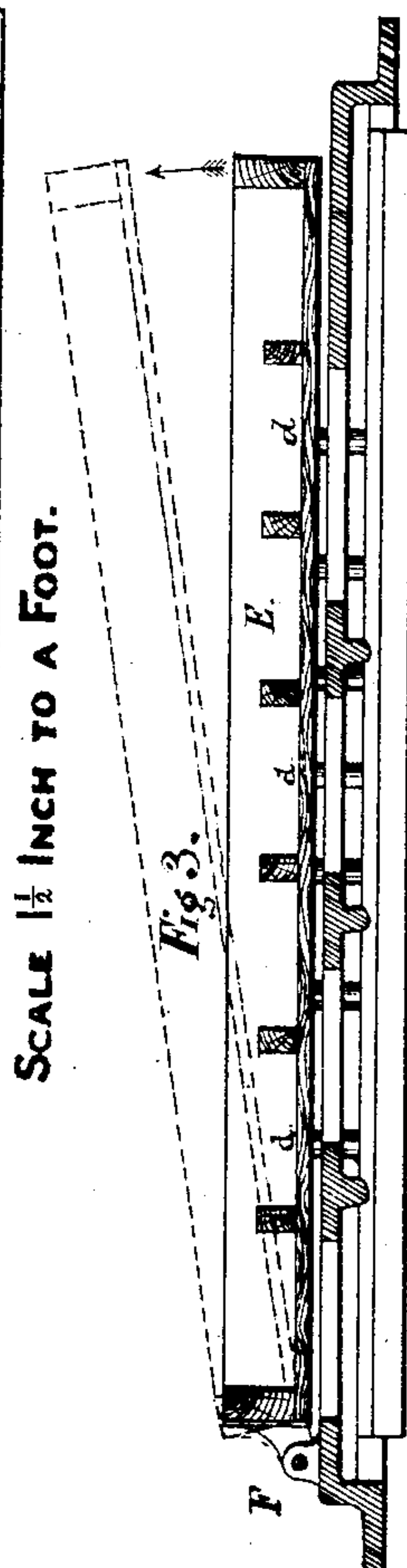
