C. M. CARLL.

SKYLIGHT STRUCTURE.

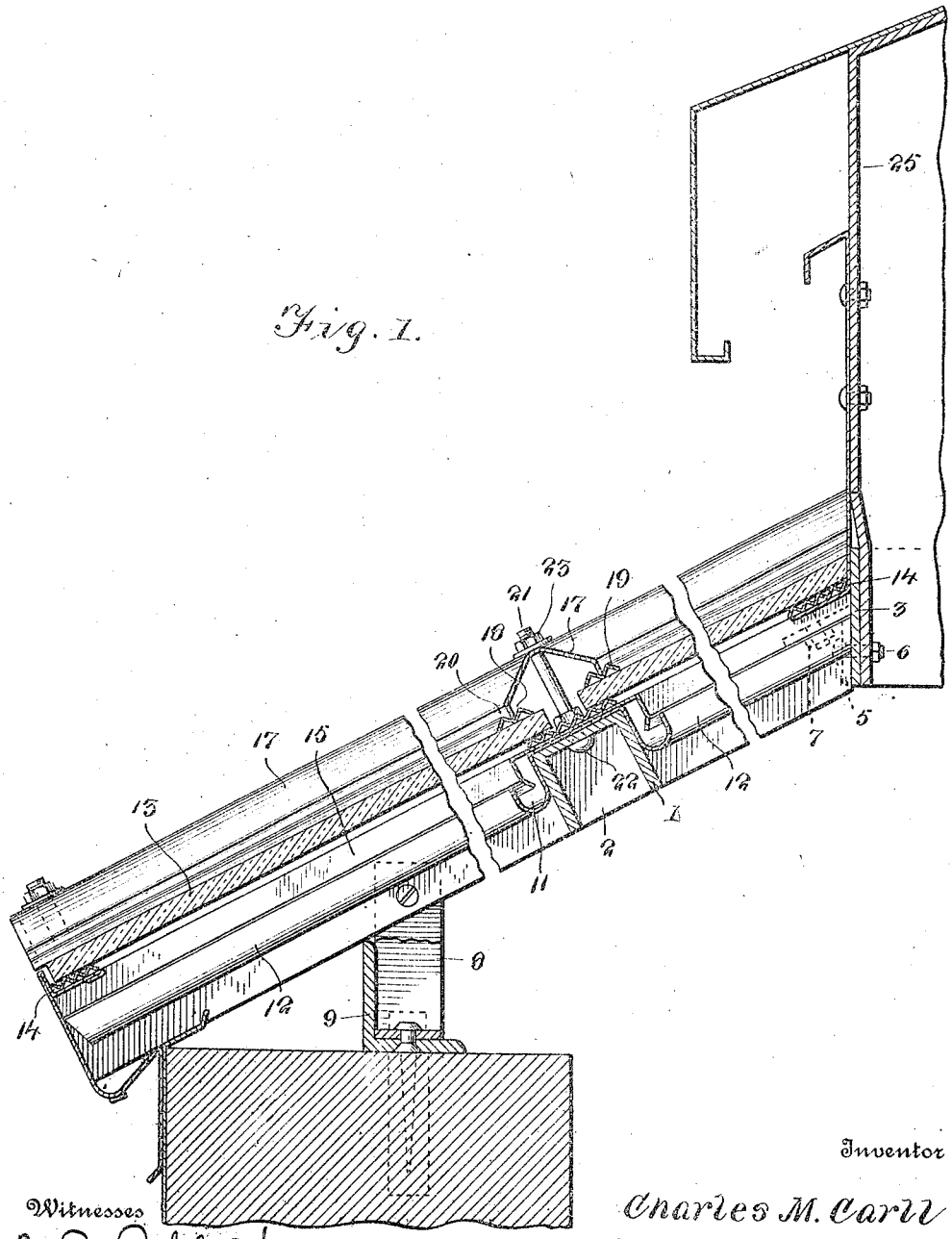
APPLICATION FILED AUG. 7, 1915.

1,209,554.

Patented Dec. 19, 1916.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses

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3 SHEETS—SHEET 2.

