

W. KELLS.

Improvement in Piano Sounding-Boards.

No. 131,760.

Patented Oct. 1, 1872.

Fig. 1.

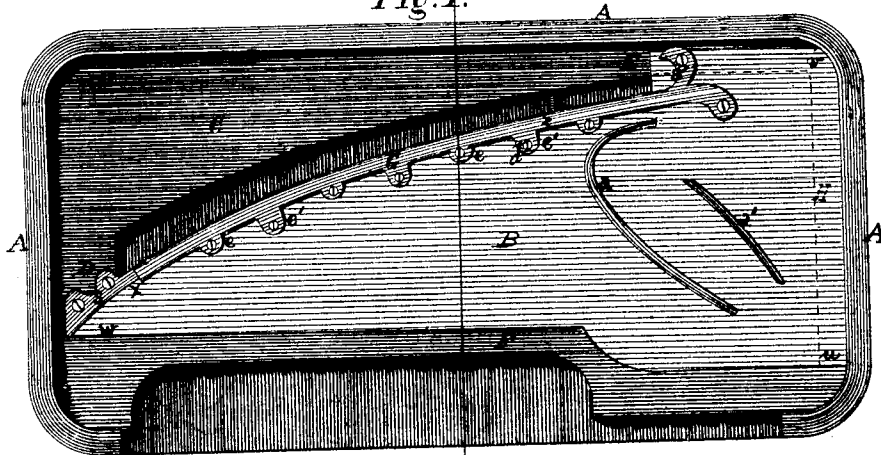


Fig. 2.

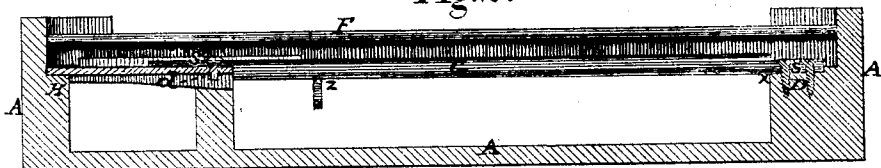


Fig. 3.

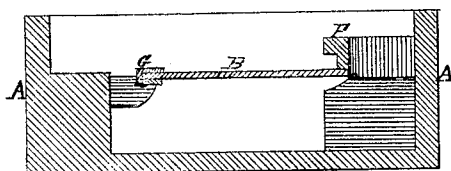
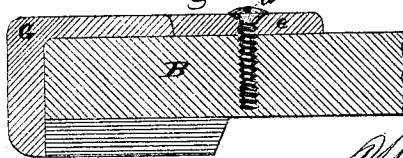


Fig. 4.



Witnesses.

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UNITED STATES PATENT OFFICE.

WILLIAM KELLS, OF ALBANY, NEW YORK.

IMPROVEMENT IN PIANO SOUNDING-BOARDS.

Specification forming part of Letters Patent No. 131,760, dated October 1, 1872.

To all whom it may concern:

Be it known that I, WILLIAM KELLS, of the city and county of Albany, State of New York, have invented certain new and useful Improvements in Pianos; and I do hereby declare that the following is a description thereof, reference being had to the accompanying drawing forming a part of this specification, in which—

Figure 1 represents a vertical view of the sounding-board and pin-block and case; Fig. 2 is a view from the back of the rear edge of the sounding-board, (the pin-block or plank removed,) and a section view of the case; Fig. 3 is a cross-sectional view taken at line No. 1 in Fig. 1; and Fig. 4 is a cross-sectional view of a section of the sounding-board, and the improvement in this invention, on an enlarged scale.

My invention relates to the improvement of the sounding-boards of pianos; and consists in the combination of a metallic stiffening-bar, having supporting-heads, with the rear-side edge of a flat sound-board, left-hand corner-block, and the back-block, in such a manner that the said metallic bar will be capable of stiffening the rear edge of the said sound-board, and giving a continuity of support from the one block to the other, which will connect with the right end block and front bar, which have been heretofore used to stiffen the corresponding parts of the sound-board; the object of this invention being to prevent the rear edge of the usual flat sound-boards from sagging or yielding in either direction, thereby securing a fixedness of position to the said rear edge, which will be maintained when the instrument is being performed on without any wavering or trembling, and confine the vibrations of the board within the limits of its several supported or stiffened edges and ends, and thereby increase the depth, power, and certainty of the tone of the instrument.

