(No Model.)

G. W. LYON.

MUSICAL INSTRUMENT.

No. 466,501. Patented Jan. 5, 1892.

Fig. 1.

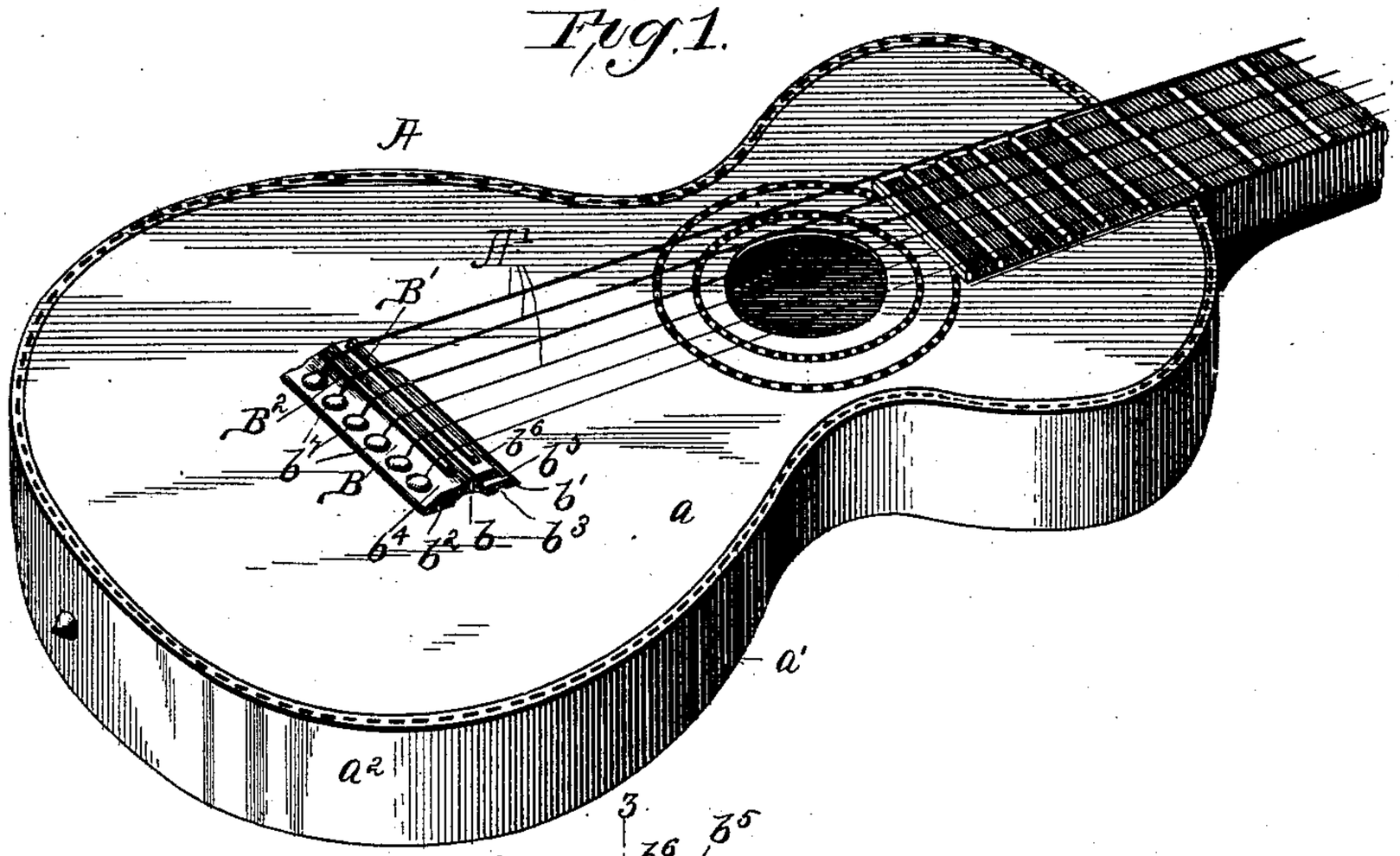


Fig. 2.

