May 20, 1952 L. D. GRAHAM 2,597,633

AWNING HANGER STRUCTURE

Filed Oct. 24, 1947 2 SHEETS—SHEET 1

Fig. 1

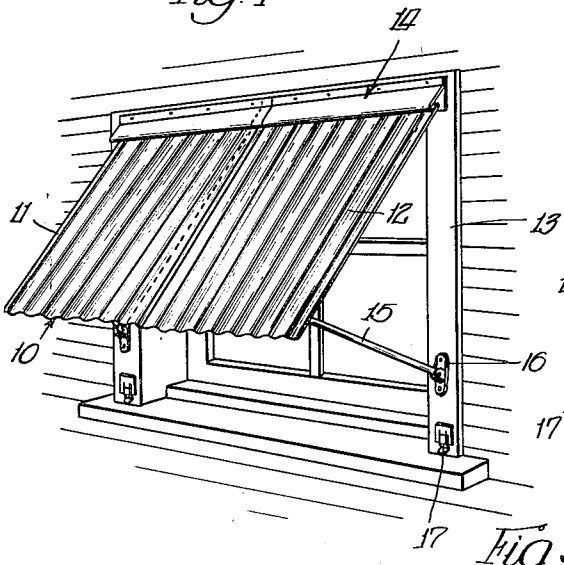


Fig. 2

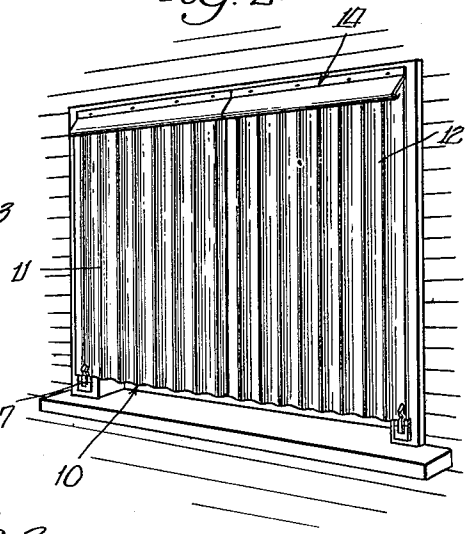


Fig. 3

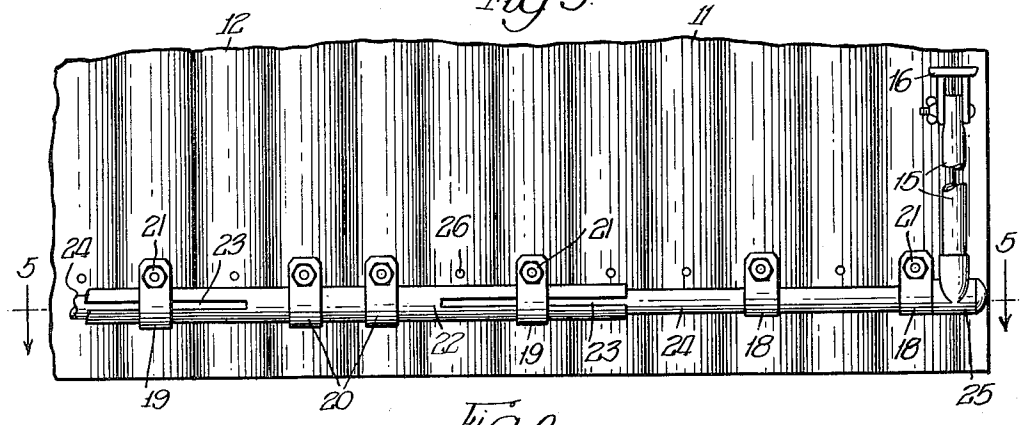
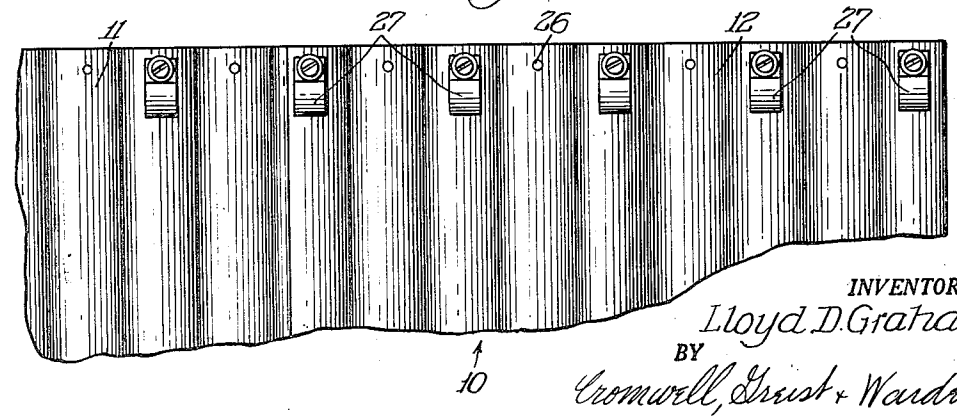


Fig. 4



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Fig. 5.

