

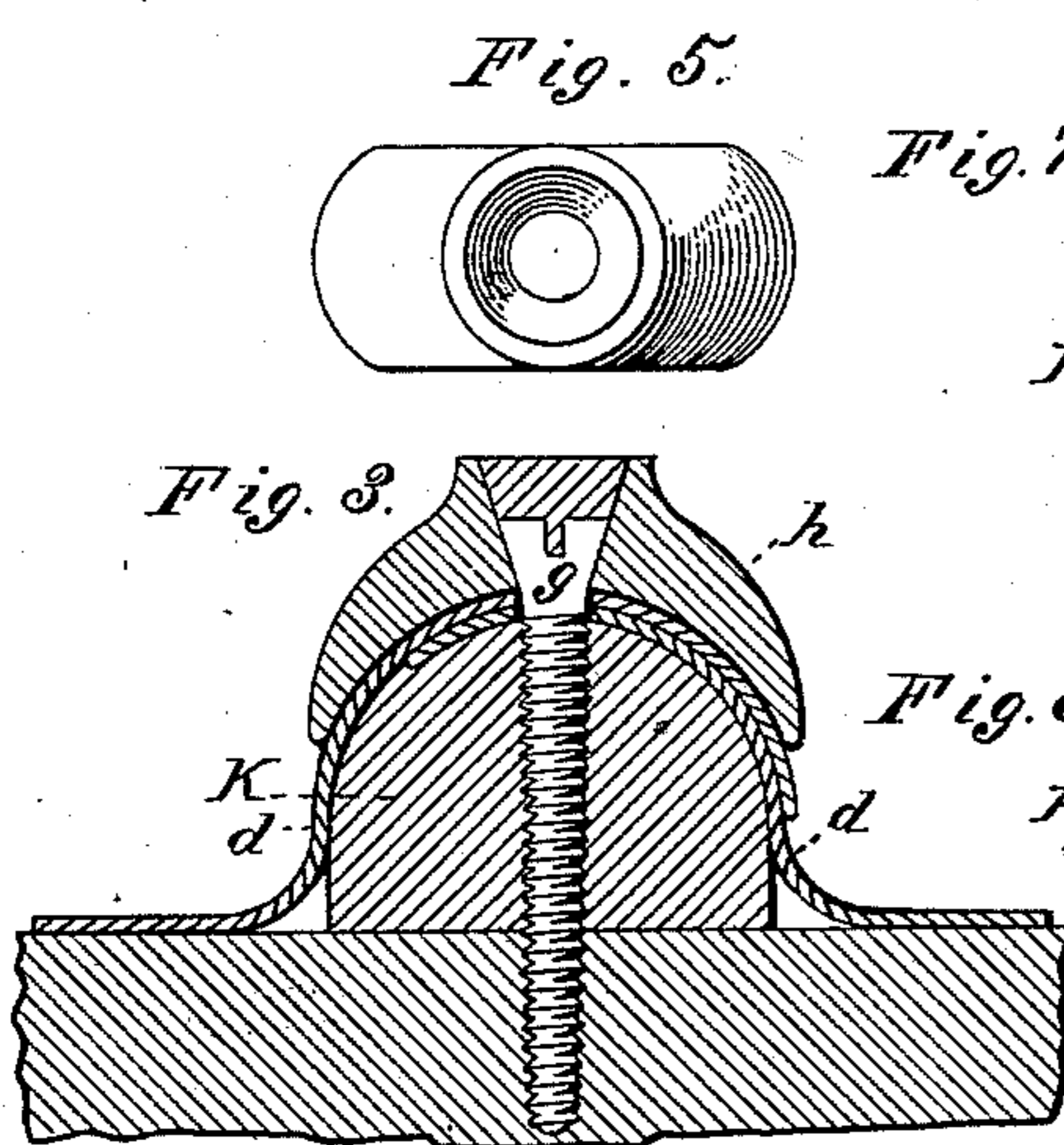
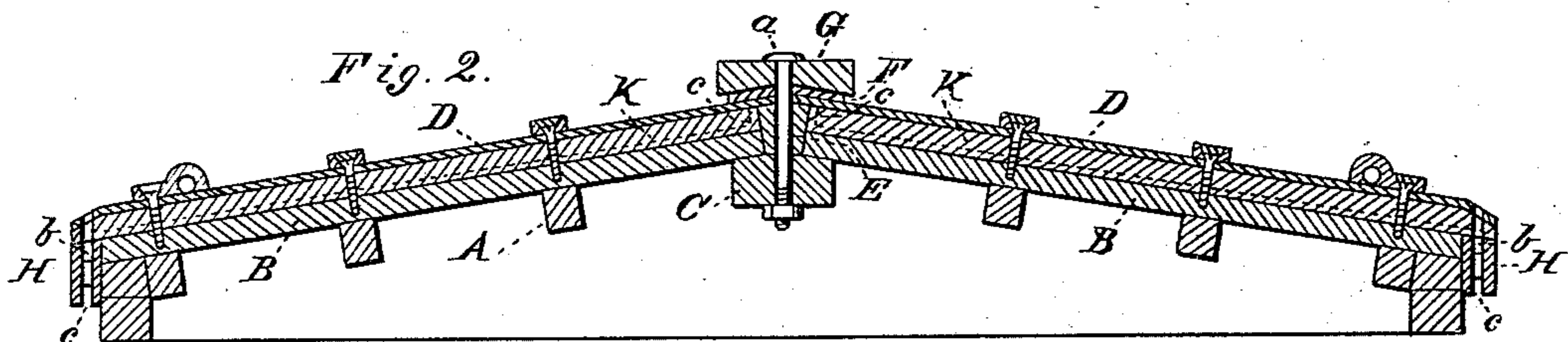
