

A. G. GARDNER.  
Piano-Stringing Device.

No. 164,988.

Patented June 29, 1875.

Fig. 1.

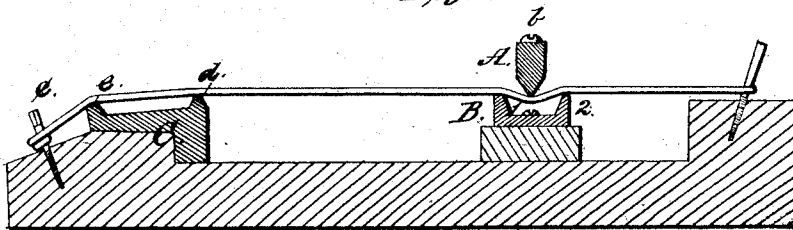


Fig. 2.

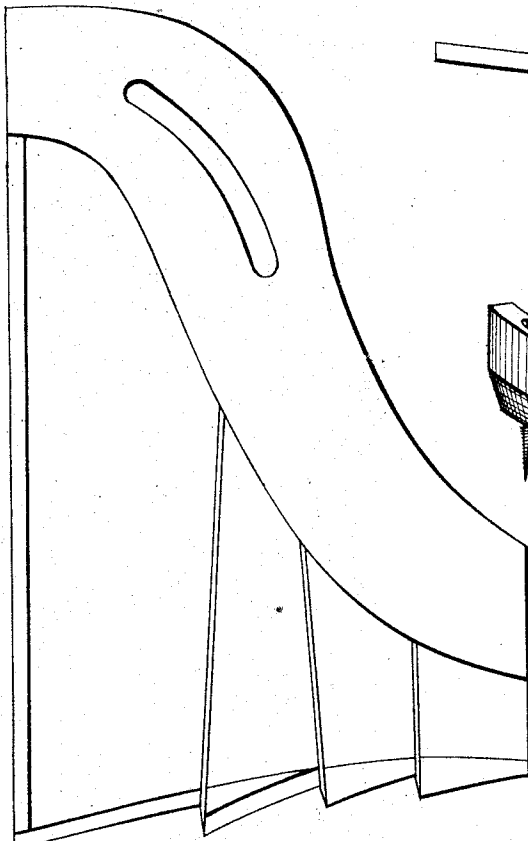
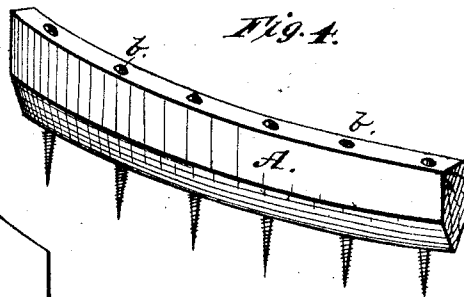


Fig. 3.



Fig. 4.



Witnesses:

J. C. Hubbell  
H. A. Jenkins

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# UNITED STATES PATENT OFFICE.

ALPHONS G. GARDNER, OF NEW ORLEANS, LOUISIANA.

## IMPROVEMENT IN PIANO-STRINGING DEVICES.

Specification forming part of Letters Patent No. **164,988**, dated June 29, 1875; application filed September 30, 1874.

*To all whom it may concern :*

Be it known that I, ALPHONS G. GARDNER, a resident of the city of New Orleans and State of Louisiana, have invented a certain new and useful Improvement in Pianos; and I do hereby declare the following to be a full, clear, and correct description of the same, reference being had to the annexed drawing, making a part of this specification.

My invention consists in the construction and arrangement, in piano-fortes, of an improved agraffe, and of a bridge provided with a single or double raised flange, over which the strings of the instrument are stretched. The said flanges are constructed of tempered steel, in order that the vibrations of notes may be much more clear and distinct.

The object of my invention is to secure a rich, pure, and powerful tone to piano-fortes and other like instruments to which my improvements may be applied.

The invention will be readily understood by referring to the drawing, whereon the same is clearly illustrated.

Figure 1 is a longitudinal section of a portion of the interior of a piano-forte, showing a cross-section of my improved agraffe and bridge, and the manner in which the strings are arranged in relation to the same. Fig. 2 is a single co-operative steel-edged bridge; suitable for "grand" pianos. Fig. 3 is a modification of the above, and is designed to be applied to upright pianos. Fig. 4 is a perspective view of the middle agraffe, showing the screws by which it is held to the bridge of the sounding-board.

My improved sounding-board-bridge agraffe is made of brass, and is constructed in two parts, as shown at A B. Upon the edges or

sides of the lower portion B raised flanges 1 and 2 are formed, for supporting the strings of the instrument, while the upper portion A is constructed with a V-shaped edge upon its lower side, the said edge resting upon the strings, which, by means of the screws *b b*, are pressed downward between the raised flanges 1 2. C is a double flanged wrest-plank bridge, of steel, over which the strings are tightly drawn and securely held by the tuning-pin *c*. The raised steel flanges *d* and *e* may be cast upon the bridge, and afterward polished and tempered; or a cheaper manner of constructing the same would be to lay piano-wire, No. 22, upon the iron frame, which in this case should have a raised flat surface of sufficient width to hold the said wire in proper position when the tension of the strings is upon it.

A piano-forte constructed with a bridge as above described will produce a twelfth or fifteenth harmonic above the principal tone as a co-operative tone.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

As an improvement in stringing devices for piano-fortes the wrest-plank bridge C of steel, and having the flanges *d e*, in combination with the sounding-board-bridge agraffe A B, the latter plate B of which is provided with the flanges 1 2, when all said parts are constructed and arranged substantially as and for the purpose set forth.

ALPHONS G. GARDNER.

Witnesses :

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