

H. W. HAFFER & J. O. LOVE.
PIANO STRING CLAMP.

No. 550,268.

Patented Nov. 26, 1895.

Fig. 1.

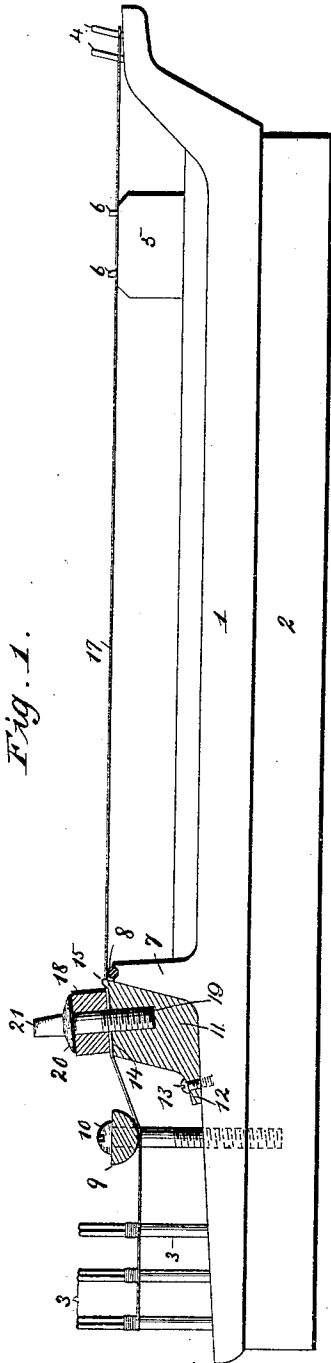
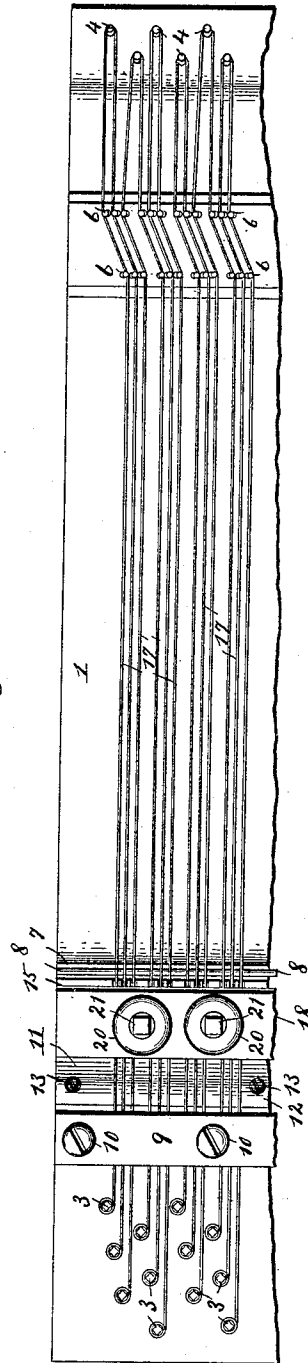


Fig. 2.



Witnesses:

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Inventors:

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By Higdon & Higdon
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Fig. 3.

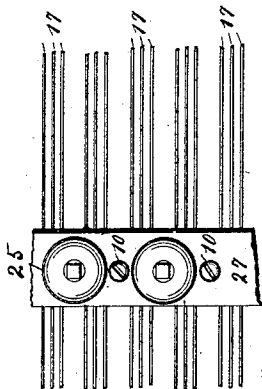
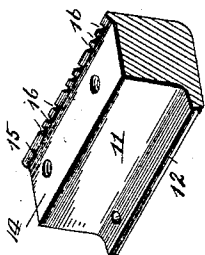


Fig. 6.

