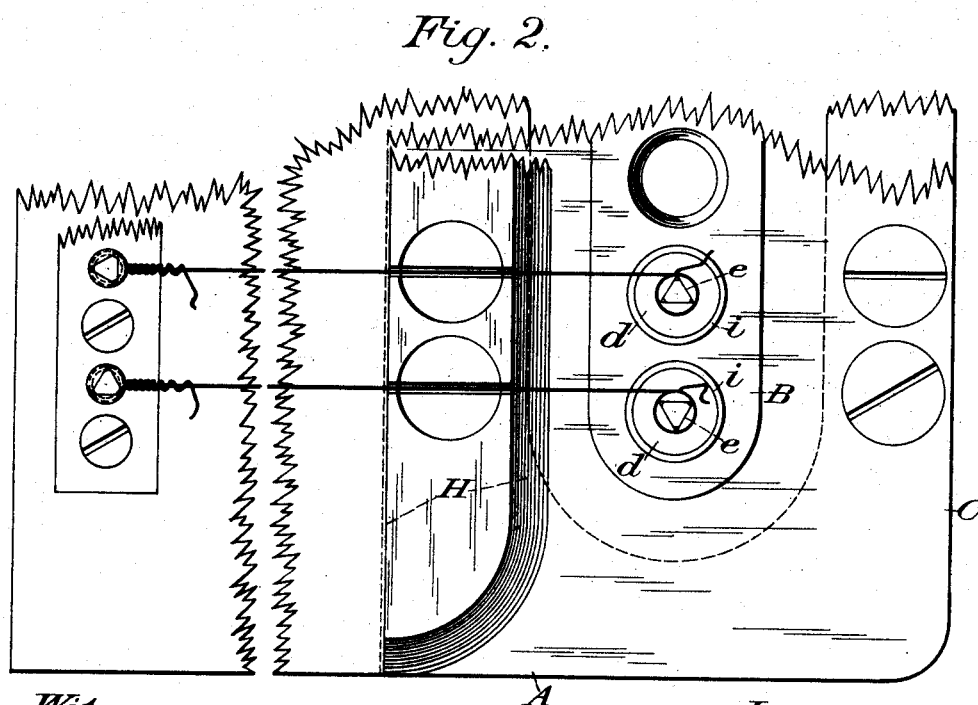
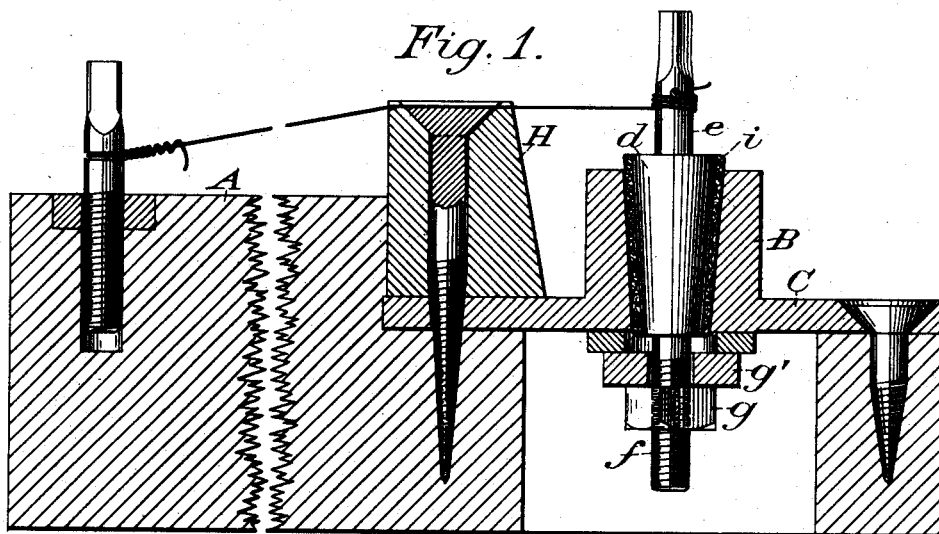


(No Model.)

