Jan. 19, 1954 W. C. BERTRAM 2,666,237

AWNING WITH MOVABLE LOUVERS

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Fig. 2.

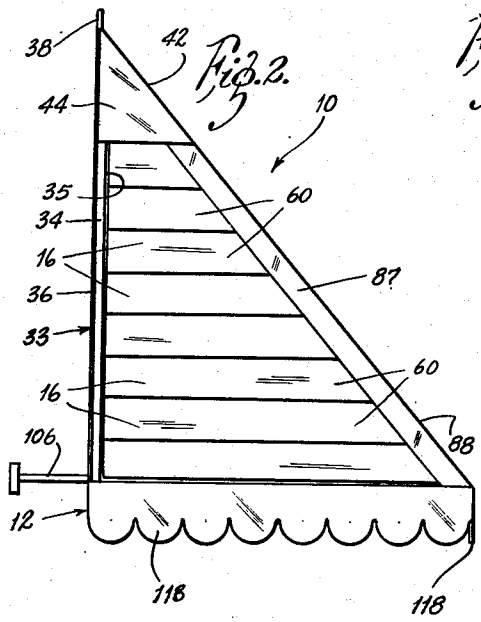


Fig. 1.

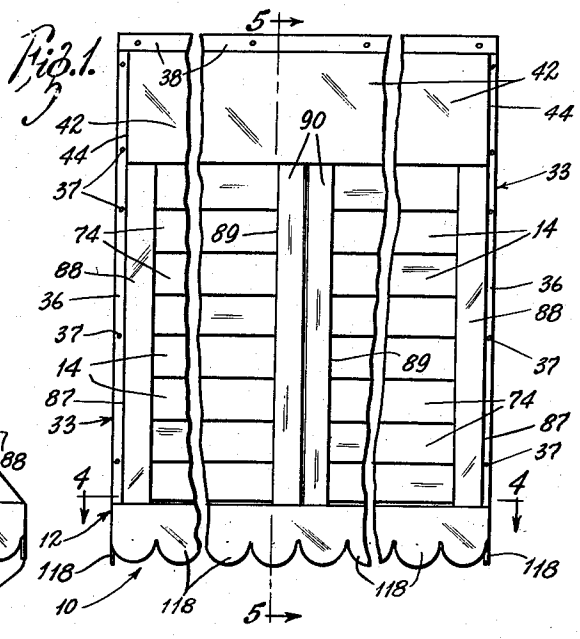


Fig. 3.

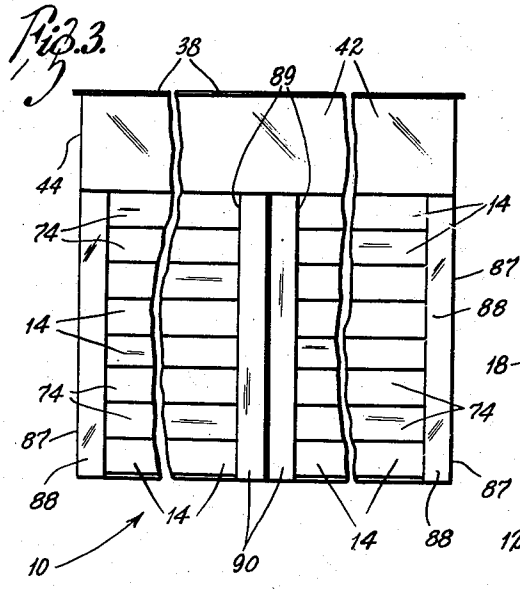
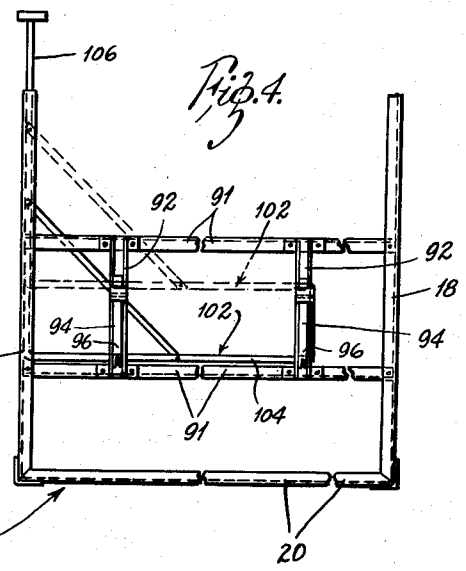


Fig. 4.



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Fig. 5.

