W. MUTH.

PIANO-FRAME.

No. 190,507. Patented May 8, 1877.

Fig. I.

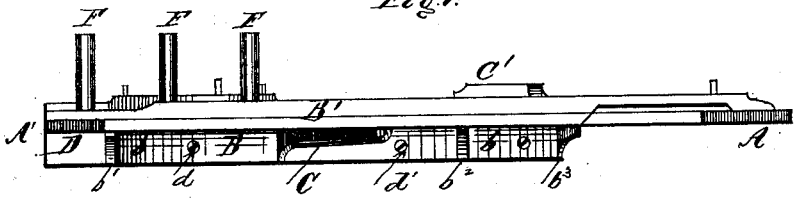


Fig. II.

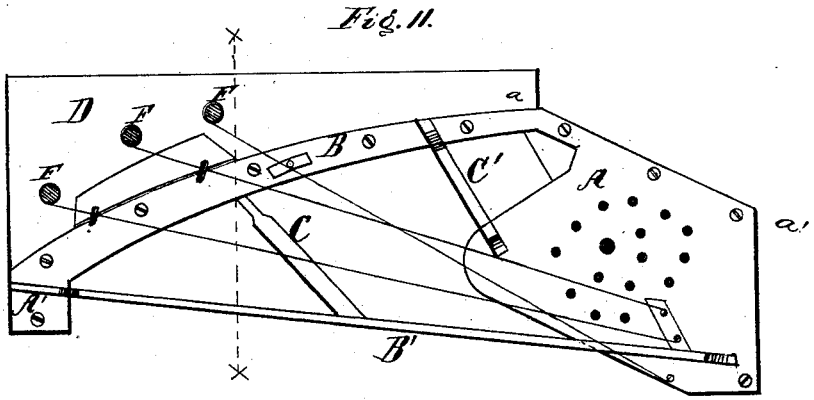
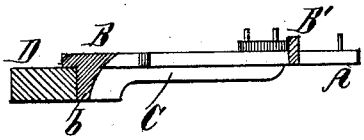


Fig. III.



Witnesses:

J. Barrett.

Richard Gerner,

Inventor:

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Per:

Henry Gerner,

Atty

UNITED STATES PATENT OFFICE.

WILLIAM MUTH, OF MONTREAL, CANADA.

IMPROVEMENT IN PIANO-FRAMES.

Specification forming part of Letters Patent No. **190,507**, dated May 8, 1877; application filed January 31, 1877.

To all whom it may concern:

Be it known that I, WILLIAM MUTH, of Montreal, in the Dominion of Canada, have invented a certain new and useful Improvement in Combination-Plate for Square Pianos, of which the following is the specification:

This improvement consists in an improved construction of the string-plate, and of making such a combination of wood and iron as will place the tuning-pins entirely in the wooden pieces at the back of the cast-iron plate, thereby obviating the liability of the pins to turn the pieces, caused by the leverage now existing in square pianos, by reason of the pins first passing through iron, and then through wood. By using the construction hereinafter described, a large amount of weight will be saved, and the construction of the instrument will be cheapened, not only by the saving of the weight of metal, but also by diminished amount of ornamentation required, owing to the diminished surface to be ornamented.

The invention will be readily understood by reference to the accompanying drawings, of which—

Figure 1 is a front elevation of the improved combination-plate. Fig. 2 is a general plan of the same. Fig. 3 is a transverse sectional elevation of it, taken on line *x x*, Fig. 2.

The metallic part of the bed-plate consists of a solid plate, A, at the right-hand side of the instrument, and a smaller plate, A′, at the left-hand side, with a curved rib, B, at the rear side, and a straight rib, B′, on the front side, connecting these two plates, and with two intermediate transverse stays, C and C′, connecting ribs B and B′ between their end bearings.

All of the aforesaid parts of the metal plate are to be cast solid in one piece, and the general arrangement is clearly shown in Fig. 2. On the lower front edge of the rib B is a flange, *b*, extending downwardly, so as to form an abutment or bearing for the wooden plate D, which thus fits into a rabbet formed between the rib B and flange *b*, and the screws *d d′*, respectively, screw this rib and its flange to the wooden piece D. The front edge of the rib and flange are concaved, as shown in Fig. 3, so as to allow the plate to be drawn as far forward as it will be possible to allow the hammers to operate, it being obvious that the hammers describe a curved line in their upward and downward motion.

The flange *b* is strengthened by small brackets b^1 b^2 b^3, which respectively connect the lower edge of the said flange with the plate A′, and the stay-bar C′ and plate A, respectively. Instead of allowing the rear right end of the plate to extend out to a right angle or an acute angle, it will be shortened or cut off on the line *a a′*, so as to contract the plate to the absolute limits required for use.

The wooden plate D, resting firmly against the rib B and its flange *b*, and secured thereto by the screws *d* and *d′*, will rest firmly in its place, and afford excellent seating for the tuning-keys F, which find their bearings wholly within the substance of said plate D.

Having thus described my invention, I claim—

The metallic plate A and A′, B and B′, C and C′, the flange *b*, and its supporting-brackets b^1 b^2 b^3, constructed and arranged as and for the purpose set forth.

This specification signed this the 15th day of January, 1877.

WILLIAM MUTH.

Witnesses:

ALEXR. PATERSON,

HENRY PRINCE.