No. 854,235. PATENTED MAY 21, 1907.

W. F. PLASS.

SKYLIGHT STRUCTURE.

APPLICATION FILED JAN. 15, 1907.

Fig. 1.

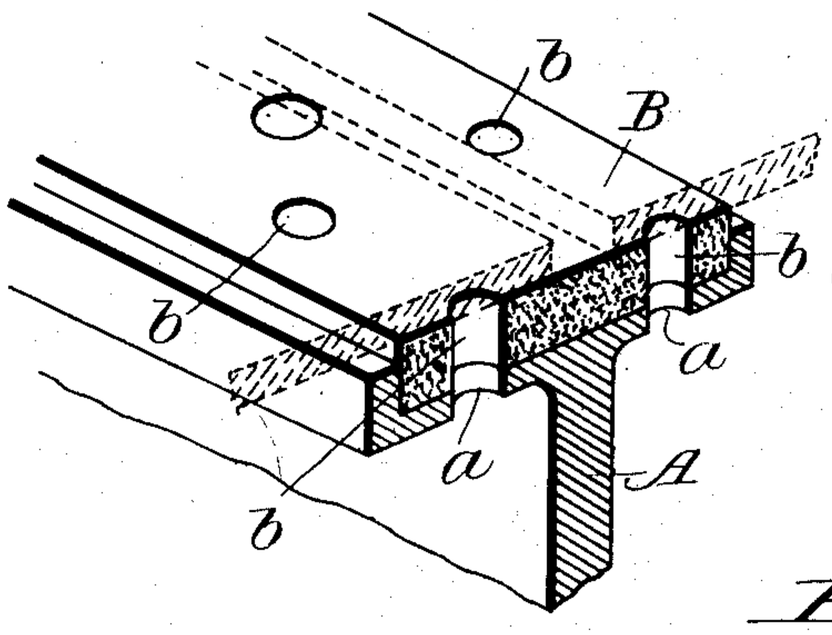


Fig. 2.

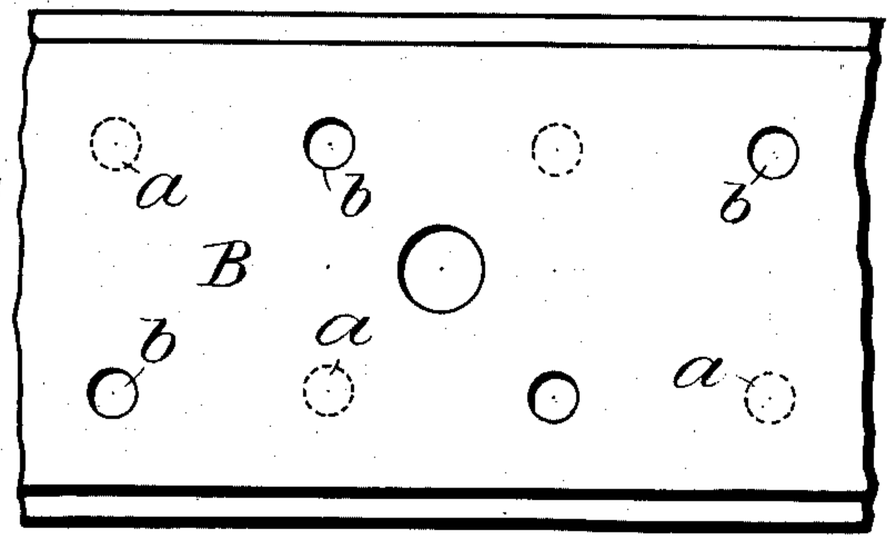


Fig. 3.

