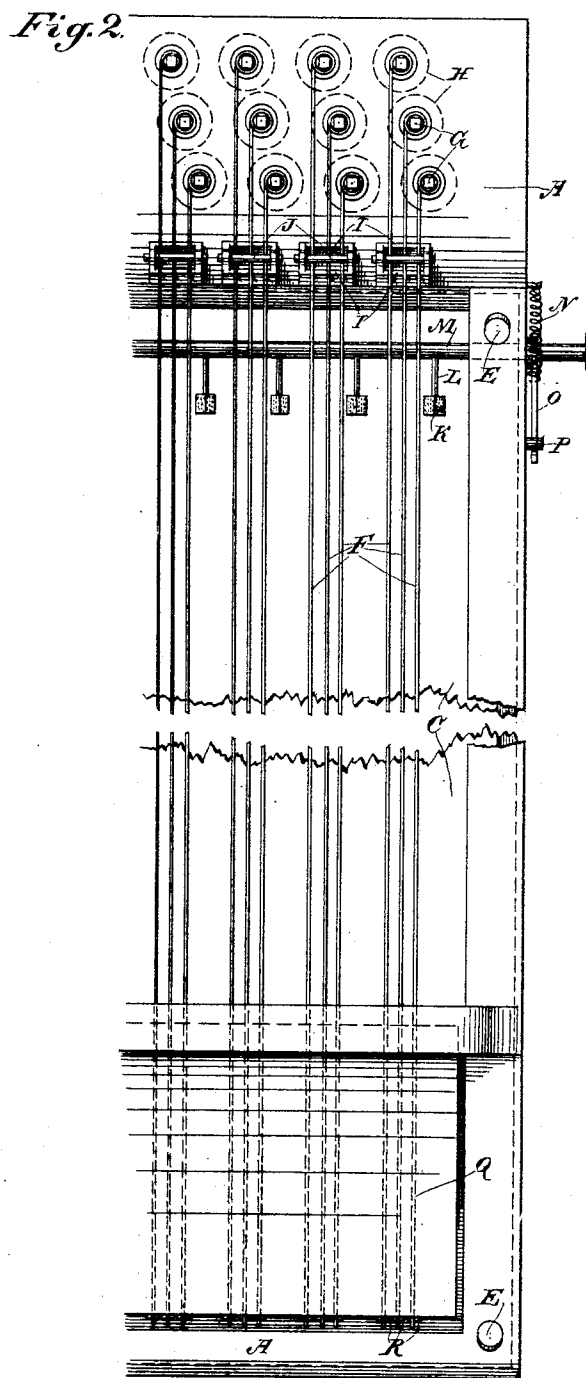
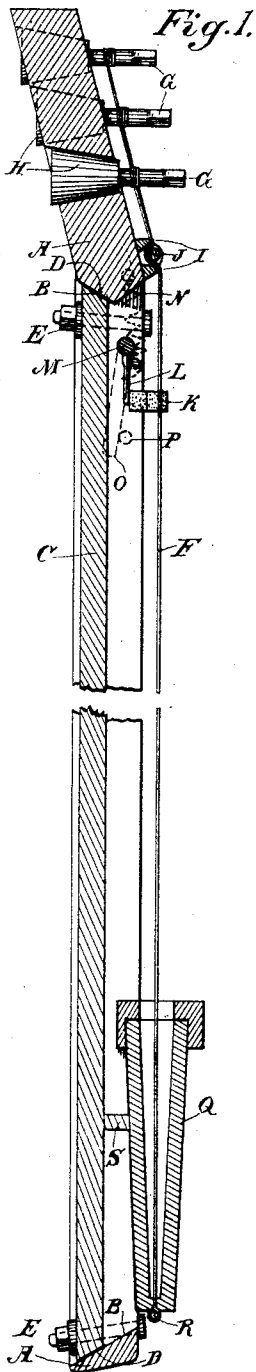


(No Model.)

H. MÜLLER.
PIANO.

No. 512,048.

Patented Jan. 2, 1894.



Witnesses,
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UNITED STATES PATENT OFFICE.

HENRY MÜLLER, OF STOCKTON, CALIFORNIA.

PIANO.

SPECIFICATION forming part of Letters Patent No. 512,048, dated January 2, 1894.

Application filed August 15, 1892. Serial No. 443,131. (No model.)

To all whom it may concern:

Be it known that I, HENRY MÜLLER, a citizen of the United States, residing at Stockton, San Joaquin county, State of California, have invented an Improvement in Pianos; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to certain improvements in pianos, and it consists in details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a vertical section taken through the iron frame and the sounding-board, showing details of construction. Fig. 2 is a front elevation of a part of the same.

The object of my invention is to provide certain improvements in the manner of fixing the sounding-board to the iron frame; a means for holding the tuning pins in the frame and automatically keeping them tight; a sounding-box or resonance conductor within which the opposite ends of the strings from the tuning pins are secured, and an improved agraffe, together with adjustable dampers.

