G. HAYES.

Skylights.

No. 143,149. Patented September 23, 1873.

Fig: 2

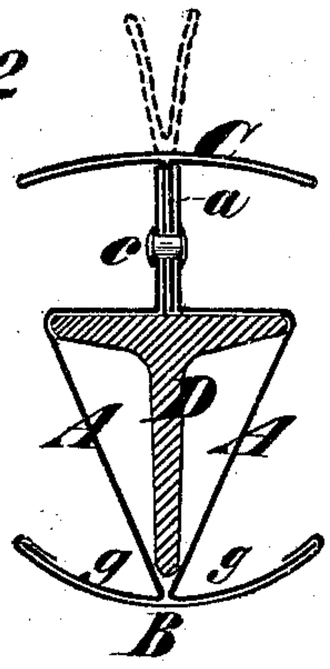


Fig: 1

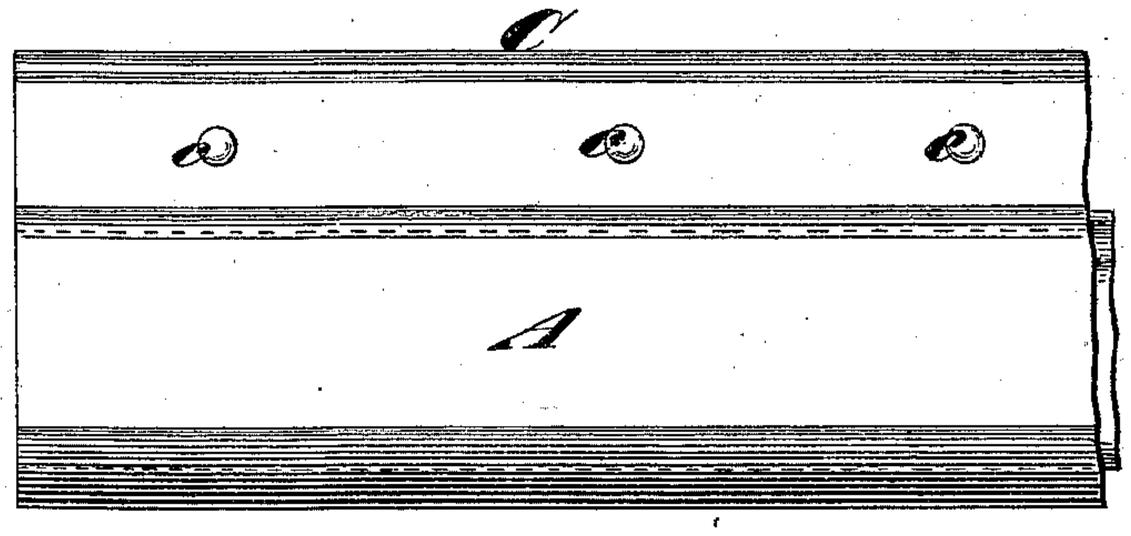
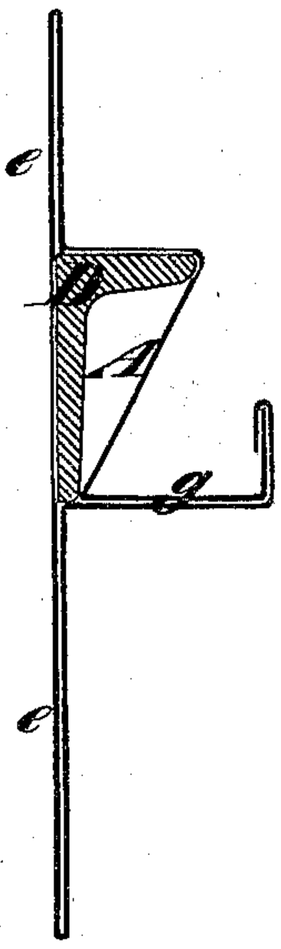


Fig: 3



Witnesses:
Michael Ryan.
Fred Haynes

George Hayes
by his Attorneys
Brown & Allen

UNITED STATES PATENT OFFICE.

