May 9, 1933. M. MACCAFERRI 1,908,613

STRINGED MUSICAL INSTRUMENT

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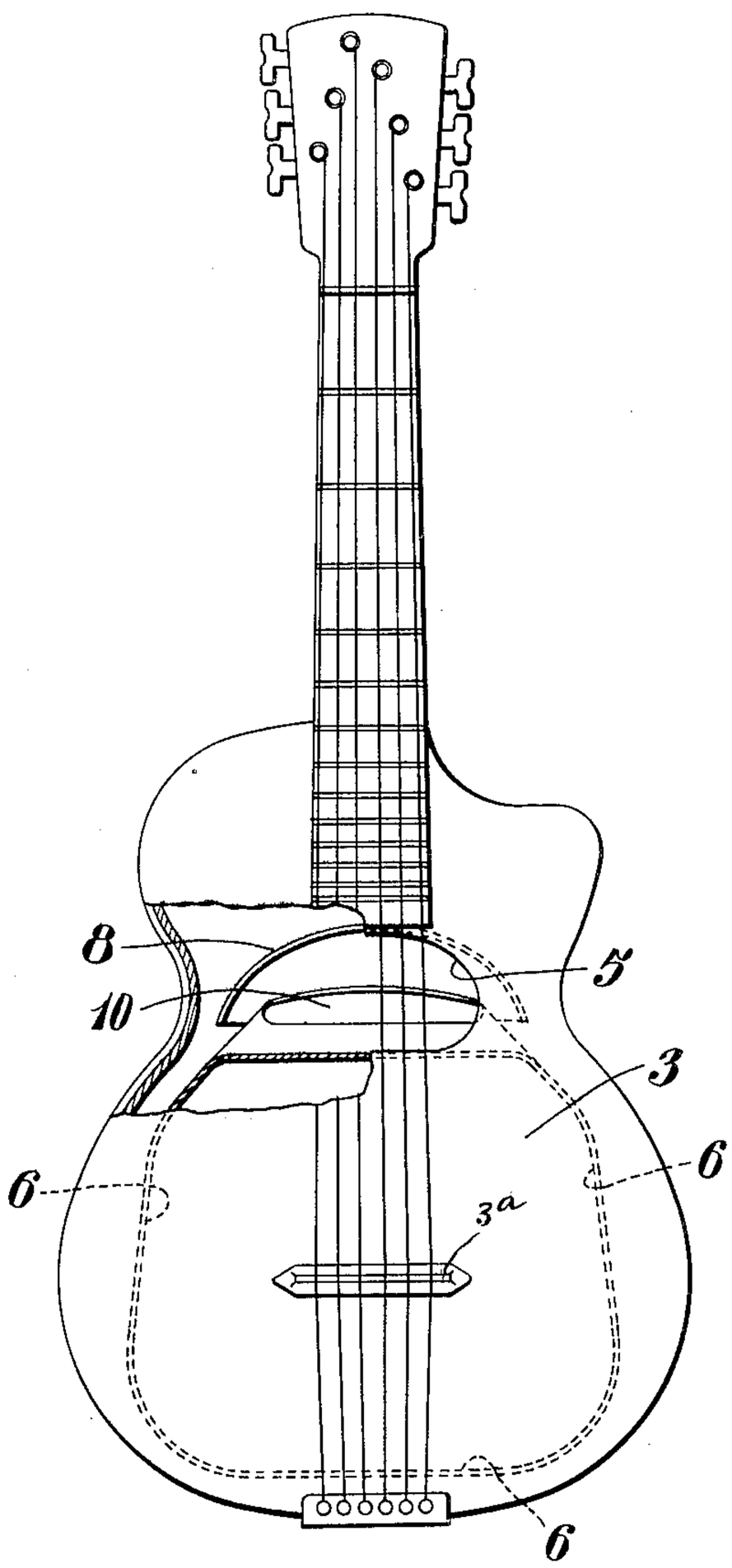

Fig. 1.

