

United States Patent Office.

ANDREW FERDINAND DESSAU, OF WASHINGTON, DISTRICT OF COLUMBIA.

Letters Patent No. 75,132, dated March 3, 1868.

IMPROVEMENT IN PIANO-FORTE FRAMES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, ANDREW FERDINAND DESSAU, of the city of Washington, in the District of Columbia, have invented a new and useful Improvement in Piano-Fortes; and I do hereby declare the following to be a full and correct description of the same, sufficient to enable others skilled in the art to which my invention appertains to fully understand and use the same, reference being had to the accompanying drawings, which make part of this specification, and in which—

Figure 1 is a perspective view of the frame of a piano, showing my improvements.

Figure 2 is a cross-section of fig. 1 in line $x x$.

Figure 3 is a longitudinal section of the same in line $y y$; and

Figure 4 is a bottom view of the frame.

Like letters indicate like parts in the several figures.

The nature of my invention consists in constructing the bottom of a square piano with openings at its bottom, so that the tone may swell out from under the sounding-board, as in grand pianos, in which there is no framework under the sounding-board. Also, in a peculiar construction of and way of attaching to the frame the bars of the bottom of the piano, and their position in relation to the strings, so there is no obstruction offered to the tones as they swell out, nor can the strain of the strings warp the bars or beams.

The great superiority of grand pianos over square ones is their greater power of tone, which is obtained by their peculiar construction, allowing the bottom to be open, and the sound to come out free and unobstructed from the sounding-board. In square pianos, this is not possible to attain, as the frame would be warped and bent by the power of the tension of the strings, which, in common six-octave pianos, amounts to about thirty thousand pounds, were the bottom left off; said bottom having to be made in one piece, for if it were constructed of beams, connected in the usual manner of connecting piano-frames, that is to say, glued, they would not be able to withstand the power of the tension of the strings; and the effects of heat and cold, in fact all changes of the weather, would soon so warp the beams and frame of the piano as to keep it continually out of tune, and without a remedy. I overcome this difficulty, and am enabled to construct a common square piano with an open bottom, by means of constructing the cross-bars or beams and the frame of a piano of layers of pieces of wood; the grain of the wood running in opposite directions in contiguous pieces, as shown in fig. 2, interlocking these layers of pieces where the beams are joined to the frame, or among each other, so as to form a kind of straight dove-tailed joint.

A, in the drawings, may represent the frame of a square piano, the bottom of which is formed of parallel pieces, $B B^1$ and $B^2 B^3$, and C; the latter being a cross-piece placed at about the place where the treble-strings are fastened. Between the beams B^2 and C are cross-pieces D and E, all constructed, as described, of layers, and attached to beams B^2 and C, and to each other, by overlapping the different layers, as shown in figs. 1 and 3; alternate layers of the same pieces running parallel and at right angles with the alternate layers of the beam to which they are attached. In this manner the grain of no two layers runs parallel, and each beam is constructed of such layers glued to each other. Between the beams C and the side are the cross-pieces F, constructed and secured in the same manner as the pieces D and E, which lie under that part of the iron frame G over and on which the overstrung base-strings are secured.

It will be seen that the beams D run parallel with the base, and the beams E parallel with the treble-strings of the piano, so that there is no piece situated across the wave of sound, and the latter is free to swell out from under the sound-board without obstruction.

By this improvement I am enabled to produce a square piano equal in volume and power of sound to any grand piano, and combining with this superior strength.

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

1. Constructing the bottom beams and frame of a piano of layers of pieces of wood, in the manner substantially as and for the purposes described.
2. Constructing the beams and frames of pianos by building the same up in the manner substantially as described.

Witnesses:

JACOB HENRY,

ALEXR. A. C. KLAUCKE.

ANDREW FERDINAND DESSAU.