(No Model.)

H. C. LUTZ.

PIANO TUNING PIN.

No. 366,782. Patented July 19, 1887.

Fig. 1.

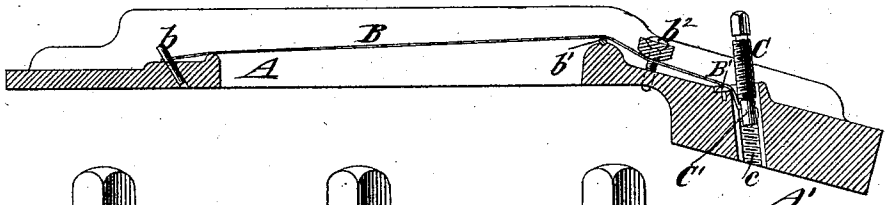


Fig. 2.

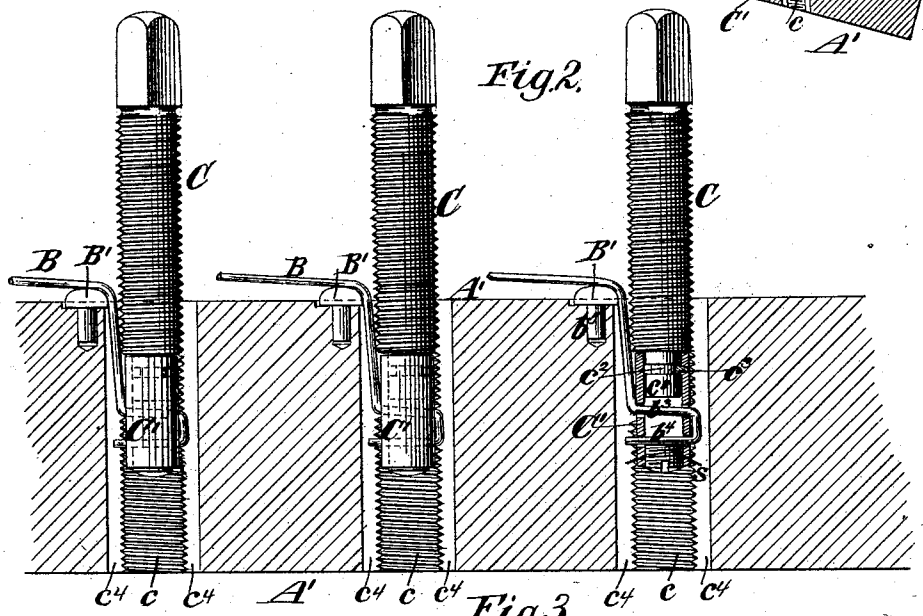
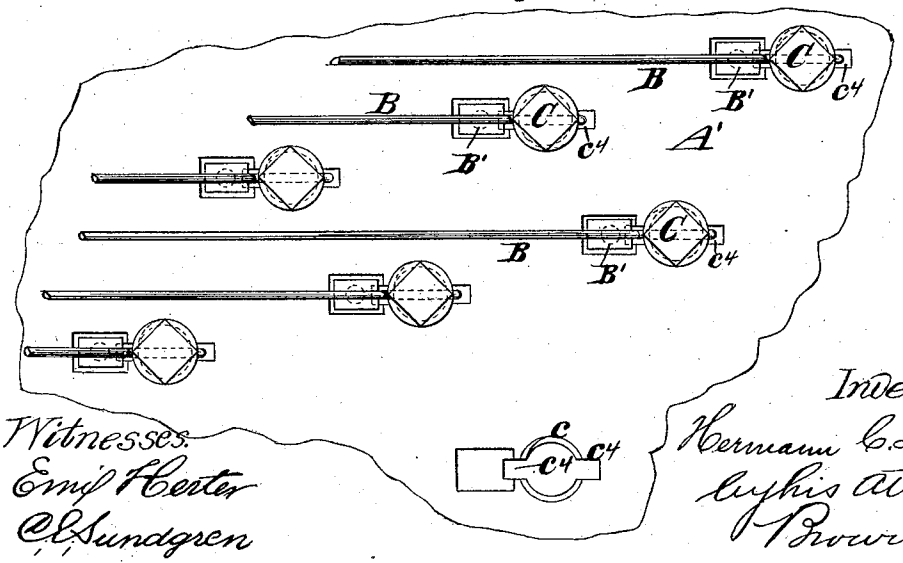


Fig. 3.



Witnesses.
Emil Hester
C. L. Sundgren

Inventor.
Hermann C. Lutz
by his Attys
Brown & Hall.

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

HERMANN C. LUTZ, OF NEW YORK, N. Y.

PIANO TUNING-PIN.

SPECIFICATION forming part of Letters Patent No. 366,782, dated July 19, 1887.