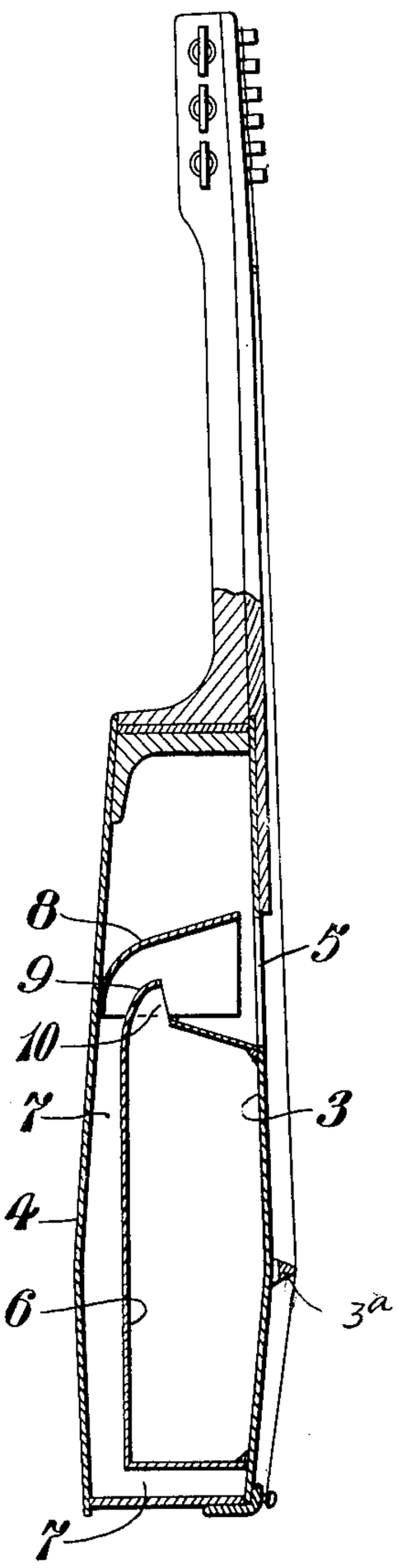

Fig. 2.

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UNITED STATES PATENT OFFICE

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STRINGED MUSICAL INSTRUMENT

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This invention relates to stringed instruments having sounding boards or their equivalents, and particularly, although not exclusively, to guitars, violins, mandolins and other stringed instruments of a like nature, and has for its principal object to increase the volume of sound emitted by such instruments and to enhance the projecting or carrying power of the instruments and to improve their tone.

One object of the invention is to construct an improved musical instrument with an auxiliary sounding-box, chamber or the like located beneath the sounding board or harmonic or vibrating base or sounding board of the instrument so that the normal sounding-box, belly, or body of the instrument includes behind or within it an auxiliary sounding-box fixed to or integral with the sounding board, harmonic-table or the like.

Other objects of the invention relate to means for reflecting or directing the sound from the outer and inner sounding-boxes, chambers or the like along the channels or the line to openings, in the sounding board, so that the sound waves pass through the sound holes. These reflecting or directing means may have any suitable shape, for example they may be of cup shape or have double-curved walls, and in some cases the sound from one of the sounding-boxes may be directed in the opposite direction to the sound from the other sound-box.

In order that the invention may be better understood, it will now be described with reference to the accompanying drawing in which:—

Fig. 1 shows an elevation partly in section of a guitar-like musical instrument constructed according to the invention, and

Fig. 2 shows a side sectional elevation of Fig. 1, the same reference numbers thereon referring to like parts in the figures.

In the drawing, 3 is the sounding board of the main sounding-box or chamber 4 of the instrument which has the ordinary sound opening 5 therein. This sounding board is generally referred to as the harmonic member and embodies the bridge 3a over which the strings pass under tension.

Beneath this harmonic-table or face-wall 3 is located a supplementary or auxiliary sounding-box or chamber 6 having the shape substantially as shown in Fig. 1, whereby a channel or space 7 is left around the sides and base of the said auxiliary box, or between its exterior and the interior of the normal sounding-box 4.

A curved reflector or director 8 is formed from a suitable piece and located to direct the sound from the space 7 to the opening 5.

The auxiliary sounding-box or chamber 6 has its base or side extended at 9 to form a curved reflector or directing part suitably located with relation to the reflector 8 so as to afford an opening leading into or towards the hole 5. By means of these reflectors the sound from the auxiliary sounding-box or chamber 6 is directed through the hole or opening 5.

