No. 885,261. PATENTED APR. 21, 1908.

A. KRIEGHOFF.

PIANO SOUNDING BOARD.

APPLICATION FILED OCT. 30, 1907.

2 SHEETS—SHEET 1.

Fig. 1.

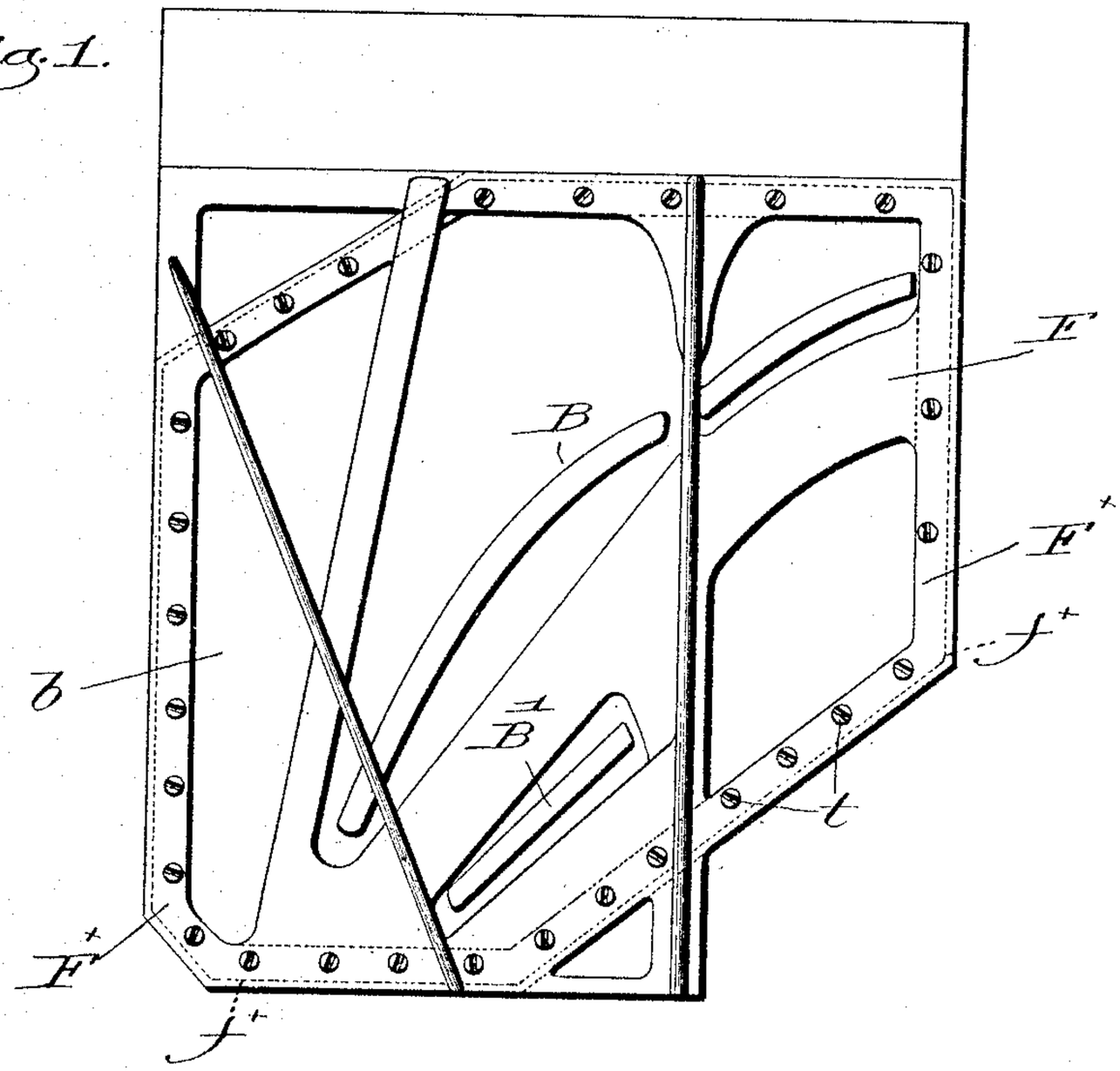
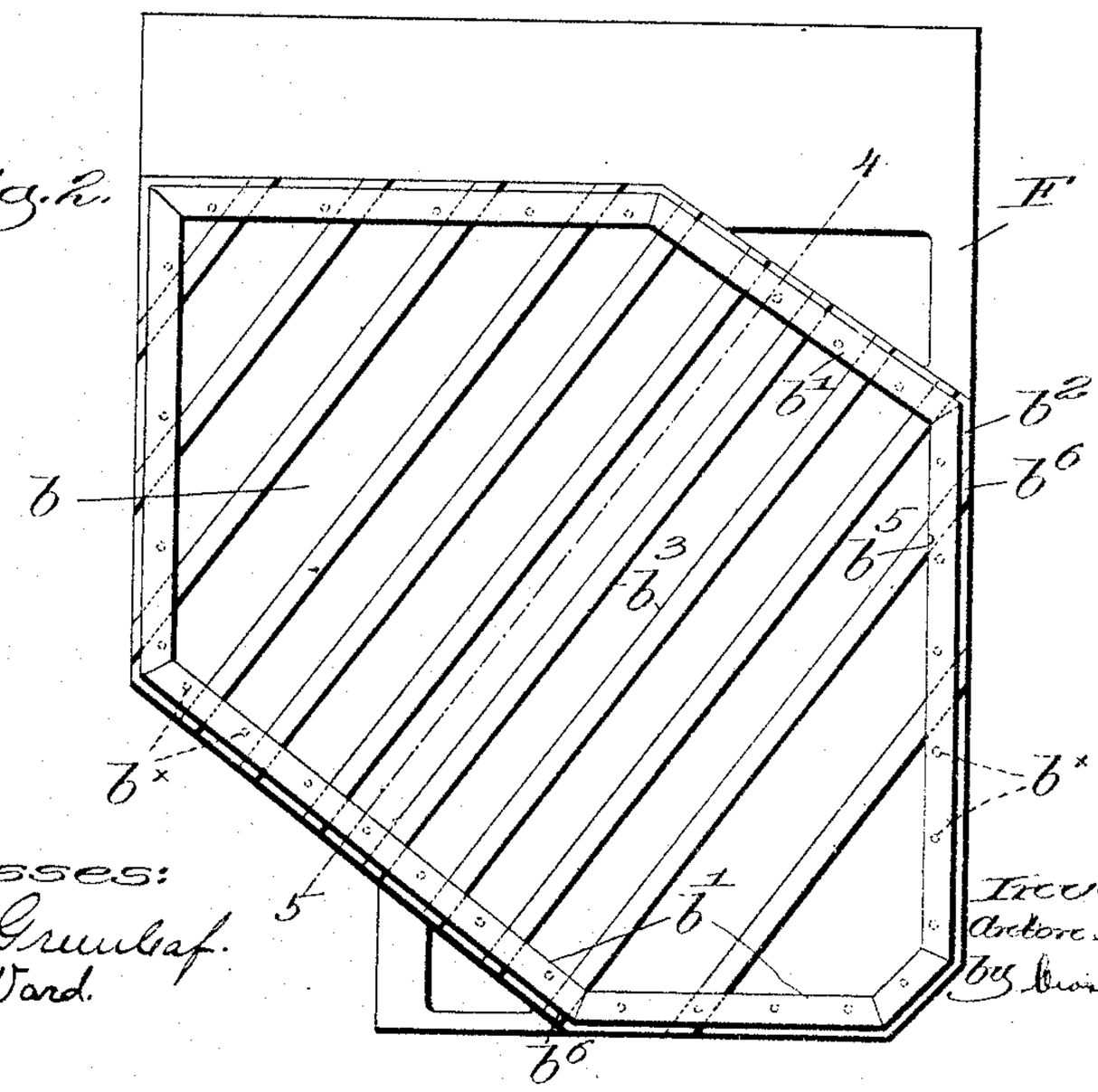


