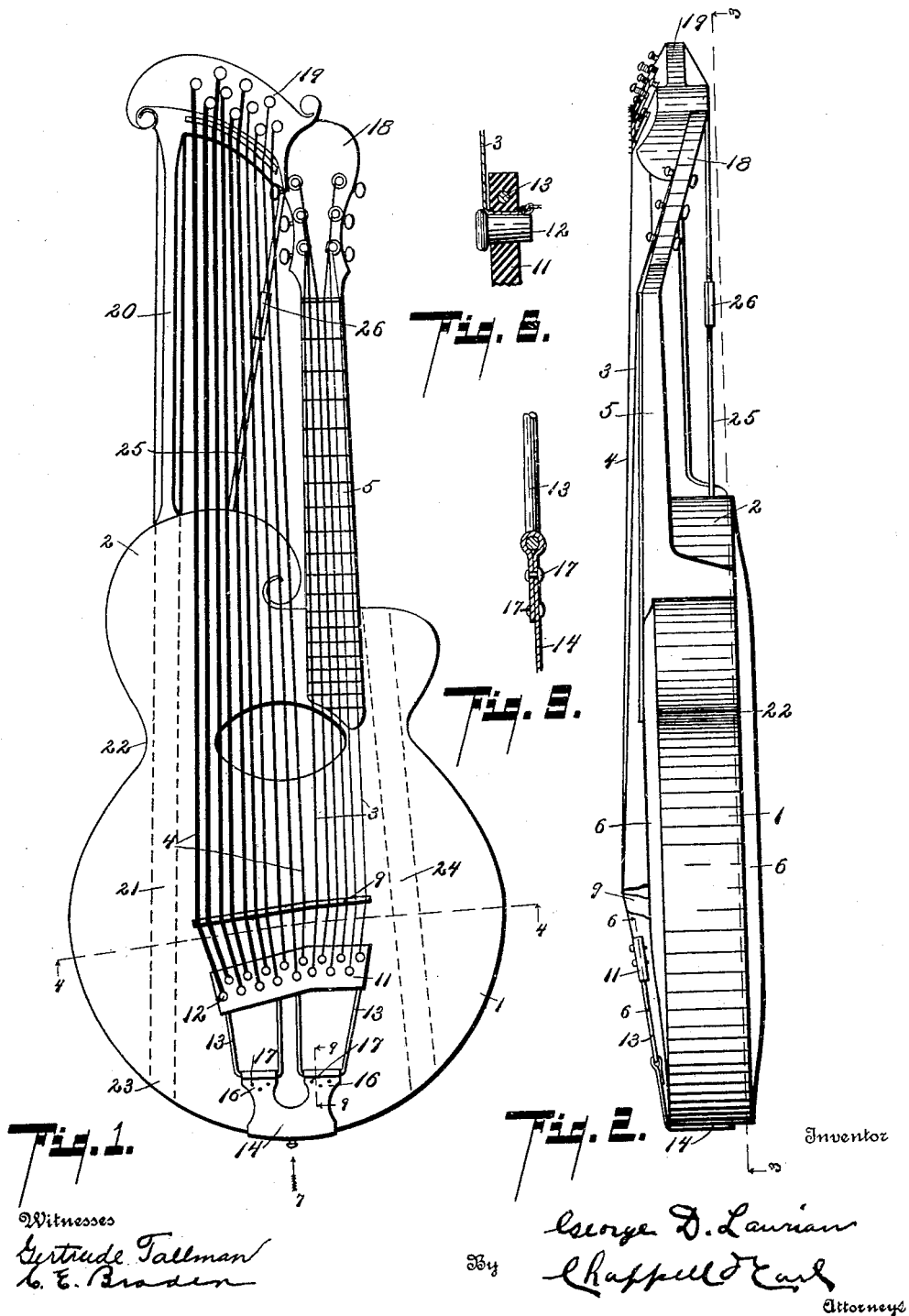


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 STRINGED MUSICAL INSTRUMENT.
 APPLICATION FILED NOV. 9, 1908.

Patented July 19, 1910.

3 SHEETS—SHEET 1.

964,660.



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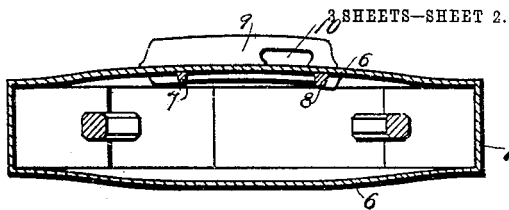


Fig. 4.

