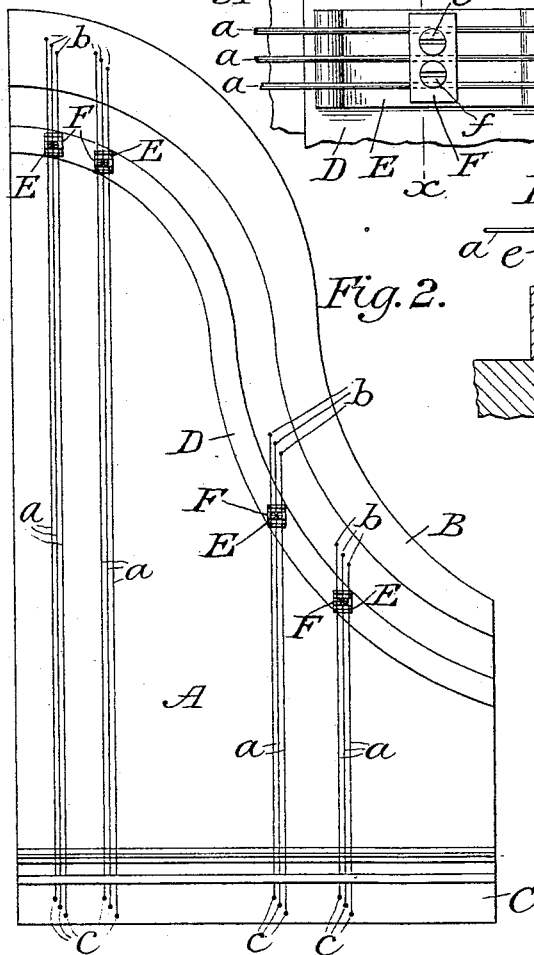
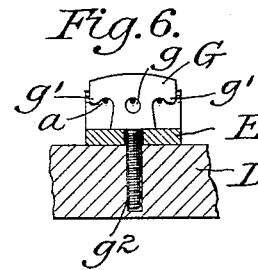
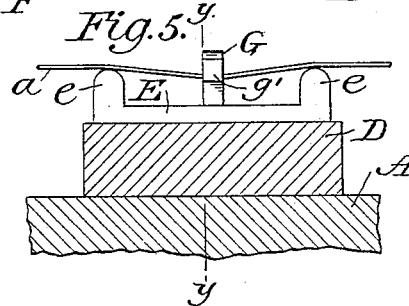
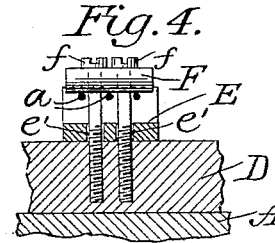
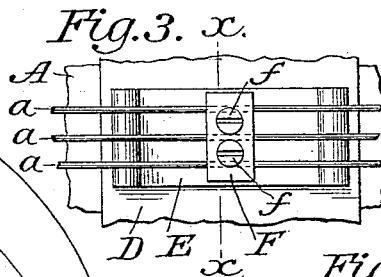
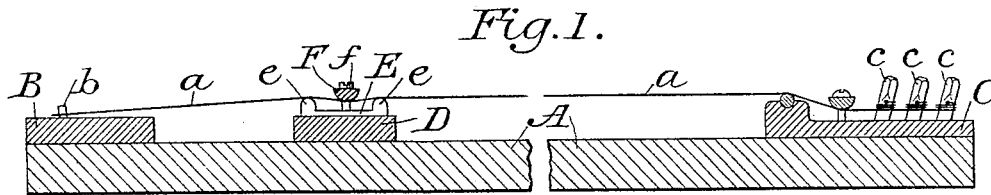


(No Model.)

A. BOLLERMANN.
PIANO STRINGING DEVICE.

No. 493,748.

Patented Mar. 21, 1893.



Witnesses:
A. N. Jesbera.
A. H. H. H.

Inventor:
Arthur Bollermann
William B Greeley
Atty

UNITED STATES PATENT OFFICE.

