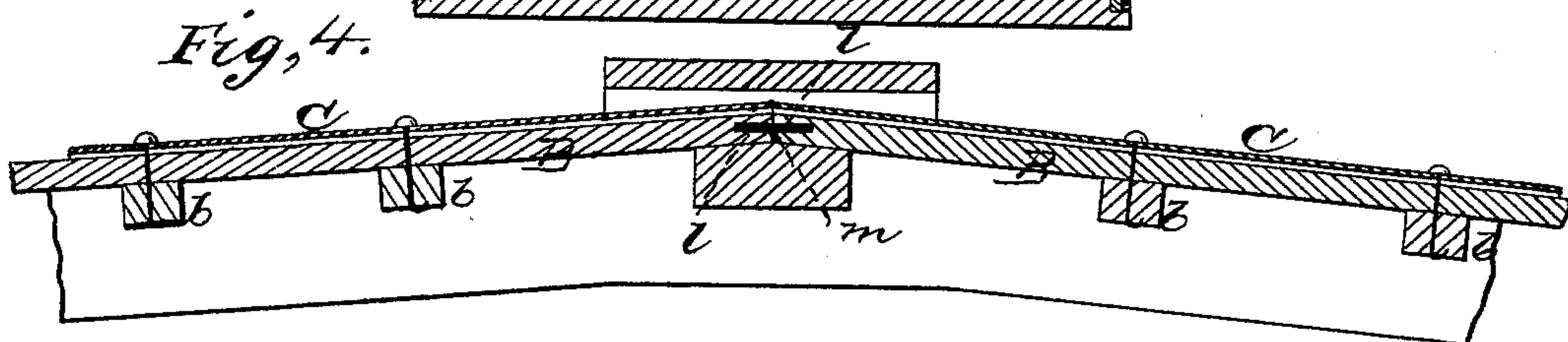
