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PATENTED FEB. 16, 1904.

G. RUCKSTUHL.
MEANS FOR HOLDING PIANO TUNING PINS.

APPLICATION FILED NOV. 19, 1903.

NO MODEL.

Fig. 1

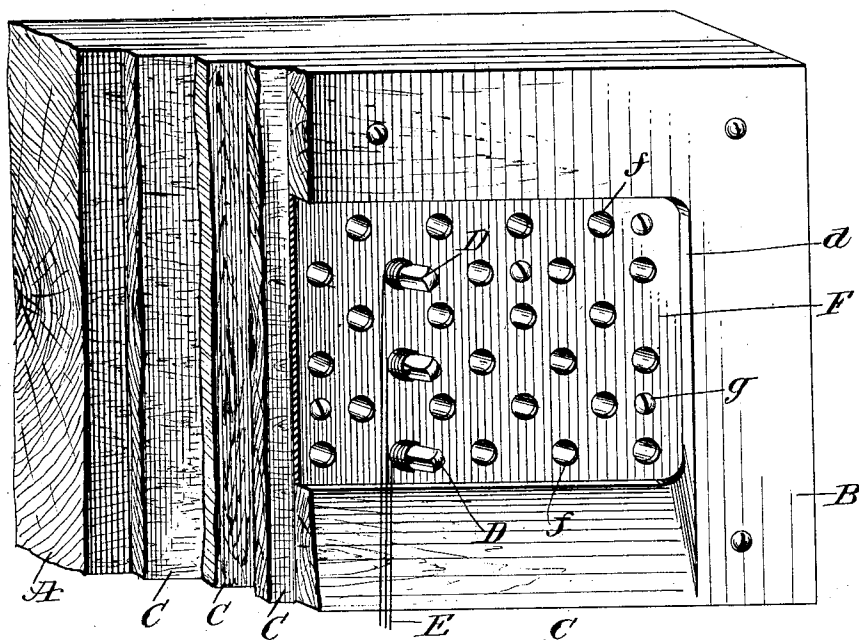
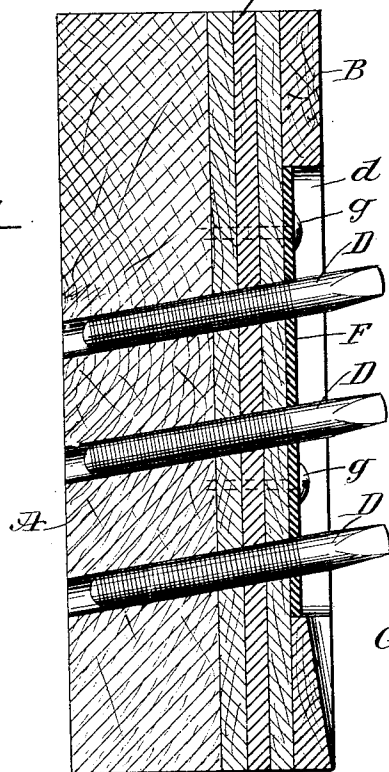


Fig. 2



WITNESSES:

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GEORGE RUCKSTUHL, OF RUTHERFORD, NEW JERSEY.

MEANS FOR HOLDING PIANO TUNING-PINS.

SPECIFICATION forming part of Letters Patent No. 752,469, dated February 16, 1904.

Application filed November 19, 1903. Serial No. 181,790. (No model.)

To all whom it may concern:

Be it known that I, GEORGE RUCKSTUHL, a citizen of the United States, and a resident of Rutherford, in the county of Bergen and State of New Jersey, have invented a new and Improved Means for Holding Piano Tuning-Pins, of which the following is a full, clear, and exact description.

My invention relates to improvements in means for holding tuning-pins in the pin-blocks of pianos.

It is usual in the construction of pianos to employ a metallic frame for the support of tuning-pins, which are embedded in the block and which pass through a plurality of veneer layers placed between the metallic frame and the pin-block. To avoid a metallic tone in the strings attached to the tuning-pins, the ordinary metallic frame has pin-holes which exceed the diameter of the pins; but under this arrangement the pins are pulled out of position in the course of tuning by the sustained tension of the strings. Hence it has been found expedient to use wooden dowels as a means for tightening the pins. Even under this arrangement it is found that owing to successive tuning of the piano and the continued strain of the strings the pins work loose and enlarge the holes in the pin-block.

