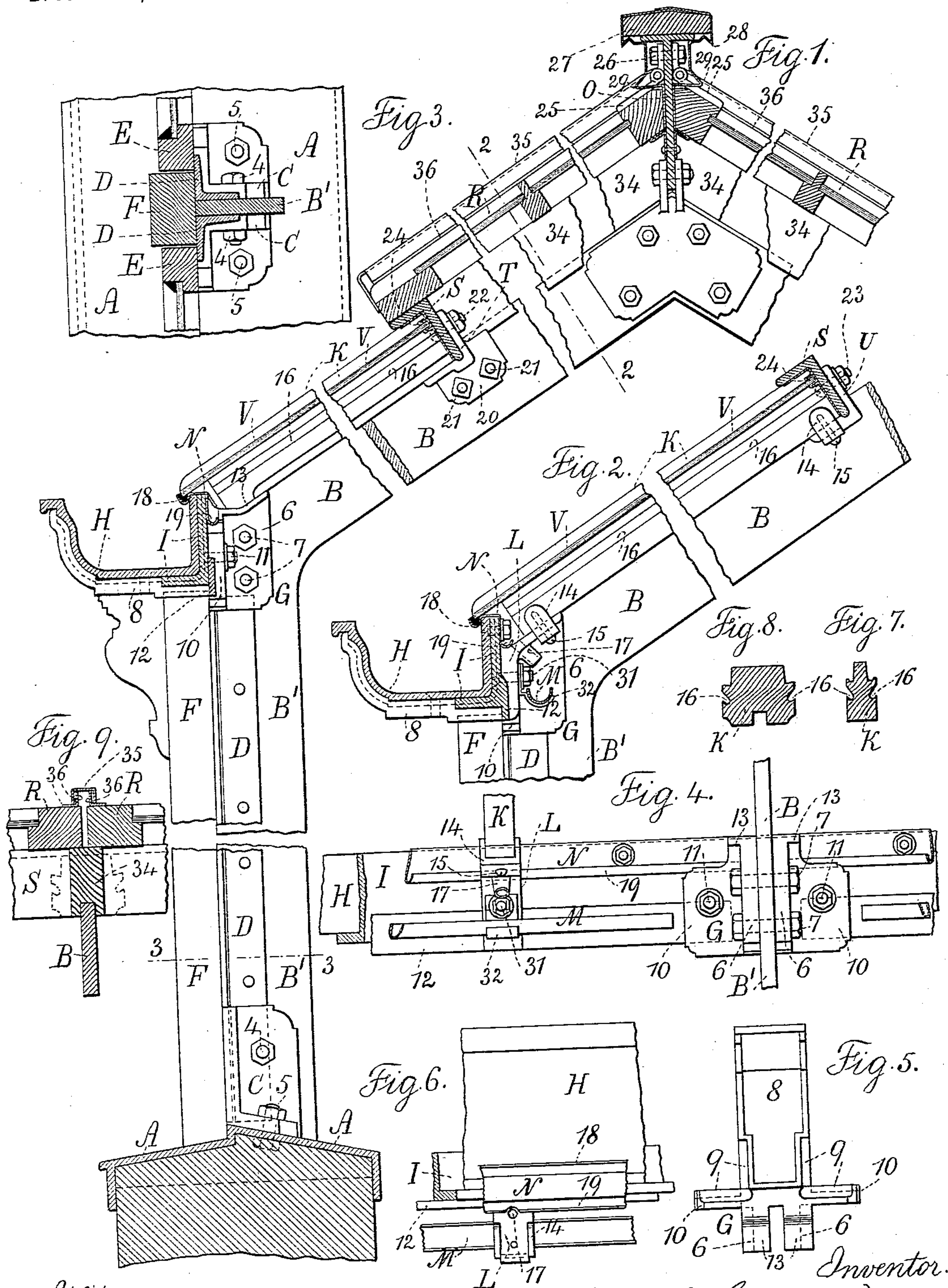


(No Model.)

W. H. COULSON.
GLAZED STRUCTURE.

No. 560,059.

Patented May 12, 1896.



Witnesses:
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UNITED STATES PATENT OFFICE.

WILLIAM H. COULSON, OF JERSEY CITY, NEW JERSEY.

