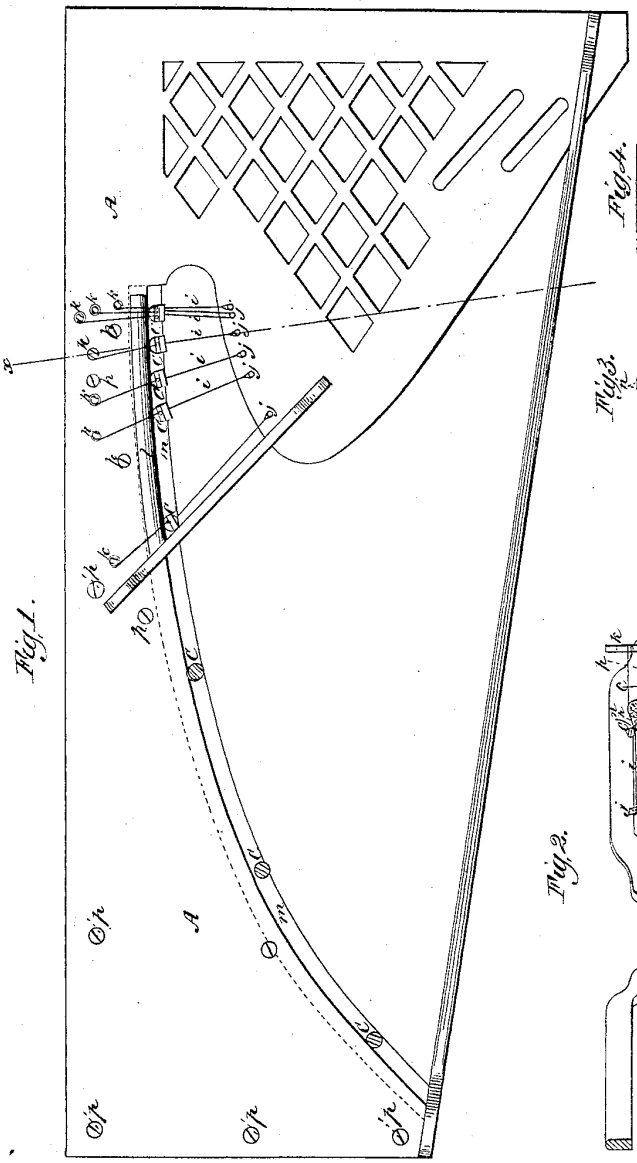
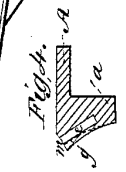
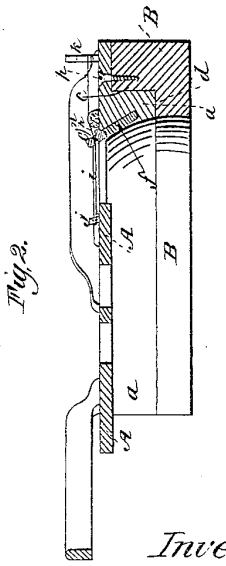
H. Steinway, Jr.,

Stringing Pianos,

No. 26,300, Patented Nov. 29, 1859.







Witnesses.
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UNITED STATES PATENT OFFICE.

HENRY STEINWAY, JR., OF NEW YORK, N. Y.

PIANOFORTE.

Specification of Letters Patent No. 26,300, dated November 29, 1859.

To all whom it may concern:

Be it known that I, HENRY STEINWAY, Jr., of the city, county, and State of New York, have invented a new and useful Improvement in Pianofortes; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan view of a full iron plate for a square piano-forte, and a sufficient number of strings to illustrate my invention. Fig. 2 is a transverse section of the plate and the wrest plank in the plane indicated by the line *x*, *x*, in Fig. 1. Fig. 3 is a face view of one of the "agraffs" employed to hold down the strings at the ends nearest to which the hammer strikes. Fig. 4 is a section of the plate corresponding with Fig. 2, representing its form before it is finished.

