10.



EAST EXPOSURE

Fig. 11.



WEST EXPOSURE

Fig. 14.

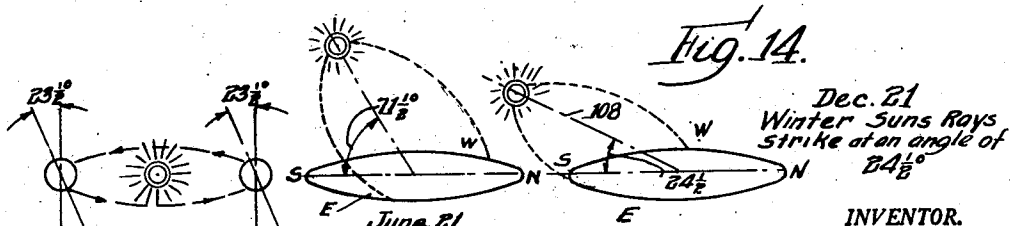


Fig. 12.

Fig. 13.

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UNITED STATES PATENT OFFICE

2,605,520

SLATTED AWNING

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Application January 10, 1948, Serial No. 1,501

17 Claims. (Cl. 20—57.5)

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This invention relates to rigid awning structures and more particularly to a slatted awning, irrespective of whether the material is made of sheet metal or made of wood.

The object of the present invention is to provide a simple, economical, rugged awning which will function not only to shed direct rainfall but will also prevent the penetration of direct sun's rays, for most installations, while still permitting a maximum of diffused daylight and air to pass through the structure.

Another object of the invention is to provide a simple type of awning which may be made up of standard identical sections or slats assembled to cross supports in spaced relation to accomplish the foregoing objects, and whereby the awning may be simply installed with the minimum of hardware, and to accomplish the above functions.

These and other objects of the invention will be apparent from a perusal of the following specification when taken in connection with the accompanying drawings, wherein:

Figure 1 is a view of the preferred awning;

Figure 2 is a side view of the same;

Figures 3 and 4 are views of a portion of the hardware;

Figure 5 is a section taken on the line 5—5 of Figure 2;

Figure 6 is a view of an awning made up for west exposure;

Figure 7 is a view of an awning made up for east exposure;

Figure 8 is an end view of one of the slats to show its dimensional configuration and the spacing therebetween; and

Figures 9 to 14 inclusive are diagrammatic views showing the manner in which the awning operates in connection with the rays of the sun in an east exposure and a west exposure, and in summer and in winter.

The awning may be made of sheet metal, but is preferably made of wood. It compises the two cross supports 2 and 4 of wood which are identical in shape and size. To these are nailed or screwed identical slats 6 in spaced apart relation as shown in Figures 1, 6, 7 and 8. The cross supports 2 and 4 are preferably held to certain slats 6 by means of rigid corner braces 8 and 10 which have nail or screw holes disposed at right angles to receive the fastening members 12 and 14 which penetrate the cross supports 2 and 4 and the slats respectively, whereby each slat is rigidly affixed to the cross supports 2 and 4. In addition, the two cross supports 2 and 4 are provided with a pair of eye screws 16 and 18 at each end thereof. The eye 16 at the top is adapted to pass through a hook 20 screwed into a vertical frame member 22 affixed to the side frame of the window or door over which the awning is to be fixed. In addition, a long coil spring 24 terminates in a loop 26 which passes over the shank 28 of the eye 16. The bottom of the spring 24 is provided with a hook 30 passing through an aperture 32 in a strap 34 which is provided with a bayonet slot 36 to receive a screw 38. The bottom of the strap 34 is provided with a fingerhold 40 by which it may be pulled down. The spring normally pulls the strap 34 upwardly, or conversely the spring pulls the eye 16 downwardly whereby to hold the top edge of the slats 6 snugly against the upright 22. In addition, the eyes 18 at each end of the lower cross bar 4 carry long hooks 42, the ends 44 of which hook into eyes 46 fastened in the uprights 22 below the straps 34. One of these hooks is disposed at each end of the bottom portion of the cross bar 4 and serves to hold the awning in outwardly inclined position with respect to the window frame 22.

