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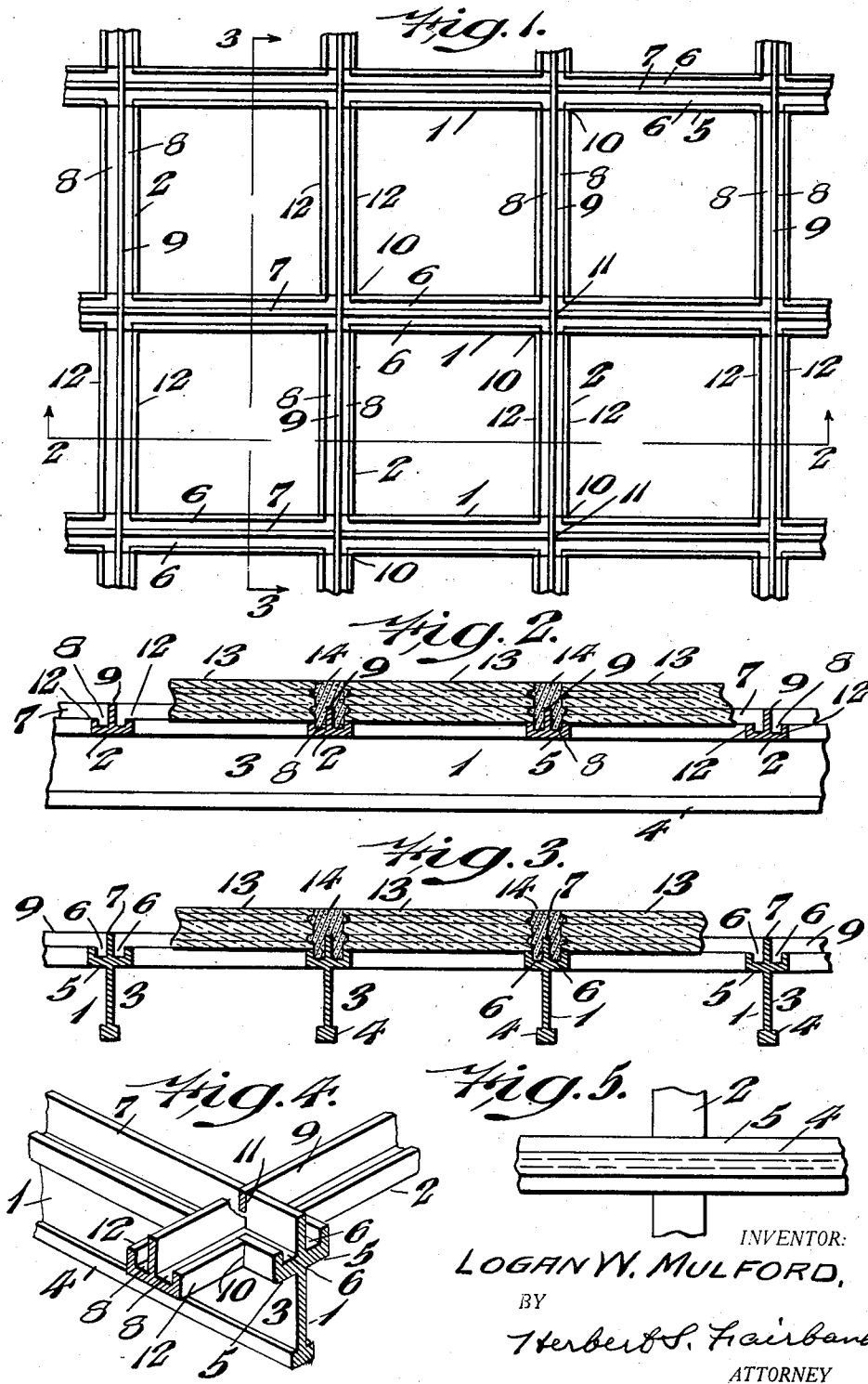
L. W. MULFORD

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VAULT LIGHT, FLOOR LIGHT, OR SKYLIGHT