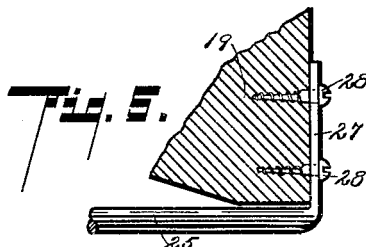


Fig. 5.

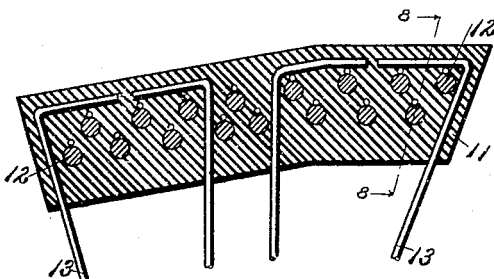


Fig. 6.

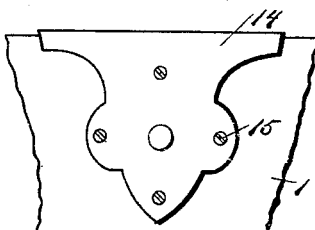


Fig. 7. George D. Laurian
 By Chappell & Co. Attorneys

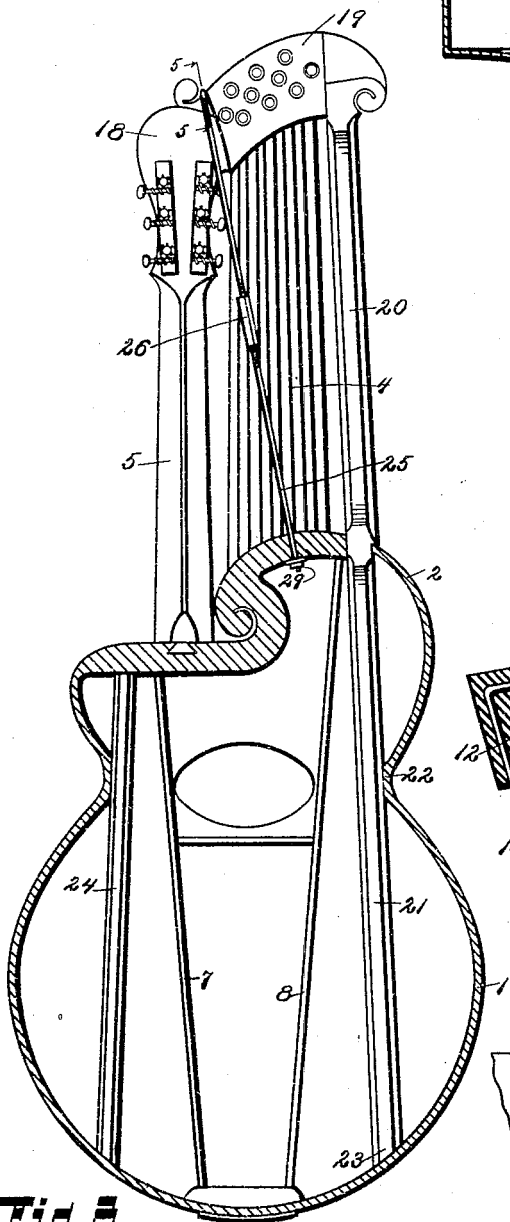


Fig. 8.

Witnesses
 Gertrude Tallman
 C. E. Braden

Inventor

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3 SHEETS—SHEET 3.

