

W. M. BAUER.  
PIANO.

APPLICATION FILED JUNE 24, 1911.

1,002,553.

Patented Sept. 5, 1911.

2 SHEETS—SHEET 1.

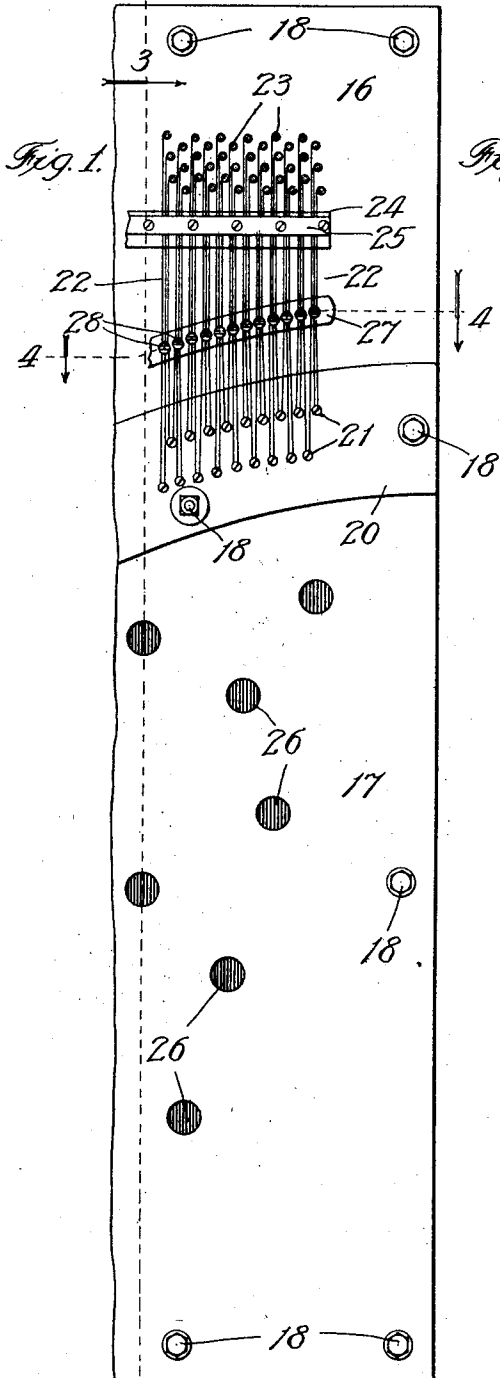


Fig. 1.

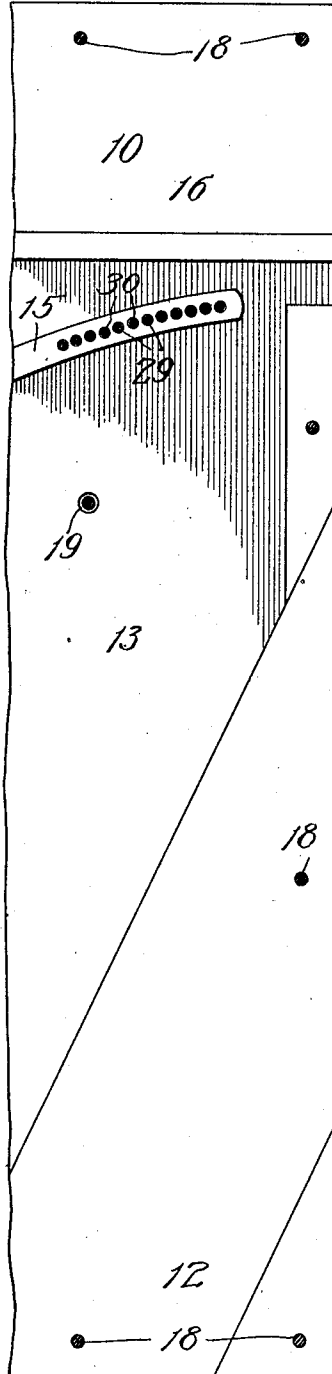


Fig. 2.

