G. I. VAIL.

SHUTTER.

APPLICATION FILED AUG. 16, 1920.

1,394,656. Patented Oct. 25, 1921.

2 SHEETS—SHEET 1.

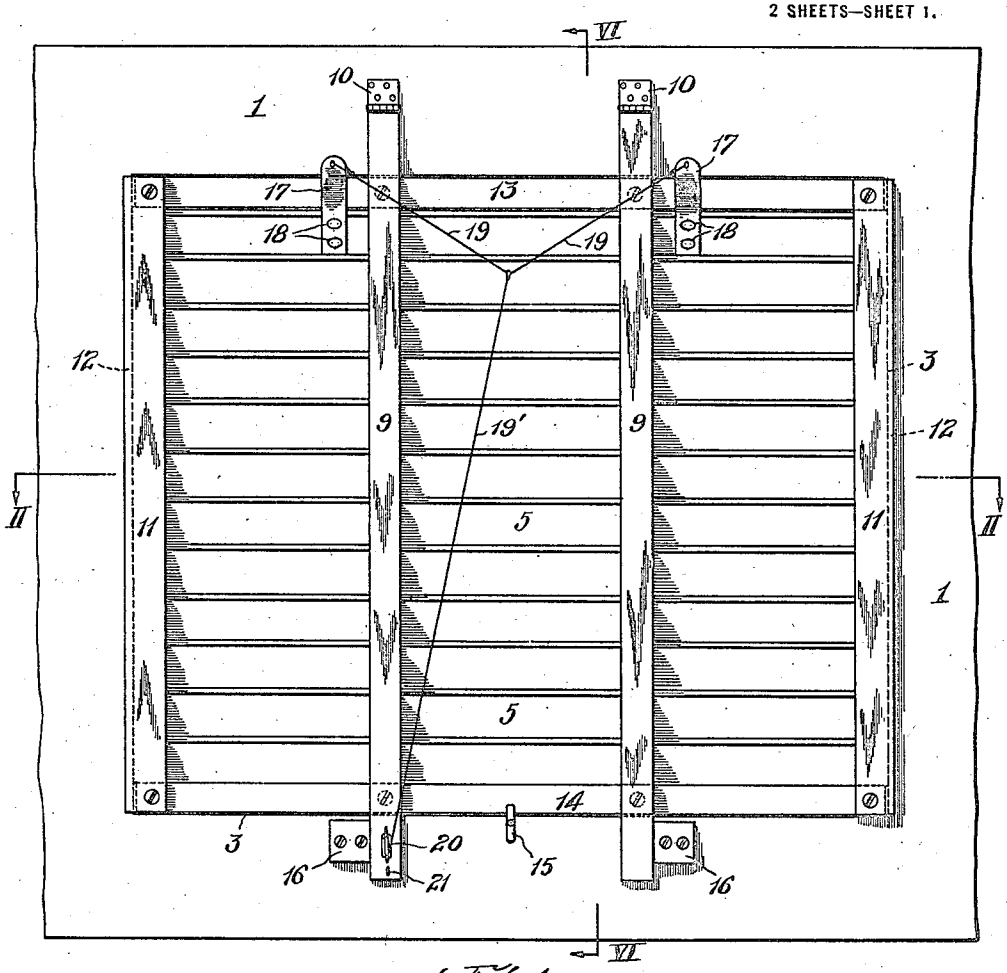


Fig. 1.

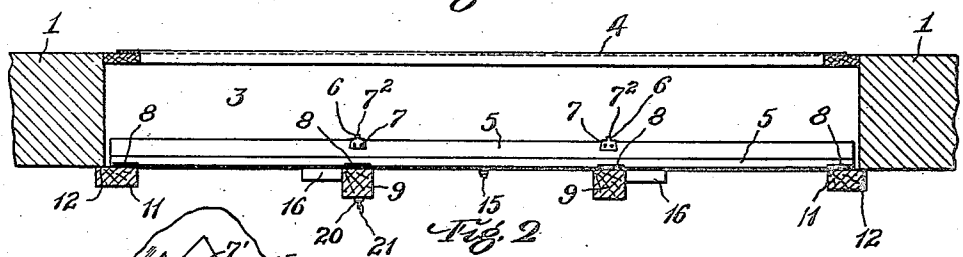


Fig. 2.

