

UNITED STATES PATENT OFFICE.

HENRY STEINWAY, OF NEW YORK, N. Y.

GRAND PIANO.

Specification of Letters Patent No. 26,532, dated December 20, 1859.

To all whom it may concern:

Be it known that I, HENRY STEINWAY, of the city, county, and State of New York, have invented a new and useful Improvement in Grand 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 drawing, forming part of this specification, in which—

10 Figure 1 is a plan of a grand piano-forte with my improvement, having the cover removed to show the interior. Fig. 2 is a longitudinal vertical section of the same.

Similar letters of reference indicate corresponding parts in both figures.

In the construction of square piano-fortes "overstringing," that is to say the arrangement of the strings of a number of the lower notes in a tier above the others, has been adopted quite commonly and with great advantage for the purposes of using larger strings, and a substantially similar system of stringing has been applied to upright piano-fortes; but owing to the form of the case and arrangement of the key board and action of grand piano-fortes some difficulties have seemed to present themselves in the way of applying the system to them, and though some attempts may have been made in that direction I have after much research failed to find that an overstrung grand-piano has, prior to the date of my present invention, ever been constructed.

My present invention consists in a certain arrangement of the strings of a grand piano-forte in two tiers whereby I am enabled not only to obtain all the results obtained in piano-fortes of other forms by overstringing, but am enabled to bring the bridges nearer to the middle of the sound board than they are in any other grand piano-forte.

To enable others to make and use my invention I will proceed to describe its construction and operation.

45 A represents the case which may be of the same size and form horizontally as the case of grand pianos heretofore constructed but a trifle deeper.

50 B C D E is an iron frame of which the part B, constitutes the hitch plate, and is connected with the part C, which supports the tuning block F, by means of the bars D, D, E, E, which constitute braces parallel with the strings. G is the sound board occupying the entire portion of the case in rear of the action. The red line *a, a*, in Fig. 1,

represents the hammer line which is parallel or very nearly so with the front of the instrument as is usual in grand piano-fortes.

60 *b, b*, are the strings of the upper tier in which I propose generally to include all the covered strings, and *c, c*, are the strings of the lower tier. About half of the strings *c, c*, commencing with the shortest are arranged at right angles, or thereabout, to the front of the instrument and to the hammer line, but the other half of the said strings, though having their tuning pins *d, d*, in about the same positions as those of the corresponding strings in other grand piano-fortes have their rear ends, which are attached to the hitch plate B, by the hitch pins *e, e*, set farther apart so that the rear end of the longest of the said strings comes very much nearer to the straight left hand side of the case than the front end, and the said string and the adjacent shorter ones form angles of considerable obliquity to the hammer line. By this arrangement of the "over strings" *c, c*, the portion of the bridge 80 *g*, upon which the said strings rest is brought much nearer to the middle of the sound board than in other grand piano-fortes, which is an obvious advantage. The "over strings" *b, b*, are also arranged at an oblique angle to the front of the instrument and to the hammer line, but their obliquity is in an opposite direction to the obliquity of the strings *c, c*, as shown in Fig. 1, so that they cross over the latter. The said strings *b, b*, 90 are attached to tuning pins *f, f*, which are screwed into a suitably elevated portion of tuning block, but which occupy the same positions, horizontally considered, as the tuning pins of the corresponding strings of other grand piano-fortes, except that the tuning pin *f*, of the shortest of the said strings, and the tuning pin *d*, of the longest of the strings *c, c*, are set further apart than the corresponding pins of an ordinary grand piano-forte, as shown in Fig. 1, in order that there may be the same or nearly the same horizontal distance between those two strings at the hammer line that there is between the other strings, and that the same horizontal distances may be preserved between the strings throughout the whole of the scale so that no change in the construction of the grand action is required. The distance between the strings *b, b*, is increased toward 110 their rear ends by the arrangement of their hitch pins *h, h*, farther apart than their

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tuning pins. The said hitch pins h, h , are
in an upwardly projecting portion i , of the
hitch plate, and the bridge j , which sup-
ports the said strings on the sound board,
5 is arranged in an opening k, k , provided for
it in the hitch plate. By the oblique ar-
rangement of the strings b, b , relatively to
the front of the instrument and to the ham-
mer line, the bridge j , upon which they rest
10 is brought into the middle of the sound
board, instead of close to one edge thereof,
as in other grand piano-fortes, and by suit-
able relative obliquities of the strings b, b ,
and the longer of the strings c, c , the longest
15 one of the strings c, c , and the shortest one
of those b, b , which are the next strings in

the scale, are brought at about the same or
properly proportioned distances from the
edges of the sound board, where they rest
upon their respective bridges, and hence 20
properly corresponding degrees of vibration
are provided for the said strings.

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

The arrangement of the strings b, b , of 25
the lower notes and those c, c , of the higher
notes of a grand piano-forte, substantially
as herein shown and described.

HENRY STEINWAY.

Witnesses:

R. S. SPENCER,
R. S. CAMPBELL.