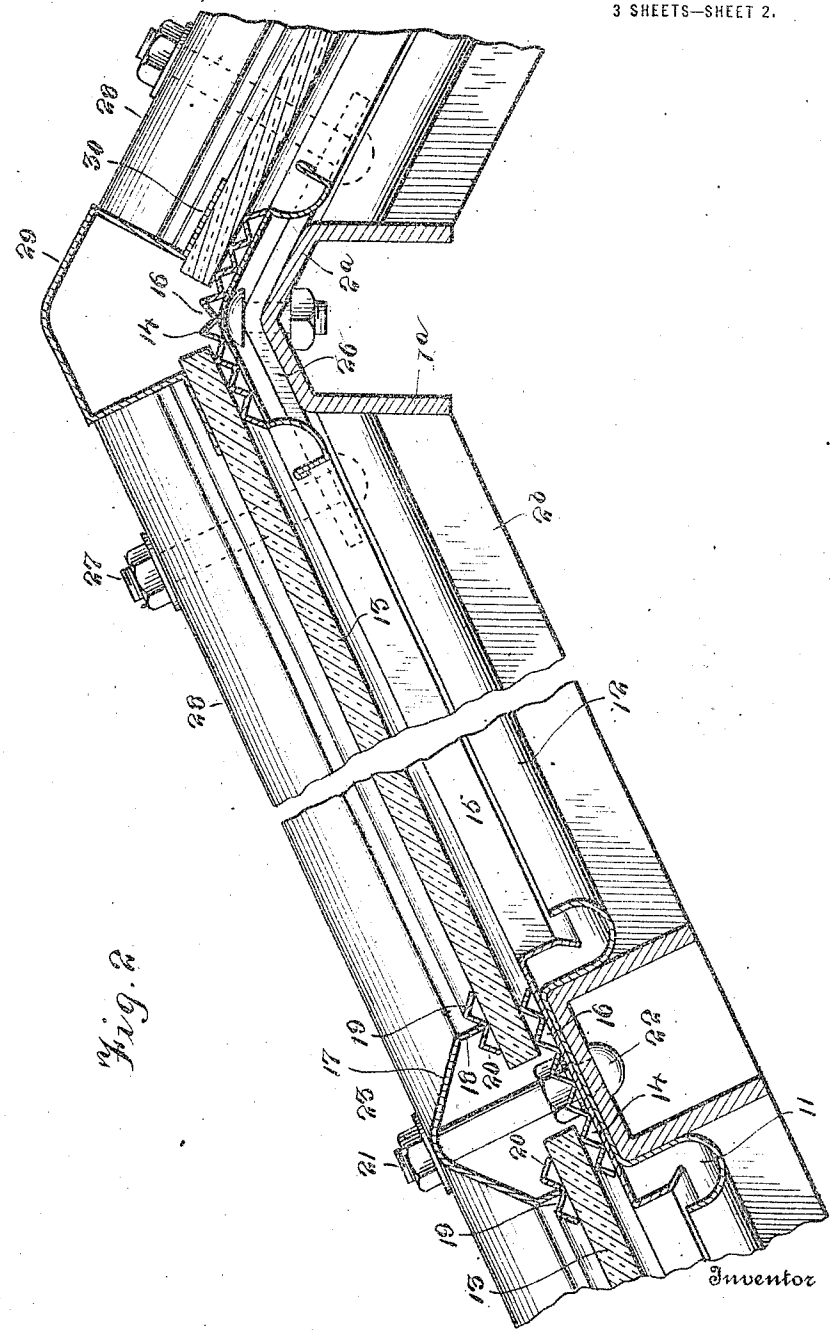


Fig. 2.

Witnesses

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3 SHEETS—SHEET 3.

Fig. 3.