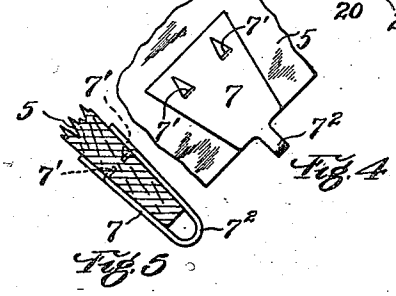


Fig. 4

Fig. 5

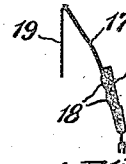


Fig. 3.

Inventor:
GEORGE IRA VAIL
By
Attorneys.

G. I. VAIL.

SHUTTER.

APPLICATION FILED AUG. 16, 1920.

1,394,656. Patented Oct. 25, 1921.

2 SHEETS—SHEET 2.

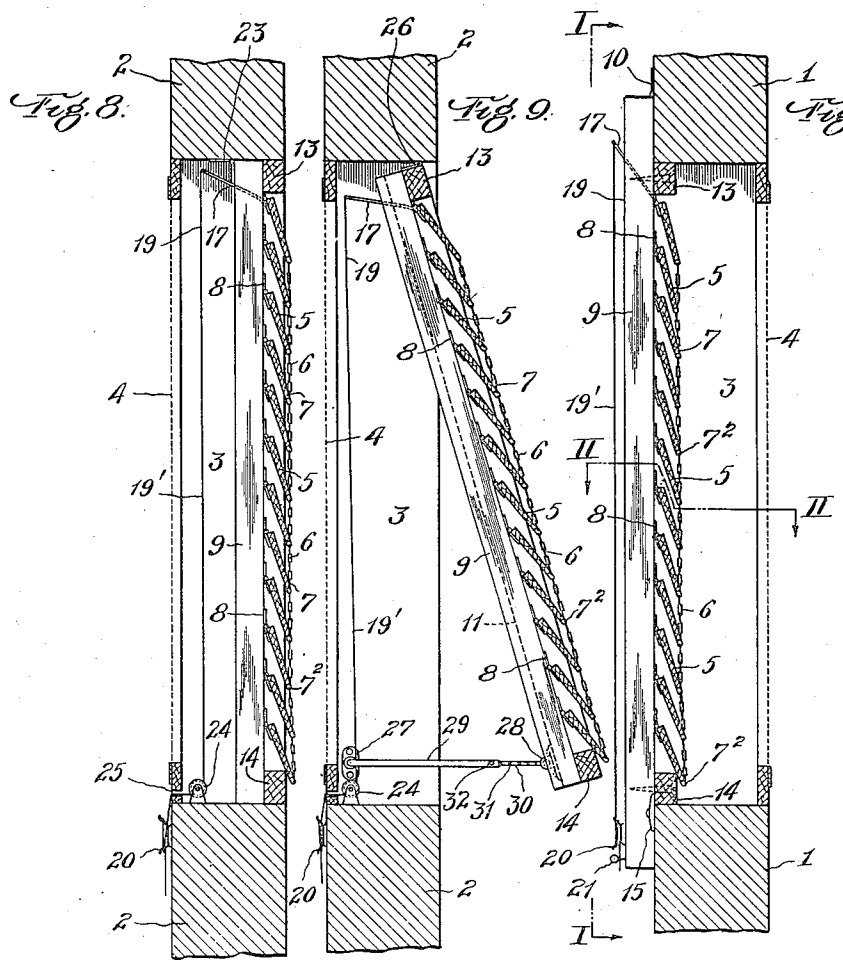


Fig. 8.

Fig. 9.

Fig. 6.

