

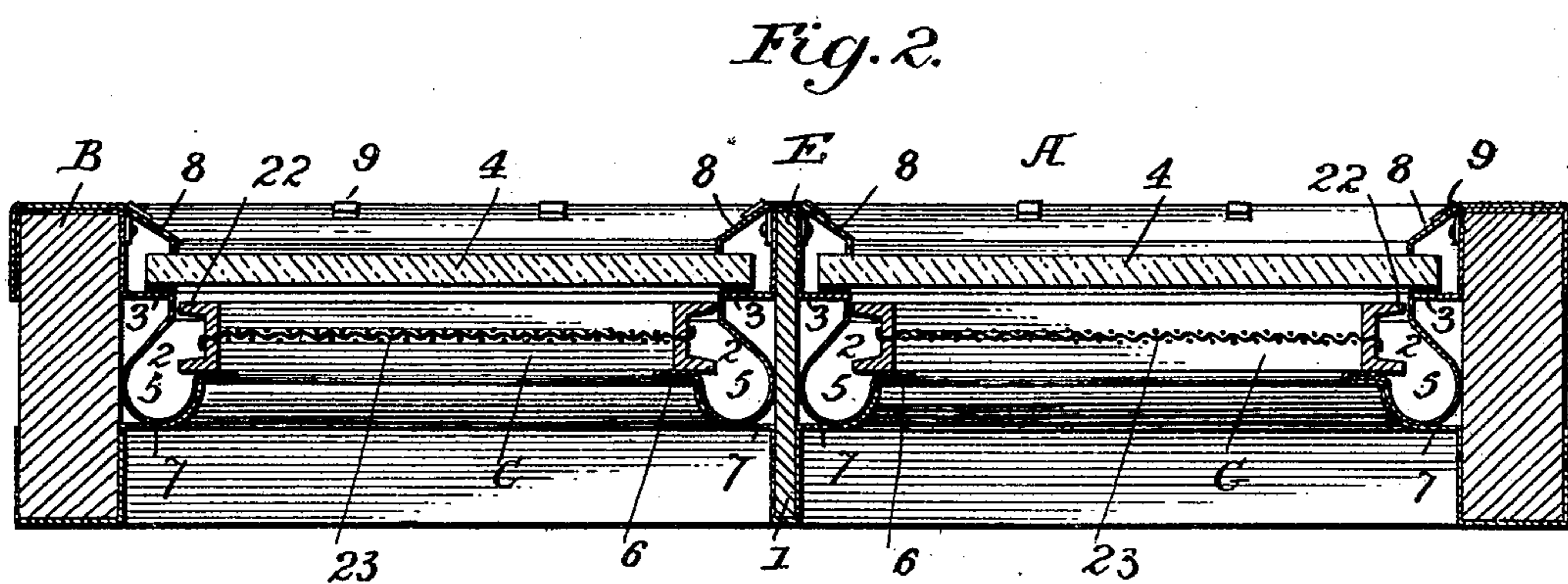
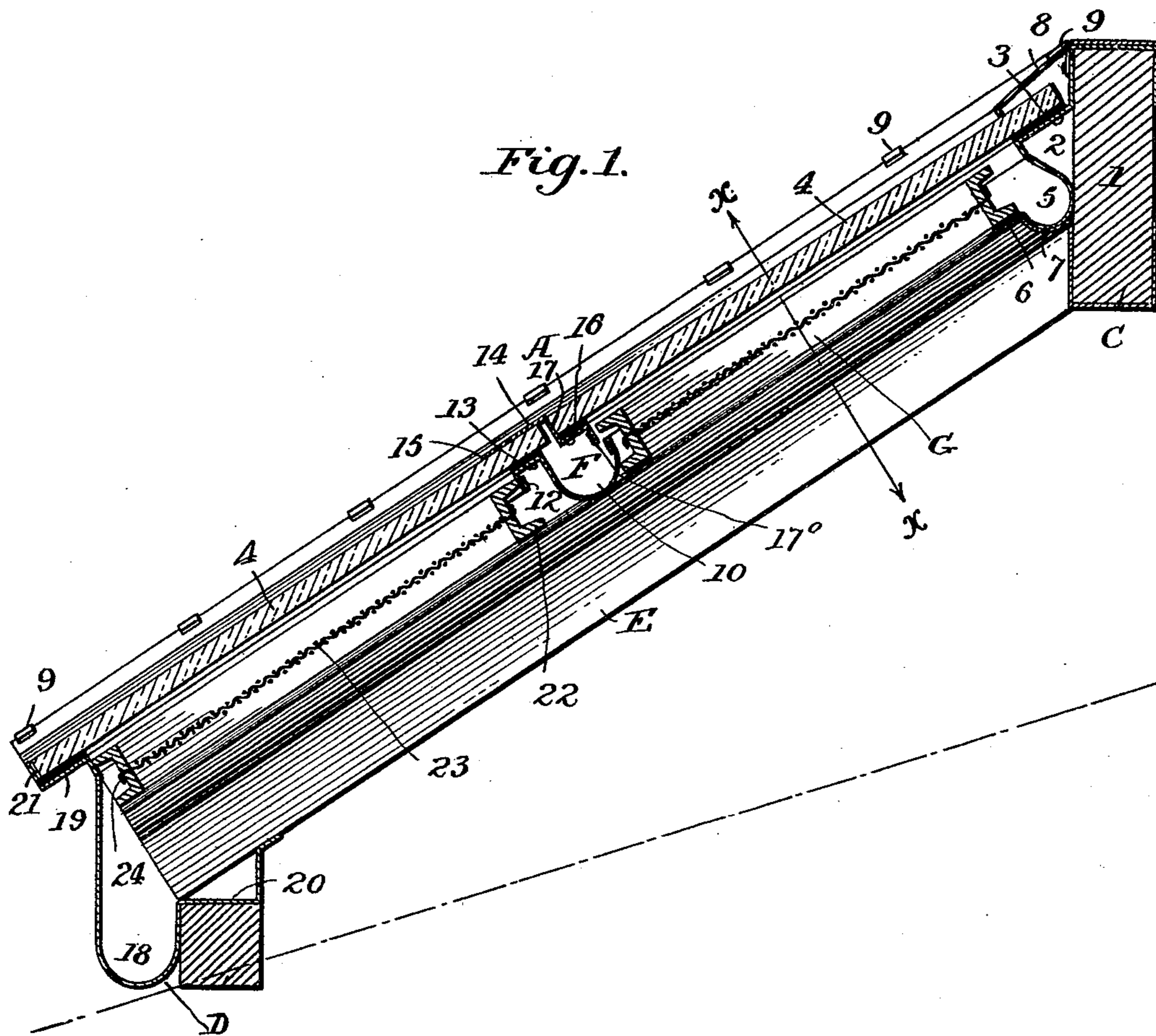
(No Model.)

