

May 22, 1956

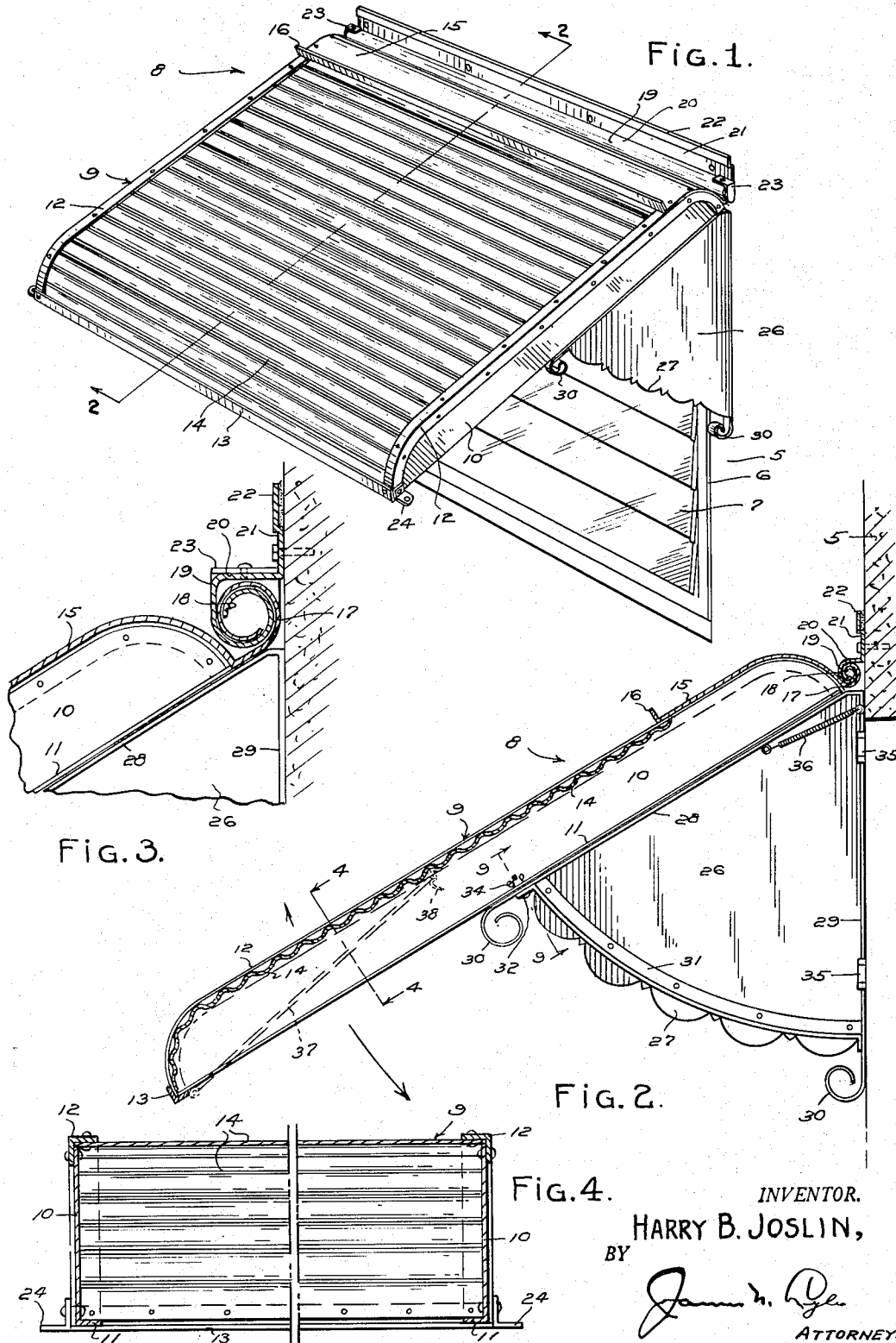
H. B. JOSLIN

2,746,537

AWNING SHUTTER

Filed April 23, 1953

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

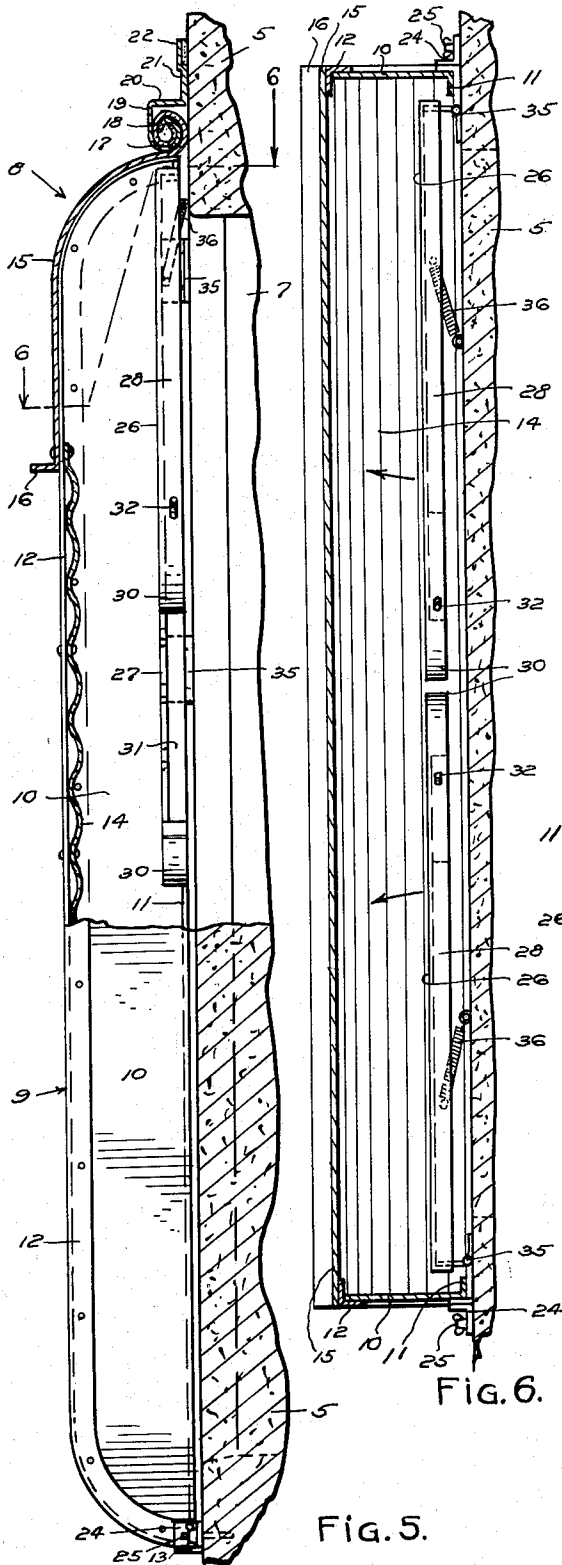
