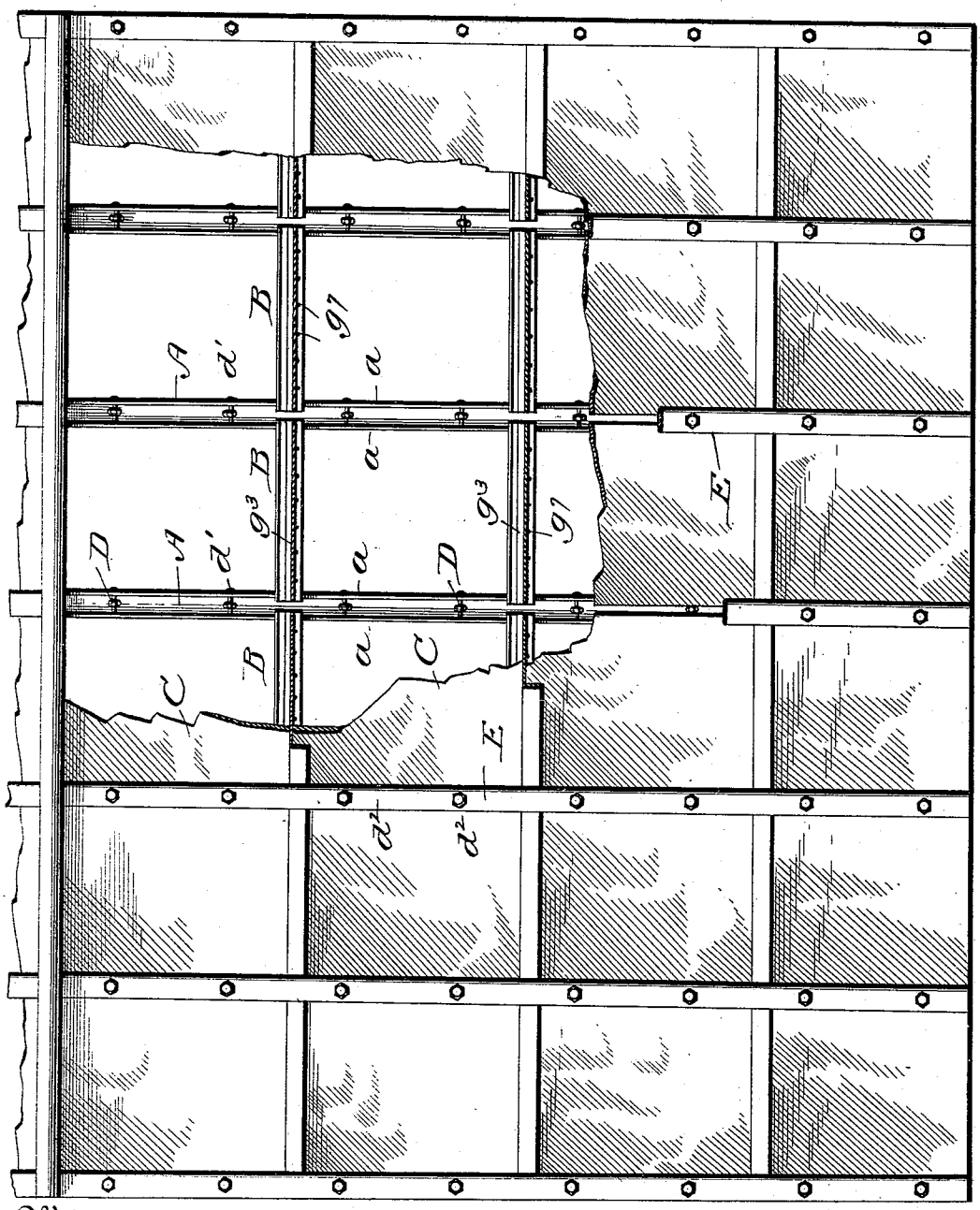
(No Model.) 2 Sheets—Sheet 1

A. E. RENDLE.

GLAZED STRUCTURE.

