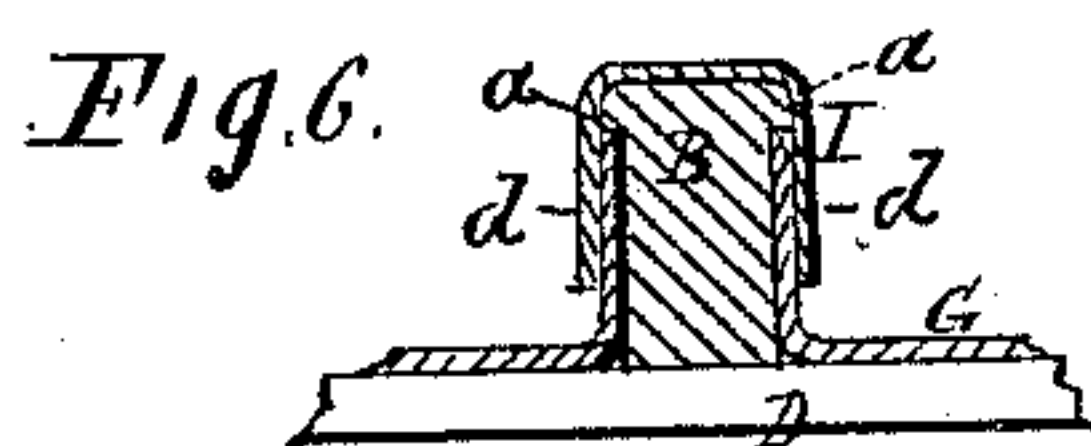
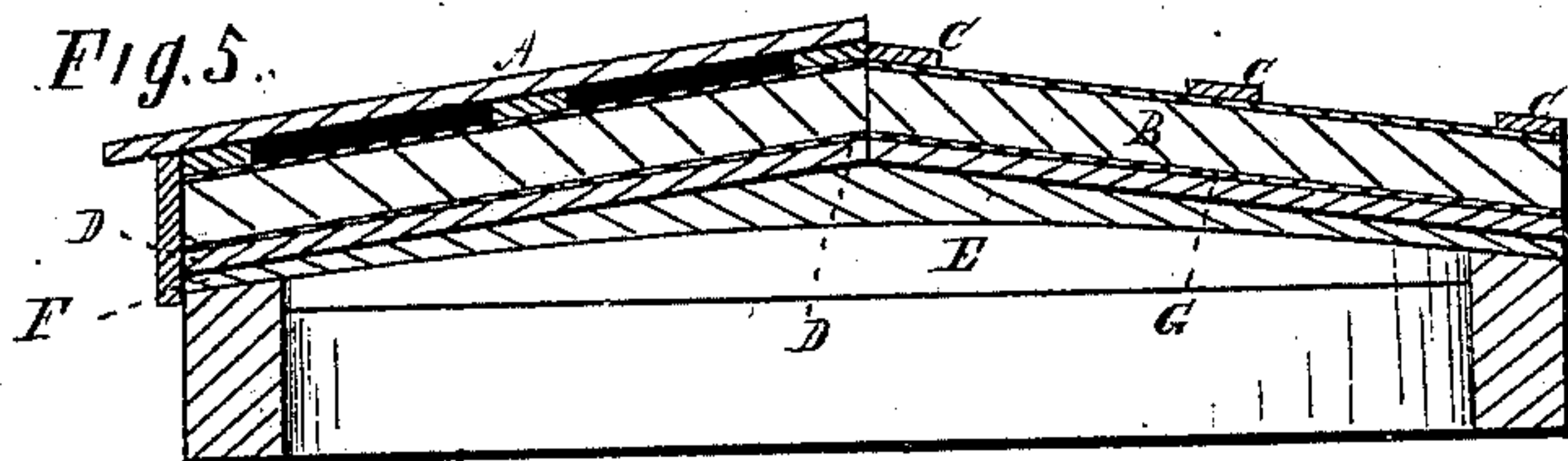