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

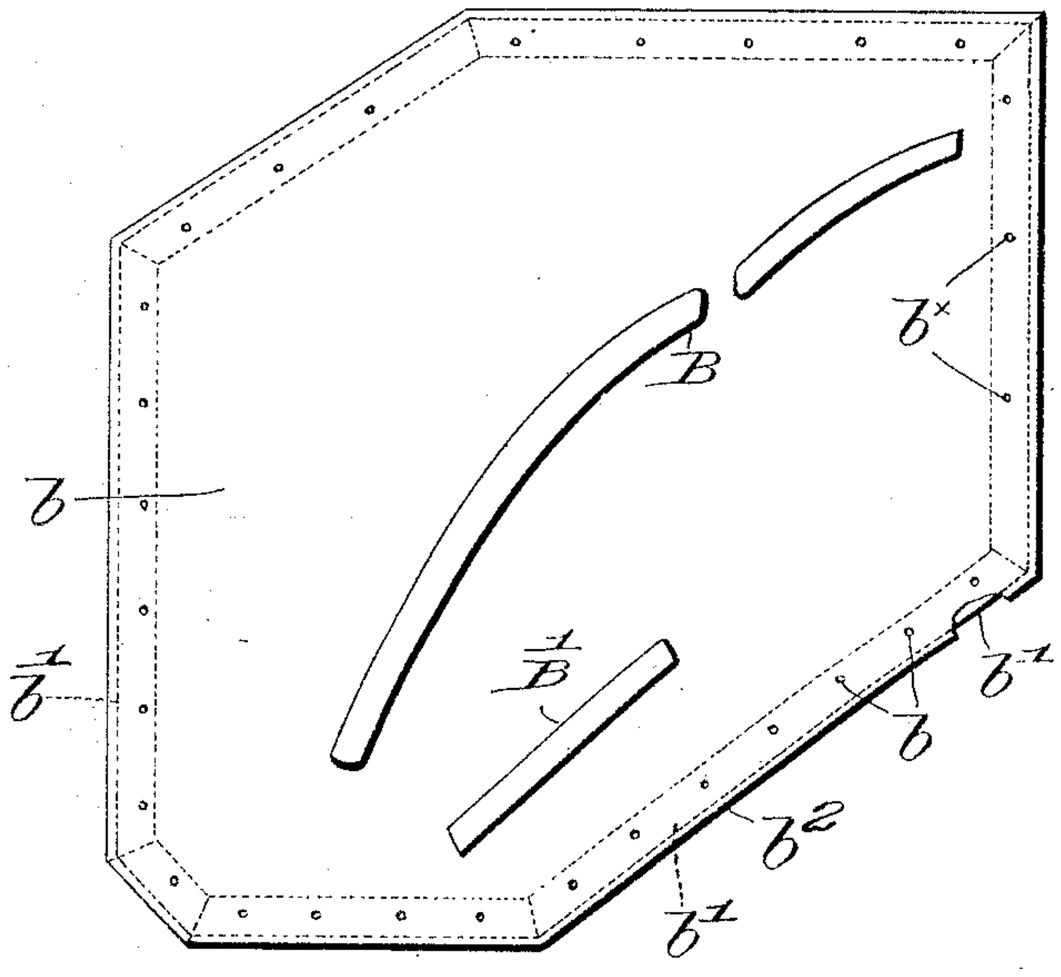


Fig. 4.

