March 16, 1954 G. H. LENKE 2,672,106

GRID CONSTRUCTION FOR ROOFLIGHTS

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2 Sheets-Sheet 1

FIG. 1

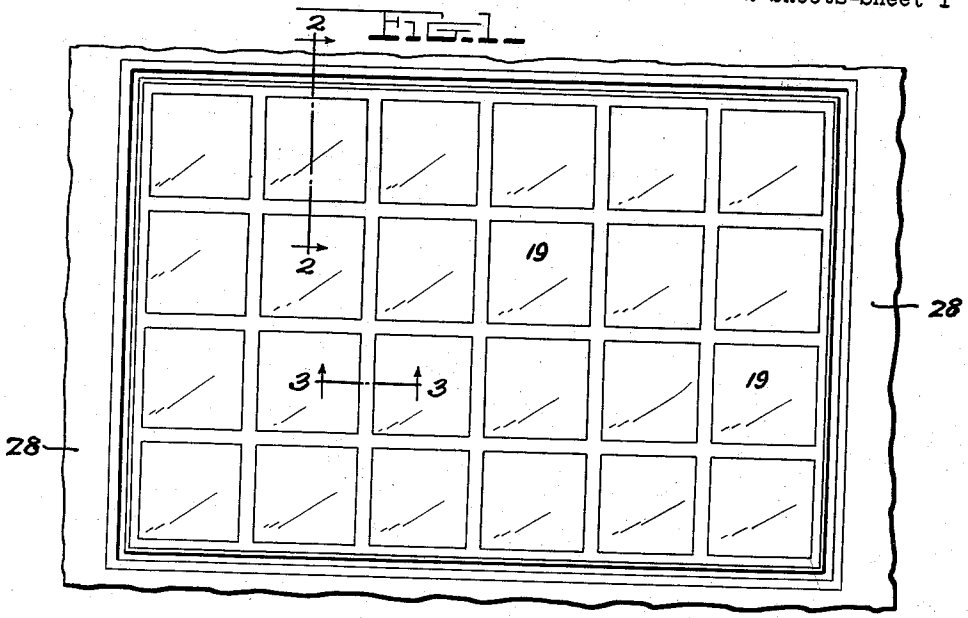


FIG. 2

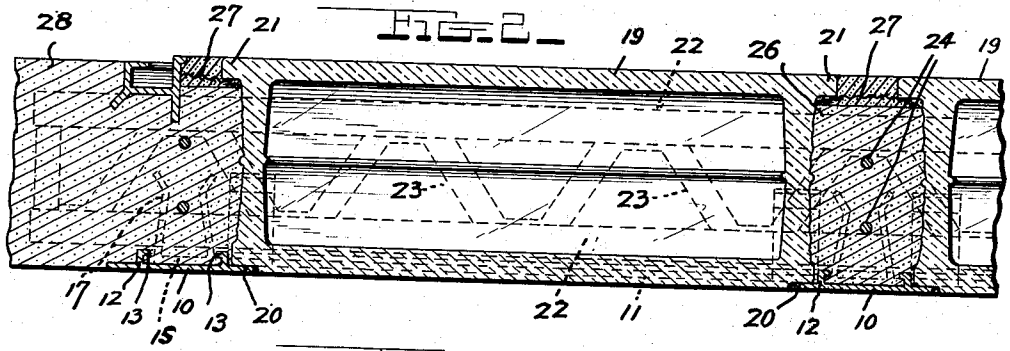
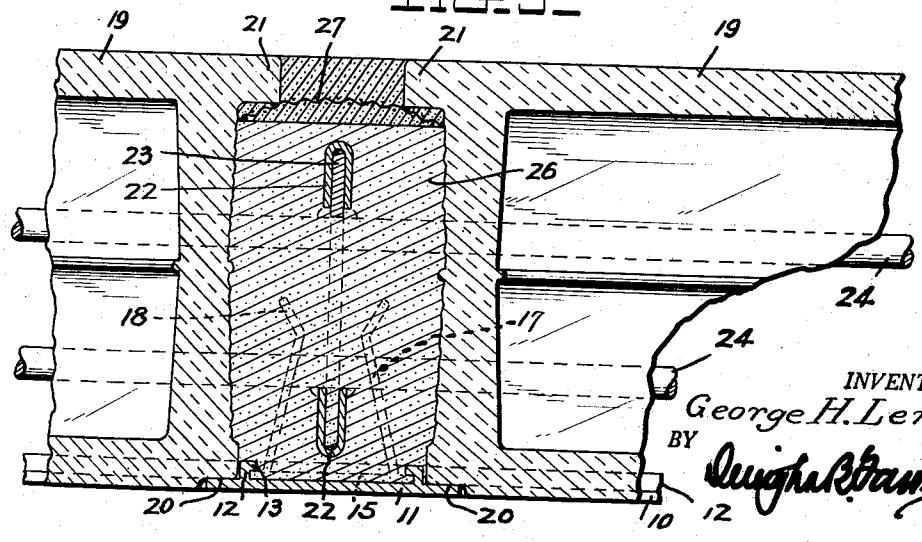