Filed Feb. 20, 1931

2 Sheets-Sheet 1



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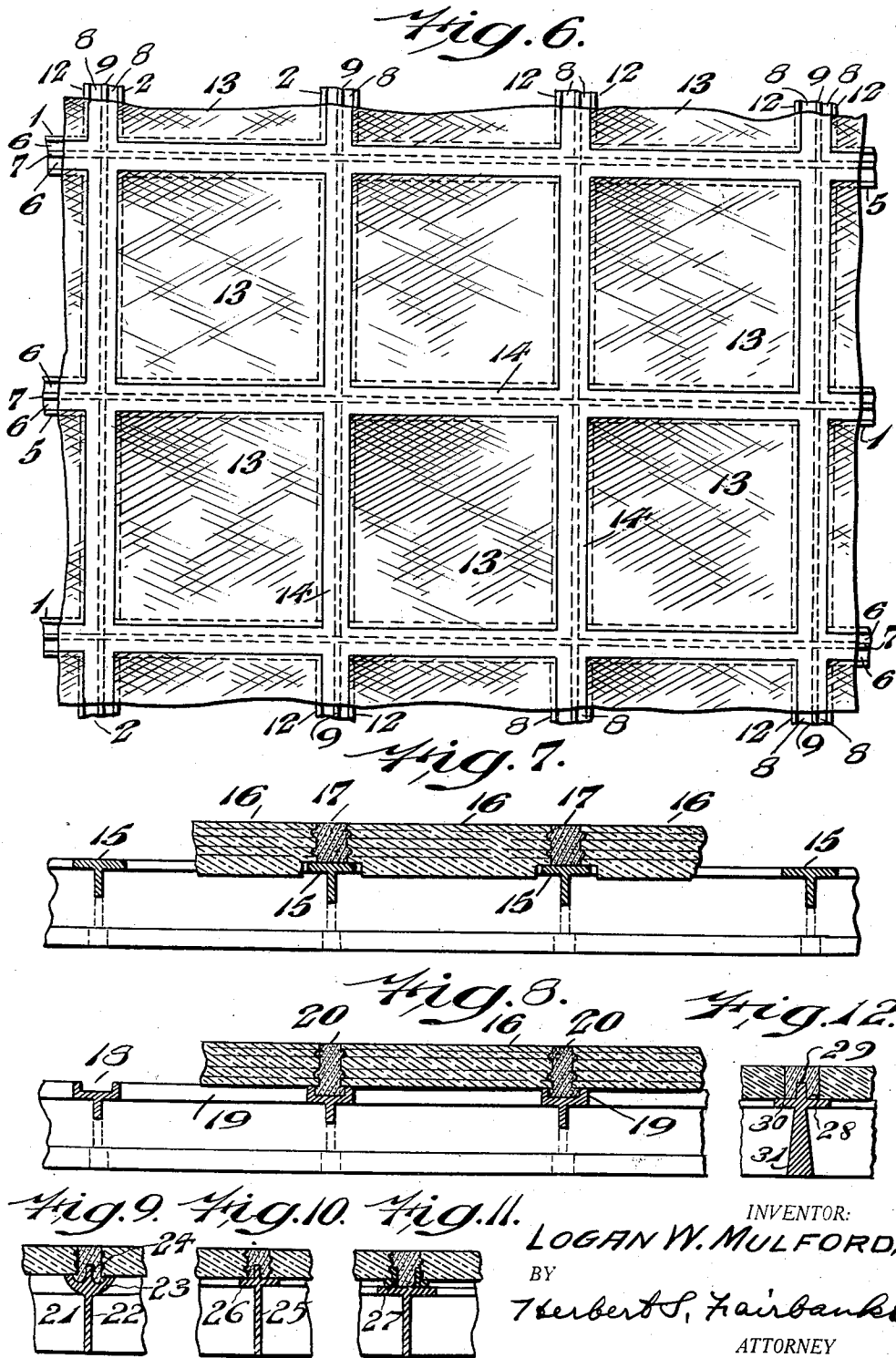
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UNITED STATES PATENT OFFICE

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VAULT LIGHT, FLOOR LIGHT, OR SKYLIGHT

Logan Willard Mulford, Long Island City, N. Y.

Application February 20, 1931, Serial No. 517,144

3 Claims. (Cl. 94—27)

In vault lights, floor lights or skylights as heretofore placed on the market it has been the practice to surround the glass with concrete or to use a reinforced concrete frame, or to use concrete between the metal shields surrounding the glass. The presence of concrete in devices of the character here under discussion has been the cause of continuous trouble from leakage, breakage of glass, and expense in upkeep due to frequent replacement of the broken glass. Cracks occur in the concrete due to vibration to which the construction is subjected, and leakage occurs due to these cracks or to the non-sticking of the concrete to metal faces of the framework. The expansion of the concrete caused the breakage of the glass, and, in constructions wherein the glasses were not surrounded by metal, it was necessary to employ skilled mechanics to remove the old concrete and replace the broken glass.

In my co-pending application Serial No. 463,955, I have described and claimed a novel vault light, floor light or skylight which is fabricated from steel bars in order to obtain greater strength and carrying capacity and thereby eliminate the necessity of employing reinforcing or carrying members as required with cast iron construction. In my prior application the steel bars were connected to form lens receiving openings and the webs of the bars extended up around the glass to form shields. The space between the glass and the webs was filled in with a water proof cushion, such as, for example, tar and sulphur compound. In my prior application aforesaid the metal bars extended to and formed a part of the tread surface.