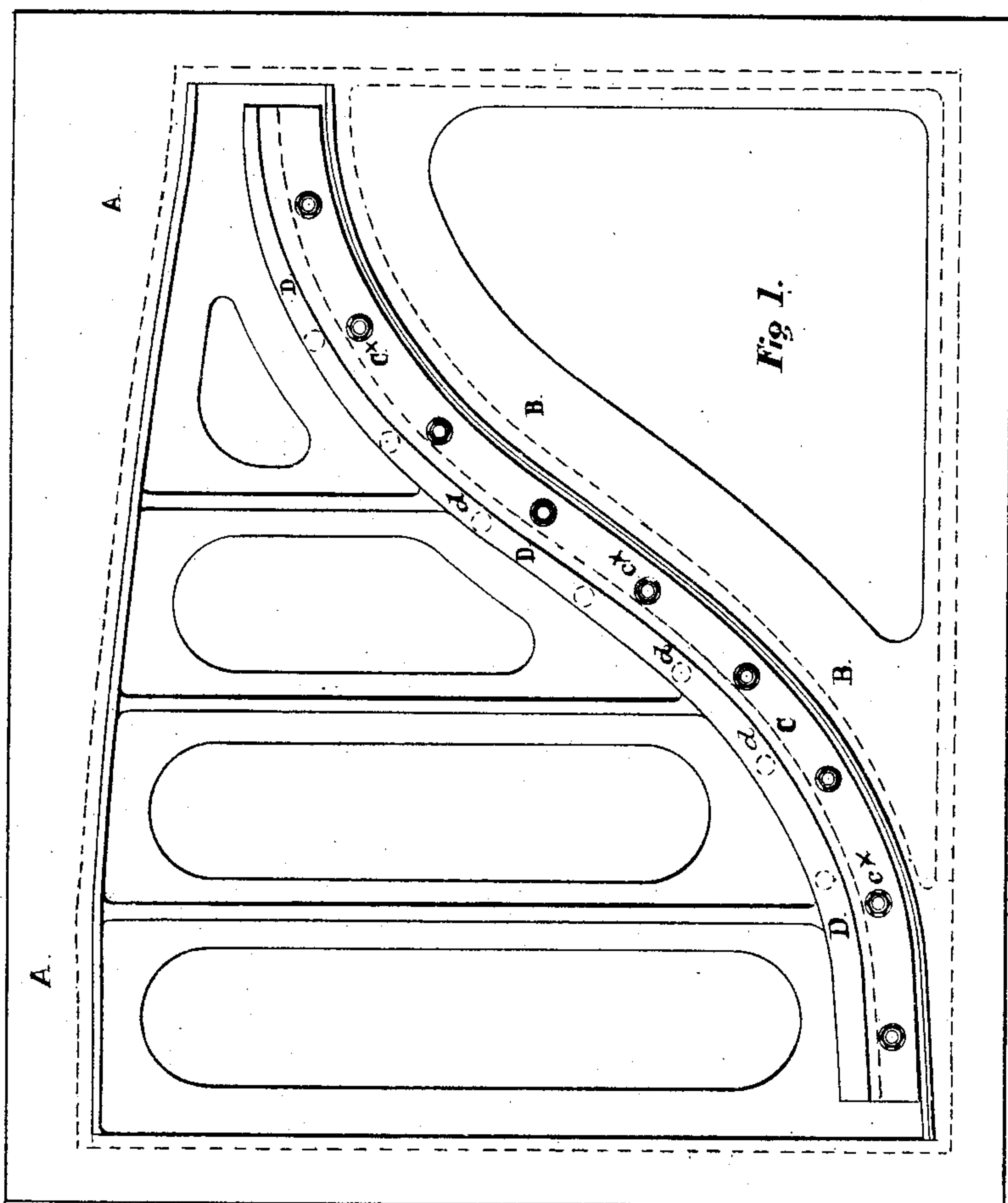
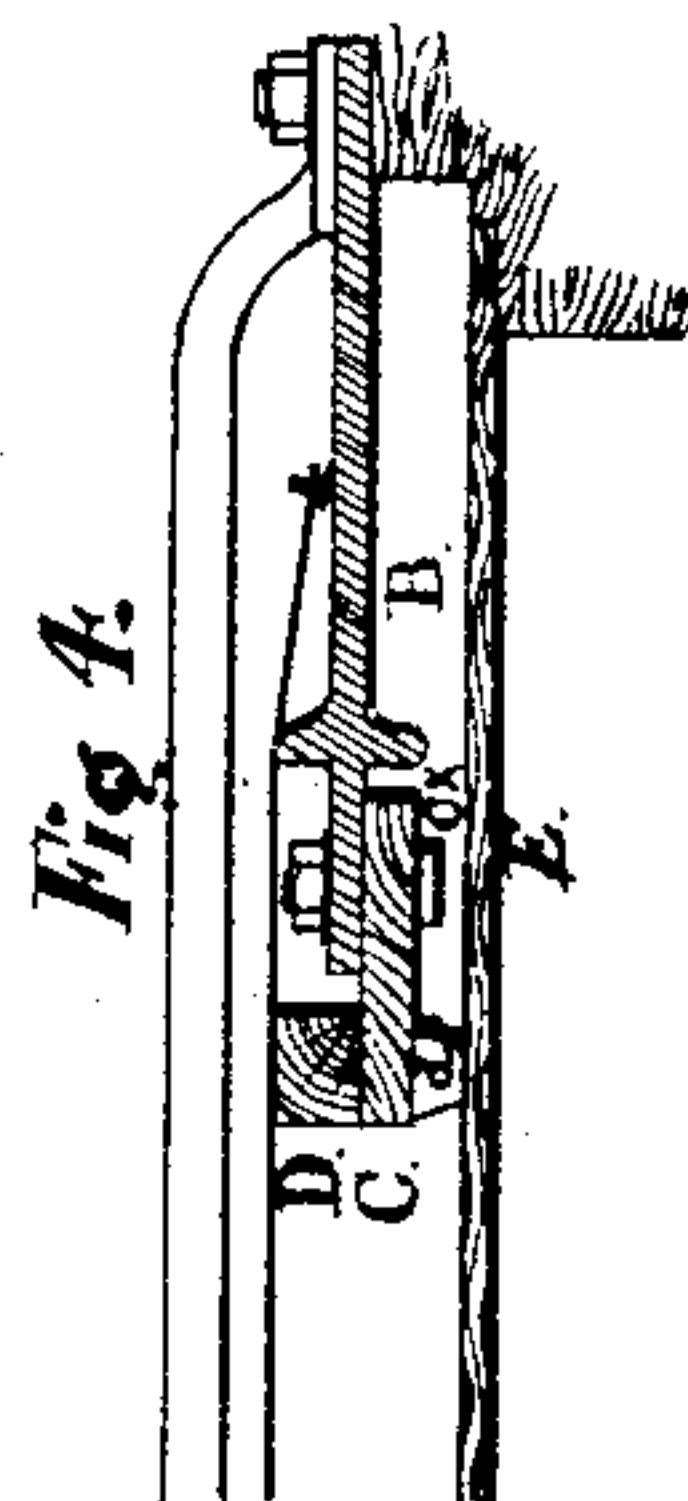
