BRIDGE FOR STRING INSTRUMENTS

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The present invention relates to musical instruments and more particularly to a bridge for guitars and the like.

Guitars or similar instruments generally comprise a sound box or body having sound holes therein, a neck having a finger board, six strings attached to the lower end of the body by a tail piece, and to the upper end of the neck by tuning pegs, and a bridge adjacent the sound holes for supporting and spacing the strings from the sound box. Usually, the strings are tuned E, A, D, G, B and E' in ascending pitch and are arranged on the bridge in the order named from the bass side to the treble side of the bridge. The variation in pitch is attained by tightening the strings to different tensions and by varying the thickness of the strings. For example, the bass strings or strings for producing the lower notes are proportionately thicker than the strings for producing the higher notes or treble notes. Due to the variation in thickness of the strings, each string usually is subjected to a different tension when tuned to its desired pitch.

The instrument is played by holding the strings against the finger board with the fingers of one hand and by plucking or strumming the strings adjacent the bridge and sound holes with the other hand. When the strings are plucked, they are caused to vibrate. These vibrations are transmitted to the sound box by the bridge and a large mass of air in the sound box is set in motion to amplify the tones produced.

The bass strings or strings which are relatively thicker must be plucked with greater effect to set them in motion. Once set in motion, these strings have a vibratory movement of greater extent than the lighter or thinner strings which lasts a relatively longer period of time than the vibratory movement of the thinner strings. Hence, when a chord is struck the treble notes fade out sooner than the bass notes, and the bass notes remain audible. When the vibrations of the bass strings begin to decrease in amplitude of vibration or fade in vibratory extent, they emit rumbling or swishing displeasing sounds, usually accompanied by overtones which impair the quality of desired tones.

The present invention aims to overcome the above difficulties and objections by equalizing the bass notes so that they will not over-ride the treble notes by distributing the tones more evenly into the sound box. The present invention aims to accomplish this by providing the bass side of the bridge with a relatively heavier and longer foundation than the treble side to equalize the loudness of the notes and modulate excessive vibrations of the bass strings to eliminate rattling or swishing tones.

An object of the present invention is to provide an improved bridge for string instruments. Another object of the invention is to provide a bridge for uniformly transmitting and distributing bass and treble tones into the sound box of a string instrument. Another object of the invention is to provide a bridge for string instruments adapted to absorb undue vibrations of the bass strings and to eliminate undesirable noises incident to such vibrations. Another object of the invention is to improve the tonal balance of the strings of a guitar or the like. Another object of the invention is to provide a bridge having a relatively heavier and longer foundation at the bass side thereof.

A further object is to accomplish the above objects and advantageous results without materially increasing the cost of the bridge or complicating its manufacture.

Other and further objects of the invention will be apparent upon an understanding of the illustrated embodiment about to be described and various advantages not referred to herein will occur to one skilled in the art upon employment of the invention in practice.

A preferred embodiment of the invention has been chosen for purposes of illustration and description and is shown in the accompanying drawing, wherein Figure 1 is a top plan view of a guitar, illustrating a preferred embodiment of the invention. Figure 2 is an enlarged top plan view of the bridge illustrated in Figure 1; Figure 3 is a sectional view taken on line 3—3 of Figure 1; and Figures 4 and 5 are sectional views taken on lines 4—4 and 5—5, respectively, of Figure 3, illustrating by comparison the relative width and thickness of the base or foundation of the bridge at the respective sides thereof.

Referring to the drawing and more particularly to Figure 1, there is shown a guitar 1 or similar instrument comprising a body or sound box 2, having sound holes 4 and 4' therein, a neck 5, a suitable number of strings, for example six, attached to the lower end of the sound box by a tail piece 6 and to the upper end of the neck by tuning pegs 7, and an improved bridge 9, about to be described, for supporting and spacing the strings from the sound box. The strings pref-
erably are tuned E, A, D, G, B and E' and are arranged in that order, in ascending pitch from the left or bass side to the right or treble side of the bridge. The strings of lower pitch are relatively thicker than strings of higher pitch.

