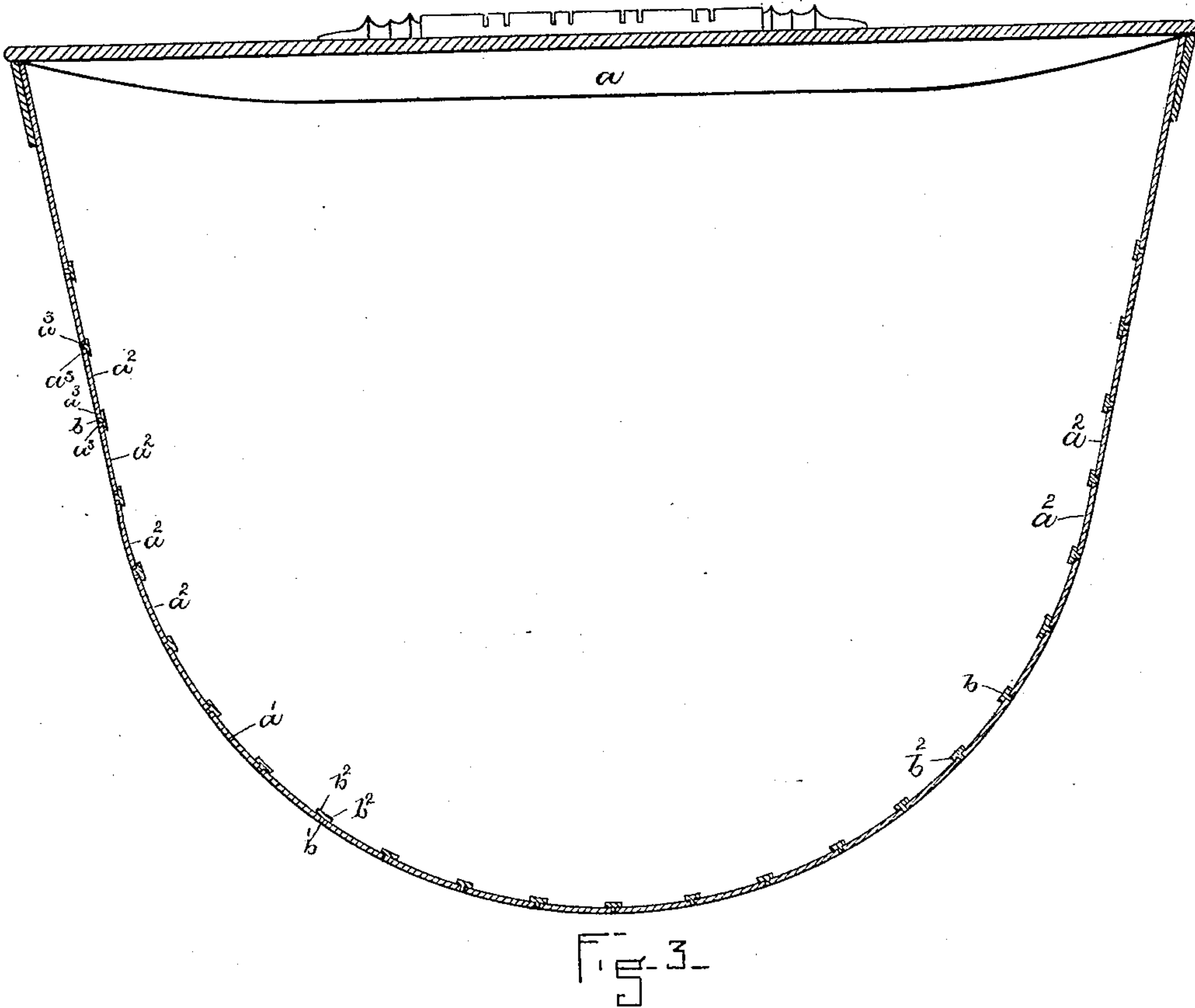
