Aug. 11, 1931. G. I. VAIL 1,818,286

AWNING SHUTTER

Filed Nov. 26, 1929 2 Sheets-Sheet 1

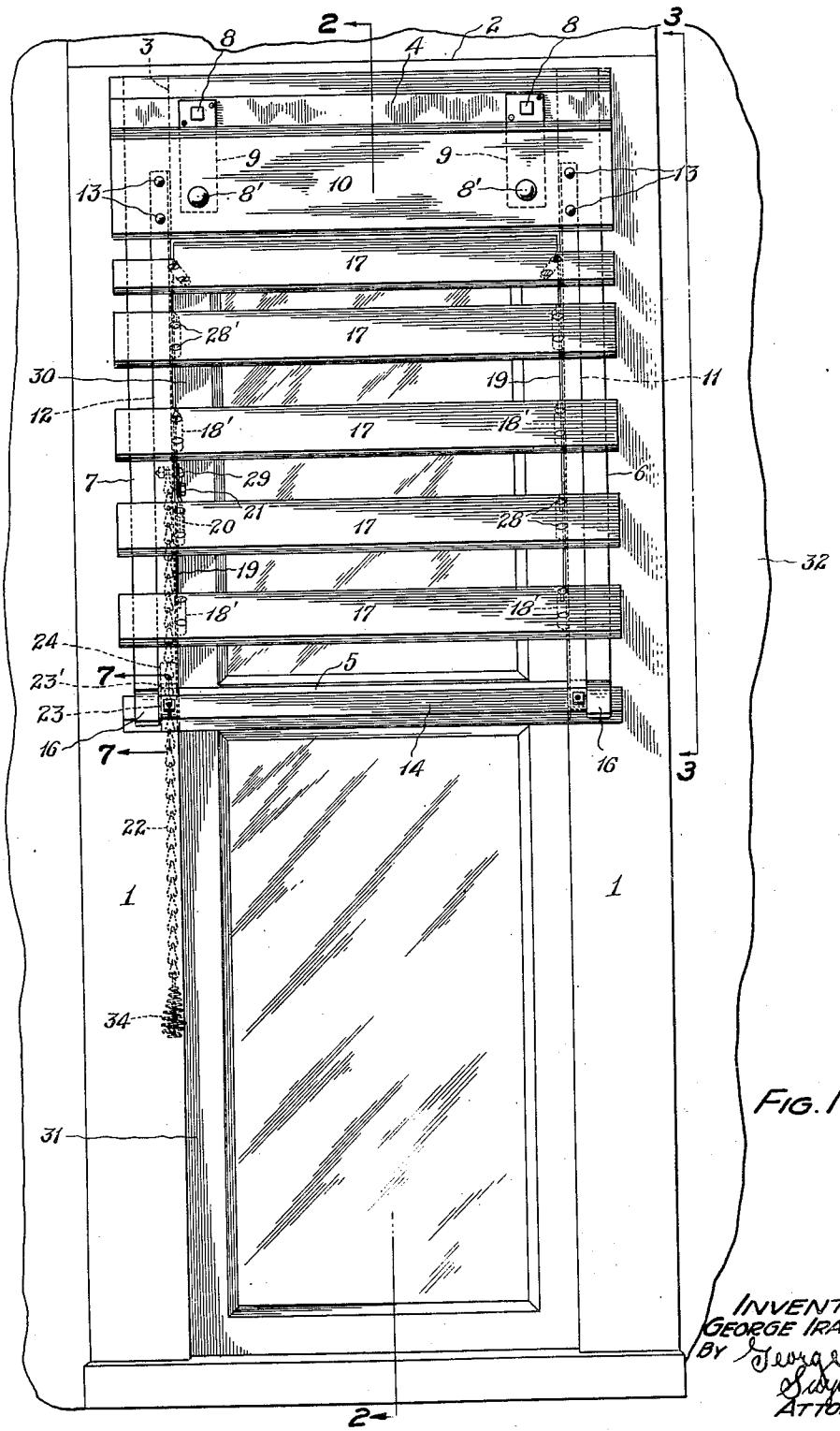


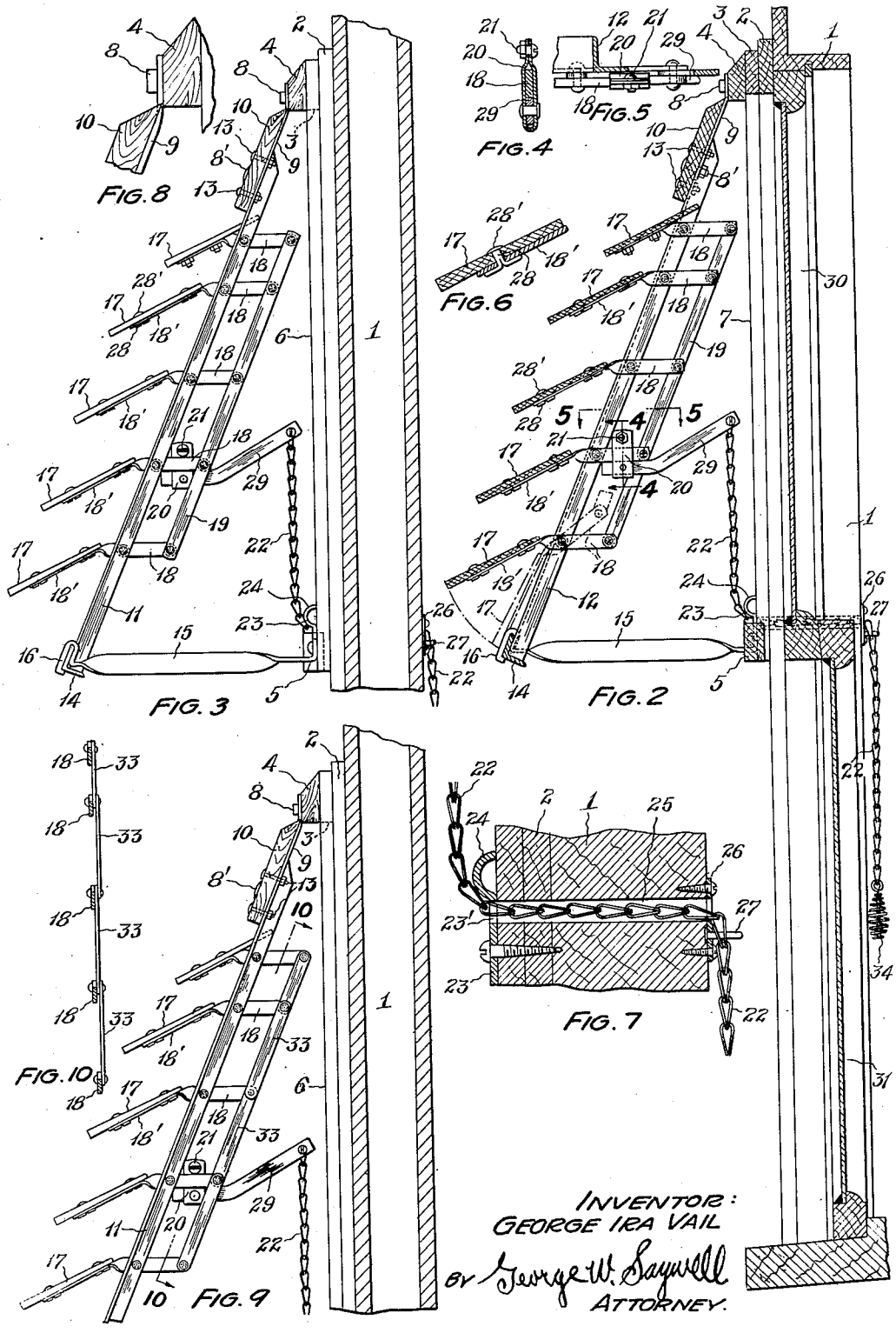
FIG. 1.

INVENTOR:
GEORGE IRA VAIL
BY George W. Sidwell
ATTORNEY.

Aug. 11, 1931. G. I. VAIL 1,818,286

AWNING SHUTTER

Filed Nov. 26, 1929 2 Sheets-Sheet 2



INVENTOR:
GEORGE IRA VAIL
By George W. Saywell
ATTORNEY.

Patented Aug. 11, 1931 1,818,286

UNITED STATES PATENT OFFICE

GEORGE IRA VAIL, OF CLEVELAND HEIGHTS, OHIO; THE GUARDIAN TRUST COMPANY EXECUTOR OF SAID GEORGE IRA VAIL, DECEASED

AWNING SHUTTER

Application filed November 26, 1929. Serial No. 409,943.