No. 488,663. Patented Dec. 27, 1892.



Witnesses
W. F. Schieder
B. W. Miller.

Fig. 1.

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A. E. Rendle.
By his Attorneys
Baldwin Davidson & Wright

(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

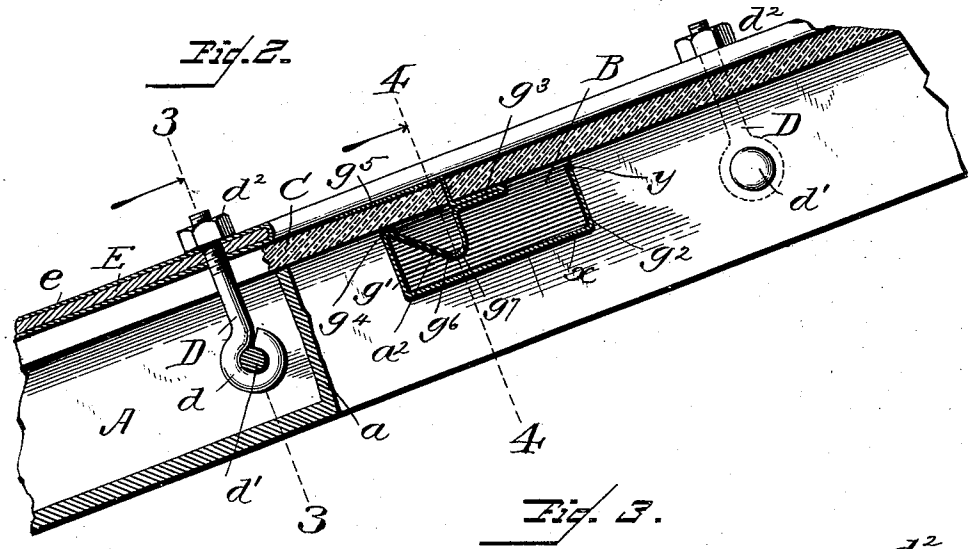


Fig. 3.

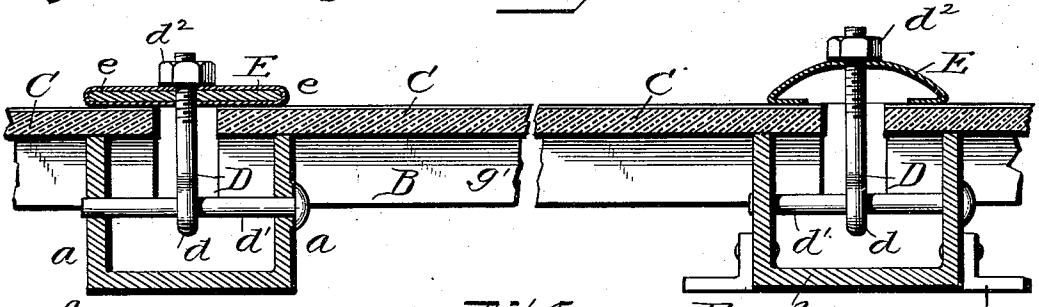


Fig. 4.

