

(No Model.)

W. H. IVERS.  
BRIDGE FOR PIANO FORTES.

No. 389,966.

Patented Sept. 25, 1888.

Fig. 1.

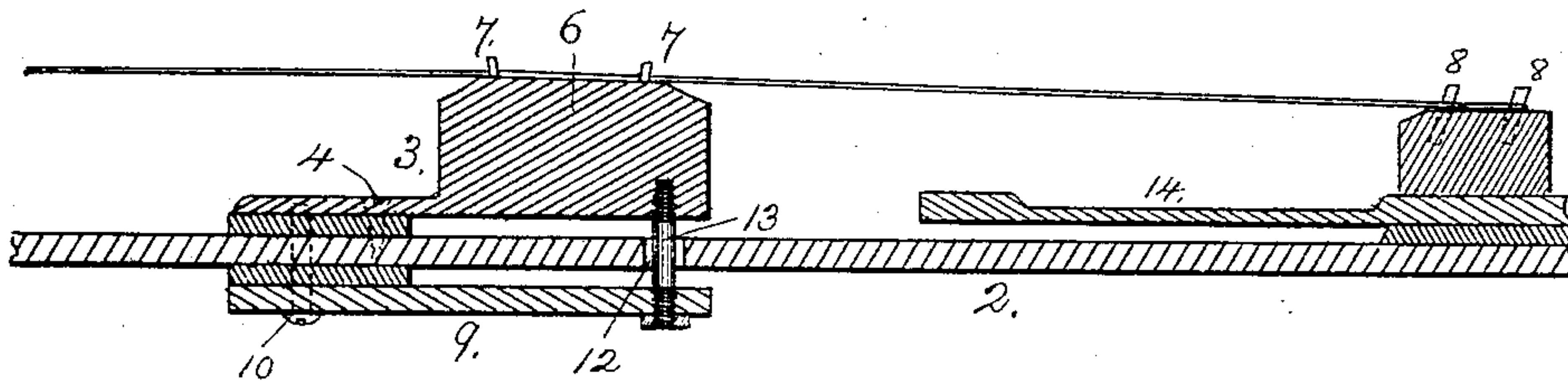


Fig. 2.