GLAZED STRUCTURE.

SPECIFICATION forming part of Letters Patent No. 560,059, dated May 12, 1896.

Application filed October 4, 1895. Serial No. 564,659. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. COULSON, a citizen of the United States, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented an Improvement in Glazed Structures, of which the following is a specification.

In conservatories and similar glazed structures iron has been extensively employed to lessen the risk of destruction consequent upon the moisture that condenses upon the glass and other portions of such structures.

The present invention is especially designed as an improvement upon Letters Patent No. 429,375, granted to me June 3, 1890.

In the present improvements the metal work carrying the glass is simplified in its construction and rendered compact, so as to cast but little shade in the conservatory or similar building; and the present invention relates to the combination of devices herein described and claimed.

In the drawings, Figure 1 is a general section transversely of the building, and illustrating the ridge-pole, rafters, and connections, the intermediate parts being broken open to bring the joined portions approximately near to each other. Fig. 2 is a similar view showing the gutter and the connections to one of the sash-bars. Fig. 3 is a sectional plan view of a part of the sill and of the angle-irons that secure the post of the rafter to the sill at the line 3, Fig. 1. Fig. 4 represents the connection of the rafter and one of the sash-bars as seen from the inner side of the building. Fig. 5 is a detached plan view showing the support for the gutter and cap-facier, and Fig. 6 is a plan view of part of the gutter and of the troughs for condensation. Figs. 7 and 8 show cross-sections of sash-bars; and Fig. 9 is a cross-section at the line 2, Fig. 1.

The sill A is adapted to form a cap for the brickwork or wall. This may be of any desired shape; but it is usually advantageous to make the same as a double incline with vertical flanges coming at the opposite sides of the wall, and the rafters B are preferably of iron, bent and integral with the vertical post B', and the lower end of the post B' is received between the corner-shoes C, which are recessed for the reception of the

lower ends of the angle-iron stiffeners D, which are advantageously riveted through at intervals to the post portion of the rafter, and their outer surfaces are flush with the surfaces of the corner-shoes, such corner-shoes being bolted at 5 to the sill A, and the bolts 4 pass through the corner-shoes, the angle-iron stiffeners, and the post, so as to make a very firm attachment between the post and the sill, and the sashes E set closely against the outer surfaces of the corner-shoes and the angle-irons, and it is advantageous to employ a parting-strip F, which may be of wood and set against the outer surfaces of the post and the angle-irons, as seen in Fig. 3, so as to come in between the sashes, and these sashes are to be of any ordinary character, and usually are made of wooden frames receiving the glass.

At the junction of the post B' and the rafter B is a cap-facier and the gutter-support G, the same having flanges 6 for the bolts 7, which attach the support to the rafter and at the same time clamp the upper ends of the angle-irons D firmly in position against the sides of the post, the flanges 6 being recessed for the reception of the upper ends of such angle-irons D, and the support G is extended outwardly in the form of a bracket 8 and passes beneath and supports the gutter H. It is to be understood that these rafters and their cap-facier and gutter-supports are placed at suitable distances apart, according to the size and strength required in the building, and it is advantageous to make the gutters H of cast-iron and of a length to extend from one rafter to the next, so that the ends of the gutters abut within the bracket portion 8, and it is advantageous to recess the gutter-bracket for the introduction of putty or suitable cement below the ends of the gutters and within the gutter-bracket, and bolts are applied to bolt the bottoms of the gutters at their ends to the gutter-brackets, thus forming a perfect line of gutters along the greenhouse at the upper ends of the posts and at the lower portion of the sloped rafters.

The facier-pieces I are preferably of wrought-iron and L-shaped, and they support the back edge of the gutter and also form the facier connection between one rafter and the next, and the ends of these L-shaped

facier-pieces are received into recesses at 9 in the support G, and there are flanges 10 for the bolts 11, which bolt the facier-pieces to the supports G. In this manner the parts
5 are very firmly connected and the cast-iron or sheet-metal gutters are supported firmly between one rafter and the next.