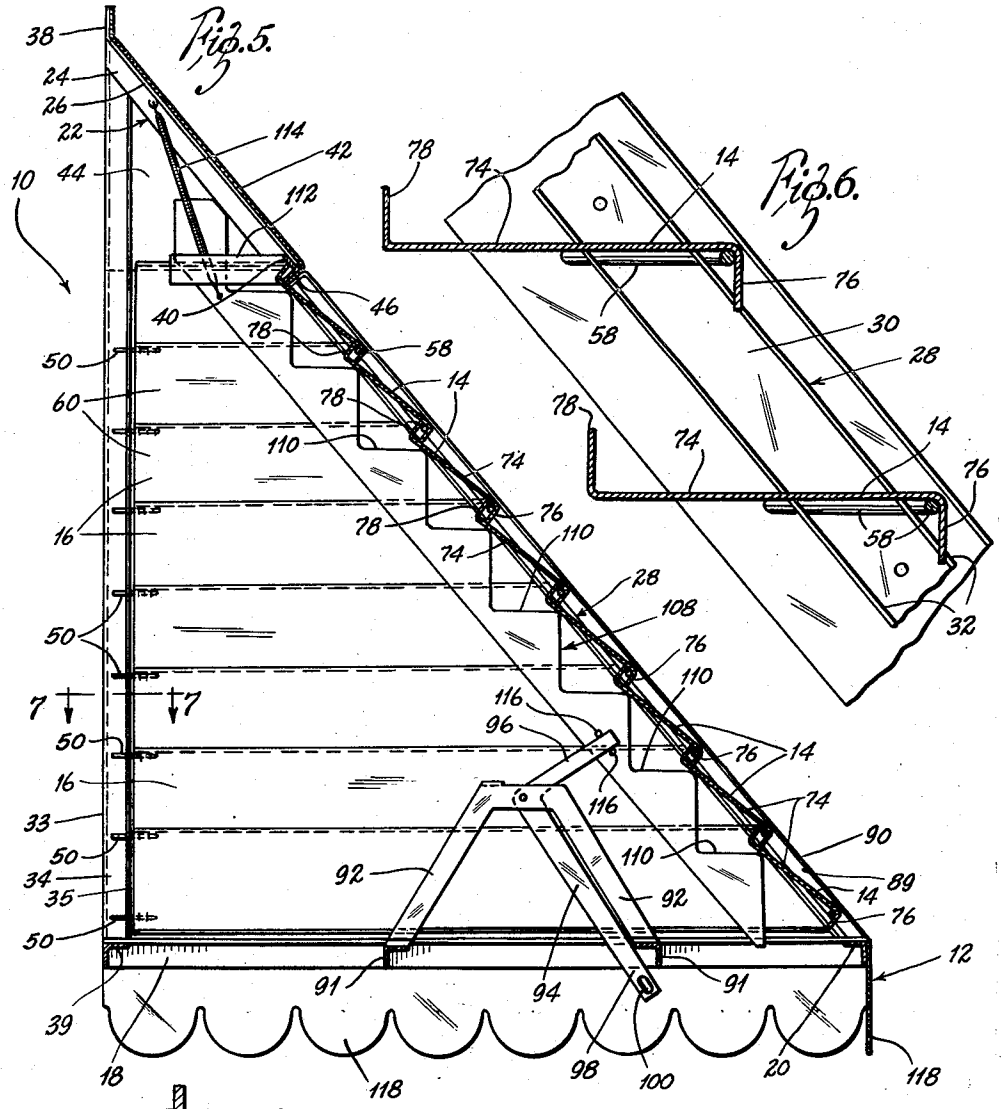
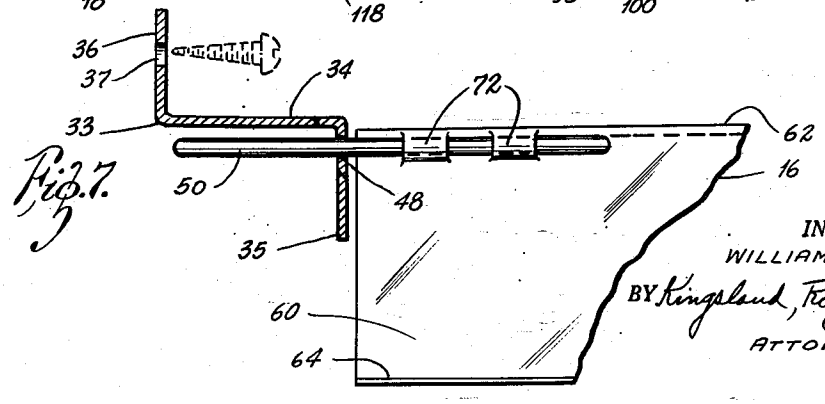


Fig. 6.

