G. MORGAN.

DEVICE FOR STRINGING PIANOS.

No. 189,768. Patented April 17, 1877.

Fig. 1.

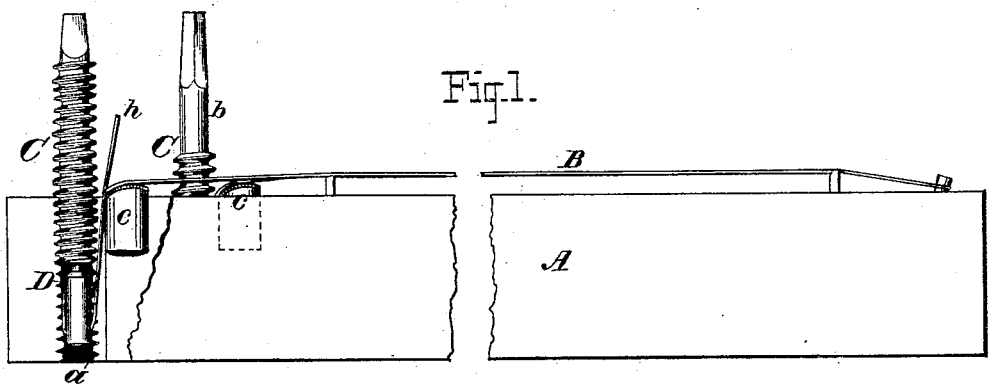


Fig. 2.

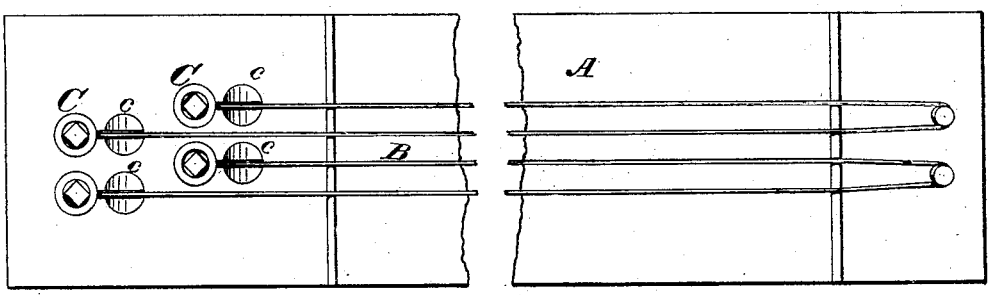


Fig. 3.

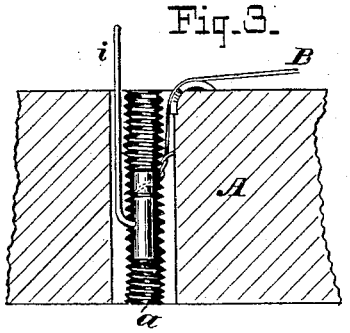


Fig. 4.

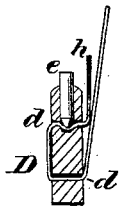
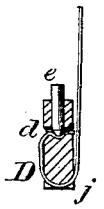


Fig. 5.



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UNITED STATES PATENT OFFICE.

GERRY MORGAN, OF ANDOVER, NEW HAMPSHIRE.

IMPROVEMENT IN DEVICES FOR STRINGING PIANOS.

Specification forming part of Letters Patent No. **189,768**, dated April 17, 1877; application filed February 5, 1877.

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:

My present invention embodies improvements on the apparatus for the same purpose patented to me January 23, 1877. These consist in and relate to the construction and arrangement of the tuning-screws, the arrangement of a glass saddle for the string to ride over, and the peculiar construction of the string-head and attachment of the string thereto, all of which will be fully hereinafter described.

In the drawings, Figure 1 is a side view, partly in section, arranged to show the application of my invention. Fig. 2 is a plan of the same. Fig. 3 is a sectional view, showing a modification. Figs. 4 and 5 are detached sectional views, showing the string-head as improved.