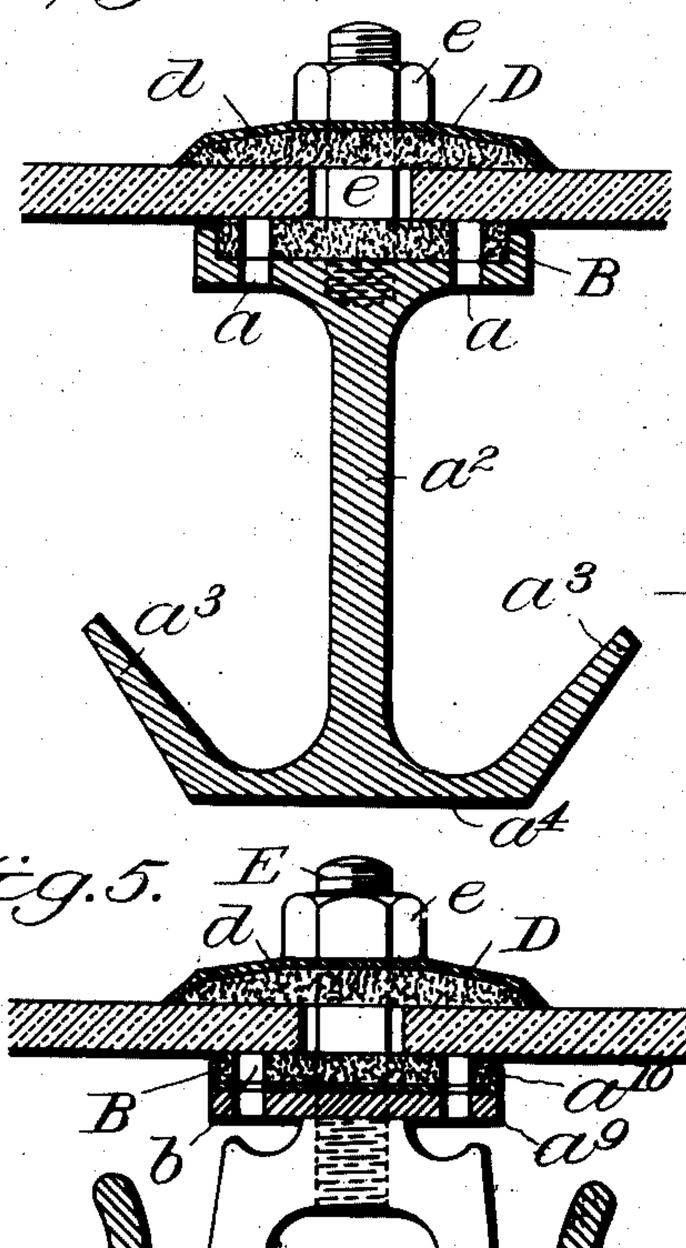


Fig. 4.

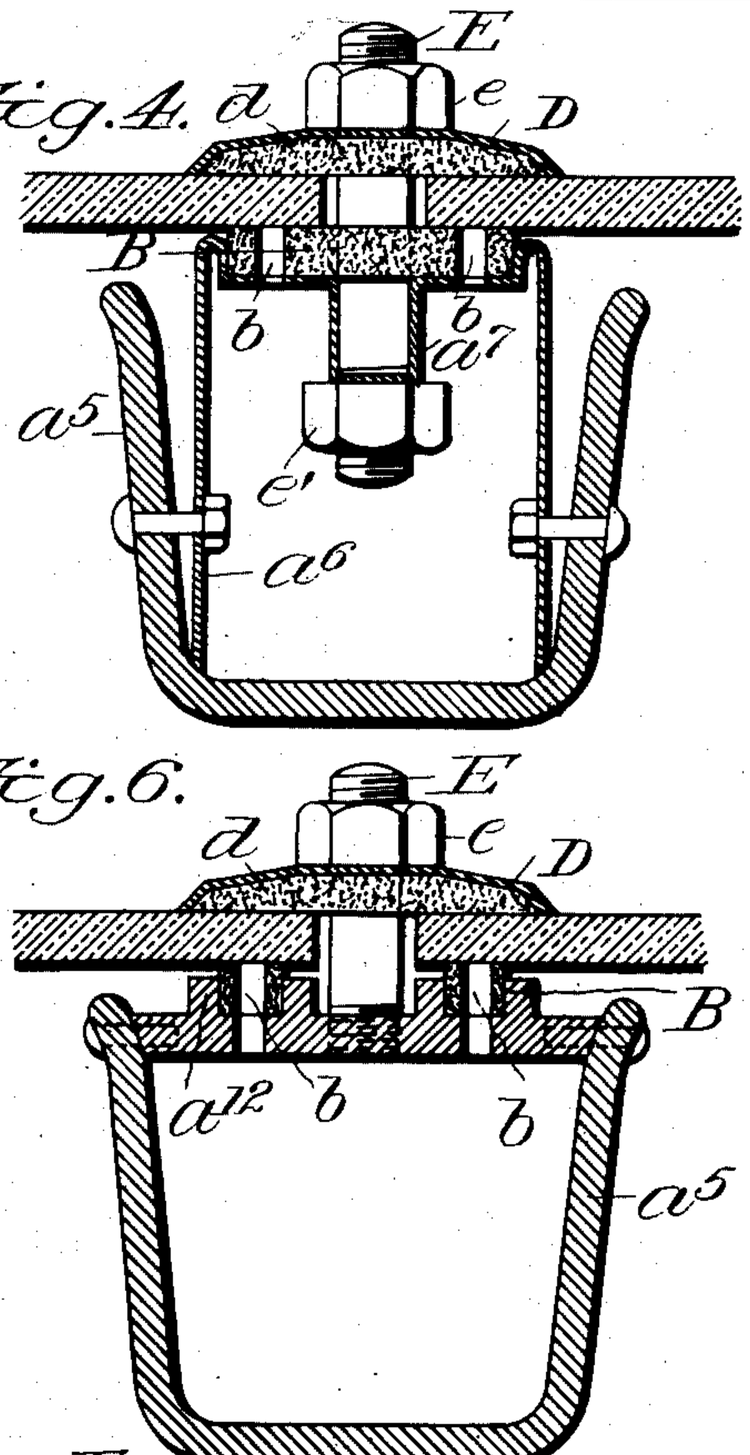
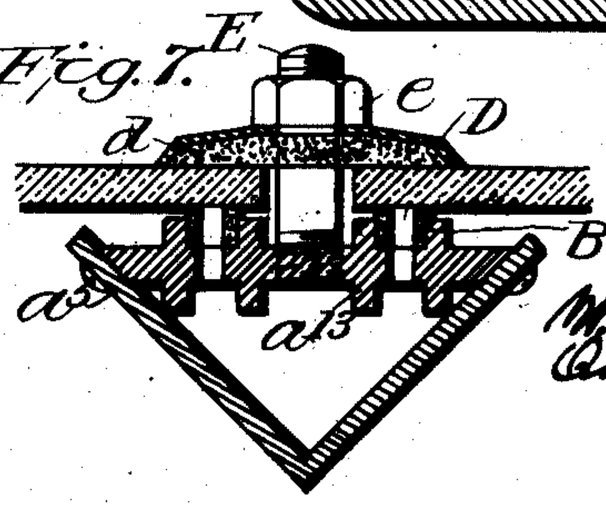