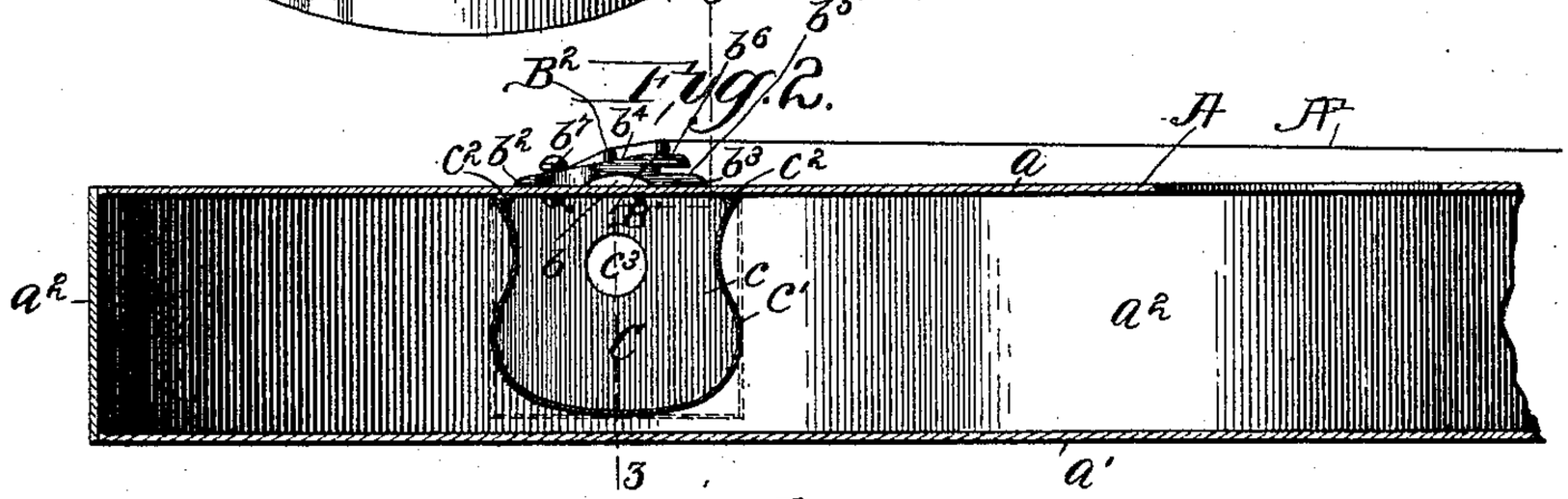
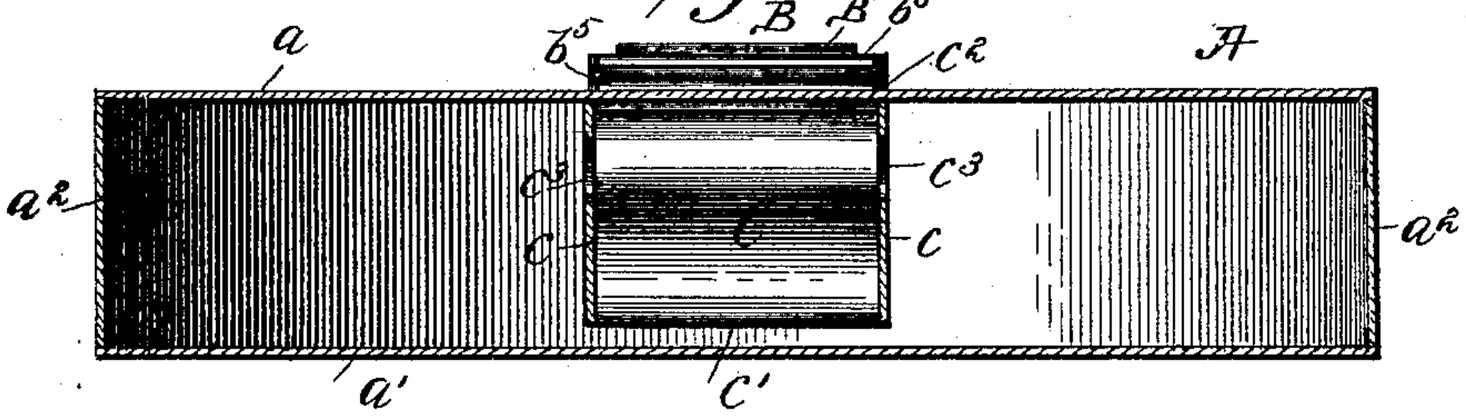


Fig. 3.