In accordance with my present invention the web is either entirely dispensed with or is made comparatively short so that its function is to position and align the glass as it is placed in position.

With the above in view, my present invention comprehends a novel vault light, floor light or skylight.

It further comprehends a novel vault light, floor light or skylight wherein a steel framework is provided on which the glass rests and the space between juxtaposed glasses is filled in with a water proof sealing compound which secures them in place and which in some cases extends beneath the glasses.

Other novel features of construction and advantage will hereinafter more clearly appear in the detailed description and the appended claims.

For the purpose of illustrating the invention I have shown in the accompanying drawings typi-

cal embodiments of it, which, in practice, will give reliable and satisfactory results. It is, however, to be understood that these embodiments are typical only and that the various instrumentalities of which my invention consists can be variously arranged and organized, and the invention is not limited to the precise arrangement and organization of these instrumentalities.

Figure 1 is a top plan view of a metal bar framework which may be employed in building the vault light, floor light or skylight embodying my invention.

Figure 2 is a section on line 2—2 of Figure 1 with the glass in place.

Figure 3 is a section on line 3—3 of Figure 1.

Figure 4 is a perspective view of the framework showing more clearly the manner in which the metal bars interlock.

Figure 5 is a bottom plan view of a portion of the construction.

Figure 6 is a top plan view of the embodiment of vault light, floor light or skylight seen in Figure 1.

Figure 7 is a sectional elevation of another embodiment of my invention.

Figure 8 is a sectional elevation of another embodiment of my invention.

Figures 9, 10, 11, and 12, are, respectively, sectional elevations of other embodiments of my invention.

Similar numerals of reference indicate corresponding parts.

Referring to the drawings:—

The supporting framework of the vault light, floor light or skylight is made up of fabricated metal bars consisting of the main supporting steel bars 1 to which cross bars 2 are applied to form supports for the glass or lenses. The bars 1 may form the main supporting bars and are provided with a lower central web 3 terminating at its lower end and in an enlarged base 4. The web 3 merges into flanges 5 which extend laterally from the bar near its upper end and the top faces of such flanges are preferably provided with longitudinally extending grooves or channels 6. The web 3 extends sufficiently above the top of the flanges 5 to form a web 7, the function of which is to center the glass.

In a similar manner, the bar 2 is provided with the channels 8 in its top face and with an upwardly extending web 9 of the same height as that of the web 7. The bars 2 are cut through their base flanges as at 10 and the webs 7 are slotted as at 11 so that the bars 2 can be moved downwardly into locking engagement with the

bars 1, so that the top face of the side flanges 12 of the bars 2 and the top faces of the flanges 5 will form supports for the glass which is positioned and aligned by the webs 7 and 9 which surround each of such glasses. These webs do not extend in proximity to the tread surface as set forth in my prior application to which I have hereinbefore referred, but only sufficiently above their flanges to form centering means for the glasses or lenses. After the steel framework is completed, the glass or lenses 13 are placed in position, as shown in Figures 2 and 3, so that the juxtaposed faces of adjoining glasses are in close relationship and a sealing compound 14 of tar and sulphur, or other desired type of water proof sealing compound is employed to fill in the space between the glass throughout its depth from the flanges on which it rests to the tread surface.

In Figures 2 and 3, I have shown the side walls of the glass as recessed to form a lock with the sealing compound, but I do not desire to be limited to this construction, as glass with straight sides can be employed, and any desired type of recesses in the side walls of the glass may be used to form anchors of locks for the sealing compound. This sealing compound also fills the grooves or channels 5 and 8.

In the embodiment seen in Figure 7, the same principle is involved as that shown in Figures 1, 2 and 3 except that the metal bars forming the framework are not provided with webs, such as, 7 and 9, seen in Figure 4, or with the channels in such bars, but the upper end of the bars are in the form of T's as shown at 15 and their glasses 16 have their marginal bottom portions cut away so that they seat on top of the T's 15.

It will be understood that in the form seen in Figure 7 the fabricated steel framework is employed similar to that shown in Figures 2 and 3, except for the construction of the upper ends of the metal bars and a different contour of glass is used. Juxtaposed glasses 16 are disposed in close proximity to each other and the space between is filled in with a sealing compound, such as, heated tar and sulphur 17 so that a water proof joint is formed between the glasses. Such sealing compound is sufficiently plastic to respond to pressure, so that it will completely fill the space between the edges of the adjacent glasses and make a waterproof joint and maintain the joint waterproof while at the same time providing an expansion joint. Being suitably plastic it causes no chipping or cracking pressure in its contact with the glass, as would be the case with a solid filler such as concrete or cement. With my joint of plastic material it does not bind with the metal structure to form a reinforced concrete combination, but such is not necessary in my invention because the fabricated metal structure provides in this combination the entire load-carrying capacity.

