

T. WINANS.

Pianos.

No. 134,340.

Patented Dec. 24, 1872.

Fig. 1.

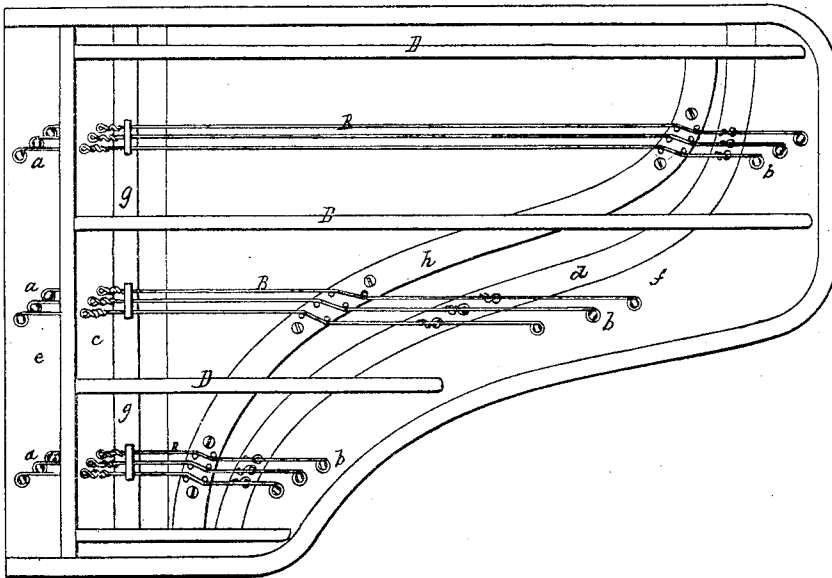
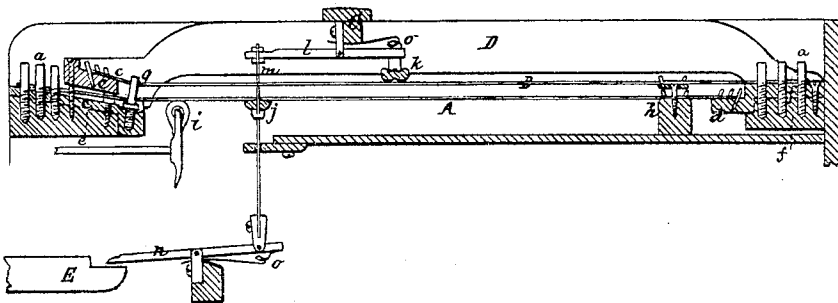


Fig. 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

THOMAS WINANS, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN PIANOS.

Specification forming part of Letters Patent No. 134,340, dated December 24, 1872.

To all whom it may concern:

Be it known that I, THOMAS WINANS, of the city and county of Baltimore and State of Maryland, have invented certain new and useful Improvements in Piano-Fortes, of which the following is a specification:

The object of this invention is to increase the volume of sound in piano-fortes; and it consists in the employment for this purpose, in connection with the ordinary or usual piano-forte strings, of an auxiliary set of strings, the duplicate of the first-named or main strings placed over the latter, and so that strings of like pitch in the two sets shall be opposite each other, the strings of the auxiliary set not being struck by hammers, but each vibrating sympathetically with its respective main string when the latter is struck by its hammer, and having its vibrations checked synchronically with the arresting of the vibrations of the main string. My invention requires no change in the piano-forte action other than the addition of dampers for the auxiliary strings, which dampers may be connected and operated simultaneously with the dampers of the main strings. Thus my invention necessitates no radical change in construction of the piano-forte. It only requires the addition of an auxiliary set of strings with their fastenings, the duplicate of the first, and a set of dampers for said auxiliary strings, as first stated.

The increase in the volume and quality of the tone, which is the object I have in view, and which is attained by my invention, is due to the sympathetic vibration of the auxiliary strings with their corresponding main strings; and it will, of course, be understood that, in order to prevent confusion of sound and intermingling of succeeding notes, dampers are needed for the auxiliary as well as the main strings, in order that the vibrations of both may be arrested simultaneously.

The manner in which my invention is or may be carried into effect will be understood by reference to the accompanying drawing, in which—

Figure 1 represents a plan of the frame of the piano-forte without the action and the keyboard; and Fig. 2 is a longitudinal vertical section of the same with such portions of the action as are needed to illustrate the invention.

The main set of strings is shown at A, and

the auxiliary set at B, placed over the main strings, as shown. For convenience sake in altering old pianos the tuning or wrest pins *a* of the one set are placed at the opposite end of the frame from those, *b*, of the other. For new pianos the two sets of tuning-pins may be located both at the same end, if desired; or any other suitable arrangement of them may be made. The pins of the auxiliary strings are inserted in plates *c f* above the holding-plates *d e* of the main strings, and the same bridges *g h* are used for both sets, the strings of the auxiliary set passing through or over the bridges a short distance above the points where the main strings pass through or over the same, as shown in the drawing, so that the two sets may be at such distance apart at least as will prevent them from coming in any way in contact when in a state of vibration. The lower strings A alone are struck by the hammers *i*; and as each string A is struck the string B above it of a corresponding pitch will vibrate in sympathy with it, and will swell the sound, giving it increased volume and richness of tone. For the reasons hereinbefore given it is necessary to simultaneously arrest the vibrations of both the auxiliary and the main strings. An arrangement for this purpose is shown in the drawing. I connect with the damper *j* of each main string A a damper, *k*, for the auxiliary string, by means of a vertical rod, *m*, attached, at its upper end, to the tail of a vibratory lever, *l*, to the other end of which the damper *k* is fixed. The lever *l*, or, rather, the series of dampers of which the lever *l* is one, is carried by a bar, C, resting on and fastened to the brace D, or some other suitable part of the frame. When the end of the key E rises to bring the hammer *i* against the main string A it also lifts the tail of the main damper-lever *n*, which draws down the damper *j*, and consequently lifts the auxiliary damper *k*, so that both strings A and B are free to vibrate. When the key E is released and the damper *j* rises the damper *k* will at the same time be caused to fall, and the vibrations of the two strings will be simultaneously checked. Each damper is provided with the usual spring *o* for insuring its recoil when released by the key.

I have described one mode of carrying my

invention into effect. It is manifest, however, that the instrumentalities by which the auxiliary strings are secured in place may be varied, and that the auxiliary-damper action may be applied in different ways according to the nature and construction of the piano-forte action. It is also manifest that this invention is applicable not only to square or grand pianos, but to upright pianos or those in which the strings are vertical instead of horizontal.

Having now described my invention and the manner in which the same is or may be carried into effect, what I claim, and desire to secure by Letters Patent, is—

1. In a piano-forte, the combination, with the main strings, of duplicate or auxiliary strings placed over the main strings, so that strings of like pitch in the two sets shall be opposite each other, the auxiliary strings not

being struck, but each vibrating and ceasing to vibrate synchronically with its respective main string, substantially as and for the purposes set forth.

2. In combination with the main and auxiliary strings arranged as specified in the preceding claim, two sets of dampers—one for the main strings, the other for the auxiliary strings—connected together and operated to move simultaneously toward or away from their respective strings, substantially as and for the purposes herein set forth.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

THOMAS WINANS.

Witnesses:

FERDINAND C. LATROBE,
W. S. WILKINSON.