

United States Patent

Ezaki

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- [54] **STRINGED MUSICAL INSTRUMENT**
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- [51] Int. Cl.G10d 1/00, G10d 1/08
- [58] Field of Search84/263, 453, 267, 294, 296

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[57] **ABSTRACT**

A stringed musical instrument comprises one sound box having two sound boards each provided with a sound hole and a sidewall joining the sound boards, two necks provided for the sound boards respectively, two heads connected to the necks, two seal caps for closing the sound holes, and strings stretched between the heads and the sound boards, whereby musical tones having a variety of tone colors can be produced on both sides of the sound box.

3 Claims, 6 Drawing Figures

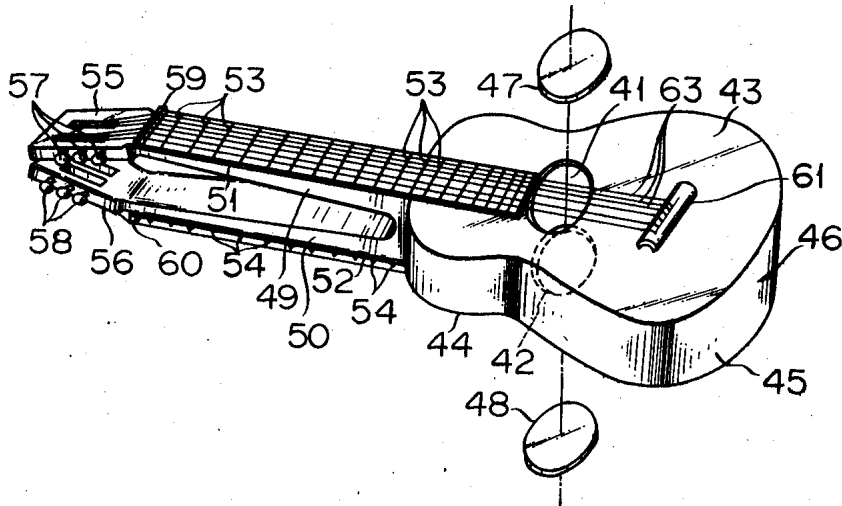


FIG. 1

PRIOR ART

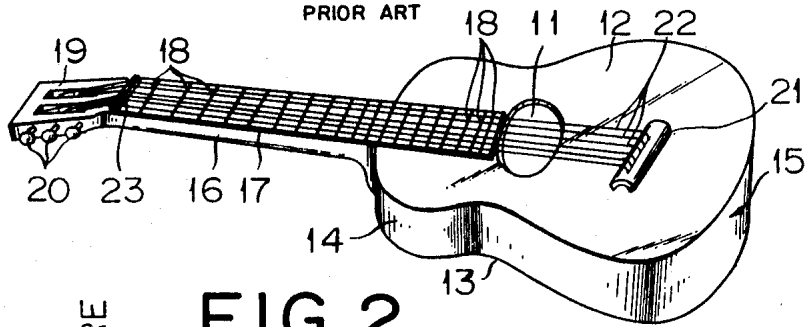


FIG. 2

PRIOR ART

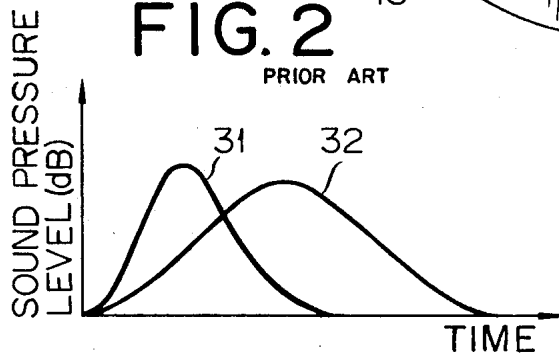
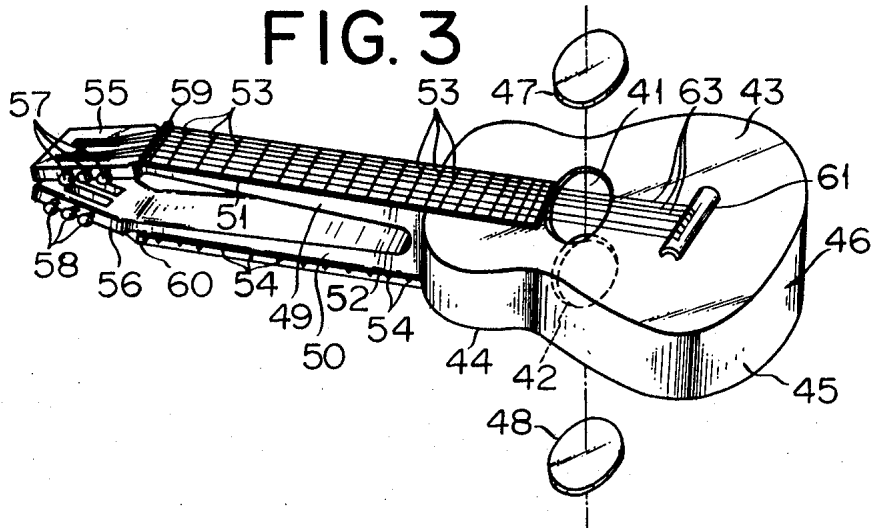