It will be realized that other openings from the inner sounding-box or chamber to the exterior may be provided, for example the harmonic-table or face-wall may have openings therein, communicating directly with the interior of the said auxiliary sounding-box or chamber. In certain cases, however, it is preferred that the sound from the auxiliary sounding-chamber or box should be directed to the same sound opening or openings as those from the normal or main sounding-box or chamber.

Stiffening bars (not shown in the drawings) may be used in a well-known manner to keep the shaped parts from distortion.

Although the invention has been described as more particularly applied to a guitar-like instrument, it will be obvious that it may as readily be applied to instruments of the violin class.

In the case of a piano or banjo, the sounding-box may be arranged as in the guitar which is shown on the accompanying drawings, and this arrangement applies to all stringed instruments whatsoever.

Further, although the invention has been more particularly described with reference to main sounding-boxes or chambers, these boxes or chambers may be replaced by main sounding-boards or the like. For example,

in place of a closed main chamber, a main sounding-board may be used and in conjunction therewith, an inner chamber or box may be utilized in desired proximity to sound openings, where provided.

The invention is not limited to the precise forms or details of construction described, as these may be varied to suit particular cases.

What I claim and desire to secure by Letters Patent of the United States of America is:—

1. A stringed musical instrument comprising a box-like structure, one wall of which constitutes a sounding-board, a bridge on said wall, means for tensioning the strings over said bridge, an inner sounding-box secured to the under side of said sounding-board and of such a size as to leave a comparatively narrow channel around said inner sounding-box on three sides, an aperture on another side wall of said inner box and an aperture in the adjacent portion of said sounding-board.

2. A stringed musical instrument comprising a sounding-board, a bridge secured thereto over which the strings pass, an outer sounding-box associated with said sounding-board, an inner sounding box carried by said sounding-board within said outer sounding-box, apertures in said inner and outer sounding-boxes and reflecting means within the outer sounding box located so as to direct the sound emanating from the inner sounding-box to the outside of the instrument.

3. A stringed musical instrument comprising inner and outer sounding-boxes arranged one within the other, a bridge on the outer face wall of the outer sounding-box over which the strings pass, an aperture in the side wall of the inner sounding-box leading into the outer box, a reflector within the outer sounding box opposite said aperture and an aperture in said outer face wall through which the sound passes to the outside of the instrument.

4. A stringed musical instrument comprising inner and outer sounding-boxes, the former of broadly four sided form and of such a size as to leave a channel-like space between itself and the outer sounding-box on three sides, an aperture across the fourth side of said inner sounding-box, a curved reflector within the outer sounding box and opposite said aperture, a bridge fixed to one face wall of the outer sounding-box and an aperture in said face wall opposite said curved reflector.

5. A stringed musical instrument comprising a sounding-board, a bridge fixed to said sounding-board over which the strings pass, an outer sounding-box associated with said sounding-board and of which the latter forms one wall, an inner sounding-box of dish form secured under said sounding-board so that the latter forms one wall of said inner sounding-box, a comparatively long and narrow aperture near the lower portion of one side wall of said inner sounding-box, a curved reflector element surrounding said aperture formed by a projecting lip on said inner sounding-box, a separate curved reflector opposite said aperture and an aperture in the sounding-board opposite said separate curved reflector.

6. The combination with a musical instrument having several strings stretched between a tensioning device and a bridge, of a sounding board, an outer sounding-box one wall of which is comprised by said board, an inner sounding-box of dish form secured under said sounding board so that the latter forms one wall of said inner box, said inner box having four main sides three of which lie comparatively close to the outer box, an aperture on the fourth side of said box extending along the lower edge of said side, an extended lip on the under face wall of said inner box with a curved forward portion, an aperture in the sounding-board near the aperture in the inner box and a reflector within the outer sounding box to direct the sound leaving the inner box to the aperture in the sounding board.

7. A stringed musical instrument comprising inner and outer sounding-boxes, means for supporting and tensioning the instrument strings, a bridge over which the strings pass and by which the vibrations of the strings are communicated to said sounding-boxes, an aperture in the inner sounding-box leading into the outer sounding-box, a further aperture in the latter box and a reflector disposed to direct the sound leaving the inner sounding box to the outside of the instrument.

In witness whereof I affix my signature.

MARIO MACCAFERRI.