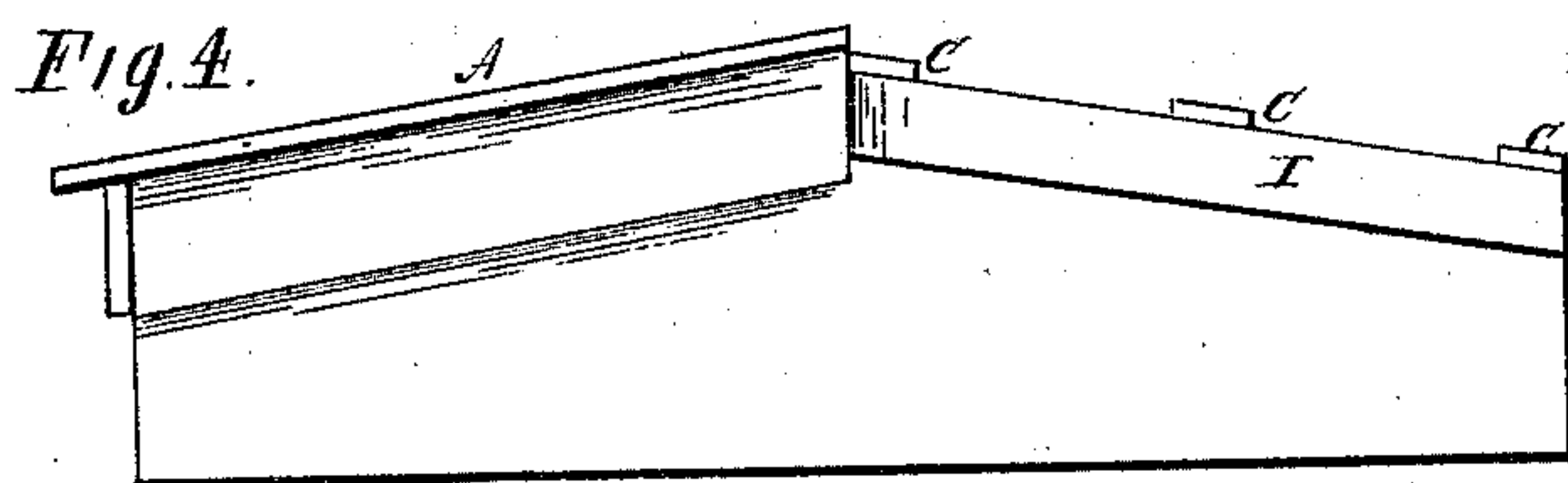
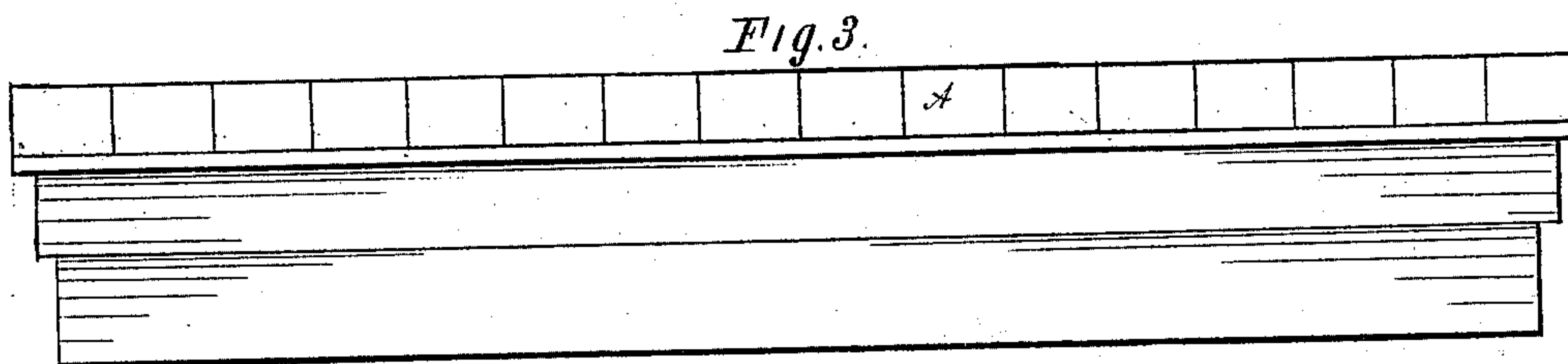