FIG. 3



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FIG 4

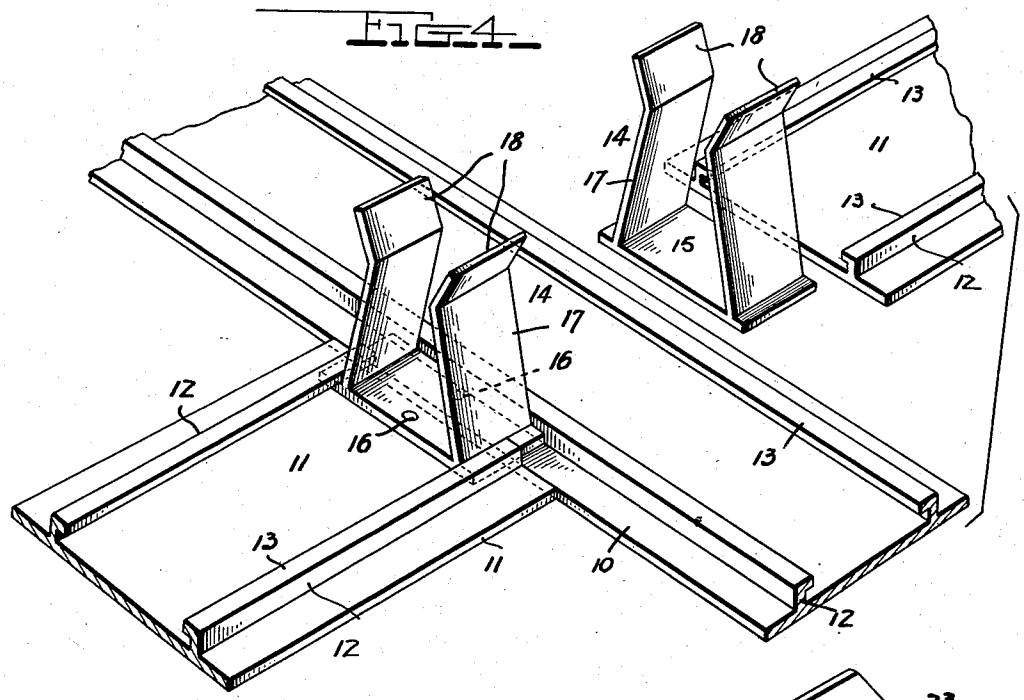
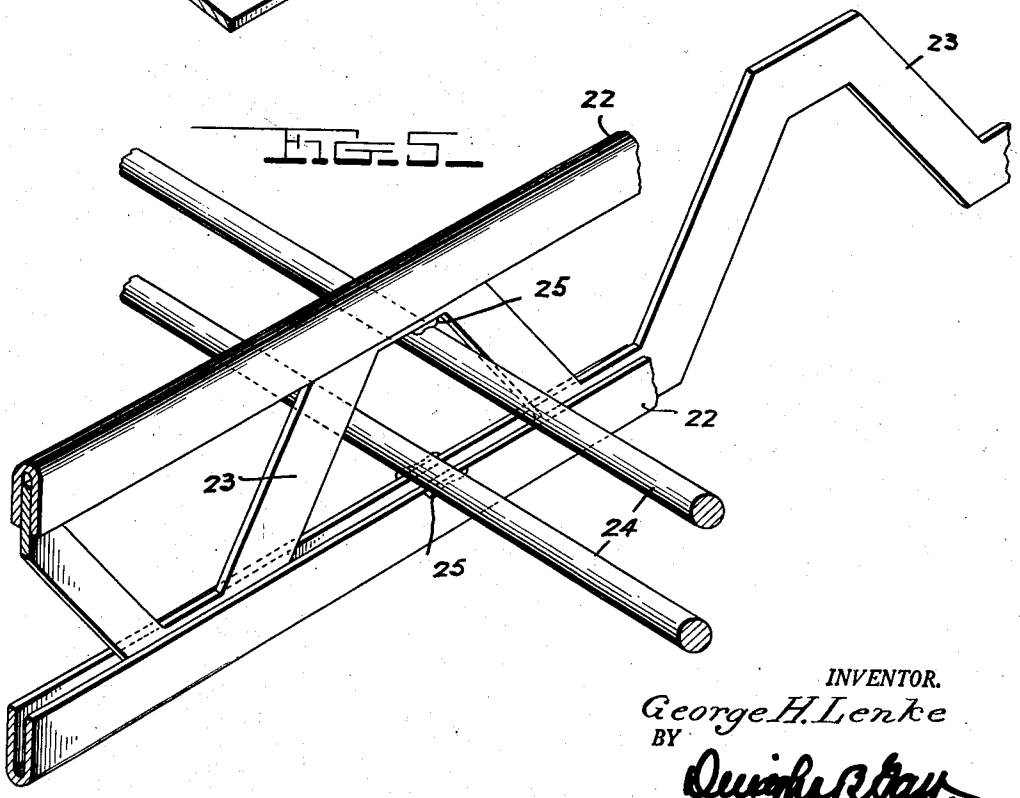


