(No Model.)

# G. HAYES.

## SKYLIGHT.

No. 295,167. Patented Mar. 18, 1884.

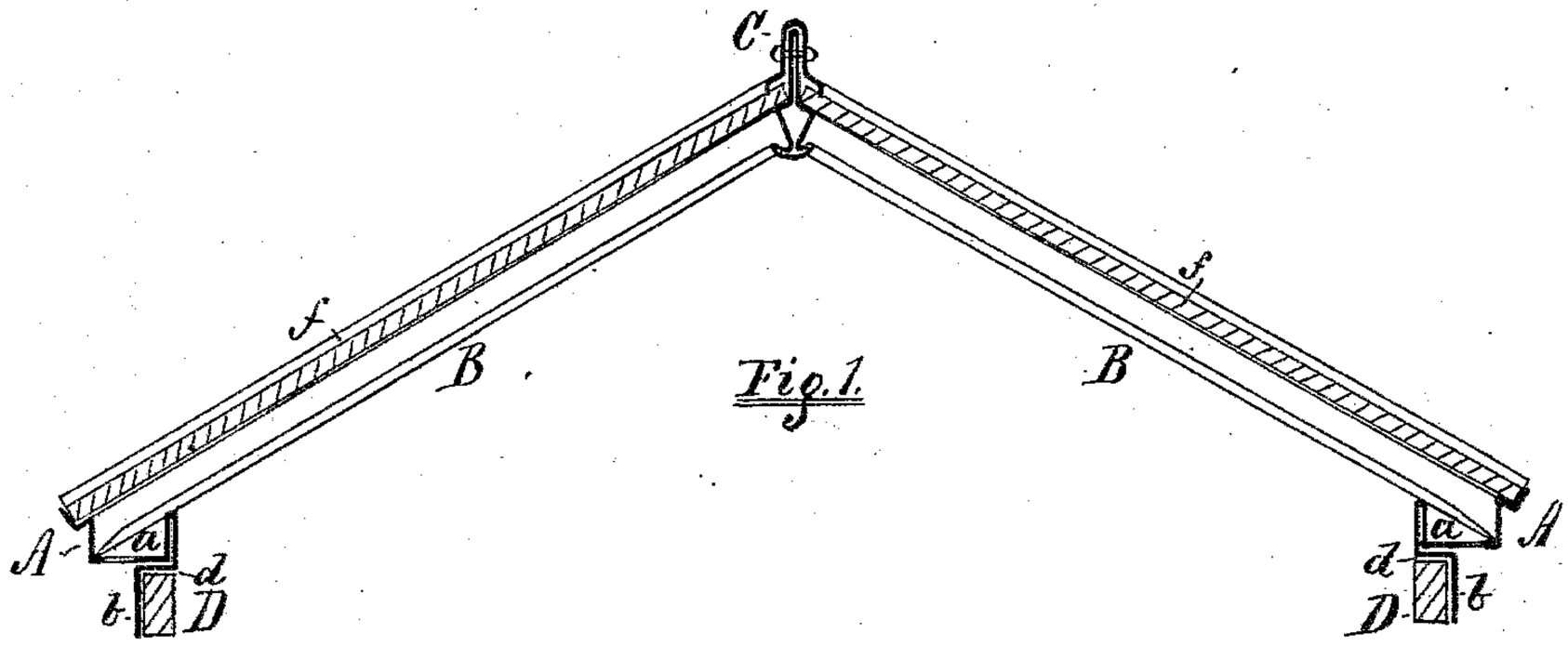


Fig. 1.

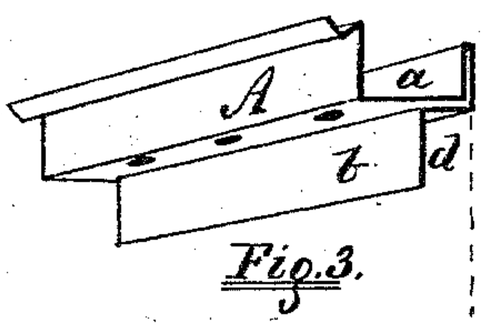


Fig. 3.