The object that I have in view in the present improvement is the provision of means for protecting the pin-block and for securely holding the tuning-pins in their adjusted positions, said means dispensing with the usual dowels and holding the pins and strings in a way to avoid the production of metallic tones when the keys are struck.

Further objects and advantages of the invention will appear in the course of the subjoined description, and the actual scope thereof will be defined by the annexed claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in both the figures.

Figure 1 is a perspective view of a portion of a piano pin-block and metallic frame, showing the parts broken away and in section and the application of my improvements to some of the parts. Fig. 2 is a vertical transverse

sectional elevation showing the tuning-pins embedded in the pin-block and in the veneer layers, said pins being held in position by devices of my invention.

A designates an ordinary pin-block, and B the metallic frame, to which the pin-block is secured in any usual way. Between the pin-block and the metallic frame are interposed a plurality of veneer layers C. Ordinary tuning-pins D are embedded in the pin-block and the veneer layers, and to these tuning-pins are attached the piano-strings E.

In the embodiment of my invention shown by the drawings the metallic frame B is skeletonized in order to expose that surface of the pin-block or the veneer layers to which the pins D are applied. In this respect the metallic frame differs materially from the metallic frames ordinarily employed in the construction of pianos wherein said ordinary frames are equipped with a plurality of pin-openings, each of which is of a diameter exceeding that of the tuning-pin which passes therethrough in order to prevent said tuning-pin from having direct engagement with said metallic frame. As just stated, the metallic frame B which I employ is constructed to produce a single slot or opening *d*, which is of sufficient size to expose that part of the pin-block or veneer layers in which the tuning-pins are embedded.

An important feature of my invention consists in the employment of a thin metallic plate F, which corresponds in area to the slot or opening *d* of the metallic frame and is arranged to rest directly against the outermost veneer layer, or this metallic plate may bear on the pin-block in case the veneers are omitted. This plate F is made, preferably, from a single piece of sheet-steel which is quite thin and is adapted to be secured solidly in place against the veneers or the pin-block by the employment of transverse screws *g*, although the metallic plate may be fastened in position within the opening or slot of the frame by any other suitable means. This metallic plate is provided with a large number of pin-holes *f*, which are produced in the plate at an angle to the plane thereof. An essential feature of the invention is the provision of pin-holes in the

metallic plate F which correspond in diameter substantially to the external diameter of the tuning-pins, and these pins when embedded in the pin-block fit tightly in the holes *f* of the metallic plate, whereby the frictional engagement of the pins with the pin-block and the metallic plate effectually prevents the pins from being pulled out of position under the strain of the strings.

The thin metallic plate affords protection to the pin-block because it prevents the pins from being pulled out of position and from enlarging the hole in the soft material afforded by the pin-block. The metallic plate F is quite thin in cross-section, so as to minimize the metallic engagement between the pins and said plate, thus obviating the production of metallic tones when the strings are struck by the piano-hammers. The addition of the metallic plate, with which the pins engage tightly, contributes to the security of the attachment of the pins to the pin-block, and practical experience has shown that a piano constructed in accordance with this invention will not require tuning so frequently as ordinary pianos, because the pins cannot be turned on their axes by the strain of the strings.

Although I have shown the tuning-pins as being arranged in an inclined position in the pin-block and the metallic plate, it is evident that these pins may be arranged in horizontal positions, the essential features of the im-

provement being the employment of a thin metal plate in which the pins are tightly fitted. An advantage of my construction resides in the ability to embed each tuning-pin for the major part of its length in the pin-block and the metallic plate, as shown by Fig. 2, thereby leaving a short projecting end of the tuning-pin to which the string may be hitched. This reduces the leverage on the pin due to the pull of the strings.

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

1. In a piano, the combination with a pin-block, of a metallic frame having an opening or slot, a thin metal plate within said opening or slot of the frame, and tuning-pins embedded in the pin-block and engaging tightly with said metallic plate.

2. In a piano, the combination of a metallic frame having an opening or slot, a pin-block, a stationary thin metal plate within said opening or slot of the frame and having transverse inclined openings, and tuning-pins embedded in the pin-block and fitting tightly in said openings of the metallic plate.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE RUCKSTUHL.

Witnesses:

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