A. B. KLEINHANS.

ROOF STRUCTURE.

APPLICATION FILED SEPT. 23, 1910.

1,000,819. Patented Aug. 15, 1911.

2 SHEETS—SHEET 1.

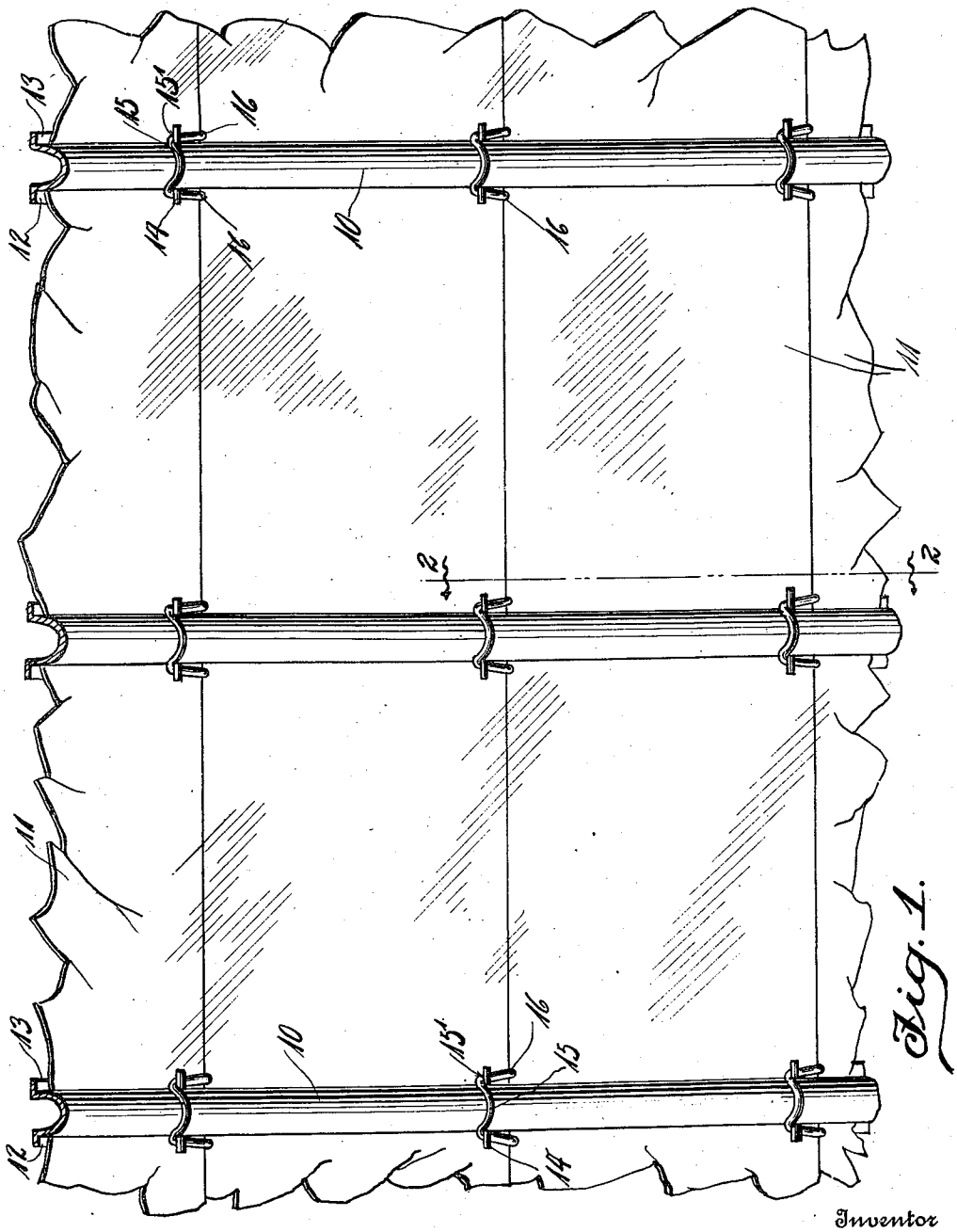

Fig. 1.