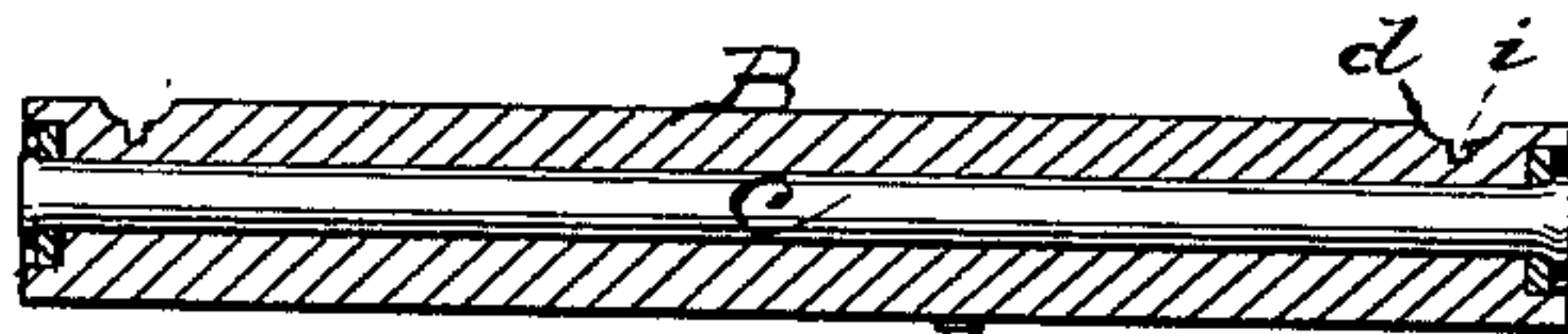
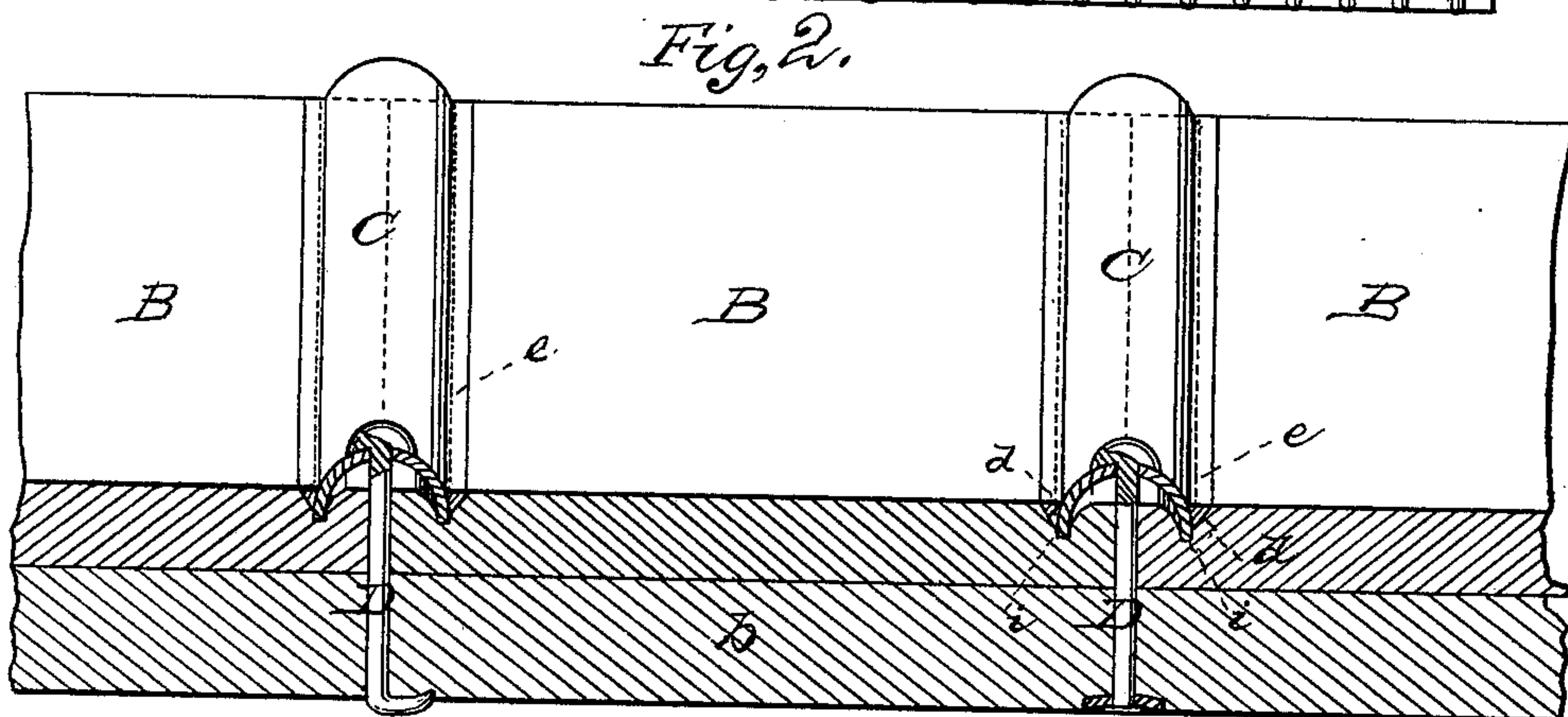
