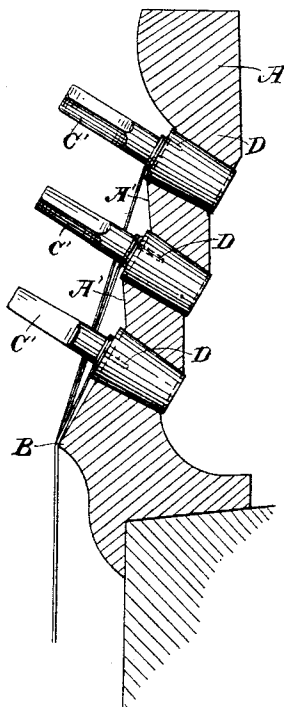


(No Model.)

H. MÜLLER.
TUNING PIN.

No. 541,624.

Patented June 25, 1895.



Witnesses,
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UNITED STATES PATENT OFFICE.

HENRY MÜLLER, OF SAN FRANCISCO, CALIFORNIA.

TUNING-PIN.

SPECIFICATION forming part of Letters Patent No. 541,624, dated June 25, 1895.

Application filed June 18, 1894. Serial No. 514,982. (No model.)

To all whom it may concern:

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

My invention relates to a tuning pin for musical instruments, and is especially adapted for pianos.

It consists in certain details of construction which will be more fully explained by reference to the accompanying drawing, in which the figure is a sectional view of part of the wrest plank, showing its construction and the application of the tuning-pins as used in an upright piano.

The object of my invention is to so construct the tuning pin and apply it to the wrest plank, that the angle and tension of the string serve to hold the pin in place and keep it continually tight in the wrest plank.

A is the wrest plank having a bridge B over which the strings pass before reaching the tuning pins. The wrest plank is inclined at an obtuse angle from the bridge, and has inclined conical holes made in it adapted to receive the conical portion of the tuning pins which are accurately fitted to the conical holes. These holes are bored with the largest diameter on the outer or upper face so that the pins are set in from the front or top. When applied to upright pianos, they are set in from the front, and when used for grand or horizontally strung pianos, they are set in from the top.

The portion of the pin C' around which the strings are wound is of smaller diameter than the conical part, and the string is secured to the pin either by a hole bored transversely through the pin in the usual way, or preferably by boring a hole into the end of the larger part of the cone by the side of the pin, so that the end of the string can be inserted and the angle or bend of the string where it passes around the pin from this securing hole is not as sharp.

The string winds outward upon the pin from the base of the cone, and as it leaves the pin, the string extends from the pin to the bridge B as shown.

The inclination of the axes of the pins and cones is greater than the inclination of that portion of the wrest plank into which the cones are inserted, so that the angle made by the strings as they pass back from the bridge B and the axial lines of the tuning pins will be an acute angle, and this acts to force the cone firmly into its seat, and retain the pins in place with sufficient pressure.

In order to form the portion of the wrest plank which receives the pins, in such a way as to produce the proper angle of the pins, it will be seen that each of the pin seats has an inclination greater than the general plane of this portion of the wrest plank. Consequently, the wrest plank is made in a series of steps, the steps in which the cones are inserted having a sharper inclination than the intermediate parts, in order to allow the cones and pins to be set at such an angle as to form an acute angle with the strings passing back from the bridge B, while the intermediate portion A' between the rows of pins, has a different angle, as shown, so that this portion of the wrest plank appears to form a series of corrugations or steps, first, having a sharp incline backward, forming a ledge into which the tuning pins are inserted, then an angle upward from the lower edge of this step to the beginning of the next pin receiving portion, then another sharp angle backward, and so on to all the rows of pins that may be used. It will be seen from this construction, that while the tuning pins stand at a right angle with the faces of the steps in which they are placed, they are at a greater than right angle with the general inclination of this part of the wrest plank, and, consequently, they stand as before stated so as to form an acute angle with the line of the strings as they pass backward from the bridge B. This insures a sufficient tension to hold the pins at all times firmly in their seats, and they are easily removed from above, as soon as the strings are loosened. By this arrangement of steps, it will be seen that each succeeding row of pins is raised or advanced with relation to the next preceding row so that while the relative angle of the strings to the axis of the pins in each row remains approximately the same, it is not necessary to make provision for so sharp an inclination of the whole of this part

of the wrest plank as to make it inconvenient in construction.

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

10 In a tuning device for musical instruments, a wrest plank having alternate steps or corrugations inclining backwardly from the bridge and adapted to receive the conical enlarged portion of the tuning pins which are inserted therein with the bases uppermost, means for securing the strings to the pins so that the strings are coiled around the pins upwardly

from the point of attachment, said pins and cones fitting into holes in the alternate steps 15 of the wrest plank so as to stand at an inclination backward whereby the line of the strings from the bridge to the pins forms an acute angle with the axes of the latter.

In witness whereof I have hereunto set my 20 hand.

HENRY MÜLLER.

Witnesses:

S. H. NOURSE,
J. A. BAYLESS.