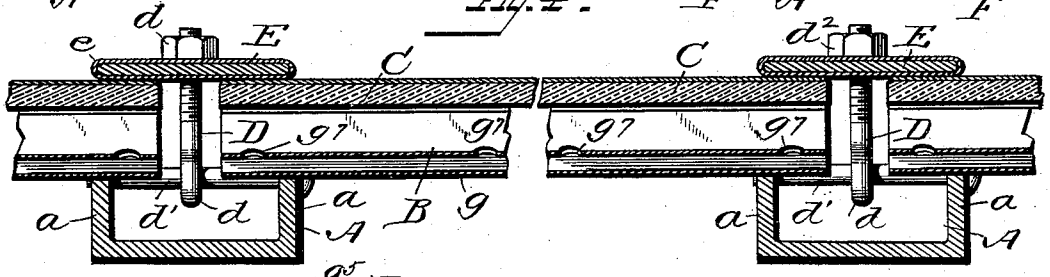
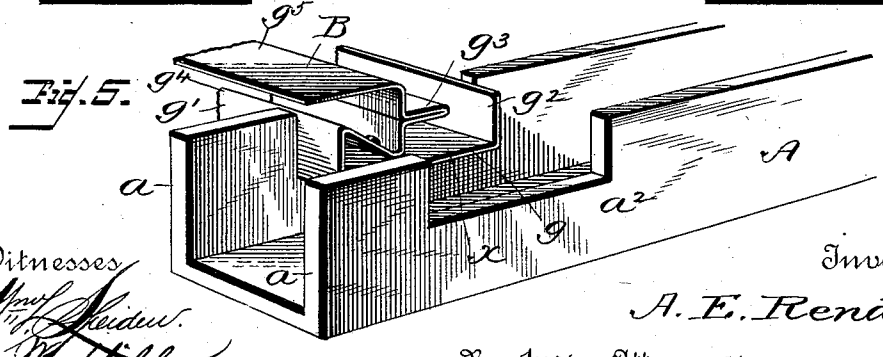


Fig. 5.



Witnesses
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B. P. Miller.

Inventor
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UNITED STATES PATENT OFFICE.

ARTHUR EDGCUMBE RENDLE, OF PHILADELPHIA, PENNSYLVANIA.

GLAZED STRUCTURE.

SPECIFICATION forming part of Letters Patent No. 488,663, dated December 27, 1892.

Application filed May 17, 1892. Serial No. 433,286. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR EDGCUMBE RENDLE, a subject of the Queen of Great Britain, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Glazed Structures, of which the following is a specification.

My invention relates particularly to glazed structures of the class shown in W. E. Rendle's United States Patents Nos. 224,608 of February 17, 1880, and 270,337 of January 9, 1883.

The object of my invention is to more firmly and securely connect and support the panes of glass and to provide improved means for draining the water of condensation which accumulates on the inner surface of the glass, and that which finds its way through the joints of the panes and their supports.

To these ends, my invention consists in providing inclined troughs or astragals, and cross troughs, constructed and arranged as hereinafter specified, to connect and support the panes of glass at their edges, and to receive and carry off all the water accumulating upon the panes.

In the accompanying drawings, Figure 1 is a view of a portion of a glass roof constructed in accordance with my invention. Fig. 2 is a detail view in section, showing particularly the manner of supporting the glass by cross troughs. Fig. 3 is a detail view in sections, on the line 3—3 of Fig. 2, showing particularly the manner of supporting the glass by the inclined troughs or astragals. Fig. 4 is a section on the line 4—4 of Fig. 2; and Fig. 5 is a perspective view, showing the manner of supporting the cross troughs by the inclined troughs.

The inclined troughs or astragals A, are arranged equal distances apart, and extend from the bottom to the top of the inclined roof, and the cross troughs B, which are made in sections are arranged at right-angles to the troughs A, as shown in Fig. 1. The inclined troughs A, may be rectangular in cross section, or of other suitable shape, and they support on the upper ends of their sides a, the panes of glass C, which are symmetrically arranged side by side in the same plane, without overlapping edges, as clearly illustrated in the drawings. The longitudinal edges of the panes are separated, as indicated, and through the intervals extend bolts D, having at their lower ends eyes d, through which extend bolts d', secured to the trough A. The bolts extend through caps or covering strips E, and their upper ends are screw-threaded and provided with tightening-nuts d^2. Caps or covering-strips E, extend from end to end of the troughs, and completely cover the openings between the panes; in fact, overlapping their edges to a considerable extent, so as to provide as far as possible a water-tight closure. I may employ a flat metal strip covered with lead, copper or other like non-corrosive material e, as shown at the left-hand side of Fig. 3, or I may employ a curved sheet metal yielding cap, as indicated at the right-hand side of Fig. 3. In either case, the construction is such that the glass is firmly supported, securely held in place and provided with means for draining off water which may leak in through the joints.

