

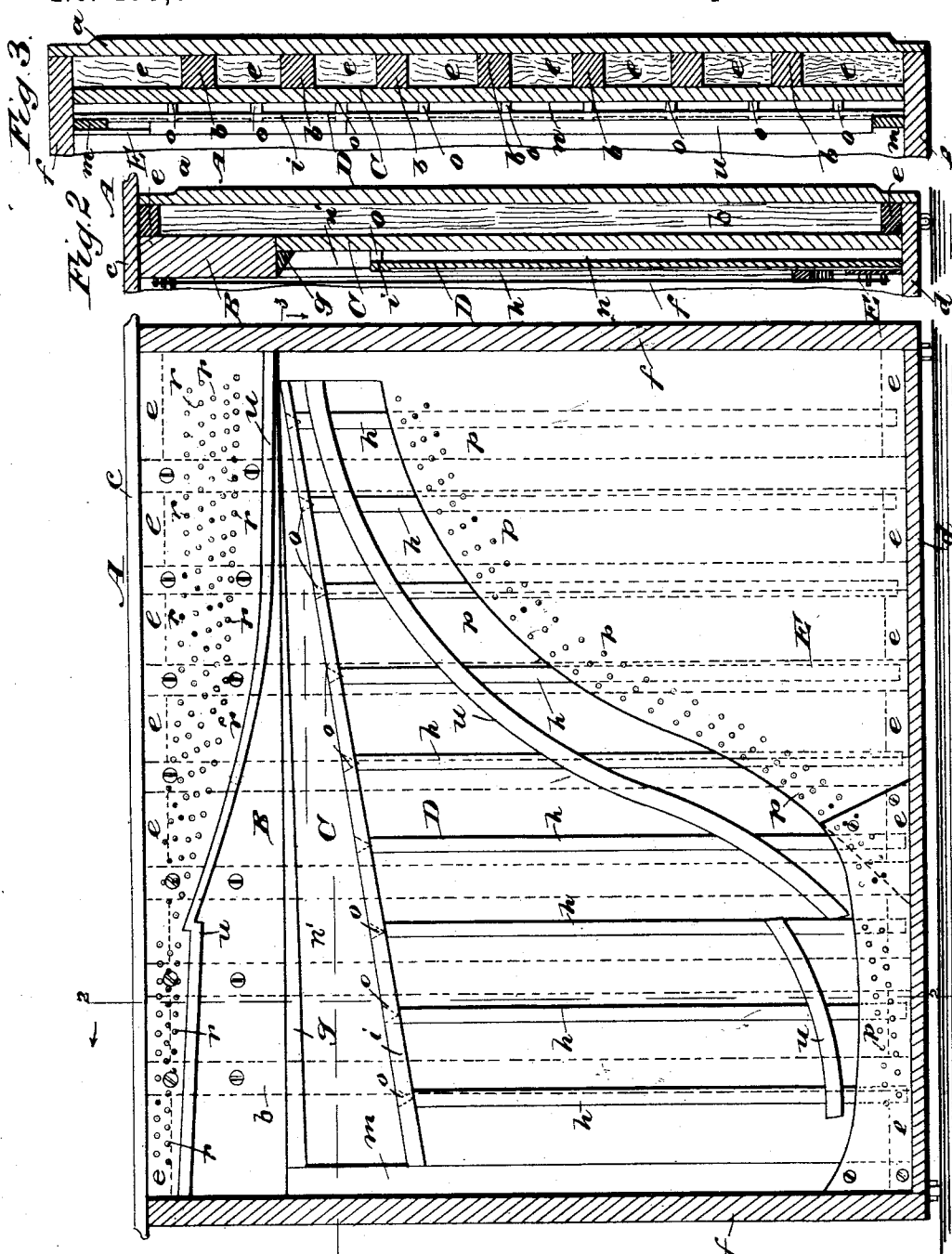
(No Model.)

J. U. FISCHER.

SOUNDING BOARD AND RESONANT CHAMBER FOR PIANO-FORTES.

No. 473,307.

Patented Apr. 19, 1892.



WITNESSES:

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Fig. 1

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JOHN U. FISCHER, OF NEW YORK, N. Y.

SOUNDING-BOARD AND RESONANT CHAMBER FOR PIANO-FORTES.

SPECIFICATION forming part of Letters Patent No. 473,307, dated April 19, 1892.

Application filed January 27, 1892. Serial No. 419,445. (No model.)

To all whom it may concern:

Be it known that I, JOHN U. FISCHER, of New York city, in the county and State of New York, have invented a new and Improved Sounding-Board and Resonant Chamber for Pianos, of which the following is a full, clear, and exact description.

This invention relates to improvements in sounding-boards for upright or other pianos, and has for its object to provide a sounding-board which will be highly resonant, be adapted to direct sound toward the top of the instrument, and be capable of resisting injury to resonance due to shrinkage of the material composing the sounding-board.

A further object is to provide a novel stiffening structure within the case of the piano which will sustain a back board that is part of said structure, suitably removed from a sounding-board to provide a resonant chamber therefor, and, furthermore, to locate the sounding-board so that it will be protected from climatic changes, and warping thus be prevented.

To these ends my invention consists in the construction and combination of parts, as is hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional front elevation of an upright-piano case with the action mechanism, key-bank, and front boards removed, so as to expose the improved sounding-board that is shown in position within the case. Fig. 2 is a vertical section on the line 2 2 in Fig. 1, and Fig. 3 is a plan in section on the line 3 3 in Fig. 1.