Witnesses:

F. G. Fischer
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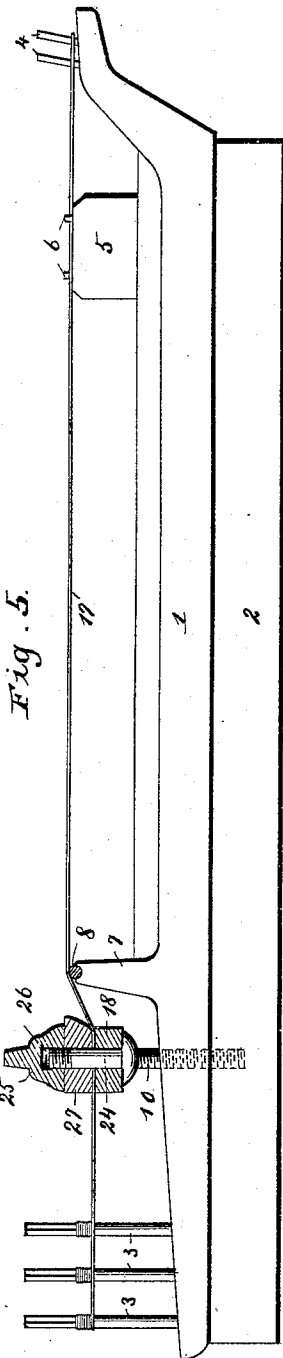


Fig. 5.

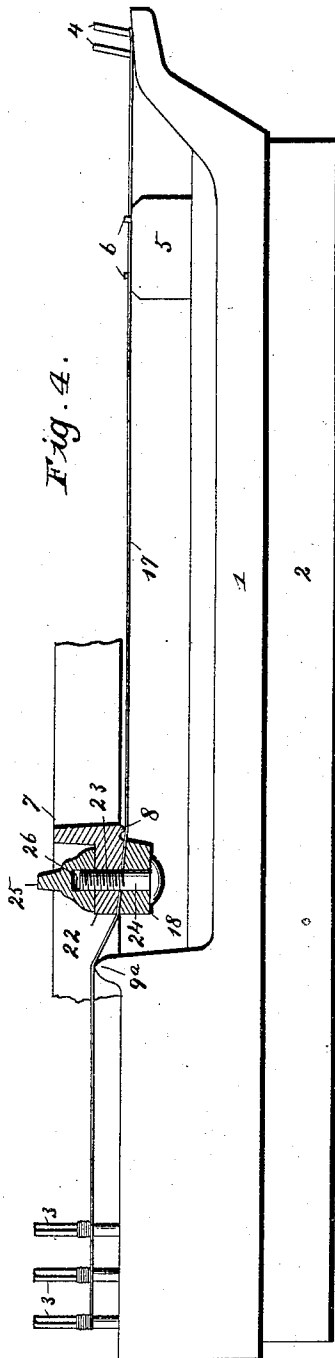


Fig. 4.

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UNITED STATES PATENT OFFICE.

HOWARD W. HAFFER AND JESSE O. LOVE, OF FORT SCOTT, KANSAS.

PIANO-STRING CLAMP.

SPECIFICATION forming part of Letters Patent No. 550,268, dated November 26, 1895.

Application filed March 14, 1895. Serial No. 541,822. (No model.)

To all whom it may concern:

Be it known that we, HOWARD W. HAFFER and JESSE O. LOVE, of Fort Scott, Bourbon county, Kansas, have invented certain new and useful Improvements in Piano-String Clamps, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part thereof.

Our invention relates to piano-string clamps, and has for its object to obviate all chance of the strings slipping over the bridge, and thus losing their proper tone, even though the tuning-pins slip or bend or the press-bar yields to the immense pressure of the strings, by locating our improved clamp contiguous to the bridge of the instrument on the side occupied by the tuning-pins—in fact, in the place usually occupied by the press-bar, which in our preferred form of the two forms herewith illustrated is moved nearer the tuning-pins.

Other objects of the invention in point of strength, durability, and, comparatively speaking, of inexpensiveness will appear in the following description, and the novel features of construction and arrangement will be pointed out in the appended claims.

Referring now to the accompanying drawings, which illustrate the invention, Figure 1 is a view in side elevation of a metallic frame which sustains the immense strain of the tensioned strings, and also shows the contiguous parts, the press-bar and the clamp embodying our invention being shown in section. Fig. 2 is a top plan view of the construction shown in Fig. 1. Fig. 3 is a perspective view of a portion of the lower jaw of the clamp. Fig. 4 is a view in side elevation of a portion of the metallic frame and the contiguous parts of a grand piano, the bridge-bar and the string-clamp embodying our invention being shown in section. Fig. 5 is a view similar to Fig. 1, but of a modified form of construction; and Fig. 6 is a plan view of a portion of the same.