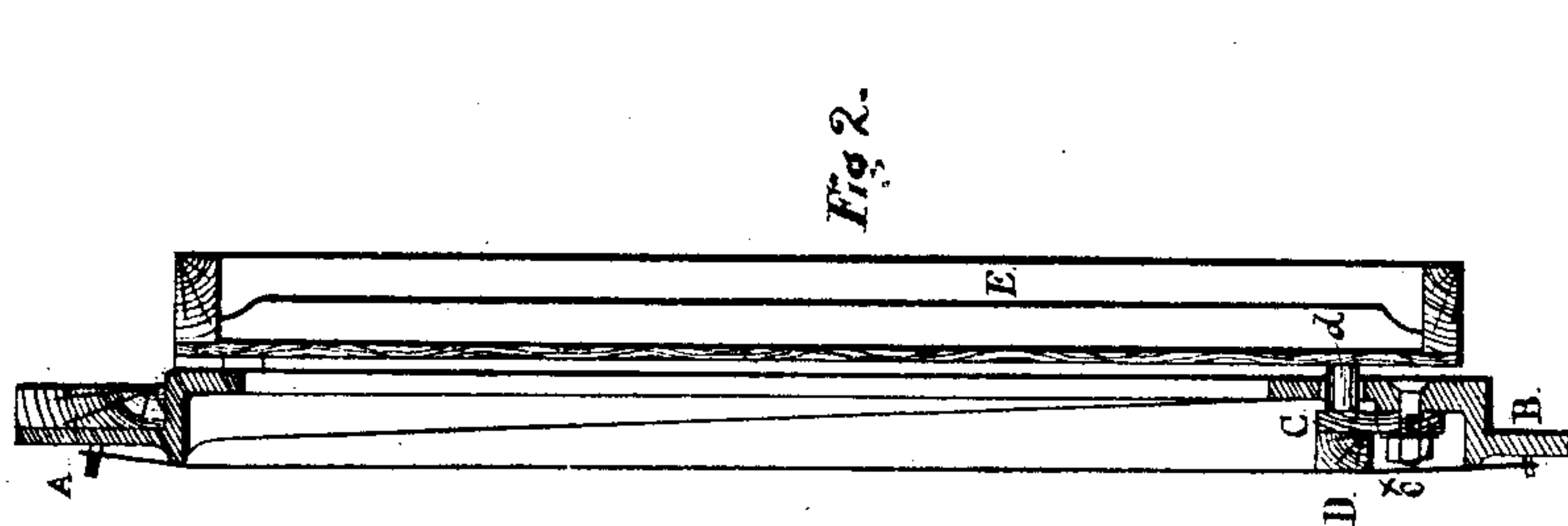


