C. H. PASCHALL.

VAULT LIGHT CONSTRUCTION.

APPLICATION FILED JULY 24, 1911.

1,039,790.

Patented Oct. 1, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

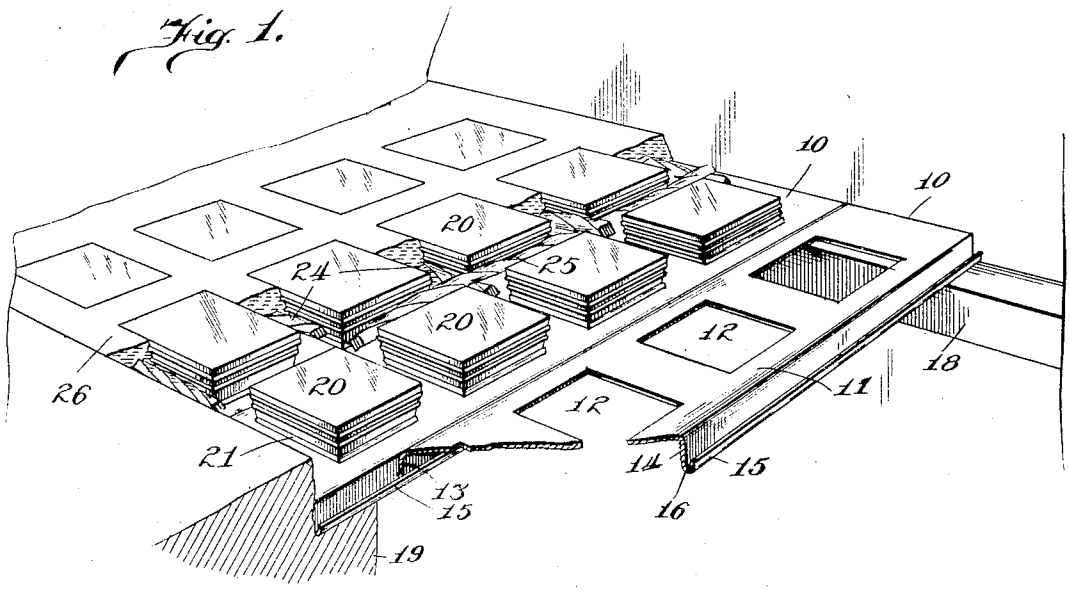


Fig. 2.

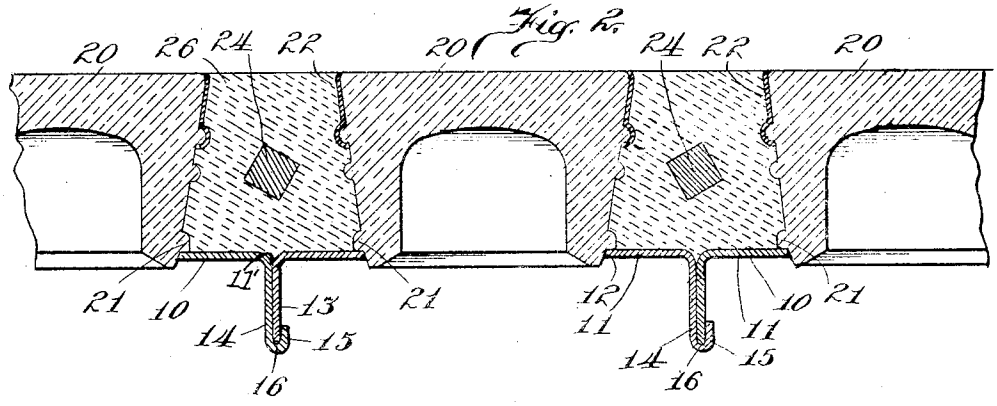
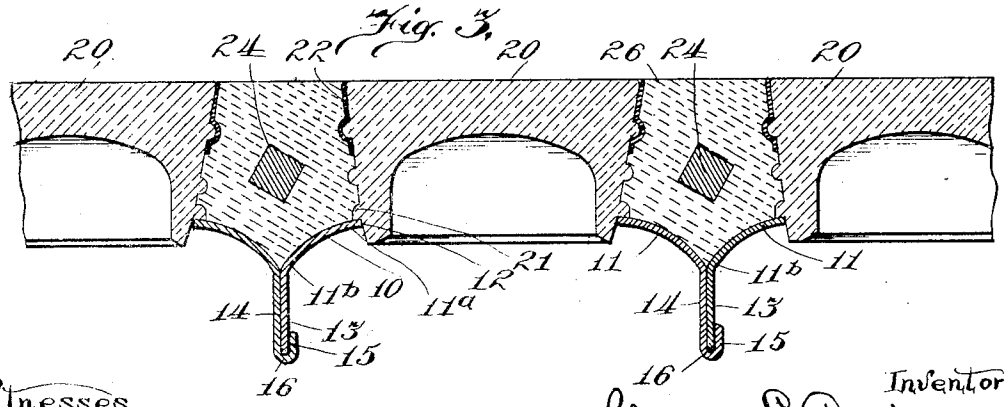


Fig. 3.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 4.

