

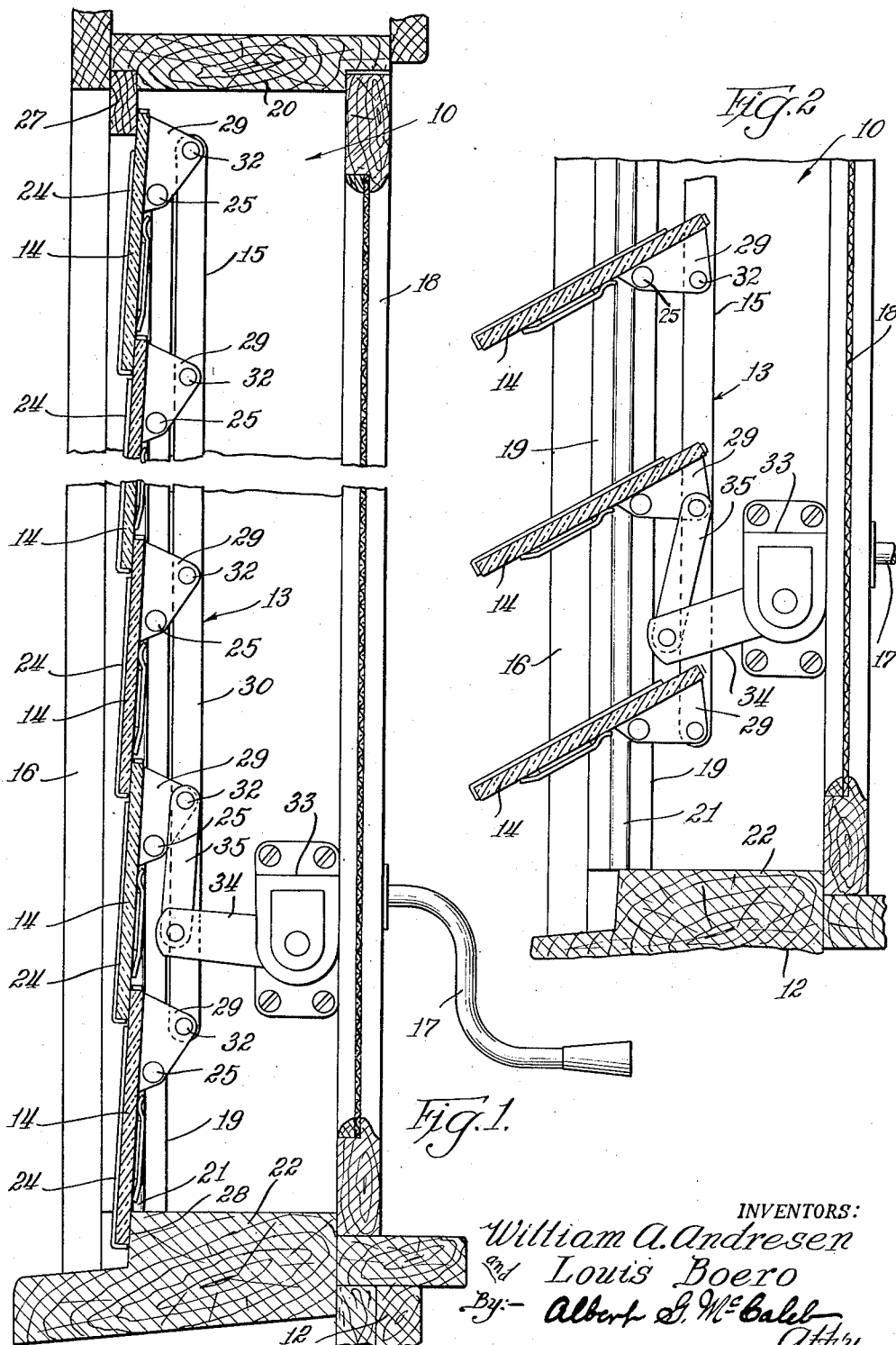
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W. A. ANDRESEN ET AL
HARDWARE FOR TROPICAL LOUVERS