Fig. 7.



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AWNING WITH MOVABLE LOUVERS

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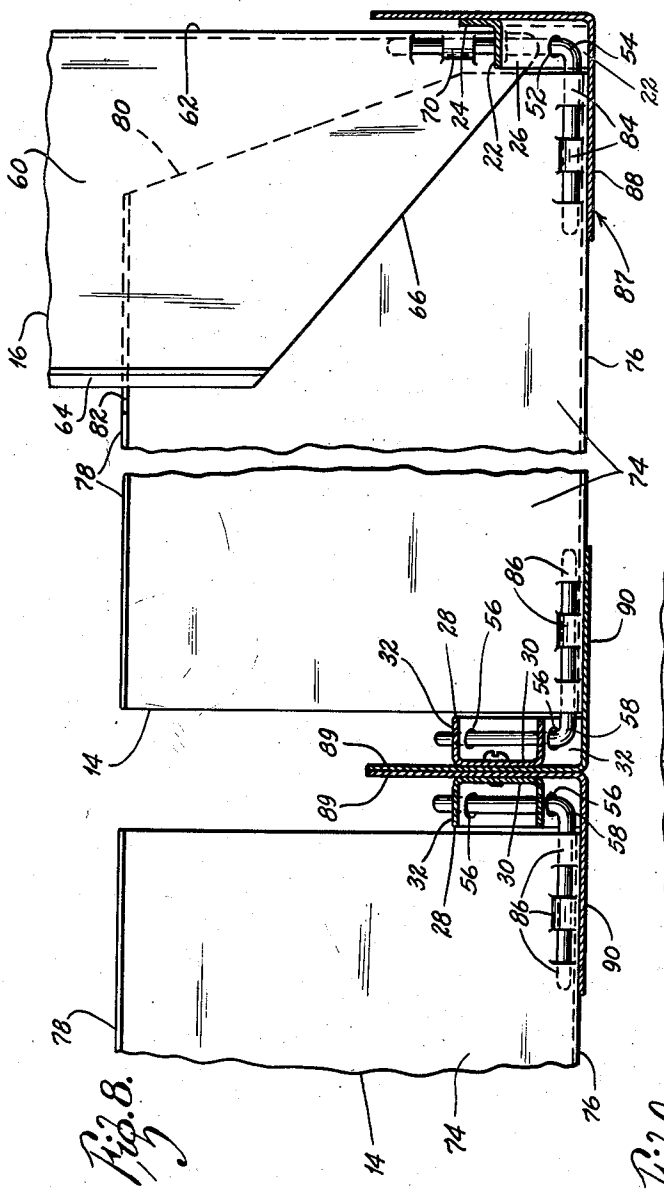


Fig. 8.

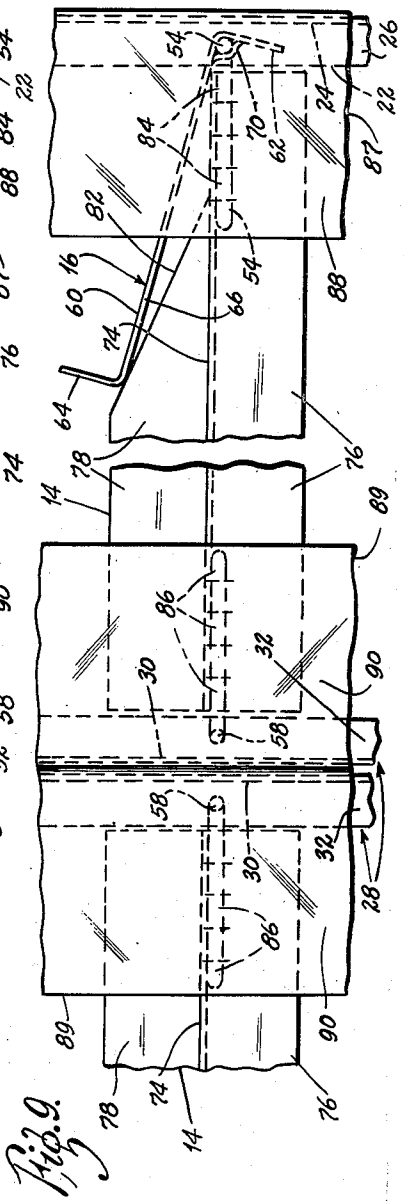


Fig. 9.