Application filed May 16, 1887. Serial No. 238,325. (No model.)

To all whom it may concern:

Be it known that I, HERMANN C. LUTZ, of the city and county of New York, in the State of New York, have invented a new and useful Improvement in Piano-Fortes, of which the following is a specification.

The most ordinary means for securing the strings in pianos is to have the strings severally wound upon tuning-pins, which are inserted in the wrest-plank, and can be turned to wind the strings more or less upon them; but according to another method of securing strings each string is secured in a plug or block, which is fitted to slide loose in a screw-threaded hole in the wrest-plank, and which is forced in by a screw-threaded pin fitting the thread of said hole.

My invention relates to a novel means of securing a string in a plug or block, which is forced inward by the screw-threaded tuning-pin; and the invention consists in a combination, with the strings of a piano, of a wrest-plank having screw-threaded holes grooved lengthwise, tuning-pins screwed into said holes, and plugs or blocks on which said pins bear, sliding in said holes, and which are perforated transversely for the strings and provided in their ends with set-screws to bear upon a transverse portion of the string and aid in securing the string in said plug or block.

In the accompanying drawings, Figure 1 is a transverse section of a portion of an iron frame and wrest-plank, showing my improved tuning attachments for the strings. Fig. 2 is a sectional elevation upon a very much enlarged scale, showing a portion of the wrest-plank and three tuning-pins, together with the strings; and Fig. 3 is a plan of the parts shown in Fig. 2 and upon the same scale, one of the said holes being empty or destitute of its pin.

Similar letters of reference designate corresponding parts in the several figures.

A designates the metal frame; A′, the wrest-plank, which forms an integral part thereof in this example of my invention. B designates the strings, each of which is secured upon a pin, *b*, in the string-plate, which forms a part of the frame, and the end of which is secured in the wrest-plank A′ by a tuning-pin, C. The strings B may be carried over a bar or rib, *b′*, upon the frame and under a suitable rail, b^2. In the wrest-plank A′ are formed a proper number of screw-threaded holes, *c*, and the pins C, which are made of metal, are screwed snugly into these holes. I have likewise represented a block or plug, C′, in which the wire B is directly secured, and which slides freely in the hole *c* in advance of the pin. In this example of my invention the plug or block C′ has a permanent swivel-connection with the pin C, so that when the pin is turned the plug will not be turned, but will simply be advanced into the hole *c*.

As here represented, the plug or block C′ is permanently attached by a swivel-connection to the end of the pin C, and I have shown the end portion of the pin as reduced in diameter at *c′* and formed with a circumferential groove, c^2, and the plug or block C′ is tubular and slid over the neck *c′* and swiveled thereon by a key, c^3, inserted through the tubular plug or block, and on which the neck or portion of reduced diameter *c′* of the pin C may be freely turned. The string B is secured to the plug C′ by being passed transversely one or more times through perforations extending transversely of the plug, and by a screw, *s*, inserted in the end of the plug or block C′, and bearing upon a transverse portion of the string, as best shown in the case of the right-hand pin and plug C C′ in Fig. 2. By this means the string is very securely fixed in the plug or block, and danger of breaking is avoided. As shown, the screw *s* bears directly upon the lower transverse portion, b^4, of the string, and the upper transverse portion, b^3, is also passed through the plug or block, and in order to prevent a sharp angle in the string at the surface of the wrest-plank, which would be liable to produce fracture, each string passes over a block or saddle, which has a short stem, b^5, whereby it is held in place in a suitable hole in the wrest-plank.

In order to accommodate the portions of the string B′ which project beyond the periphery of the tuning-pins C and of the plug or block C′, I have represented the hole *c* in the wrest-plank A′ as grooved lengthwise on opposite sides or at diametrically-opposite points, as represented at c^4. The plug or block C′ is held against turning by the portion of the string entering the grooves c^4, and hence as the pin C is turned in one direction or the other the plug or block C′ will be advanced in the

hole *c*, or will be retracted if it be desired to remove the string.

As best seen in Fig. 3, it will be seen that the string B does not exert its strain upon the pin C in a tangential direction, but in a plane which passes through the axis of the pin C, and hence the string B has no tendency to turn the pin C and become slack and out of tune.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination, with the strings of a piano, of a wrest-plank having screw-threaded holes grooved lengthwise, the tuning-pins C, screwed into said holes, and the plugs or blocks C′, on which said pins bear, sliding in said holes, and which are perforated transversely for the strings, and provided in their ends with the set-screws *s*, bearing upon transverse portions of the strings in said plugs or blocks and aiding to secure the strings in the plugs or blocks, substantially as herein described.

H. C. LUTZ.

Witnesses:
C. HALL,
HENRY J. MCBRIDE.