H. E. MARKS AND W. R. FRAZIER.

BUILDING CONSTRUCTION.

APPLICATION FILED JAN. 5, 1918.

1,386,130. Patented Aug. 2, 1921.

2 SHEETS—SHEET 1.

Fig. 1

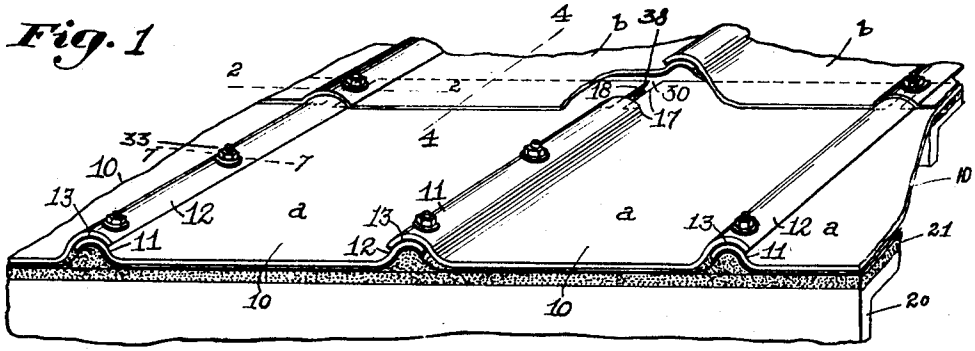


Fig. 2

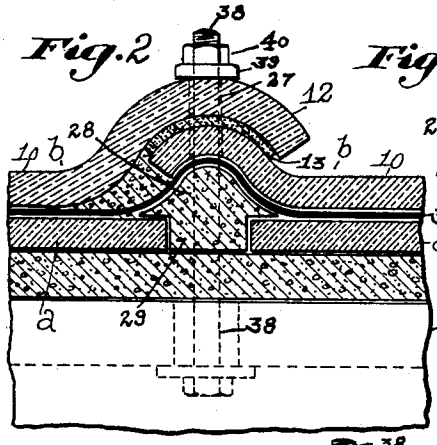


Fig. 3

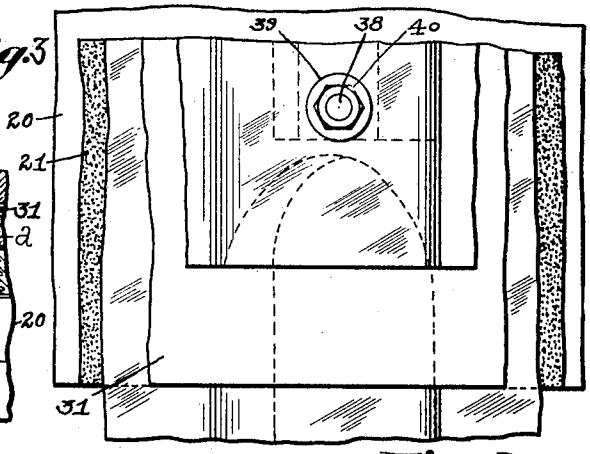


Fig. 4

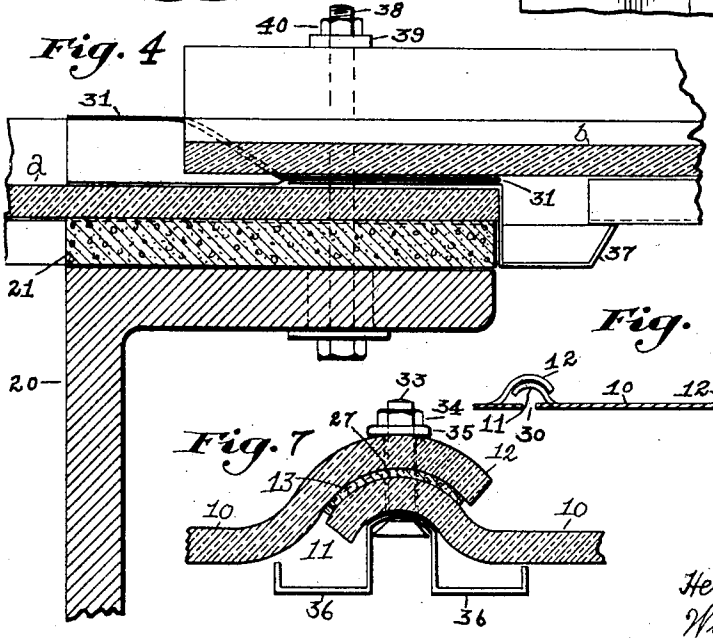


Fig. 5

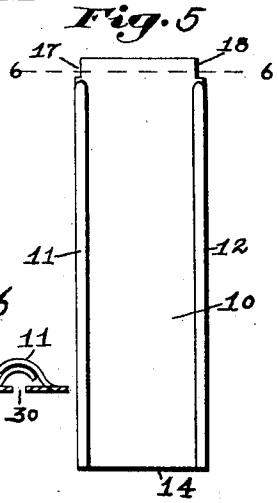


Fig. 6

Fig. 7

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2 SHEETS—SHEET 2.

Fig. 8

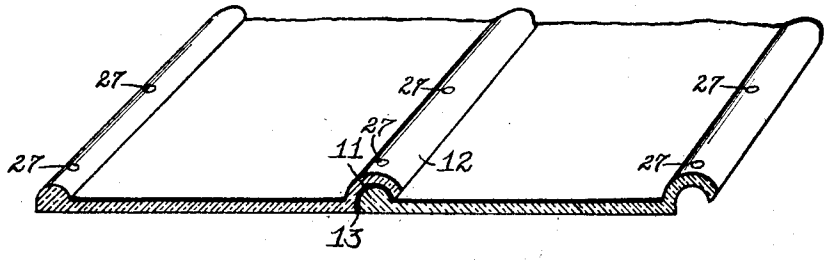
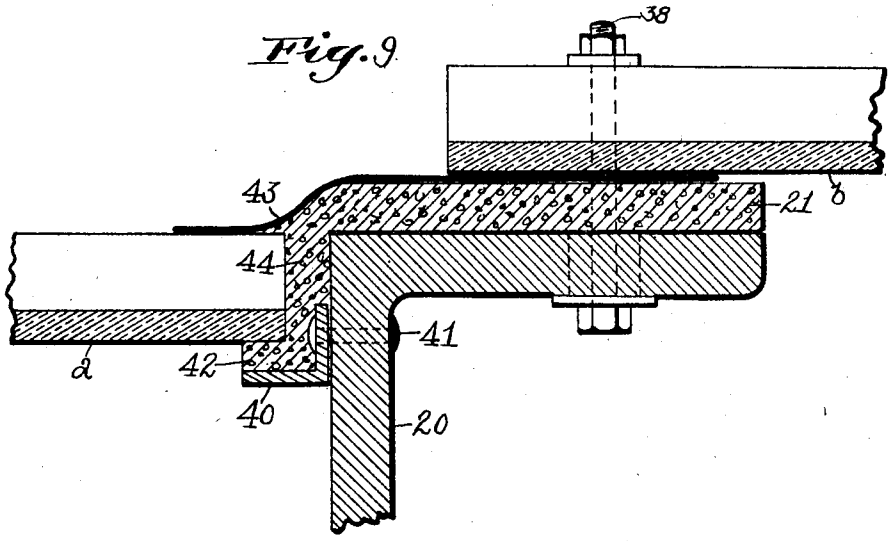


Fig. 9



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UNITED STATES PATENT OFFICE.

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BUILDING CONSTRUCTION.

1,386,130. Specification of Letters Patent. Patented Aug. 2, 1921.

Application filed January 5, 1918. Serial No. 210,437.

To all whom it may concern:

Be it known that we, HERBERT E. MARKS and WILLIAM R. FRAZIER, citizens of the United States, and residents of Sewickley and Pittsburgh, respectively, in the county of Allegheny and State of Pennsylvania, have invented an Improvement in Building Construction, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to a building construction of that character in which overlapping members provided with one or more corrugations, beads, ribs or the like are employed. The invention is particularly adapted for use in the construction of roofs for buildings and has for one of its objects to provide a resilient weather-resisting member between the overlapping members, which is moldable and capable of conforming to the shape of the overlapping members and thereby form a weather-tight joint between the same and which also is capable of forming a yielding bed for the upper one of the overlapping members.

The invention is especially applicable to a building construction in which the overlapping members are of a fragile nature, and is herein shown as embodied in a glazing construction, which is simple, efficient, and inexpensive and which can be manufactured and installed at a minimum cost, and in which the usual metal caps and bar members now commonly employed are dispensed with, and yet obtain a weather-tight glazing construction.

The invention further has for its object to provide a weather-tight glazing construction in which provision is made for securing an upper glass member in fixed position while permitting expansion of the underlying glass member.