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UNITED STATES PATENT OFFICE

2,666,237

AWNING WITH MOVABLE LOUVERS

William C. Bertram, St. Louis, Mo.

Application October 16, 1950, Serial No. 190,417

16 Claims. (Cl. 20—57.5)

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The present invention relates generally to the awning art, and more particularly to a novel rigid awning which contains movable louvers at both the front and sides thereof.

In its preferred form, the awning includes a supporting framework, on the front of which is pivotally mounted a plurality of spaced louvers. Additional louvers are pivotally mounted on each side of the framework. The pivotal axis of each of the side louvers is offset from the center of gravity so that the mass of the louvers urges rotation in one direction. Means are provided for moving the front louvers between an open and a closed position at will, and the forward ends of the side louvers bear on the front louvers so as to move with them.

There are various forms of awnings in use at the present time, but none of them include suitable means for preventing the rain and snow from being driven in through the sides of the awning.

It is an object of the present invention, therefore, to provide a novel awning which contains means at the sides thereof which can be actuated to either admit the light and air or to exclude the rain and snow. More specifically, it is an object to provide a rigid awning which has movable louvers on each side and which can be either opened or closed at will.

Another object is to provide a novel awning which has movable louvers on each side and which automatically open and close with the front louvers. More specifically, it is an object to provide an awning which contains side louvers, one end of which bears on the front louvers so as to move with them when they are pivoted.

Another object is to provide a novel device for varying the position of the front louvers at will.

Other objects of the present invention are to provide a novel awning which is simple in design and rugged in construction and which will satisfactorily function for long periods of time without requiring repair or adjustment.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawings, wherein a preferred embodiment of the present invention is shown, in which:

Fig. 1 is a front elevational view of an awning constructed in accordance with the teachings of the present invention, the louvers being shown in the fully closed position;

Fig. 2 is a side elevational view of the awning with the louvers in the closed position;

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Fig. 3 is a top plan view of the awning with the louvers in the closed position;

Fig. 4 is a horizontal sectional view taken on the line 4—4 in Fig. 1 showing the lower supporting frame and the actuating member support;

Fig. 5 is an enlarged vertical sectional view of the awning taken on the line 5—5 in Fig. 1, the louvers being shown in the closed position;

Fig. 6 is a further enlarged view similar to Fig. 5 showing a portion of the front louvers in the fully open position;

Fig. 7 is an enlarged horizontal sectional view taken on the line 7—7 in Fig. 5;

Fig. 8 is an enlarged fragmentary horizontal sectional view showing the front end portion of a side louver, the right hand end and center portions of a front louver, and the supporting structure therefor; and

Fig. 9 is a front elevational view of the portions of the side and front louvers shown in Fig. 8, as viewed from the bottom of Fig. 8.

Referring to the drawings more particularly by reference numerals, 10 indicates generally an awning embodying the teachings of the present invention which includes a supporting framework 12 having a plurality of front louvers 14 and side louvers 16 pivotally mounted thereon.

The supporting framework 12 is made from structural angles and channels and includes a U-shaped bottom frame (Fig. 4) which contains rearwardly extending side angle members 18 and a transverse angle member 20. Extending upwardly and rearwardly from the front ends of the side members 18 are side oblique angle members 22 (Fig. 8) which have a vertically extending flange-like portion 24 and an inwardly extending flange-like portion 26. Extending upwardly in like manner from adjacent the center of the transverse member 20 are two center oblique channel-shaped members 28, each of which includes a vertical center portion 30 (Figs. 6 and 8) and outwardly extending leg portions 32. The channel-shaped members 28 are spaced apart for a purpose to appear. Z-shaped rear supporting members 33 (Figs. 5 and 7) extend vertically between the rear ends of the side members 18 and the upper ends of the side oblique members 22. Each of the rear supporting members 33 contains a central portion 34, an inwardly extending flange portion 35, and an outwardly extending flange portion 36. Openings 37 are formed in the outwardly extending flange portion 36 to receive screws for fastening the device to a window frame or the like.

The upper end of each of the side oblique mem-

bers 22 and the center oblique members 28 is cut and bent vertically upwardly to form bracket-like portions 38 (Fig. 5) which contain openings to receive screws or the like for fastening the upper end of the awning to a window frame. An angle clip 39 (Fig. 5) is fastened to the underside of each of the side members 18 adjacent its rear end. These clips likewise contain openings to receive screws or the like for fastening the bottom end of the awning to the window frame.