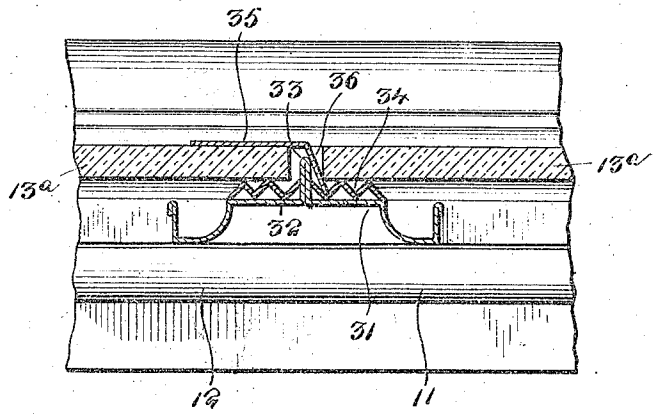
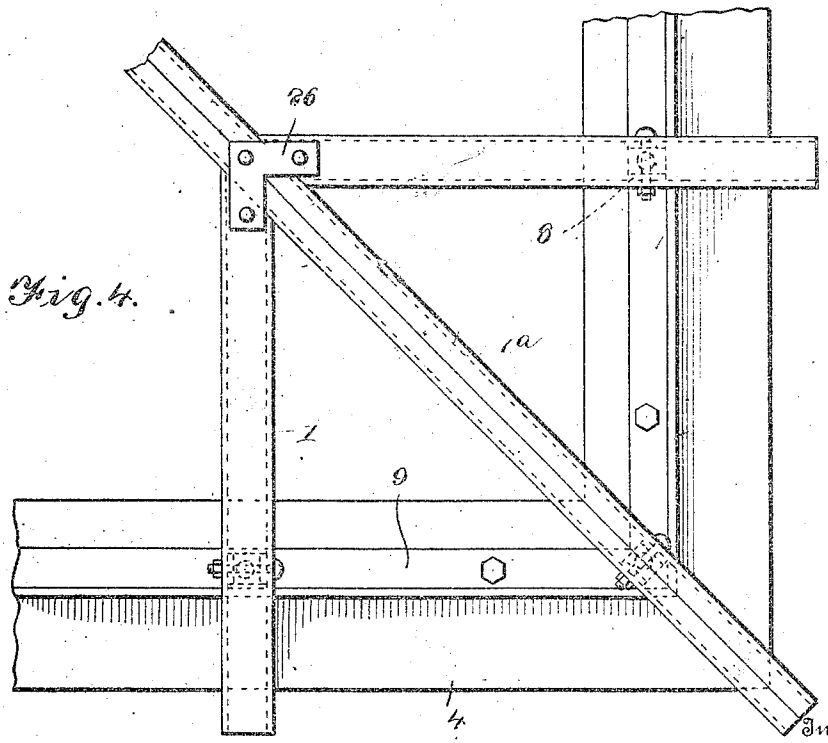


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

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SKYLIGHT STRUCTURE.

1,209,554. Specification of Letters Patent. Patented Dec. 19, 1916.

Application filed August 7, 1915. Serial No. 44,253.

To all whom it may concern:

Be it known that I, CHARLES M. CARLL, a citizen of the United States, residing at Trenton, in the county of Mercer and State of New Jersey, have invented new and useful Improvements in Skylight Structures, of which the following is a specification.

This invention is an improved structure, such as a sky-light, glass roof or the like, one object of the invention being to effect improvements in the construction of the sash, ridge or rafter bars whereby access is afforded to all parts thereof from the inside and said bars are enabled to be painted without the necessity of removing any of the sky-light glasses.

Another object of the invention is to provide a cushion sheet which is arranged between the bars and the sky-light or roof glasses and which serves to form air chambers that prevent injury to the joints of the structure by condensation of vapors.

Another object of the invention is to effect improvements in the construction of the bars and in the means for securing them to the supports of the structure.

Another object is to effect improvements in the construction of the sheet metal caps which are arranged over the bars and over the contiguous edges of the glass plates.

The invention consists in the construction, combination and arrangement of devices hereinafter described and claimed.

In the accompanying drawings: Figure 1 is a vertical sectional view of a portion of a sky-light constructed in accordance with my invention. Fig. 2 is a similar view, showing a modification. Fig. 3 is a detail sectional view, showing a construction in which a cross bar and a gutter are used for more than one glass light. Fig. 4 is a detail plan of a corner of a sky-light constructed according to my invention.

In the embodiment of my invention I provide channel bars which may be used either at the ridges, hips or as rafters of a structure such as a sky-light or a glass roof. Each bar 1 has a longitudinal channel 2 on its under side. Preferably the bars are made of open hearth, ingot, or tungsten steel but may be made of any suitable material. In Fig. 1 I show the invention as embodied in a sky-light structure and in which the bars are inclined with their inner ends bearing against a collar 3 and their outer portions bearing on a curb 4. To secure the bars in place I provide angle brackets 5 which are arranged on the inner sides of the bars, at their inner ends and are secured to the collar by means of bolts 6 and to the upper sides of the bars by means of rivet bolts 7, the heads of which are countersunk in the upper sides of the bars. These brackets 5 are arranged entirely within the bars and are inconspicuous and may be readily painted together with the inside of the bars and all the exposed portions of the bars without the necessity of removing any of the glass plates.