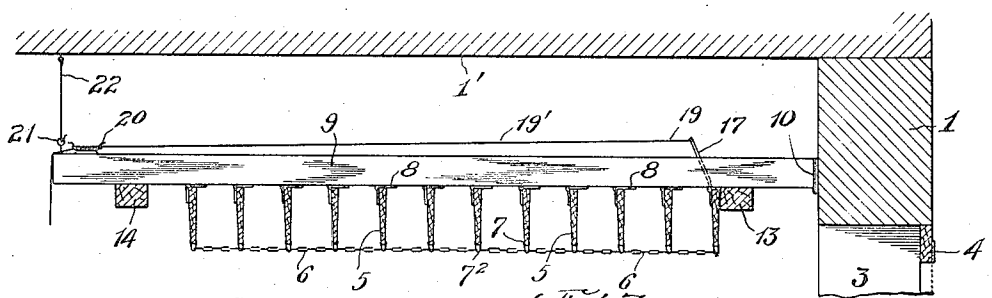


Fig. 7.

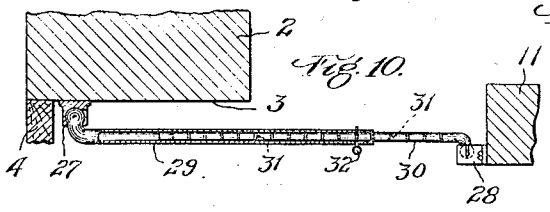


Fig. 10.

Inventor:

GEORGE IRA VAIL

By Fraser, Marshall & Sayrs,

Attorneys

UNITED STATES PATENT OFFICE.

GEORGE IRA VAIL, OF CLEVELAND HEIGHTS, OHIO.

SHUTTER.

1,394,656. Specification of Letters Patent. Patented Oct. 25, 1921.

Application filed August 16, 1920. Serial No. 403,830.

To all whom it may concern:

Be it known that I, GEORGE IRA VAIL, a citizen of the United States, resident of Cleveland Heights, county of Cuyahoga, and State of Ohio, have invented new and useful Improvements in Shutters, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention relates to shutters, and particularly to apparatus of this character adapted to cover an opening into a part of a dwelling, such as an ordinary porch, a sleeping porch, a sleeping room, etc. The invention is further designed to be utilized as an awning by means of pivotally supporting the shutter in or over the building opening and providing means whereby it can be supported at any desired angle to the plane of the building wall. The objects of the invention are to provide apparatus of this character which will be efficient ventilators; which will satisfactorily shade the space, that is being protected, from direct sunlight, and yet allow a satisfactory amount of working light to enter; and which may be economically manufactured, easily operated, and rigidly mounted so as not to be whipped or torn to pieces by the wind or storms.

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

In said annexed drawings:

Figure 1 represents an inside elevation of one form of my improved shutter, showing fragmentary parts of the building to which the same is attached, said figure being taken from the plane indicated by the line I—I, Fig. 6;

Fig. 2 represents a plan section, taken in the planes indicated by the line II—II, Figs. 1 and 6;

Fig. 3 represents a vertical, transverse section through the top blade of the shutter, showing the means of adjusting the blades;

Fig. 4 represents an elevation of a stamping utilized in connection with the adjustment of the shutter blades, showing fragmentary parts of the blade to which said stamping is secured;

Fig. 5 represents a side elevation of the elements shown in Fig. 4;

Fig. 6 represents a transverse, vertical section, taken in the plane indicated by the line VI—VI, Fig. 1;

Fig. 7 represents the same elements shown in Fig. 6, the shutter, however, being raised to an extreme top position and there supported;

Fig. 8 represents a transverse, vertical section of a modified form of shutter;

Fig. 9 represents a transverse, vertical section of a second modified form; and

Fig. 10 represents, upon an enlarged scale, a broken plan view of a pair of brackets and coöperating elements, utilized with the form of shutter shown in Fig. 9.

