

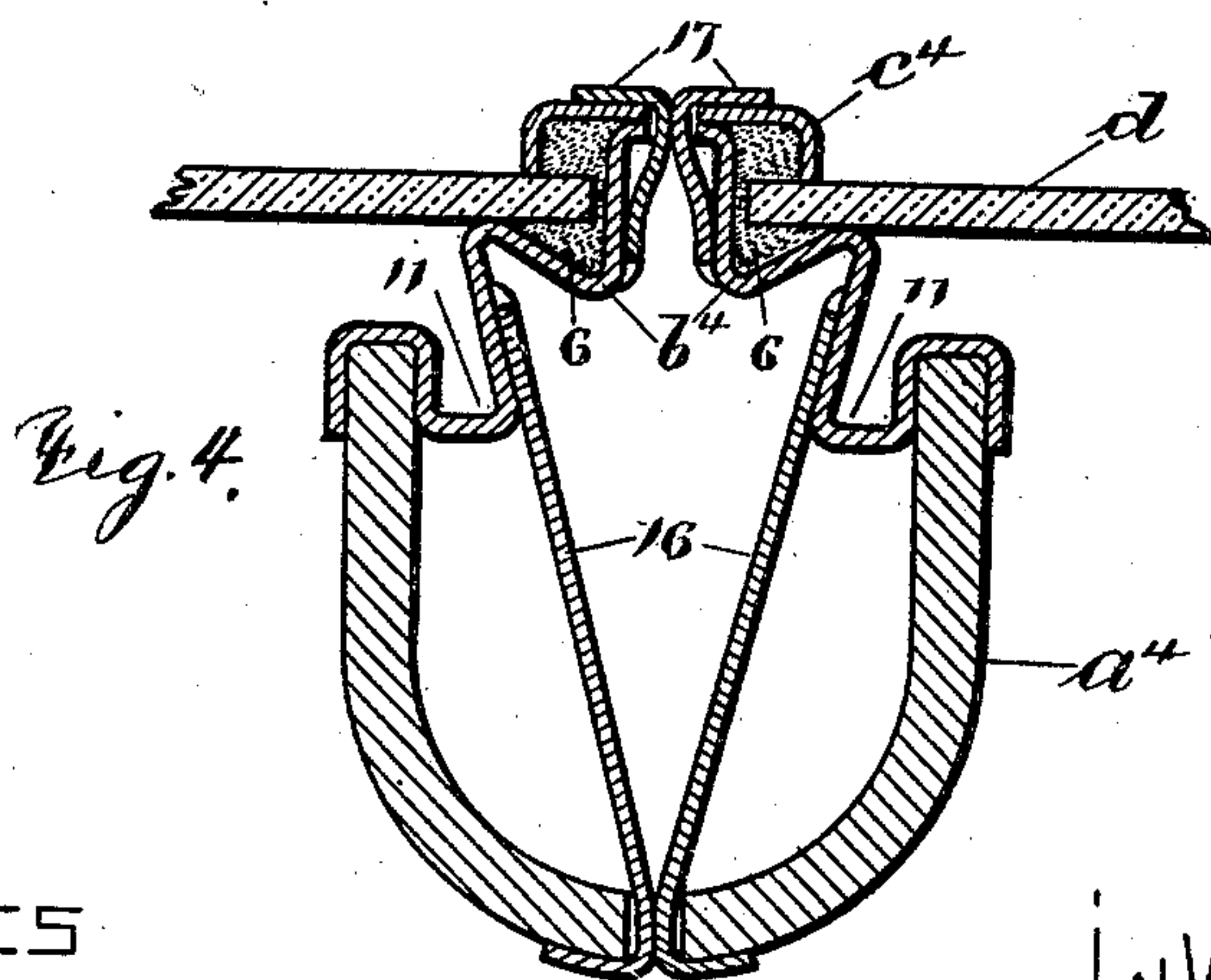