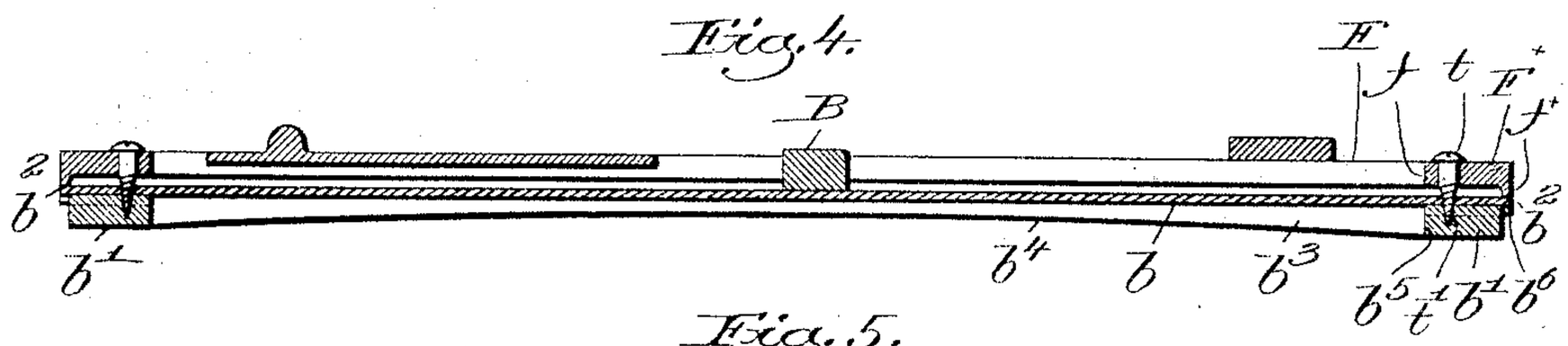


Fig. 5.

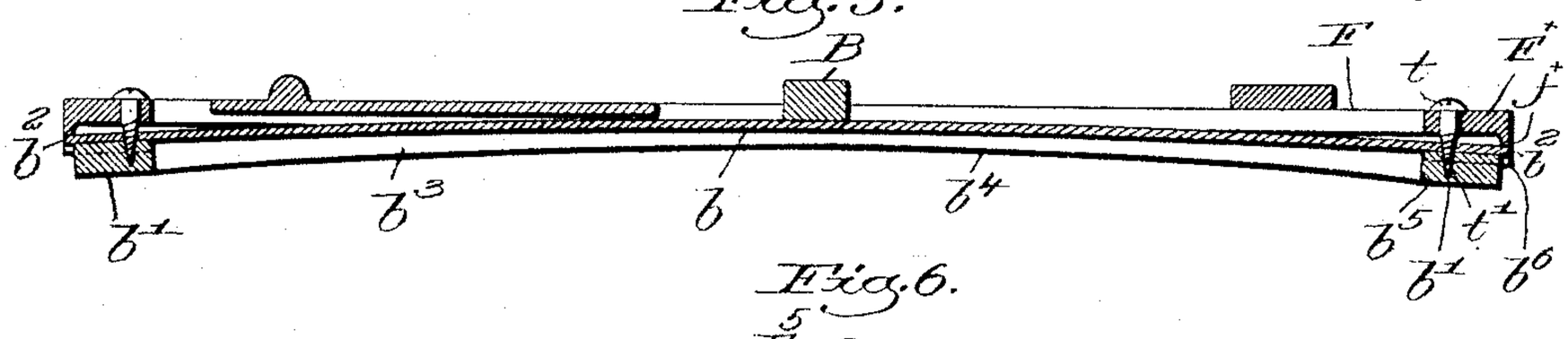


Fig. 6.

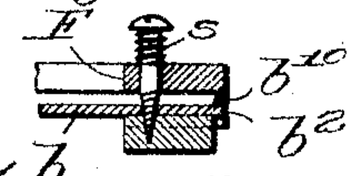
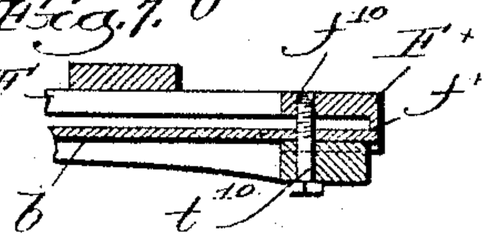


Fig. 7.