Referring to the annexed drawings, in which the same elements are indicated in the several views by the same reference characters, I have indicated fragmentary portions of a building by the ordinal 1 in Figs. 1 to 7 which may be, for the purposes of illustration, a side wall of a sleeping porch; and by 2, in Figs. 8 and 9, which may be, for the purposes of illustration, the wall surrounding an ordinary window opening of a dwelling. These building walls are formed with the usual openings 3 which are to be provided with my improved shutter. It is not contemplated that coverings, such as window glass, shall be utilized for the opening 3, inasmuch as the ventilating feature of my improved shutter is a primary and almost fundamental feature, so that the opening is covered with a screen 4 located in a position so as not to interfere with the operation of my improved shutter which position, for purposes of illustration in Figs. 2, 6 and 7, is shown as an outer edge of the opening 3, and, in Figs. 8 and 9, as the inner edge of the opening 3.

My improved shutter is designed to cover the opening 3 and to be pivotally supported upon the building wall 1 or within the opening 3. In Figs. 1 to 7, the shutter is pivotally mounted upon the building wall 1 and is adapted to be raised within the space or room being protected, to the full height of said room and there supported, if desired. In Fig. 8, the shutter is designed to be raised within the space protected, only at such rare intervals as at the end of a season, for instance, this operation necessitating the removal of the screen 4 and some other ele-

ments, as will hereinafter appear. In Fig. 9, in which the shutter is also pivotally mounted within the opening 3, the shutter is designed to be raised outwardly of the building, to a height making any desired angle with the building wall, not probably, however, any considerable angle, as will hereinafter more fully appear, but to such an angle, for instance, as is illustrated in said Fig. 9.

The shutter is comprised of a frame formed of vertical members 9 and 11, of which the members 11 are outer members and the members 9 are inner members, Fig. 1, and horizontal top and bottom members 13 and 14, respectively secured to said vertical members 9 and 11. Referring particularly to Figs. 1 to 7, inclusive, the vertical members 9 are pivoted to the inner face of the wall 1 by means of the hinges 10, so that the whole shutter can be swung upwardly, as shown in Fig. 7, and secured by means of an eye-screw 21 secured to the shutter and a hook 22 secured to the ceiling 1′ of the sleeping room. For the purpose of locating or centering the shutter when lowering the same, I provide blocks 16 disposed respectively exteriorly of the lateral edges of the vertical frame members 9, as plainly shown in Fig. 1. It will be noted that the side frame members 11 are of a width such as to overlap the wall 1 by an amount indicated by the ordinal 12, Fig. 1. A catch or lock for the shutter, in its lowermost position within the opening 3, is illustrated by the ordinal 15.

The amount of ventilation and light permitted by the shutter is controlled by a plurality of blades 5, which are pivotally secured by their inner edges and by means of hinges 8 to the vertical frame members 9 and 11. These blades 5 overlap, as plainly shown in Figs. 6, 8 and 9. Over the outer edges of the blades 5 are secured U-shaped metal stampings 7, by means of the clips 7′ stamped from the body of the member 7, said stampings 7 not being secured closely adjacent the outer edge of the blades 5, but spaced therefrom, as plainly shown in Fig. 5, so as to form eyes 7^2 for a purpose hereinafter fully explained. It will be evident from the foregoing description and the accompanying drawings that, if means are provided for raising and lowering the blades 5, the amount of ventilation and light can be controlled. These actuating means are provided by means of a pair of chains 6, of which each third or fourth link, as desired, interlocks with the eyes 7^2 of the stampings 7. Secured to the rear face of the topmost blade 5 are a pair of castings 17 extending upwardly and forwardly of said blade 5, as plainly shown in Fig. 3. To the outer ends of these castings 17 are secured the two ends of a loose cord 19 and intermediate the ends of this cord is secured an operating cord 19′, which is of such a length as to enable its being secured about a fixture 20 secured to the inner face of one of the vertical frame members 9 and adjacent the bottom of the shutter. The form of shutter last described, and illustrated in Figs. 1, 6 and 7, is intended primarily for use upon a sleeping porch, and it is intended that when the same is raised to the position shown in Fig. 7, it is desired to put the shutter out of commission and fix the same in a position where it will not interfere with the normal use of the window or room.

