(No Model.)

A. GRAFF.

PIANO.

No. 449,933. Patented Apr. 7, 1891.

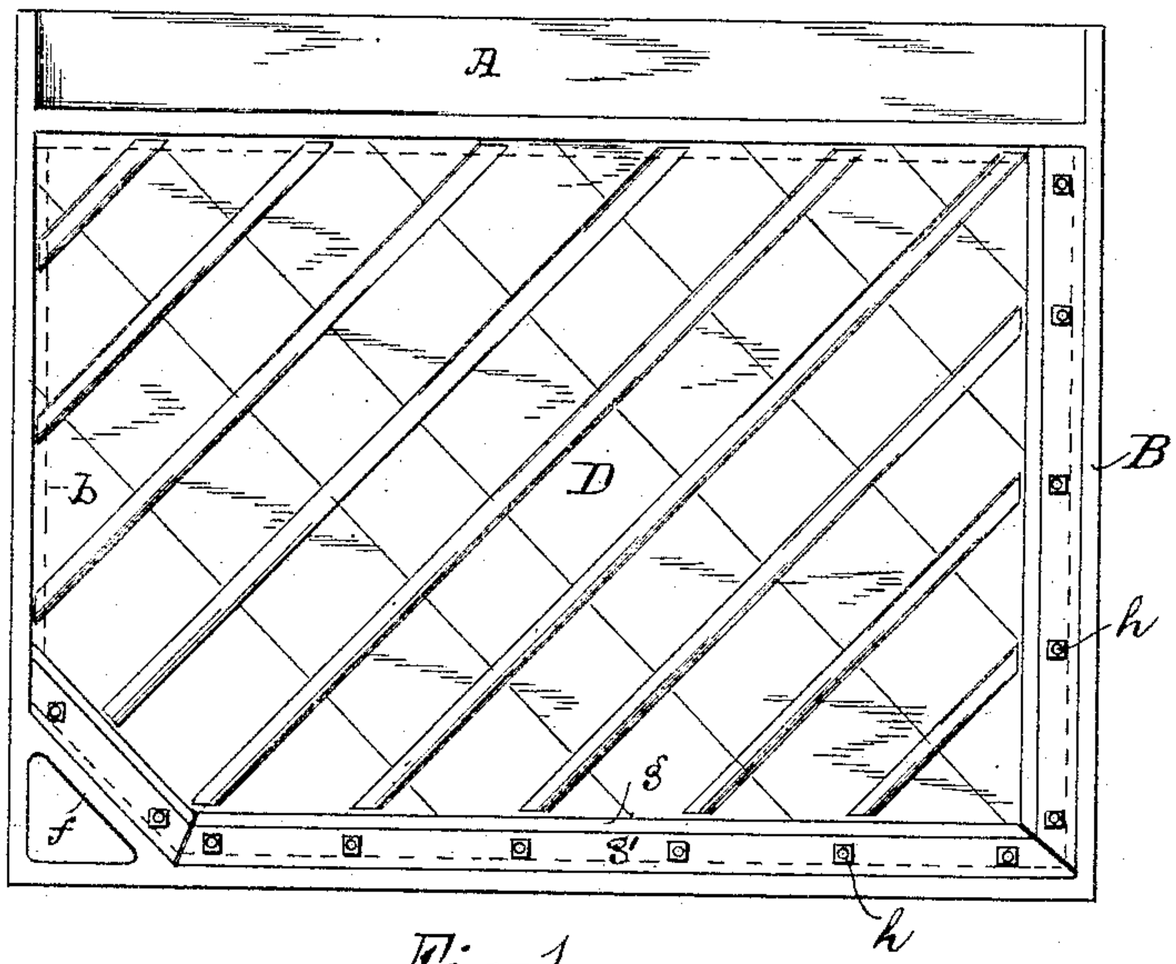

Fig. 1

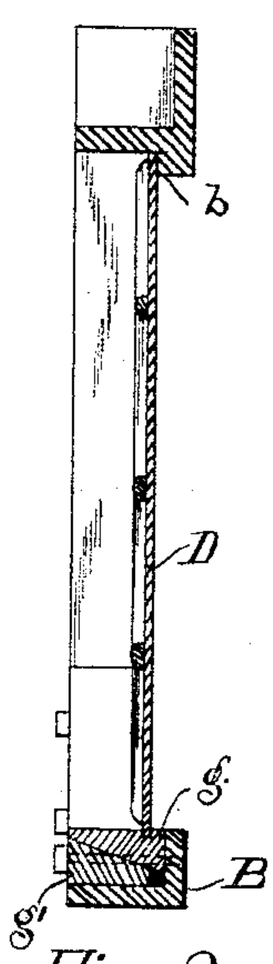

Fig. 2.