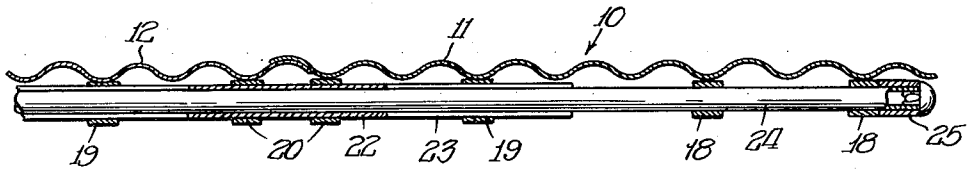


Fig. 6.

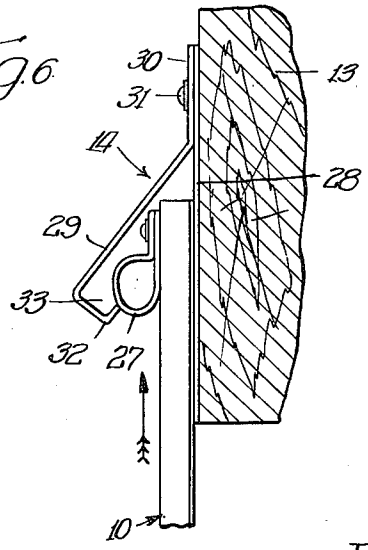


Fig. 7.

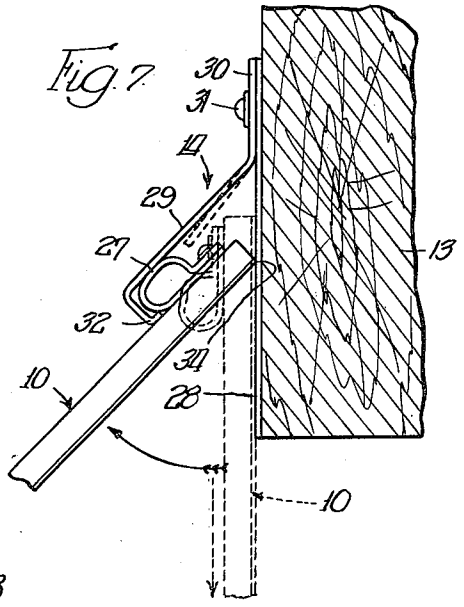
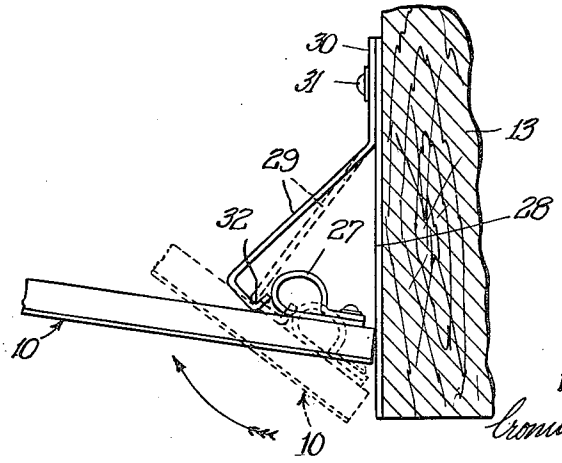


Fig. 8.



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UNITED STATES PATENT OFFICE

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AWNING HANGER STRUCTURE

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Application October 24, 1947, Serial No. 781,971

1 Claim. (Cl. 16—172)

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This invention pertains to an improved, simplified and relatively inexpensive shade or awning of the rigid, prefabricated sheet metal type which is adjustable to regulate the angle of inclination relative to a support. More particularly, the invention resides in certain improvements in an adjustable awning of the above type enabling the awning to be quickly and easily installed on or removed from a dwelling or other building, said awning also being adapted to also serve as a storm or hurricane sash.