In the form of shutter shown in Fig. 8, the vertical frame members 9 are secured by hinges 23 to the ceiling of the opening 3, so as to enable the shutter, if desired, to be swung up out of the road within the space or room served by the shutter, such room being a standard room of a dwelling, and not merely an outside space, such as a sleeping porch. It is contemplated that this adjustment of the shutter shall take place only at infrequent intervals, such as the close of a season, and it will be necessary first to remove the screen 4 and also a pulley 24, shown in Fig. 8. The purpose of this pulley and also a hole 25 through the lower frame member of screen 4 is for the purpose of allowing the practicable operation of the actuating cord 19′, from the interior of the room, as will plainly appear in said Fig. 8.

In the form of device shown in Fig. 9, it is intended that a standard room should be served by the shutter, and that the latter also should be capable of acting as an awning, if desired. For this purpose, the shutter is pivoted by means of a hinge 26 to the ceiling of the building opening 3 so as to swing outwardly of the building, as plainly shown in Fig. 9, wherein the shutter is shown in a position in which it serves as an awning. It is not contemplated that it will be necessary to swing the awning out to any considerable angle with the building wall, and one practicable angular position is shown in Fig. 9. For the purpose of holding the awning at the desired angle, I provide a pair of brackets 27 and 28, Fig. 10, respectively secured to the side wall of the opening 3 in the building 2 and to the inner face of one of the vertical frame members 11, and telescoping members consisting of a sleeve 29 and a rod 30, the latter turning in the bracket 28 and being formed with a plurality of holes 31, and the sleeve 29 turning in the bracket 27 and being provided with a button or plug 32 intersecting its wall and adapted to be positioned within any desired one of the holes 31 to retain the awning at the desired angle. It will be noted that in this form of construction, as well as that indicated in Fig. 8, the vertical frame members 9 do not overlap the building wall

at the bottom, and that the vertical frame members 11 do not overlap said wall at their edges.

It will be evident that the shutter acting as an awning, illustrated in Fig. 9, is very rigid and will not be injured as easily as standard metal frame awnings covered with the usual fabric. I contemplate the use of standard building siding or clapboards to form the blades 5 of my improved shutter. This is illustrated by the form of blade shown in the accompanying drawings. See particularly Figs. 6, 7, 8 and 9. This construction of blade would be one much wider than standard shutter blades, and I contemplate overlapping the edges of the blades to about the extent shown in Figs. 6, 8 and 9. I find that this construction and relative arrangement of blades enables me very efficiently to shut out direct sunlight and yet provide the room with plenty of working light and satisfactory ventilation.

What I claim is:

1. A shutter comprising, connected vertical and horizontal frame members; a plurality of overlapping blades mounted at their inner edges upon said frame for pivotal movement; vertically disposed actuating means pivotally secured to the other edge of said blades; a pair of castings secured to the blades, adjacently the top thereof, said actuating means being secured to said castings; and a cord or like element secured to said castings.

2. A shutter comprising, connected vertical and horizontal frame members; a plurality of horizontal overlapping blades pivotally connected at their inner edges to said vertical frame members; stampings formed with eyes and respectively secured to the outer edges of said blades; a vertically disposed chain whose links interlock with said eyes; and means for actuating said chain.

3. A shutter comprising, in combination with a building wall formed with an opening, a frame hinged at its top to said wall, formed of connected vertical and horizontal members, and adapted to cover the opening; a plurality of horizontal overlapping blades mounted at their inner edges upon said frame for pivotal movement; vertically disposed actuating means pivotally secured to the other edge of said blades; a pair of castings secured to the blades, adjacently the top thereof, said actuating means being secured to said castings; and a cord or like element secured to said castings.

4. A shutter comprising, in combination with a building wall formed with an opening, a frame formed of connected vertical and horizontal members adapted to cover said opening, and hinged adjacent the top of said opening; a plurality of horizontal overlapping blades pivotally connected at their inner edges to said vertical frame members; a plurality of chains pivotally secured to the outer edges of said blades; means for actuating said chains; means for supporting said frame at any desired height; and means for locating or centering said frame.

Signed by me this 14th day of July, 1920.

GEORGE IRA VAIL.