FIG. 3



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FIG. 4

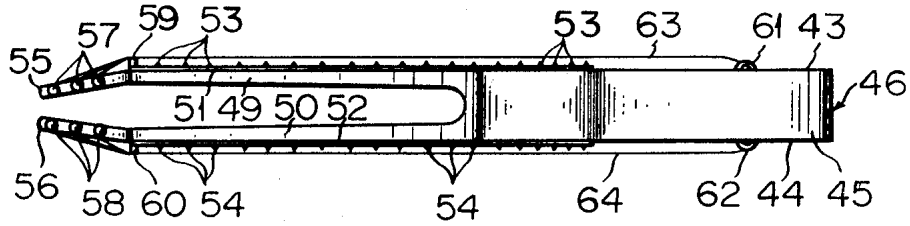


FIG. 5

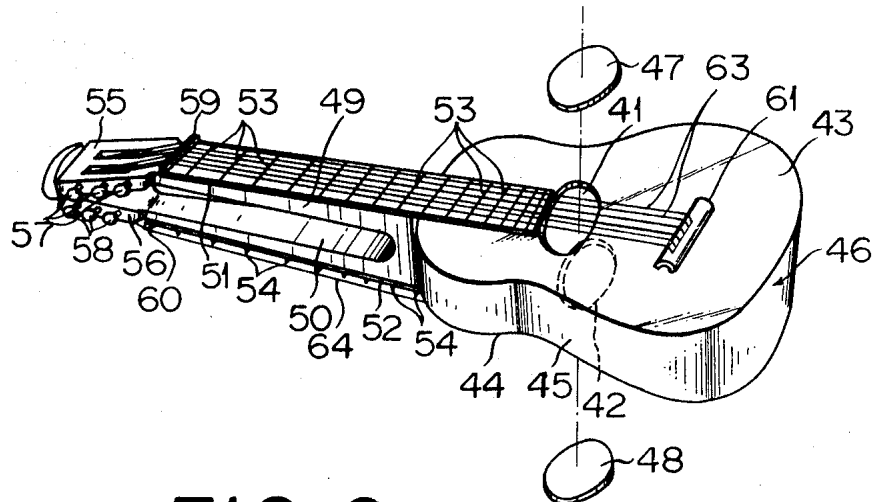
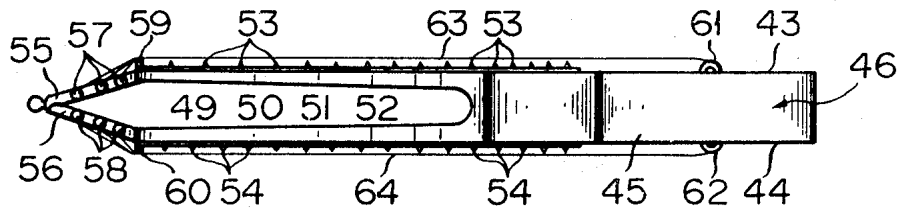


FIG. 6



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STRINGED MUSICAL INSTRUMENT

BACKGROUND OF THE INVENTION

The present invention relates to stringed musical instruments, for example, a guitar and more particularly to a novel type of stringed musical instrument having a double neck and sound board construction permitting performance to be played on both sides of its sound box.