It is an object of the invention to provide a relatively rigid sheet metal awning, adapted to be assembled and erected on the job which is built up of prefabricated, standard sized, rectangular sheet metal sections overlapped relatively to one another, plus novel telescoping means of a simple and inexpensive character to enable the overlapped assembly and securement of said sections in any of a number of different panel sizes, the overlapped relation of the sections preventing leakage of sunlight or rain therebetween.

Another object is to provide a relatively rigid awning structure of the foregoing type in combination with novel and highly effective means for adjustably mounting the same relative to a window frame and for dismantling the same when desired, the arrangement being such that either operation is performed quickly and easily by a simple pivotal manipulation of the awning panel.

More specifically, it is an object of the invention to provide a relatively rigid, sheet-like awning panel in combination with a novel bracket or support adapted for attachment to a dwelling or other building, wherein the panel is slidably received interiorly of and beneath said support and is manipulated by a simple rotative movement, whereby said panel wedgingly engages said support and is forced into securely nested relation in a keeper portion thereof, to thereafter resist undesired displacement in a very effective manner; and in which the panel is removed from the support by a further correspondingly simple movement.

Yet another specific object is to provide a combination of relatively rigid awning panel and support therefor, in which said support is characterized by a camming or wedging surface and by a resilient or flexible keeper member inclined downwardly and outwardly from said surface, said panel having a projecting locking element or elements which are lockingly engageable within said keeper member under a wedging or camming action between said panel and surface.

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In a general way, it is an object of the invention to provide an attractive and inexpensive, light weight awning structure characterized by the foregoing features, together with means which enable the same either to be releasably mounted in any desired inclination to a window frame so as to serve as a sun and rain shade or shield, or to be withdrawn downwardly and secured in sealing relation to the window opening in the manner of a hurricane sash, said awning structure permitting free air circulation therebeneath in its operative inclined relation to the window frame.

The foregoing statements are indicative in a general way of the nature of the invention, but other and more specific objects will be apparent to those skilled in the art upon a full understanding of the construction and operation of the device.

A single embodiment of the invention is presented herein for purpose of exemplification, but it will be appreciated that the invention is susceptible of incorporation in other modified forms coming equally within the scope of the appended claim.

In the drawings,

Figs. 1 and 2 are fragmentary perspective views, illustrating alternative operative positions of the improved shade or awning of the present invention relative to a window frame or like opening to which the same is applied;

Fig. 3 is an enlarged fragmentary bottom plan view of the sheet-metal shading panel of the structure, illustrating provisions adjacent an edge thereof whereby a plurality of panel sections may be variably overlapped relative to one another and secured together to build up a unitary panel, this view also illustrating certain of the provisions for supporting the shade relative to a window frame or opening;

Fig. 4 is a fragmentary top plan view of the panel illustrating provisions adjacent the opposite upper edge thereof for latching and locking the panel relative to the window frame in a novel and greatly facilitated fashion;

Fig. 5 is a fragmentary view in section, taken on a line corresponding approximately to line 5—5 of Fig. 3; and

Figs. 6, 7 and 8 are similar enlarged fragmentary end elevational views illustrating progressive steps in the manipulation of the shade panel relative to its support to engage the panel with the support, and also to dismantle the panel from its operative position.

I am aware that it has been proposed to employ sheet metal awning structures of a more

or less rigid character to shield the windows of dwellings and other buildings from sun and rain.

I am also aware that provisions for removably associating such awning structures with the building in question have been disclosed. However, to my knowledge, all such arrangements are subject to the objection of their looseness and insecurity of attachment to the building by the removable provisions in question, thereby occasioning rattling, leakage, rusting and consequent relatively early loss of utility. Other proposed structures are so complex in their assembly of parts, their shape, their operating means, or in other particulars, as to be impractical for sale in a competitive market.

The present invention overcomes these drawbacks, affording a relatively rigid, light weight and compact awning structure adapted to be built up in selected panel widths depending upon the width of the window frame or other opening involved, by the assembly of a plurality of standard prefabricated panel sections in overlapped and secured relation to one another. The awning panel is adjustably positionable in any desired inclination to the opening and, properly positioned, affords a maximum of protection against wind and rain without objectionably cutting down air circulation therebeneath, due to the open-ended construction thereof. It is opaque and impermeable to infrared ray transmission. The assembly embodies novel provisions in the form of a plurality of very simple projecting locking elements adjacent the outer, upper edge thereof which are received in a novel resilient support attached above the window frame, whereby to afford a very secure, non-rattling and leak-proof attachment of the panel to the building in question.

