(No Model.)

W. E. RENDLE, Dec'd.

J. E. RENDLE, F. B. RENDLE, and D. H. WILSON, executors.

CONSTRUCTION OF GLAZED ROOFS.

No. 270,337. Patented Jan. 9, 1883.

Fig. 1.

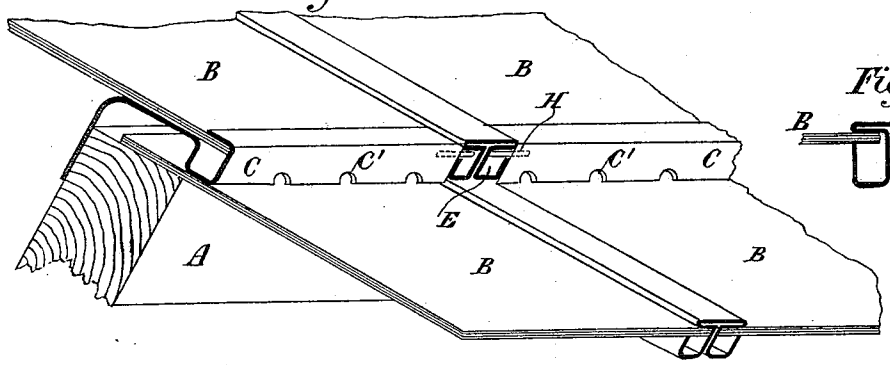


Fig. 5.



Fig. 2.

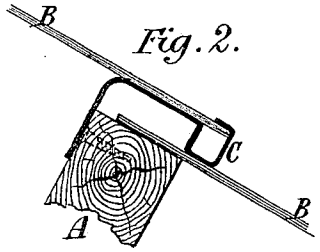


Fig. 3.

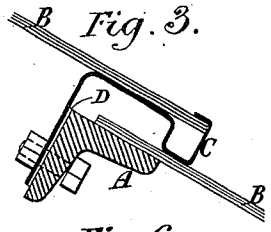


Fig. 4.

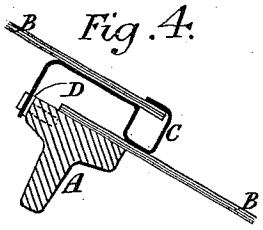


Fig. 6.

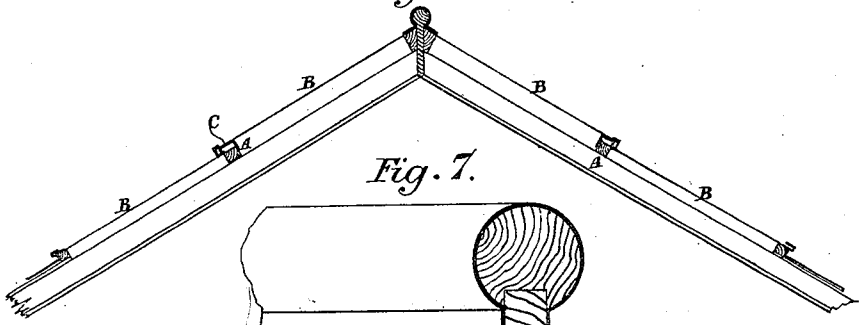


Fig. 7.

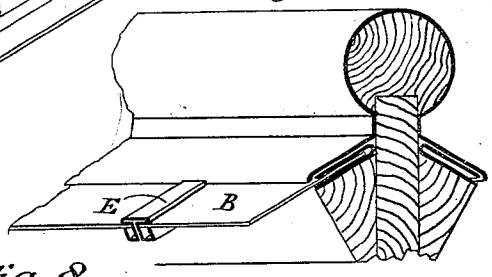


Fig. 8.

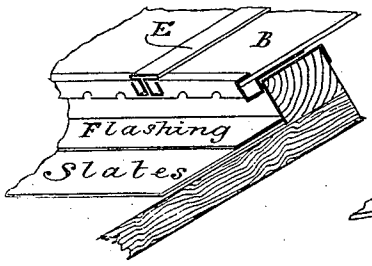


Fig. 9.

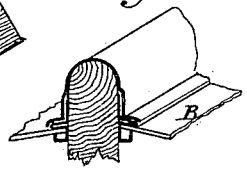
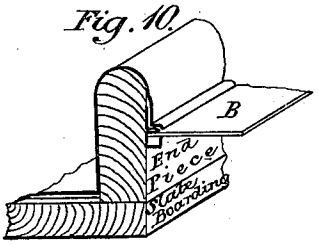


Fig. 10.