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

In the manufacture of piano-fortes, more especially in the powerful modern instruments, much difficulty has been heretofore experienced in obtaining sufficiently firm upward bearings for the strings at the ends which are attached to the tuning block, and nearest to which they are struck by the hammers, and several substitutes for the oblique pins commonly inserted in the tuning block, or cast iron plate covering such block, have been contrived for this purpose, among which the best known are the use of a continuous metal bridge, cast upon the upper surface of the cast iron plate, with holes drilled through it to receive the strings, and the use of what are known as "agraffs" of brass or composition metal screwed into the tuning block. The objection to the former plan is not so much its want of firmness as that the molecular structure of cast iron renders it an unsuitable substance for a bearing, producing what is called by piano-forte makers a "knocking" or "wiry" tone, and that it is difficult to apply the necessary tools to drill and burnish out the holes in a perfect manner. The use of agraffs, however, is free from any objection, but no practical method of applying them to the treble strings has heretofore been discovered, while a firm upward bearing for these strings is even more necessary than for the longer strings, for two reasons, viz: 1st, that the vibrations of these strings being more rapid are more liable to be interfered with by any want of firmness in their bearing than the slower vibrations of the longer strings; and 2nd, that their extreme shortness renders it desirable to strike them very close to these bearings, and the nearer the blow strikes the more effect it has on the bearing. It is the shortness of string and consequent proximity of the striking point to the bearing that has caused the difficulty of applying the "agraffs" for the bearing requires to be so close to the edge of the tuning block or covering plate that without the plate the wood of the block would not hold the screwed stem of the agraff, and with the ordinary construction of and mode of applying the plate, viz: making it of no more depth at the edge than at any other part and merely fitting it upon the top of the tuning block, no better provision is afforded for holding the said stem.

The object of my invention is to apply the agraffs to the treble strings, and to this end my invention consists in providing the cast iron plate with a projection on its under side to lap over the edge of and abut against the tuning block and screwing the agraffs down from the upper surface of the said plate into the said projection as represented in the drawing and hereinafter described.

A, is what is known to piano-forte makers as the full iron plate made substantially of the usual form except that it has the downward projection *a*, cast all along the front edge of its under side to lap over and abut against the tuning block B, in the upper part of the front of which there is cut out a recess *d*, *c*, to receive the said projection which fits closely both against the back and bottom of said recess, so as to enable the tuning block and plate to be combined in the most solid manner that is practicable.

p, *p*, are the screws by which the plate is secured to the tuning block. The holes provided in the plate to receive these screws are so arranged relatively to the holes provided for them in the block as to have a tendency to draw back the projection *a*, to make it abut close up against the face *c*, of the recess *c*, *d*, of the block. The front of the block B, and plate A, when finished have a continuous vertical curvature, as shown in Fig. 2, which should correspond very nearly with the arc described by the hammers so that the latter may just work clear of them, but the plate is cast fuller along the front, as shown in Fig. 4, where the treble strings are to come, in order that there be no dif-

ficulty in drilling and tapering the holes *e*, for the screwed stems *f*, of the agraffs C, C, and the surplus metal *g*, (Fig. 4) is cut or filed away after the agraffs have been fitted so as to leave the smallest possible amount of metal in front of their stems, or it may even be cut so far away as just to expose the screw threads of the said stems, as, owing to the depth of the tapped hole a sufficient hold would then be afforded for the said stems.

The agraffs, C, C, are constructed of a form substantially like those in common use, but their being inserted so close to the edge of the plate, in the treble, renders it necessary to cut away the shoulders *h*, of their heads on the side which comes to the said edge. The stems *f*, are inserted in such an oblique direction, as shown in Fig. 2, that in the treble, where they are so close to the edge of the plate, their heads overhang the said edge, and so their eyes *n*, *n*, furnish to the strings *i*, *i*, upward bearings, which project beyond the said edge instead of being within it as has been the case in the piano-fortes heretofore constructed. The upper edge of the plate A, is beveled, as shown at *m*, Figs. 1 and 4, so as to present a surface square or nearly so with the stems of the agraffs, and to allow the heads of the agraffs to come to a bearing upon it with little or no countersinking. The strings are attached to hitch pins *j*, *j*, and tuning pins *k*, *k*, in the usual manner, and between the tuning pins and the agraffs they pass over a wooden bridge *l*, resting upon the plate A. The agraffs of the strings of the lower and middle notes may be set farther back from the edge of the plate than those in the treble, but I propose generally to continue the projection *a*, all along and to screw the agraffs into it.

The invention is applicable to grand as well as to square piano-fortes a cast iron plate provided with a projection of similar character to *a*, to lap over the back edge of the tuning block, being bolted to the said block in the grand piano-fortes.

I do not claim the use of agraffs in piano-fortes. But

What I claim as my invention, and desire to secure by Letters Patent, is:—

The employment in combination with the agraffs C, C, of the projection *a*, on the under side of the plate, lapping over and abutting against the edge of the tuning block, substantially as herein described for the purpose specified.

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Witnesses:

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J. W. Coombs.