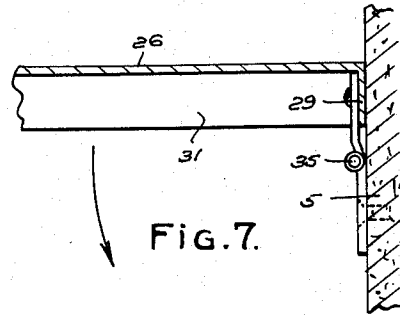
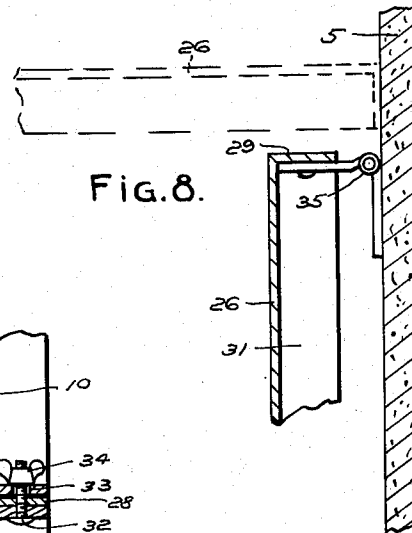
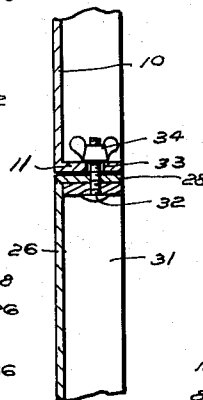


Fig. 9.

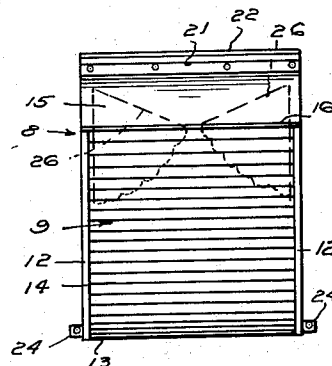


Fig. 10.