The upper edges of the sashes E set against the stop-strip 12, which runs along the lower
10 inner edge of the facier-piece I, and this stop-strip may be similar to a weather-strip, or it may be a metal bar, as shown in Fig. 1. I, however, prefer to make this stop-strip of metal and in one with the facier-piece, as seen
15 in Fig. 2, and this forms a stop for the sashes when closed up against the outer surface thereof. Between the rafters sash-bars are introduced at the proper distances apart, according to the width of the glasses that are
20 made use of, and usually one sash-bar is applied directly over the inclined rafter, such sash-bar being grooved so as to receive the upper edge of the inclined rafter. The lower end of such sash-bar rests upon the bevel-
25 flange 13 on the top portion of the cap-facier and gutter-support G, as seen in Fig. 1. The intermediate sash-bars, however, require to be connected at their lower ends to the facier-pieces I, and with this object in view sash-
30 bar brackets L are made use of, the same being bolted to the inner faces of the facier-strips, as seen in Figs. 2 and 4, and the same bolts that pass through the brackets and through the facier-strips advantageously also
35 pass through the gutters, so as to connect these parts together, and at the same time the sheet metal made use of for the condensation-gutters M is secured when the sash-bar brackets L are bolted to place.

40 The lower ends of the sash-bars require to be firmly connected to the brackets, and at the same time the connection should be such as to lessen the risk of splitting the parts, because the sash-bars are advantageously made
45 of wood. I therefore employ the three-sided sash-bar clips 14, the same being set from below upwardly and including the upper end of the sash-bar bracket, and the sides of the clip-pieces extend up at the sides of the sash-bars,
50 so as to confine the wood of the sash-bars firmly in position, and the screws 15, passing through the sash-bar clips and through the brackets into the wood of the sash-bars, confine the parts firmly in position.

55 It is advantageous to make the sash-bars in the sectional form shown in Figs. 7 and 8, with side gutters 16, that convey moisture or water of condensation along the sash-bars to the lower ends, so as to prevent such water
60 dripping in the conservatory, and at the lower ends of the sash-bars such water runs upon the upper surfaces of the brackets L, and to receive and convey away such water the brackets are sloping on their upper surfaces
65 to the discharge-holes 17, which project downwardly as teats, so that the water will drop into the condensation-gutters M and be con-

veyed along to a suitable leader or discharge-pipe. (Not shown in the drawings.)

The condensation upon the under side of 70 the glasses in the conservatory is liable to run down such glasses, and in order to receive the same the gutter N is provided, the same being made of sheet metal, preferably galvanized iron, with a lip at 18 against which the
75 lower ends of the glasses rest, and in which lip putty or similar suitable material is introduced to form a tight joint, and the water of condensation follows the surfaces of the condensation-gutters N to the trough portion
80 19 upon the inside surface of the facier-piece, so that such water of condensation passes along from one sash-bar to the next, at which place the edge of the trough 19 is pressed
85 downwardly or notched, so that the water from the trough portion 19 of the condensation-gutter is discharged through the teat in the sash-bar bracket to the gutter M.

Usually the upper rib of the sash-bar which comes between the glasses is extended down 90 to the lip 18 of the condensation-gutter N, as represented in Figs. 1 and 2, the other portion of the sash-bar beneath the same being cut away to fit upon the sash-bar bracket.

The upper ends of the rafters B are con- 95 nected in any suitable manner to the ridge-pole O, which is preferably in the form of a channel-iron, the rafters being bolted thereto by angle-brackets.

In conservatories the ventilators are usu- 100 ally along the sloping roof and closely adjacent to the ridge-pole, and such ventilators are usually formed of sash-frames containing glasses. These sash-frames may be of any desired width, and they are generally of a
105 length corresponding to the distance between one rafter and the next. I have shown the ventilating-sashes at R, and the lower edges of such sashes rest upon the ventilator-bar S, which is in the form of an angle-iron extend-
110 ing from one rafter to the next and receiving the upper ends of the sash-bars. The ventilator-bars are fastened at their ends to the rafters by the brackets T, which are castings with flanges 20, bolted to the sides of the raf-
115 ters by the bolt 21, and the bolts 22 connect the brackets T and the ventilator-bars S.