The troughs A, may be supported on the frame of the roof, in any desired way. At the right-hand side of Fig. 3, I have shown brackets F, which are adapted to be secured to the purlins. In order to support the panes at their upper and lower edges, and to convey off water which may leak in through the joints, or accumulate by condensation on the panes, I employ cross troughs B, which are preferably made in short sections, as shown in Fig. 1, and supported in recesses a^2, in the troughs or astragals A, as shown in Fig. 5. Each cross trough is preferably made of sheet metal having a bottom g, and sides g', g^2. The side g^2, is slightly shorter than the side g', so as to leave a small space between its upper edge and the glass, to allow water of condensation to pass into the main gutter or channel x, of the trough. The side g', is prolonged by being bent inwardly and downwardly, then upwardly and formed with a ledge g^3. It is then bent upwardly and laterally to form a support for the adjacent edges of the panes. The upper panes rest on the ledges g^3, the lower ones on the edge g^4, at the top of the side g'. This pane also is arranged under the lateral projection g^5. The construction is such as to form a small gutter g^6, having perforations g^7, through which the water which finds its way

in at the joints passes into the main gutter or channel x, and thence into the inclined troughs A. As before stated, the water of condensation passes from the under sides of the panes above the sides g^2, of the trough at y, into the gutter or channel x.

It will be observed by inspection of Fig. 1, that the cross troughs are arranged to empty into the inclined troughs and that provision is made for draining off all water that may tend to accumulate either on the upper or lower surfaces of the roof.

A roof constructed as shown and described, is strong and durable, may be easily replaced, the panes of glass do not overlap, and the danger of destruction by wind or other causes is reduced to a minimum.

I claim as my invention,—

1. The combination of a series of inclined troughs or astragals, having imperforate bottoms panes of glass supported on the upper edges of the sides of the troughs, caps or strips bearing on the edges of the panes, eye-bolts connected with the strips or caps, and extending downwardly therefrom, and cross bolts d', passing through the eyes in the eye-bolts and attached to the troughs above their lower ends or bottoms, substantially as described.

2. The combination with the inclined troughs or astragals having the caps or covers, of a series of cross troughs resting in recesses in the astragals, each of said cross troughs having a main gutter or channel x, and a supplemental gutter g^6, a supporting ledge g^3 for a pane of glass, and a support for another pane of glass in line with the supporting ledge g^3, and formed integrally with one side of the main trough.

3. The herein described cross trough formed of a single piece of sheet metal having the bottom and sides g g' g^2, a supporting ledge g^3, for a pane of glass arranged between the two sides of the main gutter or channel, and a support for another pane of glass at the top of one of the sides of the main trough and in line with the supporting ledge g^3, and a gutter formed from that part of the sheet of metal which connects the ledge g^3 with the upper end of the side g'.

4. The combination with a series of inclined troughs or astragals, of a series of panes of glass supported thereon, the caps or strips resting on the glass, a series of eye-bolts secured to the caps or strips, a series of cross bolts passing through the eyes in the eye-bolts and secured to the troughs, and a series of cross troughs made in short lengths each adapted to extend from one astragal to the next astragal at its side, and opening into it, each cross trough being formed of sheet metal having a main gutter or channel x, a side g^2, terminating beneath the panes of glass over it to leave the opening y, for the purpose specified, a supporting ledge g^3, arranged between the two sides of the trough, a support on the upper end of the side g', for a pane of glass, and a gutter arranged between this support and the supporting ledge, the organization being such that the panes of glass throughout the structure are all arranged on a level or with butt joints instead of overlapping joints, and with gutters or troughs provided to carry off water which either leaks through from the outside or which accumulates on the inside of the panes on both sides of all joints.

5. The herein described cross trough having the main gutter or channel x, the side piece g', for supporting a pane of glass, the small gutter g^6, emptying into the main gutter, the ledge g^3 for supporting a pane of glass, and the projection g^5, for the purpose specified.

In testimony whereof I have hereunto subscribed my name.

ARTHUR EDGCUMBE RENDLE.

Witnesses:
THOMAS MCILHENNY, Jr.,
J. W. HOLTHAUS.