To enable others skilled in the art to make and use my invention, I will proceed to describe it in reference to the drawing and the letters marked thereon, the same letters indicating like parts.

In the drawing, A represents the case of the piano. B is the sound-board, which is made in the usual flat form, and either plain or corrugated on its upper surface, as may be de-

sired. *a a'* are the usual bridges placed on the same. C is the pin block or plank. D is the usual left-hand corner-block, supporting the usual left-hand end of the sound-board. E is the back-block, supporting the sound-board at the right-hand rear side. F is the front bar; all of which are old and too well known for further description.

Heretofore piano-manufacturers have been unable to give to square pianos that depth and power of tone now had in grand pianos, partly on account of the lack of stiffness or firm support of the rear edge or side of the sound-board, it being unsupported in that part between the extreme left end and the portion carrying the string-bridges.

To stiffen the rear side of the sound-board B between the points *x* and *z*, heretofore unstable and wavering, I secure to the rear edge of the same the metal stiffening-bar G, which I prefer to make of cast-iron, with a cross-sectional form of structure, substantially as shown in Figs. 3 and 4. Cast with the said stiffening-bar are the several ears or lugs *e* and *e'*, which are continued out horizontally from the upper angle of the bar, as shown in Figs. 1 and 4, and are bored and countersunk to receive the screws *d d* which are to secure the said stiffening-bar to the sound-board in a firm manner. The said stiffening-bar, being thus secured, is effectually preserved from all unsteady wavering when the instrument is operated, and the tone of the instrument will be increased in depth and power to an extent almost, if not wholly, equal to that of a grand piano. To suspend the said stiffening-bar G from proper supports and not cause the support of the said stiffening-bar to depend on the sound-board to which it is secured, I form continuous with the ends of the said stiffening-bar G, at their terminations, the supporting-heads *s s'*, which are continued over the usual blocks D and E, as shown, so as to bear directly on them, as the supporting-head *s* on the left-hand corner-block D, or indirectly on the same, as head *s'* on back-block E and treble-bar of the sound-board. The said stiffening-bar being thus supported by the heads *s s'* resting or bearing directly or indirectly on the said blocks D and E, as shown, gives a continuity of stiffening support to the several sides and ends of the sound-board not hereto-

fore had in square pianos, which were supported on the back from *z* to *v* by the back block E, and on the right-hand side from *v* to *u* by the right-hand block H, shown in Fig. 2, and by dotted lines in Fig. 1, and from *u* to *w* by the front bar F, and from *w* to *x* by the left-hand block E, thus leaving the length of the rear edge of the sound-board from *x* to *z* wholly unsupported; and by applying my invention to this portion from *x* to *z* I effect a firm and unyielding support to the same, and in a continuous manner, with the several supports heretofore used.

I am aware that sound-boards have been supported by metal frames to which they were secured; but such sound-boards were made arching or crowning, and the said metal frames were made solid and continuous in their several sides and ends, and could not be used in connection with the flat sound-board now in common use on account of the natural tendency of the metal of the frame and the wood of the sound-board to expand and contract in opposite directions, and thereby coact to effect a splitting of the wood of the sound-board. By my invention the rear edge of a flat (plain or corrugated) sound-board, heretofore unsup-

ported and liable to uncertain wavering and weakness, is made stiff and unyielding in a vertical direction without its liability to checking or splitting being increased; and the vibrations of the said board are made to have a definite limit on the said rear side equal to the limit heretofore had at its ends and front by the usual supporting-blocks and front bar; and the tone of the instrument is made more certain and of greater depth and power, approaching near to that obtained from a grand piano.

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

The combination of the metallic stiffening-bar G, provided with the heads *s* and *s'*, with the flat sounding-board B, having an unsupported rear edge between the points *x* and *z*, and supported beyond the said points by the blocks D and E, all constructed and arranged substantially as set forth, for the purpose specified.

WM. KELLS.

Witnesses:

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