L. BAUMGARTL.

CEMENT SLAB OR TILE WITH LIGHT PANE.

APPLICATION FILED FEB. 10, 1916.

1,195,643.

Patented Aug. 22, 1916.

2 SHEETS—SHEET 1.

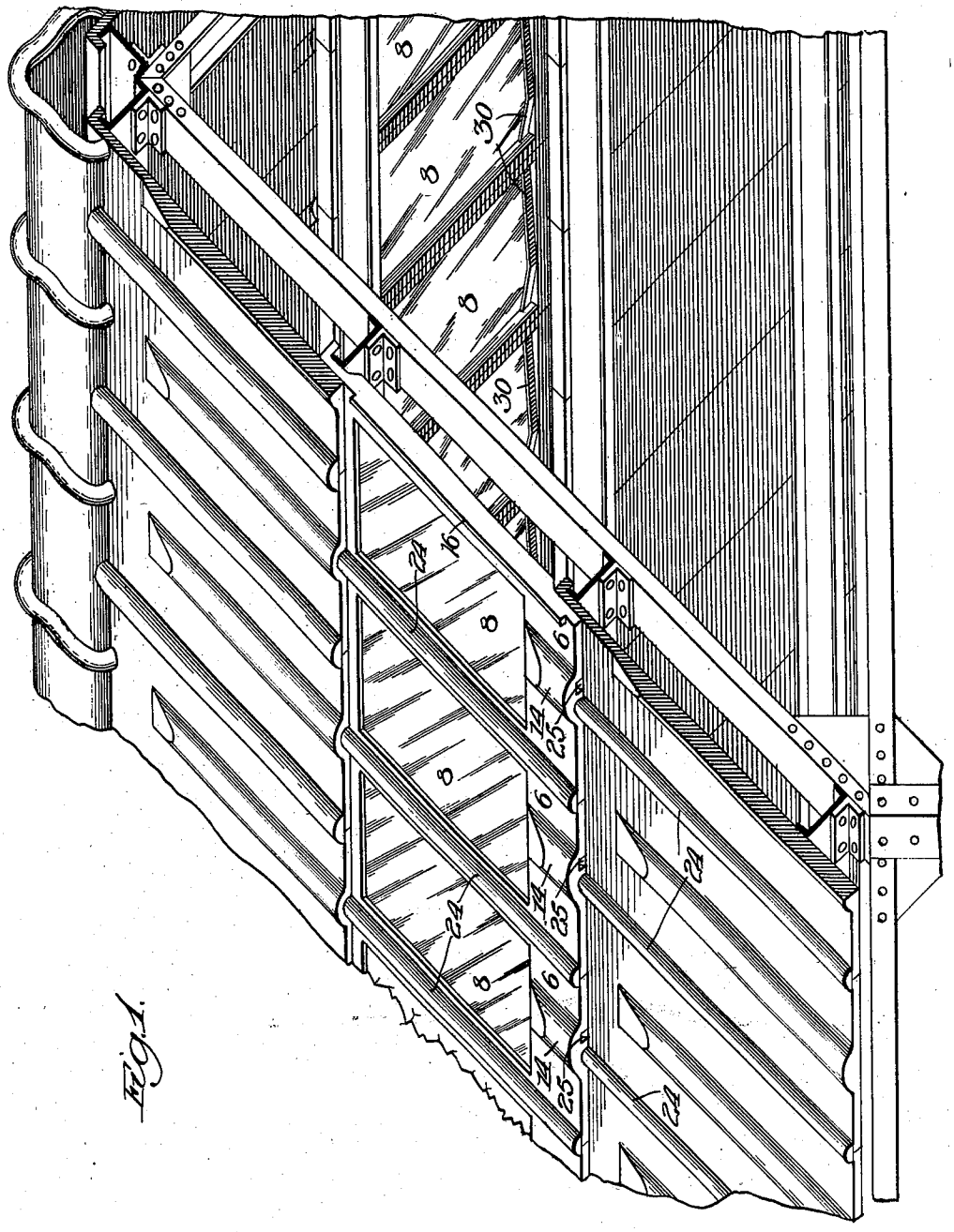


Fig. 1.

Witnesses:
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Chas. H. Bull.