Extending transversely across the upper end of the framework between the side oblique members 22 and the center oblique members 28 so as to connect them together, is an upper transverse angle member 40 (Fig. 5).

A sheet 42 of metal or the like (Figs. 1 and 3) extends across the upper end of the framework 12 between the side oblique members 22 so as to cover it, and the ends of the sheet are bent rearwardly to form covers 44 for the sides of the device. The bottom edges of the sheet 42 are bent downwardly and inwardly to form flanges 46 (Fig. 5) for a purpose to appear.

The manner of pivotally mounting the front louvers 14 and the side louvers 16 on the framework 12 will now be described.

As shown in Fig. 7, a series of spaced openings 48 are provided in the inwardly extending flange portions 35 of the vertical angle members 33, each of which receive one end of a straight pin 50.

As shown in the right-hand portions of Figs. 8 and 9, spaced openings 52 are provided in the inwardly extending flange portions 26 of the side oblique angle members 22 so as to be in alignment with the openings 48. The openings 52 each receive one leg of a right angle pin 54.

As shown in the left-hand portions of Figs. 8 and 9, the inwardly extending flange portions 32 of the center oblique channel members 28 are provided with spaced aligned openings 56 which receive one leg of a right angle pin 58.

Each of the side louvers 16 is of elongated Z-shaped cross section (Fig. 9) and includes a central panel portion 60, and an outer flange portion 62 and an inner flange portion 64 normal thereto. The forwardly extending end of each of the side panels 16 is formed at an angle as at 66 (Fig. 8). Pin receiving sleeves 70 and 72 are formed adjacent the front and rear ends, respectively, of each of the louvers 16 (Figs. 8 and 7) by off-setting a portion of the metal forming the edge between the panel 60 and the outer flange portion 62. The sleeves 72 receive the inner ends of the straight pins 50, and the sleeves 70 receive the other legs of the right angle pins 54 so as to pivotally support the side louvers 16 between the vertical rear members 33 and the side oblique members 22.

The front panels 14 are of similar elongated Z-shaped cross section, and each includes a central panel portion 74, a front flange portion 76 and a rear flange portion 78. The outer end of each of the central panel portions is cut on an angle as at 80 (Fig. 8), and the rear flange portion 78 adjacent the end 80 is also cut on an angle to provide a sloping edge 82 (Fig. 9). The inner ends of the front louvers 14 are straight. Pin receiving sleeves 84 and 86 are formed adjacent the outer and inner ends, respectively, of the front louvers 14 in the same manner as previously described. The sleeves 84 receive the other legs of the right angle pins 54, and the sleeves 86 receive the other legs of the right angle pins 58 so as to pivotally support the front louvers 14 between the side oblique angle members 22 and the center oblique channel members 28.

As shown in Figs. 8 and 9, structural angle members 87, which include a front flange portion 88, are disposed adjacent the side oblique angle members 22 and removably fastened to the flange portions 24 thereof, as with machine screws. The members 87 extend from the transverse member 20 upwardly to adjacent the bottom edge of the cover plate 42. The members 87 prevent the snow and ice from entering the awning and fouling the supporting pins 54. Furthermore, the front flange portions 88 are adjacent the front flange portions 76 of the front louvers 14 so as to prevent their withdrawal.

Disposed in the space between the central oblique panel members 28 are two angle members 89 (Fig. 8) which are fastened together and to the central portions 30 of the members 28 with machine screws or the like. The angle members 89 include front flange portions 90 which cover the supporting pins 58 to prevent them from becoming fouled with ice or snow and to prevent the withdrawal of the front louvers 14.

If it becomes necessary to remove the front or side louvers for repair or replacement, this can be easily and quickly accomplished by merely removing the end covering members 87 and the central covering members 89, and slipping out the particular front louver or louvers 14 with their supporting pins (54, 58). After the front louver 14 and its pins (54, 58) have been removed, the adjacent side louvers 16 are easily slipped out with their rear supporting pins 58.

It is to be understood that the center oblique members 28 and their covers 89 are only necessary when the front louvers 14 are exceedingly long, as is the case with store windows or the like where the louvers might possibly sag due to their own weight. In ordinary installations, such as for an average house, the center oblique channel members 28 and their cover members 89 would be dispensed with, and the front louvers 14 supported directly between the side oblique angle members 22.