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2 Sheets-Sheet 1



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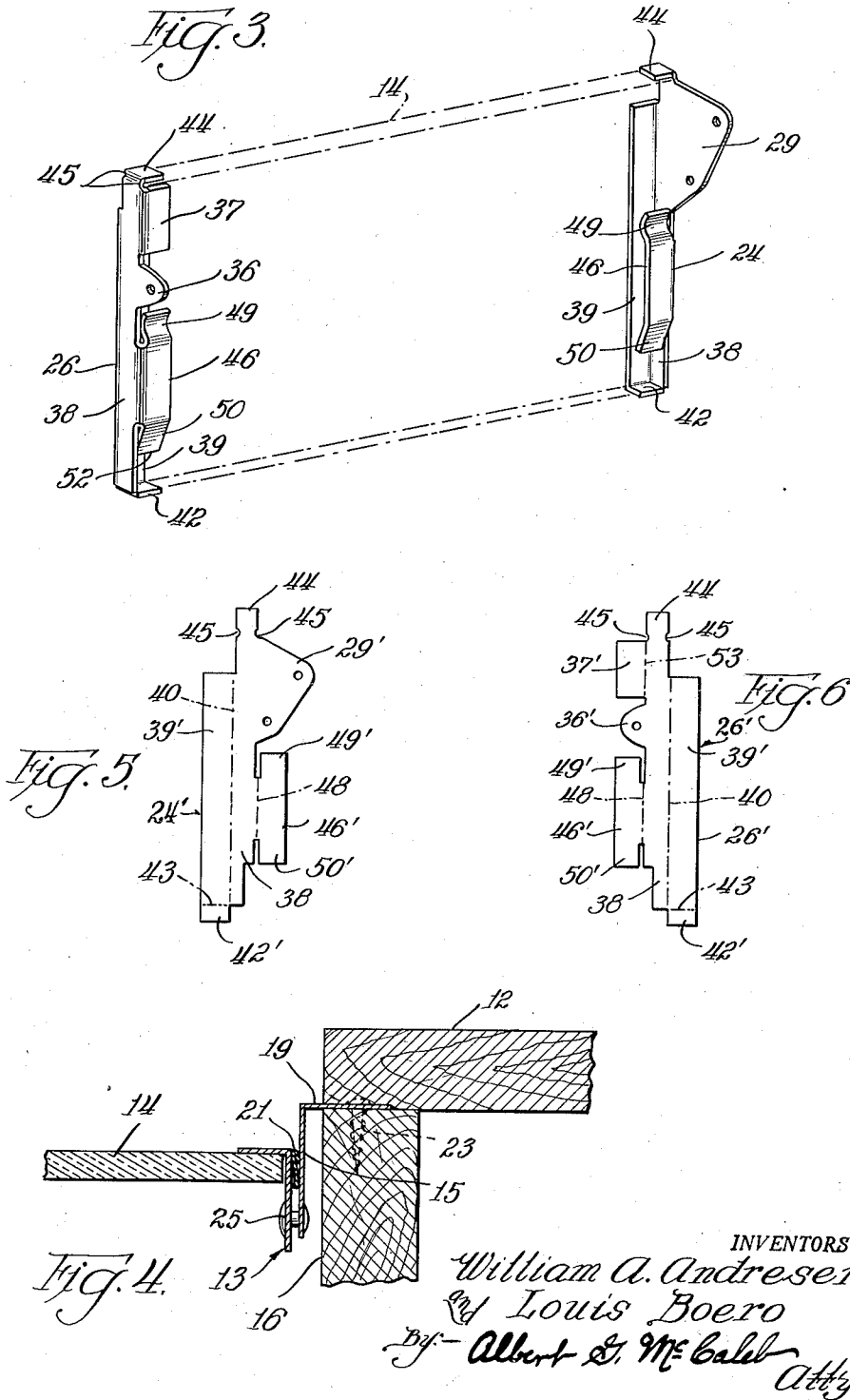
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UNITED STATES PATENT OFFICE

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HARDWARE FOR TROPICAL LOUVERS

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1 Claim. (Cl. 20—62)

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This invention relates to the structure of adjustable tropical louvers, and more particularly to the hardware for supporting louver slats of glass, wood or other material in predetermined adjustable relationship relative to a window opening or the like.

One of the objects of our invention is to provide hardware for tropical louvers which is adapted to installation relative to a window opening or the like prior to and independently of the installation of louver slats, and after which installation, louver slats of a desired material may be inserted and firmly secured in place.

Another object of this invention is to provide tropical louver hardware adapted firmly to grip and securely to hold tropical louver slats of various materials, such as glass or wood, without the use of additional securing elements, screws, bolts or the like.

Our invention further comprehends the provision of hardware for tropical louvers which includes parts adapted to integral formation of relatively light sheet metal and having portions constructed and arranged effectively to support the ends of louver slats for rotational movement, as well as to grip those louver slats in a manner to resist their removal and prevent rattling.

Other objects and advantages of our invention will be apparent from the following description and the accompanying drawings in which similar characters of reference indicate similar parts throughout the several views.