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David H. Wilson.
By their Atty's.
Executors of the estate of William E. Rendle.
Baldwin, Hopkins & Peyton.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

JOHN E. RENDLE AND FRANK B. RENDLE, OF WESTMINSTER, ENGLAND, AND DAVID H. WILSON, OF HYÈRES, VAR, FRANCE, EXECUTORS OF WILLIAM E. RENDLE, DECEASED.

CONSTRUCTION OF GLAZED ROOFS.

SPECIFICATION forming part of Letters Patent No. 270,337, dated January 9, 1883.

Application filed June 19, 1882. (No model.) Patented in England July 15, 1880, No. 2,922, and in France July 17, 1880, No. 137,824.

To all whom it may concern:

Be it known that we, JOHN EDGCUMBE RENDLE and FRANK BULLEN RENDLE, subjects of the Queen of Great Britain, residing at No. 3 Westminster Chambers, Victoria Street, in the city of Westminster, England, and DAVID HENRY WILSON, a subject of the Queen of Great Britain, residing at Hyères, Var, in the Republic of France, are the executors of the last will and testament of WILLIAM EDGCUMBE RENDLE, deceased, late a subject of the Queen of Great Britain, who invented certain new and useful Improvements in the Construction of Glazed Roofs and other Glazed Structures, (for which the said WILLIAM EDGCUMBE RENDLE received Letters Patent in Great Britain, No. 2,922, dated July 15, 1880, and in France, No. 137,824, dated July 17, 1880, (of which the following is a specification.

This invention relates to improvements in glazed structures of the class shown in United States Letters Patent No. 224,608, of February 17, 1880; and in accordance with these improvements sheets of glass, instead of being secured to horizontal purlins, as before, (see said Patent No. 224,608,) are attached to such purlins in the following manner: The upper ends of the sheets of glass in a row rest upon the face or suitably-inclined outer surface of one horizontal purlin, while the lower ends of these sheets of glass are received in troughs formed in angularly-bent sheet-metal bars secured to another horizontal purlin by being attached to the upper side thereof—that is to say, to a surface of the purlin at a right angle with its face—upon which the upper ends of the next lower row of sheets of glass rest, and so that the troughs of the bent metal bars will be over or rest upon the upper ends of said lower row of sheets. By forming each of the bars by a single bend into the desired angular shape one portion or surface of the bar forms a side flange or attaching-shank, and the other portion or surface forms a flat face or outer support, against or upon which the back of the lower end of a sheet of glass rests. In addition to this supporting-surface, each of the bars is provided with the trough for the lower end of a sheet of glass by being bent back at right angles and then having three more right-angled bends formed in it, so as to provide, as it were, a partially-open rectangular tube, or partially closed over trough along the bottom of each bar. The bottom of this tube or trough rests upon the surface of top end of the sheets of glass and holds them down, being made flat, and so as to afford a sufficiently-broad surface for proper action.

The sheets of glass at their bottom end are overlapped by the last bend of the sheet metal of which the horizontal sheet-metal bar is formed, and which covers or partially covers the trough which is along the bottom of that bar, as above mentioned. The sheets of glass are thus prevented from slipping down.

Gutter-bars are interposed between the adjacent side edges of the sheets of glass, and are formed as before, except that instead of the gutters being curved at bottom and rounded in form they are now made with flat bottoms and of rectangular form.

The horizontal sheet-metal bars which are attached to the purlins are cut into lengths somewhat shorter than the width of the sheets of glass, so that at their ends they may abut against the sides of the bars, which, as just stated, are placed between the side edges of the sheets of glass, and so make a close joint. The troughs at the bottom edge of the horizontal bars, which are secured to the purlins, have holes formed in them, to allow any water which may flow down into them either from the inner or outer face of the glass to run off onto the top of the pane of glass below them.

The new horizontal metal bar is adapted for any kind of purlin, either of wood or iron, and is secured by means of screws fastened at the upper side portions of the purlin. When the glazing-bar is fixed to iron a piece of india-rubber or felt is interposed between the same to prevent contact of the two metals, and can also be placed on the flat surface of the iron to act as a cushion for the upper edges of the glass.

Having thus described the nature of the invention, we will proceed to describe more fully the manner of performing the same preparatory to a specific designation of the subject-matter claimed.

