

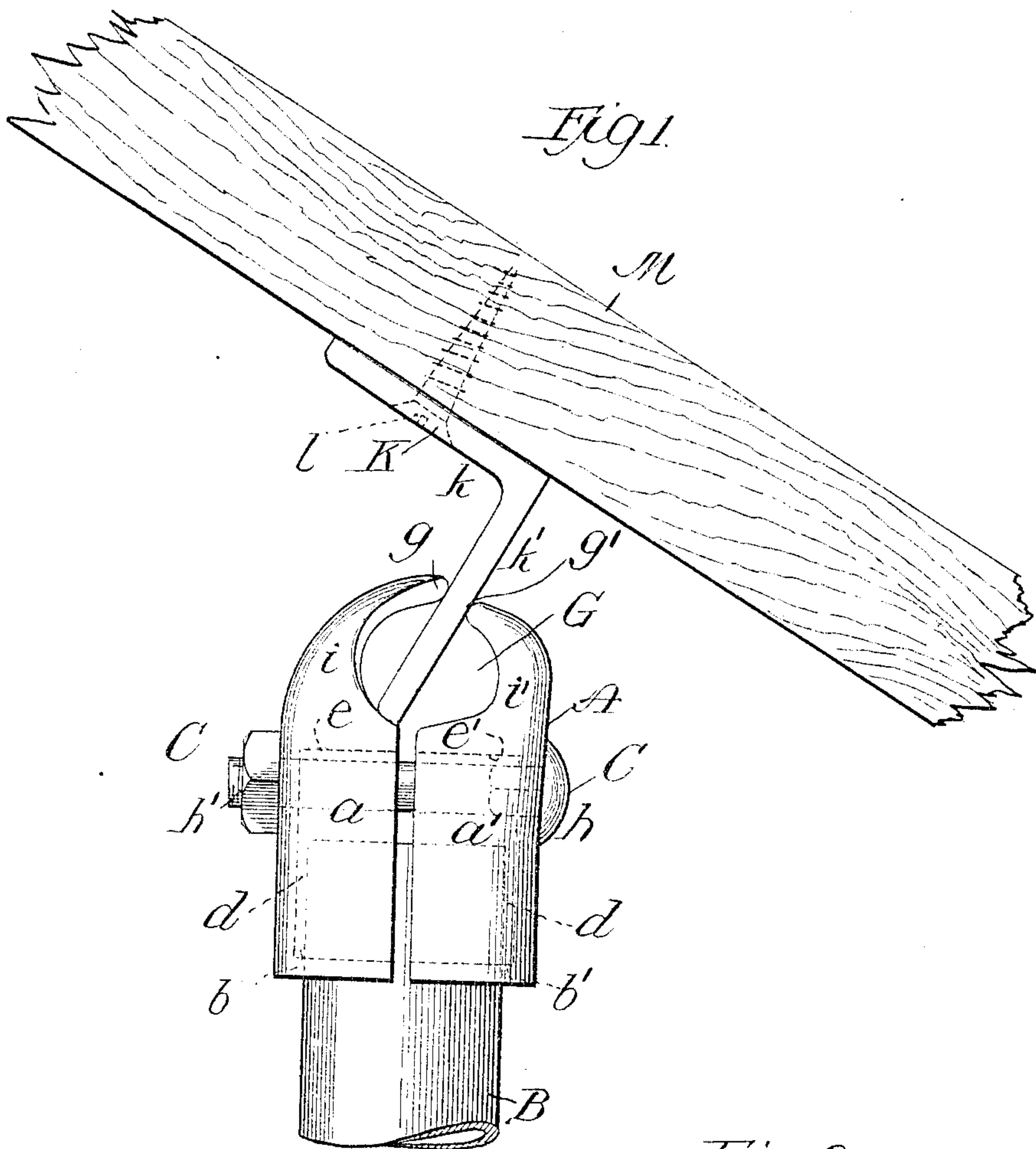
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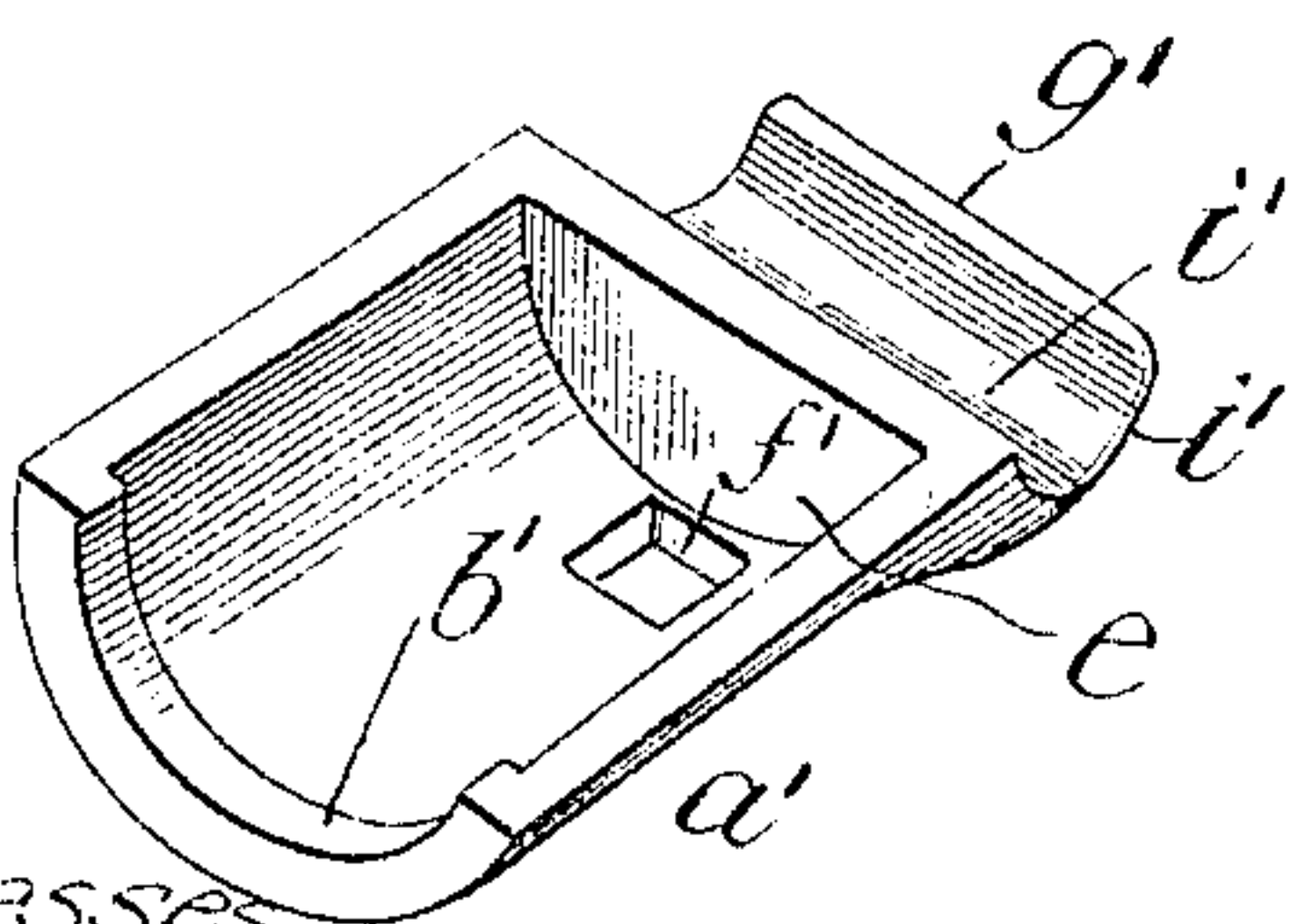
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ADJUSTABLE CLIP FOR CONNECTING PURLINS IN GREENHOUSES WITH  
SUPPORTING COLUMNS.