As shown in the right-hand portion of Fig. 9, the front, inner end of each of the side louvers 16 bears on the edge 82 of the front louver 14 adjacent thereto so that when the latter is pivoted upwardly about its front edge so as to raise the rear flange portion, the inner portion of the side louver 16 will also be raised so as to cause it to pivot upwardly in like manner. The mechanism for causing this pivotal movement on the front louver 14 will now be described.

As shown in Figs. 4 and 5, a pair of spaced supporting angle members 91 extend transversely between the side members 18. Mounted on the supporting members 91 adjacent the center of each set of front louvers 14 is an upwardly extending bracket 92. A bell crank lever 94 is pivotally mounted on each of the brackets 92 and contains an upper leg portion 96 having a bifurcated free end, and a lower leg portion 98, the latter containing an aperture 100 adjacent its lower end. A V-shaped operating member 102 for actuating the bell crank levers 94 is mounted for forward and rearward reciprocating movement adjacent the bottom of the awning 10. It includes a transverse portion 104 which extends through the openings 100 in the bell crank levers 94 and a rearwardly extending handle portion 106 adjacent one side of the awning. In a typical installation, the handle portion 106 extends through the window frame into the interior of

the house so that the louvers can be actuated from within the housing. Thus, when the handle portion 106 is reciprocated, the bell crank lever will be pivoted so as to cause the free end of the upper leg portion 96 to move up and down.

Disposed immediately in back of each set of front louvers 14 adjacent the center thereof is a stair-step like actuator 108 (Fig. 5) which extends upwardly and rearwardly and which contains a series of spaced flat edges 110 on which the front louvers 14 bear.

Extending rearwardly from the upper transverse member 40 are elongated sleeve-like brackets 112 which slidably receive the upper ends of the actuators 108 so as to guide them in their travel. A spring 114 is connected between the upper end of each actuator 108 and the underside of the front cover 42 to offset the weight of the actuator member so that it requires a minimum of force to raise it.

Extending from one side of each of the actuator members 108 are two spaced studs 116 (Fig. 5), one of which is disposed on each side of the upper leg 96 of the bell crank lever 94. Thus, the actuator member 108 is connected with the upper leg portion 96 of the bell crank lever 94 so as to move with the latter when it is pivoted.

Flange-like members 118 having scalloped bottom edges are fastened to the transverse and side members 20 and 18, respectively, of the bottom supporting frame so as to extend downwardly below the awning 10. Manifestly, these are not necessary to the operation of the device and merely enhance its appearance.

Operation

In a typical installation, the awning 10 is fastened to the outside of a window frame, and the operating handle 106 extends into the interior of the house. Retaining means of conventional design is employed adjacent the inner end of the handle member 106 within the house to maintain it in any selected position.

When the handle member 106 is moved forwardly or outwardly to the end of its travel in that direction, the actuating rod 104 is pivoted to its extreme counter-clockwise position as shown in Fig. 4, so as to cause the bell crank lever 94 to be pivoted in the clockwise direction, as viewed in Fig. 5. This causes the upper leg portion 96 and the actuating member 108 to move to its lowermost position, thereby extending the spring 114. In this position, the front louvers 14 are disposed horizontally as shown in the solid lines in Fig. 6. The side louvers 16 which bear on the front louvers 14 are also disposed substantially horizontal as shown in the upper part of Fig. 9. Thus, when the handle member 116 is moved forwardly or outwardly the front and side louvers are fully open.

When the handle member 106 is moved rearwardly the actuating rod 104 is pivoted in the clockwise direction so as to cause the bell crank lever 94 to pivot in the counter-clockwise direction. This raises the free end of the upper leg portion 96 which causes the actuating member 108 to move upwardly, guided by the bracket 112. The actuating member 108 is assisted in its upward movement by the pull of the spring 114 so that very little pressure need be applied to the handle member 106. As the actuating member 108 moves upwardly, the flat edges 110 thereof press against the underside of the front louvers 14 so as to cause them to pivot upwardly about the pins 54 and 58. As the rear flange portions

78 of the front louvers 14 move upwardly, they cause the side louvers 16 to also pivot upwardly about the pins 50 and 52 due to the fact that the side louvers 16 bear on the sloping edges 82 of the front louvers 14.

This movement will continue until the front louvers 14 reach the closed position shown in full lines in Fig. 5. In the fully closed position, the depending front flange portions of the louvers extend downwardly over the upwardly extending flange portions of the louvers below them, thereby preventing rain and the like from passing through the awning 10. The flange portions 46 of the cover plates 42 and 44 extend downwardly over the upwardly extending rear flange portions of the top louvers.

The front louvers 14 are slightly wider than the side louvers 16 because of the difference in length between the sloping front portion of the awning and the vertical side portions.