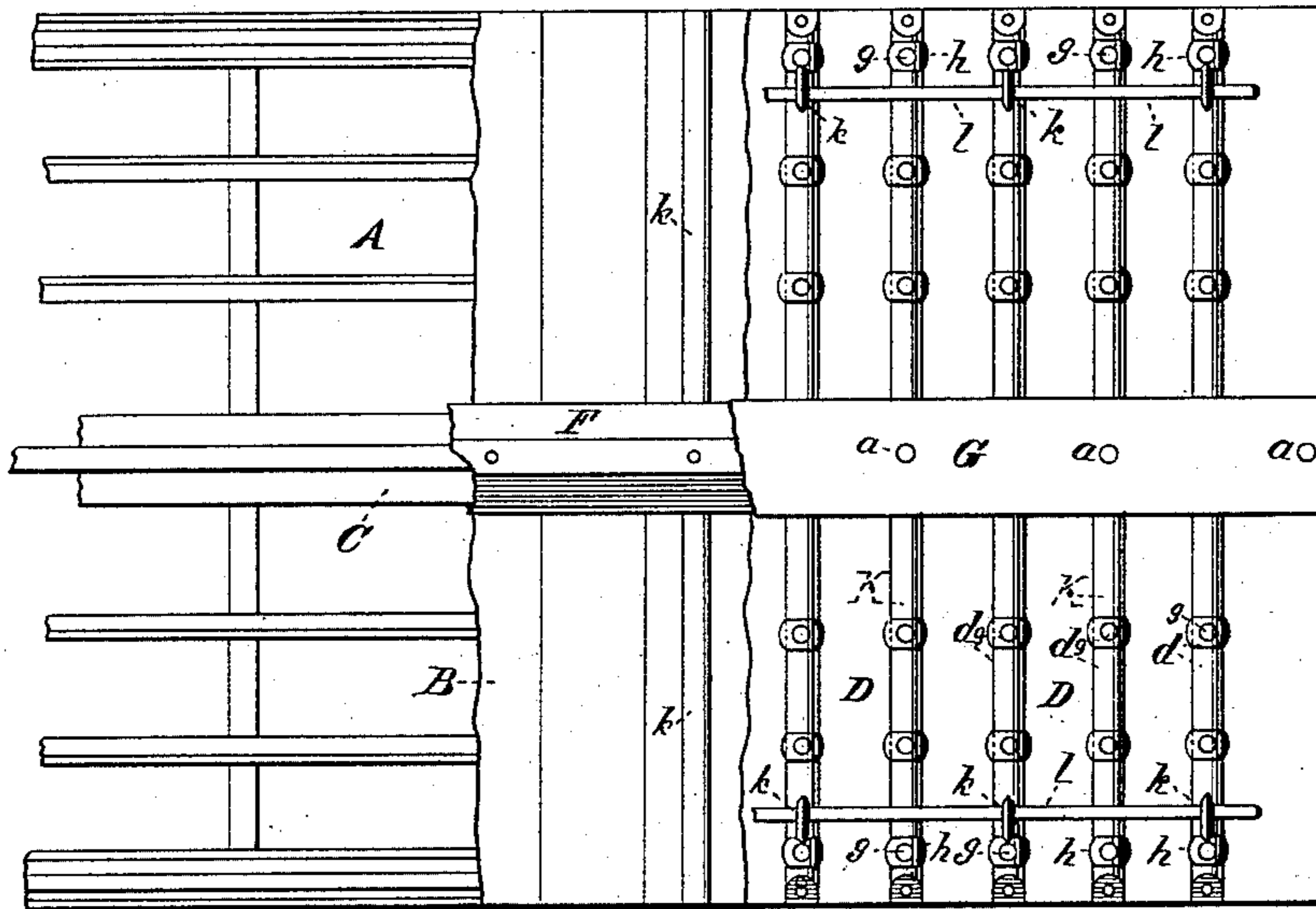
(No Model.)

