T. S. GOULD.

STRINGING PIANO-FORTES.

No. 193,943. Patented Aug. 7, 1877.

Fig. 1.

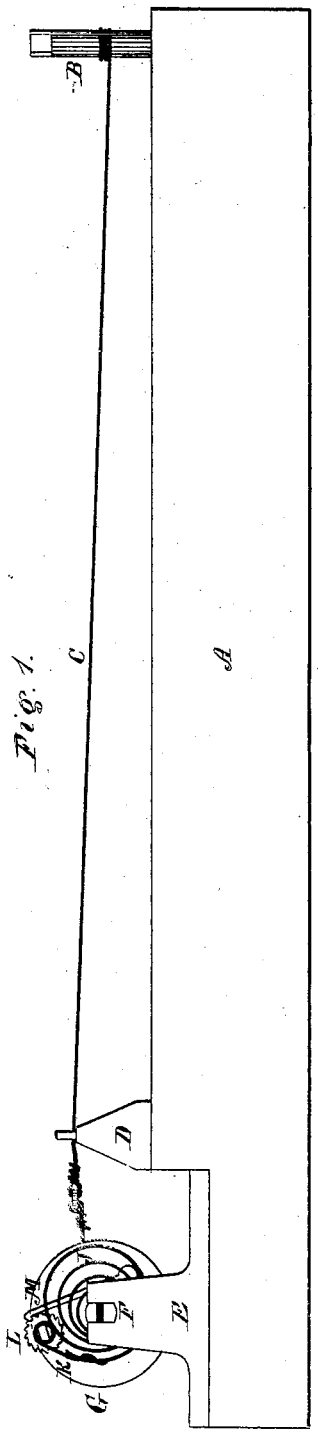


Fig. 2.

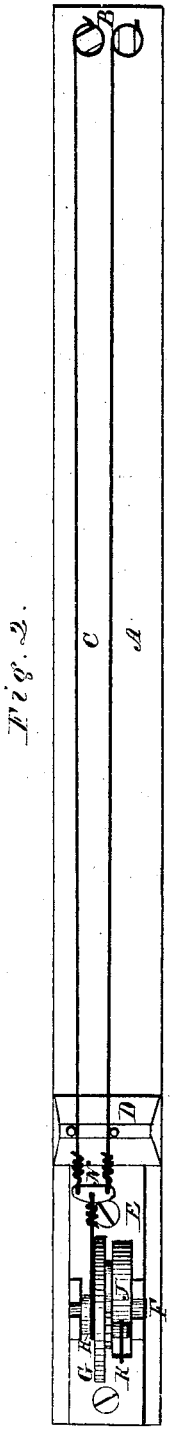
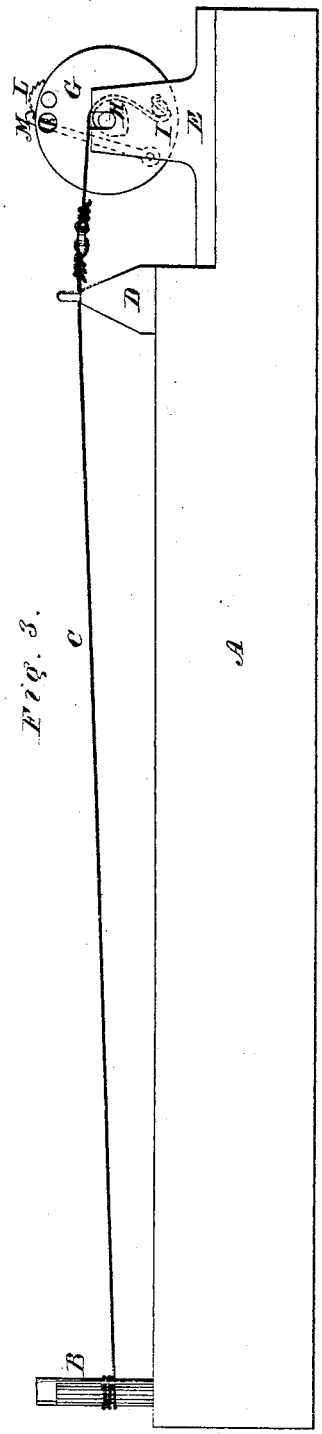


Fig. 3.



