

May 15, 1962

M. WASSERMAN
SKYLIGHT CONSTRUCTION

3,034,260

Filed Dec. 26, 1952

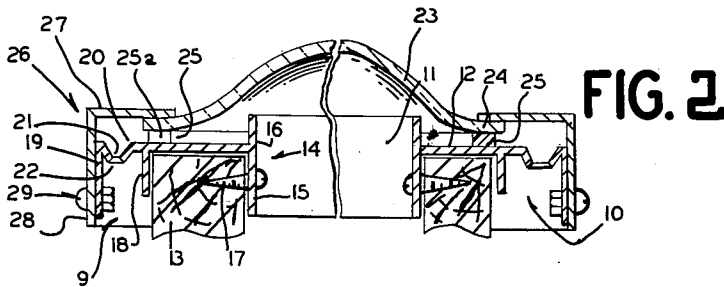


FIG. 2

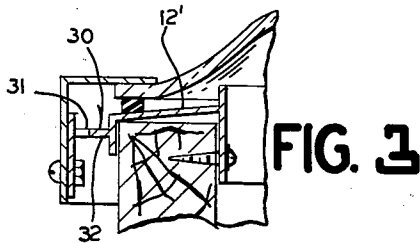


FIG. 3

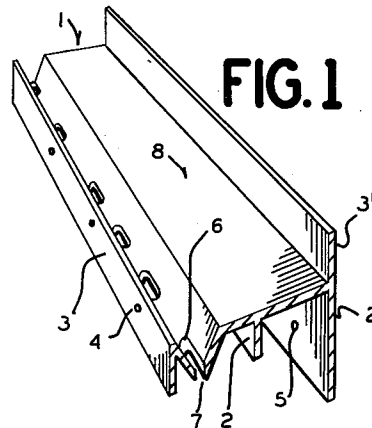


FIG. 1

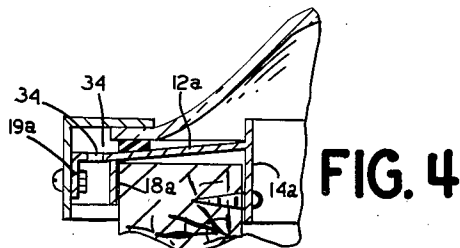


FIG. 4

INVENTOR.

Max Wasserman

BY

Egbert W. Wily
his Attorney

1

3,034,260

SKYLIGHT CONSTRUCTION

Max Wasserman, Cambridge, Mass., assignor, by mesne assignments, to American Cyanamid Company, New York, N.Y., a corporation of Maine
Filed Dec. 26, 1952, Ser. No. 328,046
6 Claims. (Cl. 50—52)

The present invention relates to an improvement in skylight constructions, and to an improvement in curb frame members and the method for constructing and assembling the same in skylight dome units such as are illustrated in my prior Patent No. 2,610,593 issued September 16, 1952, and patent application Serial Number 232,697 filed June 21, 1951, and now abandoned. The present application is a continuation-in-part of my co-pending applications Serial Nos. 275,895 and 275,896, each filed March 11, 1952, and both now abandoned.

It has been customary in the prior art to form curbing for skylight frames from sheet metal by forming and bending the sheet metal into the desired sections and then securing ends together by brazing, soldering or other suitable means. In order to form the shapes properly the sheet metal is necessarily thin so that it can be readily formed and the resultant forms are not exact, do not keep their shapes and fit poorly over the curbings. In the present invention many of these difficulties are overcome.

It is an object of the present invention to produce a skylight unit having curb frames of inexpensive but sturdy construction which may be manufactured by first extruding metal forms having a cross section in the shape of the curb frames to any desired length.

Another object of the present invention is to provide a curbing having an integral structure in which there is no bending of sheet metal elements and in which there are no reverse bends using two thicknesses of metal face to face nor sharp bends weakening the metal structure.

It is further an object of this invention to provide a curb frame which insures drainage of condensed moisture, rain and melted snows to the outside of the skylight unit.

It is still further an object of the present invention to provide a skylight construction having a curb frame designed to prevent wind, driven rain and accumulated snows from backing up from the outside through the drainage openings into the inside of the skylight opening.

These and other objects and advantages of the present invention will be more fully understood when considered in connection with the accompanying drawings in which:

FIGURE 1 is a perspective view of a segment of extruded curb frame;

FIGURE 2 is a cross sectional elevation of a skylight unit;

FIGURES 3 and 4 are fragmentary cross sectional elevations of skylight units showing a modification of the curb frame.