There will now be described for convenience a guitar as an example, though this does not particularly limit the scope of the present invention. A guitar in common use generally has a construction illustrated in FIG. 1. Namely, the guitar comprises a sound board 12 having a sound hole 11 therein, a backwall 13 disposed substantially parallel therewith at a predetermined space and a sidewall 14 connecting the sound board 12 with the backwall 13, all of the board and walls collectively constituting a hollow sound box 15. There is also provided a rectangular long neck 16 in a manner to project from the specified part of the sidewall 14, the neck 16 having a surface substantially flush with that of the sound board 12. There is further disposed a thin-wall finger board 17 on the surface of the neck 16 as well as on the sound board 12 in a manner to extend from one end of the neck 16 up to the sound hole 11. To the surface of the finger board 17 are fixed a plurality of (often 19, but sometimes 23 or 27) frets 18 at predetermined spaces which are progressively broadened as apart from the sound hole 11. To the one end of the neck 16 is connected a head 19 which is inclined at a suitable angle to the surface of the finger board 17. To the both sides of the head 19 are rotatably fitted a plurality of tuning pegs 10. At the boundary between the head 19 and the neck 16 is fixed a string divider 23 whose top plane just slightly rises above that of the frets 18. A plurality of (often six, but sometimes 10 or 12) strings 22 are stretched between the tuning pegs 20 and a bridge 21 mounted on the sound board 12, passing over the sound hole 11 and the frets 18 and on the string divider 23. The vibration waves of the strings plucked by the player's fingers are transmitted to the sound board 12, causing the resultant resonant tones to be given forth from the sound box 15. In this case, the pitch of musical tones produced is defined by the materials and diameters of the strings used as well as by their tension resulting from adjustment by the tuning pegs. And the colors of musical tones produced are affected by the material, shape and size of the sound box 15 as well as by a plurality of wooden braces or brace members (not shown) fitted to the inside of the sound box 15. However, the conventional guitar of the aforesaid construction can only generate musical tones having a single tone color.

FIG. 2 represents the characteristics of musical tones produced by typical classic and flamenco guitars. The musical tones generated by the flamenco guitar display, as indicated by the curve 31, such sound characteristics as relatively sharply rise and decay, whereas those of the classic guitar exhibit, as shown by the curve 32, such features as relatively slowly rise and decay. Thus, the conventional guitar is so designed as to give forth musical tones having only a single tone color inherent to the guitar.

Further, the neck board 16 is always subjected to a very great bending moment due to the tension (about 30-50 kg. per string) of the strings 22, so that there likely occur curvatures in the neck 16. While it is advisable to use a thicker neck for avoidance of such curvatures, this will undesirably present difficulties in performance.

SUMMARY OF THE INVENTION

The present invention has been accomplished in view of the aforesaid situation, and is primarily intended to provide a stringed musical instrument having a double neck and sound board construction so as to permit musical tones having a variety of tone colors to be produced on both sides of its sound box. And another object of the invention is to provide a stringed musical instrument wherein the end portions of said two necks are fixedly coupled to each other through heads

connected thereto so as to mutually offset and reduce a bending moment applied to the necks by a plurality of strings stretched over their surfaces, thereby effectively elevating the substantial mechanical strength of said necks.

BRIEF EXPLANATION OF THE DRAWINGS

FIG. 1 is a perspective view of a conventional guitar;

FIG. 2 is a graph showing the characteristics of musical tones produced by typical classic and flamenco guitars in common use;

FIGS. 3 and 4 respectively are a perspective view and a side view of a guitar according to an embodiment of the present invention; and

FIGS. 5 and 6 respectively are a schematic perspective view and a side view of a guitar according to another embodiment of the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

There will now be described by reference to the appended drawings stringed musical instruments according to embodiments of the present invention. FIGS. 3 and 4 jointly represent a guitar according to one embodiment of the invention. The guitar comprises two sound boards 43 and 44 having respectively sound holes 41 and 42 therein and disposed substantially parallel to each other at a predetermined space, and a sidewall 45 fixedly connecting these sound boards 43 and 44, the sound boards and the sidewall constituting a hollow sound box 46. To the sound holes 41 and 42 of the sound box 46 may be detachably attached seal caps 47 and 48 respectively so as to obtain a more variety of tone colors as explained later. There are fixedly connected to the predetermined parts of the sidewall two necks 49 and 50 which extend substantially in the same direction in parallel relationship with their back sides facing each other. Each neck 49 or 50 has at its front side a surface which is substantially flush with the outer surface of the corresponding sound board. The two necks 49 and 50 are integrally joined together at the ends which are fixed to the sidewall 45. In this case, there should be provided between the back sides of the necks 49 and 50 along the substantially entire lengths of the necks a space into which the player's arm can be inserted. There are further disposed on the surfaces of the necks 49 and 50 and on the sound boards 43 and 44 very thin-walled finger boards 51 and 52 in a manner to extend from the ends of the necks 49 and 50 up to the sound holes 41 and 42. To the finger boards 51 and 52 are fixed a plurality of frets 53 and 54 at predetermined spaces which are progressively broadened as apart from the sound holes 41 and 42. To the other ends of the necks 49 and 50 are connected heads 55 and 56 which are inclined toward each other at a suitable angle respectively to the surfaces of the finger boards. To the both sides of the heads 55 and 56 are rotatably fitted a plurality of tuning pegs 57 and 58. At the boundaries between the heads 55 and 56 and the corresponding necks 49 and 50 are fixed string dividers 59 and 60 whose top planes just slightly rise above those of the frets 53 and 54. There are further provided bridges 61 and 62 at those parts of the sound boards 43 and 44 disposed in the extension of the finger boards 51 and 52. There are also provided a plurality of strings 63 and 64 which are fixed at one end to the bridges 61 and 62. These strings 63 and 64 which are stretched over the sound holes 41 and 42 and the frets 53 and 54 and on the string dividers 59 and 60 are wound at the other end about the tuning pegs 57 and 58.

