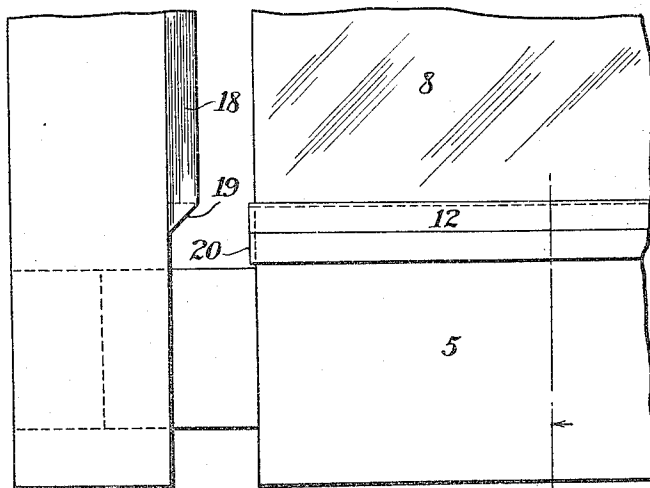
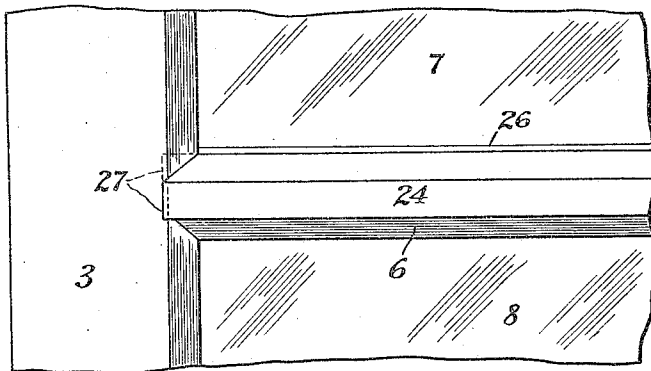
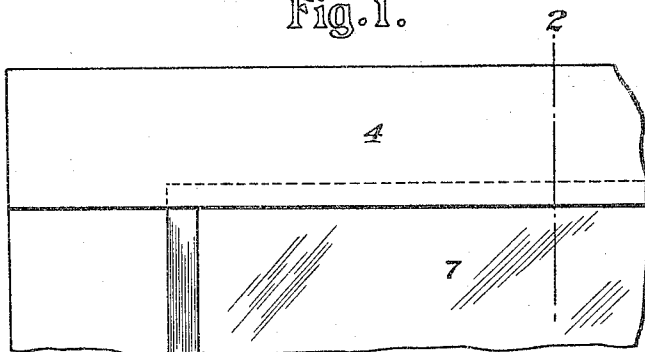


J. A. SMITH.  
SASH.  
APPLICATION FILED NOV. 19, 1914.

1,153,350.

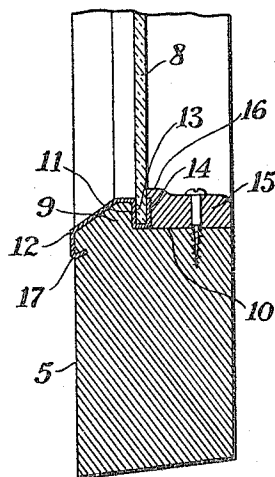
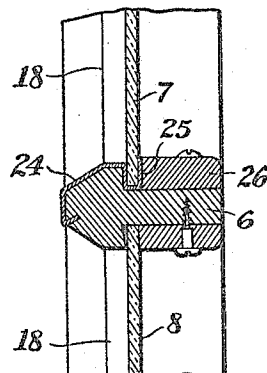
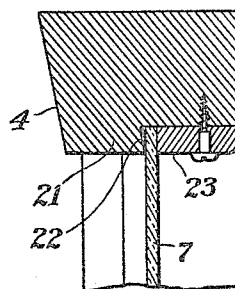
Patented Sept. 14, 1915.

Fig. 1.



2

Fig. 2.



Witnesses:

Clarence W. Carroll  
D. Gurnee.

Inventor:

John A. Smith  
by his attorneys  
Davis & Dovey

# UNITED STATES PATENT OFFICE.

JOHN A. SMITH, OF ROCHESTER, NEW YORK.

## SASH.

1,153,350.

Specification of Letters Patent.

Patented Sept. 14, 1915.

Application filed November 19, 1914. Serial No. 872,948.

*To all whom it may concern:*

Be it known that I, JOHN A. SMITH, a citizen of the United States, and resident of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Sashes, of which the following is a specification.

This invention relates to wooden sashes employed in glazing windows or doors.

The object of the invention is to produce a sash so constructed and arranged that the glass may be introduced and removed from the inside of the sash, or the interior of the building in which it is employed, thus, in the case of a window, obviating the necessity of removing the sash from the window-frame, while at the same time the sash shall be water-tight, neat in appearance, and protected against decay from the action of moisture.