J. C. WANDS.
METAL CAR ROOF.

No. 302,453.

Patented July 22, 1884.

Fig. 1.



WITNESSES

Villette Anderson
Philip L. Massi

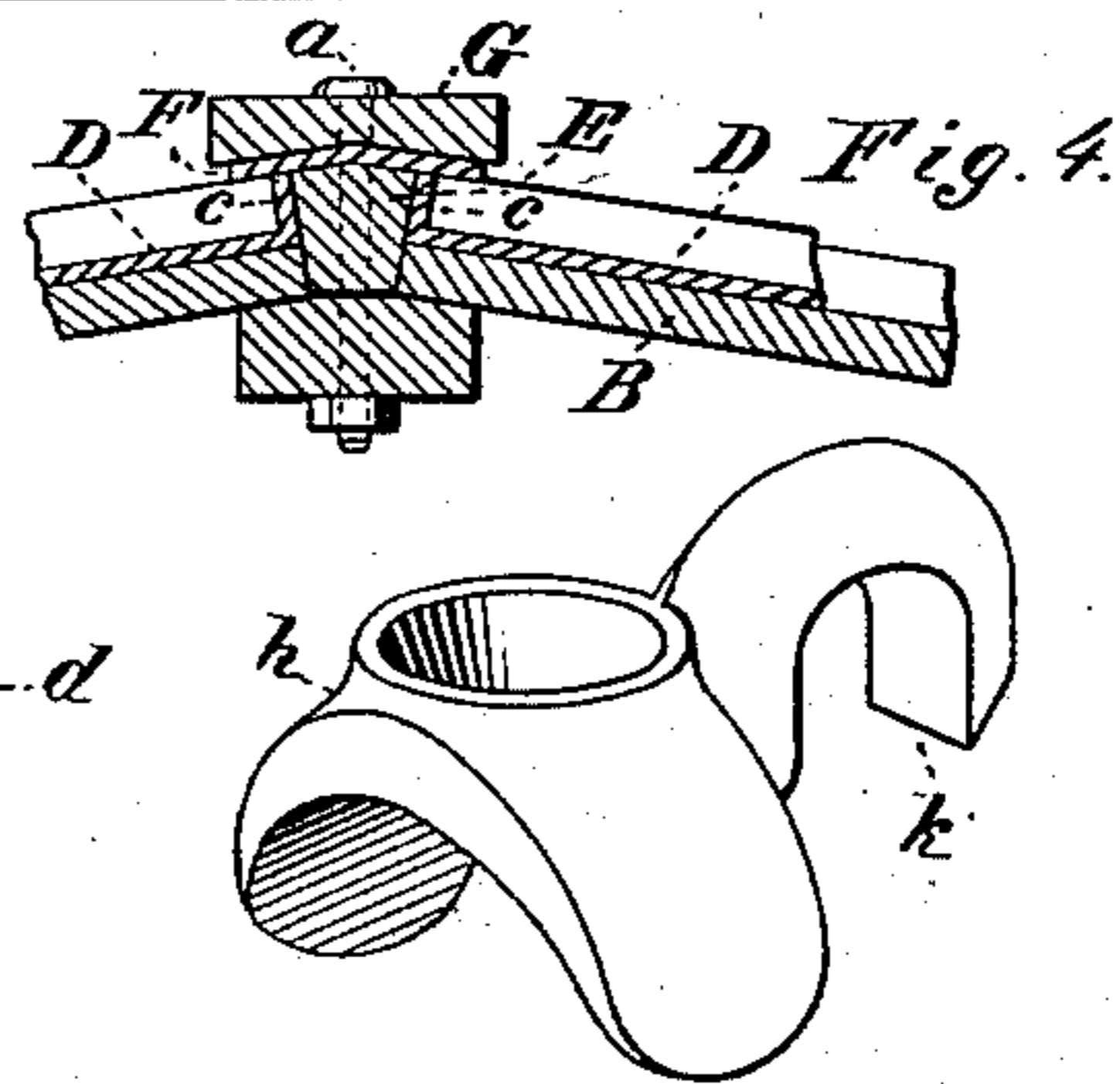
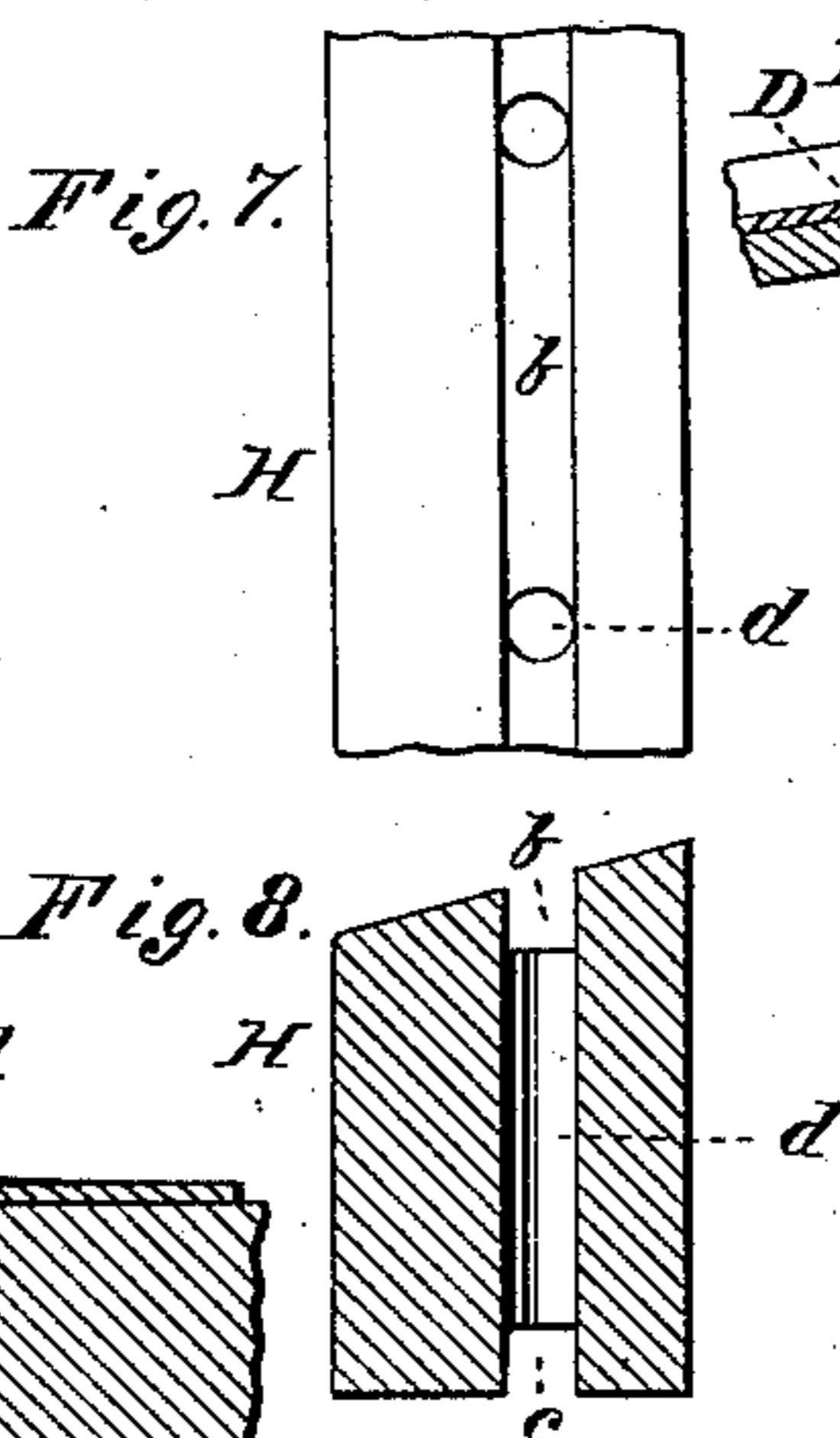


Fig. 6.