My present illustrations are designed to show the application of my invention to an upright piano, but it will be manifest that it may be equally applied to square, grand or other forms, if desired.

A is the iron frame of the piano made in the usual or any suitable manner, but having the rear side formed with beveled or inclined faces B.

The sounding-board C has the outside periphery which comes in contact with the iron frame made with a corresponding bevel to that of the inside of the frame, as shown at D, and when the sounding-board is drawn into place within this bevel frame by means of bolts E, any desired degree of compressive force may be exerted upon the sounding-board from all sides, the effect of this being shown by experience to improve the effective qualities of the sounding-board.

The attachment is simple, and the board is easily removed or the compression upon it increased at will.

The upper end of the iron frame A is inclined backward with reference to the body portion, so that after passing the bridges at

the upper end, the strings F will be inclined backwardly from the bridges.

The tuning pins G have conical bases H, the rear ends of which are of the greatest diameter, and these cones fit into correspondingly shaped holes bored in the frame, so that the pins project from the front side of the frame as shown. The strings F are fixed to and coiled around these pins as shown in the drawings, so that the coils about the pin are above that portion of the string which approaches the pin from the straight line, and any turn of the pins will tend to wind the strings about them below that portion which is already coiled upon them. This keeps the straight portion of the string low down upon the pins, and by reason of the inclination of the wrest-plate the tendency of these strings will be to pull the pins upwardly, thus making a tight fit of the cones within the frame, and preventing their slipping or becoming loose therein.

The agraffe is formed by passing the strings over two bridges I, which I have shown formed in a single casting through the ends of which passes a pin J in such a way that the strings pass beneath this pin, and then over the bridges I upon each side of it, thus holding the strings firmly upon the bridges, and keeping them in perfect contact at all times.

In the ordinary construction of pianos, the opposite ends of the strings from the tuning pins, pass over suitable pins fastened to the frame, and thence over bridges which rest upon the sounding-board. These bridges must be placed at some little distance from the pins, and the strings are thus correspondingly shortened. In my present invention, I have overcome this difficulty by making what may be termed a resonance or sound-box Q. This box is of shallow depth, and its front end is firmly supported by a bridge S, which extends across and forms a part of the frame of the instrument. The inner or rear end of the box has pins, as shown at R, to which the ends of the strings F are secured within the box. The front edge of the box has a slot or opening through which the strings pass, sufficient space being given for their vibration without touching. The side of the box nearest the sounding-board has a bridge S extending

from it to the sounding-board, through which a proper vibration is communicated to the sounding-board to aid in bringing out the tone of the strings.

5 It will be seen that by attaching the strings to the pins R at the extreme lower end of the frame, I am enabled to employ the full length of the string, and thus obtain the advantage of the vibration of the longest possible string
10 that can be used upon any particular size of frame.

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

15 1. In a piano, the iron frame having the beveled or inclined interior faces, in combination with a sounding-board the edges of which fit these inclines, and screw bolts at right angles with the sounding-board, whereby the sound-
20 ing-board is drawn inwardly against these inclined faces, substantially as herein described.

2. In a piano, a frame beveled around its interior periphery, a sound board fitting within
25 said beveled sides, and a mechanism by which the board is forced inward against the beveled sides of the frame, whereby a continuous pressure is applied around the periphery of the board to compress it toward the center,
30 substantially as herein described.

3. In a piano, the frame having the tuning pin supporting portion inclined backwardly or standing at an angle from the main portion, conical holes made therein having the
35 largest diameter upon the rear side, cones fitting said holes with pins projecting to the front, adapted to receive the ends of the strings which are coiled upon them, substantially as
40 herein described.

4. A mechanism whereby the tuning pins of a piano are automatically kept tight in the

iron frame, consisting of the frame having that portion to which the pins are secured inclined backwardly at an angle with the face of the main portion of the frame, conical holes
45 made through said inclined portion with the largest diameter at the back, cones fitting said holes having pins projecting to the front from them, and strings extending across the piano
50 and its bridges along the inclined portion and around said pins below the plane of the main portion of the piano, substantially as herein described.

5. In a piano, the iron frame, the sounding-board connected therewith, strings having one
55 end coiled upon tuning pins, in combination with a hollow box secured to the opposite end of the frame with pins at the extreme inner end to which the strings are attached, a slot in the front end through which the strings
60 pass into the box without contact therewith, and a bridge between the box and the sounding-board, substantially as herein described.

6. In a piano, the frame, sounding-board, and strings, and tuning pins made tapering
65 from the rear to the front with the smaller portion adapted to receive the strings, conical holes made in the frame to receive the tapering parts of the pins, bridges made in pairs with intermediate depression pins beneath
70 which the strings pass between the bridges, whereby the latter are held firmly to the frame, and the string incline toward the frame where they connect with the tuning pins behind the
75 rearmost bridge, substantially as described.

In witness whereof I have hereunto set my hand.

HENRY MÜLLER.

Witnesses:

L. M. CUTTING,
FRANCIS CUTTING.