2 Sheets—Sheet 1.

E. J. HULSE.  
SKYLIGHT.

No. 583,477.

Patented June 1, 1897.



Witnesses

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(No Model.)

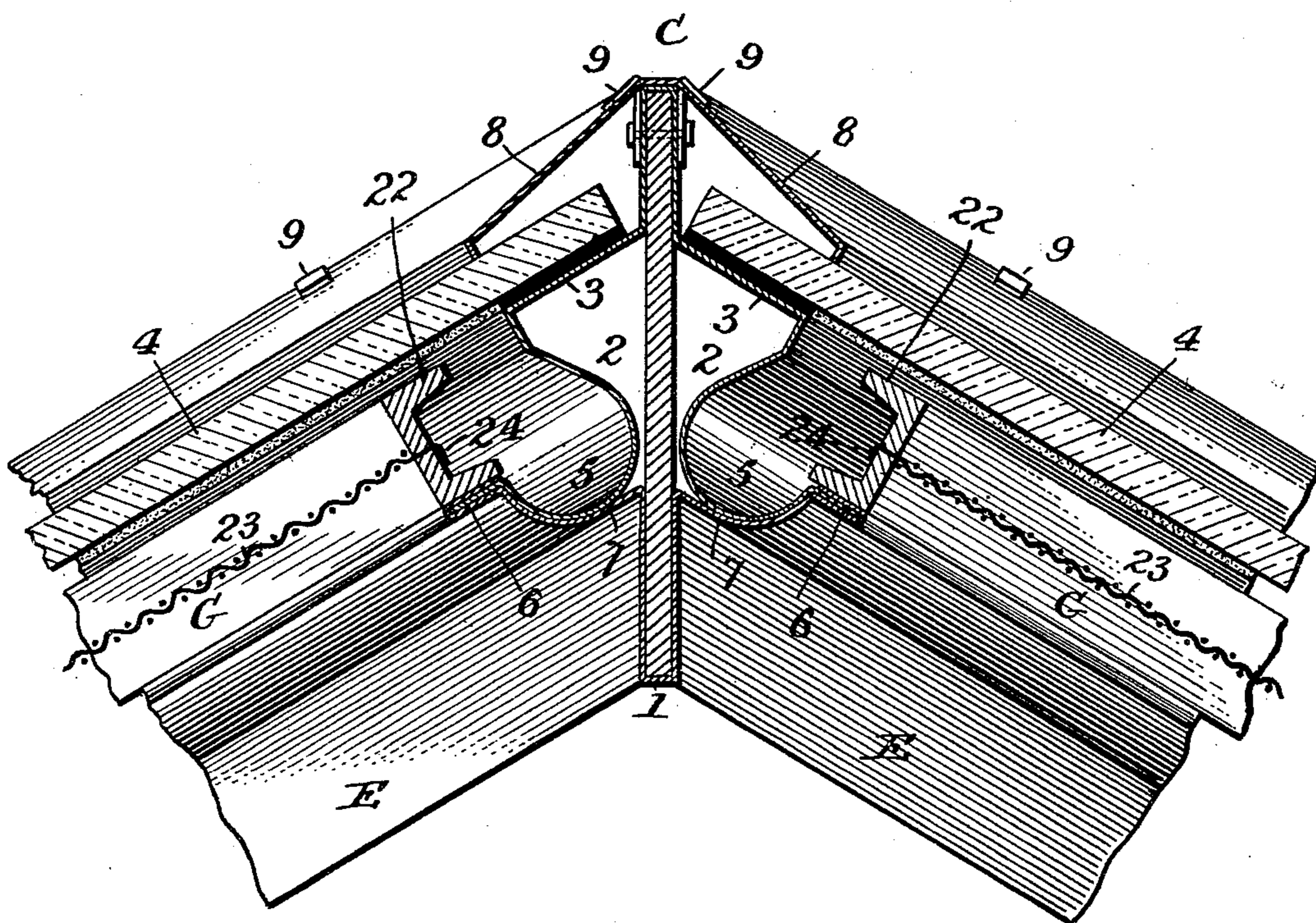
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E. J. HULSE.  
SKYLIGHT.