Inventors.
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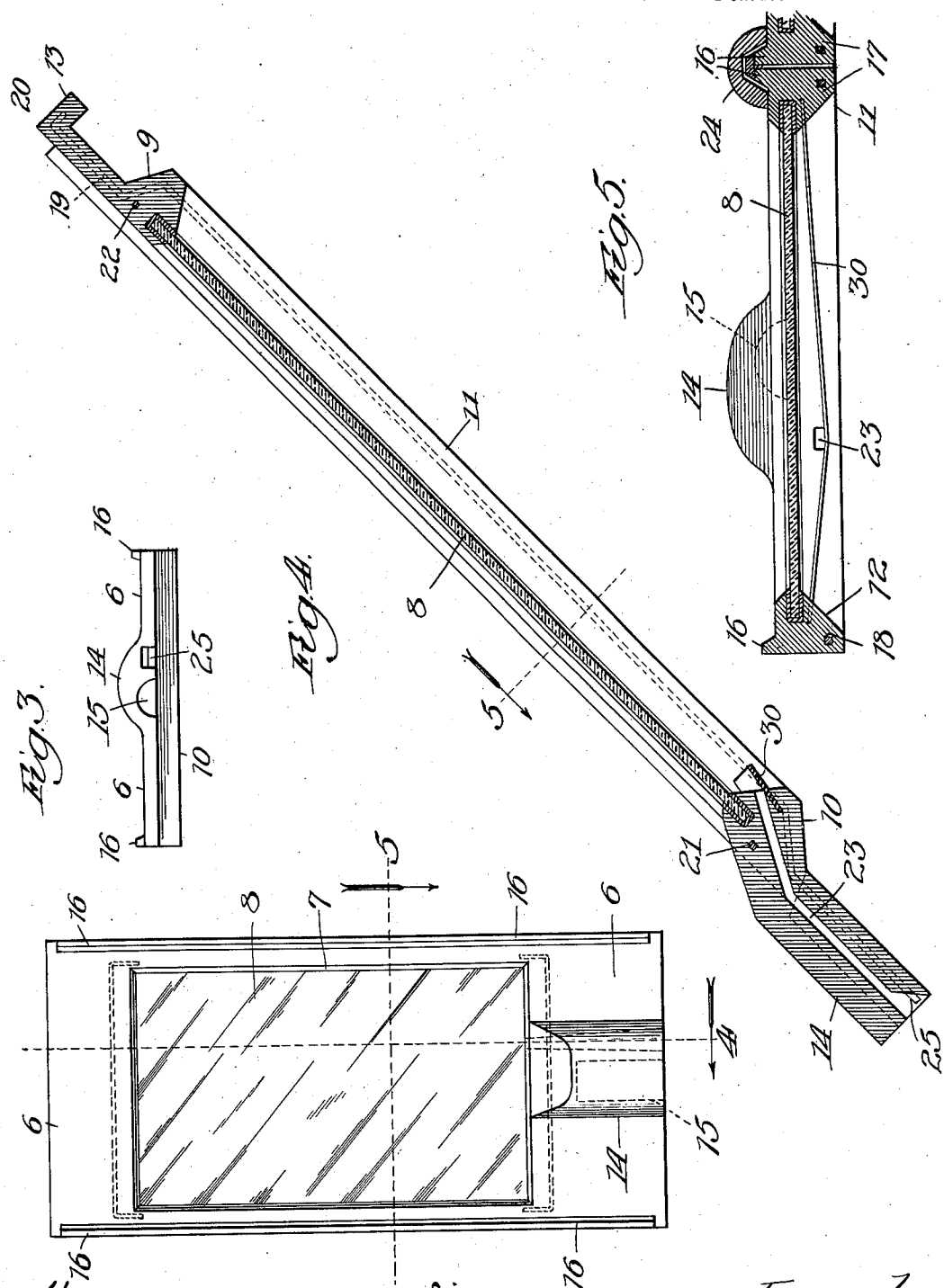


Fig. 5.

Fig. 4.

Fig. 3.

Fig. 2.

Witnesses:
Chas. H. Bull

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UNITED STATES PATENT OFFICE.

LEROY BAUMGARTL, OF CHICAGO, ILLINOIS, ASSIGNOR TO FEDERAL CEMENT TILE COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

CEMENT SLAB OR TILE WITH LIGHT-PANE.

1,195,643. Specification of Letters Patent. Patented Aug. 22, 1916.

Application filed February 10, 1916. Serial No. 77,401.

To all whom it may concern:

Be it known that I, LEROY BAUMGARTL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Cement Slabs or Tile with Light-Panes, of which the following is a specification.

My invention relates to slabs, or tile, provided with sections of glass forming illuminating areas; and, more particularly, cement slabs, or tile, used for roofing purposes where such illuminating areas are desired.

My objects, generally stated, are to provide a cement slab, or tile, of the relatively thin type, which, while presenting the desired strength, will afford a relatively large illuminating area; to provide for the collecting and conducting away from the underside of the inset glass section to a desired point of discharge, water condensing thereon; and to provide against the freezing of the water in the course of its discharge from the slab, or tile.