In the construction of skylight units a plastic dome is supported over a skylight opening by resting outwardly extending flanges of the dome on curb frame members with gaskets interdisposed between the curb frame members and the flanges. The curb frame members are a continuous form encasing the top and upper side portions of the curbing around a skylight opening. The dome is secured down by screw means passing into the curb frame or by retaining curbing members secured at one end to the curb frame and having the other end grip the flange.

In the present invention it has been found that the most satisfactory method of producing curb frames for skylight units is to extrude the metal in a form having a cross section shaped in the desired form of the curb

2

frame. This form 1 of any suitable metal for curb frames but preferably aluminum, is first extruded in the usual manner in desired lengths.

The so called curb frame comprises as a single integral element all of the parts on which the dome rests as well as the elements forming the gutters, inner flanges, securing flanges, outer flanges and other elements by means of which the dome is secured in place. While some of these elements may be made thicker than others, each element is strictly designed for its load and is joined to other elements in a homogeneous metal extrusion without any strains being put on different parts by forming or bending. Where aluminum is used for the extruded element not only is the curb light in weight but is stronger than any other equivalent method of construction.

Referring more particularly to FIGURE 1 a length of curbing covering frame is shown which fits over the upper curbing of a skylight opening. At the inner side of the frame there may be provided a downwardly extending flange 2 and fitting over the outer face of the curb a flange or apron 2' while upwardly of the covering web or plate 8 at the inner side is the condensation gutter 3'. The flange 2 may be eliminated where the covering frame is secured to the curbing other than by means of it. In FIGURE 1 holes 5 are provided through which screws or nails may extend into the curbing to secure the curbing frame to the curbing. Extending outwardly from the web or plate 8 is a channel or outer gutter 7 with spaced holes 6 in the bottom of the channel for draining the accumulated moisture formed on the web which may be tilted for this purpose. An outer downwardly extending flange 3 borders the outer side of the gutter and this serves as the securing flange for the dome which either lies in face contact with it or serves to hold an angle member clamping the flange of the dome to the curbing web. The holes 4 spaced along the flange 3 are for the rivets or bolts which pass through the angle member or the flange of the dome.

As illustrated in FIGURE 2 the curb frame fitting over the curbing having two side members 9 and 10 shown in cross section, rear member 11 and a front member not shown has a continuous covering web 12 in face to face relation with the curbing 13. The covering web 12 may be slightly downwardly inclined toward the outside of the curb frame so that moisture condensation on the web will run outwardly. A vertical flange member 14 is formed on the inside edge of the covering web, has a downwardly extending section 15 and an upwardly extending section 16. The lower section 15 is secured to the curbing by screws 17 passing through the flange section 15 to the curbing. A vertical flange 18 extends downwardly from the lower side of the covering web 12 at a sufficient distance from the curbing 13 to permit the upper edge of a base flashing to be slid between the curbing 13 and the vertical flange 18. Another flange 19 substantially parallel with flange 18 extends downwardly from the outer edge of the extended section 20 of the covering web 12. A V-shaped channel 21 extending around each side of the curb frame is formed in the extended section 20 of the covering web. Holes or slots 22 spaced apart extend through the lower part of the channel at regular intervals, through which water collected on the cover web may drain. The outwardly extending flanges 24 of the plastic dome 23 resting on a gasket 25 having intermittent openings 25a along its length to allow the outward passage of water are positioned over the covering web.

This flange is secured by an L-shaped retaining frame 26 having a leg 27 extending over the flange 24 and a leg 28 secured in face to face relation with the flange 19 by the nuts and bolts 29.

A modification of this arrangement is illustrated in

3

FIGURE 3 wherein the channel member 30 is U-shaped with slots or holes 31 in the cross member 32. It is preferable also in this arrangement to have the covering web 12' slightly downwardly inclined towards the outside.

A further modification of this curb frame is illustrated in FIGURE 4 wherein the channel member is eliminated. The covering web 12a is downwardly inclined toward the outside. Flange members 14a, 18a and 19a correspond respectively to the flange members 14, 18, and 19 of FIGURE 1. Holes or slots 33 are provided in the outward extension 34 of the covering web. Water thus collecting on the inside of the covering web 12a may pass through intermittent openings in the gasket 24a and flow downward to and out the slots 33.

