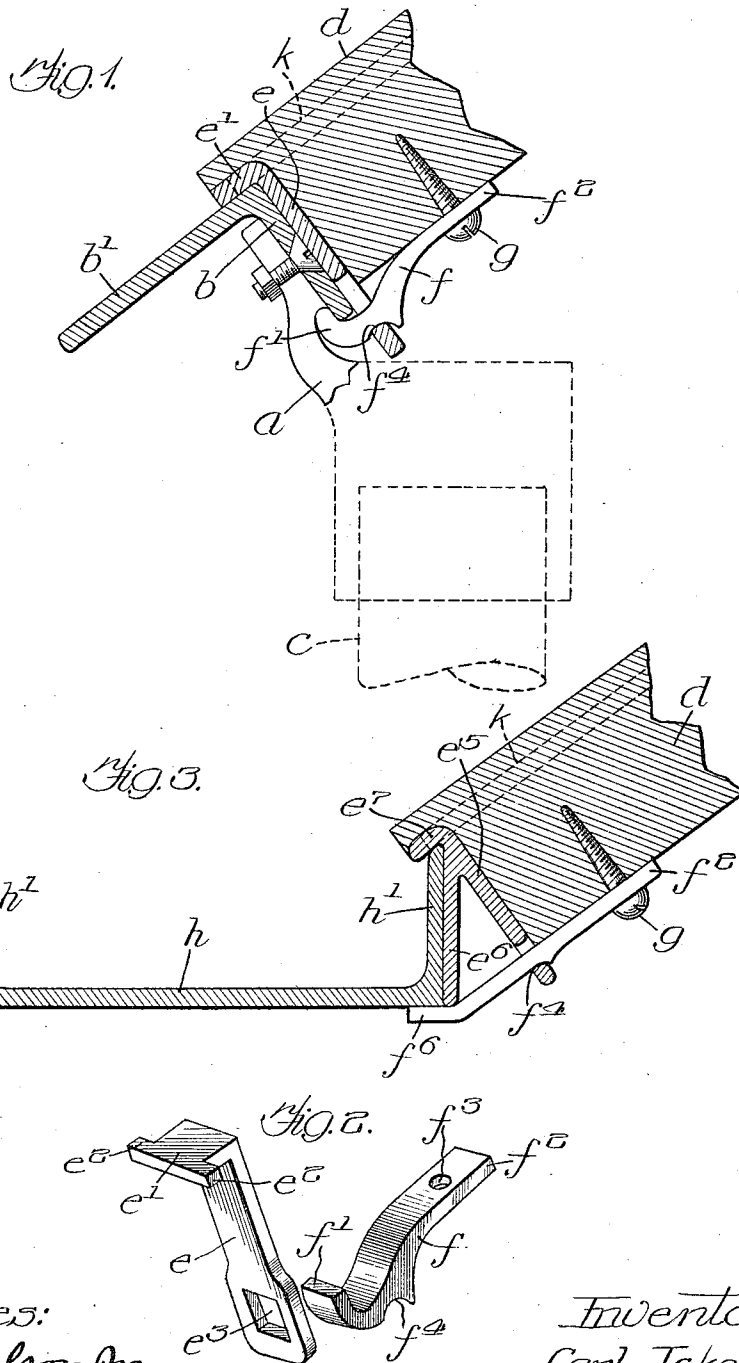


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GREENHOUSE.

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GREENHOUSE.

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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 invented a certain new and useful Improvement in Greenhouses, of which the following is a specification.

My invention relates to greenhouses and particularly the roofs thereof, and the object of the invention is to provide simple and efficient means for fastening the parts together at the lower edge of the roof.

I accomplish my object by means of the construction illustrated in the accompanying drawings in which:

Figure 1 is a vertical section showing the relation of the parts at the lower edge of the roof; Fig. 2 is a perspective view of the novel elements of the structure, and Fig. 3 is a vertical section of the parts in the form adapted for coöperation with an eaves gutter.

Similar reference characters denote similar parts in the different views.

It will be understood by those familiar with greenhouse construction that the houses are made with slanting roofs, and that in multiple-width houses the eaves of one unit are joined to the eaves of the adjacent unit, the connecting piece usually forming a gutter for carrying off rain water and the like.

Referring first to the forms shown in Figs. 1 and 2 where the parts are more particularly adapted for the eaves at the edge of the building, an eaves plate is supported upon a bracket *a*. Said eaves plate here consists of an angle bar having one leg *b* bolted or otherwise secured to the bracket, and the remaining leg *b*¹ extending obliquely downward and outward from the top of leg *b*. The precise form of the bracket is non-essential, and the bracket is carried upon any suitable post or support *c*. The rafter *d*, constructed usually of wood, extends down obliquely toward the eaves plate and preferably overlaps the peak of the same to a slight extent as shown in Fig. 1. Between the eaves plate and the foot of the rafter is a hook member shown in perspective at the left of Fig. 2. The body *e* of said hook member contacts the upper leg of the eaves plate and terminates at the upper end in a hook *e*¹ which overlaps a portion of the peak of the eaves plate. By preference the hook *e* is provided with laterally extending