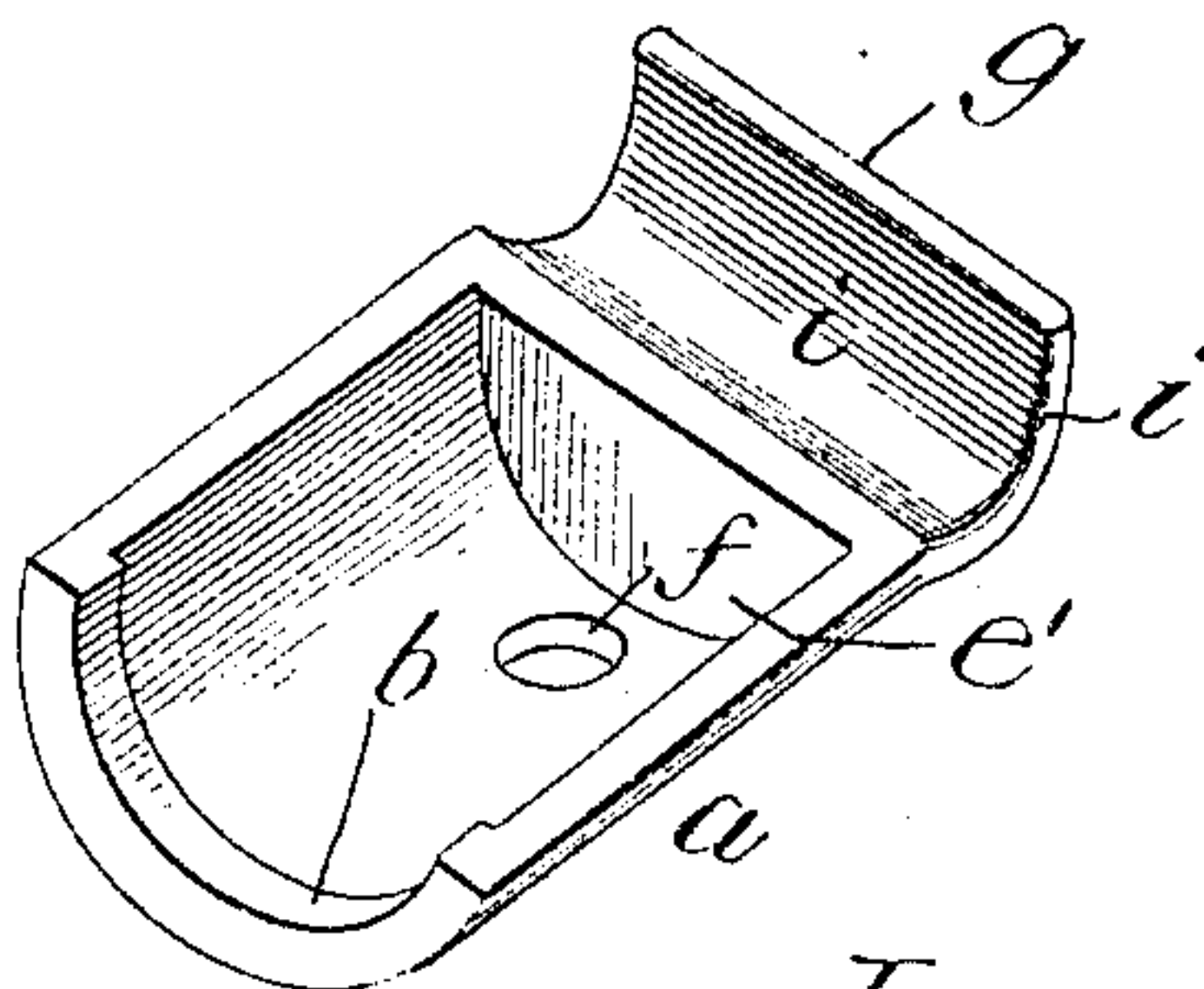
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*Fig. 2.*