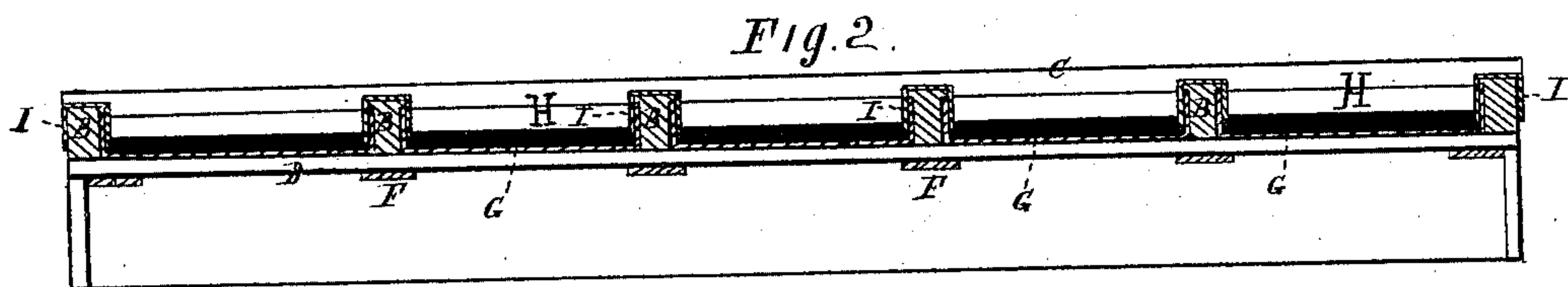
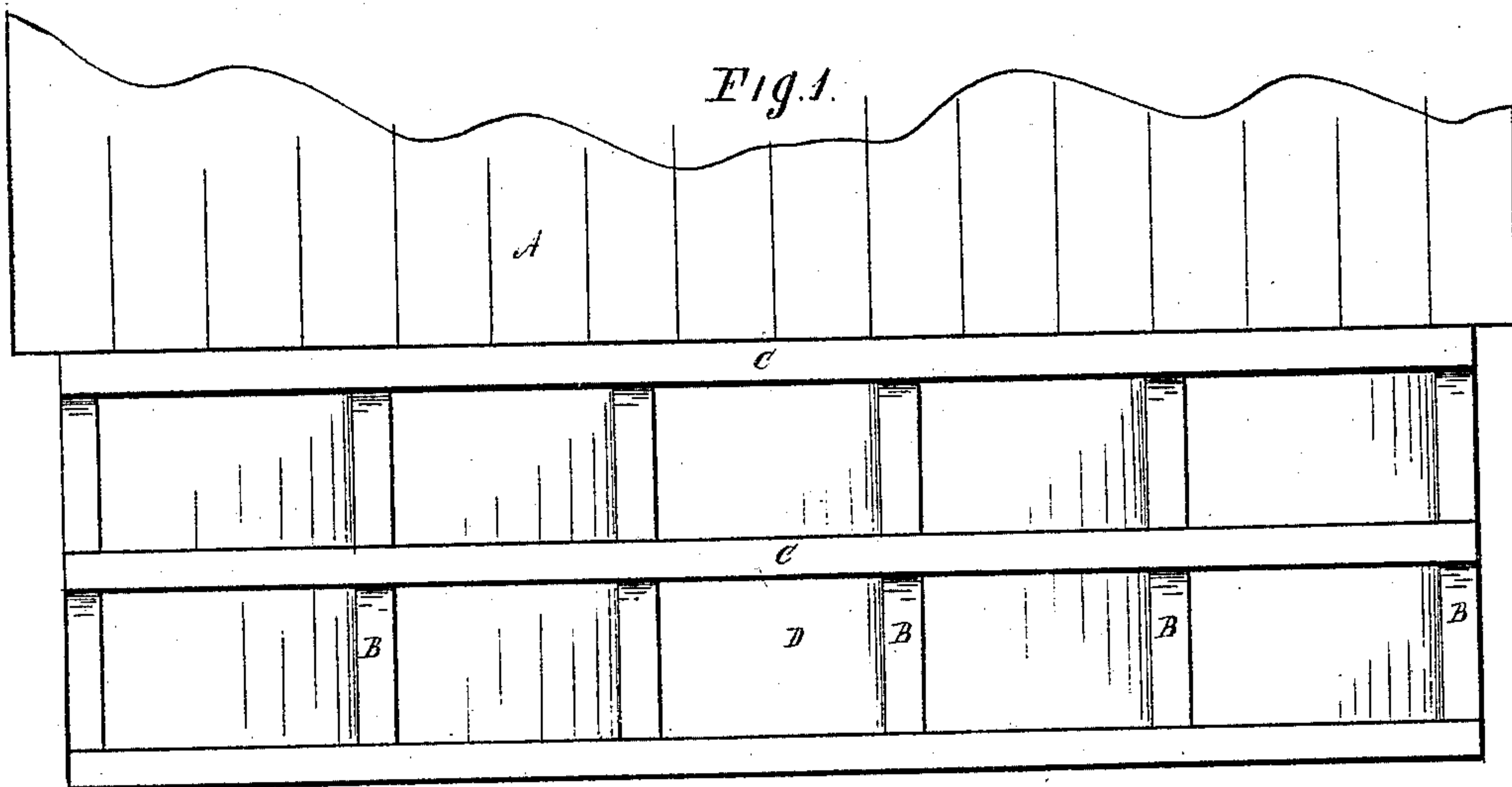