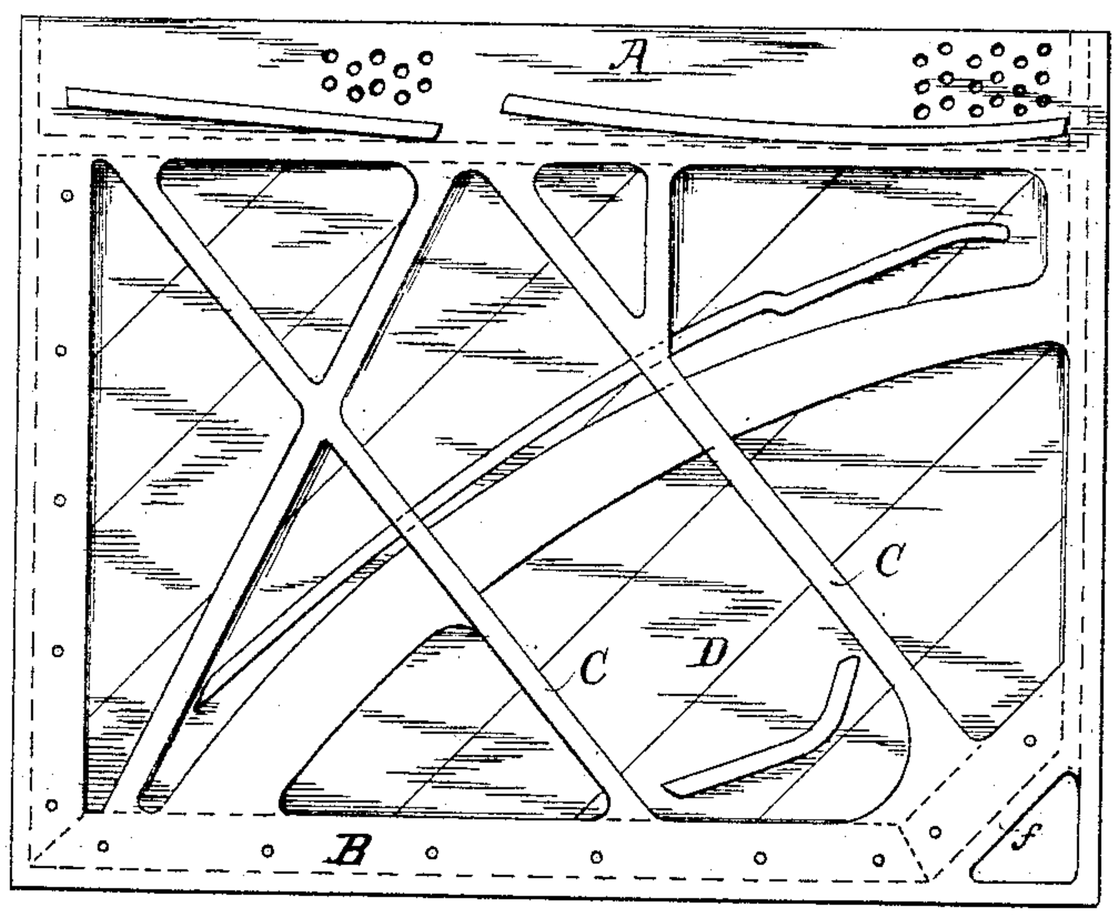

Fig. 3.

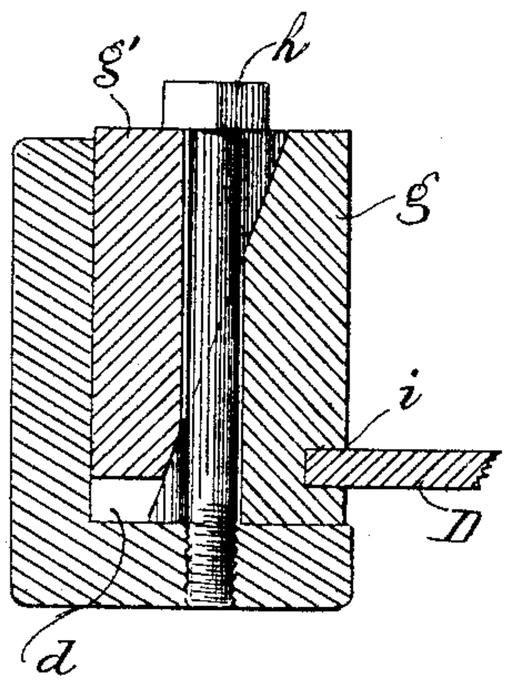

Fig. 4.

Witnesses.
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UNITED STATES PATENT OFFICE.

ALBERT GRAFF, OF SAN FRANCISCO, CALIFORNIA.

PIANO.

SPECIFICATION forming part of Letters Patent No. 449,933, dated April 7, 1891.

Application filed February 19, 1890. Serial No. 341,061. (No model.)

To all whom it may concern:

Be it known that I, ALBERT GRAFF, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Pianos; and I do hereby declare the following to be a full, clear, and exact description of said invention, such as will enable others skilled in the art to which it most nearly appertains to make, use, and practice the same.