The upper end of each sash-bar K runs be-
neath the angle-iron of the ventilator-bar S, and the intermediate sash-bars are secured 120 to the ventilator-bar by the clips U, which clips are made as castings, (seen in Fig. 2,) bolted at 23 to the ventilator-bar S and each having a foot-piece or tread coming up below the sash-bar and provided with a clip 14, such
125 as are used for the lower ends of the sash-bars, the clips being connected to the sash-bars and to the clips U by screws 15, passing through the clip-pieces 14 and through the tread portions of the clip U.

To make a water and snow tight joint be-
tween the ventilator-bars S and the upper 130 ends of the glasses V, a folded strip of metal 24 is extended along the inner angle of the

ventilator-bar S, and it is folded double above and below the edge of the glass V, as seen in Figs. 1 and 2, so that these folds of the sheet metal form a groove to receive the upper end of the glass, and putty or other material may be introduced at this point, and the folds of the metal may be bent nearer to or farther from each other, according to the thickness of the glass, and the folded strip 24, extending down the under face of the angle-iron forming the ventilator-bar, is secured in place by the bolts 23 that hold the clips U.

The upper edges of the ventilator-sashes are usually beveled, as represented in Fig. 1, to set against the vertical portion of the ridge-pole O, and hinges 25 are screwed to the wood-work of the ventilator-sashes and bolted to the ridge-pole by the bolts 26, and in order to prevent leakage at the junction of the ridge-pole and the ventilator-sashes I usually provide a finishing-strip 27 upon the top of the ridge-pole O, and a sheet-metal cover to the same, which is bent to form a drip edge 28, and the sheet metal incloses the hinges and bolts, being notched adjacent to the hinges, and there is a second drip edge 29, which prevents water drifting or beating upon the upper surface of the ventilator-sash adjacent to the ridge-pole, and the sheet-metal covering extends down advantageously between the edge of the ventilator-sash and the metal ridge-pole and is secured to the filling-strips 30. In this manner I am enabled to protect the parts of the glazed structure from the destructive action of moisture both outside and inside, and the parts of the framework and structure are easily accessible for painting, advantageously before the parts are put together and afterward at any time that the structure may be painted.

It will be understood that the glasses introduced between the sash-bars are lapped one upon the other, as usual in introducing glasses in structures of this character. This part, however, is not represented in the drawings, and the glasses are secured to the wooden sash-bars by glaziers' tacks and putty, as usual.

The gutter M is preferably supported by hooks 32, that are slotted for the bolts 31, that secure the sash-bar brackets, and these hooks can be raised or lowered to give to such gutter M an inclination toward one or both ends, and this gutter can be lifted out from the hooks for cleaning when required.

The ends of the ventilator-sashes that come above the rafters are supported by filling-pieces 34, that rest upon the rafters with their upper surfaces in line with the upper surfaces of the ventilator-bars, and to cover the openings between the ends of the ventilator-sashes I use an inverted-trough-shaped strip 35, hinged at its upper end to the ridge-pole, and there are on the sashes, near their ends, small angle-strips, the vertical members of which come under and within the inverted-trough-shaped strips 35, thus excluding rain

or snow, and as this strip is hinged at its upper end it will be lifted by either of the sashes that is raised the highest.

I claim as my invention—

1. The combination with the metal rafters and posts supporting the same, of the sill upon which the lower end of the post rests, angle-irons at the sides of the rafter-post and corner-shoes receiving the lower ends of the angle-irons and connecting the same to the rafter-posts and to the sill, substantially as set forth.

2. The combination with the rafter-posts and angle-iron stiffeners for the same, of the support at the junction of the post and rafter, such support having flanges and bolts for connecting the same to the rafter and extending outwardly as a gutter-bracket, the gutter received by such bracket and the facier-pieces bolted at the ends to the support, substantially as set forth.

3. The combination with the rafters and posts, of supports bolted to the rafters at the junction with the posts, L-shaped facier-pieces and stop-strips at their lower inner edges, gutters received upon the facier-pieces and sustained by the brackets of the supports, substantially as set forth.

4. The combination with the rafters and posts, of supports bolted to the rafters at the junction with the posts and extended as recessed brackets, L-shaped facier-pieces and stop-strips at their lower inner edges, gutters received upon the facier-pieces and sustained by the brackets of the supports, substantially as set forth.