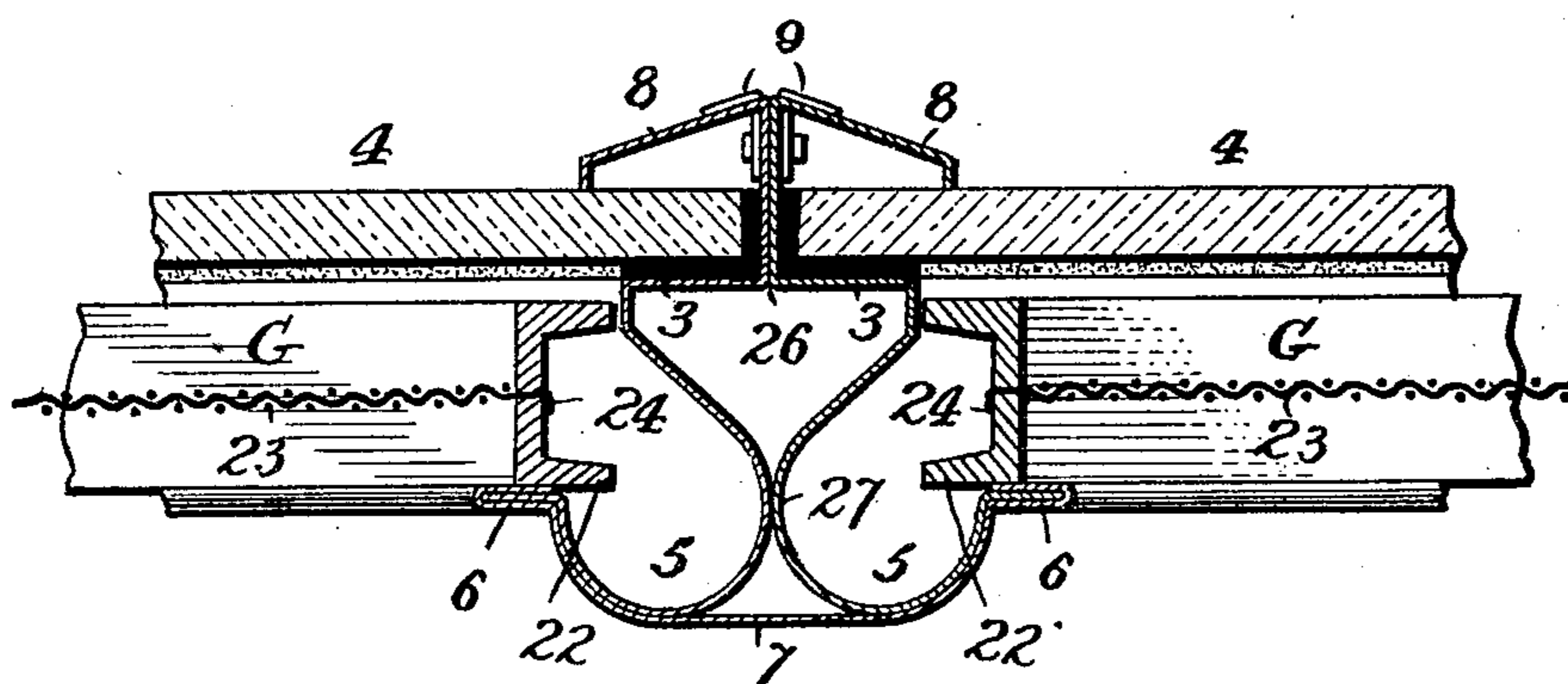
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*Fig. 3.*