This invention particularly relates to improvements in awning shutters of the character shown in my U. S. Patents Nos. 1,394,656 and 1,571,981. Such devices are particularly designed to cover an opening into the chamber of a dwelling, such as an ordinary porch, sleeping porch, sleeping room, etc. Such device is mounted in or over the building opening, usually upon pivotal supports, and means are provided whereby it can be supported at any desired angle to the plane of the building wall. These shutters furnish satisfactory and efficient ventilating means, shade the space that is being protected from direct sunlight, and allow a satisfactory amount of working light to enter the chamber. The improvements in the device herein shown, described and claimed, have these advantages with the exception of an adjustable mounting, in addition to permitting economical manufacture and easy operation, and furnishing so rigid a mounting as to prevent the whipping or the tearing of the device by wind or storm. Other improvements shown, described and claimed in this application relate to a novel metal operating unit for awning shutters which can be manufactured and shipped as a self-contained item of the complete shutter. Furthermore, I show, describe and claim improved means for effecting the convenient and easy operation of an actuating chain which is connected to a master lever adapted to control the operation of the several operating units upon which the plurality of overlapping shutter blades are mounted.

The annexed drawings and the following description set forth in detail certain means embodying my invention, such means constituting, however, but two of the various mechanical forms in which the principle of the invention may be illustrated.

In said annexed drawings:

Figure 1 is an outside elevation of a fragmentary portion of a building wall provided with a window opening and a window positioned therein, this window being equipped with one of my improved awning shutters;

Figure 2 is a vertical section, taken in the plane indicated by the line 2—2, Figure 1;

Figure 3 is a partial vertical section and a partial side elevation, taken in the plane indicated by the line 3—3, Figure 1;

Figure 4 is an enlarged vertical section, taken in the plane indicated by line 4—4, Figure 2, and showing the clamp by which a certain master lever is connected to a plurality of operating units upon which the series of overlapping blades is mounted;

Figure 5 is a fragmentary horizontal section, taken in the plane indicated by the line 5—5, Figure 2;

Figure 6 is a fragmentary vertical section, showing the connection of one of the blade levers to a corresponding blade of said series of overlapping blades;

Figure 7 is a vertical section, upon an enlarged scale, taken in the plane indicated by the line 7—7, Figure 1;

Figure 8 is an enlarged view of a fragmentary portion of that part of the device shown in the upper part of Figure 3;

Figure 9 is a view similar to Figure 3 but showing a modified form of linkage by which the blade levers of an operating unit are pivotally connected together; and

Figure 10 is a section taken in the plane indicated by the line 10—10, Figure 9.

Referring to the annexed drawings in which the same parts are indicated by the same respective numbers in the several figures, a window jamb 1 is fitted to a building wall 32 having a suitable opening therefor, there being slidably mounted within this jamb 1 the upper sash 30 and the lower sash 31 of a complete window. For illustration as parts of a conventional window frame I show a skeleton rectangular frame element 2 to the upper portion of which is exteriorly secured a skeleton frame comprised of the transverse upper wood member 4, a parallel lower wood member 5, and two side vertical wood members 6 and 7. For filling the space between the upper member of the skeleton element 2 and the element 4 of the exterior frame, I show a horizontal frame member 3, Figure 2. My improved awning shutter is secured to the window frame by a series of horizontally aligned bolts 8 which intersect the window frame elements 3 and 4 and are

secured in the jamb 1 or in that part of the window frame bounding the outlook 30. As a part of my shutter construction and as forming means for connecting the shutter to the window frame, I provide metal straps 9 through which the bolts 8 are passed and whose lower ends are secured by means of bolts 8′ to an upper wood cross member 10 forming one of the elements of my improved shutter construction whose entire detail construction will now be described. I first direct attention to the fact that the inner top face of the cross member 10 is recessed to receive the straps 9 so that the upper inner faces of the former lie flush with the outer face of the cross window frame member 4.

The improved awning shutter is comprised of a combination wood and metal frame consisting of said upper wood cross member 10 which is rigidly secured to the window frame, a series of spaced longitudinal metal operating units which are rigidly secured at their respective upper ends to said wood cross member 10, a plurality of overlapping transverse blades pivotally mounted upon said operating units, means for operating said blades and holding them in any desired position, a metal cross strengthening member secured to the bottom ends of said operating units, and lower outwardly-extending braces secured to the window frame at one end and to said cross strengthening member at the other end, and serving to impart rigidity to the device and to hold the shutter at the desired angle to the building wall.