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UNITED STATES PATENT OFFICE.

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PIANO SOUNDING-BOARD.

No. 885,261. Specification of Letters Patent. Patented April 21, 1908.

Application filed October 30, 1907. Serial No. 399,938.

To all whom it may concern:

Be it known that I, ANTON KRIEGHOFF, a citizen of the United States, and resident of Concord, county of Merrimack, State of New Hampshire, have invented an Improvement in Piano Sounding-Boards, of which the following description, in connection with the accompanying drawing, is a specification, like letters on the drawing representing like parts.

This invention relates to piano sounding boards and has for its object the production of novel means for supporting the sounding board and for effecting the requisite convexity or "belly" of the sounding-board, the construction and arrangement being such that if the sounding-board flattens or relaxes it can be readily and quickly brought up to the necessary convexity.

By my invention I am enabled to produce a richer and fuller tone, and to at all times keep the sounding board up to the proper condition, irrespective of varying conditions of temperature and atmospheric changes.

The various novel features of my invention will be fully described in the subjoined specification and particularly pointed out in the following claims.

Figure 1 is a face view of the metallic string-plate of a piano, with the sounding-board mounted thereon and showing one embodiment of my present invention; Fig. 2 is a back view of the structure illustrated in Fig. 1; Fig. 3 is a face view of the sounding board, detached; Fig. 4 is a section, enlarged, on the line 4—5, Fig. 2, showing the sounding-board as substantially flat or unflexed. Fig. 5 is a similar view but showing the sounding board flexed to bring it up to the required convexity or "belly"; Fig. 6 is a sectional detail of a modified form of construction, to be referred to; Fig. 7 is a sectional detail of yet another modification, to be described.

The sounding-board b, of suitable shape or contour, is provided at its back with a reinforce b', in practice a strip formed by gluing to the back of the board strips of maple wood or other suitable material, adjacent its edge but preferably set in slightly, to leave the board overhanging the reinforce, as at b^2, Figs. 4 and 5.

Usual bridges B, B′ are mounted on the face of the sounding board, and bars b^3 are secured to its back, but herein the under edges of said bars are arched, at b^4, so that the bars decrease in depth from their outer ends toward the center, as shown in Figs. 4 and 5, the ends of the bars being cut out to leave shoulders b^5 which abut against the reinforce b', the reduced ends of the bars extending through mortises in the reinforce to the edge of the sounding-board, at b^6.

The sounding-board is mounted upon a metallic frame, and herein I have shown the board supported upon the string-plate F, best shown in Fig. 1, the strings being omitted as forming no part of my invention, the plate being of the desired shape and dimensions.

A portion of the plate, as $F^\times$, Fig. 1, corresponds in shape to the contour of the sounding-board and in the preferred form of my invention the portion $F^\times$ has formed upon its back a bearing shown as a rib or ridge $f^\times$, indicated by dotted lines in Fig. 1, so shaped and of such dimensions that when the sounding-board is applied thereto the part b^2 overhanging the reinforce b' will rest upon the rib. This is clearly shown in Figs. 4 and 5, the rib being the only part of the plate F which contacts with the sounding-board.

A series of holes f are bored in the part $F^\times$ of the plate within the rib, or set in therefrom, to receive the smooth shanks of tension members t, having screw-threaded ends t' which pass through holes $b^\times$ in the sounding-board and the reinforce. The heads of the tension members may be nicked, as herein shown, or otherwise shaped to be turned by the application thereto of a suitable tool, said tension members connecting the sounding-board with the plate F.