The structure also involves further provisions for adjustably sustaining the awning panel in inclined sun and rain shielding relation to the window opening or for wholly sealing the same in the manner of a storm or hurricane sash.

Referring to Figs. 1 and 2 of the drawings, the improved awning comprises a shading panel, generally designated **10**, which is, in the illustrated embodiment, built up of two or more panels **11**, **12** of a suitable, relatively inexpensive, light weight sheet metal material, such as aluminum. These panels may be fabricated at the factory in standard widths and lengths and are preferably stamped out in a corrugated cross section for rigidity as well as for increased ease and speed in assembly and to eliminate leakage between the sections. The panels **11**, **12** are in overlapped relation to one another for a variable proportion of their respective widths, the degree of overlap depending on what is required to secure the desired overall width for the window frame or other opening **13** to which the structure is to be applied. Sections **11**, **12** are provided with the various means hereinafter described in detail for enabling ready assembly to one another and securement in the aforesaid overlapped relation.

The reference numeral **14** generally designates a fixed support, mount or suspending structure for the awning, within which the upper edge of the panel **10** is received and rigidly secured by camming or wedging the same in operative position, in a manner detailed hereinafter. Swingable supporting arms or struts **15** are pivoted to the inner sides of shade panel **10** and are adapted to be adjustably affixed to frame **13**, by means of pivotal fittings **16** or other well known provisions, to support the panel **10** in any desired downward and outward inclination, as illustrated in Fig. 1. It is contemplated that, at the end of the season, fittings **16** may be freed from the frame **13** and struts **15** swung upwardly underneath panel **10**, thereby to enable the latter to be brought inwardly into parallel sealing relation to the window opening, in the fashion illustrated in Fig. 2. In this position, conventional spring clips **17** of a well known type applied to the frame may be employed to engage over and hold panel **10** in sealing relation to the window in the manner of a hurricane sash.

Referring to Figs. 3 and 5, the under surface of each of the panel sections **11**, **12** is provided with a plurality of circular, strap-like mounting clips variously designated **18**, **19** and **20**, which are arranged in spaced relation to one another along a line paralleling said edge. These clips are secured to the respective panel sections by the threaded nut and bolt means **21**, but certain thereof may also be riveted to the respective sections, if desired. The innermost pair of clips **20**, one of which is secured to each of the sections **11**, **12**, receives an elongated, hollow, tubular guide sleeve **22** clampingly engaging the center of said sleeve to support the same parallel to the lower edge of the panel. This sleeve is slotted adjacent opposite ends thereof, as indicated at **23**, and is surrounded adjacent said slots by the intermediate adjustable clips **19**. The latter may thus be taken up or constricted by the nut means **21** to radially compress the slotted ends of the sleeve. Elongated rods **24** are telescoped in the opposite ends of sleeve **22**, said rods being fixedly clamped to the respective sections **11**, **12** by the outermost pairs of clips **18**. The slotted ends of sleeve **22** are compressible to clamp rods **24** therein and thus secure the panel sections **11**, **12** in any desired degree of overlap. Rods **24** may project externally of the outermost clips **18** adjacent the side edges of the panel **10** for the pivotal reception of a cap or coupling **25** by which the struts **15** are articulated to the awning panel.

In assembling the sections **11**, **12**, the inner ends of the rods **24** are slid into opposite ends of the sleeve **22** until the desired overall width of the panel is obtained. The clips **19** are then tightened to secure the panel sections rigidly together. The corrugated character of sections **11**, **12** adds substantially to the rigidity and resistance to distortion of the awning in a general way and their interlocked relation also contributes to stability in maintaining the fixedly overlapped relationship of the sections. It is desirable to provide holes **26** in standard, equally spaced order at the inwardly convex corrugations of the panel sections to enable the affixing of the clips **18**, **19**, **20** in proper distribution along the panel margin.

On the outer panel surface thereof and adjacent the upper edge thereof, the sections **11**, **12** of panel **10** have secured thereto a number of latching and locking elements **27**, each of which, in the interest of standardization of production and resultant lower cost, is constituted by a circular strap-like member practically identical with the clips **18**, **19** or **20**. The purpose is to afford a plurality of rigid, equally spaced latching and locking elements of convex, curvilinear, external outline projecting from the outer and upper surface of the panel in a row paralleling the upper panel margin. These locking elements are applied to the outwardly convex areas of the corrugations of the sections, employing bolt holes **26** similar to those above described. Elements **27**

coact with the fixedly mounted resilient mounting and locking bracket or support 14 of the awning structure in the manner clearly illustrated in Figs. 6, 7 and 8.