In the drawings, Figure 1 is a plan view, in perspective, of a portion of a roof glazed in the above manner, and in which wooden purlins are used. Fig. 2 is a vertical section of the same. Figs. 3 and 4 show cross-sections of similar roofs in which the purlins are of iron of different sections. These are only shown as

examples of the forms of purlin that may be used; but it is evident that the purlins might be of other sections or forms.

The roof or other structure is formed with the requisite number of horizontal purlins or supports at a distance from one another somewhat less than the length of the sheets of glass which are to be used. One only of these supports is shown at A.

B are the sheets of glass. The upper ends of the sheets of glass lie upon the top of the purlins A, and are held down onto them by the bars C, each formed of bent sheet metal, with a trough along one edge and an attaching-shank or downward bend at the other. These bars are secured at their shanks or right-angular flanges by screws or other fastenings to the upper sides of the purlins, as shown. When the purlin is of iron and the bar C of other metal a piece of india-rubber or felt, D, may be interposed between them and prevent contact of the two metals. A similar strip of soft metal might also be placed between the flat surface of the purlin and the glass resting upon it, so as to form a cushion for the glass to lie upon. The bars C, in addition to holding down the upper end of one sheet of glass onto the purlin, are also, as above stated, formed to support and hold the lower ends of the sheet of glass next above it. The way in which the sheet metal of which the bar is formed has right-angled bends made in it to effect this object is clearly shown by the drawings.

The partially-closed-over trough formed, as shown, along the bottom of the bar has holes C′ formed at intervals through it, so that any water which may run down into the trough, either from the inner or outer face of the glass, may run off onto the top of the sheet of glass below it.

E are the bars of bent sheet metal interposed between the abutting side edges of the sheets of glass. An end view of one of these bars is shown at Fig. 5. Each bar E is, as above-stated, formed with a flat surface to cover over the space between the side edges of two adjoining sheets of glass, and also to lap over these sheets of glass to any extent required. It is also formed with a stem to descend between the sheets of glass, and also with two troughs—one on either side of the stem—and these troughs, in place of being of a rounded form, are made with flat sides and rectangular, so that the ends of the bars C may abut and fit against them.

The bars E at their upper ends may have the troughs cut away, so that the bars may be of the same length as the sheets of glass, and yet not render it necessary that the purlins should be cut away or recessed for the troughs of these bars to lie in. The bars C are in lengths somewhat shorter than the width of the sheets of glass used, just sufficient to allow of their ends abutting against the bars E, as shown at Fig. 1.

A pin, H, may be passed through the stem of the bar E, near its lower end, and the ends of the pin be made to extend into the troughs of the bars C, to prevent the bars E from slipping downward.

Fig. 6 shows a cross-section of a small skylight glazed as above described. Figs. 7 and 8 show how the top and bottom of the skylight roof may be formed. The top and bottom of other ridge-roofs similarly glazed may be formed in the same manner. Figs. 9 and 10 show the way in which the vertical bars E may be formed for finishing hips and ends of a roof, respectively.

It should be noticed that, unlike means heretofore employed for supporting the upper and lower ends, respectively, of the sheets of glass in two adjacent rows, so that the attaching portion of the support lies between the glass and the purlin and has its fastenings covered by the glass, the supporting-bar C, as herein shown, is secured by fastenings which are not covered, and so may be readily gotten at with the glass in place, and the upper ends of a row of sheets of glass rest upon the purlins instead of upon the securing-bars.

Having thus described the nature of the invention and the manner of performing the same, we would have it understood that we claim—

1. The horizontal bar C, constructed with the right-angular flange or attaching shank and the trough, substantially as and for the purpose described.

2. The combination of the horizontal purlins, the horizontal bars provided with the right angular flanges or attaching-shanks secured to the upper sides of the purlins and with the troughs, and the rows of sheets of glass resting at their upper ends upon the purlins beneath the troughs of the horizontal bars and at their lower ends held by said troughs, substantially as hereinbefore set forth.

3. The combination of the purlins, the angular bars C, having the side flanges or attaching-shanks and the glass-supporting surfaces at right angles therewith, the rows of sheets of glass, and the gutter-bars, substantially as and for the purpose hereinbefore set forth.

4. The combination of the horizontal bars C, the gutter-bar E, and the pin H, for connecting the horizontal bars and the gutter-bar, substantially as hereinbefore set forth.

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