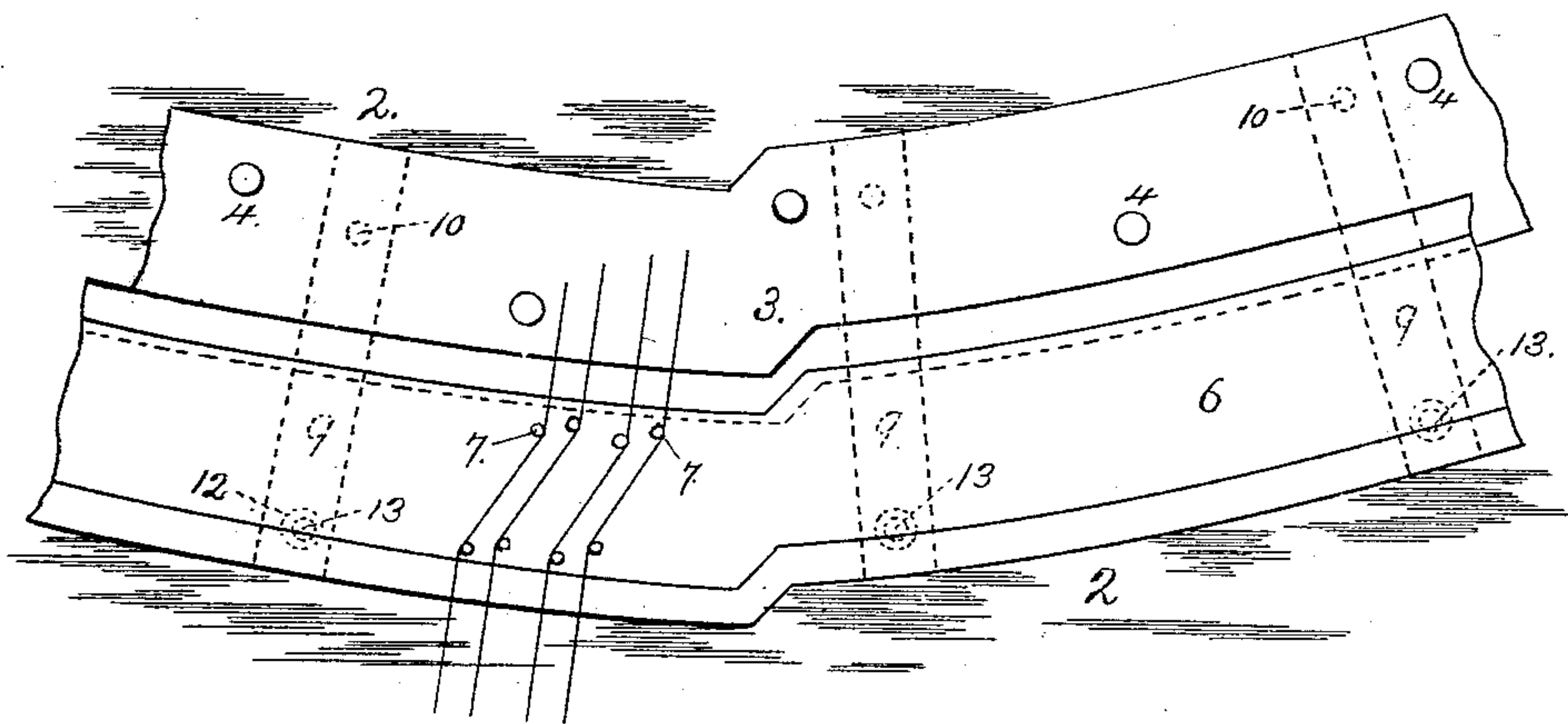
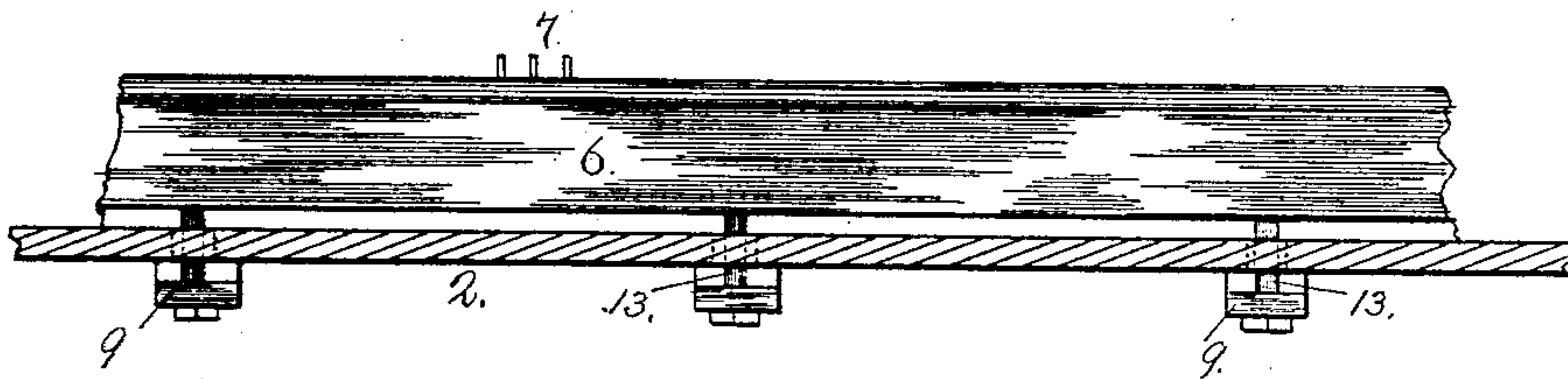


Fig. 3.