In the form seen in Figure 8, the steel bar construction has its upper end channeled as at 18, it being understood that both the longitudinally and laterally extending bars are channeled to provide flanges 19 on the top of which the glass rests and is supported. The sealing compound 20 fills the space between the glasses and extends into the channels 18 so that the sealing compound extends also beneath the glass to form a seal around the glass and also between the glass and the metal bars on which it is supported.

In the embodiment shown in Figure 9 the bars 21 and 22 are interconnected as in the other em-

bodiments shown. The webs of the bars 22 have the curved flanges 23, the top faces of which form glass supporting surfaces. The webs of both sets of bars are extended upwardly as at 24 only sufficiently to form glass positioning means. The sealing compound extends between the glass and the webs into the channels formed by the curved flanges and beneath the glass. The sealing compound also extends to and forms a part of the tread surface and at such surface completely fills in the space between juxtaposed glasses. Thus my construction exposes a narrow surface of plastic material to foot wear, and the tread of pedestrians' feet tends to spread the plastic material, and compact or force it against the adjacent glass members, assuring a watertight seal and one which is continuously tamped into tightness. This is important in that it aids in keeping the joint tight even when expansion and contraction occur due to temperature.

In the embodiment seen in Figure 10, the metal bars are in the form of a T as at 25 with a glass centering web 26.

In the embodiment seen in Figure 11, the metal bars are T shaped and the glass is carried by angles 27 resting on top of the metal bars.

In the embodiment seen in Figures 9, 10 and 11, the carrying bars have their webs of substantially uniform width throughout their depth.

In the embodiment seen in Figure 12 the carrying bars 28 have the glass positioning webs 29 and are provided with the flanges 30, on opposite sides of which, the glass is supported and the webs 31 are of varying thickness throughout their depth, being tapered from the bottom toward the flanges 30.

It will be apparent that the carrying bars and the cross bars can be of the same depth or they may be of different depths, the bars being cut so that they will interlock, and I therefore do not desire to be limited to any special arrangement for interlocking the bars, or any definite depth of a bar, or a shape in cross section of such bars.

The space between the glass is, in all cases, filled in with a sealing compound, and, if desired, this glass does not extend to and form a part of the tread surface. Rubber or other tread material may be employed on the top or tread surface between the glasses and still be within the spirit and scope of this invention. However, the sealing compound in such variations would underlie the rubber or other tread material, so that the plastic compound assures the watertight joints. Such other tread material may be conventional non-slipping tread material and may be inserted in a strip or other form, on top of the plastic material.

It will now be apparent that I have devised a new and useful vault light, floor light or skylight which embodies the features of advantage enumerated as desirable in the statement of the invention and the above description, and while I have, in the present instance, shown and described preferred embodiments thereof which will give in practice satisfactory and reliable results, it is to be understood that these embodiments are susceptible of modification in various particulars without departing from the spirit or scope of the invention or sacrificing any of its advantages.

Having thus described my invention what I claim as new and desire to secure by Letters Patent, is:—

1. A vault light comprising a preformed fabricated load-carrying structure having two sets of

substantially parallel fabricated metal bars positioned at an angle whereby one set interlocks with the other, each bar having lateral ridges forming glass supporting means on all sides of the openings formed by the intersecting bars and having an upwardly projecting ridge or web centrally located on each bar extending above the lateral glass-supporting ridges, glass sections forming lenses of greater dimensions than the clear opening between the lateral ridges on the fabricated bars forming respective openings and having a greater thickness than the height of the centrally disposed webs of the load-carrying structure bars, and permanently plastic material forming an expansion joint between all of the adjacent glass edges flush with their upper surface and covering the upward projecting webs of the structural members.

2. A vault light or the like, having the entire

load-carrying frame of fabricated metal structure, multiple vault light glasses, ridges on the metal structure cooperating for ready positioning of the glasses and permanently plastic sealing compound overlying the ridges forming an expansion joint between the edges of adjacent glasses, whereby surface pressure on the joints assures watertightness of the joints and maintains a sealed joint.

3. A vault light comprising a fabricated metal structure forming the sole load-carrying means, a plurality of glasses or lenses supported over apertures in the load-carrying structure and a permanently plastic compound filling the space between adjacent glass edges to form an expansion joint and a compressible tread entirely spanning the space between the edges of the exposed surfaces of the adjacent glasses.

LOGAN WILLARD MULFORD.