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By reference to Figures 6, 7 and 8 it will be seen that the slats are formed with their longer faces 48 and 50 parallel. These faces 48 and 50 of the slats constitute the upper and lower faces of the awning. In addition, the faces 52 and 54 of each slat are parallel. These latter faces 52 and 54 are cut or formed at an angle of forty-five degrees with respect to the plane of the face 50 whereby the slats may be reversed with respect to each other when attached to the cross supports 2 and 4, all as shown in Figures 6 and 7, to provide awnings for west or east exposure respectively. In the type of slat illustrated, the distance between the faces 48 and 50, measured on a line at right angles to the faces 48 and 50, is three-fourths of an inch. That is, the slats are three-fourths inch in thickness. They may run even more or less than these measurements if desired. However three-fourths inch is selected as an ideal measurement for the thickness of the slats. If the thickness is three-fourths inch, then the face 48 measures, from the corner 56 to the corner 58, two inches, and the face 50 will likewise be two inches. The slats are anywhere from 21 inches to 32¾ inches in length. There are preferably twenty-six slats to the standard awning when assembled on the cross bars making a total width of the awning from end to end of approximately 64 inches. The spacing between the slats is preferably three-eighths of an inch. Preferably the distance from the upper end, such as 60, to the

plane of the face **62** of the cross bar **2**, as shown in Figure 2, is about 4¼ inches, and with a length of 21 inches for each slat the distance of the lower face **64** of the lower cross bar **4**, as shown in Figure 2, from the lower end **66** of the slat, is approximately 3 inches. When a 32¾ inch length slat is used this latter distance is 12 inches.

It will be apparent, of course, that many of these dimensions may be varied, except that the forty-five degree angularity of the faces **52** and **54** with respect to the faces **48** and **50** must be substantially preserved and the spacing between the slats must be retained as substantially three-eighths inch. However the thickness of the slats and their lengths may be altered, and the number of slats in the overall length of the awning may be changed. For instance, awnings of various lengths may be provided by extending the length of the cross slats **2** and **4** and continuing the number of slats forming an awning. So also the length of the slats may be any desired length, provided the length is sufficient in accordance with the diagram of Figure 9 to prevent the rays of the sun as of December 21, in a southern exposure, going above the line **108** as shown in Figure 9.

Referring now in general to the broad aspects of the invention, the angularity of the bevelled slat faces, and the spacing between the slats is preferably such as will, in addition to breaking up direct rainfall, prevent the penetration of direct sun rays, for most installations, while still permitting a maximum penetration of diffused daylight and air through the structure. In this country, shade awnings have their principal utility on other than north exposures, and many, if not most, urban areas are laid out with the streets extending substantially north-south, and east-west. Accordingly shade awnings, for use on homes and like buildings placed in conformity with street divisions will have their principal applicability to substantially east, west, and south exposures.

Referring to Figures 9 to 14, a slat arrangement for a particular locality, for example, Chicago, Illinois, is illustrated. As is known, see Figure 12, the axis of rotation of the earth maintains a predetermined angle of inclination in respect to the earth's orbit around the sun. At a particular point on the earth's surface, the angle of inclination assumed by the sun during the day varies between the winter and summer seasons, but is always maintained between predetermined limits. For example, in Chicago, at high noon in midsummer the sun reaches an angle of inclination of 71.5 degrees (Figure 13), whereas at high noon in midwinter an angle of inclination of 24.5 degrees is reached (Figure 14).

Furthermore, in its rising and setting positions, in different months of the year the sun is progressively shifted, rising and setting in a more northerly position in the summer months. Thus, referring to Figure 10, it will be seen that at sunrise in summer the sun's position is substantially as indicated by the line **100**, slightly north of an easterly direction. As the season progresses the sunrise shifts southward and at midwinter rises at a point substantially as indicated by the line **102**. Similarly, at sunset, the setting position shifts between summer and winter from a point as indicated in Figure 11 by the line **104** to the point as designated by the line **106**.

In using the structure of the present invention for an east exposure, the several slats are arranged as indicated in Figure 10, the angularity of the juxtaposed inclined slat faces, and the space between the slats, being such as to just block out the sunrise rays in midsummer, as indicated by the line **100**. As the season progresses, the setting position of the sun shifts toward the line **102**, and it will be seen that at no time are the direct rays of the sun permitted to penetrate the structure. By this means penetration of direct sun rays is precluded at all times, while permitting a maximum quantity of diffused daylight and air to pass through the structure.

When the structure is used for a west exposure, the slats are reversely arranged as indicated in Figure 11, the angle of inclination of the bevelled slat faces and the space therebetween again being such as to just preclude the passage of the sun's rays at sunset in summer, at which time the sun assumes the position indicated by the line **104**. Accordingly, as in the case of the east exposure structure, transmission of direct rays will be at all times precluded, throughout the year.