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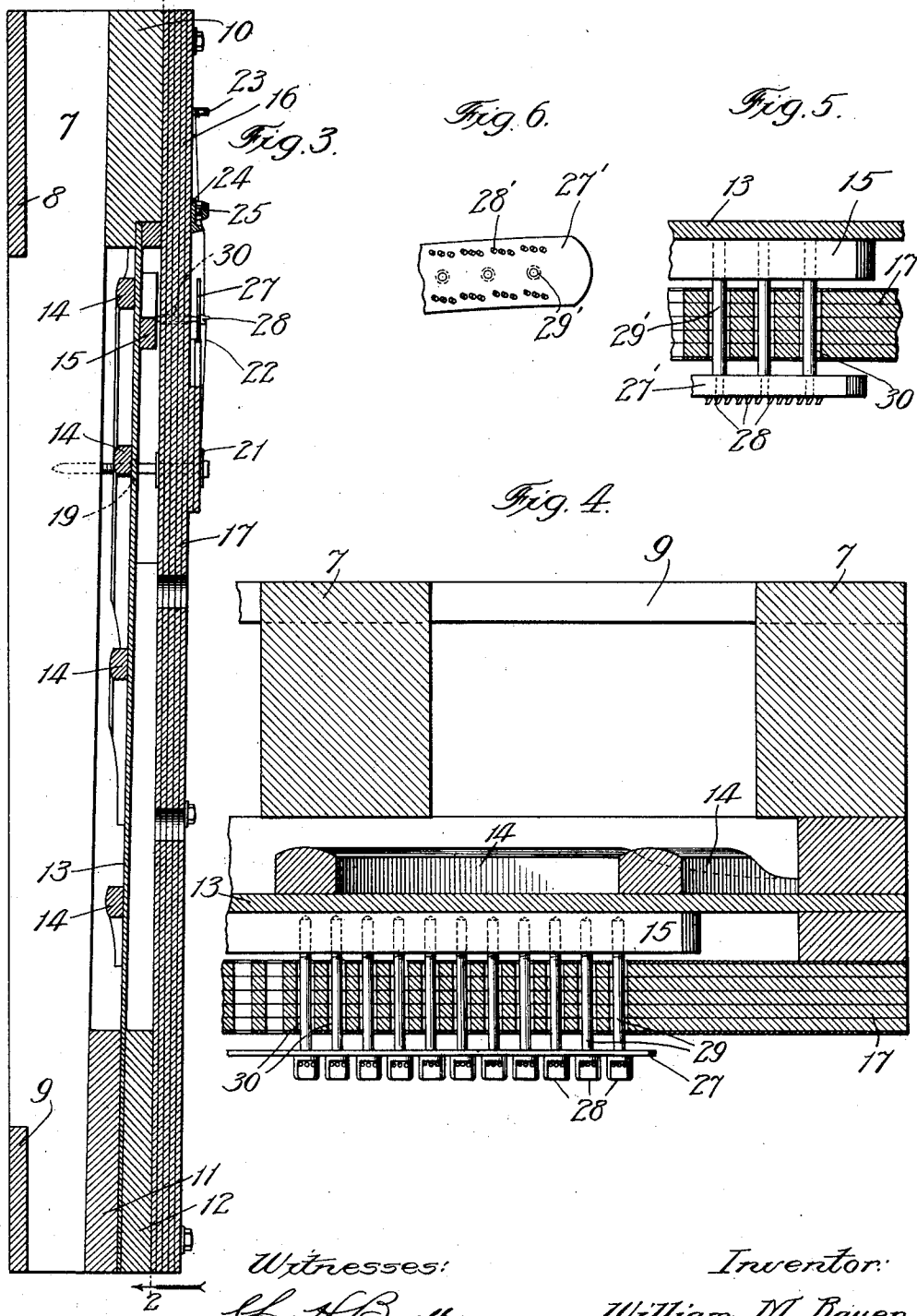
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2 SHEETS—SHEET 2.