In the said drawings, 1 designate the metallic frame, 2 the sounding-board, 3 the tuning-pins, and 4 the hitching-pins, of an ordinary upright piano.

5 designates the sounding-board bridge, and

6 the guide-pins projecting upwardly therefrom.

7 designates the upwardly-projecting bridge, and mounted upon the upper end of the same is the bridge bead or rod 8. Arranged at some distance from said bridge at the side occupied by the tuning-pins is the ordinary semicylindrical press-bar 9, which is held firmly down upon the strings by the screws 10.

Referring now particularly to the construction of our improved string-clamp, 11 designates the lower jaw thereof, which is approximately rectangular in cross-section and fits snugly upon the frame and the bridge 7 between the same and the press-bar. Said jaw is formed longitudinally with a flange or foot portion 12, through which extend screw-bolts 13 into the frame 1 to clamp the jaw firmly in position. The upper surface of said jaw preferably inclines slightly downward from the bearing-surface of the bridge-bead 8, as shown at 14, and at the corner or margin contiguous to said bead is provided with an upwardly-projecting flange 15, which is notched at intervals, as at 16, to receive and guide the strings 17 properly to position upon the bead, these notches being preferably V-shaped or flaring and having their lower ends or bottom in the plane of the upper surface 14 of the jaw, so that the string can lie flatly upon said jaw for its entire width. The strings 17 in the customary manner are attached at their opposite ends to the tuning-pins, are deflected by the pins 6, and extend around the hitching-pins 4. The bearing or curved surface of the press-bar 9 occupies a plane below the upper surface 14 of said jaw, so that the strings shall incline downwardly from said jaw to the press-bar in the ordinary manner and then extend horizontal to the tuning-pins.

18 designates the upper or adjustable jaw of the clamp, and it may be formed in the shape of a continuous bar or in sections, as found most convenient in practice, and extending through said bar at intervals and through alternating registering-spaces, which separate the sets of strings, forming each a single tone of the instrument, are bolts 19, which engage threaded sockets in the lower jaw 11, and in order that said bolts may be

thoroughly effective in clamping the jaw 18 down upon the strings resting upon the lower jaw 11 they are provided with annular heads 20, engaging the upper side of the jaw 18, of such diameter that they overlap the two contiguous sets of strings, as shown clearly in Fig. 2, and in order that said bolts may be operated either up or down rectangular lugs 21 project upwardly from the heads 20, which may be engaged by a wrench or with the ordinary tuning-hammer.

From the above construction it will be apparent that after the instrument is properly tuned in the ordinary manner we bring or clamp the upper jaw 18 firmly down upon the lower jaw 11 and thus secure the nodal line of said strings against any possibility of change by the slipping over the bridge-bead of the strings, due to the slipping or bending of the tuning-pins or to the press-bar yielding, so that the instrument cannot get out of tune from either of the causes mentioned. In fact, the clamp is so positive and reliable in its action that one or any number of strings may be entirely disengaged from the tuning-pins without the tone of the instrument being affected in the slightest degree. By notching the lower jaw of the instrument, as described, the strings are secured in absolutely parallel lines, so that there is no possibility of the instrument getting out of tune by any lateral movement of the strings.