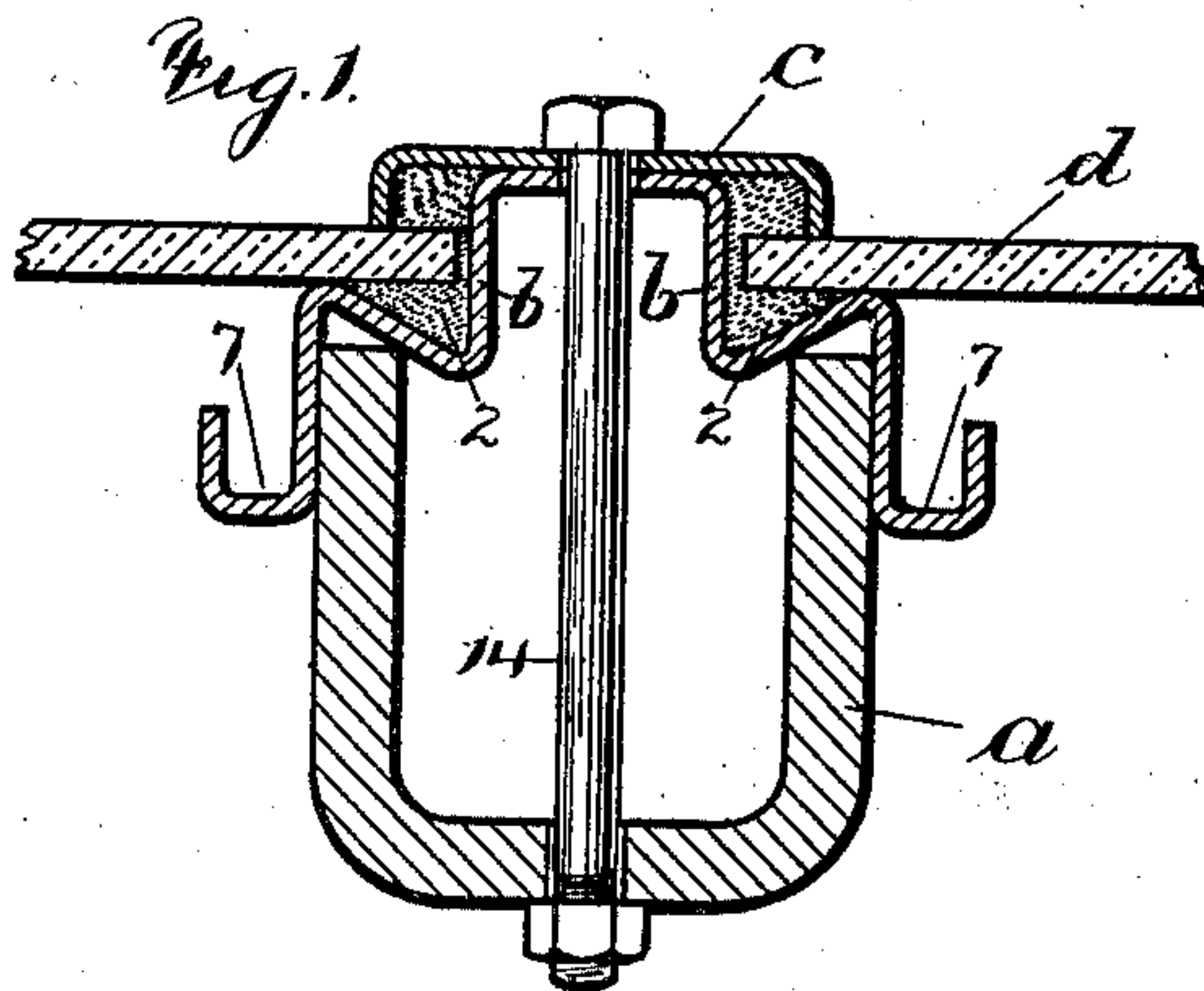