Witnesses.  
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G. A. Huber

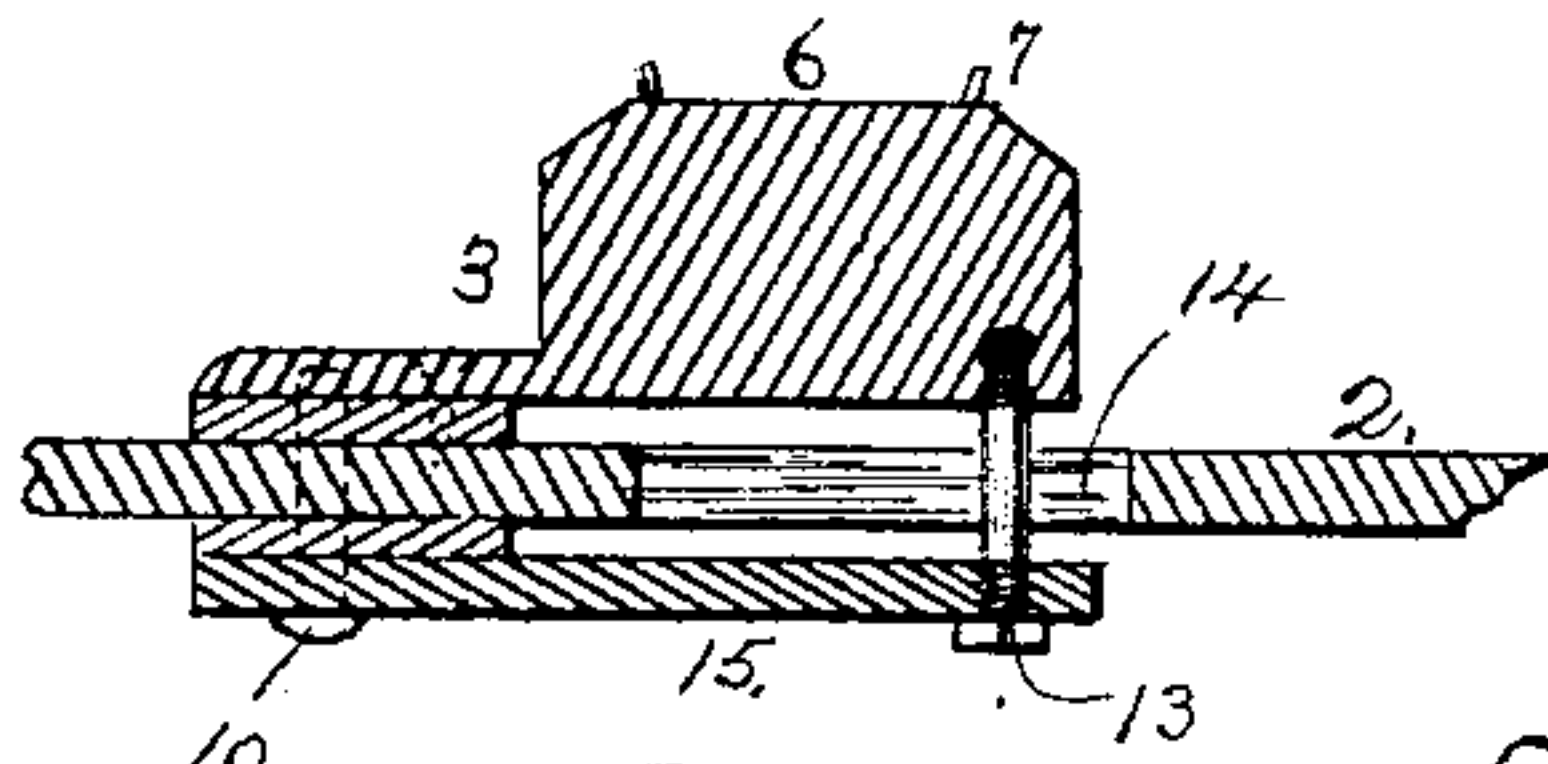


Fig. 4.

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# UNITED STATES PATENT OFFICE.

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## BRIDGE FOR PIANO-FORTES.

SPECIFICATION forming part of Letters Patent No. 389,966, dated September 25, 1888.

Application filed December 27, 1887. Serial No. 259,058. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. IVERS, a citizen of the United States, residing at Dedham, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Bridges for Piano-Fortes; and I do hereby 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.

This invention relates to sounding-board bridges for piano-fortes, more particularly those termed "overhanging" bridges. These bridges, as the term implies, are disposed upon the sounding-board and serve to define and limit the length of the strings thereat.

The object of my invention is to strengthen and brace the bridge without affecting the vibrating qualities of the sounding-board upon which it is mounted. This is accomplished by securing at the point where the bridge rests upon the sounding-board, but on the opposite side of the latter, a series of supporting-arms of a length equal to the width of the bridge, or thereabout. Moreover, the projecting portion or overhang of the latter is united to the free ends of said arms by means of bolts or wooden pins, which pass freely through the sounding-board and do not contact with the latter.

The drawings represent in Figure 1 a vertical section of a portion of the sounding-board of a piano-forte transversely of the bridge which embodies my invention. Fig. 2 is a plan of the same. Fig. 3 is a vertical sectional elevation longitudinally of the bridge showing the arrangement of the supporting arms or braces. Fig. 4 represents a modification.