In the two sheets of drawings:

Fig. 1 is a vertical sectional view through a window opening of a wall and depicting the adaptation of a preferred embodiment of our hardware and the louvers carried thereby in their application to the window opening, the louvers being shown in their closed position;

Fig. 2 is a fragmentary side sectional view similar to a portion of Fig. 1 and wherein the louvers are shown in an open position;

Fig. 3 is a perspective view showing parts of our preferred hardware with the louver slat indicated in dot and dash lines;

Fig. 4 is a top sectional view of a portion of the louver hardware installation shown in Fig. 1;

Fig. 5 is a developed view of a blank adapted to the formation of one part of the hardware illustrated in Fig. 3; and

Fig. 6 is a developed view of a blank adapted to the formation of the other hardware part depicted in Fig. 3.

Considering generally the exemplary embodiment of our invention which is depicted for illus-

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trative purposes in Figs. 1 and 2, in its application to a window opening 10 of a wall 12, our preferred hardware which is indicated generally by the reference numeral 13 is adapted adjustably to support a plurality of louver slats 14 for rotational opening and closing movement with reference to the said window opening. By preference, and for ease of installation, our louver supporting hardware is constructed in strip-like assemblies, such as 15, for mounting along opposite sides of a window frame 16. For installation, the hardware assemblies, such as 15, and the parts thereof, are constructed and arranged for application to the window frame 16 or the like prior to the installation of the louver slats. After such installation of the hardware, louver slats of a desired material, such as glass or wood, may be selected and installed; such slats being firmly and securely held by the hardware for movement between closed and adjusted open positions by the operation of a single control element, such as a crank 17. When closed, a weatherproof joint is established between each jamb strip 19 and adjacent slat carriers by a resilient and bowed metal weather strip 21 which is secured to the jamb strip. When desired, the window opening 10 may be covered by a screen 18 spaced inwardly of the louvers so as not to interfere with the movement of those louvers to their open positions.

At each side of the window, the hardware assemblies, such as 15, include jamb strips, such as 19, which are preferably right angular in section and extend from a lintel 20 of the window frame structure to a sill 22 of that structure; one side portion of the jamb strip being secured to the window frame by fastening means, such as screws 23 (Fig. 4) and the other side portion of the jamb strip facing inwardly of the window opening and preferably spaced inwardly from the frame 16. The jamb strips on the opposite sides of the window opening are alike in construction and mounting.

On one side of the window opening, a plurality of slat carriers 24 are mounted relative to the jamb strip in spaced relationship and for rotational movement by fastening means, such as rivets 25. On the other side of the window opening, and likewise mounted upon a similar jamb strip at positions aligned with the axes of the rivets 25 are a plurality of opposed slat carriers 26 (Fig. 3). In each instance, the slat carriers are of a size and so spaced that they carry the ends of the slats 14, as shown in Figs. 1 and 2, in positions to overlap one another in the closed position depicted in Fig. 1 and to provide sub-

stantial intermediate openings, when opened, as shown in Fig. 2. When closed, the upper slat desirably engages a sealing strip 27 and the lower slat overlies a sealing surface 28 of the sill 22.

For effecting the opening and closing movements of the slat carriers and slats in unison and by the control of a single element, such as the crank 17, the slat carriers 24 are provided with projecting flanges 29, each of which is movably connected to a connecting strip 30 by fastening means, such as a rivet 32. In the disclosed embodiment of our invention, the crank 17 operates suitable gears within a gear box 33 to effect angular displacement of a lever 34. The extending end of the lever 34 is connected to an adjacent one of the rivets 32 by a link 35, through which link the movement of the lever 34 is transmitted directly to one of the slat carriers, while the others are actuated through the connecting strip 30. The slat carriers 26 on the other side of the window opening follow the movements thus transmitted to the slats, through the slat carriers 24.

As shown in Fig. 3, the slat carriers 24 have thereon the projecting flanges 29 for making connections to the connecting strip 30. These projecting flanges are not necessary on the slat carriers 26. The slat carriers 26, however, have a projecting tab 36 integrally formed thereon for accommodating rivets, such as 25, by which the slat carriers are mounted on their respective jamb strip. The slat carriers 24 have that projecting tab combined with the projecting flange 29. In the place of the projecting flange 29, the slat carriers 26 are provided with slat holding flanges 37.