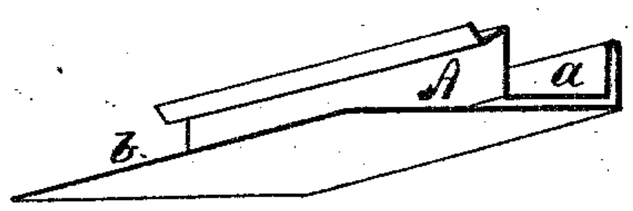


Fig. 2.

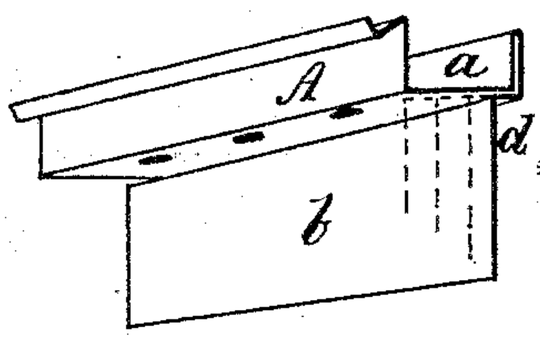


Fig. 4.

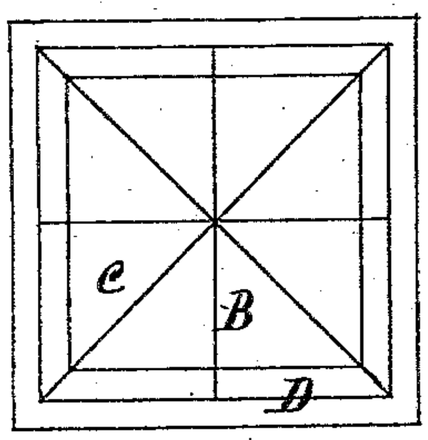


Fig. 5.


Fig. 6.

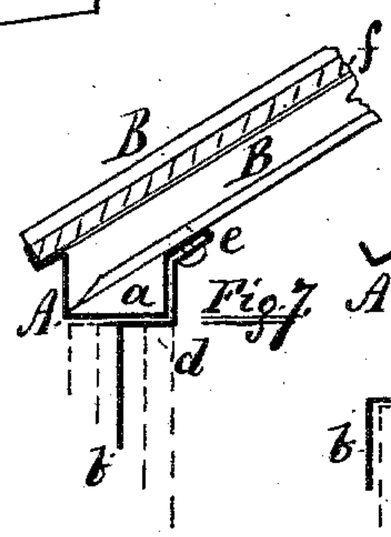


Fig. 7.

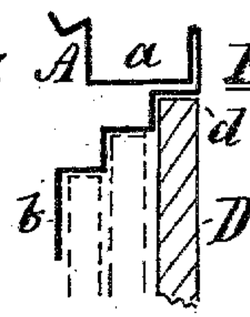


Fig. 8.

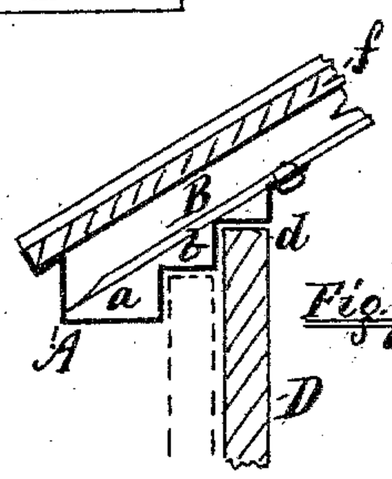


Fig. 9.

Witnesses:
George A. Hayes.
Frank E. Verder

Inventor:
George Hayes.

# UNITED STATES PATENT OFFICE.

GEORGE HAYES, OF NEW YORK, N. Y.

## SKYLIGHT.

SPECIFICATION forming part of Letters Patent No. 295,167, dated March 18, 1884.

Application filed July 5, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE HAYES, a citizen of the United States, and a resident of the city, county, and State of New York, have invented a new and useful Improvement in Skylights, of which the following is a specification.

