

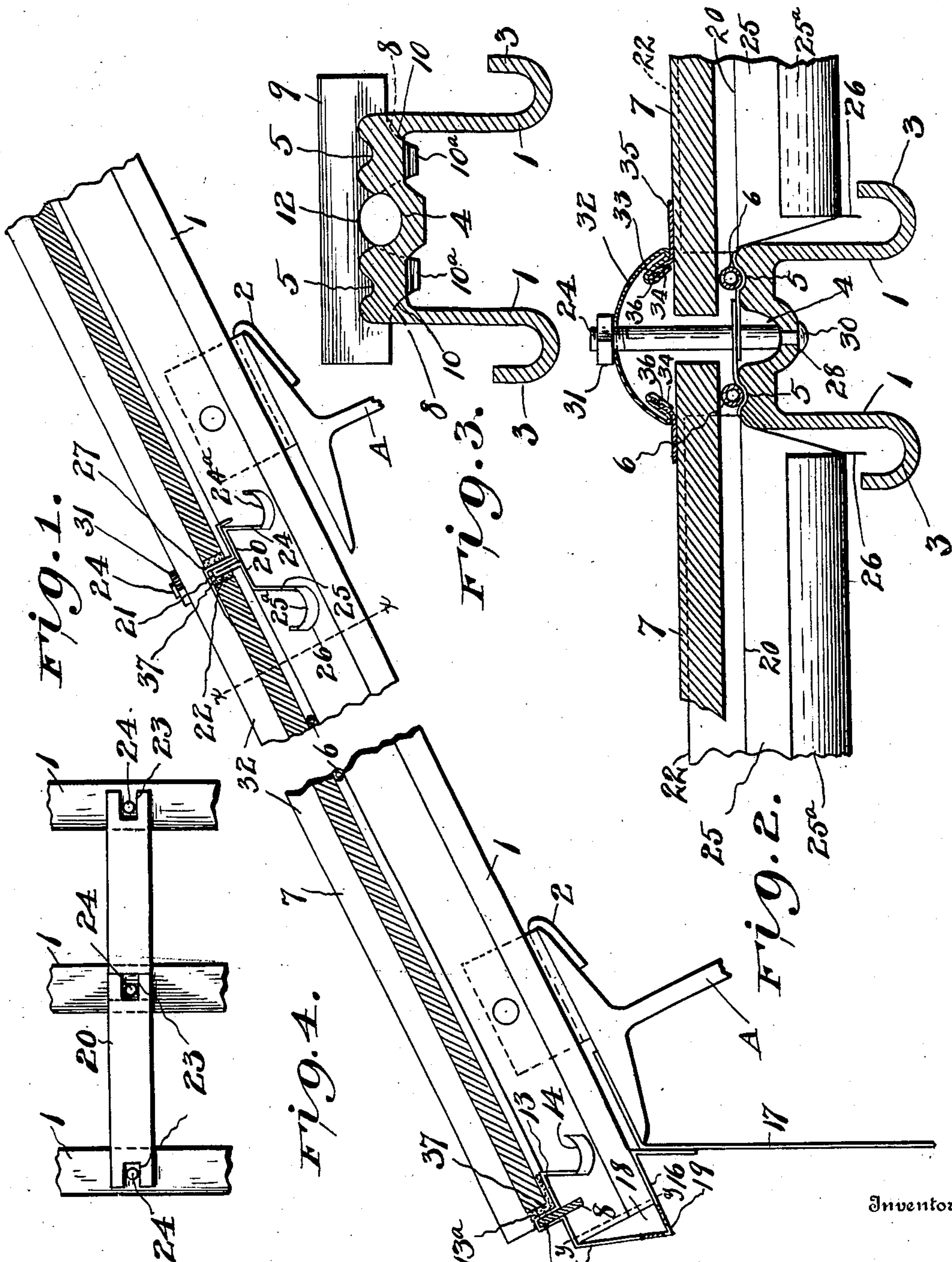
J. N. GRENIER.

SKYLIGHT.

APPLICATION FILED FEB. 5, 1909.

951,112.

Patented Mar. 8, 1910.



Inventor

Witnesses

Joseph H. Blackwood  
W. H. Kauder & Co.