Further to the inside of the sound box 46 including the vicinities of the sound holes 41 and 42 are fixed a plurality of wooden braces or brace members (not shown) mainly for reinforcement of the sound box 46 as well as for adjustment of the colors of musical tones.

With a guitar of the present invention constructed as described above, proper selection of the materials, shapes and sizes of the sound boards 43 and 44 and the sidewall 45 and the materials, diameters and number of the strings 63 and 64

will enable one side of the sound box 46 to be used, for example, as a classic guitar or six-stringed folk guitar and the other side to be used, for example, as a flamenco guitar or a 12-stringed folk guitar.

Further, there can be obtained varieties of tone colors, for example, by keeping the sound hole on the played side open and the sound hole on the nonplayed side open or closed. Namely, where there is made performance with the nonplayed side of the sound box 46 closed by means of the seal cap 47 or 48, the vibration waves of the strings plucked by the player's fingers are transmitted, as in the conventional guitar, to the sound board and cause resonant tones to be given forth from the sound from box 46, thus permitting independent performance to be carried out on each side thereof. On the other hand, where there is conducted performance with the sound holes on both the played and nonplayed sides left open, the strings 63 or 64 on the nonplayed side resonate with the tones produced from those 64 or 63 on the opposite played side through the open sound holes on the played and nonplayed sides, so that there can be obtained from the sound box 46 musical tones having unique tone colors in which there are mixed said resonant tones from the strings on the nonplayed side with those from the played sided, namely, such musical tones as resemble, for example, those played by the conventional 10-string guitar. Accordingly, the present invention enables a single guitar to produce musical tones having a variety of tone colors by selective use of either side of the sound box.

FIGS. 5 and 6 jointly represent a guitar according to another embodiment of the present invention. In this embodiment, the heads 55 and 56 respectively connected to the ends of the two necks 49 and 50 and inclined toward each other are fixedly joined together by a suitable fastening means such as screws. A guitar constructed according to the embodiment of FIGS. 5 and 6 not only displays the same effect as the preceding embodiment, but also causes the bending moments applied to the two necks by the tension of the strings stretched along

their surfaces to be fully offset, because the bending moment exerted by the strings on one of the necks counteracts the bending moment exerted by the strings on the other of the necks so as to extinguish itself, thereby effectively preventing the occurrence of curvatures in said necks, and leading to prominent increase in their substantial mechanical strength. The further advantage of the invention is that the necks 49 and 50 may be made appreciably thinner than in the prior stringed instrument and performance is much more facilitated.

The same parts of FIGS. 5 and 6 as those of FIGS. 3 and 4 are denoted by the same numerals and description thereof is omitted.

What is claimed is:

1. A stringed musical instrument comprising a hollow sound box formed of two sound boards each having a sound hole therein, said sound boards being disposed at a predetermined space in substantially parallel relationship, and a sidewall fixedly coupling said sound boards, said sound boards and sidewall defining a sound chamber common to both of said sound boards; seal caps detachably attached to said sound boards, each of said seal caps closing said sound hole; two necks extending from the predetermined parts of the sidewall with their outer surfaces substantially flush with those of both sound boards respectively; a head connected to each of said necks; finger boards fixed at least on said surfaces of the necks and provided with a plurality of frets thereon; and a plurality of strings stretched between said heads and said sound boards.

2. The stringed musical instrument according to claim 1 wherein said necks extend in the same direction in spaced parallel relation to one another and each neck terminates in a head.

3. The stringed musical instrument according to claim 1 wherein said necks extend substantially in the same direction in a parallel relationship with their rear sides facing each other and said heads are fixedly connected together.

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