*Fig.4.*



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# UNITED STATES PATENT OFFICE.

EDGAR J. HULSE, OF WASHINGTON, DISTRICT OF COLUMBIA.

## SKYLIGHT.

SPECIFICATION forming part of Letters Patent No. 583,477, dated June 1, 1897.

Application filed August 26, 1896. Serial No. 604,002. (No model.)

*To all whom it may concern:*

Be it known that I, EDGAR J. HULSE, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Skylights, of which the following is a specification.

This invention relates to certain new and useful improvements in glass-covered roofs or skylights; and it has for its objects to provide a roof or skylight which shall be simple and rigid and efficient in preventing leakage and in the collection of water of condensation from the glasses; and it is a further object of the invention to provide means whereby to prevent the fall of glass should the skylight become broken.

With these objects in view the invention consists in the novel construction, combination, and arrangement of parts hereinafter more fully described.

In the accompanying drawings, forming a part of this specification and in which like letters and numerals of reference indicate corresponding parts, Figure 1 is a longitudinal sectional view of one form of skylight embodying the invention. Fig. 2 is a transverse sectional view on the line *x x*, Fig. 1. Fig. 3 is a detail sectional view illustrating another form of skylight embodying the invention, and Fig. 4 is a detail sectional view of a modification of one of the frame-bars.

Briefly stated, my invention consists in constructing the frame-bars of the skylight to support the glasses in such manner as to render it impossible for water to beat in between the glasses from the outside and in providing the frame-bars with gutters or channels for conveying such moisture as may collect upon the inner faces of the glasses to a suitable delivery-point.

The invention also consists in arranging coarse-meshed wire screens in a plane beneath the glasses of the skylight, which screens serve to retain the pieces of glass in the event of the skylight being broken, thereby preventing the injury which might result from the falling of such glass.

Referring more particularly to Figs. 1 and 2 of the drawings, A designates the frame of

the skylight, which may be supported at an incline in any desirable manner. The frame consists of side bars B, top bar C, bottom bar D, of one or more longitudinal bars E, arranged intermediate the side bars, and of one or more transverse bars F, extending from one of the side bars to the other at a point intermediate the top and bottom bars. These bars are connected in any suitable manner and are formed of suitable sheet metal, preferably of galvanized iron.

The longitudinal bars, only one of which is employed in the construction shown, consist of a longitudinal strengthening center or core piece 1, of wood or metal, which extends between and above the adjacent panes of glass. A strip or plate 2 of sheet metal is folded centrally of its width to conform to the top of strengthening-piece 1, and at a point below the top of the piece 1 the strip is turned outwardly upon opposite sides of the center piece 1 to extend at an angle thereto and form flat bearings 3, which serve to support the edges of the glasses 4. From these bearings the strip 2 is turned inwardly and downwardly and thence curved upwardly to form longitudinal channels or gutters 5, and at its extreme edges the strip is bent to form flat supports 6 for one side of screen-frames G. Additional rigidity is given the supports 6 by means of a bracing-strip 7, which extends around the bottom of the center piece 1 and has its edges bent around the edges of the strip 2, the said bracing-strip for a portion of its width conforming to the contour of and bearing upon the gutters 5.

As above described, the glasses are supported upon the bearings 3, and they are held in position preferably by means of longitudinal caps 8, having oppositely-inclined flanged sides that bear upon the upper surface of the glasses and extend over the top of the bar E, the caps being held in position by means of the ordinary bent strips 9, secured to the sides of the bar E and extending through openings in the cap-piece.

The top and side bars of the skylight-frame are constructed in the same manner as the longitudinal bars above described, except that they are formed with only one side in-

stead of two, as they support the glasses of the skylight upon only one side. These bars being counterparts of one side of the bars D, the parts are designated by the same reference-letters.