INVENTOR
John C. Wands
by Anderson & Smith
his ATTORNEYS

UNITED STATES PATENT OFFICE.

JOHN C. WANDS, OF ST. LOUIS, MISSOURI.

METAL CAR-ROOF.

SPECIFICATION forming part of Letters Patent No. 302,453, dated July 22, 1884.

Application filed April 12, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. WANDS, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Metal Car-Roofs; and I do 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a representation of this invention, and shows a top view of a portion of a car-roof, part of which is broken away. Fig. 2 is a vertical section. Fig. 3 is a detail showing a section across one of the battens and washer. Fig. 4 is a detail section. Figs. 5, 6, and 7 are detail views. Fig. 8 is a detail section.

This invention has relation to iron-covered car-roofs; and it consists in the construction and novel arrangement of parts, all as herein-after set forth, and pointed out in the appended claims.

In the accompanying drawings, the letter A designates the framing under the roof-boards or sheathing B.

C represents the under or inside central purlin of said framing.

D D are the iron roof-plates.

E is the longitudinal center bar between the flange ends of the iron plates.

F is a metallic or felt strip extending over the comb of the roof, and covering the joints between the central bar, E, and the ends of the iron plates which abut against the same.

G represents the upper central purlin, which is fastened to the under central purlin by bolts *a*, which pass through the bar E, so that all parts composing the central portion of the roof are firmly connected. By varying the breadth of the central bar, E, the iron plates are adapted to cars of different widths without requiring any change in the length. If the bar E is made wider, the plate or covering F and the outer or top purlin, G, should also be made wider.

H represents the under longitudinal mold-

ing-strip or barge-board, which is longitudinally grooved in its upper edge, as at *b*, and in its lower edge, as at *c*. This strip extends along under the projecting edges of the roof boards or plates at the side of the car, and is designed to allow the escape of any water which may get under the plates through the grooves and vertical perforations *d*, forming outlets to said grooves.

K K are the roof-battens, which are placed over the sheathing. The iron-plates D are made to lap over the battens. Each plate is formed with edge ribs *d*, concave underneath to fit over the battens, and these ribs *d* are connected at their inner ends by the upwardly-turned end flanges, *e*, of the plates, the ends of which are firmly soldered to the ends of the ribs. When these plates are in position lapping over the battens the upwardly-turned end flanges, *e*, abut against the center bar, E, of the roof-frame. The plates are held in position by means of screws *g* and clamp-bearings or cast washers *h*, having downwardly-curved ends to fit the ribs of the plates, and perforated to provide bearings for the screws. The clamps embrace the ribs of the plates, and the screws, passed through said clamps and ribs into the battens and sheathing, serve to hold the plates securely to their places.

Near the edge of the roof clamps are used which have hook-arms *k*, bent upward from the body of the clamp, and then downward, said hook-arms being adapted to engage an iron rod or safety-rail, *l*, which is designed to extend along the top of the car near its edge as shown.

The clamp-washers are countersunk in the upper portions of their perforations, to receive the heads of the screws, and when the attachment is made cement is put in the countersunk recess to make the joint between the screw and washer water-tight.

Having described this invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with the under and upper central purlins and the longitudinal center bar between the same, of the iron plates secured to the sheathing on each side, and having upwardly-turned flanges at their in-

ner ends abutting against said center bar, substantially as specified.

2. The combination, with the under and upper central purlins and the longitudinal center bar, of the flanged iron plates abutting against the center bar, and the center strip of felting or metal under the upper purlin, and covering the joints between the center bar and the iron plates, substantially as specified.
3. The combination, with the under and upper central purlins, the longitudinal center bar, the sheathing, and the battens, of the iron plates having the under concave side ribs lapping over the battens, and the end flanges connecting said side ribs and abutting against the center bar, substantially as specified.

4. The iron roofing-plates for cars, having under concave side ribs and the upwardly-

turned flanges at their inner ends soldered to the ends of said side ribs, substantially as specified.

5. The combination, with the roofing-plates and battens, of the clamp-bearings having downwardly-curved ends and countersunk perforations, substantially as specified.

6. The combination, with the roofing-plates and battens, of perforated clamp-bearings having downwardly-turned ends and hook-arms bent upward and then downward to engage a safety-rail, substantially as specified.

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

J. C. WANDS.

Witnesses:

J. G. ALEXANDER,
W. C. PLASS.