





# United States Patent Office.

JOHN J. AND DAVID DECKER, OF NEW YORK, N. Y.

*Letters Patent No. 61,612, dated January 29, 1867.*

## IMPROVEMENT IN PIANO-FORTES.

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

### TO ALL WHOM IT MAY CONCERN:

Be it known that we, JOHN JACOB DECKER and DAVID DECKER, both of the city, county, and State of New York, have invented a certain new and useful Improvement in Piano-Fortes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, which forms part of this specification, in which—

Figure 1 represents a plan view of the stringed portion of a piano.

Figure 2 is a vertical longitudinal section thereof, taken as indicated by the line *x x*, fig. 1; and

Figure 3 a vertical transverse section of the same taken as denoted by the line *y y*, in fig. 1.

Similar letters of reference indicate corresponding parts in the several figures.

The one part of our invention relates to what is known in piano-fortes as the full iron plate, and the nature of it consists in such a construction of said plate as will avoid bringing any of the string bearings on such plate, and secures for the most part or generally the connection of the strings with the tuning pins close to the wrest-plank, thereby reducing the leverage and great strain on the pins, which is so objectionable a feature in those previous arrangements in which the strings pass over the plate, and this advantage we secure without interfering with the exposure of any of the pins for stringing or tuning purposes; and the other part of our improvement also relates to the connection of the strings with the tuning pins close to the wrest plank, and whereby, while the plank is strengthened, the leverage and great strain on all the pins, including the forward or more advanced ones, is prevented or reduced to a material extent; this part of our invention being more or less applicable not only to pianos employing the full iron plate, but also to others.

To enable others skilled in the art to make and apply our invention, we will now proceed to describe it.

Referring to the accompanying drawing, A B C D represent portions of the full iron plate. The part A of said plate near to the sound-board bridges, *a b c*, is or may be of ordinary form, and the back part B, which is fastened by screws to the wrest-plank E, is, as in certain instruments of previous construction, only of such width from back to front as to lie in rear of the tuning pins *d d'*, but the portion C, which joins the part B with the front brace D, at the left-hand end of the instrument, differs from previous full iron plate constructions generally, which failed to allow of all the strings—the longer or bass ones—being entirely supported on wooden bearings, so necessary to produce a good and even tone. The previous constructions, too, failed in not allowing said strings to be brought close to the wrest-plank, the latter not being practicable when the plate fits close to the plank and extends beyond the tuning pins, as in such case the holes in the plate for the pins require to be sufficiently large for the pins to pass through, without touching the metal, and the strings being of necessity attached to the pins at such part at a height from the bearing in the plank equal to the thickness of the plate, thus producing great leverage or strain upon the pins. And the portion C of the plate differs from the construction of it shown and described in Letters Patent of the United States granted to DAVID DECKER, bearing date the 2d day of June, 1863, for an improvement obviating the defects in those previous constructions hereinbefore referred to, inasmuch as while in such improvement the portion C of the plate was elevated, so as to pass entirely over a number of the longer or bass strings, the said part C, according to our improved construction, while forming an equally strong brace or tie and connection of the parts B and D, and equally enabling the stronger or bass strings *e* to be entirely supported by wooden bearings, and to be brought close to the wrest-plank, has the additional advantage of giving an open or free access to the tuning pins of said strings, either for attaching the strings or for tuning. This improvement is effected by a vertical flange, C, along the left-hand end of the metallic plate in line with the corresponding end of the wrest-plank and adjoining block F. It is preferable that this flange overlap the wrest-plank and block F, but it might project upward above the plate. To secure more fully the close attachment of the strings to the wooden bearings throughout the instrument generally, so as to reduce leverage or strain on all the pins, we not only keep the part B of the plate at a considerable distance from the bridge G, but likewise introduce, between said plate and bridge, an inclined wooden support or supports or shelf, H, which may start from the upper surface or level of the bridge and incline downwards towards the part B of the plate. By such an additional support, not only is the facility increased or may be increased for attaching the strings to the rear pins *d* close to the wooden bearings, and lessening the leverage or strain upon the pins, but more especially and prominently is this the case in the more forward or advanced



pins,  $d'$ , which, lying close behind or up to the bridge G, it is difficult or impossible to attach the strings low down or close to the wooden bearing of such pins, were it not for this interposition of the support H. Furthermore, while it is customary to construct the wrest-plank of different thickness, with the fibre of the wood in one thickness running opposite or differently to the fibre in the other thickness to increase the strength of the plank, so as, while without adding to the weight of said plank, to enable it better to resist the great strain to which it is subjected, further additional strength without a material addition to the weight will be given to the wrest-plank by the inclined support G, having its fibres arranged to cross or run differently to the fibres of the upper piece or thickness of the wrest-plank, to which said support or shelf may be secured by glueing, and if desirable by otherwise fastening it in addition.

By obtaining the attachment of the strings to all the tuning pins equally close to the wooden bearing or support of the pins, the instrument has a uniformity of tone superior to the instruments in which the wrest-plank is constructed and the pins inserted in the usual way.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The iron plate, constructed with a vertical flange, C, at its rear end, arranged in relation with the wrest-plank, as and for the purpose herein specified.
2. Interposing between the bridge G and portion B of the plate, an inclined support or shelf, H, to obtain the attachment of the strings to all or the more forward portion of the tuning pins close to or at uniform distances from their wooden bearing, essentially as specified.

JOHN J. DECKER,  
DAVID DECKER.

Witnesses:

WM. H. KIPP,  
H. C. JAGEMAN.