In the class of bridges for piano-fortes as above premised it is desirable to have the bridge occupy as little space as possible where it rests upon or contacts with the sounding-board to obviate stiffening of the latter; hence the bridge is made overhanging. At the same time it is desirable to stiffen this overhang to resist the pressure of the strings passing over it to the hitch-pins. Starting with this pre-

mise, I have shown a portion of a sounding-board at 2, upon the upper or front surface thereof, depending, respectively, whether said board is intended for a horizontal or an upright instrument, is attached the overhanging bridge 3 by means of some adhesive compound, or by a series of bolts or screws, 4 4. This bridge extends longitudinally along the sounding-board in a line adapted to conform to the necessary length of strings requisite for the varying tones of the instrument. Upon this bridge, on its projecting portion and near its bounding edge, is affixed a built-up or composite piece, 6, in which are inserted a series of bridge-pins, 7, obliquely arranged transversely of said piece 6, which defines the vibrating length of the strings in this part of the instrument. Said strings are secured to the hitch-pins 8, which are set in the metal plate 14, a portion of which is shown in Fig. 1. The opposite ends of said wires or strings are attached to the wrest-pins in the other end of the piano.

In the usual construction either no support has been afforded the overhanging portion of the bridge 3, which is liable to deviate from its proper position, or else a support resting upon the sounding-board, and thus interfering with the vibrations of the latter, has been used; hence, to give a support and materially strengthen the bridge without unnecessarily interfering with the vibratory qualities of the board, I have secured a series of arms or braces, 9, at intervals upon the side of the sounding-board opposite to that on which the bridge is located, said arms resting upon said board for a short distance just beneath where the bridge 3 is attached to the board. The remaining portions of said braces are removed from and do not contact with the surface of the board. Furthermore, said braces 9 are secured to the latter by bolts 10, which extend through it and aid in binding the bridge and its supports together at their points of contact with the board, and also in fastening the bridge to the sounding-board.

To brace the overhanging portion of the bridge, I have pierced said board 2 with a series of holes, 12, which are positioned beneath the free extremity of a brace and the overhanging portion 6 of the bridge. The two are thus firmly united by a connecting-pin, 13.



Thus a rectangular truss is formed by the bridge proper, 3, the brace 9, with the bolt 10, and pin 13, which unite them. Said trusses are arranged at suitable intervals apart sufficient to give proper strength and stiffness to the bridge. It is evident that the vibrating qualities of the sounding-board are not affected, since the contact-surface between the said board and bridge is the same as usual. Moreover, the overhanging portion of the bridge, the braces 9, and pins 13 do not touch or rest upon the sounding-board; consequently do not tend to make it rigid nor interfere with its vibrations, while the bridge is materially strengthened.

In lieu of having a series of holes, as above premised, in the sounding-board, a continuous opening may be formed therein, as shown at 14 in Fig. 4, and a continuous false bridge, 15, may be substituted for the series of braces 9, said bridge being oppositely disposed and beneath the sounding-board, while the two overhanging free portions of said bridges are united by a continuous support, or by a series of bolts or dowels, as preferred.

What I claim and desire to secure is—

1. An overhanging sounding-board bridge provided with braces upon the opposite side of the sounding-board and beneath said bridge, said braces being united with the overhang of

the bridge through and independently of the sounding-board, substantially for the purposes herein specified.

2. In combination with the sounding-board of a piano-forte, an overhanging bridge thereon, provided with a series of trusses formed by the braces 9, interconnecting bolts 10, and pins 13, substantially as and for the purposes herein set forth.

3. The combination, with a sounding-board, 2, and the bridge 3, with its overhang 6, of a brace, 9, secured to the board by the bolt 10 and united with the overhang 6 by the pin 13, which passes freely through the sounding-board, substantially as herein stated.

4. In a piano-forte, the bridge 3 and the series of braces 9, secured rigidly to the sounding-board oppositely on each side of the latter, combined with a sounding-board, 2, pierced with a series of holes, 10, and the pins 13, which pass without contact therethrough, uniting the free ends of the braces and the overhanging portion of the bridge, substantially as specified.

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

WILLIAM H. IVERS.

Witnesses:

H. E. LODGE,  
G. A. GIBSON.