(No Model.)

R. HOWSON.
Piano Forte.

No. 238,690.

Patented March 8, 1881.



WITNESSES:

David S Williams
James F Tobin

INVENTOR:

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UNITED STATES PATENT OFFICE.

RICHARD HOWSON, OF MIDDLESBROUGH-ON-TEES, COUNTY OF YORK,
GREAT BRITAIN.

PIANO-FORTE.

SPECIFICATION forming part of Letters Patent No. 238,690, dated March 8, 1881.

Application filed November 2, 1880. (No model.)

To all whom it may concern:

Be it known that I, RICHARD HOWSON, a subject of the Queen of Great Britain and Ireland, residing at Middlesbrough-on-Tees, in the county of York, Kingdom of Great Britain and Ireland, have invented new and useful Improvements in Piano-Fortes, of which the following is a specification.

My present invention has reference mainly to instruments of the class described in the specification of Letters Patent granted to me the 5th day of October, 1880, No. 232,970, in which class of instruments the sound-board is so arranged that it may be brought into connection with or disconnected from the source of vibration, so as to enable the performer to increase or diminish the volume of sound at will. In the specification of said Letters Patent I describe the sound-bridge as being mounted on a vibration-rail separate from the sound-board, but capable of being brought into contact therewith at the will of the performer. I moreover describe such vibration-rail as being adjacent to the wrest-plank plate, and as being attached thereto or to the sides of the frame. Now, according to my present invention, I arrange the said vibration-rail, along with its bridge, adjacent to the hitch-pin plate, and attach it thereto by means of bolts or screws at intervals. The sound-bridge will thus occupy its usual position, and the hitch-pin plate will follow the curve thereof.

In order to explain this more clearly, I proceed to refer to the annexed drawings, which show all the essential parts referring to my invention, but exclude those which are non-essential.

Figure 1 is a front view of the iron frame divested of its strings and their attachments. A A is the wrest-pin plate, and B B the hitch-pin plate. C C is the vibration-rail, carrying the sound-bridge D D. Fig. 2 is a cross-section taken vertically, and Fig. 3 a cross-section taken horizontally, the same letters referring to the same parts, respectively.

It will be seen that the hitch-pin plate is made to follow the curve of the sound-bridge, and that the vibration-rail is fixed thereto by the bolts or screws $c^x c^x c^x$. The vibration-

rail, however, overhangs the hitch-pin plate all along its edge, and on this overhanging part the sound-bridge is placed.

Underneath (or at the back of) the vibration-rail, and fixed thereto, are a number of studs or sound-posts, $d d d$, (shown in dotted lines in Fig. 1,) which project through openings in the iron frame, and appear at the back thereof. These sound-posts are caused, by the performer, to come in contact with the sound-board, so as to re-enforce the volume of tone. The number (as well as the shape) of the sound-posts is optional, and they may even in some cases be reduced to a single contact-piece.

The sound-board E is shown in this case hinged at F, Fig. 3, and the action of the pedal on the opposite end of the sound-board causes the same to close up against the sound-posts, or to be released therefrom, at the option of the performer.

The mechanism by which the motion is communicated from the pedal to the sound-board is not here shown, as it is capable of variation and does not form an essential part of my invention. The direction of motion, however, may be seen by the arrow, and by the dotted lines, which represent the sound-board as being thrown back a considerable distance, which may be occasionally done for the purpose of examination.

So far I have described my invention as applied to a vertical instrument with an arrangement which requires no stays in front of the strings. It can be applied, however, with equal facility to any class of instrument. A glance at the diagram, Fig. 4, will show its application to horizontal instruments, either square or grand, which are usually furnished with stays above the strings.

Moreover, I have referred to the sound-board as being movable; but it is obvious that my invention is equally applicable to fixed sound-boards, either in permanent contact with the vibration-rail or having intermittent contact therewith by means of wedges or interlocking pieces.

I will here observe that whenever the instrument possesses the character of intermittent contact, as described in the specification

of my said former patent, and in my present description, I call such instrument the "piano-crescendo," as distinguished from the "piano-forte," which possesses no power of swelling
5 the tone after a note or chord has been struck.

What I claim is—

The combination of the hitch-pin plate of a piano-forte with a vibration-rail attached to the edge of the said plate, but overhanging the

same, and with the sound-bridge mounted on 10 said vibration-rail, substantially as described.

RICHARD HOWSON.

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