R. W. GERTZ.

PIANO.

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1,353,903. **Patented Sept. 28, 1920.**

Fig. 1.

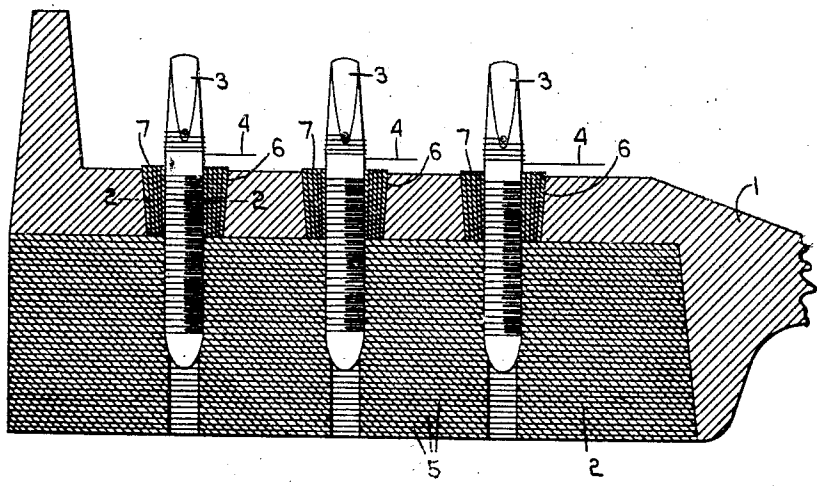


Fig. 2.

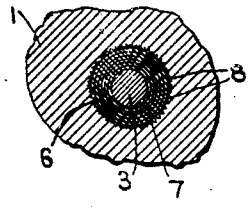
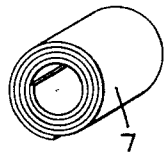


Fig. 3.



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UNITED STATES PATENT OFFICE.

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PIANO.

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To all whom it may concern:

Be it known that I, RICHARD W. GERTZ, a citizen of the United States, residing at Brookline, county of Norfolk, State of Massachusetts, have invented an Improvement in Pianos, of which the following description, in connection with the accompanying drawing, is a specification, like characters on the drawing representing like parts.

This invention relates to pianos and particularly to the wrest-plank or pin-block thereof and the manner in which the tuning pins are incorporated therein.

It is the common practice to make the wrest-plank or pin-block of a piano of wood into which the tuning pins are driven, said tuning pins usually being provided with very fine screw-threads. When the piano is tuned, the tuning pins are turned to tighten or loosen the strings, and in doing this, the tuner frequently turns the pin more than necessary to bring the string to the proper pitch, in which case it is necessary to turn the pin back slightly. This turning of the tuning pins back and forth in the pin-block to secure the proper tension on the piano strings has a tendency to loosen the pins in the wrest-plank to such an extent that they do not hold properly.

Furthermore, climatic changes cause more or less swelling and shrinking of a wooden pin-block which also increases the tendency of the tuning pins to become loosened.

One of the objects of my invention is to provide a novel wrest-plank which will overcome the above-described difficulty, and I accomplish this by making the wrest-plank or pin-block of layers of adhesively-united textile fabric densely compacted together. A wrest-plank having this construction will firmly hold the tuning pins in any adjusted position and the pins will not become loosened either by continuous adjusting of them or by the effect of climatic changes. Moreover, if the textile fabric from which the wrest-plank is made is properly treated it will have water-proof qualities and will not be affected by the weather.

Another object of the invention is to provide novel bushings for the tuning pins which are situated in the apertures of the metal frame, said bushings serving to reinforce the tuning pins at this point so as to hold them properly in position and prevent them from yielding laterally at their free ends under the strain of the piano strings.

In order to give an understanding of my invention I have illustrated in the drawings a selected embodiment thereof which will now be described, after which the novel features thereof will be pointed out in the appended claims.

Figure 1 is a sectional view through the wrest-plank of a piano and the adjacent portion of the frame;

Fig. 2 is a section on the line 2—2, Fig. 1;

Fig. 3 is a perspective view of one of the bushings.