FIG 5



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GRID CONSTRUCTION FOR ROOFLIGHTS

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9 Claims. (Cl. 108—16)

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This invention is a grid construction relating particularly rooflights, having for its primary object to provide a structure for application to a roof or other wall opening of simple construction, which involves a minimum of parts, and which when properly applied adequately and effectively supports the lights and maintains them securely and with a minimum opportunity for leakage.

A further object of the invention is to provide a grid construction characterized by assembly means which permits of the rooflights being prefabricated in finished slabs or panels for ready application to the roof or wall opening.

A further object is to provide a structure of the character generally set forth which permits of the fabricated framework being easily, quickly and effectively secured within the roof or wall opening and the lights easily arranged and sealed therein with a minimum of opportunity for leakage.

A further and particular object of the invention is to provide a grid construction for the accommodation and support of the lights which may be fabricated and assembled by simple and yet effective means for the adequate support of the relatively heavy rooflights, and which is capable when properly set or applied of sustaining abnormal stresses or weights.

A still further and particular object of the invention is to provide means for the support of light blocks in spaced relationship to one another, characterized by the use of a thermal type of fill material between blocks to bring about an effective insulation of the structure, and wherein the structure employed obtains the strength necessary for the support of the various elements without resort to other fill material possessing great strength but inferior insulating values.

With the foregoing objects in view, together with others which will appear as the description proceeds, the invention consists in the novel construction, combination and arrangement of parts, all as will be described more fully hereinafter, illustrated in the drawing, and particularly pointed out in the claims.

In the drawings:

Fig. 1 is a plan view of a grid construction made, assembled and set in accordance with the invention,

Fig. 2 is a fragmentary sectional view on an enlarged scale taken substantially upon the line 2—2 of Fig. 1,

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Fig. 3 is a similar view taken upon line 3—3 of Fig. 1,

Fig. 4 is a detail fragmentary perspective view illustrating the manner in which the grid members are secured together in cell-forming relationship, and

Fig. 5 is a detail perspective view showing one of the truss members used in carrying out the invention and the manner in which the reenforcing rods are associated therewith.

Referring now to the drawings, and more particularly to Fig. 1 thereof, the grid construction is disclosed as comprising a panel of cellular construction of a size and shape to fit within the roof or wall opening. It will be understood that while the description refers to the panel as a rooflight, it is not necessarily restricted thereto, as the frame or panel may be applied to other walls of a building. Moreover, but a single panel is here shown and described, and it will also be understood that any number of panels may be fitted into a wall opening as occasion may require.