Witnesses

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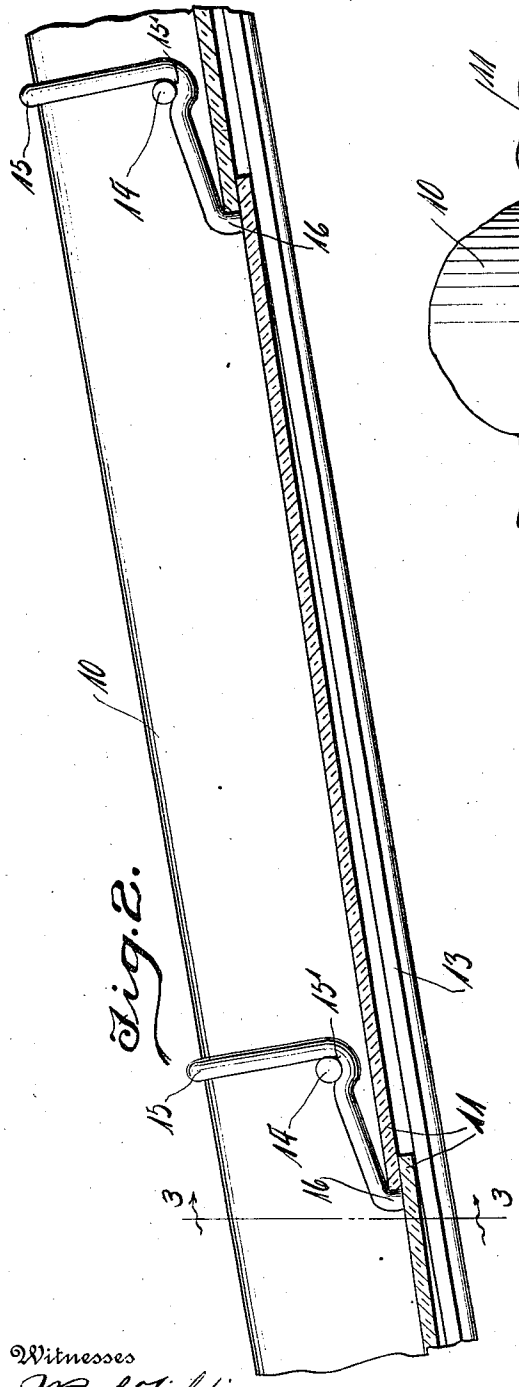

Fig. 2.

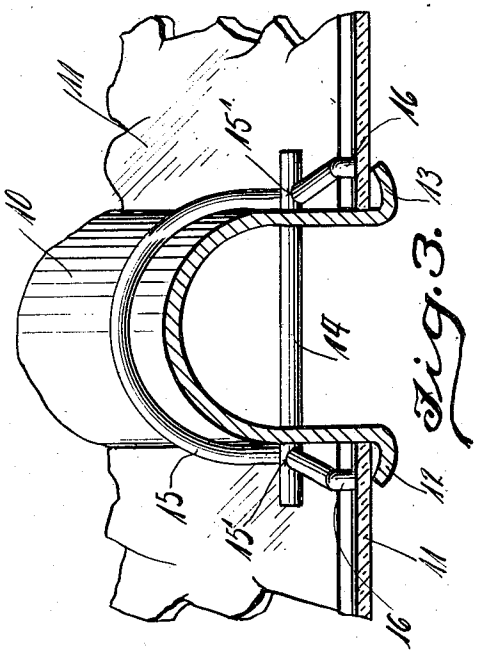

Fig. 3.

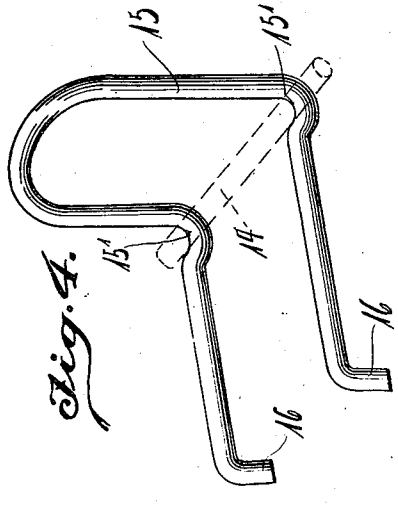

Fig. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

ARTHUR B. KLEINHANS, OF EASTON, PENNSYLVANIA.

ROOF STRUCTURE.

1,000,819. Specification of Letters Patent. Patented Aug. 15, 1911.

Application filed September 23, 1910. Serial No. 583,477.