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AWNING SHUTTER

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1 Claim. (Cl. 160—58)

This invention relates to improvements in protective shutters and has particular reference to a device constructed to serve as both an awning and a window covering shutter.

It is highly desirable in tropical and subtropical countries where the sunshine is very intense and where the possibility of severe tropical storms are prevalent, that means be provided to serve as an awning under normal conditions to reduce the glare and protect a window opening against sudden rain storms and to combine in such awning, means to quickly release and shift the awning to a rigid protective covering over the entire window opening to prevent damage to windows by flying objects or excessive wind pressures when abnormal conditions threaten, such as the recognized hurricanes carrying unusually heavy winds.

The invention contemplates a novel rigid awning structure of ornamental form that is hinged to a wall area above a window opening and with the awning having a dimension to extend beyond either side of the window opening and having a length greater than the height of the window opening whereby the awning may be lowered to fully overlie the window opening.

A further structure novel in form, consists of ornamental side panels that are hinged to the wall at either side of the window opening to normally lie parallel with and underlie the side edges of the awning in a manner to support the awning in a desired angularity against shifting and with the hinge means of the panels being such that the panels may be swung inwardly against the wall and out of the line of vertical swinging movement of the awning to permit the awning to swing downwardly to lie against the surrounding wall area throughout its circumference.

Various novel features of construction and operation of the device will be more readily understood by reference to the following detailed description coupled with the accompanying drawings, wherein has been illustrated a structure embodying the invention and wherein like characters of reference are employed to denote like parts throughout the several figures.

In the accompanying drawings:

Figure 1 is a perspective view of an awning shutter constructed in accordance with the invention and with the device in awning forming position,

Figure 2 is a substantially central vertical section, taken on line 2—2 of Figure 1,

Figure 3 is a fragmentary section, similar to Figure 2, but shown on an enlarged scale to illustrate the awning hinge,

Figure 4 is a transverse section, taken on line 4—4 of Figure 2,

Figure 5 is a view partly in section and partly in elevation, showing the awning in the lowered shutter forming position and with the side panels shifted to collapsed position,

Figure 6 is a horizontal section, taken substantially on line 6—6 of Figure 5,

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Figure 7 is an enlarged fragmentary horizontal section illustrating the hinge connection of one of the side panels and with the panel extended to a position to support the awning,

Figure 8 is a similar view, with the side panel shifted to non-awning supporting position,

Figure 9 is a fragmentary vertical section taken on line 9—9 of Figure 2, illustrating a rigid connection between the awning and side panels, and

Figure 10 is a front elevation of the awning shifted to shutter forming position and with the side panels swung inwardly in dotted lines.

Referring specifically to the drawings, the numeral 5 designates the wall of a building having the usual wall opening 6 that has mounted therein a conventional window structure 7. The awning shutter, here indicated as a whole by the numeral 8, is adapted to wholly overlie the window opening 6 when in a protective shutter forming position and to extend forwardly at a desired angularity when in the awning forming position.

The awning shutter 8 embodies a generally rectangular rigid awning 9, comprising sides 10, the lower marginal edges of which are bent at a right angle inwardly to form flanges 11. The sides 10 are preferably formed of a suitable light metal, such as sheet aluminum, with the flanges 11 imparting rigidity thereto. The upper marginal edges of each side are rounded at their opposite ends through an arc of substantially 45 degrees to the flanges 11. Aluminum angles 12 are riveted to the upper marginal edge of each side 10 and are shaped at their opposite ends to conform to the curvature of the ends of each side 10. Each of the sides are rigidly tied together at their forward ends, by an angle 13. An awning cover, here illustrated as corrugated aluminum 14 is rigidly connected to the angles 12 and 13, as by rivets. The cover 14 extends rearwardly of the angles 12 for their major length, as clearly shown in Figures 2 and 5. While the cover 14 has been described as being corrugated aluminum, it will be apparent that other materials may be employed, such as translucent plastics, that will permit light to pass therethrough, yet will have sufficient rigidity to withstand any tendency of the awning to twist or be damaged in use.

The inner end of the awning, from the point of termination of the cover 13, is covered by a relatively heavy gauge aluminum sheet 15, the forward edge thereof being bent upwardly at 16 to provide a water stop. The sheet 15 extends for the full width of the awning and is riveted or otherwise rigidly attached to the angles 12. The sheet 15 is shaped to form the inner rounded end of the awning and conforms to the curvature of the inner ends of the angles 12. The awning 9, so far described, provides a flat trough-like device of inverted form, having flat sides and rounded ends and with the trough having a depth adequate to overlie and house a pair of supporting side panels, to be described.