Thus, it is apparent that there has been provided a novel awning which fulfills all of the objects and advantages sought therefor. Pivotally mounted louvers are contained at both the sides and the front of the awning so that the entire awning can be closed to exclude rain and snow, or opened to admit air and sunlight. Also, both the front and side louvers can be opened any desired amount intermediate between the fully opened and fully closed positions. Because the side louvers 16 bear on the front louvers 14 so as to move with them, it is only necessary to provide means for actuating the front louvers. The actuating means shown and described is very simple in construction and operation and requires very little force to move the louvers from the open to the closed position because of the action of the spring 114 counter-balancing the weight of the actuator member 108.

It is to be understood that the foregoing description and the accompanying drawings have been given only by way of illustration and example, and that changes and alterations in the present disclosure, which will be readily apparent to one skilled in the art, are contemplated as within the scope of the present invention, which is limited only by the claims which follow.

What is claimed is:

1. An awning, comprising a supporting framework having a rigid front portion and at least one rigid side portion; a first set of louvers pivotally mounted on the front portion on stationary pivots in spaced relationship; a second set of louvers pivotally mounted on the side portion on stationary pivots in spaced relationship; means for pivoting one set of louvers; and means interconnecting the other set of louvers with the one set so as to automatically move with them.

2. An awning, comprising a supporting framework having a rigid front portion and at least one rigid side portion; a first set of louvers pivotally mounted on the first portion on stationary pivots in spaced relationship; a second set of louvers pivotally mounted on the side portion on stationary pivots in spaced relationship; and means for actuating one set of louvers; the louvers of the other set having a portion thereof continuously bearing on the louvers in said one set so as to automatically move with them.

3. An awning, comprising a supporting framework having a front portion and at least one side portion; a first set of louvers horizontally mounted on the front portion in spaced relationship for pivotal movement; a second set of louvers horizontally mounted on the side portion in spaced

relationship for pivotal movement, the pivotal axis of the louvers in the second set being offset from their center of gravity; and means for pivoting the front louvers between an open position and a closed position, one end of the louvers in the second set bearing on the louvers in the first set whereby the former are carried by the latter when they are pivoted from the open to the closed position.

4. An awning, comprising a supporting framework having a front pair of spaced supporting members which extend downwardly and forwardly, and a rear pair of spaced members which extend downwardly from adjacent the upper ends of the front members; a plurality of spaced pins extending forwardly from the rear supporting members; and a plurality of spaced pins mounted on the front members containing portions which extend inwardly and rearwardly in alignment with the other pins; a first set of louvers pivotally mounted on the pins between the front members, and a second and third set of louvers pivotally mounted on the pins between the front and rear supporting members, the pivotal axis of the louvers in the second and third sets being offset from their centers of gravity; the front end of each of the louvers in the second and third sets bearing on a louver in the first set so as to move with it when it is pivoted.

5. An awning, comprising a supporting framework having a rigid front portion and at least one rigid side portion; a first set of louvers horizontally mounted on the front portion in spaced relationship for pivotal movement; a second set of louvers horizontally mounted on the side portion in spaced relationship for pivotal movement; means for moving one set of louvers between an open and a closed position; and means interconnecting the other set of louvers with the one set so as to automatically move with them; each of the louvers having a panel-like central portion and flange portions at the longitudinal edges of the central portion, the outer flange portion extending downwardly and the inner flange portion extending upwardly so that the downwardly extending flange portion of one louver extends over the upwardly extending flange portion of the louver below it when the louvers are in the closed position.

6. An awning, comprising a supporting framework having a pair of spaced members which extend downwardly and forwardly; a plurality of louvers horizontally mounted between said spaced members in spaced relationship for pivotal movement; and means for moving said louvers between an open and a closed position including an upwardly extending actuating member disposed in back of the louvers and which contains a series of stair-step like edges in contact with the louvers.

7. An awning, comprising a supporting framework having a pair of spaced members which extend downwardly and forwardly; a plurality of louvers horizontally mounted between said spaced members in spaced relationship for pivotal movement; means for moving said louvers between an open and a closed position including an upwardly extending actuating member disposed in back of the louvers and which contains a series of stair-step like edges in contact with the louvers, and means for raising and lowering said actuating member at will.