H. MÜLLER.
TUNING PIN FOR PIANOS.

No. 420,914.

Patented Feb. 4, 1890.



Witnesses:

W. A. Lickor
M. G. Loeffler

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UNITED STATES PATENT OFFICE.

HENRY MÜLLER, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR OF ONE-HALF
TO ALBERT GRAFF, OF SAME PLACE.

TUNING-PIN FOR PIANOS.

SPECIFICATION forming part of Letters Patent No. 420,914, dated February 4, 1890.

Application filed August 26, 1889. Serial No. 322,024. (No model.)

To all whom it may concern:

Be it known that I, HENRY MÜLLER, of the city and county of San Francisco, State of California, have invented an Improved
5 Tuning-Pin for Pianos; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to a tuning-pin for pianos and other stringed instruments of
10 that class that will not be affected by changes of temperature, that can be easily turned to tighten or loosen the tension of the string, and that will not retract under the strain of the string.

15 Referring to the accompanying drawings, Figure 1 is a longitudinal sectional view of a piano, and Fig. 2 a broken plan view.

Let A represent the frame of the action in which the tuning-pins are secured.

20 My improved tuning-pin is adapted for either a wooden or iron frame. If the frame is of iron, the tuning-pin socket is made directly in the iron of the frame, but if it is of wood I secure the iron socket-piece upon the
25 wooden pin-block. The socket-post B is a tubular stud, which extends upward from the base-piece C, and it has a tapering hole passing down through it and through the base-piece, as shown. The tuning-pin has two di-
30 ameters. The lower part *d* is of larger diameter than the shank or wrest-pin *e*, and it is made conical or tapering to correspond with the taper of the bore of socket-post B. This lower part *d* has a screw-threaded extension
35 *f* below it which extends below the socket, so that when it is inserted in the socket one or more nuts *g g'* can be turned up against the under side of the socket base, and thus draw the conical or tapering part *d* down into
40 the socket as tightly as desired.

In practice I shall usually interpose a thin washer or lining *i*, of leather or other material, inside of the socket around the conical part *d*, so as to provide a soft bearing between
45 the socket and part *d*, thus obtaining greater frictional contact and permitting the pin to be tuned more easily with the tuning key or wrench. The socket and tapering portion of the pin do not extend as high as the bridge
50 H, but the smaller part of the pin *e*, on which

the wire is wound, extends above it, and its upper end is made rectangular in the usual way to receive the socket of the key or wrench that winds the wire in tuning the instrument. By making the winding portion *e* of the pin
55 of smaller diameter than the socket portion I bring the strain of the wires nearer the center of the pin than the friction-surface, which resists the strain, thus preventing any retraction of the pin. I also obtain a larger friction-surface to resist the strain. A pin of
60 this kind will hold the wires and keep the instrument in tune an indefinite length of time, besides enabling the tuner to more readily
65 pitch the chord as he works his string up to the required sound without overstraining the string, and then working back to the required pitch.

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

1. A tuning-key for stringed instruments, consisting of a conical or tapering portion *d*, fitting into a tubular socket-post, and a shank or winding portion *e*, of smaller diameter,
75 substantially as described.

2. A tuning-key for pianos, consisting of a tapering body *d*, fitting in a tubular socket-post, a spindle or winding portion *e*, of smaller diameter, projecting above the body *d*, a
80 screw-threaded portion *f* below the body, and one or more tightening or set nuts *g g'*, substantially as described.

3. A tuning-key for pianos having a tapering body *d*, fitting in a tubular socket-post, 85 and a lining or washer *i* interposed between the key and socket, substantially as described.

4. The tubular socket-post B, in combination with a tapering key *d*, fitting the socket, said tapering key having a concentric shank
90 or spindle *e*, of smaller diameter, projecting above it, and a screw-threaded extension *f* extending below it, and the nuts *g g'* for holding said key in its socket, substantially as and for the purpose described.

HENRY MÜLLER.

Witnesses:

M. G. LOEFLEK,
J. A. VAUGHAN.