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Witnesses:  
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# UNITED STATES PATENT OFFICE.

WILLIAM M. BAUER, OF CHICAGO, ILLINOIS.

PIANO.

1,002,553.

Specification of Letters Patent.

Patented Sept. 5, 1911.

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*To all whom it may concern:*

Be it known that I, WILLIAM M. BAUER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Pianos, of which the following is a specification.

The metal plate used in piano-construction to extend over the sounding-board is objectionable for various reasons, including those of enhancing the metallic quality of the tone of the instrument and greatly adding to its weight because of the ribbed reinforcement required in its structure to compensate for the weakening thereof due to the openings it necessarily contains.

The primary object of my invention is to enable this metal plate to be dispensed with and all of the objections attendant upon its use to be avoided, and the substitution for it of a wooden plate, with the advantage of greatly improving the tone-quality of the instrument and that of materially reducing its weight but without impairment of the structure in the matter of strength to resist the great strains to which the taut strings and hammer-action against them subject it. The construction employed for the embodiment of my invention affords advantages, however, whether the plate used be of metal or of wood; so that while the provision of the wooden plate accomplishes a great desideratum, it is not indispensable for the attainment of some of the advantages of that construction.

I have embodied my invention in, and in fact have more immediately devised it for, the upright form of piano, and therefore confine the description thereof hereinafter contained to that type of instrument and illustrate it in that connection in the accompanying drawings, in which—

Figure 1 is a broken view in elevation of an upright piano embodying my invention, the view showing only a portion of the strings of the upper register fastened to the pin-block and my wooden plate extending therefrom; Fig. 2 is a section on line 2, Fig. 3; Fig. 3 is a section on line 3, Fig. 1; Fig. 4 is a section on the irregular line 4—4, Fig. 1; Fig. 5 is a broken sectional view like a portion of the showing in Fig. 4, but illustrating a modification, and Fig. 6 is a face view of the same.

Only so much of the instrument is shown in the drawings as is required for under-

standing my invention from the following description, namely a portion of the open back with the corresponding portions, spaced therefrom, of the pin-block and my wooden plate extending from it as a continuation thereof, and portions of the sounding-board between the back and plate having the bearings or agraffes for the strings connected through openings in the plate with the usual bridge on the sounding-board.

The back of the piano, as shown, is of a usual construction comprising a series of vertical and massive wooden posts 7 spaced apart and suitably joined at their upper and lower ends by transversely-extending rear boards 8, 9, an upper front board 10 and a pair of lower front boards 11 and 12. The sounding-board 13, reinforced, as usual, by rear wooden bars 14 at intervals between its ends, is fastened at its upper end to the under side of the board 10 and at its lower end between the two boards 11, 12, and all this may be in the ordinary manner shown, the sounding-board carrying on its face the usual bridge 15.

The wooden pin-block 16 and plate 17 (which latter is commonly metal, as aforesaid, but which I make of wood,) are formed, preferably as shown, as a continuous wooden plate of several layers of veneer cemented flatwise together with the grains of successive layers crossing each other. To thus build up the plate to the proper thickness I prefer to use veneer of the thickness of about one-fourth of an inch; and five such layers are shown in the drawing. This combined pin-block and plate is securely and rigidly fastened to the back-structure by bolts 18 at intervals near the upper and lower ends and similar intermediate bolts passing through relatively-large holes 19 in the sounding-board provided to admit them therethrough; some of these bolts also serving to fasten in place flatwise against the plate 17 a curved reinforcing-strip 20 for the screws 21, about the projecting head-ends of which the lower ends of the strings 22 are passed, this strip being also formed, by preference, of layers of veneer, of which two are shown in Fig. 3. The tuning-pins 23 are provided on the block 16, as usual, and the strings 22 which extend from them about the screws 21 pass in the ordinary manner between the spaced longitudinally-ribbed metal bearing-bars 24,