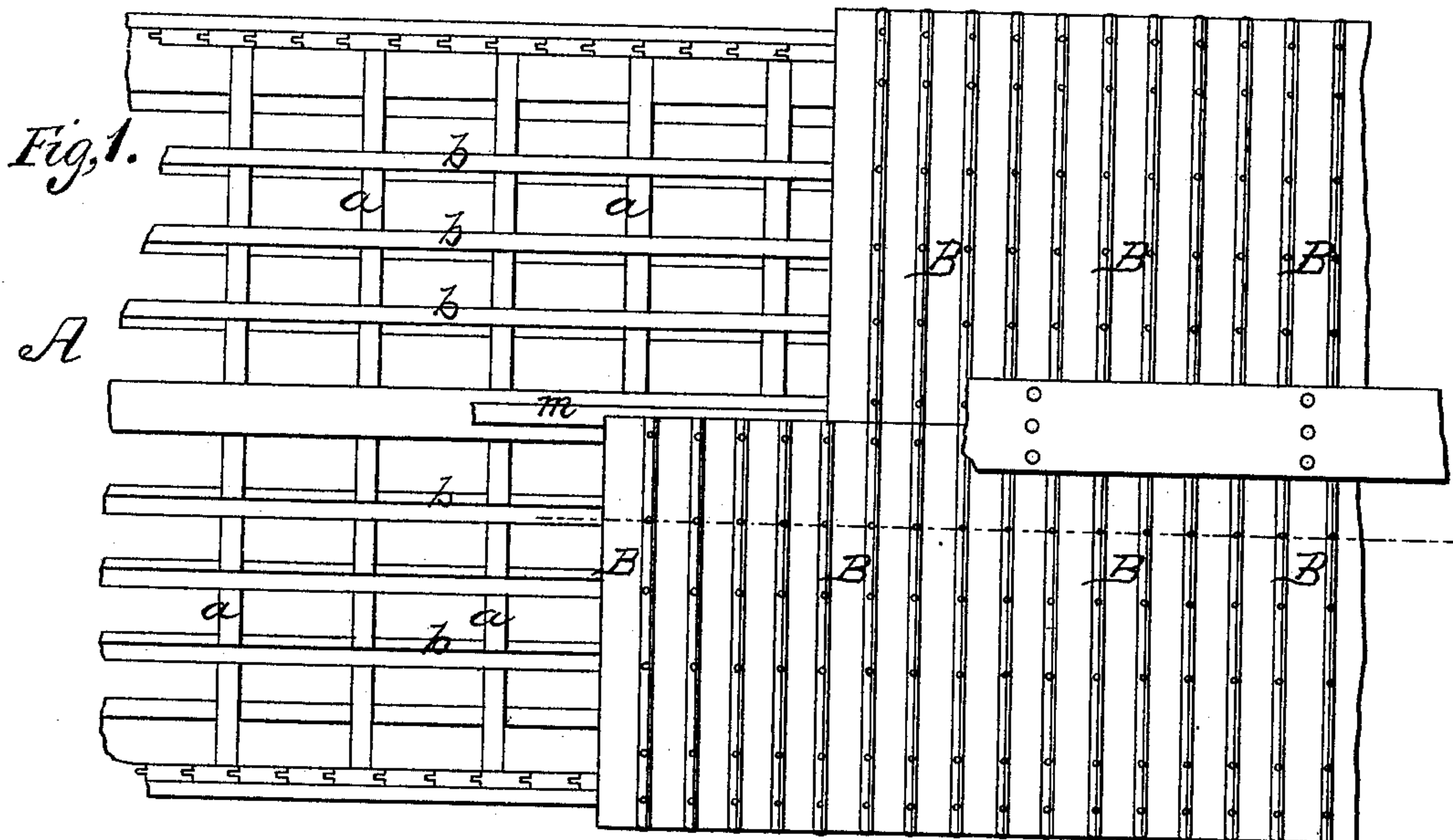