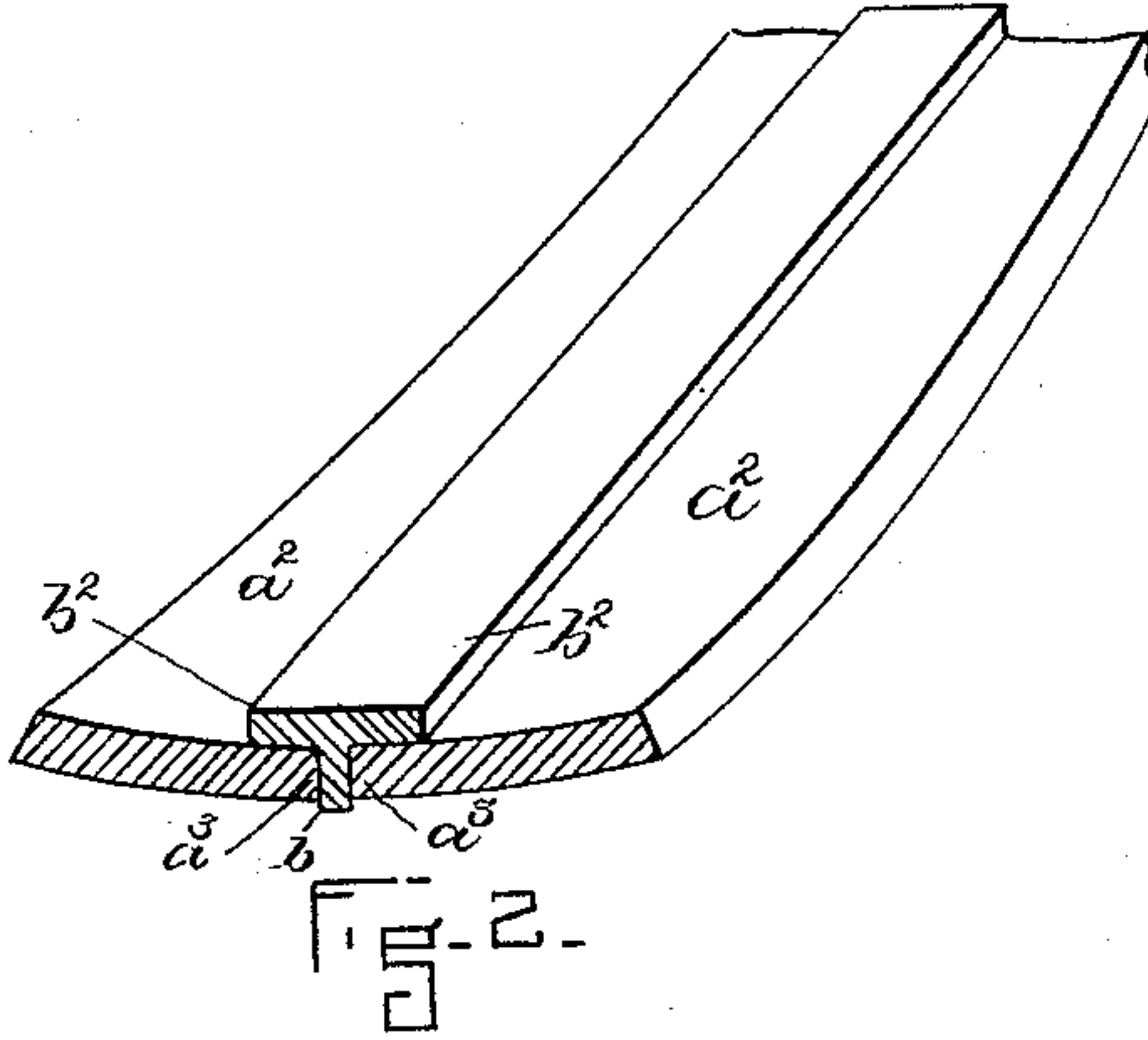