25 fastened to the pin-block just below the pins 23. Numerous large-sized holes 26 are formed at intervals through the plate 17 for the free circulation of air at the face of the sounding-board. The metal agraffe-bar 27 for the strings, with the agraffe-heads 28 projecting at proper intervals from its front face, has a metal stem 29 extending backwardly from each head through a relatively-  
 10 large hole 30 provided in the plate 17 and fastened to the sounding-board bridge 15 preferably by screwing them therein as represented in Fig. 4. Thus the bar 27 is supported on the bridge 15 in spaced relation to, or out of contact with, the face of the  
 15 plate 17. Any suitable form of agraffe-device may be used for this purpose, that shown in Figs. 5 and 6, by way of one modification, having the bar 27<sup>1</sup> formed of  
 20 wood with sets of pins 28<sup>1</sup> projecting inclinedly from its face for holding the strings, and wooden stems 29<sup>1</sup> extending at intervals from its back to pass through the plate-holes 30 and enter holes in the bridge  
 25 15 in which they are fastened, as by cementing them. By thus connecting the strings with the sounding-board at its bridge through the medium of stems, whether of metal or wood, the vibrations of each set  
 30 of strings at the same pitch by thus transmitting them to the sounding-board are, in a sense, individualized and the resultant tone is thereby rendered of much better quality than where, as heretofore, the strings  
 35 are stretched across the sounding-board bridge in direct contact therewith. Moreover, the interposition between the strings and the sounding-board of a wooden plate, instead of one of metal, further materially  
 40 enhances the improvement referred to in the tone-quality of the instrument.

What I claim as new and desire to secure by Letters Patent is:—

1. In a piano, the combination with a  
 45 sounding-board provided with a bridge, of a plate covering the sounding-board, and an agraffe-device having stems extending rearwardly from it through said plate and secured to said bridge to support thereon  
 50 said device in spaced relation to the face of the plate.

2. In a piano, the combination with the sounding-board provided with a bridge, of

a plate covering the sounding-board, and an agraffe-device comprising a bar having  
 55 string-engaging means projecting from its front face and stems extending at intervals from its opposite face through said plate into said bridge and secured therein to support  
 60 said bar in spaced relation to the face of the plate.

3. In a piano, the combination with the sounding-board provided with a bridge, of a non-metallic plate covering the sounding-board, and an agraffe-device having stems  
 65 extending at intervals rearwardly from it through said plate and secured to said bridge to support thereon said device in spaced relation to the face of the plate.

4. In a piano, the combination with the  
 70 sounding-board provided with a bridge, of a wooden plate covering the sounding-board, and means for connecting the strings of the instrument through the plate with said  
 75 board at its bridge.

5. In a piano, the combination with the sounding-board provided with a bridge, and the pin-block, of a wooden plate extending from said block and covering said board, and means for connecting the strings of the  
 80 instrument through the plate with said board at its bridge.

6. In a piano, the combination with the sounding-board provided with a bridge, and the pin-block, of a wooden plate, formed  
 85 of a plurality of layers of veneer secured flatwise together, and extending from said block to cover said board, and an agraffe-device comprising a bar having string-engaging means on its front face and stems  
 90 extending at intervals from its opposite face through said plate and secured to said bridge to support thereon said bar in spaced relation to the face of said plate.

7. In a piano, the combination with the  
 95 sounding-board provided with a bridge, of a combined wooden pin-block and sounding-board-covering plate formed of a plurality of layers of veneer secured flatwise together, and an agraffe-device having rearwardly-  
 100 extending stems passing through said plate and secured to said bridge.

WILLIAM M. BAUER.

In the presence of—

J. G. ANDERSON,

R. A. SCHAEFER.