The grid construction constituting a panel comprises a plurality of main base strips 10 disposed in spaced parallel relationship and in the present instance extending throughout the length of the panel. These strips are formed of suitable flat metal of appropriate width. These main base strips are connected by secondary or transverse base strips 11 formed identically like the main base strips 10 but of such length as to engage at their ends with the sides of the main base strips. The main as well as the transverse base strips are provided upon their upper faces with spaced longitudinally disposed ribs 12, each rib rising from its respective plate or strip a relatively short distance and having inwardly directed flanges 13 at their upper ends. These ribs are engaged on their inner faces by the ends of anchor clips represented generally at 14. Each clip comprises a flat plate or base 15 of a length substantially equal to the distance between the ribs 12, the ends of which slidably engage beneath the flanges 13 as shown more particularly in Fig. 4 of the drawings. These anchoring clips serve as connectors between the ends of the secondary or transverse base strips 11 and the edges of the main base strips 10; the base portions 15 of the said clips spanning the abutting edges of the said strips and being anchored or firmly secured to these elements by welding indicated at 16. Each of the anchoring clips is provided with upwardly extending wings or arms 17. These arms converge

toward one another in an upward direction for the greater part of their length, after which they are flared outwardly as at 18 to provide anchoring surfaces.

A grid or panel constructed in this manner provides a cellular arrangement, the cells to receive the light blocks indicated at 19. These blocks may be formed of glass or any other suitable material, and are of a desired or preferred thickness. Each block is provided around its lower edge with a rabbeted portion 20 to enable the edges of the blocks to rest securely upon the adjacent edges of the main and transverse base strips with the lower faces of the blocks disposed in the same plane as the lower faces of the said strips. This is shown clearly in Figs. 2 and 3 of the drawings. The upper edges of the blocks 19 are provided with outwardly directed shoulders 21 which extend partway into the spaces overlying the main and transverse base strips.

As reenforcing means for the panel or cellular construction thus far described, the truss construction shown more particularly in Figs. 2, 3 and 5 is employed. This structure comprises spaced upper and lower longitudinal supporting members 22 which receive between them the metallic truss structure 23. The members 22 may be secured to the truss members by welding or any other desired means. The truss structures thus formed are disposed in the spaces between the several blocks and are disposed transversely of the panel, the said truss members being tied to spaced reenforcing rods 24 disposed transversely of the truss members and in spaces between blocks longitudinally of the panel. The reenforcing rods 24 are secured to the truss structures by welding as indicated at 25 in Fig. 5 of the drawings.

A grid structure or panel constructed as described has the light blocks arranged within the cells, after which the spaces between blocks are filled with a suitable composition indicated as the filler 26. Filler materials heretofore proposed for structures of this character have been employed mainly for their strengthening and moisture-sealing effect. The reenforcing features of the present structure permit of the use of filler materials between blocks not particularly for reenforcing purposes, but mainly for desirable insulation against heat and cold transfer. This filler material is supported by the underlying base strips, firmly embeds the anchor clips as well as the truss and reenforcing rods and terminates immediately below the shoulders 21 at the upper edges of the blocks 19. When this filler has become set, a foraminous strip 27 is applied in the space between blocks and beneath the shoulders 21, after which a sealing compound in liquid form is poured within the space between blocks to the upper faces of the latter. This sealing material permanently seals the glass blocks against moisture seepage. The thermal filler 26 firmly embeds the anchoring members, trusses and rods so that when it becomes set the entire panel or grid construction constitutes a rigid slab adequately maintaining the blocks in proper position and enabling the entire structure to withstand or resist all weights to which it may be reasonably subjected. If desired, the anchor clips 14 may be applied at places other than the point of connection between base strips in order to lend additional rigidity and strength to the construction.

The grid members or panels thus formed may be prefabricated to fit a building opening of prescribed dimensions, after which it may be set or applied within the opening in any desired or preferred manner. In those instances where the size of the opening precludes the prefabrication of such panels, the grid may be formed and its edges firmly seated in the curb 28 in any desired or approved manner, after which the truss members, reenforcing rods and lights are applied, to be followed by filling the spaces between blocks in the manner described.

From the foregoing it is apparent that I have provided a grid or panel structure for roof or other wall lights which is extremely simple in construction, which may be assembled quickly, easily, with a minimum of material and in a manner requiring a minimum of skilled help, at the same time assuring a rigid or sturdy construction fully capable of withstanding all normal stresses or strains.