Where the structure is employed for a southern exposure, as indicated in Figure 9, the slats are arranged both as to length and inclination, to provide maximum efficiency. Thus, referring to Figure 9, the length of the slats is preferably such that the most slanting winter rays, indicated by the line **108**, are blocked off from that portion of the window or other opening desired to be covered, for example the upper window portion as shown. Furthermore, the slats are arranged in either the east exposure position or west exposure position, depending upon the sheltering or requirements for the particular southern exposure opening to be sheltered. More particularly, in many instances a given southern exposure may be partly sheltered in the morning, as by trees or the like, in which event the slats will be arranged in the east exposure plan. Conversely, if the particular southern exposure to be sheltered is partly sheltered by extraneous means from the afternoon sun, the west exposure position for the slats may be employed.

It must be seen that in accordance with the invention the structure may be adapted to the requirements for the particular installation so as to provide against penetration of direct sunlight while maintaining a maximum transmission of diffused daylight and air through the structure; and direct transmission of driving rain is also precluded.

It will thus be seen that by reason of the mounting members and the springs **24**, the rigid awning is maintained in erected position against the side of the frame members of a door or any window or opening by the pull of the springs. These springs tend to pull normally upwardly on the latch members **34** so as to pull the studs **38** downwardly into the narrower part of the keyhole type slot **36**, and in addition the springs also pull downwardly on the cross bar **2**, through the intermediary of the hooks **16** affixed thereto, whereby to snugly pull the upper edges **60** of the slats against the vertical wall **22** of the frame. To release the awnings, the finger pieces **40** are pulled downwardly to align the studs **38** with the larger diameter of the keyhole slot **36** whereupon the straps may be removed from the frame members **22** and also the hooks **42** may be released from the eyes **46**, and the eyes **16** may be disengaged from the hooks **22**, see Figure 3. When taken down, the awnings may be stored as desired.

It will thus be seen that I have provided a very simple type of awning which may be made from standard lengths. It will also be noted that the

slats are identical in construction and when assembled to the cross pieces, as hereinbefore described, may be assembled in reversed position, as shown in Figures 6 and 7, to accommodate either eastern or western exposure.

It is apparent that many widely different embodiments of this invention may be made without departing from the spirit and scope thereof, and therefore it is not intended to be limited except as indicated in the appended claims.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. An awning comprising spaced, rigid, elongated cross supports and a plurality of slats rigidly mounted in spaced relation on said cross supports and disposed normally to the planes of the cross supports, said slats having the length thereof disposed in a substantially vertical plane, said slats having upper and lower relatively broad faces disposed in parallelism and having relatively narrower edge faces disposed in parallelism and arranged at an angle of approximately forty-five degrees with respect to the planes of the upper and lower faces, said slats being arranged in parallelism on said cross support and being spaced apart thereon so that one of the upper edges of a slat overlies the lower edge of the adjacent slat.

2. An awning comprising spaced, rigid, elongated cross supports and a plurality of slats rigidly mounted in spaced relation on said cross supports and disposed normally to the planes of the cross supports, said slats having upper and lower relatively broad faces disposed in parallelism and having relatively narrower edge faces disposed in parallelism but arranged at an angle of approximately forty-five degrees with respect to the planes of the upper and lower faces, said lower relatively broad faces lying substantially in the same plane, said slats being arranged in parallelism on said cross support and being spaced apart whereby to permit the passage of rays of light through said spaces only at a predetermined and limited angle to the upper and lower faces of said slats.

3. An awning comprising spaced, rigid, elongated cross supports and a plurality of slats rigidly mounted in spaced relation on said cross supports and disposed normally to the planes of the cross supports, said slats having upper and lower relatively broad faces disposed in parallelism and having relatively narrower edge walls disposed in parallelism but arranged at an angle of approximately forty-five degrees with respect to the planes of the upper and lower faces, said slats being arranged in parallelism on said cross support, the angularity of the bevelled slats and the spacing between the slats being such that the parallel upper and lower edges of the edge walls of adjacent slats overlap to break up direct rainfall and to prevent the penetration of direct sun's rays, for most installations, while still permitting a maximum penetration of diffused air and daylight through the awning.

