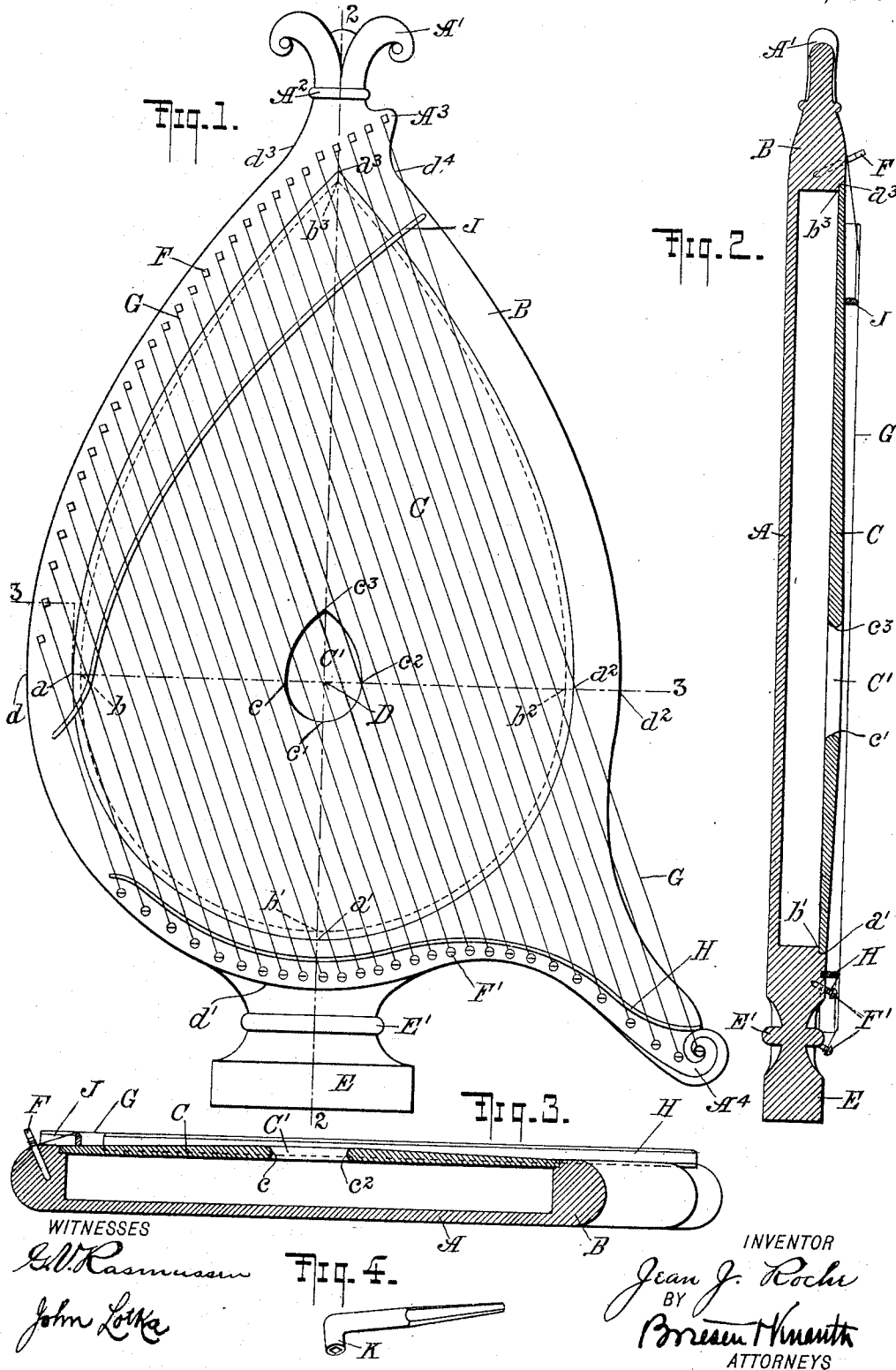


J. J. ROCHE.
 STRINGED MUSICAL INSTRUMENT.
 APPLICATION FILED FEB. 20, 1908.

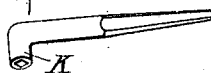
976,299.

Patented Nov. 22, 1910.



WITNESSES
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Fig. 4.



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UNITED STATES PATENT OFFICE.

JEAN JOSEPH ROCHE, OF ST. ANTOINE, FRANCE.

STRINGED MUSICAL INSTRUMENT.

976,299.

Specification of Letters Patent.

Patented Nov. 22, 1910.

Application filed February 20, 1908. Serial No. 416,838.

To all whom it may concern:

Be it known that I, JEAN JOSEPH ROCHE, a citizen of the Republic of France, and resident of St. Antoine, France, have invented certain new and useful Improvements in Stringed Musical Instruments, of which the following is a specification.

My invention relates to a stringed musical instrument somewhat resembling a lyre, and has for its object to provide a readily played instrument of good musical qualities, simple and inexpensive construction, and pleasing appearance.

The invention will be fully described hereinafter, and the features of novelty will be pointed out in the appended claim.

Reference is to be had to the accompanying drawings, in which—

Figure 1 is a front elevation of an instrument embodying my invention. Fig. 2 is a vertical section on line 2—2 of Fig. 1. Fig. 3 is a horizontal section on line 3—3 of Fig. 1, and Fig. 4 is a perspective view of a tuning key.