Fig. 5.

Fig. 6.

Fig. 7.



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SKYLIGHT STRUCTURE.

No. 854,235. Specification of Letters Patent. Patented May 21, 1907.

Application filed January 15, 1907. Serial No. 352,428.

To all whom it may concern:

Be it known that I, WILLIAM F. PLASS, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Skylight Structures, of which the following is a specification.

My invention relates to improvements in skylight structures, and has particular relation to the form of support for the panes of glass.

One of the objects of my invention is to provide means for cushioning the panes of glass and at the same time prevent the passage of the water due to condensation, etc., beyond a point where it will drip into one of the drip-carrying channels.

Another object is the provision of a supporting member which is of great strength and durability, readily assembled with the remaining parts of the structure, and of minimum cost of manufacture and installation.

Other and further objects will appear as the invention is hereinafter disclosed.

To these and other ends, the invention consists in the improved construction and combination of parts hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims.

In the drawings, in which similar reference characters indicate similar parts in all of the views,—Figure 1 is a perspective sectional view showing a portion of a skylight structure embodying one of the features of my invention. Fig. 2 is a fragmentary plan view showing a modified arrangement of openings. Fig. 3 is a transverse sectional view taken through one of the supports provided at the edges of the panes of glass, the structure being that preferred by me. Figs. 4, 5, 6 and 7 are views similar to Fig. 3, but showing various modifications in the form of the supporting member and drip-carrying channels.