The object of my invention is to construct a base-frame for skylights which will admit of adjustment to suit openings in roofs of varying widths and lengths, and to permit of skylights being made up in quantities and kept in stock ready for sale on receipt of orders, and also the component parts thereof—such as bases and bars—for shipment in what is commercially known as "knockdown" condition, so that bars of certain fixed or determined lengths may be rendered usable in skylights adapted to suit openings of varied but approximating dimensions.

Heretofore it has been necessary to construct the skylight entire, (after measurement of the roof-opening has been taken,) to fit the already constructed curb, which becomes by said improvement no longer a necessity; and my improvement consists in constructing the base-frame for a skylight with an extended adjustable flange or plate formed into or adapted to be bent into such shape as will enable the base-frame to sit upon curbs of varying widths and lengths, or either, enabling such frame to suit openings either larger or smaller than the area of the base of the skylight.

In the accompanying drawings, Figure 1 represents in section a skylight provided with my adjustable base-frame, adapted to fit over a curb in a roof, (which is also shown,) and expanded three inches or contracted three inches, as the circumstances might require, making a variation of six inches, so that, assuming the skylight to have been made three feet inside, it may serve to fit an already constructed opening of three feet three inches or two feet nine inches, or of an intermediate size, without detracting from its value or usefulness as a perfect skylight. Fig. 2 is a perspective view (with the end in section) of the base-frame, and showing the adjustable portion as finished in stock, ready for its combination with rafters or bars and ridge in the construction of the skylight. The adjustable plate is here ready to be bent down to form a rabbet over the curb in the roof. Fig. 3 is a perspective of the same base-frame, with end in section, the adjustable portion formed into a rabbet shape to suit the curb. It may be bent at any angle and downward at any necessary point. Fig. 4 shows same base-frame in similar view, the rabbet formed nearer to the inside of frame. Dotted lines show other points at which it may be bent. Fig. 5 shows lines or diagrams of curbs and lines to illustrate the bars of a skylight. The squares represent three lines of curb, the bars running to the medium size. The outer represent the maximum to which the base-frame may be adjusted, and the inner lines the minimum, and the frame of course may be adjusted to other points intermediate of those lines. Fig. 6 shows in section a base-frame (as kept in stock) having a necking, flange, or lip at the upper right-hand corner, upon which the bar or rafter will rest, and to which it may be secured by bolt or rivet. The adjustable plate in this view is not bent. Fig. 7 shows in section the base-frame of the device in Fig. 6, the necking, flange, or lip being bolted to a bar and the adjustable plate bent down to form a rabbet. Dotted lines show other points at which it may be bent. Fig. 8 shows in section a base-frame having an adjustable plate bent into several rabbets, either of which may rest upon the curb, according to the width of opening. A curb is shown, and dotted lines show positions of other curbs when the opening is wider. All of the above figures represent instances of expansion in width or length of roof-opening. Fig. 9 shows base-frame in section as adapted for openings where contraction is necessary. In this case the adjustable plate is bent inward and upward, forming rabbets (one or more) to suit the condition required. A curb is shown with one of the rabbets resting thereon. Rafters or bars are also shown as resting upon a necking, flange, or lip, to which the bar is secured by bolt or rivet.

A represents the base-frame, B the bars, and C the ridge, of the skylight.

D represents the curb.

*a* represents the gutter in the base-frame, and *b* the adjustable feature, consisting of a plate, flap, flange, or sheet of metal, forming a part of the frame, and adapted to be bent either way to suit width or length of roof-opening, and render the base-frame capable of resting securely and properly upon the curb at the edge of the roof-opening.

*c* represents the opening in a roof. The bending of this plate is done after the order is received for a skylight, adapting the frame to suit the requirements.

*d* represents one or more rabbets made by bending the adjustable plate. The rabbet is intended to fit over the curb and down its outside face, enabling the skylight to rest securely thereon, and by which it may be nailed or otherwise secured thereto.

*e* represents a necking, flange, or lip, formed to facilitate the securing of bars or rafters to the base-frame, which is done by bolts or rivets passed through the necking, flange, or lip and gutters of the bars or rafters.