J. C. WANDS.  
Car-Roof.

No. 219,788.

Patented Sept. 16, 1879.



WITNESSES  
*Villette Anderson.*  
*Frank J. Massi*

INVENTOR  
*John C. Wands*  
*by E. W. Anderson*  
his ATTORNEY



# UNITED STATES PATENT OFFICE

JOHN C. WANDS, OF LOUISVILLE, KENTUCKY.

## IMPROVEMENT IN CAR-ROOFS.

Specification forming part of Letters Patent No. **219,788**, dated September 16, 1879; application filed July 22, 1879.

*To all whom it may concern:*

Be it known that I, J. C. WANDS, of Louisville, in the county of Jefferson and State of Kentucky, have invented a new and valuable Improvement in Car-Roofs; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a top view of my car-roof, showing my invention. Fig. 2 is a perspective section thereof. Fig. 3 is a transverse section of the roof-board, and Fig. 4 is a cross-section of the roof.

This invention has relation to improvements in car-roofs. The object of the invention is, mainly, to decrease the cost of the roof as well as its weight without in any degree detracting from its usefulness or its lasting qualities; and the nature of the invention consists in the combination, with the roof-frame of a railway-car, of a thin roof-board having metallic bolts extending through it transversely from edge to edge, heads being formed on the ends of said bolts, whereby the said board is prevented from cracking or warping.

It also consists in combining with a roof composed of boards laid side by side, provided with longitudinal grooves near their edges, and having the bracing-bolts extending through the same from edge to edge thereof, semi-cylindrical metal joints sprung into the grooves of adjacent boards, and secured in place by nails extending through said joints, between the boards, into and through the purlins of the roof-frame, whereby the said boards are rigidly held down upon the framing by comparatively few nails, all danger of splitting the same is absolutely done away with, and leaking rendered absolutely impossible, as will be hereinafter more fully explained.

In the annexed drawings, the letter A designates the roof-frame, composed of rafters *a* extending from ridge to eaves and purlins *b*, secured on or framed into the said rafters in any suitable manner. Of these purlins there are usually two more than are generally used in similar structures. B designates the roof-boards, the same being about one inch thick

and about six inches wide and of a length proportionate to the pitch of the roof and the width of the car. These boards are bored through from edge to edge at suitable intervals along their entire length, and in the holes thus formed are inserted metallic bolts *c*, the ends of which are clinched over washers passed onto the same and recessed into the edges of the boards, by which means the said boards may be laid close together, and without an appreciable interval between them. The strength of these bolts is such that by their clamping action they effectually prevent the boards from splitting, and, by their rigidity, from warping. Near the longitudinal edges of each of these boards is formed an angular groove, *d*, having at bottom a narrow rectangular channel, *i*, into which is sprung the edge of a semi-cylindrical metallic joint, C. The other edge of the joint-plate is received in a similar channel, *i*, of the adjoining board.

It will be observed that the plates C completely cover the joints, and have along their lateral edges, formed by the grooves *d*, the gutters or channels *e*, designed to be filled with stiff paint, putty, or other cement.

D indicates the fastening-nails, extending from above through the crown of the joint-plates, between the roof-boards, and through the purlins, upon the under sides of which they are securely clinched. This clinching action of the nails causes the joint-plates to clamp the roof-boards against the purlins, holding them rigidly in place under any and all circumstances, without using any description of nail or screw passing through said boards into the purlins. Thus the latter are not liable to split, and the boards not being pierced at any point cannot leak.

The joint-plates may be made of any desired metal; but I usually make them of iron, plain or galvanized, and either rolled or cast.

The roof-boards meet, as usual, at the ridge of the roof, their contiguous edges being mitered together. They are, further, kerfed transversely, as shown at *l*, to receive each one-half of a metallic strip, *m*, of about the thickness of hoop-iron, as shown in Fig. 2. This strip prevents the ridge ends of the boards from working past each other, and holds them in proper relation to each other. It at the

same time prevents any leakage at the apex of the roof.

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

1. In combination with the roof-frame of a railway-car, a thin roof-board having metallic bolts extending through it transversely from edge to edge, heads being formed on the ends of said bolts, substantially as specified.

2. The combination, with the car-roof frame, of the roof-boards resting thereon, having metallic bolts extending through them from edge to edge and clinched at their ends, and provided on their lateral edges with grooves, the curved

metallic joint-plates straddling the joint of adjacent boards and seated in said grooves, and the fastening-nails extending through the crown of the plates, between the boards, and through the purlins of the roof-frame, and clinched or headed on the under side thereof, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

JOHN C. WANDS.

Witnesses:

FRANK J. MASI,  
JOHN A. ELLIS.