The case A is rectangular and of suitable dimensions to receive other parts of an upright piano, to which the improvements are preferably applied. On the rear wall *a* a series of spaced vertical strips *b* of equal dimensions are secured, which strips extend from the top *c* to the bottom wall *d*. Between the vertical strips *b* spacing-blocks *e* are affixed and similar blocks are secured between the side walls *f* and nearest upright strips, said blocks in series being placed above and below within the case and attached to the top and bottom walls *cd*. Across the case A the wrest-

pin plank B is secured upon the top spacing-blocks *e* and vertical strips *b*, having its upper edge fastened to the inner surface of the top wall *c*. Below the wrest-pin supporting plank B a thinner back board C is seated upon and secured to the front edges of the vertical strips *b*, having its upper edge secured to the lower edge of the plank B and its lower edge portion resting upon the bottom wall *d* and bearing against the lower spacing-blocks *e*. There is a filling-strip *g* secured in the corner between the lower edge of the wrest-pin plank B and back board C, which being triangular in cross-section produces an outwardly and upwardly extending continuation of the front face of the back board, the use of which will appear.

The sounding-board D is an essential feature of the invention, and consists of a thin slab of suitable material, preferably spruce wood, and has its rear surface level and smooth. At proper intervals on the front face of the sounding-board D a number of ribs *h* are formed or affixed, which extend parallel and vertically from a projecting top bead *i* to the lower edge of the sounding-board that rests upon and is secured to the bottom wall *d* of the case A. The width of the sounding-board D is proportioned to that of the case A, so that the side edges of said board will impinge upon the inner faces of the case side walls and are thereto affixed. At each side of the case A vertical keeper-strips *m* are attached by adjoining edges, these strips being extended from the lower edge of the wrest-pin plank to the bottom wall of the case, to which parts the ends of the keeper-strips are attached. The front side of the sounding-board D is rabbeted a proper width at each side edge to receive the keeper-strips *m*, that are secured thereto, and as the latter align their front sides with the front face of the thick wrest-pin plank B and are comparatively thin they serve to sustain the sounding-board at a proper distance from the back board C and parallel thereto, thus producing a resonant chamber *n* between these vertical pieces. A proper space or throat *n'* is afforded between the lower edge of the wrest-pin plank B and the upper edge of the sounding-board D to permit an escape of sound-waves from the resonant chamber *n* upwardly.

Between the back board C and sounding-board D a series of short V-shaped spacing-blocks *o* are secured, preferably opposite the ribs *h* of the board, these blocks serving to support the latter, while they offer no obstruction to the upward escape of sound-waves from the chamber *n*.

The lower edge of the sounding-board D is cut to form the usual ogee curve, and a hitch-pin supporting board E has its top edge similarly cut, so as to fit the undulation of the edge of the sounding-board, against which it is caused to impinge, the side edges of the board E extending to engage the inner surface of the case side walls and its lower edge adapted to rest upon the bottom wall of the case. The hitch-pin board is so secured and is of such a relative thickness as will adapt it to support the hitch-pins *p* in the same vertical plane with that of the wrest-pins *r* on the plank B, so that the strings *s* may be strung and strained at a proper distance from the sounding-board D and parallel therewith, resting upon the usual bridge-strips *u*.

Owing to the peculiar construction of the sounding-board D and its projection from the back board C there is an increased resonant effect produced and the volume of sound is all directed upwardly to escape from the top of the instrument when the latter is in use. By provision of the throat *n'* between the wrest-pin plank B and sounding-board D the escape of sound is rendered free; but, if preferred, the board may be extended to engage the lower edge of the wrest-pin plank and be apertured near said plank for the lateral escape of sound-waves.

The formation of the stiffening-ribs *h* on the sounding-board is an important feature of improvement, as these projections brace the board to resist the effects of shrinkage, which ordinarily lowers the tension of the board and proportionally diminishes its resonance.

While it is preferred to employ the features of improvement shown in connection with an upright piano, it may be adapted for use in connection with a horizontally-strung instrument. Hence I do not limit its application to vertically-strung pianos.

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

1. A sounding-board for pianos, stiffened by vertical ribs on its front side, plain on its rear face, and held by its edges away from a back board open above and forming an intervening resonant chamber, substantially as described.

2. A sounding-board for upright pianos, stiffened by vertical ribs on its front face, plain on its rear face, and held by its edges against the sides and bottom of the piano-case and free above and supported vertically by a keeper-strip at each side edge independently of a back board, substantially as described.

3. A sounding-board for pianos, held at its edges, projected away from a back board within the case, and forming an intervening unobstructed resonant chamber, substantially as described.

4. The combination, with a piano-case, of a stiffening structure therein composed of a series of upright strips spaced apart by blocks above and below, a transverse wrest-pin plank secured on the strips, a back board below the pin-plank, abutting its edge thereon and of a less thickness than said plank, and a hitch-pin plank below, substantially as described.

5. The combination, with a case and a composite stiffening structure therein constructed substantially as described, of a sounding-board held by its side and bottom edges to the case parallel with and forwardly of a back board that is part of the stiffening structure, substantially as described.

6. The combination, with a case and a back board that is part of a stiffening structure therein, of a wrest-pin plank secured by its lower edge to the upper edge of the thinner back board, so as to extend forwardly thereof, a hitch-pin board below, and a sounding-board located between the wrest-pin plank and hitch-pin board, with a space between its top edge and the lower edge of the plank, and a resonant chamber between the sounding-board and back board, substantially as described.

7. The combination, with an upright case having a solid rear wall, a series of vertical strips secured to the top, bottom, and rear walls, spacing-blocks between the strips above and below, a wrest-pin plank secured on the strips and to the top case wall, a thin back board fastened on the strips and to the wrest-pin plank, case sides, and bottom wall by its edges, and a hitch-pin board below, of an intervening sounding-board secured at its edges to the case sides and bottom, having a space between its top edge and the wrest-pin plank and removed from the back board, producing a resonant chamber between, substantially as described.

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Witnesses:

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