The sheet 15, for its full length, see particularly Figure 3, is extended beyond the rear end of the awning 9 and is longitudinally curled for its full length, as at 17, for rotatable engagement within a mating curled end 18 of a hinge housing 19. The housing 19 and its curled end 18 are co-extensive with the curled end of the sheet 15. The housing 19 includes a flat horizontally disposed top portion 20 and an integral upstanding flat web 21 that is bolted or otherwise rigidly attached to the building wall 5 above the window opening 6. The upper end of the web 21 is offset outwardly at 22 to form a channel space for caulking or the like to prevent water passing downwardly to the window opening. Angled end closures 23 are attached to the top portion 20 of the housing and overlie the exposed ends of the curled hinge members 17 and 18 to prevent the entry of water or other for-

eign matter to the hinge and to prevent displacement of the hinge members with respect to each other. The novel form of awning hinge will permit the free vertical swinging of the awning 9 with the window opening being fully protected against the entry of water past the hinge. While this novel form of hinge is preferable, it is to be understood that other forms of hinge means may be employed with suitable protective housing means overlying the hinge. The forward end of the awning 9, at its opposite sides, is provided with apertured angles 24, that engage threaded studs 25, fixed in the wall 5 and serve to rigidly hold the awning in the protective shutter forming position of Figures 5 and 6. Suitable wing nuts engage the studs 25 to hold the awning against shifting.

Means are provided to rigidly support the awning 9 in the desired angularity, comprising flat metallic side panels 26, formed of aluminum or other desirable material. The panels are shaped at their free forward edges, as at 27, to impart an ornamental appearance. The panels 26 are generally segmental in shape and their upper angular disposed edge and the rear vertically disposed edge are bent inwardly at a right angle to form flanges 28 and 29, having a width corresponding to the width of the flanges 11 of the awning 9. The flanges 28 and 29 are welded together at their abutting ends, while the opposite end of the flanges are extended beyond the panels 26 and are curled or otherwise shaped to form ornamental extensions 30. An arcuately shaped angle 31, having an arc substantially conforming to the forward free edges of the panels 27, is riveted to the inner face of each panel 26 and with their opposite ends bent and riveted to the flanges 28 and 29. The angles 31 impart rigidity to the panels 26 and prevent any tendency of the panels buckling under the weight of the awning or excessive wind pressures. Adjacent the free forward ends of each panel, a threaded stud is fixed to project upwardly, as at 32, with the free end of the studs detachably engaging in apertures 33 of the flanges 11. Wing nuts 34 engage the studs to maintain the flanges 11 and 28 in rigid parallel engagement, it being understood and clearly shown, that the angularity of the flanges 28 coincides with the desired angularity of the awning 9.

Each of the panels 26 are hinged at their rear vertical ends, by hinges 35, to swing in a horizontal plane. The hinges 35 are rigidly supported outwardly of the window opening 6 and inwardly of the overall width of the awning, with the hinges being connected to the flanges 29 in a manner that disposes the flanges 28 to directly and fully underlie the flanges 11 when the panels are in awning supporting position and, when the panels are to be swung to a collapsed position to permit the awning to be swung downwardly to shutter forming position, the hinges swing the panels entirely out of the path of swinging movement of the awning. Springs 36 connected with each panel 26 and with a suitable screw eye or the like in the wall 5, urge the panels inwardly, when released by the disengagement of the awning flanges 11 with the stud bolts 32. Thus, the panels are automatically shifted inwardly by the springs 36 and permit the operation of the awning shutter by one operator, regardless of the length of the awning. While separate springs 36 have been employed, it will be apparent that suitable spring hinges may be employed with equal success.