The transverse bars F are connected to the side and longitudinal bars and are formed of a single strip of metal formed at one edge into a gutter or channel 10, having a beaded edge, and terminating at its opposite edge in a beaded flange 12, depending from a flat bearing 13, which serves as a support for the glasses. At their meeting edges the glasses are connected by an angular metallic strip 14, provided with flat flanges 15 and 16, which lie flat upon the outer and inner faces of adjacent glasses, respectively, the said flanges being connected by an intermediate shoulder 17, which extends between the edges of the glasses, and the flange 16, being provided at its edge with a downwardly-turned drip-piece 17<sup>a</sup>, which overhangs the gutter 10 and serves to direct the water from the glasses to the gutter.

The bottom bar D is of sheet metal and is formed intermediate its width into a gutter 18 and near its opposite edges with flat bearings 19 20, the former of which is provided with a flange 21 and adapted to support one edge of the glasses, while the latter is adapted to bear upon the support for the skylight.

The gutters of the various frame-bars communicate with each other and serve to collect the water of condensation from the inner face of the glasses and conduct it to the gutter of the bottom bar, from whence it is emptied upon the roof or is led to any desirable point.

The screen-frames G may be of metal or wood and fit closely the spaces between the bars of the frame A. Preferably the frames are provided at their outer edges with flanges or projections 22, which rest upon the bearings 6 of the frame-bars and serve to support the screen-frames in position. The screens 23 of these frames are of sufficiently coarse mesh as not to materially intercept the light flowing through the skylight, but the mesh is sufficiently fine to retain the larger and heavy pieces of a broken glass.

The sides of the screen-frame are perforated, preferably centrally at intervals, and the screens are stretched and secured in position by passing extended strands 24 thereof through the perforations from the inner face of the screen-frames and bending the ends of such strands to lie flat upon the opposite sides of the frames. It will be understood, of course, that instead of providing detachable frames for the screens, as shown, the screens may be secured directly upon the bars of the skylight-frame in any suitable manner, as, for instance, by soldering.

In Figs. 1 and 2 the skylight has but one inclined side, but it will readily be observed that it may be formed with any number of

sides, and in Fig. 3 I have illustrated one having two oppositely-inclined sides. This form differs in construction from that shown in Figs. 1 and 2 only in that a double-faced bar is substituted for the single-faced top bar employed in the construction shown in said figures, and the angle of the bearings 3 and 6 of such bar are changed to suit the inclination of the glasses and screen-frames, respectively.

In constructing skylights of small size and with few glasses a heavy strong frame is not required, and the center or core pieces of the bars shown in Figs. 1 to 3 may be omitted, in which case the plate 2 is bent upon itself at its top, as shown at 26 in the modified form, Fig. 4, and the sides of the gutters 5 are brought together at 27. With these exceptions the construction illustrated in this figure is identical with that shown in the preceding figures.

Without limiting myself to the exact construction shown and described, what I claim is—

1. In a skylight, the combination with a frame for supporting the glasses, the bars of said frame being provided in a plane below that of the glasses with a projecting channel or gutter, and with a support, of a screen-frame engaging the said support and being out of contact with the faces of the glasses, substantially as described.

2. In a skylight, the combination with the frame for supporting the glasses comprising metallic bars each formed with bearings in different planes and an intermediate channel or gutter, of a screen-frame and screen supported on the lower bearings of the frame-bars beneath and out of contact with the glasses, the edges of said frame being out of contact with the frame-bars, substantially as described.

3. A frame-bar for skylights consisting of a metallic strip bent centrally of its width and each of its sides turned to form flat bearings in different planes and an intermediate channel or gutter, substantially as described.

4. A frame-bar for skylights comprising a metallic strip bent centrally of its width and each of its sides turned to form flat bearings in different planes, and an intermediate gutter, and a bracing-strip connecting the side edges of the first-mentioned strip, substantially as described.

5. A frame-bar for skylights comprising a metallic strip bent centrally of its width and having each of its sides turned to form bearings in different planes and an intermediate gutter, and a bracing-strip conforming in part to the contour of the gutter and having its edges bent around the edges of the metallic strip, substantially as described.

6. A frame-bar for skylights comprising a center piece a metallic strip bent centrally of its width around the upper end of the cen-

ter piece and turned upon opposite sides thereof to form bearings in different planes, and an intermediate gutter, and a bracing-strip bent around the lower end of the center piece  
5 and having its edges bent around the edges of the metallic strip, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDGAR J. HULSE.

Witnesses:

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A. E. T. HANSMANN.