Joseph N. Grenier  
D. A. Gourick  
Attorney



# UNITED STATES PATENT OFFICE.

JOSEPH N. GRENIER, OF BOSTON, MASSACHUSETTS.

## SKYLIGHT.

951,112.

Specification of Letters Patent.

Patented Mar. 8, 1910.

Application filed February 5, 1909. Serial No. 476,239.

*To all whom it may concern:*

Be it known that I, JOSEPH N. GRENIER, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Skylights, of which the following is a specification.

My invention relates to glass roofs or skylights and has for one of its objects the provision of an improved construction of abutment for supporting the glass plates on the beams consisting of a plate of metal secured transversely of the beam, said plate having projections that extend through transverse slots formed in the beam, the ends of said projections being clenched on the under side of the beam to hold the abutment in position.

Another object of my invention is the provision of an improved construction of transverse joint bar consisting of a base formed with holes to engage the bolts for holding the cap in place and provided with an upturned portion that serves as an abutment to hold the plate of glass above it in position. The two edges of the joint bar are provided with gutters that carry off the water of condensation and leakage.

A further object of my invention consists in the provision of an improved construction of cap consisting of an arched portion with its edges bent back on themselves and having strips of sheet lead secured thereto to form a water tight joint.

Still another object of my invention is the provision of an improved construction of bolt for securing the cap in place having its lower end formed rectangular in cross section and fitted in a similar shaped hole in the beam and its end riveted on the under side thereof.

The construction of my improved roof or skylight will be described in detail hereinafter and illustrated in the accompanying drawings in which—

Figure 1 is a longitudinal sectional view of a fragment of a roof involving my improvements, Fig. 2, a cross section on the line  $x-x$  of Fig. 1, Fig. 3, a similar view on the line  $y-y$  of Fig. 1, and Fig. 4, a detail view of one of the abutment plates before being secured in position.

In the drawings similar reference characters indicate corresponding parts in the several views.

A indicates the supporting beams for the roof on which are secured the beams 1 by

means of lugs 2. The beams 1 are of the type shown and described in U. S. Letters Patent issued to me on March 3, 1908, No. 880,654, being of the inverted channel beam type with their lower ends bent outwardly and upwardly to form drains 3 and with its top surface formed with a central longitudinal groove 4 to carry off any water that might leak through the joint between the surface of the roof and the cap pieces. At each side of the groove 4 the beam is formed with shallow grooves 5 in which are seated lengths of soft metal tubing 6 that act as cushions for the plates of glass 7 forming the surface of the roof, said tubes, as explained in the patent aforesaid, receiving the impression of the roughnesses on the under side of the glass so as to make a water tight joint therewith to prevent rain water that might leak through the joints between the surface plates from creeping along the underside of the plates. At the lower end of each beam 1 are formed transverse slots 8 in the portion at each side of groove 4.

9 indicates a plate having lugs or projections 10 on its lower edge that engage slots 8, the ends of said lugs being clenched on the underside of the beam as shown at 10<sup>a</sup> to hold the plate in position, and to prevent any possibility of leakage through the slots 8 after the plate 9 is in position the clenched ends 10<sup>a</sup> may be covered with solder 11. This construction forming the abutments to support the lower end of the surface plates.

12 indicates an arched portion between lugs 10 that is over groove 4 when the plate is in position as shown in Fig. 3, so as not to obstruct the drain formed by said groove but allow any water that might leak through the joints between the roof surface and the caps to flow off.

The bottom rail of the supporting frame consists of a plate of metal having its base 13 formed with an upset portion 13<sup>a</sup> to engage the plate 9, a gutter or drain 14 extending downwardly from the inner edge of base 13 with its supporting wall formed vertical while its other edge is bent downwardly on substantially a vertical plane as shown at 15, then back under the beam 1 as shown at 16, and then downwardly and secured to the curb 17. The angle formed between the portions 15 and 16 comprises a chamber 18 to receive water from drains 3 and groove 4 which pours out of holes 19 formed in the angle of portions 15 and 16.