GEORGE HAYES, OF NEW YORK, N. Y.

IMPROVEMENT IN SKYLIGHTS.

Specification forming part of Letters Patent No. **143,149**, dated September 23, 1873; application filed July 14, 1873.

CASE D.

To all whom it may concern:

Be it known that I, GEORGE HAYES, of the city, county, and State of New York, have invented Improvements in Skylights, Conservatories, and other glazed structures, of which the following is a specification:

The invention, though applicable to other glazed structures, is more specially adapted to conservatories built mainly of glass and metal.

I have the same object in view in this invention as I had in former patents granted me, numbered, respectively, 100,143, 106,157, and 112,594; the object being to afford provision for expansion and contraction, so that the parts of the structure will not be unduly strained or broken, and also to facilitate the expeditious erection of such buildings and afford to them lightness and strength, while lessening their cost.

One part of the invention consists in a novel construction of the roof-bars, wherein angle pieces are employed to afford additional stiffness and strength without increasing the size of the bar so as to obstruct the light unnecessarily. Another part of the invention consists in a cap-plate of novel construction, for securing the panes of glass down on the bars.

In the accompanying drawing, Figure 1 is a side view of a bar made according to this invention. Fig. 2 is a transverse section of the same, and Fig. 3 is a like section of a bar having a slightly different-shaped angle piece.

Similar letters of reference indicate corresponding parts in all the figures.

A is a hollow triangular bar, which is composed of two pieces of sheet metal, bent each to form one of the sides and half of the top of the bar. The bottom edges of these two pieces are bent outward and curved slightly upward to constitute side gutters *g g*, and a piece of metal, B, is bent over their outer sides to conform to their curved contour, and has its edges bent over their edges for the joint purpose of securing itself in place, and thereby uniting the two parts of the bar securely together. The upper edges of these two component parts of the hollow bar A are bent upward in juxtaposition to each other, and receive between them the downward bent edges of the cap-plate C, which secures the panes of glass down on the bar. This cap-plate consists simply of a piece of sheet metal, bent at the middle for a certain width into convex form, and then bent from the outer confines of this portion toward the middle, whence its edges are bent contiguously in a downward direction, to form a tongue, *a*, which is received between the adjacent bent edges of the bar A. The cap-plate is secured to the bar by means of rivets *c* passing through its tongue and the bent-up edges of the bar. It is made of lead or other soft metal, so that it may be readily bent to adapt it to varying thicknesses in the glass or for other purposes.

The aforesaid convex portions of the cap-plate constitute two wing-like parts, which, before the glass is in place, will be bent up, as shown in dotted lines, Fig. 2.

To impart to the hollow bar thus formed stiffness and strength, I arrange within it a double-angle bar-iron or T-bar, D, having a straight web and laterally-extending arms or ribs at the top. The top or rather the arms of this iron are just wide enough to fit snugly within the bar. The bar is thus rendered very strong, and a very efficient means of securing the glass panes in place is obtained.

For the terminal bar of a building, or for one bounding an opening for a scuttle or the like, the construction of the bar will be slightly modified, but the same characteristics will be preserved; then a single-angle piece will be used—*i. e.*, one having but one arm or rib. The bar A in this case will be made of a single piece of sheet metal, which will be bent, as shown in Fig. 3, to form a straight extended portion, *e*, and from the ends of this it is bent over double till it intercepts the angle-iron, when the top edge is bent outward along the top of the bar, and thence downward to the bottom of its web. From this point the two parts are bent out laterally together for some distance, and then

upward to form a gutter, *g*. The edge of the lower part is then folded over the other, and the structure of the bar is completed.

What I claim as my invention is—

1. The combination, with the hollow triangular bar A, formed as described, of the single or double ribbed angle piece D, essentially as and for the purpose herein set forth.

2. The combination, with the hollow bar A, of the cap-plate C, substantially as and for the purpose specified.

GEORGE HAYES.

Witnesses:
MICHAEL RYAN,
FRED. HAYNES.

1.000 Powder