*Fig. 3.*



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# UNITED STATES PATENT OFFICE.

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ADJUSTABLE CLIP FOR CONNECTING PURLINS IN GREENHOUSES WITH SUPPORTING-COLUMNS.

No. 798,669.

Specification of Letters Patent.

Patented Sept. 5, 1905.

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*To all whom it may concern:*

Be it known that I, GEORGE M. GARLAND, a citizen of the United States, residing in the village of Des Plaines, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Adjustable Clips for Connecting Purlins in Greenhouses with Supporting Columns or Piers, of which the following is a specification.

The great weight of the roofs of greenhouses, usually composed of iron and glass, requires numerous vertical piers or columns for their support. These vertical piers or columns are usually constructed of hollow iron pipes placed at frequent intervals throughout the structure, usually within a few feet of each other. Under the old method the upper end of the supports had to be especially designed to meet the different angles of the roof, each greenhouse having its special construction. The object of my invention is to connect these supports to the purlins in different bevels, and they are adapted to all roofs formed with different pitches or angles, my improvement forming a connecting-link between the purlins of the roof and the supporting-columns.

My invention consists of clamping devices described in the within specification adjustably secured to each other by devices herein described and so constructed as to constitute a pair of jaws or a clamp for the purpose of clamping angle-irons or purlins and connecting them through such devices to supporting-columns.

My invention also consists of various other devices hereinafter described.

In the drawings, Figure 1 represents a side view of my improvement, showing the clip connected to a section of the angle-iron or purlin supporting the roof and also showing the attachment of the purlin to the roof or rafter of the greenhouse which it supports. It also shows the attachment of the adjustable clip to the supporting-column. Fig. 2 represents a perspective view of one section of the clip, showing the inside of one part of the adjustable clip; and Fig. 3 shows the inside of the other part of the same clip.