Referring now to Fig. 4, particularly, which represents a portion of a grand piano, 22 designates the stationary jaw of our improved clamp. In this connection we preferably form it integral with the bridge-bar 7 and provide it at intervals corresponding in position to the threaded sockets of the bar 11 with vertical apertures 23. The movable jaw 18 of the clamp in this instance is shown as below the strings, which rest against the under side of the jaw 22, and extending vertically upward through the jaw 18 and the apertures 23 of the jaw 22 are bolts 24, which engage threaded sockets 26 in caps 25, which rest upon the upper side of the jaw 22 and are provided with rectangular lugs or extensions to be engaged by a wrench or tuning-hammer, whereby the lower jaw is clamped firmly and securely upon that portion of the string resting against the under side of the jaw 22. In this case the strings extend preferably in an inclined plane upward from the bead or edge 8 of the bridge 7 to the opposite side of the clamp and from said side upwardly and over the press-bar 9^a, corresponding in function to the press-bar 9, but in this instance preferably cast integral with the frame 1 and extending from said press-bar 9^a back to the pins 3 in the ordinary manner. It will be apparent with this construction, as with that previously described, when the strings are once properly tuned and clamped that it will be impossible for the instrument to get out of tune by reason of the slipping of the strings

over the bridge 8. It is also manifest that the construction just described is precisely the same as that formerly described, except that it is necessarily inverted for application to the upper register of a grand piano, and that for convenience the bolts must be drawn upward by threaded caps or nuts.

Referring to the modified form illustrated in Figs. 5 and 6, it will be noticed that we construct our clamp to act simultaneously as a press-bar and a string-clamp, and thus dispense with the usual press-bar, as illustrated at 9 in Figs. 1 and 2. In this case also the clamp is located at a little distance from the bridge 7, and is constructed as follows: 27 designates a jaw, which corresponds in position and function to the ordinary press-bar, but is formed with a flat face at its lower side for engagement with the strings of the instrument, and this press-bar is forced down to the proper position by means of the ordinary press-bar screws 10, as shown most clearly in Figs. 5 and 6, said screws being alternately arranged with reference to the spaces between the strings representing each tone of the instrument, as hereinbefore explained. 18 designates the other jaw of the clamp, which is arranged at the under side of the strings and of the clamping press-bar 27, and extending vertically through passages which register with spaces between the strings representing each tone are the bolts 24, said bolts being arranged alternately with the screws 10. The upper ends of said bolts engage threaded sockets 26 in caps or nuts 25, which, as before, are provided with upwardly-projecting lugs for engagement with a wrench or with an ordinary tuning-hammer. With this construction it will be apparent that the strings, after being forced down to the proper position by the upper or press jaw of the clamp, are properly tuned and are then rigidly clamped, so that the nodal point of each string will remain unchanged by means of the lower jaw 18 being clamped tightly against that portion of the strings resting against the under side of the press-jaw.

It is understood that the clamping device will be employed to clamp the strings against the under side of the bridge in the upper register of some upright pianos, but more especially in the upper register of grand pianos. When applying our clamping device as an attachment to an ordinary upright piano or to a grand piano, it is to be understood that the jaws 11 and 22, respectively, will be secured to the bridge-bars of the frame in any suitable manner, but also that we contemplate the construction of metallic frames with said bars as an integral part thereof. It is furthermore to be understood that various changes in form, arrangement, and detail construction of the parts may be made without departing from the essential spirit and scope of our invention or sacrificing any of its advantages.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

5 1. A piano string clamp, comprising a jaw arranged contiguous to the bridge-bar of the instrument, having its upper surface inclin-
10 ing downwardly from said bridge-bar and an upwardly-projecting flange in close proximity to the crest of the bridge-bar, which flange is notched to receive the strings of the instru-
15 ment, that said strings may lie flat upon the said jaw and be held from lateral movement, a second jaw arranged at the opposite side of said strings and opposing the first-mentioned
20 jaw, and bolts engaging said jaws and clamping them firmly upon the interposed strings, substantially as set forth.

2. In a piano string clamp, the combination

with the frame, the bridge-bar, the tuning-pins, and the press-bar arranged between the 20 tuning-pins and the bridge-bar, of a clamp arranged between the bridge-bar and the press-bar, consisting of a jaw against and upon which the strings lie, a second jaw ar-
25 ranged at the opposite side of said strings and opposing the first-mentioned jaw, and means to clamp said jaws firmly and securely together, substantially as set forth.

In testimony whereof we affix our signatures in the presence of two witnesses.

HOWARD W. HAFFER.
JESSE O. LOVE.

Witnesses:

FRANK A. WAVE,
WM. T. SEAGRAVES.