My invention relates to the sounding-board of pianos and the frame-work which surrounds it; and it has a twofold object: first to mount the sounding-board in a suitable frame-work and provide means by which it can be readily strained to any desired tension, and, secondly, to combine the wrest-plank, frame, and back which surrounds the sounding-board in a single metallic casting, in which the sounding-board is placed and the straining devices applied, thus providing durability and strength and the means for giving to the sounding-board an adjustability of tension by which it can be readily adapted to any location or climate.

The value of a piano depends upon its capacity to sustain the enormous strain to which it is subjected by the tension of its strings or wires and the resonant quality of its sounding-board. I have discovered that the resonant quality of the sounding-board can be increased or diminished by subjecting it to greater or less compression or strain, and in order to provide for a proper application of straining or compressing devices I make the wrest-plank, upper braces, and side strengthening-ribs of metal and cast them in a single piece, so that I obtain not only the requisite strength for resisting the compression of the sounding-board, but also the requisite strength for resisting or sustaining the strain of the strings or wires.

Referring to the accompanying drawings, Figure 1 is a back view of the sounding-board and frame adapted for an upright piano. Fig. 2 is a vertical section taken through Fig. 1. Fig. 3 is a front view, and Fig. 4 is a detail view showing the method of applying the devices for compressing the sounding-board.

Letter A represents the wrest-plank in which the keys which strain the strings or wires of the piano are held. B is the frame, and C the upper braces, which extend across the frame to give it support and strength. These three parts I make of metal and cast them in one integral piece, as represented in the drawings. The frame B, I cast with an inwardly-extending flange, as shown at Figs. 2 and 4, so as to provide a ledge for the sounding-board to rest upon on the inside of the frame. The sounding-board D, which is made of wood in the ordinary way, is fitted so that it will pass inside the frame and be supported on the ledge *d* and in the compression-keys, as hereinafter described. One corner of the frame has an angular rib *f* or corner-piece extending across it in the usual manner of constructing the frames of sounding-boards of pianos, and this corner-piece has a ledge similar to and corresponding with the ledge of the frame.

In the angle of the frame on one side and one end of the frame and also in the angle of the L-shaped corner-piece I place two narrow plates or bars *g g'*, the meeting faces of which are beveled in a reverse direction, as shown at Fig. 4. The inner bar *g* rests upon the inner edge of the ledge *d*, and it has a groove *i* in its inner face near its lower end, in which the edge of the sounding-board is received, while the edge of the sounding-board on the other side and end rests upon the ledge *d* and against the side of the frame. The beveled bar *g'* fits between the beveled face of bar *g* and the projecting side of the frame and is shorter than bar *g*, so that it does not extend entirely down to ledge *d*. At intervals apart a screw or bolt *h* passes through a hole in bars *g g'* and is screwed into a tapped hole in the ledge, so that by turning these bolts or screws the beveled bar *g'* will be forced down between the frame-iron and the beveled bar *g*, and thus act as a wedge to force or crowd bar *g* inward, thus compressing the sounding-board against the opposite side and end of the frame and giving to it any desired amount of tension. This arrangement can be applied to the sounding-boards of either square or upright pianos. It gives the advantage of a strong metallic frame that will not be affected by climate or temperature and will always preserve a uniform relation to the strings or wires, and thereby preserve the instrument in tune.

The sounding-board is also held in a permanently rigid position and condition, and should it from any reason—such as the effects of climate or temperature—become slack or dead it can in a few moments' time be strained up to the desired pitch.

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

1. A metallic frame for the sounding-boards of pianos, provided with an inwardly-extending ledge adapted to support the sounding-board, in combination with movable or adjustable parts for increasing the tension of said sounding-board and means for adjusting said parts and fastening the sounding-board, substantially as set forth.

2. A metallic frame for sounding-boards of pianos, provided with an inwardly-extending ledge, in combination with wedge-blocks seated upon said ledge, the outer of said blocks being shorter than its companion, which latter is provided with a groove, compression-bolts, and a sounding-board having one end and side fitting in the groove of the wedge-block, substantially as set forth.

3. A metallic frame for the sounding-boards of pianos, provided with an inwardly-extending ledge, and one corner of the frame provided with an angular rib, in combination with registering wedge-blocks seated in the lower end and one of the sides of the frame, the longer one of said blocks being provided with a groove, compression-bolts, and a sounding-board arranged to be compressed by the action of the wedges and bolts, substantially as set forth.

4. A metallic frame for the sounding-boards of pianos, having an internal ledge *d*, arranged to support the sounding-board, in combination with the reversed wedges or bars *g g'* and compression-bolts *h*, arranged as described, for compressing the sounding-board, substantially as described.

In witness whereof I have this 21st day of December, 1889, set my hand in presence of two witnesses.

ALBERT GRAFF.

In presence of—
A. H. STE. MARIE,
F. N. BIGELOW.