Like letters refer to like parts in the several drawings.

In the drawings, A represents the adjustable clip composed of two parts *a* and *a'*.

Each one of these two parts *a* and *a'* are substantially alike and are constructed at their lower ends in a semicircular form, so that when the two parts *a* and *a'* are bolted together, as hereinafter stated, they form a circular opening *d*, adapted to receive the column B, which is shown in the drawings, Fig. 1, to be a hollow iron pipe, which is the method in which these columns are usually constructed, although they need not necessarily be hollow or need not be iron, the form shown being a convenient and usual way of constructing such columns.

Within the castings *a* and *a'* is a flange *b* and *b'*, forming a ledge which causes the clip to be firmly secured to the column B without the two castings *a* and *a'* coming in contact with each other and for the purpose hereinafter stated.

The opening *d* terminates at *e* and *e'*, which form its upper end. Just below *e* and *e'* and in proximity thereto is a bolt C, running horizontally through the castings *a* and *a'* and parallel to the upper end of the opening *d*. This bolt may be round or square. It is shown as circular at its outer end and square at its inner end near the bolt-head *h*. It passes through openings *f* and *f'*. The hole in the part *a'* is shown to be square and in the part *a* is shown to be round. These openings, as before stated, may be circular or square. The form is immaterial, provided that the construction is such that the bolt will not turn when the clip is being adjusted. This bolt is constructed in the usual form, with a head *h* at one end and screw-threaded at the other end, having on it a nut *h'*, which is used in tightening the clip after the angle-iron has been adjusted in the jaws *i* and *i'*, hereinafter described.

From the upper ends of *a* and *a'* project the jaws *i* and *i'*, C-shaped in their inner portions and forming the opening G. The jaw *i* projects slightly above the jaw *i'* and has formed upon it a lip *g*. *g'* is a lip or ledge on the upper end of the jaw *i'*. The two jaws *i* and *i'* form a circular opening, as before stated and as shown in Fig. 1, and are adapted to be adjusted with the angle-iron, so as to meet the different bevels, as hereinafter described.

K is a purlin having the usual shape of purlins in greenhouses. It consists of an



angle-iron composed of two parts at right angles with each other and of the usual and customary form, one of which, *k*, is attached to the rafter *M* of the greenhouse by an ordinary screw *l*, which need not be described here. The other part of the angle-iron *k'* is at right angles to *k* and extends outward and downward from the roof and is adapted to be grasped by the jaws *i* and *i'*. The arm *k'* of the purlin rests upon the bottom of the circular opening *G*.

The clip *A*, composed of the different parts arranged as shown and described, allows the jaws *i* and *i'* to be adjusted in such a manner as to bring the lips of said jaws respectively directly opposite each other with reference to that portion of the angle-iron clamped between them when final adjustment is made and the bolt *C* is tightened, thus securing greater rigidity than otherwise would be possible. This adjustment is made before the jaws *i* and *i'* are rigidly secured in their relations to each other by the bolt *C*. When this adjustment is properly made so as to meet the different bevels of the angle-iron, it is evident that the lips of the jaws *i* and *i'* will be in such relation to the angle-iron clamped between them that a line connecting the middle point of the lip of the jaw *i* with the middle point of the lip of the jaw *i'* would pass at right angles through the angle-iron.

Having thus described my invention, what I claim as new, and desire to be secured by Letters Patent, is—

1. A device for connecting supporting-columns with angle-iron purlins in greenhouses, comprising the combination of an adjustable clip composed of two portions, each of said portions having its body of semicylindrical

form and a curved jaw having a straight edge, an angle-iron having one arm secured to the rafter and its other arm adapted to fit between the jaws of the two portions, means for clamping the two portions together so as to hold the angle-iron between the jaws and to form a cylindrical opening at the lower end of the clip and a column fitting in said opening, substantially as described.

2. In combination with a vertical supporting-column and a purlin having an inclined member, an adjustable clip composed of two portions, each portion having a jaw at its upper end, the edge of one jaw being above the plane of the edge of the other jaw, and means for clamping the portions together and to the column said jaws holding the inclined member between them, substantially as described.

3. A supporting device of the class described, consisting of an adjustable clip composed of two portions of semicylindrical shape, each portion having a curved jaw having a straight edge, and means for clamping said portions together, substantially as described.

4. A supporting-clip composed of two portions, each portion having a semicylindrical body forming a semicylindrical opening, a flat top covering said opening and a curved jaw above said top, and means for clamping the two portions together, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE M. GARLAND.

Witnesses:

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