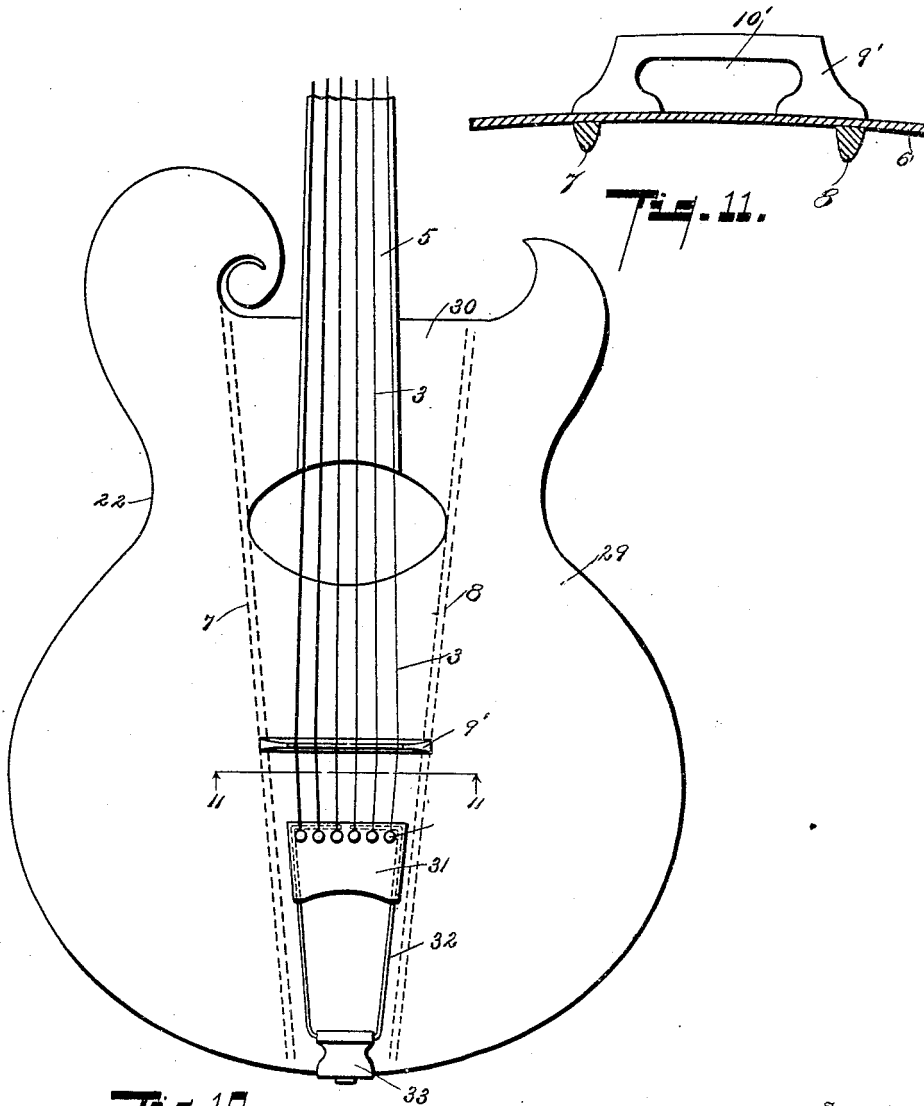


Fig. 10.

Fig. 11.

Witnesses

Bertrude Tallman
C. E. Braden

Inventor

George D. Laurian
Chappelle & Co.

By

Attorneys

UNITED STATES PATENT OFFICE.

GEORGE D. LAURIAN, OF KALAMAZOO, MICHIGAN, ASSIGNOR TO GIBSON MANDOLIN-GUITAR COMPANY, OF KALAMAZOO, MICHIGAN.

STRINGED MUSICAL INSTRUMENT.

964,660.

Specification of Letters Patent. Patented July 19, 1910.

Application filed November 9, 1908. Serial No. 461,673.

To all whom it may concern:

Be it known that I, GEORGE D. LAURIAN, a citizen of the United States, residing at Kalamazoo, Michigan, have invented certain new and useful Improvements in Stringed Musical Instruments, of which the following is a specification.

This invention relates to improvements in stringed musical instruments.

The main object of this invention is to provide an improved stringed musical instrument having a plurality of sets of strings in which the strings of each set produce clear, full tones.

Further objects, and objects relating to structural details, will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The invention is clearly defined and pointed out in the claims.

A structure embodying the features of my invention is clearly illustrated in the accompanying drawing, forming a part of this specification, in which:

Figure 1 is a detail plan view of an instrument embodying the features of my invention, the instrument illustrated being designed by me as a "harp-guitar." Fig. 2 is a detail side elevation, looking from the right of Fig. 1. Fig. 3 is a longitudinal section taken on a line corresponding to line 3-3 of Fig. 2. Fig. 4 is a cross section taken on a line 4-4 of Fig. 1. Fig. 5 is an enlarged detail section taken on a line corresponding to line 5-5 of Fig. 3, showing the connections for the outer end of the truss. Fig. 6 is a longitudinal section through the tail-piece bar taken on a line corresponding to line 6-6 of Fig. 2. Fig. 7 is a detail end elevation looking in the direction of the arrow 7 of Fig. 1. Fig. 8 is an enlarged detail section through the tail-piece bar taken on a line corresponding to line 8-8 of Fig. 6. Fig. 9 is an enlarged detail of the supporting bracket of the tail piece taken on a line corresponding to line 9-9 of Fig. 1. Fig. 10 is a detail plan of a modified structure embodying certain features of my invention. Fig. 11 is a detail section taken on a line corresponding to line 11 of Fig. 10.