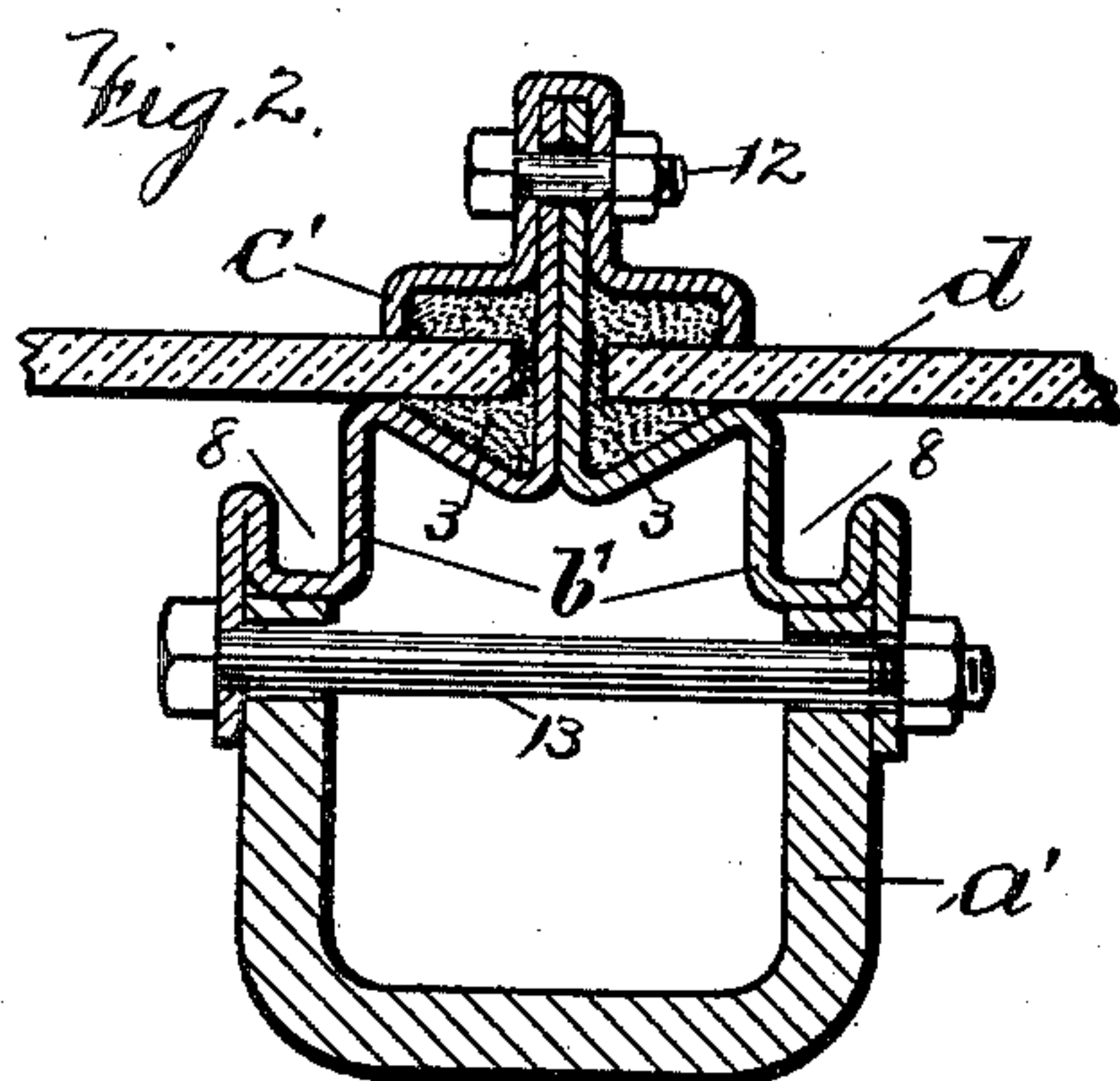