ARTHUR BOLLERMANN, OF NEW YORK, N. Y.

PIANO-STRINGING DEVICE.

SPECIFICATION forming part of Letters Patent No. 493,748, dated March 21, 1893.

Application filed November 14, 1892. Serial No. 451,878. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR BOLLERMANN, of the city, county, and State of New York, have invented a new and useful Improvement in Piano-Stringing Devices; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

The object of my invention is to provide an improved agraffe and bridge-bearing for the strings of pianos which shall be inexpensive and easily applied, shall entirely prevent torsional strain on the sounding-board, shall furnish a metallic bearing for the strings, and shall permit all of the strings of a given note to be of equal length between the bridge and the hitch-pin plank and the wrest-plank, thereby greatly improving the purity of the tone.

In the drawings: Figure 1 is a longitudinal section through the sounding-board of the piano showing a string stretched on the same. Fig. 2 is an outline plan view of the sounding-board of a piano indicating in the general way the application of my improvement. Fig. 3 is a detail plan view of a construction shown in Fig. 1, but, on a larger scale. Fig. 4 is a section on the line $x-x$ of Fig. 3. Fig. 5 is a detail view in longitudinal section of my improvement. Fig. 6 is a section on the line $y-y$ of Fig. 5.

The strings a are stretched as shown from the hitch-pins b in the plank B to the wrest-pins c in the wrest-plank C, and between the two points lie over the bridge D. Usually the strings lie directly upon the upper surface of the bridge and as the latter is curved the strings lie across it at different angles with the result that the two or three strings of a single note are of different lengths. Furthermore the quality of the tone is impaired by the fact that the strings do not rest, as they should, upon a point only. Accordingly I provide for the strings of each single set or note an independent metal under-layer E having two flanges e, e , upon which the strings rest rather than upon the bridge itself. As each under-layer is entirely independent of every other under-layer of the bridge it may

be so placed in every case, as indicated in Fig. 2, that its flanges are at right angles to the line of the strings crossing it.

The strings are slightly depressed between the flanges e, e , and are held firmly in contact with them by an independent bearer for each under-layer. As shown in Figs. 1, 2, 3 and 4 the bearer consists of a half-round bar F which is held in place by two screws f which pass between the strings and through holes e' in the under-layer into the bridge D. I prefer, however, the form of bearer which is shown in Figs. 5 and 6 because of its greater simplicity and ease in application. In this case the bearer is composed of a bar or plate G having a central aperture g and two lateral notches g', g' , and a single centrally disposed screw-threaded shank g^2 . With the bearer shown in Figs. 3 and 4 the two screws and their holes are necessary and the strings must be put in place before the bearer plate, but with the form shown in Figs. 5 and 6 the bearer is put in place first and the strings stretched subsequently, one being passed through the central aperture g and the others slipped into the lateral notches g' . In either case the screw which holds the bearer also keeps the under-layer in place.

It is evident that as the string rests at two points upon the bridge with the bearer between there can be no torsional strain of any description upon the bridge. Furthermore, as every string crosses the flanges of the under-layer at a right angle therewith it rests as nearly as may be upon a single point and buzzing of the string is thereby entirely prevented.

I am aware that it has been proposed to carve the top of the bridge to form a series of ridges at right angles to the strings, but the carving of the bridge is in the end more expensive than my under-layer and the strings will moreover quickly cut into the wood to the injury of the tone.

I claim as my invention—

1. In a piano, the combination with the sounding-board, the bridge, and the strings, of an independent, metallic under-layer for each string or set of strings, and a cooperating independent bearer composed of a bar or plate having a central perforation, two lateral

notches, and a screw-threaded shank to pass through the under-layer into the bridge, substantially as shown and described.

2. A bearer for piano strings composed of a
5 plate or bar having a central perforation and two lateral notches, and a centrally disposed screw-threaded shank, substantially as shown and described.

In testimony whereof I have signed my name to this specification in the presence of 10 two subscribing witnesses.

ARTHUR BOLLERMANN.

Witnesses:

A. N. JESBERA,
A. WIDDER.