In the drawings, similar reference characters refer to similar parts throughout the

several views, and the sectional views are taken looking in the direction of the little arrows at the ends of the section lines.

Referring to the drawing, the body 1 is preferably provided with an elongation or extension 2 at its upper end, the object of which will appear later. The strings of the structure illustrated in Figs. 1 to 9 are arranged in sets 3 and 4, the set 3 being provided with a finger-board 5, the set 4 being arranged to extend over the elongation 2 of the body. The sounding board 6 is preferably arched, as appears in Figs. 2 and 4, and is provided with ribs 7 and 8, which are arranged longitudinally thereof, the rib 8 extending into the extension 2 of the body. The rib 7 is preferably somewhat more rigid than the rib 8.

A bridge 9, which is preferably of the form illustrated, is provided. In the bridge illustrated, the portion pertaining to the set of strings 3 is cut away, at 10, on its under side, thereby forming two feet or bases for the bridge, and forming an intermediate portion between the feet or bases of the bridge which is less rigid than the other portions. The ribs 7 and 8 are arranged so that the rib 7 supports the sounding board under the set of strings 3 and the rib 8 supports the sounding board under the set 4.

The structure illustrated in Figs. 1 to 9 is what I designate as a "harp-guitar," the set 3 being the treble set or guitar strings, and the set 4 the harp strings. The strings are secured at their lower end by means of a tail piece, comprising a tail piece bar 11, having a plurality of holes therein adapted to receive the strings, and the retaining pins 12 therefor. The knotted ends of the strings are passed through the holes and wedged therein by means of the pins 12, as clearly appears in Fig. 5, the holes having groove-like slots at their forward edges to receive the strings. This bar 11 is preferably formed of celluloid or hard rubber, so that the strings are not cut thereby, even when under very heavy strain, permitting the use of any desired kind of string, as wire, silk or gut. The bar 11 is preferably supported by the links 13, the links being preferably secured to the bar by being embedded therein, the bar being molded upon the ends of the links, as clearly appears from the drawing. These links are preferably formed of pieces of wire bent into loops, the ends of the

wire being bent toward each other, as illustrated in Fig. 6, and embedded, as stated. This effectively secures the links to the bar. The links are secured to the body by means of the plate 14, which is secured to the end of the body by means of suitable screws 15. This plate is preferably angle-shaped, as illustrated, its inwardly projecting arm, when two links are used, being forked forming the arms 16, which are folded around the supporting links 13, thereby pivotally securing the links to the plate so that a free, vertical swinging movement is permitted, or a swinging movement to and from the sounding board, at the same time preventing lateral swinging of the bar 11. The plate 14 is preferably made of sheet metal, so that it can be readily stamped up and its arms 16 folded about the links, the rivets 17 securing the parts together.

To effectively withstand the strain of the strings, and prevent springing of the finger-board 5, the finger-board head piece 18, which is provided with an arm 19 for the set of strings 4, is supported by a bar 20. This bar is provided with a brace 21, which extends into the body and is secured thereto at 22 and 23. A brace, as 24, (see Fig. 3) is provided for the finger-board-side of the body. To prevent the head springing under the strain of the strings, a truss rod 25 is provided. This truss rod is preferably formed of sections connected by the turn buckle 26 so that it can be tightened to secure the desired tension and hold the finger board firmly in position. The outer end of the truss rod is turned up at 27, and secured to the head piece 18 by means of suitable screws, as 28, while its inner end is arranged through the inner wall of the body and secured by means of a nut 29. The springing or warping of the parts which would tend to draw the strings away from or down upon the frets of the key-board is thus effectively prevented. The truss rod is arranged at an angle to the finger board, so that while it effectively supports the same, it does not in any way interfere with the fingering.

My improved instrument is very attractive in appearance, and, at the same time, is comparatively simple and economical to produce.

In the modified construction shown in Figs. 10 and 11, a single set only of strings is provided. In this modification, the body 29 is of slightly modified form, the upper end of the body being cut away at 30 below the finger board, thereby permitting the easy fingering thereof, and, at the same time, the side of the body still retains its form of the common or well-known type of guitar body which is advantageous in holding the same when in use. The tail piece bar 31 is supported by a single link, as 32. These parts, and the bracket 33 for securing the link 32

to the body, are substantially the same as those described heretofore, the modification being in form only. The bridge 9' is preferably cut away at 10', as illustrated.