(No Model.)

A. P. WINSLOW.
Car Roofs.

No. 233,057.

Patented Oct. 5, 1880.



Witnesses.

O. L. Emerson
W. C. North

Inventor.

A. P. Winslow
per W. H. Burridge
Atty.

UNITED STATES PATENT OFFICE.

ALONZO P. WINSLOW, OF CLEVELAND, OHIO.

CAR-ROOF.

SPECIFICATION forming part of Letters Patent No. 233,057, dated October 5, 1880.

Application filed March 11, 1880. (No model.)

To all whom it may concern:

Be it known that I, ALONZO P. WINSLOW, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and Improved Railway-Car Roof; and I do hereby declare that the following is a full, clear, and complete description thereof.

The nature of my improvement relates to railway-car roofs; and it consists in such construction of the same as to render them much lighter and cheaper than those in ordinary use and equally strong and durable.

To attain this object sheets of tar-paper are arranged in connection with the roof structure, which is of peculiar arrangement, by which the cost and labor of a sheet-iron roof and its great weight are avoided.

The weight of the metal on a car-roof varies from three hundred to three hundred and fifty pounds, depending upon the size of the car and the thickness of the metal sheet. The weight of the sheeting which I use in place of metal will be at least one hundred and twenty-five per cent. less than that of iron and equally (if not more) durable. The great advantage of dispensing with this excess of weight is so obvious that it needs no recital.

This improvement renders the cost of the roof at least two hundred to two hundred and fifty per cent. less than when sheet metal is employed.

For a more detailed description of my improvement reference will be had to the following specification, and to the annexed drawings, in which—

Figure 1 is a sectional view of the roof; Fig. 2, a side view with a portion of the roof removed; Fig. 3, a side view. Figs. 4 and 5 are end views with parts of the roof removed. Fig. 6 is a detached section.

Like letters of reference refer to like parts in the several views.

The general frame-work is shown in the drawings, in which A is the outside roof or deck; B, subrafters; C, stringers, as seen in Figs. 1 and 2; and D, Fig. 5, the subroof, which rests upon the carlings E above, which are secured to the subrafters B. The carlings are framed at their ends into the sides, as seen at F, Figs. 2 and 5.

Directly over the subroof D is laid sheeting of tar-paper in sections formed to fit the subroof and lap up on the sides of the subrafters B. The rafters are covered or capped over with tar-paper in sections shaped to the top, with the sides extending down the rafter, so as to lap over the upturned ends of the adjoining tar-paper sections. This arrangement is shown in Figs. 2 and 6, in which G are the said paper sections lying upon the subroof-boards D, the sides of which are turned so as to lap up on the rafter B under the T-head a, as seen in Fig. 6. The connection or arrangement of the paper with the rafter B is the same on both sides, as seen in the drawings, the channels or spaces H between the rafters being covered with the tar-paper.

Over the rafters B are placed tar-paper sections or caps I, the sides of which are turned down, so as to come over the upturned sides of the sections G, as seen at d, Fig. 6. By this arrangement of the said paper section the entire roof of the car is covered over, which affords all the protection to the interior of the car obtained by sheet metal without its excessive cost and weight.

For the purpose of securing the said paper sheets in place I use the stringers C, which are notched or halved out at the intersection with the rafter B, by which the stringer is made to fit on the top and lap down over the sides of the rafters with the paper sheeting interposed between the rafters and stringers, as seen in Fig. 2. The sheeting of paper is formed and made to lap over and down the ends of the roof, as seen at I, Fig. 4. By means of the stringers, in combination with the rafters and frame-work, the sheeting is secured to the roof without nails or pins.

The roof, constructed as described, is then covered over with the ordinary roofing-boards, as seen at A, to protect the sheeting and interior parts of the roof.

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

1. In roofing for railway-cars, the combination of the subrafters, the inner deck or ceiling, the outer deck or roof-boards, and interposed covering of tar-paper or felt, substantially as and for the purpose described.

2. In railway-car roofing, with the subraft-
ers thereof and inner deck or ceiling, the tar-
paper or felt, made to cover said rafters and
ceiling, the cap-piece, and outer deck or roof
5 boards, all combined substantially as and for
the purpose described.

3. In railway-car roofs, the tar-paper and
subrafters interposed between the outer roof

or deck and ceiling, substantially as and for
the purpose described. 10

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

ALONZO P. WINSLOW.

Witnesses:

J. BANKNECHT,
J. H. BURRIDGE.