

# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN PIANO-FORTES.

Specification forming part of Letters Patent No. **197,332**, dated November 20, 1877; application filed September 3, 1877.

*To all whom it may concern:*

Be it known that I, CHARLES F. CHICKERING, of the city and State of New York, have invented certain Improvements in Grand Pianos, of which the following is a specification:

My improvements relate, first, to the construction of the wooden bed or skeleton of a grand piano; second, to the mode of supporting the cast-iron frame upon the bed, whereby the sounding-board is kept out of contact with any portion of the iron frame, or with its metallic connections, and whereby the front supports of the frame are brought nearer to the agraffes; third, in extending the longitudinal braces of the cast-iron frame across the opening which receives the wrest-plank to the front transverse rib of the frame; and, fourth, in the manner of attaching the sounding-board to the belly-rail, whereby the treble portion is left free to vibrate.

The first part of my invention consists in extending the longitudinal wooden strips of the bed or skeleton forward under the key-board to the front rail of the bed. This I may effect by making the longitudinal wooden strips of a single piece of wood of sufficient depth to reach to the top of the belly-rail and extend a sufficient distance below the belly-rail to afford the necessary amount of material for the portion which projects forward underneath the key-board to the front rail of the bed; or, I may make the longitudinal strips of the same depth as the belly-rail, and glue to the bottom thereof another strip of sufficient length to reach from the front to the rear end of the piano. In either event, the longitudinal strips are halved or mortised into the belly-rail.

The second part of my invention consists in supporting the iron string-frame of the piano upon pillars firmly secured in the wooden bed, and projecting vertically upward a sufficient distance to hold the iron frame above and clear from the sounding-board. Those of the pillars which occur where the sounding-board is located pass through holes therein made larger in diameter than the diameter of the pillars. There is, therefore, no contact of the sounding-board with the iron frame or with the pillars which support it.

The iron frame is secured in position by screws, which are engaged in holes tapped into the upper ends of the pillars. The front series of pillars is arranged in front of the belly-rail instead of being in the belly-rail, and the front bearing is therefore nearer the agraffes, and tends to stiffen the structure and enable the frame to more effectually resist the strain of the strings.

The third part of my invention consists in extending the horizontal ribs of the casting across the seat of the wrest-plank to the front transverse rib of the frame, which is thus strengthened, so that the upper part of the wrest-plank may be tightly inclosed between the front rib, which projects downward in front of the wrest-plank, and the inner transverse rib, which affords the inner bearing for the wrest-plank.

The fourth part of my invention consists in stiffening the front edge of the treble or upper portion of the sounding-board, and in attaching it to the belly-rail at intervals only, whereby the treble portion of the sounding-board is made more free to vibrate, and the tone of the instrument is equalized and improved.

The accompanying drawings, illustrating my improvements, are as follows:

Figure 1 is an isometrical perspective of the wooden bed of a grand piano. Fig. 2 is a top view of the piano, with the cover removed, showing the iron frame, the sounding-board, &c., secured in position upon the wooden bed. Fig. 3 is a longitudinal vertical section of the instrument through the line *x x* on Fig. 2. Fig. 4 is a vertical section through the line *y y* on Fig. 2, showing, upon an enlarged scale, a portion of the sounding-board and one of the pillars to which the iron frame is secured; and Fig. 5 is a transverse vertical section through the line *z z* on Figs. 2 and 3.

Referring to the drawings, it will be seen that each longitudinal brace *a a'* of the wooden frame or bed *A* of the piano extends forward in front of the belly-rail *b* to the front transverse rail *c* of the bed.

The longitudinal braces *a a'* may be made of a single piece of timber of the requisite depth, or of two separate pieces, as shown in Fig. 3, the upper and shorter piece *a* being halved onto the belly-rail *b*, and the lower and