5. The combination with the rafters and their posts, of supports at the junctions of the rafters and posts, angle-iron facier-pieces extending from one rafter to the other and bolted to the supports and gutters resting against the angle-iron facier-pieces and secured to the same, substantially as set forth.

6. The combination with the rafters and their posts, of supports at the junctions of the rafters and posts, angle-iron facier-pieces extending from one rafter to the other and bolted to the supports, sash-bars and metal sash-bar brackets receiving the lower ends of the sash-bars and bolted to the facier-pieces, and gutters resting against the angle-iron facier-pieces and secured to the same, substantially as set forth.

7. The combination with the facier-pieces and the sash-bars, of sash-bar brackets receiving the lower ends of the sash-bars and clips extending up at each side of the sash-bars and screws for securing the clips and the brackets to the sash-bars, substantially as set forth.

8. The combination with the facier-pieces, of metal sash-bar brackets adapted to receive the lower ends of the sash-bars, such brackets being recessed in their upper surfaces for the reception of water of condensation and perforated for the passage of such water, substantially as set forth.

9. The combination with the facier-pieces, of metal sash-bar brackets adapted to receive the lower ends of the sash-bars, such brackets being recessed in their upper surfaces for the reception of water of condensation and perforated for the passage of such water and a condensation-gutter secured to the brackets and receiving the water of condensation, substantially as set forth.

10. The combination with the sash-bars and facier-pieces, of sash-bar brackets bolted to the facier-pieces and secured to the sash-bars, a metal strip having a lip for the reception of the lower ends of the glasses and putty or cement and means for connecting the metal strip permanently with the facier-piece, substantially as set forth.

11. The combination with the sash-bars and facier-pieces, of sash-bar brackets bolted to the facier-pieces and secured to the sash-bars, a metal strip having a lip for the reception of the lower ends of the glasses and putty or cement and means for connecting the metal strips permanently with the facier-piece such metal strip having a gutter at its lower edge, substantially as set forth.

12. The combination with the facier-piece and the sash-bar, of sash-bar brackets connected to the sash-bar and to the facier-strip and recessed on their upper surfaces and metallic strips having lips for the lower edges of the glasses and gutters for receiving water of condensation, such gutters leading the water to the sash-bar brackets, substantially as set forth.

13. The combination with the rafters and angle-iron ventilator-bars extending from one rafter to the other, of brackets for connecting the rafters and angle-iron ventilator-bars, brackets for connecting the ventilator-bars and sash-bars, substantially as set forth.

14. The combination with the angle-iron ventilator-bar, of sash-bars passing beneath the upper portion of the angle-iron, sash-bar brackets connecting the sash-bars and the angle-iron ventilator-bar, and a metallic strip within the angle of the ventilator-bar folded

to receive the upper edge of the glass, substantially as set forth.

15. The combination with the sash-bar, of a metallic bracket at the lower end and to which the sash-bar is attached, the said bracket being recessed upon its upper surface to receive the water of condensation from the sash-bar and having a projecting discharge edge from which such water drips, substantially as set forth.

16. The combination with the rafters and ventilator-bars S, of the filling-pieces 34 resting on the rafters and coinciding with the upper surfaces of the ventilator-bars and the ventilating-sashes which rest on said filling-pieces, substantially as specified.

17. The combination with the ventilator-sashes, of the inverted-trough-shaped strips, connections at their upper ends, angle-strips on the sashes and near their ends coming below and within the trough-shaped strips, substantially as specified.

18. The combination with the sash-bars, of metallic brackets at the lower ends and to which the sash-bars are attached, the said brackets being recessed upon their upper surfaces to receive the water of condensation from the sash-bars, and having projecting discharge edges from which such water drips, a gutter below the brackets and adjustable supports for the same for regulating the inclination of the gutter, substantially as set forth.

19. The combination with the metallic rafters and ridge-pole, of ventilating-sashes hinged at the ridge-pole and a sheet-metal inclosure for the top of the ridge-pole extending down and provided with drip edges above the ventilator-sashes, substantially as set forth.

Signed by me this 27th day of September, 1895.

WILLIAM H. COULSON.

Witnesses:

GEO. T. PINCKNEY,
S. T. HAVILAND.