I claim:

1. In a rooflight structure, a panel comprising base strips disposed in a common plane and secured to each other in substantially right angular relationship to provide individual cells between them for the reception and support of blocks in spaced relationship to one another, spaced ribs on said base strips, anchor clips secured between said ribs and projecting into the spaces between said blocks, a plastic material filling said spaces and anchoring said members, and means for securing said panel in a roof opening.

2. In a rooflight structure, a panel comprising base strips disposed in a common plane and secured to each other in substantially right angular relationship to provide individual cells between them, blocks arranged in said cells and supported at their edges by said strips and maintained by the latter in spaced relationship, rib members spaced from one another on said strips and extending into the spaces between said blocks, anchor clips secured at their lower ends between said rib members and extending into said spaces, a plastic material filling said spaces and anchoring said members therein, and means for securing said panel in a roof opening.

3. In a rooflight structure, a panel comprising base strips disposed in a common plane and disposed in substantially right angular abutting relationship to provide individual cells between them, blocks arranged in said cells and supported at their edges by said strips and maintained by the latter in spaced relationship, anchor clips secured at their lower ends to said certain of said strips and in bridging relationship with adjacent right angularly disposed strips, portions of said clips extending into the spaces between said blocks, a plastic material filling said spaces and anchoring said members therein, and means for securing said panel in a roof opening.

4. In a rooflight structure, a panel comprising main base strips disposed in a common plane and in spaced parallel relationship, lateral base strips disposed between the main strips with their ends in engagement with the sides of the latter, said strips providing cells between them, anchor members secured at their lower ends to said main base strips and bridging the sides of adjacent lateral base strips, blocks arranged in said cells with their edges resting upon the sides of said strips and providing spaces between them, wings projecting from said anchor members and disposed in said spaces, and plastic material filling said spaces and embedding said members and wings therein.

5. In a rooflight structure, a panel comprising

main base strips disposed in a common plane and in spaced parallel relationship, lateral base strips disposed between the main strips with their ends in engagement with the sides of the latter and disposed in the same plane with said main strips, said main and lateral strips providing cells between them, anchor members secured at their lower ends to said strips and bridging said ends and sides, blocks arranged in said cells with their edges resting upon the sides of said strips and providing spaces between them, wings projecting from said anchor members and diposed in said spaces, truss members disposed within said spaces in one direction, reenforcing rods arranged within said spaces at right angles to said truss members, said truss members and reenforcing rods being secured together at their points of intersection, and plastic material filling said spaces embedding said members and wings therein as well as said trusses and rods.

6. In a rooflight structure, a panel comprising base strips disposed in a common plane and secured to each other in substantially right angular relationship to provide individual cells between them for the reception and support of blocks in spaced relationship to one another, ribs integral with and disposed longitudinally of said strips, flanges at the upper ends of said ribs projecting toward one another, clips comprising flat plates resting upon said strips with their ends engaged beneath said flanges, wing members projecting outwardly from said base members and into the spaces between said blocks, and plastic material filling the spaces between said blocks and embedding said anchor members and wings therein.

7. In a rooflight structure, a panel comprising base strips disposed in a common plane and secured to each other in substantially right angular relationship to provide individual cells between them for the reception and support of blocks in spaced relationship to one another, ribs integral with said strips and extending into said spaces, flanges on the ribs of each strip projecting toward

one another, clips comprising base plates resting upon said strips with their ends disposed beneath said flanges, wings projecting from said clips and disposed in angular relationship within said spaces, truss members disposed within and coextensive with certain of said spaces, reenforcing rods in other of said spaces intersecting said trusses, means connecting said trusses and rods, and plastic material filling the spaces between said blocks embedding said clips, trusses and rods therein.

8. In a rooflight structure, a panel comprising base strips disposed in a common plane and secured to each other in substantially right angular relationship to provide individual cells between them for the reception and support of blocks in spaced relationship to one another, plastic material resting upon said strips and partly filling the spaces between blocks, foraminous strips covering said plastic material, and a sealing compound covering said plastic material and foraminous strips and terminating at the outer faces of said blocks.

9. In a rooflight structure, a panel comprising base strips disposed in a common plane and secured to each other in substantially right angular relationship to provide individual cells between them for the reception and support of blocks in spaced relationship to one another, anchor clips secured to said strips arranged in spaced relationship to one another and projecting into the spaces between said blocks, a plastic thermal insulating material filling the said spaces and anchoring said members, and means for securing said panel in a roof opening.

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Number	Name	Date
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