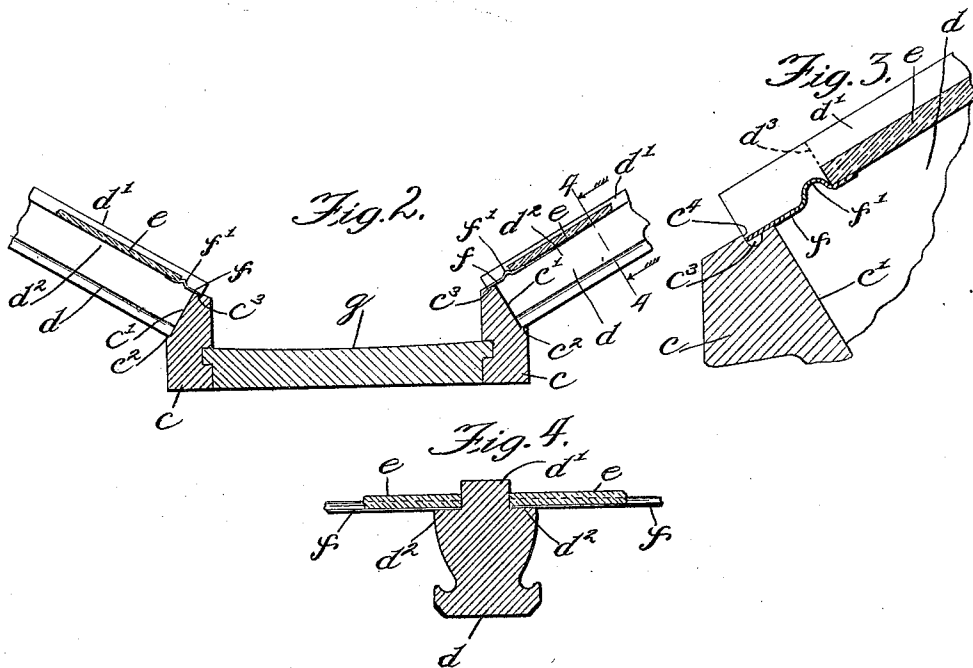
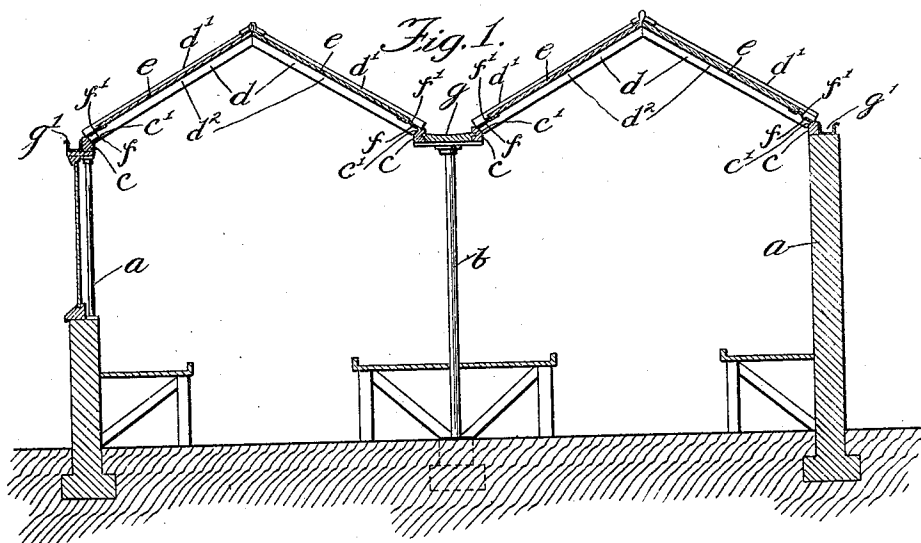


No. 820,198.

PATENTED MAY 8, 1906.

C. ICKES.
GREENHOUSE.
APPLICATION FILED JUNE 19, 1905.



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UNITED STATES PATENT OFFICE.

CARL ICKES, OF CHICAGO, ILLINOIS.

GREENHOUSE.

No. 820,198.

Specification of Letters Patent.

Patented May 8, 1906.

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To all whom it may concern:

Be it known that I, CARL ICKES, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have
5 invented a certain new and useful Improvement in Greenhouses, of which the following is a specification.

My invention relates to greenhouses, and more especially the roofs thereof.

10 It is well known that in freezing weather great difficulty is experienced with greenhouses in having ice form at the lower edge of the roof where the glass overlaps the sill. In spite of all ordinary precaution in applying
15 putty and other substances water from the roofs persists in entering to a greater or less extent between the glass and the sill, where it becomes chilled, owing to its isolation from the interior heat of the house. The water
20 thus collected swells upon freezing, and thereby bursts out the glass.

The object of this invention is to prevent this formation and accumulation of ice at the lower edge of the roof.

25 I attain my object by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a transverse sectional elevation of a greenhouse embodying the invention.
30 Fig. 2 is an enlarged sectional view of the gutter or eaves. Fig. 3 is a fragmentary sectional view showing the preferred arrangement of parts at the sill, and Fig. 4 is a fragmentary sectional view taken on line 4 4,
35 Fig. 2.

Similar letters refer to similar parts throughout the several views.