Where the bars rest on the curb they are secured thereto by means of U-shaped brackets 8 which are arranged in the channel of said bars and are secured thereto and are also riveted to an L-bar 9 as shown. These brackets 8 are of less height than the bars so that their upper sides are spaced from the upper sides of the bars some little distance. The flashing plates 10 are arranged on the curb and under the outer portions of the bars as shown. The condensation gutters 11 which are made of copper or other suitable sheet metal have their central portions arranged on the bars 1 and their gutter portions 12 arranged on opposite sides thereof. The glass plates 13 are supported directly on cushioning sheets 14 which are preferably made of sheet lead and are longitudinally corrugated as at 16. These cushioning sheets bear on the webs of the upper deflecting gutters 15 and the sides of the glass plates bear on the cushioning sheets as shown. The caps 17 are made of copper or other suitable sheet metal, are hollow, on their inner sides and cover the spaces between the contiguous edges of the glass sheets and have their lower side flanges 18 arranged in longitudinal corrugations 19 of the cushioning sheets 20 which are placed on the glass plates and extend around the same near their side edges. These caps are secured by means of bolts 21 which pass through the upper sides of the bars, the condensation gutters, the deflectors, cushioning sheets and also through the centers of the caps. The head 22 of each bolt bears against the upper side of the bar in connection with which it is used and each bolt is provided with a nut 23 which bears against the upper side of the cap. The condensation gutters, the deflector gutter and the lower cushioning sheets are also secured at suitable points to the bars by means of said bolts 21.

In Fig. 1 the sky-light braces are shown at 25 with their lower ends secured to the collar 3 by means of the bolts 6.

In Fig. 2 I show my invention as applied to a hipped sky-light and in which the ridge bar 1^a has its upper portion bent at an angle as at 2^a to correspond with the pitch of the sides of the skylight. The bars 2^b which run to the ridge bar are connected thereto by a plate 26 which is bent over the angular upper side of the ridge bar and has its ends secured on the said bars 2^b by bolts 27; said bolts 27 also secure the caps 28 in place. A ridged cap 29 is placed between the ends of the caps 28 and has base flanges 30 which rest on the glass and under the cushioning sheets 19.

In Fig. 3 of the drawings in which a cross bar and gutter are used for more than one glass length I show the spaced opposed ends of glass plates 13^a arranged over a gutter 31 the web 32 of which has a doubled upstanding strengthening flange 33. Corrugated lead cushioning sheets 34 are arranged between the said web and the undersides of the glass plates, and a flashing plate 35 lies on one of the glass plates and has a downwardly bent portion 36 which extends down to the cushioning sheet and bears between the flange 33 and the end of the other glass sheet.

By means of my improved construction all the exposed portions of the bars and other parts of the structure may be readily painted from the inside without the necessity of removing any of the glass plates.

Having thus described my invention, I claim:—

1. In a structure of the class described the combination of a bar, a sheet metal plate thereon having condensation gutters arranged on opposite sides of the bar, a second sheet metal plate on the first named sheet metal plate and having downwardly extending deflectors at its sides arranged above the condensation gutters, a cushioning sheet on the uppermost sheet metal plate, glass panes bearing on the cushioning sheet, corrugated cushioning sheets on said glass panes, a cap plate having depending side walls bearing in the corrugations of the last named cushioning sheets and a common securing bolt connecting said bar, metal sheets, the first named cushioning sheets and cap plate together and also clamping the cap plate firmly on the last named cushioning sheets.

2. In a structure of the class described the combination of a bar, a sheet metal plate thereon having condensation gutters arranged on opposite sides of the bar, a second sheet metal plate on the first named sheet metal plate and having downwardly extending deflectors at its sides arranged above the condensation gutters, a cushioning sheet on the uppermost sheet metal plate, glass panes bearing on the cushioning sheet, corrugated cushioning sheets on said glass panes, a cap plate having depending side walls bearing in the corrugations of the last named cushioning sheets and a common securing bolt connecting said bar, metal sheets, the first named cushioning sheets and cap plate together and also clamping the cap plate firmly on the last named cushioning sheets, a nut bearing on the cap plate and also having a nut bearing on the first named cushioning sheet and hence enabling the cap plate, last named cushioning plates and glass plates to be loosened or removed independently of the first named cushioning sheets and sheet metal plates.

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

CHARLES M. CARLL.

Witnesses:
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MAY J. COLEMAN.