

O. A. GAMAGE.
Piano-Forte Stringing Devices.

No. 156,663.

Patented Nov. 10, 1874.

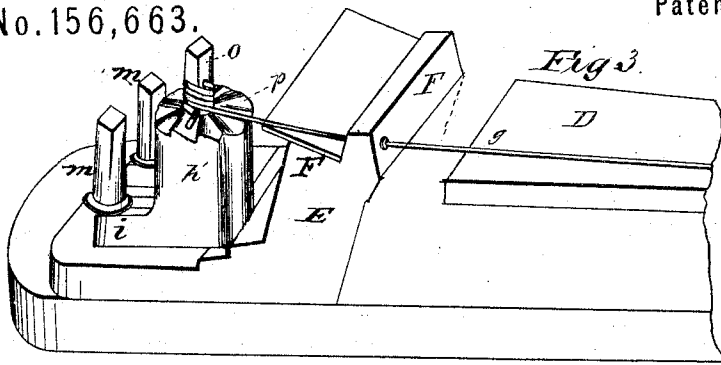


Fig. 1.

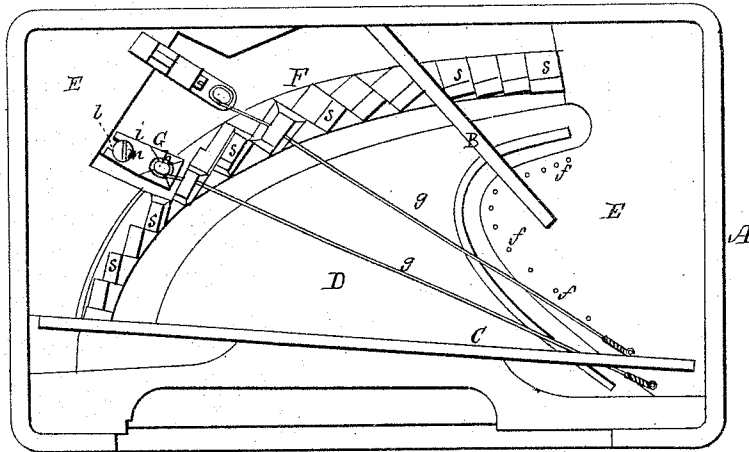
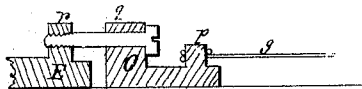
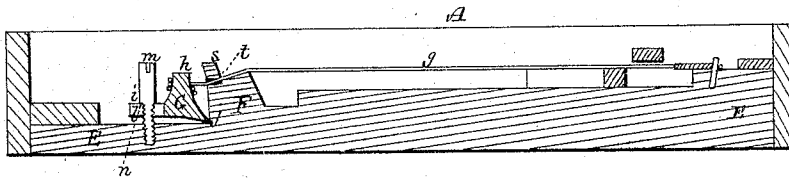


Fig. 2.



WITNESSES. *Oronzo A. Gamage*
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OLONZO A. GAMAGE, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN PIANO-FORTE STRINGING DEVICES.

Specification forming part of Letters Patent No. **156,663**, dated November 10, 1874; application filed March 20, 1874.

To all whom it may concern:

Be it known that I, OLONZO A. GAMAGE, of Boston, Suffolk county, Massachusetts, have invented certain Improvements in Piano-Fortes, of which the following is a specification:

These improvements relate, first, to a novel device for straining or tuning the wires of a piano, whereby the instrument, when once tuned, will remain so, and not fall away for a great length of time, the expense of frequent tuning being thus avoided.

The drawings accompanying this specification represent, in Figure 1, a plan, and, in Fig. 2, a vertical section, of a piano-forte containing my improvements, Fig. 3 being a modification of one portion of my improvements.

In these drawings, A represents the case, B and C the truss-bars, D the sounding-board, E the plate, *f f*, &c., the hitch-pins, *g g*, &c., the wires, and F the agraffe-bridge, of a piano-forte, such parts being arranged substantially after the usual manner of piano-fortes in general.