lugs *e*² which serve as stops for the lower end of the glass *h* of the roof. Said lugs are placed far enough down on the hook to permit the glass to slightly overlap the peak of the eaves plate. Said hook member *e* has an aperture *e*³ near its lower end, at approximately the level of the lower inner edge of the eaves plate. Through this aperture passes the lever *f* which forms one of the novel elements of the structure. The preferred form of this lever for use with a plain eaves plate is clearly shown in Figs. 1 and 2 and has a lip *f*¹ adapted to engage the lower edge of the inner leg of the eaves plate. The lever fulcrums in the aperture near the lower end of the hook member *e* and has what may be regarded as a "power arm" *f*² which is adapted to contact the under side of the rafter. Preferably this "power arm" is provided with an aperture *f*³ for receiving a screw *g* whereby the lever may be fastened to the rafter. It is desirable but not essential that a groove *f*⁴ be formed on the under side of the lever at the fulcrum point for seating the lever securely in the hook member *e*.

In operation, the parts are assembled as shown in Fig. 1 with the lever *f* fulcrumed upon the hook member *e* and engaging the lower edge of the leg *b* of the eaves plate. The weight of the rafter and the glass supported thereby furnishes the necessary force for holding the power arm of the lever down so as to exert sufficient strain between the parts *d*, *e* and *f* to hold the latter securely together. Through variations of dimension due to inaccuracies of manufacture it may happen that the parts will not always firmly clamp together, but this may be readily remedied by the builders in several ways for example; by cutting away the rafter slightly to cause the lowering of the rafter relatively to the hook member, or by placing a small shim between the power arm *f*² of the lever and the under side of the rafter.

Where two adjacent eaves come together in greenhouse construction, and these eaves are to be secured to a common gutter, the hook member and lever assume slightly different forms as illustrated in Fig. 3. Instead of the eaves plate, the gutter *h* will be substituted, this gutter consisting of an ordinary channel bar arranged with its lateral flanges or legs *h* extending vertically upward. In this instance the lever is

elongated at the lower end and is there provided with a lip f^6 which engages the lower edge of the gutter, in substantially the same way that the lip f^1 engages the eaves plate b .

5 The hook member e^5 is formed very much in the same manner as before except that it has an extra branch e^6 which stands vertically and contacts the side of the gutter. The hook e^7 is preferably slightly more
10 rounded than the hook e^1 . The function and principle of operation is the same in the gutter form as it is in the eaves plate form herein above described.

It will be noted that when the parts are
15 assembled in either form they will be securely locked together and afford a structure which is simple and at the same time durable. The parts are few in number and not complex and there are no screw threads
20 or nuts to be exposed to the weather and to deteriorate by rust or hard knocks. The hook member and lever will ordinarily be constructed of malleable iron and if desired the building can be erected and taken
25 down as many times as desired without in any way damaging the parts. This of course is not true with fastening devices in which threaded bolts, turn buckles, or similar devices are employed.

30 Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a building structure the combination of a roof element, a hook member
35 adapted to engage the same, and a lever fulcrumed between its ends upon said hook member and also adapted to engage said roof element.

2. In a building structure the combination
40 of a roof element, a hook member adapted to engage the same at one point, and a lever adapted to engage said roof element at a point opposite to the first whereby the roof element is clamped between said hook member
45 and lever, said lever being fulcrumed upon said hook member.

3. In a building structure, a horizontal member running lengthwise of the edge of the roof, a hook member engaging the upper
50 edge of said horizontal member, and a separate lever adapted to engage the bottom of said horizontal member, said lever being fulcrumed between its ends upon said hook member and extending inward there-

from toward the building whereby weight 55 on the inner end of the lever tends to increase the gripping action of the hook member and lever.

4. In a building structure, the combination of a horizontal member, a rafter, a hook 60 member engaging said horizontal member, and a lever fulcrumed between its ends upon said hook member, and engaging said horizontal member, said rafter being superposed upon said lever. 65

5. In a building structure the combination of an eaves member, two cooperating members adapted to clamp the eaves member between them, one of said cooperating members being fulcrumed upon the other, and a 70 rafter bearing upon one of said two cooperating members in position to induce a clamping action in the said two cooperating members upon the eaves member.

6. In a roof structure for greenhouses, 75 the combination of an eaves member, a hook member adapted to engage it, a lever fulcrumed upon said hook member and adapted to engage said eaves member to clamp the latter between the hook member and 80 lever, and a rafter bearing upon both the lever and hook member.

7. In a roof structure for greenhouses the combination of an eaves member, a hook member adapted to engage it, a lever ful- 85 crumed upon said hook member and adapted to engage said eaves member, and a slanting rafter the lower end whereof contacts both the hook member and the lever and holds them approximately transverse to 90 each other.

8. In a roof structure for greenhouses the combination of a rafter, a transverse eaves member at the foot thereof, a hook member engaging the top of said eaves 95 member and contacting the end of the rafter, and a lever engaging the bottom of said eaves member, said lever being fulcrumed upon said hook member and contacting the under side of said rafter. 100

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

CARL ICKES.

Witnesses:

HOWARD M. COX,
MAX S. ROSENZWEIG.