G. MORGAN.

DEVICE FOR STRINGING AND TUNING PIANO-FORTES.

No. 186,490. Patented Jan. 23, 1877.

Fig.1.

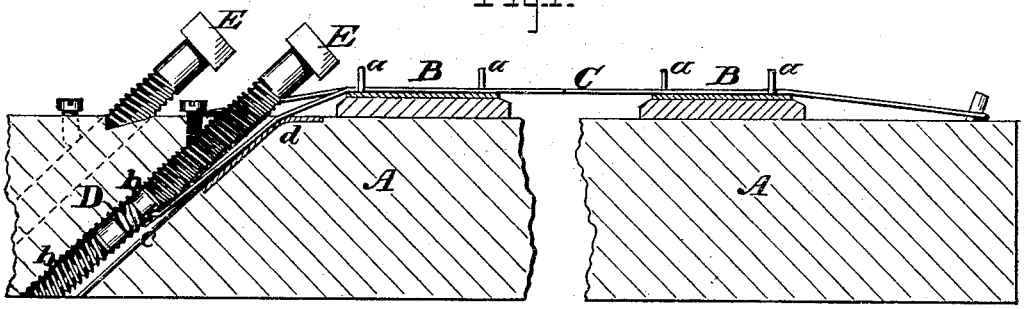


Fig.2.

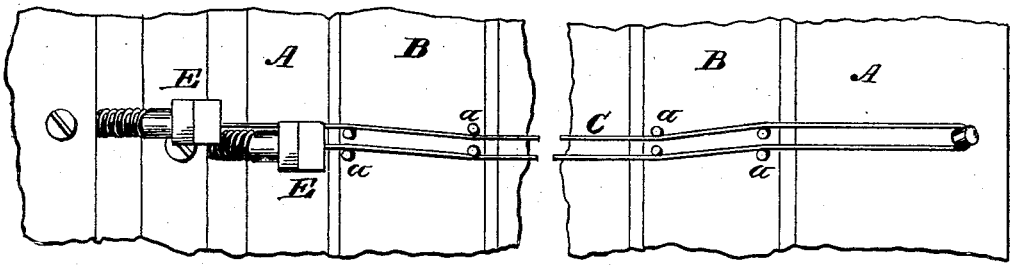
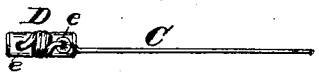


Fig.3.



ATTEST=

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UNITED STATES PATENT OFFICE

GERRY MORGAN, OF ANDOVER, NEW HAMPSHIRE.

IMPROVEMENT IN DEVICES FOR STRINGING AND TUNING PIANO-FORTES.

Specification forming part of Letters Patent No. **186,490**, dated January 23, 1877; application filed October 16, 1876.

To all whom it may concern:

Be it known that I, GERRY MORGAN, of Andover, in the county of Merrimack and State of New Hampshire, have invented certain Improvements in Apparatus for Stringing and Tuning Piano-Fortes, of which the following is a specification:

The object of this invention is to provide a means of straining the strings of pianos, that shall be convenient, expeditious, and at the same time permit of delicate and accurate adjustment in tuning; and it consists, essentially, in a female screw arranged obliquely in the frame, with a groove or slot in its lower side or wall; a string provided with a head, which fits loosely in the bore of the female screw; and an adjusting-screw, preferably provided with a blunt or flattened point, and a square head, made to fit the female screw, and arranged to screw down on the head on the wire, all as will be hereinafter more fully described.

In the drawings, Figure 1 is a vertical section through a piano-frame, showing the application of my invention. Fig. 2 is a plan of the same. Fig. 3 is a view showing a string provided with a head according to my invention.

Let A represent a piano-frame, on which the strings are strained. This frame may be of wood or metal, and may be constructed in the usual way. B B are the bridges on which the strings rest, and *a a* are the guide-pins, all arranged in the usual manner.

In place of the usual pins for holding and straining the strings, I sink holes in the frame obliquely, as shown, and thread them internally to form female screws *b b*, one for each string, as shown. In the lower side or wall of this female screw I cut a slot or groove, *c*, to receive the string C.

If the frame A is of wood, it will be necessary to provide a metal saddle, *d*, at the upper end of the groove *c*, to support the string C, and prevent it, when strained, from embedding itself in the material of the frame.

The end of the string C is combined with or attached to a head, D, which is shown in Figs. 1 and 3 as a short cylinder of metal, reduced in diameter at the center to admit a few turns of the string, and perforated transversely at *e e*. This head fits loosely in the cavity of the female screw, and the string takes hold at the side, thus leaving the end free to be acted upon by the adjusting-screw E. This screw may have an angular head to receive a wrench or nippers, and it should fit snugly in the female screw *b*.

For the sake of room, the holes *b b* may be arranged alternately in two rows, as shown.

By arranging the holes obliquely in the frame the heads of the screws E E are directed conveniently toward the tuner, and the strain on the string is more nearly in the direction of its length than if they were arranged vertically. If arranged horizontally, or parallel with the string, the screw would interfere with the latter.

In attaching the head D to the string, the end of the latter is passed through one hole, *e*, wound two or three times around the reduced central part, and then passed through the other hole *e*. The surplus may be cut off.

After the head is attached, it is simply inserted into the female screw *b* in such a way that the string rests in the groove *c*. The screw E is now screwed down upon it until the desired tension is produced.

The method of attaching the head to the wire, as described above, is a good one; but I am aware that it may be done in other ways, and I do not confine myself to that described.

I claim—

1. A head, D, attached to the end of the string, unconnected with the tuning-screw, but arranged to be operated upon by said screw, substantially as herein set forth.

2. The female screw or hole *b*, in which the head D plays, threaded on its inner surface, and provided with a string-groove, *c*, as set forth.

3. The piano-frame A, provided with internally-threaded holes *b*, arranged obliquely, as set forth, and provided with string-grooves *c*, all as and for the purposes specified.

4. The head D, provided with string-holes *e e*, and a neck or reduced central part, in combination with a string, C, and screw E, all arranged substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

GERRY MORGAN.

Witnesses:

JOHN M. SHIRLEY,

WARREN S. QUIMBY.