In the construction of skylights a number of difficulties are encountered, each of which must be overcome before a practical result can be obtained. Among these are the following:—The requirement of the use of a relatively strong supporting member of a medium weight, practically requiring that it be formed of metal. As metal, as well as glass, is sensitive to changes in temperature, there is a constant liability of breakage, due to expansion and contraction, especially where the glass and metal parts are brought into contact. As skylight structures are generally such as to cause edges of the glass and the supporting member to overlap the points of contact are subject to change whenever these parts contract or expand, the contraction and expansion being in opposing directions in the contacting parts. To therefore support the panes of glass directly on the metallic member is deleterious. To overcome this objection, the panes of glass have been mounted on a non-metallic material interposed between the metal member and the glass in such manner as to partly or wholly support the glass. In the former case, the interposed material is generally putty with the object of making the contact of the metal and glass as light as possible, as well as to prevent the passage of moisture; the use of putty permits the formation of a non-metallic contact, as it must be placed in position while relatively plastic, and the weight of the glass as well as the operation of securing the cap in place displacing the putty to such an extent as to leave the glass in contact with the metal. Where the glass is wholly supported by such interposed material, generally a suitable felted structure, the material absorbs the drippings until it is thoroughly impregnated, whereupon the weight of the glass tends to force the drippings out of the material along its edges, forming globules on the glass which pass along the under surface of the panes to some point of collection from which they drop, this point generally being outside of the drip-carrying channels formed in the supporting member; the same effect is produced where the material is waterproofed. And where the material is not of sufficient size to support the glass out of contact with the metal under all circumstances, the weight will gradually crush the material to an extent which will permit the contact of glass and metal.

To overcome these difficulties, I prevent the contact of the metal and panes of glass by the use of a felted strip or strips located in a channel or channels formed in the supporting member, the material being of a size to not only fill the channel but to extend above it a sufficient distance to provide for any crushing effect of the weight of the glass, such distance, however, being insufficient to permit of the passage bodily of globules of water between the under surface of the glass and the

top of the edges of such channel or channels, the contracted space causing the globules to be broken up prior to the passage of the water over the edges, the water passing into the strip or the channel, from which it passes through drip openings in the strip and the channel into the lower drip-carrying channels. Should any water pass over the edges of the channel, it will be in such form as to practically remain on the outer surface of the channeled portion of the upper part of the supporting member, from where it will drip down into the lower channel or channels; the dripping of globules outside of the supporting member is prevented.

In each of the forms of the invention shown in the drawings, there is shown the use of the perforated felted material and its perforated channeled support, but this particular structure is best shown in detail in Figs. 1 and 2, and I will therefore refer first to these figures in the description of the invention.

A designates a supporting member, a portion of which is shown in Fig. 1. Said member has, either formed integral therewith or carried thereby, an upper drip-carrying channel *a* to receive the felted strip B, the strip being of a greater thickness than the depth of the channel. The channel is provided at suitable intervals with openings or perforations *a'*, which may or may not register with similar openings or perforations *b* in the strip B, as shown in Figs. 1 and 2, the number and proximity of the openings being provided as desired or found necessary.

It will be understood that water due to condensation, etc., may be absorbed by the felted material from which it passes into the channel *a* and through openings *a'* in the channel, the openings *b* providing for the rapid discharge of the water from the material, thereby preventing an accumulation of water and tending to prevent the forming of globules along the outer edge of the material in position where they would be able to pass along the under surface of the glass. The panes of glass C are shown in dotted lines in Fig. 1, and it will be readily understood that the top edges of the channeled portion, while not in contact with the under surface of the glass, are spaced relatively thereto but a slight distance, the distance being less than that required for the passage of an ordinary drop or globule of water.

Referring now to the remaining figures of the drawings, the member A may be formed of a single part or a plurality of parts. In Fig. 3, which is my preferred form, I have shown the member as formed of a single part, having a central web a^2 with laterally extending wings a^3 extending outward a sufficient distance to receive any drippings which may drop from the outer edge of the channel portion *a*. If desired, the bottom of the member may be formed flat as shown at a^4, to permit of convenience in erection. A member so formed is relatively strong and capable of supporting a heavy weight, while being of relatively light weight itself. In practice I may use a bar of a height up to and including six inches, the latter size permitting of a length of about fifteen feet. The panes of glass, designated as C, rest on the felted strip B and are retained in position by any suitable means, as by a cap D which extends over the opposing edges of the adjacent panes, said cap being held in position by means of the pin E, the lower end of which is secured to the member A as by screw-threading, the upper end also being screw-threaded to receive a nut *e*. Suitable felting packing *d* is interposed between the cap and panes of glass. It will be readily understood that the opposing felted material forms a cushion not subject to expansion and contraction, and is of such a nature as will not prevent the expansion and contraction of the glass.

In Fig. 4 the member A is formed in two parts, the lower part, designated as a^5 being relatively U-shaped, forming a drip-carrying channel. Suitably secured to the part a^5 is a sheet metal structure a^6 bent to form the channel *a*. In this form, I prefer to provide a central depression or groove a^7 in which are formed openings for the passage of the lower end of pin E, said lower end being adapted to receive a nut *e'*. This depression may also be provided with drip openings, if desired. However, the depressed portion a^7 may be omitted, should its presence be unnecessary.