The transverse bars consist of plates of metal each having a base 20 with a ridge 21 formed by bending the plate longitudinally upward and back on itself as shown at 22. 5 The ends of base portions 20 are formed with elongated notches 23 that engage bolts 24, more particularly described hereinafter to hold them in position, the ridges 21 serving as abutments to hold the lower ends of 10 the glass plates above the lower plates in position.

Each edge of base 20 is bent downwardly on a vertical plane as shown at 24 and 25 and has its free edge curled upwardly to 15 form a gutter or drain 24<sup>a</sup> and 25<sup>a</sup>, the drain 24<sup>a</sup> taking care of the water of condensation that forms on the inner surface of the glass plates, while the drain 25<sup>a</sup> catches any surface water that might leak through the joint 20 above base 20, said drains delivering into drains 3 at each side of beam 1, the ends being bent downwardly as shown at 26 to form lips to prevent the water from following the underside of the drain backwardly.

25 27 indicates a plate of sheet lead bent to engage the top of base 20 above ridge 21, the upper side of ridge 21 and the top of the upper edge of the plate of glass 7 below the cross bar.

30 The bolts 24 have their lower ends formed with a reduced rectangular portion shown at 28 to fit rectangular holes in beam 1 and have their protruding ends riveted as shown at 30 to hold the bolts in position, this construction preventing the bolts from turning 35 when screwing up the nuts 31 thereon that hold the caps 32 in place.

40 Caps 32 consist of plates of metal bent to form arch-shaped structures with their edges bent inwardly back on themselves as shown at 33 and then outwardly again as shown at 34, and have strips of lead or other soft metal 35 secured thereto by indenting the part 34, as shown at 36, to engage said strips, 45 the free edges of the strips extending outside of the edges of the cap 32 to form a watertight joint between the lower edge of the cap and the surface of the plates of glass 7.

50 37 indicates putty or other soft filling around the joints to exclude water and make a watertight joint.

Having thus described my invention what I claim is—

55 1. In a skylight, a supporting beam provided with a longitudinal drain or gutter and alined transverse slots, and an abutment plate having lugs engaging said alined slots and an arched portion between the lugs 60 to span the drain or gutter.

2. In a skylight, a supporting beam pro-

vided with a longitudinal drain or gutter and alined transverse slots, and an abutment plate having lugs engaging said alined slots and an arched portion between the lugs to 65 span the drain or gutter, the ends of said lugs being clenched to hold the plate in position.

3. In a skylight, the supporting beams of the inverted channel beam type having a 70 central longitudinal groove in its top surface, slots in each beam adjacent to the lower end thereof, one on each side of said groove, and a plate having lugs engaging said slots to form abutments for the surface plates, 75 and an arched portion in alinement with the groove in the beam.

4. In a skylight, the supporting beams of the inverted channel beam type having a 80 central longitudinal groove in its top surface, slots in each beam adjacent to the lower end thereof, one on each side of said groove, a plate having lugs engaging said slots and extending through the beam, and an arched portion in alinement with the groove in the 85 beam, the ends of said lugs being clenched to hold the plate in position to form abutments for the surface plates.

5. In a skylight, the supporting beams having bolts secured thereto, and transverse 90 bars having extended ends with notches therein to engage said bolts.

6. In a skylight, the supporting beams having bolts secured thereto, and transverse bars having extended ends with elongated 95 notches therein to engage said bolts.

7. In a skylight, the supporting beams having bolts secured thereto, transverse bars each consisting of a base with a longitudinal ridge therein to engage the lower edge of a 100 glass plate, and gutters or drains formed at each edge of said base, the ends of said base having notches therein to engage the bolts secured to the beams.

8. In a skylight, the supporting beams 105 having bolts secured thereto, transverse bars each consisting of a base with a longitudinal ridge therein to form an abutment for the plate of glass above said bar, the longitudinal edges of the base bent downwardly on 110 substantially vertical planes, the lower edges of each of said downwardly bent portions bent to form a gutter or drain, and the ends of said base having elongated notches therein to engage the bolts secured to the beams. 115

In testimony whereof I hereto affix my signature in presence of two witnesses.

JOSEPH N. GRENIER.

Witnesses:

JOS. H. BLACKWOOD,  
S. RANDOLPH, Jr.