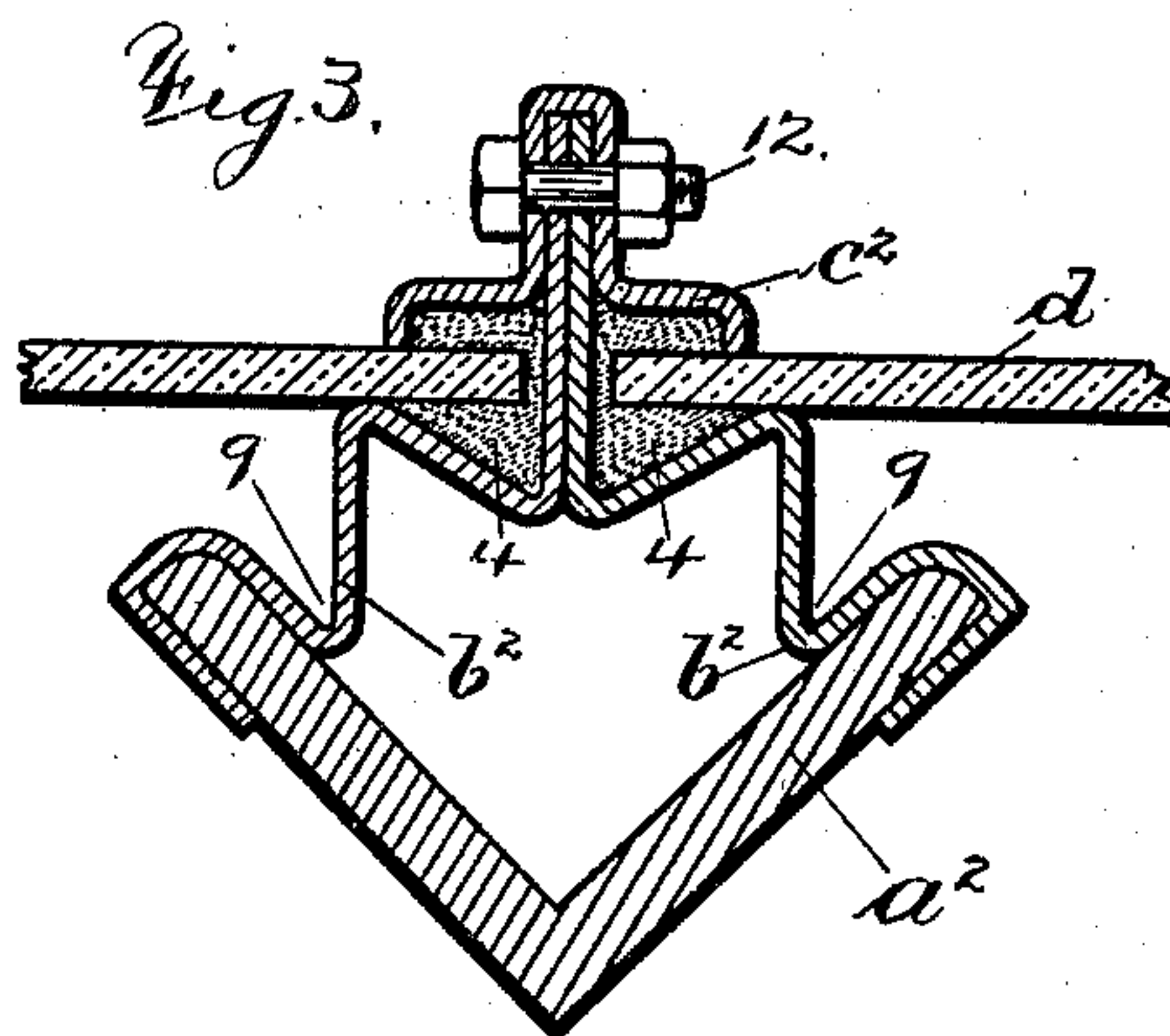
No. 697,747.