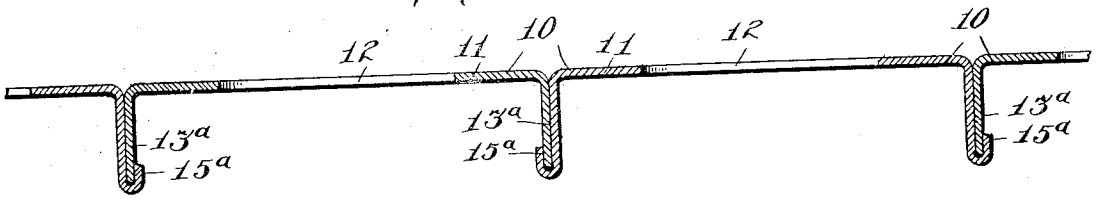


Fig. 5.

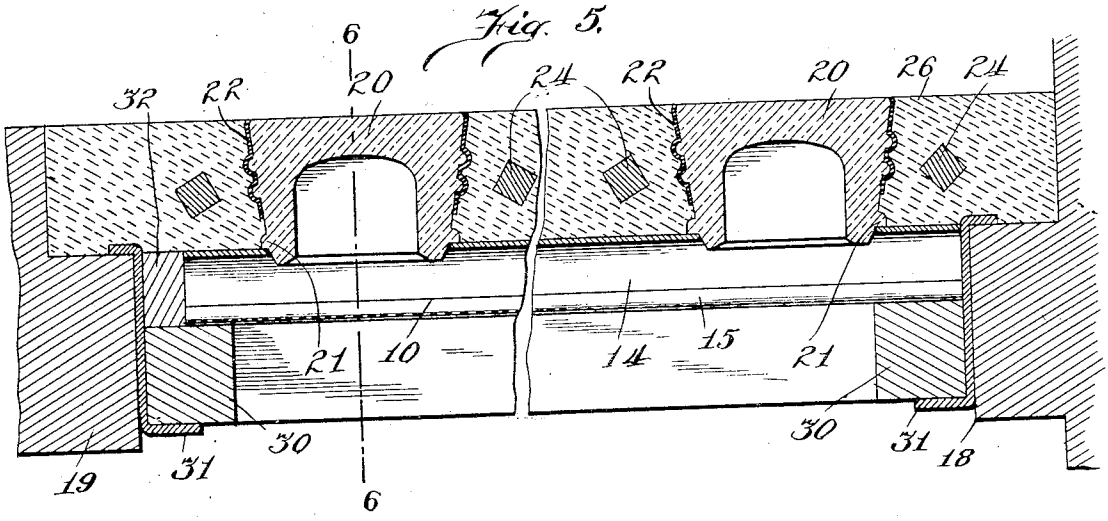
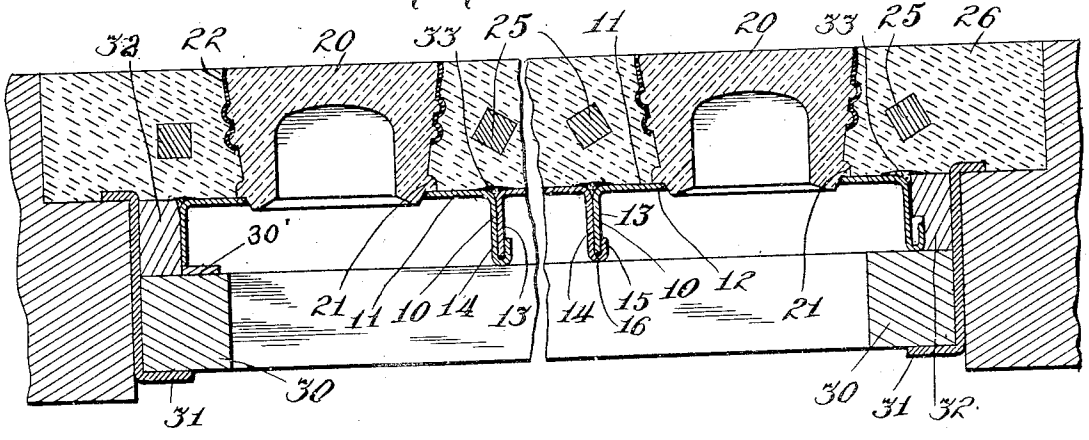


Fig. 6.



