

J. FARMER & J. B. HAMILTON.
 Strings for Musical-Instruments.

No. 160,173

Patented Feb. 23, 1875.

Fig. 1

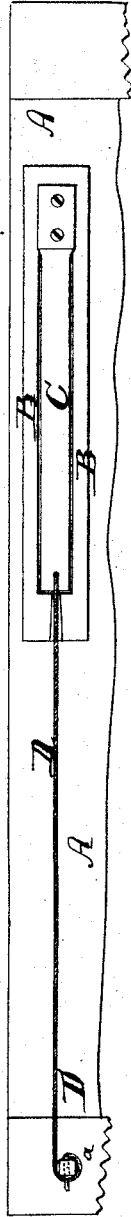


Fig. 2

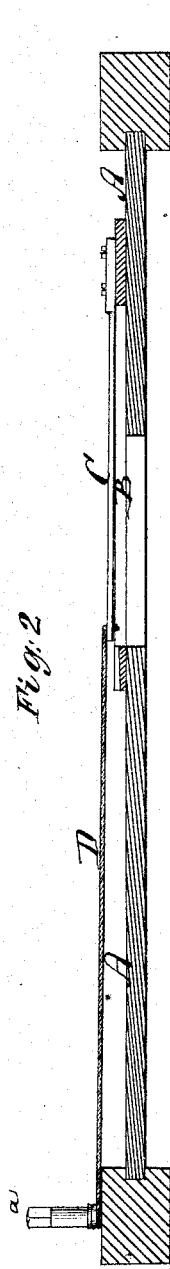


Fig. 3

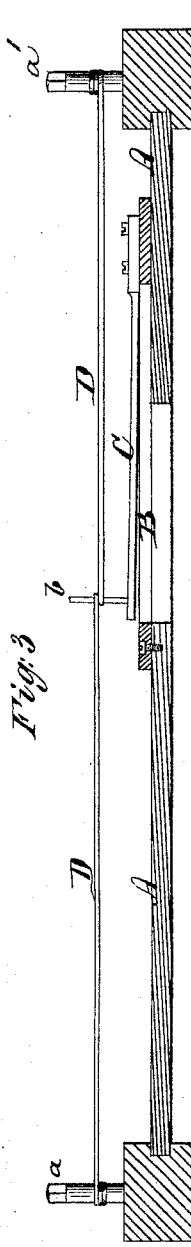
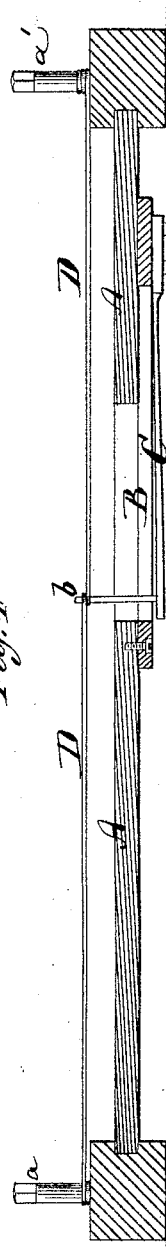


Fig. 4



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN FARMER, OF HARROW, AND JAMES BAILLIE HAMILTON, OF
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IMPROVEMENT IN STRINGS FOR MUSICAL INSTRUMENTS.

Specification forming part of Letters Patent No. **160,173**, dated February 23, 1875; application filed
June 25, 1873.

To all whom it may concern:

Be it known that we, JOHN FARMER, of Harrow, in the county of Middlesex, England, and JAMES BAILLIE HAMILTON, of University College, Oxford, England, have jointly invented Improvements in the construction of Musical Instruments, of which the following is a specification:

The object of our invention is to connect in one musical instrument the ordinary piano-string with a free reed, so that the sound created by the joint vibration of the string and reed will be louder, of longer duration, and by far more mellow and soft than a sound produced by either a string or a free reed alone.

On a combined reed and string the music may be produced either by directly operating upon the reed and making it vibrate by the action of wind, or in any other customary manner, or, also, by striking the string with a hammer, as in the ordinary piano-forte.

The modes of connection of the reed-tongue and the string will vary according to the different construction of the instruments employed, as in some the string and free reed may be situated in the same plane, while in others they may be situated in different planes.

The simplest way of connection occurs in the case when the reed-tongue and string are situated in the same plane. It is then only necessary to connect the vibrating end of the reed-tongue with the string in any desired manner, and to fasten the other end of the string to a tuning-peg. In this case the reed must be preceded by such a cavity as will cause it to vibrate on the outer surface of the same.

If, however, the free reed and string are located in different planes, we twist the string around a pin which is soldered or riveted to the vibrating end of the reed-tongue. The two ends of the string are then each connected to a tuning-peg.

Figure 1 in the drawing is a top view of the reed and string, when both are situated in the same plane. Fig. 2 is a longitudinal section through Fig. 1. Fig. 3 is a longitudinal section of the reed and string, when both are situated in different planes, the reed-tongue being above the sounding-board. Fig.

4 is a longitudinal section of the reed and string, the reed-tongue being below the sounding-board.

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

A is the sounding-board of a musical instrument, upon which a suitable number of reed-carriers or frames, B B, are secured, the sounding-board being perforated in line with the reed-tongues C and with the openings through their holders. The reed-tongues are so fastened that they will be allowed to vibrate at one end, as usual. D is a spring fastened, as in Figs. 1 and 2, with one end to the vibrating end of the reed-tongue, while the other end is fastened to a tuning-peg, *a*.

In Figs. 1, 2, and 3 the reeds are shown to be placed above the sounding-board—in Fig. 2 in line with, and in Fig. 3 below, the plane of the strings. A pin, *b*, is in the latter case fastened to the vibrating end of the tongue, and around it the string D is coiled, as shown. The two ends of the string are then both connected to the tuning-pegs *a a'*.

In Fig. 4 the reed is shown to be placed below the sounding-board A, while the string D is above said board. In this case the pin *b* is longer than in Fig. 3; otherwise the arrangement remains the same.

The sound may be produced by either moving the reed-tongue in the way reed-tongues are usually moved, so that it will impart its motion to the string, or by striking the string with a hammer, the string communicating its motion to the reed-tongue.

What we claim as our invention, and desire to secure by Letters Patent, is—

The combination, in a musical instrument, of a free reed-tongue, and a string connected with the vibrating end of the reed and to a tuning-pin, all substantially as herein shown and described.

JOHN FARMER.

JAMES BAILLIE HAMILTON.

Witnesses to the signature of JOHN FARMER:

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F. T. CALLCOTT, *Solicitor's Clerk.*