In Fig. 5, the member A is formed of a plurality of parts, consisting of the lower part a^5, U-shaped in cross-section, spaced stirrups a^8 located therein, a flat iron plate a^9 extending parallel with the lower part a^5, and a channel member a^{10} located on the plate a^9, the channel member, in this form, serving the same purpose as the channel *a* heretofore described. In this structure the pin E is secured to the stirrup.

In each of the above-described forms the felted material is in the form of a single strip located in a single channel. In Figs. 6 and 7 I have shown two spaced strips of felted material located in separate channels. In the form shown in Fig. 6, the lower part is U-shaped in cross-section, as heretofore described and designated as a^5, while the upper part consists of a plate a^{11} having upwardly extending flanges a^{12} forming the edges of the channels for the felted material. In Fig. 7, the lower member a^5 is V-shaped in cross-section, while the upper part a^{11} is similar to that shown in Fig. 6 with the addition of the downwardly extending flanges a^{13}, the latter being for strengthening purposes. The latter may, however, be omitted, if desired. In each of these structures the pin E has its lower end secured in the plate a^{11}.

It is to be understood that in the structures shown in Figs. 4, 5, 6 and 7, the parts carried by the lower part a^5 are secured thereto in any suitable manner, as by bolts, screws, etc.

As will be readily seen, in each of the structures described, there is provided a structure having upper and lower channels, the lower channel being of a width sufficient to receive the drippings that may pass through the bottom of channel *a* or over the edges thereof; that the construction is of great strength and durability and readily erected and repaired; that contact of the panes of glass and the metallic parts is prevented; and that the passage of drops or globules of water to a point where they would drop outside of the channels of the lower member is practically prevented.

Having now described my invention, what I claim as new is:

1. A skylight structure comprising a supporting member having provision for receiving and carrying off the drippings, a perforated non-metallic cushion for the glass, the upper ends of the perforations being beneath the glass, said cushion being carried by the member, and means for retaining the glass in contact with the cushion.

2. A skylight structure comprising a supporting member having provision for receiving and carrying off the drippings, a perforated cushion for the glass, the upper ends of the perforations being beneath the glass, said cushion being carried by the member and formed of a felted material, and means for retaining the glass in contact with the cushion.

3. A skylight structure comprising a supporting member having provision for receiving and carrying off the drippings, felted material carried by said member for supporting the glass, said material being perforated for the passage of drippings, the upper ends of the perforations being beneath the glass, and means for retaining the glass in contact with the material.

4. A skylight structure comprising a supporting member having a depressed portion to form a drip-carrying channel, said channel having drip openings, a felted cushion located in said channel for wholly supporting the glass, the edges of the channel being spaced from the under surface of the glass a distance which will prevent the free passage bodily of globules of moisture between the glass and the channel edges, and means for retaining the glass in contact with the cushion.

5. A skylight structure comprising a supporting member having an upper and a lower drip receiving and carrying channel, the lower channel receiving drippings from the upper channel, a felted cushion located in the upper channel, said cushion being perforated at points below the glass and extending above the top plane of the edges of the upper channel, whereby the glass will contact solely with the cushion, and means for retaining the glass in contact with the cushion.

6. A skylight structure comprising a supporting member having an upper and a lower drip receiving and carrying channel, the lower channel receiving the drippings from the upper channel, a felted cushion located in the upper channel, said cushion being perforated at points below the glass and extending above the top plane of the edges of the upper channel, whereby the glass will contact solely with the cushion, the edges of said upper channel being spaced from the under surface of the glass a distance which will prevent the free bodily passage of globules of water between the glass and the top of the channel edges, and means for retaining the glass in contact with the cushion.

7. A skylight structure comprising a supporting member consisting of upper and lower channeled parts, the lower part being of a width greater than the width of the upper part and positioned in a manner to receive the drippings from the upper part, the top of the edges of the upper part being spaced from the under surface of the glass a distance which will prevent the free bodily passage of globules of water between the glass and the top of the channel edges, felted material located in the channel of the upper part for supporting the glass, said material being perforated at points below the glass and means for retaining the glass in contact with the material.

In testimony whereof I have affixed my signature, in presence of two witnesses.

WILLIAM F. PLASS.

Witnesses:
SAMUEL A. JENKINS,
E. C. PAULUS.