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UNITED STATES PATENT OFFICE.

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VAULT-LIGHT CONSTRUCTION.

1,039,790. Specification of Letters Patent. Patented Oct. 1, 1912.

Application filed July 24, 1911. Serial No. 640,317.

To all whom it may concern:

Be it known that I, CHARLES H. PASCHALL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Vault-Light Construction, of which the following is a specification.

My invention relates to improvements in vault light construction, and has for its general object to provide a structure characterized by simplicity, strength, durability, and ease of laying.

One of the salient features of my invention is a foundation structure for supporting and properly locating the lenses or glasses and defining the lower surface of the glass-embedding cement body in the formation of the composite structure, said foundation structure being simple, cheap, and efficient, and adapted for either embodiment as a permanent part of the completed vault light construction, or for use temporarily as a backing or form for the cement and templet for the glasses.

In the drawings, wherein I have shown an embodiment of my invention; Figure 1 is a perspective view, showing a fragment of a vault light structure with different zones in varying stages of completion; Fig. 2 is a transverse vertical section through a fragment of a completed structure, and Fig. 3 is a similar view showing a slightly modified arrangement; Fig. 4 is a detail section of a modified form of foundation; Figs. 5 and 6 are transverse and longitudinal sections through a structure in course of erection.

The metallic foundation structure which I employ consists of a suitable plurality of metallic sections 10—10, preferably duplicates, each section consisting of a body plate 11, having therein at suitable intervals apertures 12 for the glasses or lenses, the parallel side edges of each said plate 11 being downturned as at 13—14, into parallel vertical side walls, depending from the shoulders or side-folds 11′ of the body member.

The side walls of adjoining sections are constructed to lie face to face when assembled and to interlock at their lower edges, thereby to bring the shoulders 11′ of the body members into contact to form a substantially continuous platform in the upper plane of the structure. To this end the side wall 13 of each section is plain, that is, lies wholly in one vertical plane, with its edge in a straight line, while the opposite side wall 14 terminates in a sharply up-turned edge lip 15, folded outward to form a narrow exterior gutter, or channel 16, appropriately located and proportioned neatly to receive the lower edge of the plain side wall 13 of an adjoining section. When a plurality of sections are assembled each with the edge of its plain side wall 13 fitted into the exterior groove 16 of the channel side wall 14 of the adjoining section, the body portions of the section stand in horizontal alinement, shoulder to shoulder, and the interlocked side walls 13 and 14 meet face to face below said shoulders. These interlocked sections constitute a foundation which is substantially rigid; strongly resisting any tendency to sag in a direction transverse to the lines of juncture on account of the bearing of each edge wall 13 against the adjoining wall 14 and its lip 15, and adequately strong in a direction parallel to the lines of juncture of the sections on account of the reinforcing effect of the double-thickness, narrow flanges formed by the interlocked edge walls.

In constructing a side walk light in which the foundation structure is to be left as a part of the completed construction, the unit sections are placed in interlocking relation, each with its ends resting on rabbets or other bearing surfaces, 18 and 19, as of the building, to be lighted and the side walk respectively, and suitable lenses or glasses, 20, each preferably having a retaining shoulder 21 near its bottom, are seated in the openings 12, for support with their tops flush with the purposed level of the side walk. The particular construction of glass employed forms no part of my present invention, but I illustrate glass of well known form, having a coating 22 of somewhat-resilient material partially covering its peripheral walls. Between the rows of glasses, lengthwise and crosswise of the foundation section, may be run reinforcing rods, 24 and 25, and then the lenses, and the rods above the foundation plates, are embedded in the cement body 20, applied while plastic and allowed to set in the usual manner.

It will be obvious that in the construction illustrated in Fig. 2, a uniform depth of

cement is presented at all portions of the construction, so that expansion and contraction in the cement may be uniform and tendency to cracking of the cement (which sometimes occurs from unequal distribution thereof) may be prevented.

In some instances, where economy in the amount of glass employed, or shallowness of the lenses is desired, some saving in this regard may be effected by arching the body portion 11 of the foundation members somewhat, as shown in Fig. 3, leaving a central planar zone 11^a only of sufficient width to receive the glass and providing downwardly deflected portions 11^b flanking said planar portions on both sides and meeting angularly, or merging into, the vertical side walls 13 and 14. In construction the platform is not horizontal throughout, but its variation from horizontal may be slight and the arrangement, with the bodies meeting shoulder to shoulder, provides a continuing platform and embodies many salient advantages of the structure first described.

If desired the sections may be made as shown in Fig. 4, both side walls of one section being provided with edge lips as at 15^a, and both side walls of the next section being plain as at 13^a.