4. An awning comprising spaced, rigid, elongated cross supports and a plurality of slats rigidly mounted in spaced relation on said cross supports and disposed normally to the planes of the cross supports, said slats having upper and lower relatively broad faces disposed in parallelism and having relatively narrower edge faces disposed in parallelism but arranged at an angle of approximately forty-five degrees with respect to the planes of the upper and lower faces, said slats being arranged in parallelism on said cross support, means for mounting said awnings upon the vertical face of a framework about a window or door or other opening, whereby to maintain said awnings and the length of said slats in inclined relation with respect to the door at substantially forty-five degrees, the length of said slats in said inclined relation being on the order of approximately twenty-one inches of a minimum size to thirty-two and three fourths inches on a maxium size of length, and the spacing between said slats being such that the parallel upper and lower edges of the edge faces of adjacent slats overlap to prevent direct rays of the sun from passing directly through the space between the slats.

5. A rigid awning structure comprising rigid, elongated cross supports disposed in parallelism and spaced apart relation, and a plurality of elongated slats rigidly affixed to the cross support in parallel spaced relation and at right angles to the length of said cross support, said slats having their upper faces and lower faces respectively in a common plane, said faces being relatively long compared to the thicknesses of said slats, the edge walls of said slats being arranged in parallelism and being disposed at an angle of forty-five degrees, more or less, with respect to the plane of the upper and lower faces of the slats, said slats being spaced apart, said edge walls of each of said slats being in parallelism with the confronting edge walls of the next adjacent slats, and said confronting edge walls being spaced apart sufficiently so that the parallel upper and lower edges of the edge walls of adjacent slats overlap.

6. A rigid awning structure comprising rigid, elongated cross supports disposed in parallelism and spaced apart relation and a plurality of elongated slats rigidly affixed to the cross supports in parallel spaced relation and at right angles to the length of said cross support, said cross supports being adapted to be disposed in substantially horizontal planes, said slats having their upper faces and lower faces respectively in a common plane, and said faces being relatively long compared to the thicknesses of said slats, the edge walls of said slats being arranged in parallelism and being disposed at an angle of forty-five degrees, more or less, with respect to the plane of the upper and lower faces of the slats, said slats being spaced apart, said edge walls of each of said slats being in parallelism with the confronting edge walls of the next adjacent slats, and said confronting edge walls being spaced apart with the parallel upper and lower edges of the edge walls of adjacent slats overlapping sufficiently to permit the passage of light and air while excluding the direct passage of sun rays and rain dropping on the slats at right angles to their upper faces.

7. An awning comprising spaced rigid elongated cross supports and a plurality of slats rigidly mounted in spaced relation on said supports and disposed normally to said supports, said slats having upper and lower relatively broad faces disposed in parallelism and having relatively narrower edge faces disposed in parallelism and arranged at an angle with respect to the planes of said upper and lower faces, said lower relatively broad faces being disposed in substantially the same plane, said slats being arranged in parallelism on said cross supports and being spaced apart thereon so that the parallel upper and lower edges of the edge faces of adjacent slats overlap, said slats being positioned with the edges lying

along the length of said slats lying in a substantially vertical plane.

8. In combination with a frame for a building opening, a pair of hooks mounted in spaced relation at the upper portion of the frame, an awning including an elongated cross support, a pair of eyes attached to said cross support in spaced relation to cooperate with the hooks on said frame, and a spring for each of said eyes interconnecting the eye with a point on the frame spaced from the hooks, said springs resiliently holding said eyes in assembled relation with said hooks whereby to mount said awning upon said frame.

9. In combination with a frame for a building opening, a pair of hooks mounted in spaced relation at the upper portion of the frame, an awning including an elongated cross support, a pair of eyes attached to said cross support in spaced relation to cooperate with the hooks on said frame, a spring for each of said eyes interconnecting the eye with a point on the frame spaced from the hooks, said springs resiliently holding said eyes in assembled relation with said hooks whereby to mount said awning upon said frame, and means interconnecting the frame and the awning to hold the awning in open position with respect to said frame.

10. In combination with a frame for a building opening, a pair of hooks mounted in spaced relation at the upper portion of the frame, an awning including spaced rigid elongated cross supports and a plurality of slats rigidly mounted in spaced relation on said supports and disposed normally to said supports, said slats having upper and lower relatively broad faces disposed in parallelism and having relatively narrower end faces disposed in parallelism and arranged at an angle with respect to the planes of said upper and lower faces, said slats being arranged in parallelism on said cross supports and being spaced apart thereon so that the parallel upper and lower edges of the end faces of adjacent slats overlap, said slats being adapted to be positioned with the edges lying along the length of said slats lying in a substantially vertical plane, a pair of eyes attached to the upper of said cross supports in spaced relation therealong for connection with said hooks, and a spring for each of said eyes interconnecting the associated eye with a point on said frame spaced from said hook for resiliently holding said eyes in assembled relation with said hooks.