Support 14 is in the form of an elongated moulding comprising an inner, flat, elongated metallic wedging or cam element 28 and a downwardly and outwardly inclined spring sheet metal keeper member 29. Member 29 is provided with an upper attaching section 30 at which it, together with the element 28, is rigidly and permanently attached flush with the frame 13 or other opening, as by a series of screws 31. The lower portion of the downwardly and outwardly inclined keeper member 29 terminates in an inwardly and upwardly bent keeper hook 32 which is in spaced relation to element 28, said hook serving to define a keeper recess 33 for the ultimate wedged reception of the locking elements 27.

The lateral spacing of hook 32 with reference to the wedging element or surface 28 is such as to enable the panel 10 and locking elements 27 thereon to be readily inserted between the keeper hook and surface upon upward sliding movement of said panel, in the manner illustrated in Fig. 6. There is but slight engagement of the elements 27 with the hook 32, and the member 29 will readily spring outwardly to accommodate the same. Preliminarily inserted in this manner, it is only necessary thereafter to swing panel 10 outwardly and upwardly in clockwise direction, as illustrated in Fig. 7, to bring the panel to operative, securely locked position. In these operations, which may be performed from either the interior or exterior of the building, the inner and upper edge 34 of the panel wedgingly or cammingly engages the surface 28 and thus causes latching elements 27 to be positively thrust outwardly into keeper recess 32. The wedging action causes the resilient keeper 29 to spring outwardly somewhat, as from the dotted line position of Fig. 7 to the final solid line position, accompanied by snug, non-rattling and binding engagement of the elements in the recess 32. The shade panel is now in erected condition and the struts 15 are applied to the fixtures 16 to sustain and resist downward displacement of the panel. Wing nuts or other appropriate means may be employed to effect the pivoting of struts 15 to said fixtures, and to maintain the struts against displacement from operative condition, as during stormy weather.

When it is desired to remove the panel, the struts 15 are disconnected from fixtures 16 and the panel 10 is merely swung downwardly and inwardly to the dotted line position of Fig. 7, whereupon it may be drawn vertically downwardly past hook 32. As an alternative method of releasing panel 10 from support 14, the same may be swung farther upwardly in clockwise direction from the operative position shown in Fig. 7, through the position shown in dotted lines in the last named figure. During this movement the upper edge of the panel slides downwardly along the surface 28, camming the member 29 outwardly until the element 27 passes and disengages the hook 32. This frees panel 10 from support 14 entirely, the spring tendency of the keeper member 29 even acting to positively expel the elements 27. Regardless of the method of removal of the panel, its lightness in weight and compactness facilitate carrying and storage of the same, not to mention the desirability of these features from the standpoint of the shipping of the structure.

I am aware that those skilled in the art will perceive the possibility of various modifications or alterations in the details and relationships illustrated and described above. However, I believe it is novel with me to provide a compact, light and attractive built-up overlapped section awning which is particularly characterized by a wedging or cramping type of operation in the assembly thereof. This principle of construction and operation affords soundness and resistance to rattling, leakage and deterioration which are unequalled by other rigid awning structures with which I am familiar.

While specific mention has been made of the use of light-weight sheet metal sections 11, 12, it is also contemplated that the sections may be fabricated of any of a number of well known plastic compounds or other material which are readily available on the market in many attractive colors. The principle of variably overlapping the constituent panel sections results in great flexibility and versatility of use, enabling a custom built installation to be made while employing parts which are standard in all details. I therefore desire that the invention be construed no more limitedly than is reasonably indicated by the language of the following claim.

I claim:

An awning or shade structure applicable to a fixed upright support, comprising a sheet-like awning panel, a locking element secured to said panel at a point spaced downwardly from the upper edge margin thereof and facing outwardly of a surface thereof, said panel having upwardly exposed camming means in fixed relation thereto adjacent said upper edge margin and facing away from the direction faced by said locking element, said camming means being spaced substantially upwardly from said locking element, and a keeper releasably supporting said panel, said keeper being applicable in fixed relation to said upright support and providing, when applied, a portion which extends outwardly from said support and terminates in an inturned keeper portion spaced from said support, said locking element being engageable with and supported by said keeper portion, said camming means being downwardly and slidingly wedged against said support upon outward swinging of said panel about said keeper-engaged locking element as a fulcrum, thereby to positively thrust said element into tighter engagement with said keeper portion.

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