8. An awning, comprising a supporting framework having a pair of spaced members which extend downwardly and forwardly; a plurality of louvers horizontally mounted between said spaced members in spaced relationship for pivotal movement; means for moving said louvers between an open and a closed position including an upwardly extending actuating member disposed in back of the louvers and which contains a series of stair-step like edges in contact with the louvers, a spring fastened to the upper end of the actuating member so as to urge it upwardly, and means for raising and lowering said actuating member at will.

9. An awning, comprising a supporting framework having a pair of spaced members which extend downwardly and forwardly; a plurality of louvers pivotally mounted between said spaced members in spaced relationship; means for moving said louvers between an open and a closed position including an actuating member disposed in back of the louvers and which contains a series of stair-step like edges in contact with the louvers, a spring fastened to the upper end of the actuating member so as to urge it upwardly, and means for raising and lowering said actuating member at will including a bell crank lever.

10. An awning, comprising a supporting framework having a front pair of spaced supporting members which extend downwardly and forwardly, and a rear pair of spaced members which extend downwardly from adjacent the upper ends of the front members; a plurality of spaced pins extending forwardly from the rear supporting members; and a plurality of spaced pins mounted on the front members containing portions which extend inwardly and rearwardly in alignment with the other pins; a first set of louvers pivotally mounted on the pins between the front members, and a second and third set of louvers pivotally mounted on the pins between the front and rear supporting members; and means for actuating the first set of louvers; the second and third sets of louvers being continuously in engagement with the first set so as to automatically move with them.

11. An awning comprising a rigid supporting framework having a front pair of spaced supporting members which extend downwardly and forwardly, and a rear pair of spaced members which extend downwardly from adjacent the upper ends of the front members; a plurality of spaced pins carried by each of the rear supporting members and extending forwardly therefrom; a plurality of spaced pins carried by each of the front supporting members said last-named pins being V-shaped and having first portions which extend rearwardly in alignment with the pins carried by the rear supporting members and second portions which extend inwardly so as to be in alignment with the pins carried by the opposed front supporting member; a first set of louvers pivotally mounted on the inwardly extending second portions of the pins carried by the front members; and a second and third set of louvers pivotally mounted on the first portions of the pins carried by the front supporting members and the pins carried by the rear supporting members.

12. An awning comprising a rigid supporting framework having a front pair of spaced supporting members which extend downwardly and forwardly, and a rear pair of spaced members which extend downwardly from adjacent the upper ends of the front members; a plurality of spaced pins carried by each of the rear supporting members and extending forwardly therefrom; a plurality of spaced pins carried by each of the front supporting members said last-named

pins being V-shaped and having first portions which extend rearwardly in alignment with the pins carried by the rear supporting members and second portions which extend inwardly so as to be in alignment with the pins carried by the opposed front supporting member; a first set of louvers pivotally mounted on the inwardly extending second portions of the pins carried by the front members; a second and third set of louvers having front ends pivotally mounted on the first portions of the pins carried by the front supporting members and the pins carried by the rear supporting members; and means for actuating the first set of louvers; the second and third sets of louvers having their front ends continuously in engagement with the first set so as to automatically move with them.

13. An awning comprising a supporting framework having a front portion and at least one side portion; a first set of louvers horizontally mounted on the front portion in spaced relationship for pivotal movement between an open position and a closed position; a second set of louvers horizontally mounted on the side portion in spaced relationship for pivotal movement between an open position and a closed position; and means for pivoting one set of louvers between the open position and the closed position, the other set of louvers bearing on said one set whereby the former are carried by the latter.

14. An awning, comprising a supporting framework having a front portion and at least one side portion; a first set of louvers horizontally mounted on the front portion in spaced relationship for pivotal movement between an open position and a closed position; a second set of louvers horizontally mounted on the side portion in spaced relationship for pivotal movement between an open position and a closed position; means for pivoting one set of louvers between the open position and the closed position; and means interconnecting the other set of louvers with said one set whereby the latter move with the former.

15. An awning, comprising a supporting framework having a rigid front portion and at least one rigid side portion; a first set of louvers pivotally mounted on the front portion on stationary pivots in spaced relationship; a second set of louvers pivotally mounted on the side portion on stationary pivots in spaced relationship; means for actuating one set of louvers between an open position and a closed position; and means actuating the other set of louvers responsive to the movement of said one set.

16. An awning, comprising a supporting framework having a front portion and at least one side portion; a first set of louvers horizontally mounted on the front portion in spaced relationship for pivotal movement between an open position and a closed position; a second set of louvers horizontally mounted on the side portion in spaced relationship for pivotal movement between an open position and a closed position; means for actuating one set of louvers; and means actuating the other set of louvers responsive to the movement of said one set of louvers.

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