11. In combination with a frame for a building opening, a pair of hooks mounted in spaced relation at the upper portion of the frame, an awning including spaced rigid elongated cross supports and a plurality of slats rigidly mounted in spaced relation on said supports and disposed normally to said supports, said slats having upper and lower relatively broad faces disposed in parallelism and having relatively narrower end faces disposed in parallelism and arranged at an angle with respect to the planes of said upper and lower faces, said slats being arranged in parallelism on said cross supports and being spaced apart thereon so that the parallel upper and lower edges of the end faces of adjacent slats overlap, said slats being adapted to be positioned with the edges lying along the length of said slats lying in a substantially vertical plane, a pair of eyes attached to the upper of said cross supports in spaced relation therealong for connection with said hooks, a spring for each of said eyes interconnecting the associated eye with a point on said frame spaced from said hook for resiliently holding said eyes in assembled relation with said hooks, and means interconnecting the lower of said cross supports and the frame to hold the awning in open position with respect to said frame.

12. An awning comprising spaced rigid supports, and a plurality of slats rigidly and fixedly mounted in spaced relation on said supports, said slats having upper and lower relatively broad faces disposed in parallelism and having relatively narrower edge faces disposed in parallelism and arranged at an angle of less than 90° with respect to the planes of said upper and lower faces, said slats being arranged in parallelism on said supports and being spaced apart thereon so that the parallel upper and lower edges of the edge faces of adjacent slats overlap.

13. An awning comprising spaced rigid supports, and a plurality of slats rigidly and fixedly mounted in spaced relation on said supports, said slats having upper and lower relatively broad faces disposed in parallelism and having relatively narrower edge faces disposed in parallelism and arranged at an angle of less than 90° with respect to the planes of said upper and lower faces, said slats being arranged in parallelism on said supports and being spaced apart thereon so that the parallel upper and lower edges of the edge faces of adjacent slats overlap, said slats being positioned with the edges lying along the length of the slats disposed in substantially vertical plane.

14. An awning comprising spaced rigid supports, and a plurality of slats rigidly and fixedly mounted in spaced relation on said supports, said slats having upper and lower relatively broad faces disposed in parallelism and having relatively narrower edge faces disposed in parallelism and arranged at an angle of less than 90° with respect to the planes of said upper and lower faces, said slats being arranged in parallelism on said supports and being spaced apart thereon so that the parallel upper and lower edges of the edge faces of adjacent slats overlap, said slats being spaced apart on said supports a distance less than the thickness of said slats.

15. An awning comprising spaced rigid cross supports, and a plurality of slats rigidly mounted in spaced relation on said cross supports, said slats having upper and lower relatively broad faces disposed in parallelism and having relatively narrower edge faces disposed in parallelism and arranged at an angle of approximately 45° with respect to the planes of the upper and lower faces, said slats being arranged in parallelism on said cross supports and being spaced apart thereon a distance less than the thickness of said slats.

16. An awning comprising spaced rigid cross supports, and a plurality of slats rigidly mounted in spaced relation on said cross supports, said slats having the length thereof disposed in substantially vertical planes, said slats having upper and lower relatively broad faces disposed in parallelism and having relatively narrower edge faces disposed in parallelism and arranged at an angle of approximately 45° with respect to the planes of the upper and lower faces, said slats being arranged in parallelism on said cross supports and being spaced apart thereon a distance less than the thickness of said slats.

17. An awning comprising a pair of spaced, rigid, elongated supports, said supports being disposed substantially horizontally in parallelism with one support positioned vertically higher than

the other, and a plurality of slats rigidly mounted in spaced relation on said supports and disposed normally to the longitudinal axes of said supports, said slats having upper and lower relatively broad faces disposed in parallelism and having relatively narrower edge faces disposed in parallelism and arranged at an angle of less than 90° with respect to the planes of the upper and lower faces, said slats being arranged in parallelism on said supports and being spaced apart thereon so that one of the upper edges of a slat overlies the lower edge of the adjacent slat.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
283,023	Rodgers	Aug. 14, 1883
330,203	Bickner	Nov. 10, 1885
1,941,308	Indahl	Dec. 26, 1933
2,117,320	Hawley	May 17, 1938

FOREIGN PATENTS

Number	Country	Date
129,974	Austria	Oct. 25, 1932
844,826	France	1939