Having now described my invention I claim:

1. In a skylight unit construction of the type described an elongated curb frame fitting over a curbing, said curb frame having a covering web sloping slightly outwardly and downwardly from an inner to an outer edge and having upper and lower surfaces, a vertical flange member extending from said inner edge partially below said covering web and secured in the lower part of said flange to said curbing, a vertical flange extending downward from the lower surface of said covering web on the outside of said curbing, a channel member in said covering web positioned below the upper surface of the web and outside of said second mentioned flange and having intermittent openings in the bottom of said channel member, a third vertical flange extending downward from the outer edge of said covering web, a skylight dome having an outwardly extending peripheral flange supported on the covering web, means disposed between the peripheral flange of the dome and the upper surface of the covering web providing a drainage passage between the dome and the web, and a retaining frame having a horizontal leg coextensive with and retaining the peripheral flange of the dome on the web and a vertical leg coextensive with and secured in face to face relationship with the third vertical flange.

2. In a skylight unit construction of the type described, an elongated curb frame fitting over a curbing, said curb frame having a covering web with inner and outer edges and upper and lower surfaces, a vertical flange member extending from and partially below the inner edge of said covering web and secured in the lower part of said flange to said curbing, a vertical flange extending downward from the lower surface of said covering web on the outside of said curbing, a channel member in said covering web positioned below the upper surface of the web and outside of said second mentioned flange and having intermittent openings in the bottom of said channel member, a third vertical flange extending downwardly from the outer edge of said covering web, a skylight dome having an outwardly extending peripheral flange supported on the covering web, means disposed between the peripheral flange of the dome and the upper surface of the covering web providing a drainage passage between the dome and the web, and a retaining frame having a horizontal leg coextensive with and retaining the peripheral flange of the dome on the web and having a vertical leg coextensive with and secured in face to face relationship with the third vertical flange.

3. In a skylight unit construction of the type described, a curb frame having in its cross section a substantially horizontal covering web with inner and outer edges, a pair of vertical flanges at the edges of said web with one of said flanges extending downwardly from the outer edge

4

and the other extending partially upwardly from the plane of said web at the inner edge, a third vertical flange extending downwardly from said web, and a channel formed in said web between said downwardly extending outer flange and said third flange, a skylight dome having a peripheral flange supported on the covering web between the channel and the inner edge, means disposed between the peripheral flange of the dome and the covering web providing a drainage passage between the dome and the web, and a retaining frame secured to said outer vertical flange and engaging the peripheral flange to retain the dome in position.

4. In a skylight unit construction of the type described, a curb frame having in its cross section a substantially horizontal covering web with inner and outer edges, a pair of vertical flanges at the edges of said web with one of said flanges extending downwardly from the outer edge and the other extending partially upwardly from the plane of said web at the inner edge, a third vertical flange extending downwardly from said web and a plurality of openings formed in said web between said downwardly extending outer flange and said third flange, a skylight dome having a peripheral flange supported on the covering web between the openings and the inner edge, means disposed between the peripheral flange of the dome and the covering web providing a drainage passage between the dome and the web, and a retaining frame coextensive with and secured to said outer vertical flange and coextensive with and engaging the peripheral flange to retain the dome in position.

5. A structure as set forth in claim 4, wherein said covering web is inclined downwardly from said partially upwardly extending flange toward said other mentioned flanges.

6. A skylight or the like for covering a building opening surrounded by a curb, comprising an inner supporting frame shaped to cover the curb and having an inwardly extending top flange upwardly flared at its inner edge and a downwardly extending outer skirt, a light transmitting dome having an outwardly flared edge supported upon the top flange, means spacing the flared edge of the dome from the top flange defining drainage passages between the dome and frame and an outer rim having an inwardly extending upper flange cooperating with said top flange to secure the flared edge of the dome and terminating at its outer side in a downwardly extending lower apron secured in spaced relation to said skirt, thereby defining a drainage passage between the skirt and apron.

References Cited in the file of this patent

UNITED STATES PATENTS

228,282	Smith	June 1, 1880
326,056	Overman	Sept. 8, 1885
852,450	Plym	May 7, 1907
918,876	Maier	Apr. 20, 1909
1,968,125	Cibulas	July 31, 1934
2,576,392	Downes	Nov. 27, 1951
2,604,061	Estey	July 22, 1952
2,610,593	Wasserman	Sept. 16, 1952
2,703,060	Kiefer	Mar. 1, 1955

FOREIGN PATENTS

50,728	Austria	1911
632,916	France	1927

OTHER REFERENCES

Aluminum Extrusions, Reynolds Metals Co., Louisville, Ky., 1950, page 6, FIGURE 4.