Referring to the accompanying drawings, Figure 1 is an isometric view of a portion of a roof structure formed of slabs, or tile, certain of which are constructed in accordance with my invention. Fig. 2 is a plan view of my improved slab, or tile. Fig. 3 is a view in elevation of one end of the tile of Fig. 2. Fig. 4 is an enlarged section taken at the line 4 on Fig. 2 and viewed in the direction of the arrow; and Fig. 5, an enlarged section taken at the line 5 on Fig. 2 and viewed in the direction of the arrow.

My improved tile, in accordance with the preferred embodiment of my invention, consists of a body-portion 6 of comparatively great superficial area and relatively thin. The body-portion 6 contains intermediate its ends and sides a relatively large opening 7, in which a light pane 8, as for example, a pane of wire glass, is confined to afford the illuminating area desired. The opening 7 is framed, preferably at the underside of the body 6, of the slab, or tile, by the ribs 9, 10, 11 and 12, arranged in the form of a rectangle, as shown, the ribs 11 and 12 preferably extending to the outer edge of the slab or tile, as represented in Fig. 5. The rib 9 which is located at the end of the tile, which would be the upper end when the tile is used to form a slanting roof, extends considerably short of the extreme upper edge of the tile, as shown in Fig. 4, this extremity of the tile being provided with a depending flange, or lip, 13, at which the slab or tile is adapted to interlock with the beams, or girders, on which they are laid in constructing the roof. The opposite, lower end, of the slab, or tile, is provided intermediate its edges with a socketing section 14 which extends above the plane of the body 6, as illustrated in Fig. 3, the socketing portion of the section 14, being represented at 15, at which the slab, or tile, is adapted to fit over the adjacent end of a coupling or joining bar connecting adjacent edges of slabs or tile immediately beneath, and in break joint relation therewith, as is common practice. The slab or tile as shown is also provided along its opposite lateral edges with upwardly-extending flanges, or ribs, 16, which, by preference reach short of the ends of the slab or tile, as represented in Fig. 2, these ribs being provided, in accordance with common practice, for coöperation with the joining bars just referred to.

In the manufacture of my improved slab or tile, it is cast from cement introduced into a mold, not shown, having the desired shape, to produce the structure as described. The light pane 8 is preferably united with the body 6 of slab or tile, by molding the cement about the upper and lower marginal edges of the pane 8, as indicated in the drawings. To this end the light pane 8 would be so positioned in the mold, as is understood in the art, as to cause the cement to become interlocked therewith, as stated, for holding the light pane in place. As the coefficients of expansion of concrete and glass are not the same, it is desirable that provision be made for this unequal expansion and contraction, this preferably being accomplished by interposing between the marginal edges of the pane 8 and the adjacent pane-confining portions of the body 6, any desirable yielding material which will form a tight joint between the pane and the body 6 and still permit of the expansion and contraction of the pane 8 and body 6 relative to each other.

The body 6 may be reinforced or not, as desired. Reinforcement, however, is pre-

ferred, and as a desirable arrangement of reinforcement, I provide rods 17 and 18 which are embedded in the lower portions of the flanges 11 and 12, respectively, the upper ends of these rods, adjacent the ends of the flanges 9, being upwardly offset, as represented at 19, at which sections these rods are embedded in the relatively thin upper end of the body 6 to reinforce the latter, the extremities of these rods being downwardly deflected, as represented at 20, wherein they are embedded in the flange 13, and the lower ends of these rods being upwardly offset, as represented. Other rods 21 and 22 are embedded in the body 6 adjacent the framing sections 9 and 10.

In the use of slabs, or tile, presenting illuminating areas of transparent or semi-transparent material, it is necessary that provision be made for preventing water condensing on the inner surfaces of the illuminating sections, from running down and dropping into the inside of the building, it being understood that such roof structures are built on an incline. In my improved slab provision is made for intercepting the water of condensation forming on the underside of the illuminating section of the slab or tile, and conducting it to the outer surface of the roof. This is accomplished in the preferred illustrated embodiment of my invention, by forming in the end of the slab, or tile, provided with the socketing section 14, the passage or conduit 23 which extends from the inner face of the flange 10 to and through the adjacent extremity of the tile, or slab, as represented in the drawings, this conduit coöperating with means which intercept and deflect into the said conduit the water thus condensed. The means shown are in the form of a trough 30 which extends across the inner face of the flange 10, from the flange 11 to the flange 12. This trough may be of any desired shape or construction, it being preferred, however, that it be formed of metal embedded at its lower edge and ends in the flanges 10, 11 and 12, respectively, leaving its upper edge free, with the portions of the trough converging from the flanges 11 and 12 downwardly to a point where the conduit 23 registers with the trough, as illustrated in Fig. 5.