In carrying out my improvements I discard the upright pin or post now generally employed, which is driven into the wooden block upon which the plate rests, and about which the end of the wire is coiled, and in its place employ a metallic tilting block, to one end or portion of which the wire is attached, while to another portion of this block or holdfast I apply a screw, which compels the part to which the wire is attached to recede from the hitch-pin, to which the opposite end of the wire is secured, as hereinafter described. The lever-block or holdfast is shown in the drawings at G as substantially in the form of a bell-crank lever, whose upright arm is shown at *h* and its horizontal arm at *i*, while, in lieu of a pin passing through the crank as a pivot, I abut the lower corner of the block against a wall or stop, *j*, created in or upon the plate E of the instrument, which constitutes a fulcrum for such crank. Having thus provided a swinging or oscillating crank, I next slot or fork its arm *i*, as shown at *l*, and dispose in this fork a bolt, *m*, whose lower end screws into the plate E, and whose upper portion possesses a

shoulder, *n*, which overlaps the sides of the fork. By screwing down the bolt with a wrench or screw-driver the arm *i* is forced backward, and the wire which is secured to it is tightened, and vice versa. By this means no slip or return movement of the wire is possible, and it will remain in tune for a great length of time.

By attaching the holdfast to the metallic frame alone and constructing this holdfast of metal I gain a great advantage, as I avoid the injurious action upon the wire which results from the shrinking and swelling of the wood, in which the straining-pins are now driven.

By forking the arm *i* of the lever I am enabled to remove the lever without entirely withdrawing the tuning or screw bolt *m*, and can thus readily wind and secure the slack of the string upon the arm *h*. This is quite useful in putting in a new string.

And, secondly, these improvements consist in the construction of the agraffe-bridge of a piano-forte, whereby I greatly lessen the cost and enhance the strength and durability of this portion of the instrument, and also add somewhat to the perfection of its tone.

In carrying out the second portion of my present improvements I cast each agraffe or stud *s* as part and parcel or integral with the iron frame or plate *e*. The hole *t* in the agraffe, through which the wire passes, is drilled transversely and obliquely in order that it may bear upon the upper front corner and lower back corner of the hole *t*, thus avoiding the vibration of the string in the agraffe, as shown in the drawing. Heretofore these agraffes have been independent of the iron frame and screwed into it—a proceeding attended with considerable expense and other objections.

A modification of the construction of the holdfast is shown in section in Fig. 3 of accompanying drawings, wherein it is represented as consisting of a set-pin, *o*, of metal, to which the string is attached, inserted in the arm *h'*. Thus the string can readily be tightened by turning the said pin from the hitch-pin, and is firmly held by a ratchet, *p*.

By this means a slack of the string can be

taken up with ease, and much of the usual trouble of stringing an instrument may then be avoided.

This device of a set-pin I regard as an important feature of my invention.

Instead of the ratchet being upon the arm, it might be reversed and placed upon a shoulder or collar fixed to the pin, the catch being upon the arm.

What I claim as my improvement in stringing piano-fortes is—

1. The lever-block G, provided with the upright perforated arm *h* and the forked horizontal arm *i*, substantially as and for the purpose described.

2. In combination with the lever-block G, provided with the arm *i* and the hollow and notched arm *h'*, the string-pin *o*, having the lug or cross-pin, substantially as described.

3. The piano-forte device herein described, consisting of the lever-block G, provided with the upright arm *h* and the forked horizontal arm *i*, in combination with the stop *j* of the metal frame and the screw-bolt *m* working in the said frame, the parts being all constructed and arranged to operate substantially as described and shown.

4. The lever-block G, as described, and the screw-bolt *m*, in combination with the metal plate E, having the agraffe-bridge F, substantially as and for the purpose set forth.

OLONZO A. GAMAGE.

Witnesses:

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W. E. BOARDMAN.