These and other features of this invention will be pointed out in the claims at the end of this specification.

Figure 1 represents a perspective with parts broken away of a portion of a roof construction in the form of a skylight, embodying this invention.

Fig. 2, an enlarged cross section on the line 2—2, Fig. 1.

Fig. 3, a plan of the portion shown in Fig. 2.

Fig. 4, a section on the line 4—4, Fig. 1, on an enlarged scale.

Fig. 5, a plan of one of the glass members or lights.

Fig. 6, an enlarged cross section on the line 6—6, Fig. 5.

Fig. 7, an enlarged cross section on the line 7—7, Fig. 1.

Fig. 8, a section of a skylight embodying a modified form of glass member, and

Fig. 9, a modification to be referred to.

In the present instance, the invention is shown as embodied in a skylight construction, in which *a* represents a lower row and *b* an upper row of individual glass lights or members 10, which are constructed and arranged to form a skylight. The glass lights or members 10 shown in Figs. 1 and 5 are provided with curved lips or side portions 11, 12, which project above the plane of the intermediate body portion and both of which are grooved on their underside. The lips 11, 12, extend from one end 14 of the glass member to within a substantially short distance from the opposite end of said member, which end is provided with notched portions 17, 18, at the sides thereof, which cooperate with the notched portions of adjacent glass members to form a slot 30 for a purpose as will be described.

In Fig. 1 we have illustrated one method of overlapping adjacent glass members 10, and to this end the curved side lips 11, 12, of one glass member are made of larger radius of curvature than the side lips of adjacent glass members, and said glass members are so designed and arranged that the side lips 11, 12, of alternate glass members 10 overlap and fit upon the lips 12, 11, of intervening glass members 10, and an effective weather-tight joint between the overlapping side lips of adjacent glass members is obtained by means of a sealing strip or member 13, which is interposed between said overlapping lips and may be of any suitable resilient and moldable material, preferably bituminous composition, waterproofed felt or the like, which is capable of conforming to the shape of the skylight members.

The glass members 10 in each row are yieldingly supported by a preformed member 21 of resilient moldable material, such as bituminous composition and like substantially plastic material, which rests upon

the support 20 for the skylight, which support may be of any suitable character and is herein represented by the roof purlins.

A resilient member 28 is also provided for the overlapping side lips 11, 12, of adjacent plates, said member being extended transversely of the cushioning member 21, and those members 28, which are interposed between the notched ends of the glass members in the rows *a* and the overlapping lips of the glass members in row *b* rest upon the glass members and are provided on their under side with tongues 29, (see Fig. 2), which extend into the slot 30 and serve to cushion the notched ends of adjacent glass members when the latter expand laterally, and also serve to form a water-tight joint.

Provision is also made for obtaining a weather-tight joint between the glass members of one row which overlap the glass members of another row, which may be effected by a resilient moldable member or by a flashing 31 interposed between the glass members of said rows (see Figs. 2 and 4).

The overlapping glass members 10 of the lowest row *a* are fastened to their support represented by the roof purlin 20 by the bolts 38 extended through enlarged holes 27 in the overlapping side lips 11, 12, and are provided above the upper lip with a suitable washer 39 and nut 40, and the overlapping lips 11, 12 of the glass members in the row *b* which overlaps the row *a* are secured in fixed relation to the support by like bolts 38, washers 39 and nuts 40. The bolts 38 are extended through the slots 30, which leaves the glass members of the lower row *a* free to expand and contract in one direction, which may be regarded as longitudinally of the glass members, while the enlarged holes 27 in the side lips coöperate with the sealing member 13 to permit the glass members to expand and contract laterally.

The glass members of the upper row *b* overlap the glass members of the lower row *a*, a sufficient distance to cover the slots 30 formed by the notched sides 17, 18, of adjacent glass members of the row *a*, and the slots 30 formed in the row *b* are covered in like manner by the next succeeding row *b* (not shown) and so on.

The washers 39 are of suitable material to prevent moisture entering the holes in the lips of the glass members.

The overlapping members 10 in each row, may if desired be provided with additional bolts 33, nuts 34, and washers 35 for the purpose of supporting condensation gutters 36 (see Fig. 7) extending lengthwise of the glass members, and these gutters may communicate with cross gutters 37 extending lengthwise of the purlins 20 (see Fig. 4), so that any condensed moisture may be carried away to suitable drains (not shown). The cross gutters 37 may be fastened to the purlins in any suitable manner, as for instance by the bolts 38.