In some installations it is desirable to have the reinforced concrete alone support the lenses in the completed structure, without the provision of a permanent metallic foundation and for such construction the foundation sections described may be employed as part of the temporary false work to support and position the lenses and cement in the process of erection of the reinforced-concrete structure. For such work it has heretofore been customary to employ templets of paste board, supported upon a wood backing, to position the glasses and define the lower surface of the cement, the false work, including the paste board, being removed after the glass is in place and the cement hardened. The pasteboard is usually employed in large sheets, and is disadvantageous on account of expense, being usable only once. Sheet metal has heretofore proved to be an unsatisfactory substitute for the paste board, however, in that it cannot easily be maintained smooth and level in flat plates, and is difficult to handle and ship in such form. The paste board may readily be brought to level on the wood backing, but a metal sheet when once buckled is very difficult to bring down to the desired flatness, or to level on the wood backing. The foundation units of my invention may, however, be employed satisfactorily (as illustrated in Figs. 5 and 6) as temporary foundation members for subsequent removal, as their flanged edge formation gives to the planar body portions adequate resistance against buckling or distortion, and their narrow strip form enables them easily to be handled in shipping and in assembling. In such temporary use of the foundation sections, they are arranged to receive support in any suitable manner from a false work bracing, that herein shown for illustration, providing edge-frame members 30, hung on metal clips 31 as a convenient and cheap arrangement for support of the edges of the sectional metallic foundation. Preferably the metallic foundation structure when assembled is smaller in every direction than the aperture in which the glass lights are to be placed, and is supported on the frame 30 and shims 30′, the open border spaces around some or all of the edges of the metallic foundation structure being brought to a level with the planar portion of the metallic foundation by removable border strips 32 of wood. The slight cracks or crevices in the surface of the metal foundation at the lines of articulation of the sections, may be leveled with sand, or any appropriate power, well known in the art to which the cement will not readily adhere, as exaggeratedly shown at 33, and the clips 31 may be protected by sanding or greasing, so that the cement will not adhere thereto. When the desired smooth surface is thus attained the placing and setting of the lenses, rods, and cement are accomplished in the manner heretofore described. When the cement has set the false work may all be taken down and the metal foundation, free from support at all of its edges, may be directly removed from the cement, leaving the reinforced cement with its embedded lenses in a self-supporting span across the orifice of the side walk, receiving its bearing directly from the sidewalk.

While I have herein described in some detail specific embodiments of my invention for purposes of full disclosure, it will be apparent to those skilled in the art that many changes in the specific organization might be made without departure from the spirit of my invention and within the scope of the appended claims.

What I claim is:

1. In a structure of the character described the combination of a metallic foundation structure comprising a plurality of sections, each section consisting of a strip having a body portion provided with apertures, and vertically down-turned flanges at its edges, one said flange having an upturned lip at its lower edge embracing the downwardly facing lower edge of the opposite flange of the next adjoining section, and said flanges contacting face to face above their connected lower edges, lenses arranged in the apertures aforesaid, metal rods arranged in the spaces between the lenses, and a cement body laterally surrounding the blocks

and embedding the reinforcing rods, and having its lower surface defined by the metallic reinforcing structure.

2. In a vault light structure the combination of a metallic foundation comprising a plurality of sections each having an apertured body portion and down-turned side walls on opposite sides of the body portion, the side walls of adjoining sections interlocking at their lower edges, and meeting face to face above their lower edges, lenses seated in said apertures, and a cement body surrounding said lenses above the foundation.

3. In a vault light structure the combination of a metallic foundation comprising a plurality of duplicate sections each having an apertured body portion and downturned side walls on opposite sides of the body portion, the side walls of adjoining sections interlocking at their lower edges, and meeting face to face above their lower edges the body portions of said strips jointly providing a transversely continuous platform, lenses seated in said apertures, and a cement body surrounding said lenses above the foundation.

4. A foundation element of the character described, consisting of a strip of sheet metal having down-turned side walls, one of said side walls having an up-turned, outwardly-extending lip forming a narrow channel 16 at substantially the same depth as the edge of the opposite side wall, said strip having between its side walls a body portion having lens receiving apertures therein.

5. In a vault light structure, a metal foundation comprising a plurality of relatively narrow sections each having an apertured, lens-receiving body portion and downturned side walls, said body portions meeting shoulder to shoulder to form jointly a transversely continuous platform, and means to connect face to face the proximate side walls of adjoining sections below said shoulders.

In testimony whereof I hereunto set my hand in the presence of two witnesses.

CHARLES H. PASCHALL.

In the presence of—
W. LINN ALLEN,
MARY F. ALLEN.