I have illustrated and described my improvements in detail in the form preferred by me. I am aware, however, that they are capable of considerable variation in structural details without departing from my invention, but as such variations will readily appear to those skilled in the art to which this invention relates, I do not attempt to point them out in detail herein.

Having thus described my invention, what I claim is new and desire to secure by Letters Patent is:

1. A stringed musical instrument comprising a bridge having a plurality of feet or bases; and a sounding-board-rib disposed below each bridge foot or base, said ribs being of different degrees of rigidity.

2. A stringed musical instrument comprising a plurality of longitudinally arranged sounding board ribs, said ribs being of different degrees of rigidity.

3. A stringed musical instrument comprising a bridge having an intermediate portion more yielding than the portion at each side thereof; and sounding board ribs disposed at either side of the said intermediate portion, said ribs being of different degrees of rigidity.

4. A stringed musical instrument comprising strings arranged in sets; and sounding board ribs arranged longitudinally of the sounding board, said ribs being of different degrees of rigidity, there being a rib for each set of strings.

5. A stringed musical instrument comprising strings arranged in sets; a bridge common to all of said strings; and sounding board ribs arranged longitudinally of the sounding board, said ribs being of different degrees of rigidity.

6. A stringed musical instrument comprising strings arranged in sets; and a sounding board rib disposed below each set of strings, said ribs being of different degrees of rigidity.

7. A stringed musical instrument comprising strings arranged in sets; a bridge common to all of said strings; and a sounding board rib disposed below each set of strings, said ribs being of different lengths and of different degrees of rigidity.

8. A stringed musical instrument comprising strings arranged in sets; a bridge common to all of said strings having a base or foot for each set of strings; and a sounding board rib disposed below each bridge base or foot, said ribs being of different degrees of rigidity.

9. A stringed musical instrument comprising strings arranged in sets; a finger board for one set of strings; a bridge com-

mon to all of said strings having a base or foot for each set of strings; and a sounding board rib disposed below each bridge base or foot, said ribs being of different degrees of rigidity, the rib for the base or foot of the set of strings having the finger board being the most rigid.

10 A stringed musical instrument comprising strings, arranged in sets; a finger board for one set of strings; a bridge common to both sets of strings; and sounding board ribs, said ribs being of different degrees of rigidity, the rib at the end of the bridge on which the strings provided with the finger board are arranged, being more rigid than the other.

15 11. A stringed musical instrument comprising a body having an extension at one end; a finger board arranged at the end of said body having said extension; strings arranged in sets, there being a set of strings extended over said finger board and another set extended over said extension; a bridge common to all of said strings and having a portion intermediate said sets of strings more yielding than the portion at each side thereof; and a sounding board rib disposed below each of said sets of strings, one rib being longer than the other and extended into said extension of said body.

20 12. A stringed musical instrument comprising a body having an extension; strings arranged in sets, one set extending over said extension; a bridge common to all of said strings having an intermediate portion more yielding than the portions at each side thereof; and a sounding board rib disposed below each set of strings, one rib being longer than the other and extended into said extension.

25 13. A stringed musical instrument comprising a body having an extension; strings arranged in sets, one set extending over said extension; a finger board for the other set of strings arranged at the end of said body

having said extension; a bridge common to all of said strings; and a sounding board rib disposed below each set of strings, one rib being longer than the other and extended into said extension.

14. A stringed musical instrument comprising a body having an extension; strings arranged in sets, one set extending over said extension; a bridge common to all of said strings; and a sounding board rib disposed below each set of strings, one rib being longer than the other and extending into said extension.

15. A stringed musical instrument comprising a bridge, said bridge having an intermediate portion more yielding than the portion at each side thereof; a plurality of sounding board ribs, said ribs being of different degrees of rigidity and being disposed at either side of said intermediate portion; a tail piece bar to which said strings are secured; and connections for said bar to said body permitting said bar to swing to and from the sounding board and preventing its lateral movement.

16. A stringed musical instrument comprising strings arranged in sets; a bridge common to all of the strings, said bridge being cut away on its under side, thereby forming a plurality of bridge bases and an intermediate portion more yielding than the portion at each side thereof; a sounding board rib disposed below each bridge base, said ribs being of different degrees of rigidity; a tail piece bar to which said strings are secured; and connections from said bar to said body, permitting said bar to swing to and from said sounding board.

In witness whereof, I have hereunto set my hand and seal in the presence of two witnesses.

GEORGE D. LAURIAN. [L. S.]

Witnesses:

C. E. BRADEN,
PHINA WOODRUFF.