Referring now to Fig. 4 it will be seen that the sounding-board is unflexed or substantially flat, but by setting up the tension members t around the sounding-board it is flexed and convexed toward the string-plate F, turning slightly on the bearing rib $f^\times$ as a fulcrum, and the requisite convexity or "belly" is imparted, the amount being dependent upon the extent to which the tension members are set up. This convexity can be readily increased or diminished as desired, and it will be manifest that under no circumstances can the curvature of the sounding-board be reversed, that is, it cannot assume a concave form with relation to the string-plate. The threaded ends t' enter the reinforce b' more or less deeply according to the amount of tension, the members t rotating in the plate F and being held in place thereon by their abutting heads.

In the modification shown in Fig. 6 the sounding-board b has the bearing rib b^{10} formed on its face, along the overhang b^2, by fastening thereto a strip of wood, the tension members being located within the rib, as before. I have shown in Fig. 6 the tension members as having long shanks t^5 which extend above the metal frame F^5, and a spring s is coiled around the shank between the face of the frame and the head t^6 of the tension member. This arrangement gives the sounding-board free vibrational action to its edge, and the elongated tension members and the springs thereon may be used either when the bearing rib is on the sounding-board, as in Fig. 6, or in the structure shown in Figs. 4 and 5, wherein the bearing rib is on the back of the supporting plate.

In Fig. 7 I have shown a reversed arrangement of the tension members, which may be screw bolts t^{10}, rotatable in holes in the sounding-board b and having their threaded ends engaging threaded holes f^{10} in the part $F^{\times}$ of the metal plate F, so that by turning the tension members in one or the other direction the desired convexity is imparted to the sounding-board.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In piano construction, a metallic string-plate, a sounding-board, a bearing rib on one to contact with the adjacent face of the other, and adjustable tension members connecting the sounding-board with the plate and located at the inner side of the rib, tightening of the tension members springing the sounding board toward the plate, and thereby imparting the requisite convexity to the sounding-board.

2. In piano construction, a metallic plate having a rib adjacent its edge, a sounding-board supported on the rib, and tension screws connecting the sounding-board with the plate and located inside the rib thereon, tightening of the screws springing the sounding-board and imparting thereto the requisite convexity.

3. In piano construction, a metallic string-plate having a bearing rib thereon corresponding to the contour of the sounding-board, a sounding-board having a reinforced edge and resting upon the rib, and adjusting means connecting the sounding board with the string-plate and acting upon the sounding-board inside of the rib on the plate to flex and impart the desired convexity to the sounding-board.

4. In piano construction, a sounding-board, a reinforce applied to the back thereof adjacent its edge, a metallic string-plate having thereon a bearing rib corresponding to the contour of the sounding-board and engaging the face thereof outside the reinforce, and adjustable tension members connecting the plate and sounding-board, said members being rotatably mounted in the plate within the flange and being screwed into the reinforce, whereby tightening of the tension members will bend the sounding-board and impart the requisite convexity thereto.

5. In piano construction, a sounding-board, a metallic plate, a rib on one to engage the other, headed tension screws rotatably mounted in the plate and screwed into the sounding-board within the rib, to flex the sounding-board, and springs interposed between the heads of the tension screws and the face of the plate, to increase the vibrational action of the sounding-board.

6. In piano construction, a sounding-board having a reinforce upon its back adjacent the edge, a metallic string-plate having a bearing rib on its back to engage the face of and sustain the sounding-board outside the reinforce, and adjustable tension members connecting the sounding-board and the string-plate and set in from the rib, to impart and maintain the desired convexity of the sounding-board.

7. In piano construction, a metallic string-plate, a sounding board, a bearing interposed between adjacent faces of said plate and sounding-board, and adjustable tension members connecting the latter with the plate and located at one side of the bearing, tightening of the tension members flexing the sounding-board upon the bearing and imparting the requisite convexity to the sounding-board.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

ANTON KRIEGHOFF.

Witnesses:

ALMA E. NELSON,

EDMUND S. COOK.