M. N. GAGE.

STRINGING AND TUNING PIANOS.

No. 180,424. Patented Aug. 1, 1876.

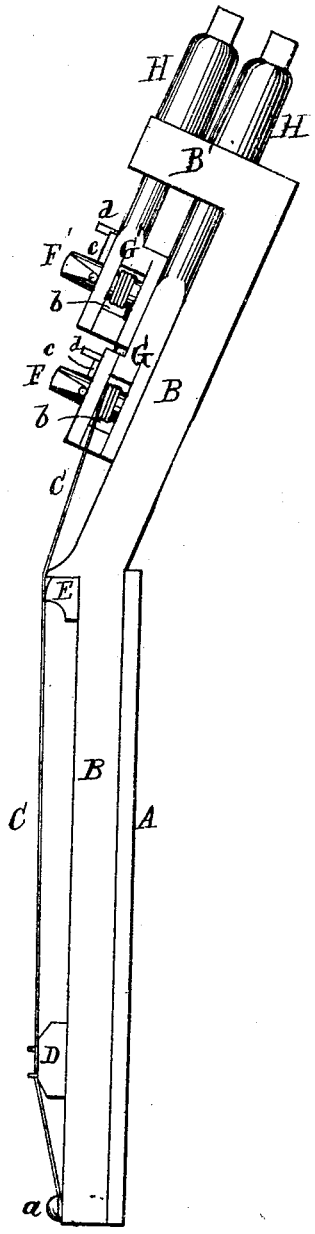

Fig. 2

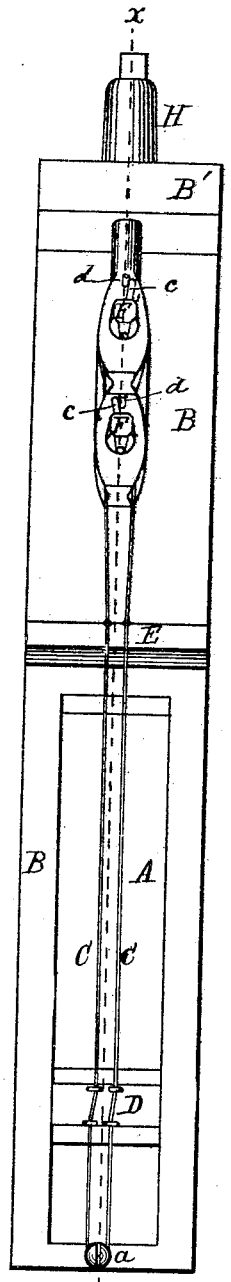

Fig. 1

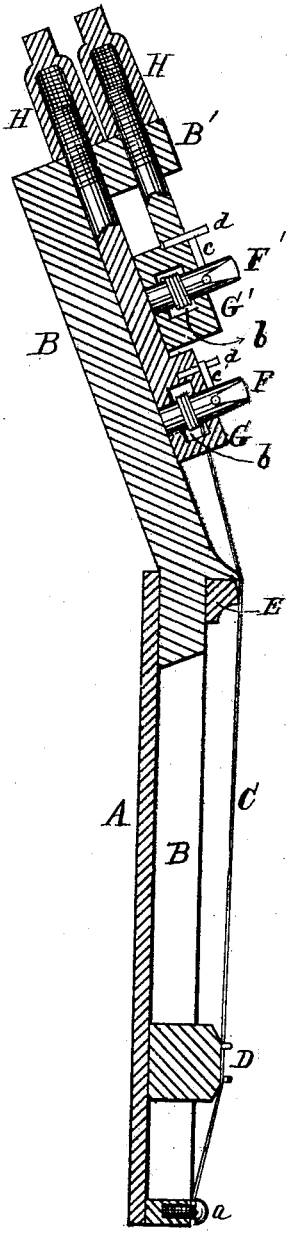

Fig. 3

WITNESSES.

W. M. P. Edwards

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UNITED STATES PATENT OFFICE.

MOSES N. GAGE, OF HYDE PARK, ASSIGNOR OF ONE-HALF HIS RIGHT TO N. C. LOMBARD, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN STRINGING AND TUNING PIANOS.

Specification forming part of Letters Patent No. **180,424**, dated August 1, 1876; application filed June 12, 1876.

To all whom it may concern:

Be it known that I, MOSES N. GAGE, of Hyde Park, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Stringing and Tuning Pianos, of which the following, taken in connection with the accompanying drawings, is a specification:

My invention relates to the devices employed for securing and straining the strings of pianos; and it consists, first, in setting the "wrest-pin," upon which the end of the string is wound, and which has heretofore been used to strain or tune the string, in a forked or slotted carrier, in such a manner that said wrest-pin shall have two bearings in said carrier, one upon either side of the space occupied by the string when wound around said wrest-pin, as will be further described.