Witnesses.

Thomas L. Sampson

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UNITED STATES PATENT OFFICE.

THOMAS S. GOULD, OF HARTFORD, CONNECTICUT, ASSIGNOR TO HIMSELF AND THOMAS P. SAUNDERS, OF SAME PLACE.

IMPROVEMENT IN STRINGING PIANO-FORTES.

Specification forming part of Letters Patent No. **193,943**, dated August 7, 1877; application filed November 20, 1876.

To all whom it may concern:

Be it known that I, THOMAS S. GOULD, of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Maintaining a Uniform Tension in Piano-Strings; and I do hereby declare that the following is a full, clear, and exact description thereof, whereby a person skilled in the art can make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Like letters in the figures indicate the same parts.

My invention relates more particularly to the strings of piano-fortes, but it is also applicable to the strings of other instruments.

My improvement has for its object the keeping of such instruments in tune by making a provision for taking up the slack of the string as it becomes relaxed by stretching or by contraction of some other parts of the instrument.

My invention consists in a spring attachment which is applied to one end of the string, in such a manner that it always exerts the same force or tension upon it, whether it be slightly lengthened or shortened.

In the accompanying drawing, Figure 1 is a side view of a piano-string having my improvement attached. Fig. 2 is a top view of the same; the string is shown double, as is usual with the upper strings of a piano. Fig. 3 is a view on the opposite side from Fig. 1.

A is a block representing the frame of the piano which supports the tension of the strings. B is a pin to which one end of the string C is attached. D is a bridge over which the string passes to the apparatus for maintaining the tension. E is a standard, carrying the fixed axis F, upon which the wheel G turns. H is a volute or fusee, around which the string passes, and is attached to the pin I upon the wheel G. J is a spiral spring, one end of which is attached to the fixed axis F, and the other to the wheel G, through the medium of an adjusting device, which will be described. K is a flexible metallic band attached to the outer end of the spiral spring J, and secured to the spindle of the ratchet-wheel L, around which it winds. This ratchet-wheel turns upon a pin upon the wheel G, and is furnished with the pawl M, for holding it in position. The outer end of the spindle of the ratchet L is flattened or squared, so that it can be turned with a key. These devices K L M are for the purpose of shortening or lengthening the spring J, and thereby increasing or diminishing the tension upon the string C. The fusee H is intended to be of such a curve that any lengthening or shortening of the string C will cause it to act at such a radius as to exactly balance the force of the spring J.

My device for maintaining the tension of the string can be applied to a single string, or it can be applied to the two strings belonging to one note, as shown in Fig. 2. In this case the two strings are attached to the yoke N, and the middle of the yoke is attached by a single string to the wheel G and passes around the fusee H, as before described.

The operation of my invention is as follows: The string is attached to the pin B, and adjusted to the proper length to bring the fusee to its proper position. The string is then tuned by turning the spindle of the ratchet L, by means of a key, until the proper tension is given to the spring J. The string will then remain at the same pitch, even if it be lengthened or shortened, as it will always have the same tension exerted upon it. If the string stretches, the spring takes up the slack, and the string winds upon a slightly smaller part of the fusee, so as to counterbalance the slightly diminished force of the spring. In this manner the same exact tension and tune is constantly preserved in the string.

What I claim as my invention is—

The combination of the wheel and fusee G H, the spring J, and the adjustable device K L M with the strings of a piano-forte, substantially as herein described.

THOMAS S. GOULD.

Witnesses:

THOMAS P. SAUNDERS,

THEO. G. ELLIS.