To the foregoing ends I employ a sash having members rabbeted in such a manner as to provide inwardly-directed shoulders, against which the panes of glass are secured by molding-strips, and in connection with this arrangement I employ certain features of construction, hereinafter described, for rendering the joints water-tight, and for excluding moisture from points in the sash which ordinarily are most subject to decay.

The invention is more fully set forth in connection with the following description of the illustrated embodiment of the invention.

In the drawings:—Figure 1 is a partial front-elevation of a window-sash embodying the present invention; and Fig. 2 is a vertical section, on the line 2—2 in Fig. 1, looking from right to left in the latter figure.

The invention is illustrated as embodied in a window-sash, having the usual stiles 3, and top and bottom rails 4 and 5, respectively. The illustrated sash is also provided with a horizontal bar 6, although the invention is equally useful in a sash in which no bars are employed. The sash is also shown as provided with upper and lower panes of glass 7 and 8, respectively.

The lower rail 5 is rabbeted on the inner part of its upper surface, so as to produce an outer flange 9 and an inner horizontal surface 10, the inner surface of the flange providing an inwardly-directed shoulder 11. The flange is also preferably beveled at its outer angle, as shown. A novel feature of the present construction resides in the use of

a strip 12 of thin sheet-metal, which conforms closely to the flange 9, having a vertical portion 13 which is seated against the shoulder 11 and extends down to the surface 10, as shown in Fig. 2. The inner margin 14 of the strip 12 is bent upwardly, parallel with the part 13, thus producing a slot into which the lower edge of the window-pane 8 is introduced. To hold the pane securely in place, without dependence upon the thin sheet-metal, a molding-strip 15 is employed, this strip being screwed or otherwise fastened to the rail, and engaging the inner surface of the part 14 of the sheet-metal.

To secure the metal firmly upon the wood, and prevent the admission of moisture between the metal and the wood, the outer margin 17 of the metal is bent inwardly, at an upward inclination, and buried in the wood, as shown in Fig. 2.

Before seating the glass in place a suitable cementitious material, such as white-lead thinned with oil, is preferably placed in the slot provided by the metal strip 12. It will be apparent, however, that, even in the absence of such cement, the upward extension of the inner margin of the metal tends to impede the free entrance of moisture which may find its way between the glass and the metal.

For further protection against leakage, and also for the purpose of providing a neat finish on the inside of the sash, the molding-strip 15 is recessed in its outer surface, so as to receive and fit over the margin 14 of the sheet-metal, this recess producing also a narrow flange 16 on the molding-strip, which is brought into direct engagement with the glass and may be pressed against it in such a manner as to make a practically water-tight and air-tight joint.

The stiles 3 are rabbeted in substantially the same manner as the rail 5, so as to produce outer flanges 18. In order to provide an overlapping joint, which will tend to exclude the admission of water between the abutting surfaces of the stiles and the rail, the flanges 18 are cut away at their lower ends, to provide recesses 19 in which the ends of the flange 9 project. In Fig. 1 the rail and one of the stiles are shown as provided with the usual mortise and tenon for fixing them together, but the tenon is partly withdrawn from the mortise to show the arrangement of the parts just described.

For further security against the admis-

sion of moisture between the stile and the rail, the metal strip 12 is made slightly longer than the flange 9, so as to have a narrow margin 20 projecting at each end thereof, and when the stiles and the rail are mortised together the edges of the sheet-metal are buried in the wood of the stiles. This arrangement provides, further, for the maintenance of a close joint notwithstanding slight changes, in the relative length of the rail and the metal strip, resulting from the effects of heat and moisture.

In connection with the stiles and the upper rail 4 of the sash it is unnecessary to employ a metal strip, although this may be done if desired. At these points I preferably employ simpler means for maintaining a water and air-tight joint between the glass and the wood. For this purpose the stiles and the rail are so rabbeted as to produce flanges 18 and 21, respectively, having inwardly-directed shoulders which are slightly beveled or undercut, as shown in Fig. 2. Accordingly, the glass engages the shoulders only at their extreme angles, narrow tapering recesses 22 being left between the parts, and these recesses serve to retain suitable cementitious material, such as white lead, which is introduced before the panes are placed in position. Molding-strips 23, fixed to the upper rail and the stiles, press the glass firmly against the shoulders and the cement thereon.

Where the sash is provided with a horizontal bar, as illustrated, the joints between the glass and the bar may be made in substantially the manners hereinbefore described, the joint on the upper surface of the bar being similar to that on the lower rail 5, while the joint on the lower surface may be similar to that on the upper rail 4. As shown, the bar 6 is provided with a sheet-metal strip 24 fixed in place in the same manner as the strip 12. In this case, however, the inner margin 25 of the metal is shown as extended somewhat higher than the part of the metal which lies over the outer flange of the bar, so that even in the absence of any cement between the glass and the metal it is impossible for water to flow between the glass and the metal. In this case the molding-strip 26 extends only to the upper edge of the metal, and is not recessed to receive the latter.