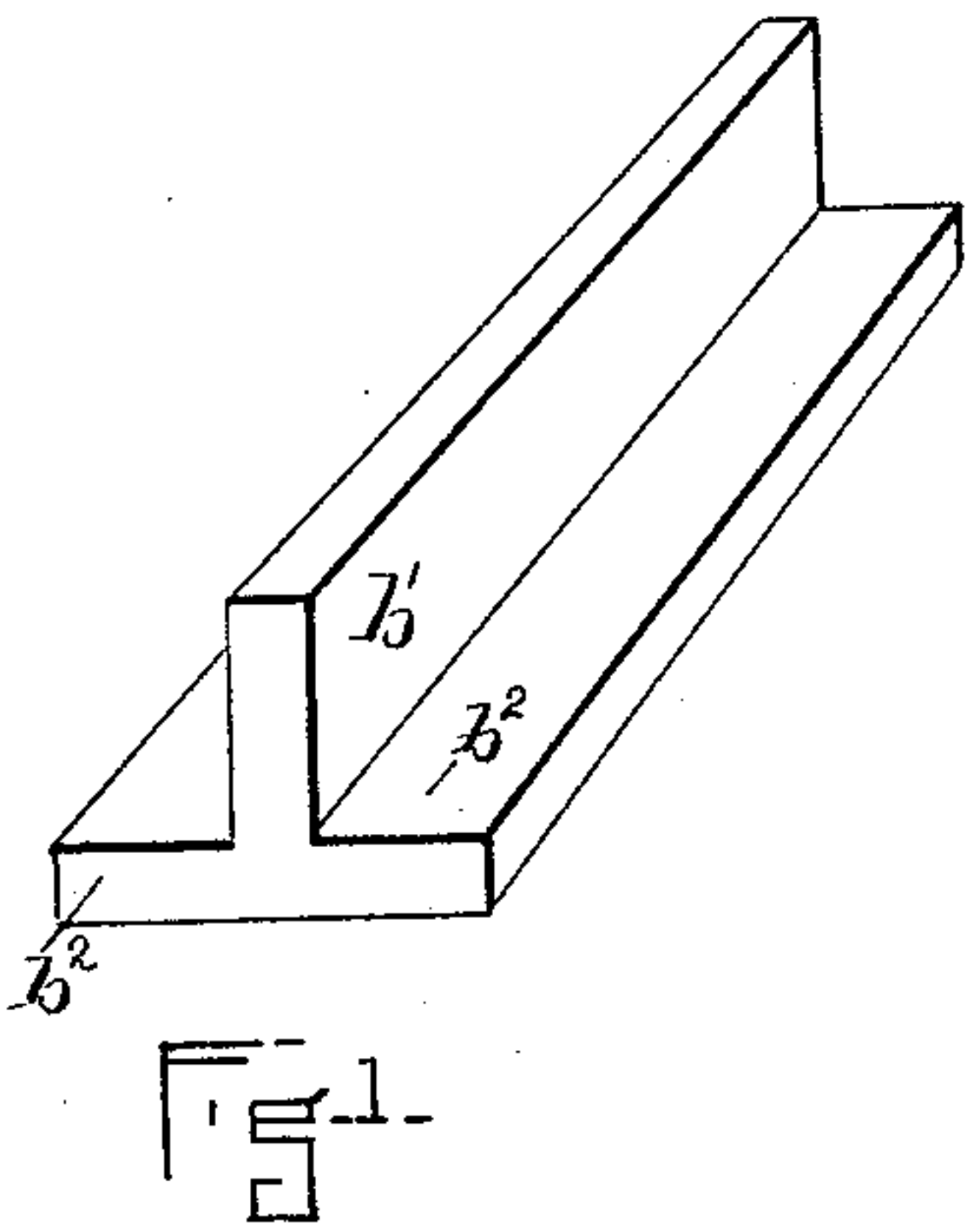