To all whom it may concern:

Be it known that I, ARTHUR B. KLEINHANS, a citizen of the United States, residing at Easton, in the county of Northampton, State of Pennsylvania, have invented certain new and useful Improvements in Roof Structures; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to roof structures, adapted especially for skylights, greenhouses, hot-beds and other structures having glass or other transparent roofs, and may also be adapted for tile, slate or similar roofs.

The object of the invention is to provide a simple, inexpensive, convenient and efficient means for supporting the glass, tile or other roofing members of a structure.

With the above and other objects in view the invention consists in the details of construction and in the arrangement and combination of parts as will be hereinafter more fully described and particularly pointed out in the appended claim.

In describing the invention in detail reference will be had to the accompanying drawings wherein like characters of reference denote corresponding parts in the several views, and in which;

Figure 1 is a plan view of a portion of a glass roof embodying the invention; Fig. 2, a section on the line 2—2 of Fig. 1; Fig. 3, a section on the line 3—3 of Fig. 2, and Fig. 4, a detail perspective view of the fastening device utilized in the structure.

Referring to the drawings, the main members of the roof construction therein illustrated consists of bars 10 for supporting the sheets or members 11, of glass, the bars 10 are constructed from sheet metal bent so as to have a U-shaped cross section. The side edges of the bars 10 are each bent outwardly to form seats 12 and 13 upon which rest the edges of the roof members 11. Passing through the sides of the bar 11 above the seats 12 and 13 is a pin 14 adapted to cooperate with a locking device for holding the roof members 11 in place. This locking device is formed from a single strand of metal 15 which is bent centrally to form a U-shaped portion which overlies the U-shaped member 10 transversely of the latter. The ends of this strand are then bent at substantially right angles to the U-shaped portion to form arms 17 and 18. These arms 17 and 18 terminate at their junction with the U-shaped portion in corresponding downwardly and upwardly curved portions 15′ which form sockets or seats for the reception of the pin 14 as will hereinafter appear. The outer ends of the arms 17 and 18 are each bent downwardly as at 16 so as to engage the lower edge of the roof member when the locking device is secured in place.

In constructing a roof in accordance with the invention the edges of adjacent glass panes will overlap each other as shown in Fig. 2. The lower edge of each pane being held at each of its corners by a fastening device associated with the bar 10 in the manner shown. In applying the fastening device it is positioned to the rear of one of the pins 14 with the U-shaped portion thereof overlying the U-shaped bar. The device is then moved toward the pins 14 lying forward thereof so that the arms 17 and 18 pass under the respective ends of said pin. Near the termination of this movement of the fastening device the ends of the pins 14 will engage respective arms 17 and 18 near the curved portion 15′ and resist to a slight extent further movement of the device to locking position. However the resiliency of the arms 17 and 18 will allow the device to be moved to locking position and as soon as the ends of the pins 14 are properly positioned the resiliency of the arms 17 and 18 will cause them to snap toward the pins 14 and result in the latter seating in the curved portions 15′. At the same time that the pin 14 seats in the curved portions 15′ the downwardly bent outer ends of the bent arms 17 and 18 will engage the lower edge of roof members disposed on opposite sides of the U-shaped member 10.

It will be apparent that the construction of a roof in the manner just described is accomplished by very simple and cheap means permitting the rapid erection of the roof and also making it easy to replace a broken pane of glass.

While the invention is described primarily for the use of green houses, it will be obvious

that the glass panes 11 can be replaced by a thin tile or a slate without departing from the spirit of the invention.

What is claimed is:

In a roof structure for green houses, sky lights, etc., the combination of a bar formed of sheet metal and having a U-shaped cross section the sides of said bar being bent outwardly to form seats for glass plates or other roof members, a transverse pin extending through the U-shaped portion of said bar, and a fastening device formed from a single strand of wire having its central portion bent to overlie said bar transversely, the ends of said strand being correspondingly bent at an angle to the U-shaped portion to form arms disposed longitudinally of the bar, the inner ends of said arms being provided with corresponding downwardly and upwardly curved portions and the outer ends of the arms having their respective terminals bent downwardly to engage and support the lower edge of respective roof members disposed on opposite sides of the bar, said locking device being adapted to be positioned in assembled relation to the bar and roof members by a movement longitudinally of the former whereby the arms of the locking device pass under the pin and are compressed by the latter during their movement and react when the pin is disposed above the inner curved end of the bars so as to effect the seating of said pin in said curved ends.

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

ARTHUR B. KLEINHANS.

Witnesses:
LE ROY MEEKER,
HARRY A. HILLYER.