In the general view, Fig. 1, there is illustrated a greenhouse having two sections or divisions *a a*, representing exterior walls, and
40 *b* a roof-supporting post between them. The number of sections is immaterial, however, and so also is the arrangement and construction of the roof-supports.

45 The sills *c* support the rafters *d*, and although the precise manner of attachment is not essential it is preferable that the lower extremities of the rafters abut the surface *c'* of the sill and that a ledge *c²* be formed upon the sill for supporting the lower edge of the rafter. By preference also a central rib *d'* is
50 formed upon the upper portion of the rafter, which results in the formation of ledges *d² d²* on either side of said rib for supporting the
55 panes of glass *e*. In the preferred form the

lower extremity of the rafter is rabbeted out in such manner that a portion of the rib will project out a slight distance over the sill, as best shown in full lines, Fig. 3. Usually a shallow groove *c³* will be formed lengthwise
60 of the sill in the upper surface thereof, the portion beyond the groove being elevated, so as to form a shoulder *c⁴*, against which the strip *f* may abut. Ordinarily said groove will be filled with putty for producing a wa-
65 ter-tight joint.

The roof-plates *f* consist of strips of metal, preferably galvanized iron, and in the preferred construction of roof runs from the rib of one rafter to the rib of another, as indicated in Fig. 4. They are comparatively
70 thin, so that the heat from within the house may be readily conducted through them. The lower edge of the roof-plates abut the shoulder *c⁴* and are thereby held in place. A
75 rib *f'* is formed in plate *f* lengthwise thereof, thus forming a shoulder for supporting the lower edge of the glass panes *e*. The proportions of the parts are such that there is some
80 distance intervening between the lower edge of the glass panes *e* and the surface *c'* or nearest portion of the sill. This intervening space is covered solely by the plate *f*. Here-
85 in resides one of the important features of my construction, for by it, on account of the
85 thinness and conductivity of the metal, heat from within the house is conducted to the lower edge of the roof, and ice is thereby prevented from forming at this critical point.
90 Moreover, if ice did form at the lower edge of the roof-plates where the latter overlap the sill it would be rendered comparatively harm-
less, as it would not be in contact with the glass itself, the lower edge of the glass being remote from the sill. The distance between
95 the lower edge of the glass and the nearest portion of the sill may be varied to suit conditions of climate, &c.; but in any event the exposed roof-plate surface would be so small as to render the loss by radiation practically
100 negligible.

It is not necessary that the plates *f* be interrupted at the ribs *d'*, for by cutting away the ribs at the dotted line *d³*, Fig. 3, a long
105 continuous strip, passing many rafters, may be employed.

The part which comes below the sill is immaterial in so far as my invention is concerned. The sill may be rabbeted to a
110 wooden gutter *g*, as at the middle section, or a

metallic gutter *g'* may be employed, as shown at the outer edges of the roof, or the gutter may be entirely omitted.

Although this invention is primarily applicable to greenhouses, it is evident that it may also be employed in connection with skylights and similar structures.

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

10 1. In a roof, the combination of a horizontal member; rafters running transverse thereto; a pane of glass disposed substantially parallel to the rafters and having its lower edge a slight distance from said horizontal member;
15 and a metal roof-plate interposed between the glass and the horizontal member, a portion of said plate being exposed to the air on both sides, on the outside to the air outside of the structure and on the inside to
20 the air inside of the structure.

2. In a roof, the combination of a sill at the lower edge of the roof; panes of glass the lower edges whereof are remote from said sill,
25 and a piece of metal covering the interval between the glass and the sill for conducting the heat within to the lower edge of the roof.

3. In a roof the combination of a horizontal member, rafters running transverse thereto, a pane of glass lying substantially parallel
30 to the rafters and having its lower edge a slight distance above and away from the nearest portion of said horizontal member, whereby a space is left between them, and a metal roof-plate extending from the glass to
35 the horizontal member to fill the space between them, a portion of said plate being exposed both top and bottom, the top surface to the outer air and the bottom surface to the air within the structure.

4. A roof comprising rafters, a sill at the lower edge of the roof for supporting said rafters, a metal strip running lengthwise of the sill and projecting upward from the same, panes of glass supported on said rafters and overlapping said strip, and means on said
45 strip for maintaining the lower edge of the glass at a point remote from the sill.

5. A greenhouse-roof comprising rafters, a sill at the lower edge of the roof for supporting said rafters, a metal roof-plate running
50 lengthwise of the sill and projecting upward from the same, panes of glass supported on said rafters and overlapping said roof-plate there being a space between the lower edge of the glass and adjacent portion of the sill, and
55 a portion of said plate being exposed to the air on both sides, on the outside to the air outside of the structure and on the inside to the air inside of the structure, and a rib formed in said roof-plate longitudinally there-
60 of constituting a stop for holding the glass up away from the sill.

6. In a roof, the combination of a sill having a shoulder formed on the upper portion thereof, rafters running to said sill, glass extending between said rafters, and a roof-plate
65 running lengthwise of the sill and held in place by the shoulder thereon, there being a space intervening between the glass and the sill and said space being covered by said
70 plate.

In witness whereof I have hereunto subscribed my name in the presence of two witnesses.

CARL ICKES.

Witnesses:

HOWARD M. COX,
CAROLYN RAFTERY.