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UNITED STATES PATENT OFFICE.

GEORGE W. LYON, OF CHICAGO, ILLINOIS.

MUSICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 466,501, dated January 5, 1892.

Application filed August 25, 1891. Serial No. 403,656. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. LYON, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Musical Instruments; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to musical instruments, and more particularly to that class of stringed instruments which are provided with a hollow wooden body and are played by striking the strings with the fingers, such as guitars and mandolins.

The object of my invention is to improve both the quality and quantity of the tone of instruments of this class. Heretofore the great objection to instruments of this class has been the lack of fullness and body in the tone produced and the lack of duration of the tone, rendering it impossible to produce a sustained tone. To substitute for the short, hard, metallic, and jingling tone produced by the ordinary guitar or mandolin a sustained, round, and full tone of great power, combined with beauty and sweetness, is the object of my present invention; and to these ends my invention consists in certain novel features, which I will proceed to describe, and will then particularly point out in the appended claims.

In the accompanying drawings, Figure 1 is a perspective view of a guitar embodying my invention in one form. Fig. 2 is a central longitudinal sectional view of the same. Fig. 3 is a transverse sectional view taken on the line 3 3 of Fig. 2.

In the said drawings, A represents the body of the guitar, composed of the top or belly a, the back a', and the rim a^2, all constructed of wood or other suitable material in the usual manner. Upon the top a, on the outer or exposed face thereof, is mounted the bridge B, which is preferably constructed of wood. In the bottom of this bridge there is formed an arched passage or opening b, extending transversely thereof from side to side and open at its ends. Those portions of the bottom of the bridge on each side of the passage b, the same being the front margin b' and rear margin b^2 of the same, serve as attachment surfaces for the bridge, which is glued to the top a by means of these marginal surfaces and connected therewith at these points only. The front margin b' may be provided with a groove b^3, extending from side to side of the bridge in the manner shown.

The body of the bridge B is preferably of increasing thickness from the rear edge thereof to a point near the front edge, forming an inclined surface b^4. The front portion of the bridge, which is thus relatively of considerable thickness or vertical height, is grooved horizontally from its front edge rearward, as shown at b^5, the said groove extending the entire length of the said front edge from end to end thereof and forming an overhanging horizontal tongue or rib b^6.

The bridge B is a duplex bridge, being provided with two bearings B′ and B². The front bearing-strip B′ is preferably constructed of ivory or bone and is upright or at a right angle to the top a of the body A. This bearing-strip is mounted on or in the tongue or rib b^6, being located at a point at or near its junction with the body of the bridge, being connected therewith, preferably, in the usual manner—*i. e.*, by means of a groove in the bridge, into which the bearing-strip is set and fits snugly. The second bearing B² is preferably of steel or the like, and is located some distance to the rear of the bearing B² on the inclined surface b^4, above the passage b, and being arranged at a right angle to said incline and consequently inclined with relation to the bearing B′ and top a. This second bearing is also somewhat lower than the first bearing B′.

The usual pegs b^7, passing through apertures in the bridge B and top a, are employed to secure the strings A′ in the usual manner; or other suitable string-securing devices may be used. These devices are located rearward of the second bearing B².

Within the body A of the instrument there is located a tone-chamber C, secured to the under side of the top a immediately under the bridge B. This tone-chamber or sound-chamber is preferably constructed in the manner shown in full lines in Figs. 2 and 3, being composed of two side pieces c and a belly-piece c', each side piece having a straight up-

per edge to fit against the under side of the top, and the remainder of the edge being curved, as shown, to give a curved body to the chamber, contracted somewhat at a point below its top. The tone-chamber is secured to the under side of the top by gluing, strips c^2 being employed to secure the parts to each other and to the top. Apertures c^3 in each of the side pieces at the contracted portion of the chamber serve to permit ingress and egress of air and sound to and from the chamber. Although the form of chamber which I have just described is the one which I prefer, still for the general purposes of my invention I do not limit myself to this particular form, and I have shown in dotted lines in Fig. 2 a simple form of rectangular chamber which may be used with satisfactory results.