Patented Apr. 15, 1902.

P. M. PIERSON.  
SASH BAR FOR GREENHOUSES, &c.

(Application filed July 23, 1901.)

(No Model.)



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# UNITED STATES PATENT OFFICE.

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## SASH-BAR FOR GREENHOUSES, &c.

SPECIFICATION forming part of Letters Patent No. 697,747, dated April 15, 1902.

Application filed July 23, 1901. Serial No. 69,374. (No model.)

*To all whom it may concern:*

Be it known that I, PAUL M. PIERSON, a citizen of the United States, residing at Scarborough, in the county of Westchester and State of New York, have invented an Improvement in Sash-Bars for Greenhouses and other Glazed Structures, of which the following is a specification.

My invention relates to a novel construction of sash-bars for greenhouses and other glazed structures. Heretofore these sash-bars have usually been made of long deep strips of wood grooved upon opposite sides to receive putty into which the glasses are embedded, and these wooden bars have been supported upon beams and posts. These devices of well-known character were of considerable dimensions and cast shadows in the greenhouses, so that more or less of the sunlight was cut off from the plants. Furthermore, a wooden structure is liable to rot out from the moisture and to require constant repairs, and the object of my present invention is to overcome these difficulties in a bar made entirely of metal, and consequently of greatly reduced area and increased strength.

In carrying out my invention I employ a sash-bar of composite structure—that is to say, a main bent supporting-bar of relatively heavy metal and auxiliary bars of heavy bent sheet metal, in which auxiliary bars are formed grooves for the putty into which the glasses are embedded, and troughs to receive the moisture collected beneath the glasses. With this main and these auxiliary bars I prefer to employ a cap-plate connected to the auxiliary bars outside of and above the glasses and overlapping the edges thereof.

In the drawings, Figures 1, 2, 3, and 4 are vertical sections representing forms of my invention.

$a$ ,  $a'$ ,  $a^2$ , and  $a^4$  represent the main bars. These bars are all of bent form in cross-section, the bars  $a$ ,  $a'$ , and  $a^4$  being of U form of slightly-different dimensions and the bar  $a^2$  of a spread V form.

$b$ ,  $b'$ ,  $b^2$ , and  $b^4$  represent the double auxiliary bars of sheet metal, in each of which are provided grooves 2, 3, 4, and 6 for putty into which the glasses  $d$  are embedded.

$c$ ,  $c'$ ,  $c^2$ , and  $c^4$  represent sheet-metal cap-plates above the glasses spanning the auxiliary bar and overlapping the adjacent edges

of the glasses  $b$ , with the edges of the cap-plates bearing preferably directly upon the glasses, and devices are employed for so connecting the parts that the main bar, auxiliary bars, and cap-plate are in all cases so connected that they are not vertically separable one from the other.

Referring to Fig. 1, the main bar  $a$  is of pronounced U form and the double auxiliary bar sets over and down upon the upper edges of the main bar, so that the glasses  $d$  come close to the free edges of the main bar and the edges of the auxiliary bar are turned over and upward to form the moisture-troughs upon the opposite sides of the bar  $a$ . In this figure the center of the auxiliary bars is between the glasses and extends slightly beyond and the cap-plate  $c$  rests down upon this portion of the auxiliary bar and a bolt 14 passes through the cap-plate, the auxiliary bar, and the bar  $a$  to hold the parts together.

In Fig. 2 the auxiliary bar  $b'$  is actually in two pieces, with a part thereof between the glasses and rising beyond, and the cap-plate  $c'$  is made with a narrow raised center receiving the edges of the auxiliary bar, and a bolt 12 passes through the cap-plate and the auxiliary bars to hold these parts together. The auxiliary bars  $b'$  below the glasses  $d$  are so bent that the moisture-troughs 8 rest upon the edges of the main bar  $a'$ , and the free ends of the auxiliary bars  $b'$  lap down upon the outer surfaces of the main bar  $a'$ , and a bolt 13 passes transversely through the parts to hold them together.

In Fig. 3 the auxiliary bars  $b^2$  have a central construction conforming with the construction shown in Fig. 2—that is to say, they have a similar double form and the cap-plate  $c^2$  is the same shape and the bolt 12 similarly connects the parts; but as the bar  $a^2$  is of spread V form and the respective free ends of the auxiliary bars  $b^2$  are bent over the edges of the main bar  $a^2$  the parts interlock and the intermediate spaces form the moisture-troughs 9.