*f* represents the glass in section.

It is a common practice in mills where sashes and blinds and doors are made to adopt certain merchantable sizes, thus enabling the manufacturers to make up large quantities at a time, which reduces the cost of production and affords ready supply when ordered. When odd sizes are required, an extra charge over the merchantable size is always made, because the cost of producing is greater. Now, with regard to skylights, a fixed or merchantable size has heretofore proven impracticable. Few skylights are required of a corresponding size. The variety of size required is almost infinite. The consequence is that stock cannot be kept on hand, and large quantities of the component parts of skylights cannot be made up until ordered, and the manufacturer cannot profitably utilize steam-power and avail himself of the advantage of speedy machinery, the operation of which would produce rapidly the parts, the changing of dies and formers occupying so much time. Unlike the unmerchantable or odd sizes of sashes and doors as made by the mills, my adjustable base-frame takes in every size, no matter what variation, or whether the curb-opening be right angular or otherwise, or whether it be not true, or whether it be an oblong. All my base-frames are rendered by means of my improvement merchantable. My improvement renders it possible to enable the base-frame to conform readily to varied sizes of openings—for instance, the bars or rafters for a skylight of a given size—say three feet by three feet—may be made up in large quantities, together with a large quantity of my improved base-frame, ready for constructing into a skylight and laid by in a rack, and when an order is received for a skylight, say, two feet eleven inches by three feet one inch, the workman goes to the rack, obtains the proper number of bars, and by cutting off the required length of my improved base-frame constructs the skylight. In other words, when an order for odd-sized skylights is received the workman selects from the racks the proper number of the bars, taking those which more nearly approximate the lengths required for the fixed or even sized skylights, and then by taking the required lengths of my improved base-frame he constructs the skylight. He then forms the rabbet, or that portion which rests upon the upper edge of the curb and down its sides, which renders it a perfect fit.

By this improvement it will only be necessary to make up stock consisting of the bars or rafters for skylights two feet long, &c., increasing six inches at a time, so that the base-frame will be made to conform to the expanded or contracted size, as the case may be, which will not exceed three inches or one and one-half inch each side, taking, for instance, a medium of three feet, which will make a minimum of two feet nine inches, and a maximum of three feet three inches, without detracting from its value or usefulness.

In the manufacture of skylights from sheet metal the sheets of metal are first cut into strips of a proper width. The miters or portions of contact with the corresponding parts of the skylight are then cut of the required shape, so that they will fit when formed up. This is done by dies operated by machinery. The strips of metal when thus prepared then undergo the process of being bent or formed into shape. This with my own patented machinery is a very rapid process; but where only small numbers of the parts of a skylight are made at a time the advantages are not so great. Different parts require differently-shaped miters or connections, and are cut with different dies used in the same machine, and are also formed by different formers at the same time in the same machine, the changing occupying considerable time.

Besides the advantages above described, the glass can also be kept on hand cut to size and ready for immediate use, as the same glass required for a three-foot skylight will do for a two-foot-nine or a three-foot-three skylight, or of intermediate sizes thereto. This is peculiarly advantageous in the purchase of glass, as much that is now discarded or wasted at the manufactory can be cut to size or form, and laid aside until a number of lights of glass have accumulated, and then be shipped, thereby saving the waste material, and also effecting a saving in the freight of same. A regular system can be adopted in the manufacture of skylights which could not otherwise be done, and the public be benefited by much lower prices.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. As a new article of manufacture, the base-

frame of a skylight formed with an extended adjustable flange attached to or a part thereof, adapted to be bent to curbs of varying widths and lengths, substantially as shown and described.

2. In combination with the base-frame of a skylight, a plate or flange, *b*, formed into several rabbets, *d*, adjusting the frame to suit openings of varying dimensions, substantially as shown and described.

3. In combination with the base-frame of a skylight and adjustable plate *b*, the necking, flange, or lip *e*, substantially as and for the purpose described and shown.

GEORGE HAYES.

Witnesses:
R. H. REILLE,
GEORGE A. HAYES.