Except for the differences which have been pointed out, the structures of the slat carriers 24 and 26 are similar, so that a single description will suffice for both with like reference numerals applied to corresponding parts. Having reference to Figs. 3, 5 and 6, our preferred slat carriers are each adapted to be formed integrally from unitary blanks; the blank for the slat carrier 24 being depicted at 24' in Fig. 5 and the blank for the slat carrier 26 being illustrated at 26' in Fig. 6. The mid-portion of each slat carrier is provided by a web 38, which web is substantially flat and has the other parts of the slat carrier integrally connected thereto. The web is elongated and adapted to fit against the end of a slat of predetermined sectional size. Along one elongated side, a projecting portion 39' of the blank is folded with reference to the web substantially on a line 40 to provide a flange 39 in substantially right angular relationship to the surface of the web. By preference, an end 42' of the projecting portion 39' on the blank extends beyond the end of the web and is folded with reference to the web substantially on a line 43 to provide an end slat-retaining tab 42. At the end of the web opposite the slat-retaining tab 42, the web is preferably extended to provide a tab 44, the section of which is weakened adjacent the end of the web by notches 45 for effecting deformation of the tab 44 on a line extending between the notches after a slat has been placed in the carrier.

On the side of the web 38 opposite the projecting portion 39', a second projecting portion 46' of substantially T shape has the stem portion thereof formed integrally with the web. Longitudinally of the web, the second projecting portion 46' is shorter than the web and desirably shorter than the projecting portion 39'. When

folded with reference to the web substantially on a line 48, the second projecting portion 46' provides a second slat-retaining flange 46 in opposed relationship to the flange 39. End portions 49' and 50' of the second projecting portion being severed from the web 38 substantially along the line 48, those end portions provide oppositely disposed projecting tabs 49 and 50 on the second slat-retaining flange 46. The tab 50 is bent inwardly at an obtuse angle to the rest of the flange to provide a slat-engaging edge 52 in opposed relationship to the inner surface of the slat-retaining tab 42. The other projecting tab 49 is preferably curved to provide a convex surface opposed to the inner surface of the flange 39 and the mid-portion of which extends toward the flange 39.

As indicated by a comparison of the drawings of the blanks in Figs. 5 and 6 with those of the formed slat carriers in Fig. 3, it may be observed that the projecting portions 36' and 29' which form the projecting tab 36 and projecting flange 29 are coplanar with respect to the web 38 before and after the deformation of the blanks. The projecting portion 37' on the slat carrier 26, however, is folded with reference to the web 38 substantially on a line 53 to provide the additional slat-holding flange 37 at a position spaced oppositely of the tab 36 from the second slat-retaining flange 46.

With the disclosed and described slat carrier structures, it may be readily observed that the slats may be easily inserted into their respective carriers after the application of the hardware assemblies to the window frame and before the slat-retaining tabs 44 are bent to the angular position shown in Fig. 3. As a slat is slipped into a carrier, it will slide past the convexly curved tab 49 even though that tab firmly grips the slat. While being moved into the carrier, the slat will also move with relative ease under the inwardly projecting end of the tab 50 until it is seated against the tab 42. The exposed edge of the tab 52, however, has a tendency to resist movement of a slat from a carrier in a direction opposite to the installing movement. Both tabs 49 and 50 provide sufficient resilience and flexure firmly to grip and hold installed slats, even though those slats vary in thickness within reasonable limits.

The slats are additionally held in their installed position by folding the tabs 44 over the edges of the slats and in a position opposed to the tab 42. Being thus retained endwise and edgewise, as well as being gripped between the flange 39 and the formed ends of the flange 46, the slats are so firmly held that rattling is prevented whether the louvers are open or closed.

While we have illustrated a preferred embodiment of our invention, many modifications may be made without departing from the spirit of the invention, and we do not wish to be limited to the precise details of construction set forth, but desire to avail ourselves of all changes within the scope of the appended claim.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent of the United States is:

Hardware for adjustably supporting tropical louver slats of a desired material relative to a window opening or the like and embodying separate assemblies of parts adapted to mounting on opposite sides of said opening prior to the installation of the slats, said separate hardware assemblies each comprising, in combination, a jamb strip, and a plurality of slat carriers

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mounted on the jamb strip for rotational movement and in spaced relationship longitudinally of the strip, said slat carriers each including a substantially flat web portion engageable with the end of one of said slats and having on the mid-portion of one side thereof an integral mounting tab disposed in substantially coplanar relationship to the web portion, said web portion also having thereon an integral flange extending along the side thereof opposite the mounting tab and disposed in substantially right angular relationship thereto, a second integral flange on the web portion in opposed relationship to the first mentioned flange and at one side of said mounting tab, said second flange having oppositely projecting end tabs severed from the web portion and extending from the flange longitudinally of the slat carrier, one of said end tabs being bent toward the first mentioned flange and presenting a slat gripping edge facing the adjacent end of the slat carrier, and the other of said tabs being bent to present a longitudinally convex slat-engaging surface facing toward the first mentioned

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flange, and the slat carriers of one of said hardware assemblies additionally including another flange integral with the side of the web portion opposite the first mentioned flange and extending in right angular relationship from the web portion on the side of the mounting tab opposite the second integral flange.

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