While it may be preferred to provide the glass light or member with grooved lips or side portions as shown in Fig. 1, it is not desired to limit the invention in this respect, as one of said lips as 11 may be made without a groove or solid as represented in Fig. 8, and when so made the grooved lip 12 of one glass member will overlap the solid curved lip 11 of the next adjacent member with the sealing strip 13 interposed between.

In Fig. 4, is represented one method of terracing the rows of adjacent glass members, but it is not desired to limit the invention in this respect, and in Fig. 9 is shown another method of accomplishing this result.

Referring to Fig. 9, 40 is an auxiliary support, preferably an angle iron, secured to the purlin 20 by bolts or rivets 41.

The desired degree of terrace between succeeding glass members determines directly the distance below the top of the purlin 20 at which the auxiliary support 40 is to be placed, and this can be varied as may be desired.

The auxiliary support 40 is preferably provided with a resilient member 42 similar in character to the resilient members 21, and upon which rest the upper end of the glass members 10 of the lower rows *a*.

A suitable flashing 43 either alone or together with a plastic cement or filler 44 will be used between the upper and lower rows of glass members to secure a weather-tight joint.

Where the method of installation shown in Fig. 9 is used, the curved and solid side lips of the individual glass members may extend the entire length of the glass members.

We have herein shown and described the invention as embodied in a skylight construction to which it is particularly applicable, but it is not desired to limit the invention in this respect, as it may be embodied in all forms of roofing constructions employing overlapping members provided with corrugations, beads, ribs or the like.

Claims.

1. In a building construction, in combination, a supporting member, a preformed cushioning member of moldable bituminous material resting thereon, glass members resting on said cushioning member, and means for securing said glass members to said supporting member.

2. In a building construction, in combination, supporting members spaced apart, preformed cushioning members of moldable bituminous material on said supporting members, glass members extended from supporting member to supporting member and resting on said cushioning members, glass mem-

bers overlapping the first-mentioned glass members over one of said supporting members, a preformed sealing member of bituminous material interposed between said overlapping glass members, and means for securing said overlapping glass members to said supporting members.

3. In a building construction, in combination, a supporting member, a cushioning member sustained thereby, overlapping adjacent glass members resting on said cushioning member and provided with grooved side portions, a preformed sealing member capable of being handled as a unit and composed of substantially plastic water-repelling material located between the overlapped grooved side portions, and means to secure said glass members to said supporting member.

4. In a building construction, in combination, adjacent members provided with overlapping side lips, and a preformed sealing member of substantially plastic bituminous material between the said overlapping lips capable of being molded to the shape of said lips.

5. A building construction having adjacent members provided with curved lips which overlap, a preformed sealing member of substantially plastic material interposed between said lips, and a cushion member located below and supporting said overlapping lips.

6. In a building construction, in combination, adjacent glass members provided with grooved side lips having holes through them and overlapped, a preformed sealing member of substantially plastic material between said overlapped side lips, a cushion member supporting said overlapped lips, and a fastening device extended through said cushion and the holes in the overlapping lips.

7. In a building construction, in combination, adjacent glass members provided with notched sides forming a slot, a cushion extended into said slot, overlapping glass members supported by said cushion, and a fastening device extended through said slot, cushion, and the glass members supported by the latter.

8. In a building construction, in combination, a row of adjacent glass members provided with overlapping grooved side portions and with flat end portions, a second row of glass members overlapping the first-mentioned row at the flat ends of the glass members thereof and provided with overlapping grooved side portions, and a cushion member interposed between the flat end portions of the first-mentioned row of glass members and the grooved overlapping side portions of the upper row of glass members.

9. In a building construction, in combination, a supporting member, a preformed cushioning member of substantially plastic material sustained thereby, roof members resting on said cushioning member and provided with raised side portions, a side portion on one roof member being grooved on its under side to overlap a side portion of an adjacent roof member, and a preformed sealing member of substantially plastic material interposed between said overlapping side portions.

10. In a building construction, in combination, adjacent glass members provided with raised side portions having openings extended through them, a side portion of one glass member being grooved on its under side to overlap a raised portion of the next adjacent glass member with the openings in said overlapping side portions registering with each other, a preformed sealing member of substantially plastic material interposed between said overlapping side portions, a supporting member, and means extended through the openings in the raised portions for securing the glass members to said supporting member.

In testimony whereof, we have signed our names to this specification.

HERBERT E. MARKS.
WILLIAM R. FRAZIER.