The instrument comprises a wooden sound box or sounding body having a back or bottom A, a rim B (which may be integral with said back) and a top or sounding board C. The latter is preferably let into a groove at the inner edge of the rim B, and is substantially parallel to the back A. The thickness of the sounding board, at its outer (supported) edge, should be about equal to the uniform thickness of the back A, so that the sounding board and the back may vibrate in unison. At its central portion, the sounding board is provided with an opening C', and the thickness of the board is increased gradually toward this opening, as shown in Figs. 2 and 3, for the purpose of compensating for the amount of wood taken away by the opening C' and of making the sounding board strong enough to resist the great pressure of the strings, notwithstanding the fact that no reinforcing bars are used; very harmonious sounds are due to this arrangement. The connection of the sounding board with the rim B may be effected simply by glue.

In outline, the opening C' and the inner edge of the rim A' (or in other words the outer wall of the chamber of the instrument) are similar and parallel, being formed in the following peculiar way, to which the outline of the instrument also conforms more or

less: The lower portion c, c', c^2 of the opening C' is a semi-circle having its center at D, and from the same center is struck the semi-circle a, a', a^2 , forming the outline of the sounding board at its lower portion, and also the semi-circle b, b', b^2 , indicating the outline of the cavity or chamber within the body of the instrument. The upper portion of the opening C' is bounded by two parabolic arcs e, e^3 and e^2, e^3 , respectively, which meet at e^3 to form a point; to the arc e, e^3 are parallel the arcs b, b^3 , and a, a^3 , also the arc d, d^3 , forming part of the instrument's outline; to the arc e^2, e^3 are parallel the arcs b^2, b^3 and a^2, a^3 , as well as d^2, d^4 .

The instrument has an ornamental top A' and is strengthened by a bead A² and a lug A³ on the side which is compressed by the strings. The lower portion of the body has part of its outline, from d to d' , in the arc of a circle struck from the center D; a foot E is connected with the body by a contracted portion E'; finally, at the side opposite to the arc d, d' , an extension A⁴ is provided, the parts A, A', A², A³, A⁴ and B being preferably integral.

Along the left-hand upper portion of the instrument, that is, along the arc d, d^3 , are secured pins F to which are secured the upper end of the strings G, extending diagonally to pins or screws F' at the lower portion of the instrument. The strings are preferably parallel to each other and lie in a plane parallel to those of the sounding board C and of the back A. Two bridges are employed in connection with the strings; the lower one, H, is preferably let into the rim B and glued in a groove thereof; the upper bridge, J, is simply placed on top of the sounding board C and glued thereto. The distance between the pins F and the bridge J should be substantially constant for all strings, as shown, and by pressing on the string between the said bridge and the corresponding pin F, the performer will raise the note emitted by the main portion of the string (between the two bridges) by an interval corresponding to a semitone, or a quarter tone, or even more delicate differences, according to the degree of pressure applied. Since the length of each string portion above the bridge J is practically constant, it follows that the same degree of pressure will have the same effect with each string, so that the performer can readily gage the pres-

sure he should apply. The bridges are preferably thinned and rounded where they are engaged by the strings, and, of course, these portions of the bridges should lie in a plane parallel to those of the sounding board and of the back A. The strings which give the low notes (which are the longer strings) are connected at the neck or extension A⁴; the high or treble strings are located at the left in Fig. 1. There are preferably eight strings to an octave; thus the drawing shows an instrument of twenty-eight strings (four octaves), running say from the A one octave above the middle A, down to the third B below the middle A.

The fastenings F, F', are preferably inclined in opposite directions, contrary to the pull of the strings G. The pins F being square, are turned by means of the socketed end K of the key shown in Fig. 4; the lower fasteners F' are preferably wood screws and are turned by means of the screw driver formed by the other end K' of the tuning key. The wood screws are superior to the nailless heads generally employed in analogous musical instruments, in that they are more readily removed and less liable to injure the performer's hands or clothes. The strings may be tuned from both ends; generally a rough tuning will be effected by means of the pins F, and then the tuning will be completed by means of the screws F'.

The playing of the instrument offers no difficulty to persons having a musical ear.

The instrument may be rested on the floor and held between the performer's knees, or the performer may play the instrument standing and rest it on a table or other convenient support. The right hand is generally used to pick the strings, the left hand to steady the instrument and to produce sharps

or flats by pressing on the strings between the pins F and the upper bridge J.

The notes produced are strong, and the instrument may be used for solo or orchestral music, as well as for accompanying song.

The instrument is portable and comparatively small for its range, and keeps well tuned; besides tuning and the removal of strings are easily effected.

I claim as my invention:

A stringed musical instrument comprising a hollow body forming a sounding chamber and having a sounding board provided with a sound opening, the thickness of said board increasing gradually from its outer edge to the edge of the sound opening, and being uniform at the edge of said opening, strings secured to said body and extending over the sounding board, the sounding chamber, sounding board, and sound opening being formed with concentric semi-circular outlines at their lower portions, while at their upper portions they are bounded by parabolic arcs meeting so as to form points at the center line of the instrument and extending in the continuation of said semi circles, and pegs to which the strings are connected, the pegs being secured to the upper surface of the sounding chamber itself, substantially as described and shown and for the purpose set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses, this twenty-ninth day of January, 1908.

JEAN JOSEPH ROCHE.

Witnesses:

T. A. BOYER,
FRANCE.