Any suitable number of the operating units may be utilized, depending upon the width of the window to be shaded, and other factors, and in the accompanying drawings I have shown two of such units. These units are comprised of the longitudinal angle members 11 and 12 which are secured at their upper ends to the inner face of the upper wood cross member 10 by means of the bolts 13. The lower ends of these unit members 11 and 12 are secured to the cross strengthening member 14 which, as shown, is a metal angle. Each operating unit consists, in addition to the longitudinal angle 11 or 12, of a series of blade levers 18 which are pivotally secured intermediate their ends to one flange of the angle 11 or 12 and are twisted exteriorly of said connection and bent through an angle of forty-five degrees so as to present surface portions 18′ substantially horizontal in the fully opened position and upon which a series of overlapping blades 17 may be mounted. As is clearly shown in Figures 2 and 4, each of the blade levers 18 consists of a metal strap which is mounted so as to present upper and lower edge portions at its inner end and upper and lower horizontal sides at its outer end. It will be noted that the awning blades 17 are not directly pivotally mounted upon the longitudinal frame angle 11 or 12 but are secured to the blade levers 18 and these latter levers are pivotally mounted upon the frame members 11 and 12. The operating unit is completed by a tie-bar 19 which is pivotally secured to the inner ends of the blade levers 18, this tie-bar 19 in the form of device shown in Figures 2 and 3 being a continuous unitary element, and in the form of device shown in Figures 9 and 10 being comprised of a series of pivotally connected links 33. The means for securing the blades 17 upon the horizontal bearing surfaces 18′ of the blade levers 18 consist of a plurality of split rivets 28 having enlarged heads 28′ and secured in the manner plainly shown in Figure 6.

Means are provided for actuating the aforesaid units and supported blades, and for holding the same in any desired position, these means comprising a master lever 29 which is secured adjacent its outer end by means of a U-shaped clamp 20 to one of the links 18, the U-shaped clamp 20 surrounding the adjacent end of the lever 29 and also the adjacent upper link 18 and having its flexible upper ends securely fastened together by means of the bolt 21, as plainly shown in Figure 4. Secured to the inner end of the master lever 29 is one end of a chain 22 which passes through a hole 23′ formed in a metal face plate 23 secured to the skeleton frame 2 and having an upper outwardly-extended rounder bearing member 24 over which the chain 22 easily slides. The hole 23′ in the face plate 23 registers with a hole 25 formed through the frame member 2 and thus the chain 22 is passed through the frame member 2 and extends inwardly of the window sash 31. The inner end of the chain 22 is formed with a grip member 34 by means of which it may be conveniently actuated to open the shutter blades 17. A face plate 26 is also provided for the inner face of the frame member 2, over which face plate the chain 22 also slides, as plainly shown in Figure 7, a pin 27 being secured under this face plate 26 and extending inwardly of the frame 2, thus providing means by which any suitable link of the chain 22 may be secured by the pin 27 so as to maintain the shutter blades 17 at the desired height.

The aforesaid construction is mounted at any desired angle to the building wall and for this purpose I provide outwardly-extended twisted metal braces 15 which are secured at their inner ends to the outer faces of the window frame members 6 and 7 and are formed at their outer ends into hook-shaped members 16 which fasten over the vertical flange of the angle 14 and are turned in under the horizontal flange of said angle 14, as plainly shown in Figures 2 and 3.

I direct particular attention to the construction of the operating unit as one of the self-contained items of my complete shutter. Each of these units comprises the longitudi-

nal main member upon which are pivotally mounted the series of blade levers whose inner ends are pivotally secured by means of a continuous tie-bar. These metal units may be conveniently packaged and transported, and the proper number of the same may be utilized for the desired awning construction, combined with the series of wood overlapping blades, and with the proper outwardly-extended metal braces and the desired and proper length of transverse metal strengthening angle. With these elements thus conveniently assembled at the most convenient location, preferably near or at the job, can be incorporated the metal fastening straps 9 and the master lever and actuating chain which also in disassembled condition can be conveniently packaged and transported.

What I claim is:

1. An operating unit for awning shutters comprising, a longitudinal metal frame member, a series of spaced blade levers pivotally mounted upon said frame member intermediate their ends, each of said levers comprising metal straps mounted so as to present upper and lower edge portions at their inner ends and twisted intermediate their ends so as to present outer horizontal blade-supporting side portions, and a tie-bar pivotally secured to the inner ends of said levers.

2. An awning shutter comprising, a plurality of transversely-spaced operating units each consisting of a longitudinal metal angle and a series of spaced blade levers pivotally mounted intermediate their ends upon one flange of said angle, each of said levers comprising metal straps mounted so as to present upper and lower edge portions at their inner ends and twisted intermediate their ends so as to present outer horizontal blade-supporting side portions, a plurality of overlapping transverse blades supported upon the outer horizontal side portions of said levers, and a master lever for actuating said blade levers.

Signed by me this 1st day of November, 1929.

GEORGE IRA VAIL.