In the use of the device, assuming that the mechanism is presently in the awning forming position, as shown in Figures 1, 2 and 3, it will be apparent, that the window opening is adequately protected from the direct rays of the sun, both from the top and the major portions of the sides by the side panels 26. The side panels are rigidly connected to the awning 9 by the studs 32, resulting in a very rigid awning structure that is not only protective, but is ornamental. Now, assuming that a hurricane or other severe storm is approaching, the operator proceeds to remove the wing nuts 34 at each side of the awning. Then, by lifting the awning slightly upwardly to disen-

gage the flanges 11 from the studs 32, the springs 36 will immediately swing the panels 26 inwardly, at which time the operator swings the awning 9 downwardly on its hinge to abutting contact with the wall 5 and with the angles 24 engaging over the studs 25, after which, suitable wing nuts or the like are engaged with the studs 25 and rigidly bind the awning in the shutter forming position, in which position, the awning fully overlies the window opening 6 and fully houses the side panels 26. It will be observed, that the window opening is thus fully protected entirely around its circumference. When the corrugated cover 14 is formed of translucent material, adequate light will penetrate to the window. When the storm has passed, the operator then removes the fastening nuts from the studs 25 and bodily swings the awning upward and, while holding the awning up with the hand, swings first one wing panel 26 outwardly to engage its stud 32 into its adjacent aperture 33, at which time the awning is supporting at one side. The operator then proceeds to swing the other panel 26 outwardly and engages its stud with the adjacent aperture 33 and the awning then rigidly connected fastened with the nuts 34. The water stop flange 16 prevents to a large extent, the flow of water over the awning cover 14, such as might drain from the wall 5 above the awning. The hinge devices 17 and 18 are fully protected against the passage of water and has no hinge pin or other parts that might become rusty or require attention. The awning hinge is assembled at installation by axially sliding one hinge coil 17 into the mating hinge coil 18, after which the end members 23 are installed.

It will be apparent from the foregoing, that a very ornamental and rigid awning shutter has been provided. The structure is simple and highly effective for the purposes designed and will effectively protect a window opening against all normal and abnormal wind and rain pressures. The device is cheap to manufacture, is strong, durable and readily lends itself to windows of varying sizes and blends into various types of architecture.

Under certain conditions, it might be found that a window to be protected has an unusual height and, to avoid constructing the awning 9 of such length as to probably be out of ornamental proportions, an extension panel 37, shown by dotted lines in Figure 2, may be hinged to the forward angle 13 and normally nested into the awning 9 and held in its inoperative position by any suitable means, such as a spring detent 38. Thus, when employing the awning 9 as a protective shutter and the awning has a length inadequate to fully extend below the window opening, the panel 37 is released and swung downwardly, where it lies against the wall area below the window opening. Suitable securing studs will be employed to hold the panel 37, corresponding to the studs 25. Thus, the device is not only applicable to the major number of recognized window openings, but will be readily adaptable to those special openings having unusual height.

It is to be understood, that the invention is not limited to the precise structural details employed, but that changes are contemplated as readily fall within the spirit or the scope of the subjoined claim.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

A structure of the character described providing a combined awning and a protective shutter to be mounted adjacent a window opening in a wall with the device being so proportioned as to completely overlie the window opening when in the position of a protective shutter, the device embodying a rigid awning device and a pair of protective and supporting side panels, the awning consisting of a rigid frame having flat side walls and a corrugated top connecting the side walls, the side walls being straight along their lower edges and with the edges bent inwardly to form flanges, angle irons connecting the side walls and the top, the top and angle irons being curved

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downwardly at the upper and lower ends of the awning to terminate at the flanges, whereby to form an inverted trough; the top at the upper end of the awning being non-corrugated and having its free edge rolled to form a hinge element for the full width of the awning, the non-corrugated portion of the top bent upwardly to form a water stop inwardly from the upper end of the awning, a rolled mating hinge element that has convolutions that engage within the rolled edge of the top portion, the hinge elements being co-extensive, closure plates for the opposite ends of the hinge elements, the second named rolled hinge element being rigidly connected to the wall area above the window opening, the hinge elements supporting the awning to swing toward and from the window opening, the side panels being flat and having hinged mounting upon the wall outwardly of and upon opposite sides of the window opening to swing toward and from the window opening, the side panels when shifted outwardly underlying the side flanges of the awning and with the panels and the awning sides being flush, the side panels being segmental in side elevation and having a top flange that is parallel with the awning side flanges when in an extended position and a rear vertically disposed flange that is connected with the hinges, spring devices connected with the wall above the window opening and with each of the

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side panels whereby the panels are biased toward the window opening, bolt means for rigidly connecting the side panels and the awning when in the extended position, the said bolt means when released permitting the side panels to swing inwardly under the influence of the spring devices to move the panels out of the path of downward movement of the awning whereby the awning when swung downwardly upon its hinge elements will be disposed in wholly overlying relation to the window opening and in wholly overlying relation to the side panels and with its flanges engaging the wall, the second named rolled hinge element embodying a protective housing for the hinge.

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