In Fig. 1 the manner of using the slab, or tile, is clearly shown, and while the general arrangement of the various slabs, or tiles, shown, is in accordance with common practice, it may be said that the upper and lower row of slabs, or tile, are of the type in which no light pane is employed, whereas the center row is formed of slabs, or tile, constructed in accordance with my invention. The break joint relation of the slabs, or tile, of adjacent rows is illustrated, the joining bars hereinbefore referred to and coöperating with the flanges 16 of adjacent slabs, or tile, and extending at their upper ends into the sockets 15 of the slabs, or tile, of adjacent upper series, being represented at 24.

It will be readily understood from the foregoing that while the body 6 of my improved tile is relatively thin, a feature which is manifestly a desirable one, the illuminating area of the slab, or tile, is relatively great, thus producing the maximum efficiency of the tile for skylight roofing purposes.

The location of the conduit 23, as shown and described, causes it to incline downwardly from the direction of its point of discharge, when the slab, or tile, is positioned for use in a roof, and thus water of condensation flowing down the underside of the illuminating sections 8, will be intercepted by the trough and discharged through the conduit 23 upon the slabs, or tile, beneath them. Where the slabs, or tile, are to be used in cold climates, provision should be made for preventing the clogging of the conduits 23, by freezing of the water discharging therethrough. I prefer to so shape the conduits 23 and to provide them of such cross-sectional dimension, relative to the amount of water which would pass therethrough, when the slabs, or tile, are in use, that the stoppage of the conduits by freezing will be prevented. Owing to the necessity of cutting away of as little of the material of the slabs, or tile, as possible, in order that the advantage of making the tile thin, may be availed of, the conduits 23 are preferably so formed as to present a large cross-sectional area at their outer ends, as compared with the remaining portions of the conduits, and thus the water discharging therethrough, and which it is found in practice would only freeze at the outer ends of the conduits, is caused to spread out, so to speak, over the bottom surface of the outer ends of the conduits, and if freezing does occur it will not entirely choke the conduit. Furthermore, and preferably in addition to the feature of the conduits just stated, I prefer to form the lower extremity of the lower wall of the conduit with a sharply downwardly deflected section 25. Thus, water discharging down the conduit 23 upon the surface 25 will run very rapidly through the zone where freezing might occur, and will, to a relatively great degree, discharge from the extreme lower edge of the section 25, as distinguished from hanging thereon in the form of drops. Furthermore, as will be readily understood, the upper portion of the surface 25 is kept free from the formation of drops of water thereon.

While I have illustrated and described a particular construction of article embodying my invention, I do not wish to be understood as intending to limit it thereto, as the same may be variously modified and al-

tered without departing from the spirit of my invention.

What I claim as new, and desire to secure by Letters Patent is—

1. A slab or tile of the character set forth, comprising a relatively thin body portion of cement or the like, having an opening therethrough extending closely adjacent to the longitudinal sides, a section of translucent material confined in said opening, said body portion having reinforcing ribs along its longitudinal sides in which said translucent material is embedded, and a central reinforcing rib longitudinally disposed adjacent one of the edges, said rib being of sufficient width to provide a passage communicating with the underside of the translucent material for conducting moisture to the upper surface of an adjacent and lower slab, and having a space adjacent said passage adapted to coact with the ribs of an adjacent section.

2. A slab or tile of the character set forth, comprising a relatively thin body portion of cement or the like, having an opening therethrough extending closely adjacent to the longitudinal sides, a section of translucent material confined in said opening, said body portion having reinforcing ribs along its longitudinal sides in which said translucent material is embedded, and a central reinforcing rib longitudinally disposed adjacent one of the edges, said rib being of sufficient width to provide a passage communicating with the underside of the translucent material for conducting moisture to the upper surface of an adjacent and lower slab, and a drip cup extending transversely of the slab adjacent the lower edge of the translucent material to collect the moisture therefrom and conduct it through said passage.

3. A slab or tile of the character set forth, comprising a relatively thin body portion of cement or the like, having an opening therethrough extending closely adjacent to the longitudinal sides, a section of translucent material confined in said opening, said body portion having reinforcing ribs along its longitudinal sides in which said translucent material is embedded, and a central reinforcing rib longitudinally disposed adjacent one of the edges, said rib being of sufficient width to provide a passage communicating with the underside of the translucent material for conducting moisture to the upper surface of an adjacent and lower slab, having a space adjacent said passage adapted to coact with the ribs of an adjacent section, and a drip cup extending transversely of the slab adjacent the lower edge of the translucent material to collect the moisture therefrom and conduct it through said passage.

LEROY BAUMGARTL.

In presence of—
O. C. AVISUS,
D. C. THORSEN.