In the form shown in Fig. 4 the auxiliary bar  $b^4$  is made double with a portion between and extending beyond the glasses and with the cap-plate  $c^4$  extending over the same and resting thereon and the moisture-troughs 11 coming inside of the main bar  $a^4$  with the free



edges of the auxiliary bars extending over the edges of the main bar, the peculiarity of this figure residing in the metal straps 16 and 17, the straps 16 being soldered to the inner lower faces of the auxiliary bars and passing down through an opening in the lower portion of the main bar with the ends bent outward against the main bar and the straps 17 soldered to the inner upper portion of the auxiliary bars and passing out through an opening therein and through an opening in the cap-plate, where the free ends are bent over against the outer flat faces of the cap-plate, the said straps serving to tie the parts together.

In all of the structures or forms shown the auxiliary or double sheet-metal bars  $b$ ,  $b'$ ,  $b^2$ , and  $b^4$  directly support the glasses and they rest upon and are held down to the main bars and are supported thereby.

I claim as my invention—

1. A sash-bar for greenhouses and other glazed structures, comprising a main supporting-bar of substantially U shape in cross-section, auxiliary bars of heavy bent sheet metal resting upon and carried by the main bar and having in themselves grooves for the putty into which the glasses are embedded, and moisture-troughs and a part extending between and slightly beyond the outer faces of the glasses, substantially as set forth.

2. A sash-bar for greenhouses and other glazed structures, comprising a main supporting-bar of substantially U shape in cross-section, auxiliary bars of heavy bent sheet metal resting upon and carried by the main bar and having in themselves grooves for the putty into which the glasses are embedded, and moisture-troughs and a part extending between and slightly beyond the outer faces of the glasses, and a cap-plate connected to the auxiliary bars outside of and above the glasses and overlapping the edges thereof, substantially as set forth.

3. A sash-bar for greenhouses and other glazed structures, comprising a main supporting-bar of substantially U shape in cross-section, auxiliary bars of heavy bent sheet metal resting upon and carried by the main bar and having in themselves grooves for the putty into which the glasses are embedded, and moisture-troughs and a part extending between and slightly beyond the outer faces of the glasses, and a cap-plate connected to

the auxiliary bars outside of and above the glasses and overlapping the edges thereof, and devices, such as bolts for firmly connecting the main and auxiliary bars and maintaining their relation one to the other, substantially as set forth.

4. A sash-bar for greenhouses and other glazed structures, comprising a main supporting-bar of substantially U shape in cross-section, an auxiliary bar of heavy bent sheet metal having central parallel adjacent portions extending through between the glasses and beyond the same with grooves upon opposite sides of said portions for the putty into which the glasses are embedded, and with moisture-troughs formed thereof at each side of and below the line of said grooves with the free edges of the said auxiliary bars overlapping the sides of the main bar and a cap-plate connected to the auxiliary bars outside of and above the glasses and overlapping the edges thereof, and devices, such as bolts, passing through parts of the auxiliary and main bars for firmly connecting the parts together, substantially as set forth.

5. A sash-bar for greenhouses and other glazed structures, comprising a main supporting-bar of relatively heavy metal and substantially U form in cross-section, and auxiliary bars of heavy bent sheet metal having central parallel portions passing between the glasses of each row and extending beyond the surfaces thereof and having grooves upon opposite sides of said portions for the putty into which the glasses are embedded, and moisture-troughs formed of the material of said auxiliary bars at either side of the putty-grooves and below the plane thereof with the free edges of the auxiliary bars extending over the free edges of the main bar and overlapping the sides thereof, so that the glasses are supported an appreciable distance above the main bar, and a cap-plate outside of and above the glasses overlapping the edges thereof and contacting with the auxiliary bars and means for connecting the cap-plate to the auxiliary bars and the auxiliary bars to the main bar, substantially as and for the purposes set forth.

Signed by me this 12th day of July, 1901.

PAUL M. PIERSON.

Witnesses:

GEO. T. PINCKNEY,  
S. T. HAVILAND.