Let A represent the string-frame of a piano, constructed of wood or metal in the usual way, and B B the strings. In the frame, at proper points and intervals, are bored or drilled vertically holes *a a*, which are threaded to form female screws for the reception of tuning-screws C C. These latter screws are cut away above their threaded bodies to form shafts *b b* less in diameter than the holes in the frame, the object being to permit the screw to enter its whole length, if necessary, without the necessity of cutting the thread the whole length. Thus, in Fig. 1, I have shown one screw threaded nearly its entire length, while the other is threaded less than half its length, but the latter will enter just as far as the former. The upper ends of the shafts are squared to receive a socket-wrench. Just in front of the holes *a a* are set glass saddles *c c*, for the strings to ride over. These saddles are shown as short cylinders of glass, set in sockets or holes bored to fit them. The tops are slightly rounded and grooved to receive the strings. I consider glass as especially well adapted to this purpose, as it is hard, smooth, and not liable to corrode or rust.

The construction and arrangement shown are cheap, simple, and efficient, but it may be varied without any material departure from my invention.

D is the string-head. This, together with a modified form, is shown in section in Figs. 4 and 5. It is a cylinder, through which two holes are bored horizontally, as at *d d*, and another bored vertically in the upper end. Into this latter fits loosely a plunger, *e*. The end of the string is passed through the lower hole and back through the upper hole, as shown. The plunger *e* rests upon the string, and the tuning-screw rests upon the plunger, so that when the former is screwed in the latter clamps down the string, and the greater the strain thrown upon the string the tighter it is clamped by the plunger.

As a precaution against the string slipping, I prefer to sink the bottom of the vertical hole a little below the upper cross-hole, and cone the point of the plunger slightly to fit it. This enables the latter to bend the wire sharply and get a firmer hold upon it. This construction is clearly shown in Figs. 4 and 5.

The short end *h* of the string (see Figs. 1 and 4) may be allowed to project upward out of the string-groove, in order that, if the head D should, from any cause, stick fast in the hole, it may be drawn out by means of said extremity; or, if desired, the head may be provided with a wire handle or stem, *i*, as in Fig. 3, said stem being arranged to play in or occupy a groove at the back or side of the female screw *a*, as shown.

Fig. 5 differs from Fig. 4 in that the lower part is wanting, and a groove around the lower end takes the place of the lower horizontal hole *d*. The vertical hole in the head D may be a female screw, whereby the head, should it get fast in the hole, may be lifted out. The plunger fits in loosely, having no connection with the female screw, and after it is removed a suitable rod, with a male screw of proper size cut thereon, is inserted and screwed into the head and the latter drawn out.

Having thus described my present invention, I beg leave to disclaim as any part thereof the broad application of a tuning-screw and a disengaging string-head for the purpose, as

this is shown in my former patent, before mentioned; but

What I do claim is—

1. The tuning-screw C, having a portion, *b*, of its shaft between the threaded part and the wrench-shank adapted to enter the female screw *a* without injuring the threads of the same, when used substantially as and for the purposes set forth.

2. The tuning-screws C C, arranged in the frame A at right angles to the plane of the strings B B, in combination with string-heads D D, disconnected therefrom, but arranged to operate in connection therewith, substantially as herein set forth.

3. In combination with a tuning-screw engaging a female screw in the frame, a piano-string and a suitable head attached to the string, but unconnected with the tuning-screw, a glass saddle, *c*, for the string to rest upon, when all constructed and arranged substantially as herein set forth.

4. The head D, provided with a cross-hole, *d*, and a vertical or longitudinal hole in connection therewith, and a plunger, *e*, arranged to rest in the latter hole and to clamp the string, substantially as set forth.

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

GERRY MORGAN.

Witnesses:

HENRY CONNETT,

ARTHUR C. FRASER.