My invention further consists in setting each of the wrest-pins in an independent carrier, provided at its rear or the side opposite to the string with a threaded bolt or shank, passing through a hole provided for the purpose in a flange projecting upward from the string-plate, in combination with a cylindrical socket-nut, provided with a square or prismatic terminus or outer end, to receive a wrench or tuning-key, said nut being provided with a female screw-thread to fit and engage with the male thread on the stem of the wrest-pin carrier, and adapted to bear against the flange of the string-plate, and, by its revolution on said stem, strain the string to the proper pitch.

Figure 1 of the drawings is a plan of a pair of piano-strings and my improved devices for attaching and tuning the same. Fig. 2 is a side elevation, and Fig. 3 is a longitudinal section on line *x x* on Fig. 1.

A represents the sounding-board, and B the string-plate, the upper portion of which is bent at an angle to the main portion, and provided with the upwardly-projecting flange B′. C is a doubled string, secured at *a* to the string-plate B, and, after being drawn over the bridge D and the nut or upper bridge E, has each of its ends passed through a hole in and wound upon one of the wrest-pins F and F′, the string which is wound upon the wrest-pin F being passed through a hole in said pin near its lower bearing and wound from the bottom upward, and the string which is wound on the wrest-pin F′ being passed through a hole in said pin near its upper bearing and wound from the top downward, as shown in Figs. 2 and 3, by which arrangement of winding and the location of the wrest-pins relative to each other, the strings between the upper bridge or nut E and the wrest-pins F and F′ all lie in the same horizontal plane, and consequently the strain of the two strings upon the two pins is much more nearly equalized than would be the case if the strings were drawn over the upper bridge or nut E at different angles.

G and G′ are the wrest-pin carriers, each provided with a horizontal slot, *b*, cut through its enlarged inner end, and a cylindrical hole at right angles to said slot and bisecting it, into which is fitted the wrest-pin F or F′, and having at its rear or upper end a cylindrical shank or bolt provided with a screw-thread to fit a corresponding female thread in the cylindrical cap-nut H. The cylindrical shank of the carrier G or G′ passes through and has its bearing in a hole formed for the purpose in the flange B′, and the inner end of the nut H bears against the rear or upper surface of said flange, and is provided at its outer end with a square or prismatic-shaped section to receive a tuning-key, by which said nut is turned to tune the strings or strain them to the proper pitch. The carriers G and G′ are made in pairs of unequal length, and are located in pairs, the shorter one, G′, being placed above and resting upon the longer one, G, as shown.

The wrest-pins F and F′ have their upper ends squared to receive a wrench or key, and have drilled through them, just above their upper bearing, two small holes, at right angles to and bisecting each other, in one of which is placed a pin, *c*, which projects radially therefrom, the outer end of which engages with a pin, *d*, set permanently in the upper side of the carrier, as shown, to prevent the wrest-pin from being rotated in its bearings by the strain of the string thereon. The strings are wound upon the wrest-pins within the slots *b*, and between the two bearings of the wrest-pin, which entirely obviates the lia-

bility of the wrest-pin to tip or bend over in the direction of the strain, as has often been the case when said pin has had but one bearing, as heretofore, and said pin may be made very much lighter, and consequently less expensive.

The strings are secured to the wrest-pins, and wound thereon till the stock is taken up, when the pins *c* are inserted to hold the wrest-pins from turning back, and the strings are brought to pitch by turning the nuts H.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. A wrest-pin for straining piano-strings, set in a forked or slotted carrier, and having two bearings therein, with the string wound thereon between said bearings, as and for the purposes described.

2. The carrier G or G′, having set therein the wrest-pin F or F′, and provided with a threaded bolt or shank, in combination with the cylindrical cap-nut H and flange B′, all arranged and adapted to operate as and for the purposes described.

3. The wrest-pins F and F′, placed one above the other, or at different heights from the surface of the string-plate, and provided with holes made transversely through their shanks to receive and hold the ends of the strings, the hole in the pin F being made just above its lower bearing, and the hole in the pin F′ just below its upper bearing, all arranged and adapted to operate as and for the purposes described.

Executed at Boston, Massachusetts, this 10th day of June, 1876.

MOSES N. GAGE.

Witnesses:

WM. P. EDWARDS,

H. E. LOMBARD.