1 indicates a portion of the usual metal frame of the piano, and 2 indicates the wrest-plank or pin-block in which the tuning pins 3 are anchored. 4 indicates the piano wires which are secured to the tuning pins 3 in usual manner. I have illustrated in the drawings the three tuning pins to which the three wires 4 for any one note are attached.

In order to provide a wrest-plank 2 which will firmly hold the tuning pins even after continued adjustment thereof, I propose to make the wrest-plank of a plurality of layers 5 of some suitable textile fabric which are densely compacted together, a closely-woven fabric such as canvas being preferable. These layers may be held together in any suitable way, but will preferably be provided with some sizing or adhesive material by which they are caused to adhere together. The layers of textile fabric 5 are subjected to considerable pressure so that they will be densely compacted together. The tuning pins 3 are of usual construction and are anchored in the wrest-plank in usual manner, said pins extending through apertures 6 formed in the frame 1. Situated within each aperture and closely fitting the pin extending therethrough is a bushing 7 of fabric. The peripheral wall of the aperture 6 is preferably provided with inwardly-projecting points or spurs 8 which are embedded in the bushing 7. The bushings 7 will preferably be made from textile fabric and may be formed by rolling a strip of textile fabric into the cylindrical shape required for the bushing, and uniting the layers of fabric by means of some suitable adhesive, preferably one having water-proof qualities. The layers of fabric will also preferably be pressed or compacted firmly together.

The aperture through the bushing is such as to tightly fit the tuning pin and the ex-

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terior diameter of the bushing is such that it will tightly fit the aperture 6. I will preferably make the apertures 6 with tapering walls, as shown, said apertures being larger at the top, and will also preferably form said tapering walls with inwardly-directed spurs or ribs 8 which become embedded in the exterior of the bushing and assist in preventing it from turning when the tuning pin is adjusted.

The bushings give support to the tuning pins and prevent the latter from giving or yielding between the wrest plank and the point where the piano wire 4 is attached thereto.

The textile fabric wrest-plank has the characteristic that it will securely and firmly hold the tuning pins, and such firm grip on the tuning pins is not affected by repeated adjustment of the tuning pins in tuning the piano. Furthermore, the textile fabric is somewhat elastic and will maintain a firm engagement with the tuning pins under all climatic conditions, so that change of climate will not cause any loosening of the tuning pins. The bushings 7 also assist in holding the tuning pins from turning because of the frictional engagement between the bushing and the tuning pins.

The textile fabric bushings have the advantage that they will not split as wooden bushings are apt to do.

The advantage of the tapering apertures 6 is that the bushings can be forced tightly into them and the advantage of having the larger ends of these apertures at the top is that the operation of driving the tuning pins into the pin-block will tend to force the bushings more tightly into the apertures.

I claim:

1. A wrest plank for a piano composed of a plurality of layers of closely-woven textile fabric adhesively united face to face and densely compacted together thereby to provide an all-fabric frictional engagement with the tuning pins which are anchored therein.

2. In a piano, the combination of a wrest plank composed of a plurality of layers of closely-woven textile fabric adhesively united face to face and densely compacted together, of tuning pins extending transversely through some at least of said densely-compacted layers whereby an all-fabric friction engagement with each tuning pin is provided.

3. The combination with the metal frame of a piano, of a wrest plank associated therewith, tuning pins anchored in said wrest plank, said frame having apertures through which the tuning pins extend, and bushings of textile fabric fitting said apertures and encircling said tuning pins, each bushing comprising a plurality of concentric layers of fabric densely compacted together.

4. The combination with the metal frame of a piano, of a wrest plank associated therewith, tuning pins anchored in said wrest plank, said frame having apertures through which the tuning pins extend, and a bushing formed of a strip of textile fabric rolled into cylindrical form encircling each tuning pin and filling the corresponding aperture in the frame.

5. The combination with the metal frame of a piano, of a wrest plank associated therewith, tuning pins anchored in said wrest plank, said frame having apertures through which the tuning pins extend and which have a progressively-decreasing diameter from the outer face of the frame to that which engages the wrest plank, and bushings formed of concentric layers of textile fabric densely compacted together surrounding each tuning pin and filling each aperture.

In testimony whereof, I have signed my name to this specification.

RICHARD W. GERTZ.