In the case of the bar, as in that of the lower rail 5, the metal strip 24 is somewhat longer than the flange, so as to be embedded, at its upper and lower edges in the material of the stiles, and thus secure a watertight joint between these parts.

The sheet-metal employed in the above described construction may be either of comparatively rigid material, such as hard brass or zinc, or it may be of soft flexible material, such as copper or lead. In the

former case it is preferably bent to its final form in the manufacture of the sash, and in glazing the window the pane is first introduced at its lower edge into the slot, and is then swung into position against the shoulders of the sash, being finally secured in place by fixing the molding-strips to the sash-members. Where flexible metal is employed, however, it may be preferable not to bend the margin 14 or 25 of the metal upwardly until the glass has been placed in the sash. In this manner provision may be made for conforming the metal closely to glass of various thicknesses.

When it is necessary to replace a broken pane this can be conveniently done from the interior of the building in which the sash is used, and without removing the sash from the window-frame. For this purpose it is necessary only to remove the molding-strips, the broken glass, and the cement from the sash, apply fresh cement, introduce the glass, and replace the molding-strips. If the last operation is carefully performed, so as to press the parts all closely together, the use of cement may be entirely dispensed with, as the metal strips prevent the entrance of moisture beneath the lower edges of the panes, as before stated, while the beveled shoulders, on the stiles and other parts of the sash, provide for the production of a tight joint between the glass and the wood when forced together with a moderate pressure. The metal strips, in addition to sealing the sash against leakage of moisture and air, protect the wood against decay at the points where it is most subject to the action of moisture, namely, upon those surfaces on which moisture is likely to stand after a rain-storm, or in consequence of the melting of ice and snow.

My invention is not limited to the embodiment thereof hereinbefore described and illustrated in the accompanying drawings, but may be embodied in various other forms within the nature of the invention as it is defined in the succeeding claims.

I claim:—

1. A sash having, in combination, a sash-bar or rail rabbeted, on the inner part of its upper surface, so as to produce an outer flange with an inwardly-directed shoulder; and a strip of sheet-metal fitting over said flange and the shoulder thereof, and having an inner margin bent upwardly and parallel with the shoulder so as to provide a channel to receive the edge of a pane of glass, said margin extending higher than the part of the sheet-metal lying on the top of the flange.

2. A sash having, in combination, a sash-bar or rail rabbeted, on the inner part of its upper surface, so as to produce an outer flange with an inwardly-directed shoulder; and a strip of sheet-metal fitting over the

outer and upper surfaces of said flange and the shoulder thereof, and having an inner margin bent upwardly and parallel with the shoulder so as to provide a channel to receive the edge of a pane of glass, the outer margin of the sheet-metal being bent inwardly and buried in the outer surface of the sash-bar or rail.

3. A sash having, in combination, an integral sash-bar or rail rabbeted, on the inner part of its upper surface, so as to produce an outer flange with an inwardly directed shoulder; a strip of sheet-metal fitting over the outer and upper surfaces of said flange and the shoulder thereof, the outer edge of the metal being fastened to the outer surface of the sash-bar or rail, and the inner margin of the sheet-metal being bent upwardly so as to provide a channel to receive the edge of a pane of glass; and means, fixed to the sash-bar or rail, for supporting said inner margin laterally.

4. A sash having, in combination, a sash-bar or rail rabbeted, on the inner part of its upper surface, so as to produce an outer flange with an inwardly-directed shoulder; a strip of sheet-metal fitting over said flange and the shoulder thereof, and having an inner margin bent upwardly and parallel with the shoulder so as to provide a slot to receive the edge of a pane of glass, and a molding-strip fixed to the rabbeted surface

of the bar, and recessed, on its outer surface, so as to receive and cover the inner margin of the sheet-metal strip and to produce an outwardly-projecting flange for engagement with the inner surface of the glass.

5. A sash having, in combination, stiles and a rail or bar rabbeted to produce flanges with inwardly-directed shoulders, the flanges on the stiles being cut away adjacent to the rail or bar, and the flanges on the rail or bar extending into the recesses so provided; and a strip of sheet-metal fitting over the flange on the rail or bar and extending into said recesses.

6. A sash having, in combination, stiles and a rail or bar rabbeted to produce flanges with inwardly-directed shoulders, the flanges on the stiles being cut away adjacent to the rail or bar, and the flanges on the rail or bar extending into the recesses so provided; and a strip of sheet-metal fitting over the flange on the rail or bar and extending into said recesses, the ends of said strip projecting beyond the flange on the rail or bar and being buried in the stiles.

In testimony whereof, I affix my signature in presence of two witnesses.

JOHN A. SMITH.

Witnesses:

CLARENCE W. CARROLL,  
D. GURNEE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."