(No Model.)

F. E. COLE.  
MANDOLIN.

No. 452,465.

Patented May 19, 1891.



WITNESSES.

*J. H. Raymond*  
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# UNITED STATES PATENT OFFICE.

FRANK E. COLE, OF BOSTON, MASSACHUSETTS.

## MANDOLIN.

SPECIFICATION forming part of Letters Patent No. 452,465, dated May 19, 1891.

Application filed January 8, 1891. Serial No. 377,075. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK E. COLE, of Boston, Massachusetts, a citizen of the United States, have invented a new and useful Improvement in Mandolins and Similar Musical Instruments and Methods of Constructing the Same, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

The shell of a mandolin has generally been made of thin pieces of rose-wood or other similar wood united together by means of interposed thin strips of a different wood, to the edges of which the edges of the rose-wood or other strips are united by glue, and to further strengthen or re-enforce a shell thus made it has been lined upon the inside with one or more layers of paper united to the shell by glue or by cross braces or supports. It is desirable, however, that the wood used in the construction of the shell be as thin as possible and that there be not employed in connection with it any additional material like paper or any relatively heavy cross re-enforcing strips or frame-work of wood, as the addition of such material or strips is very liable to detract from the fine vibration of the wood of the shell, which it is very desirable to maintain; and my invention relates to a shell and method of making the same, which permits the use or employment of very thin veneers or pieces of rose or other suitable wood and firmly unites them without the use of auxiliary means, such as paper or frame-work. This result is obtained by connecting the edges of the thin veneers or strips by means of a T-shaped connecting-piece of suitable wood, preferably holly, a section of which is interposed between the two thin veneers or strips of the rose or other wood, and sections of which lap upon the surface of each of said thin veneers or strips, the thin veneers or strips being united to this T-shaped connecting-piece by glue. This provides a stronger union between the thin veneers or strips of the shell, because the gluing-surface being increased by the extent of the overlapping of the connecting-piece upon the surface of the veneer permits thinner veneers or pieces to

be used in the construction of the shell and does not interfere with or retard or damper the proper vibration or resonance of the shell.

Referring to the drawings, Figure 1 is a view in perspective, enlarged, of the T-shaped uniting-strip. Fig. 2 is a view in section and perspective, enlarged, representing the position which the uniting-strip bears to the piece which it unites. Fig. 3 is a view of a cross-section taken through the shell of a mandolin.

$a$  is the shell of a mandolin. Its curved section  $a'$  is formed from a large number of thin narrow veneers or strips  $a^2$  of rose-wood or other suitable material, the edges  $a^3$  of which are connected with each other by interposed connecting-strips  $b$ . These interposed connecting-strips are made T-shaped in cross-section—that is, they each have a thin web or section  $b'$ , which has a flange  $b^2$  on each side. The T-shaped connecting-pieces are placed between the edges  $a^3$  of the thin veneers or sections  $a^2$ , preferably with the flanges  $b^2$  upon the inner side of the shell or curve, and the edges are united to the surfaces of the section  $b'$  of the connecting-strips and also to the abutting surfaces of the flanges  $b^2$  by glue. This provides a very simple and strong method of uniting the strips or veneers  $a^2$ , in that they are not only secured to each other by their edges, but also by an overlapping flange  $b^2$  of the connecting-strip, which laps upon and is secured to the side surfaces of the pieces or veneers upon each side of the joint.

While I have represented the overlapping flanges or sections of the uniting-piece upon the inside of the curve, it need not of necessity be placed there, as it may be upon the outside—in other words, upon the outside of the shell. I prefer, however, the first-named construction. In lieu of using a T connecting-piece in which the web and flanges are integral, I may make the connection in two parts, the web being one and the flange being the other, the flange-section then being applied to cover the joint between the web and the two veneers or sections  $a^2$  of the shell in the same way as though integral with the web; but this is not quite as desirable a construction as the other. This manner of forming



thin veneers is not confined to mandolins, but may be used in any other similar musical instruments.

Having thus fully described my invention,  
5 I claim and desire to secure by Letters Patent of the United States—

1. A mandolin or similar musical instrument the curved section of the shell of which is made of thin veneers or pieces of wood and  
10 interposed T-shaped wooden uniting-pieces, to the web and flanges of which the edges of said veneers or thin sections of the shell are fastened by glue, as and for the purposes described.

2. As a means of fastening together the thin 15 veneers or sections of the curved portion of the shell of a mandolin or other musical instrument, a thin T-shaped strip of wood, to the edges and flanges of which the edges of the veneers or thin sections of the shell are 20 secured, as and for the purposes described.

FRANK E. COLE.

Witnesses:

F. F. RAYMOND, 2d,  
J. M. DOLAN.