I have found in practice that the two bridge-bearings, located and arranged as described, give a strength and solidity to the parts which enable them to successfully bear a much greater strain. It will be noted that the front bearing is on the tongue or rib, while the rear bearing is on the reduced portion of the bridge which forms the arch of the passage *b*, so that a yielding action is obtained from the downward pressure of the strings on the bridge at these points, which favors the production of vibrations which result in a rich and sonorous quality of tone especially adapted to melody-playing. The resonance resulting from the open passage under the bridge is of material assistance in producing this desirable result.

The tone-chamber not only by its own resonance materially increases the power and volume of the tone, but by acting as a brace or truss to strengthen the top at a point where the strain of the strings is transmitted thereto through the bridge, it removes a great portion of this strain from the rim or body and prevents them from yielding to this strain, thus allowing the free vibration of the entire rim, and thereby adding to the strength and carrying power of the tone of the instrument. It will be noted that the tone-chamber is attached to the top only, and, moving therewith, does not restrict or interfere with its vibrations.

I claim—

1. The combination, with the body of a musical instrument of the character described, of a bridge secured to the top thereof, having two bearing-strips for the strings, and means for securing the ends of the strings to the bridge at a point away from said bearing-strips, substantially as described.

2. In a musical instrument of the character described, the combination, with the body, of a bridge secured to the top thereof and provided with two bearing-strips for the strings, arranged one above the other, and means for securing the ends of the strings, substantially as described.

3. In a musical instrument of the character described, the combination, with the body, of a bridge secured to the top thereof, said bridge being grooved horizontally at its front edge throughout its entire length to form an overhanging tongue, and a bearing-strip mounted on said tongue, substantially as described.

4. In a musical instrument of the character described, the combination, with the body, of a bridge secured to the top thereof, grooved horizontally at its front edge to form an overhanging tongue and having a central transverse passage formed in its under side, a bearing-strip mounted on the tongue, and a second bearing-strip mounted on the reduced portion formed by said transverse passage, substantially as described.

5. In a musical instrument of the character described, the combination, with the body, of a bridge secured to the top thereof and provided near its front edge with an upright bearing-strip, said bridge having a second inclined bearing-strip in the rear of the first-mentioned strip, and means for securing the ends of the strings, located rearward of the second bearing-strip, substantially as described.

6. In a musical instrument of the character described, the combination, with the body, of a bridge having in its under side a transverse passage or groove extending from side to side thereof and open at its ends, said bridge being secured to the top of the body by means of the front and rear margins of its under surface, substantially as described.

7. In a musical instrument of the character described, the combination, with the body provided with the usual aperture in its top, of a bridge secured to the upper side of the top of said body, and a tone-chamber located within the body and secured to the under side of said top at the point where the bridge is located, substantially as described.

8. In a musical instrument of the character described, the combination, with the body provided with an aperture in its top, of a bridge secured to the upper side of the top of the body, and a tone-chamber secured solely to the under side of the top at the point where the bridge is located, said tone-chamber being adapted to brace and strengthen the top and to relieve the rim of undue strain, substantially as described.

9. In a musical instrument of the character described, the combination, with the body provided with an opening in its top, of a bridge secured to the said top, and a tone-chamber secured solely to the under side of the top at the point where the bridge is located, said chamber being adapted to brace and strengthen the top and being provided with apertures for the ingress and egress of air and sound, substantially as described.

10. In a musical instrument of the character described, the combination, with the body provided with an aperture in its top, of a bridge secured to said top, and a tone-chamber secured solely to the under side of the top at the point where the bridge is located, said chamber being provided with a curved body contracted at a point slightly below its top

and being provided with apertures located at said contracted portion for the ingress and egress of air and sound, substantially as described.

11. In an instrument of the character described, the combination, with the body having an opening in its top, and a bridge secured to the said top, of a tone-chamber secured to the under side of the top under the bridge and in rear of the said opening in the top of the body, said tone-chamber comprising the plain side pieces *c*, having curved edges, as described, the belly-piece *c'*, bent to fit said curved edges, and the strips c^2, substantially as described.

In testimony that I claim the foregoing as my invention I affix my signature in presence of two witnesses.

GEORGE W. LYON.

Witnesses:
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EDWIN A. POTTER.