In Figures 1, 2 and 3, the improved bridge 9 is shown in detail, which comprises a member 10 for mounting the strings and a base member or foundation 11 for supporting the member 10 on the sound box. The string mounting member 10 has an upwardly tapered upper surface terminating in a crest 12 having notches 13 therein for seating the strings. Preferably, the crest is slightly concave or rounded lengthwise (Figure 3) and is inclined with respect to a longitudinal plane of the member 10 towards the tail piece from the treble side to the bass side of the bridge (Figure 2).

The string mounting member 10 is adapted to be raised and lowered with respect to the base member 11 to adjust the tightness of the strings. This may be accomplished by seating the string mounting member 10 on a pair of suitable disc members 14 threaded upon upright screw members 15. The lower ends of the upright members 15 are secured in the base member 11 and their upper ends extend through apertures 16 at each end of the string mounting member 10. If desired, the disc members 14 may be adjusted independently to tilt the string mounting member 10 at any suitable angle to facilitate strumming or plucking the strings.

The base member 11 of the bridge rests upon the sound box adjacent the sound holes (Figure 1) and is adapted to transmit the vibrations of the strings to the sound box. Preferably, the base member is relatively wider and thicker at the bass side of the bridge (Figures 3 and 4) to increase the mass thereof and provide a heavy base foundation which takes up the rattle of the heavy base strings and uniformly distributes the vibrations into the sound box.

To further improve the tone of the instrument, the base member 11 has a laterally extending or side portion 20 at the bass side of the bridge. The relatively long portion 20 at the bass side extends across the sound box a considerably longer distance and preferably lower than the shorter portion 21. By reason of the increased length of the base or foundation at the bass side, the vibrations of the bass strings are distributed over a greater area on the sound box.

Consequently, vibrations having a relatively great amplitude are materially dampened and are transmitted into the sound box in smaller components. The bridge eliminates swisy or rattling sounds and prevents vibrations of the bass strings caused by any slapping action of the bridge against the sound box. As a result, the vibrations of the heavy bass strings are modulated to blend with the vibrations of the treble or thinner strings. When chords are played, they are heard as an entirety. The bass notes do not over-ride the treble notes whereby tonal balance is substantially attained.

A further feature of the invention is that the elongated side portion 20 is curved toward the lower end of the sound box so that the end 24 thereof is spaced about the same distance from the sound hole 4 at the bass side as the end 25 of the side portion 21 is spaced from the sound hole 4 at the treble side. In this manner the loudness of the tones emitted from the sound holes is balanced. The crest 12 of the string mounting member 10 is inclined lengthwise in the same direction the elongated side portion 20 is curved and tends to transmit the vibrations of the strings downwardly to the middle of the base 11.

The thickness of the base or foundation 11 preferably decreases as it approaches its respective ends. As a result, the ends are more sensitive to vibrations and are more effective to transmit them to the sound box. To decrease the thickness of the base, and enhance the appearance of the bridge, the side portions 20 and 21 may be terraced or stepped towards their respective ends 24 and 25.

It will be seen that the present invention provides an improved bridge for string instruments, such as guitars and the like. The bridge performs a three-fold purpose. It provides a heavier foundation for the bass strings, it takes up any slapping or rattling action of the bass strings and distributes the vibrations of the base strings into the sound box more evenly. As a result, the quality of the tones produced by the instrument is greatly improved and the construction is more durable. In use, the bridge may be readily field as an improved bridge for stringed instruments and may be used on the normal number of strings and comprising a base and a string mounting portion on said base, having laterally extending portions at each side thereof extending beyond said string mounting portion, one of said laterally extended portions being about twice as long as the other, the thickness of said extending portions gradually decreasing outwardly. A bridge for string instruments and the like, a string mounting portion adapted to receive the normal number of strings having laterally outwardly extended portions at each side thereof extending beyond said string mounting portion, one of said laterally extended portions being about twice as long as the other, the thickness of said extending portions gradually decreasing outwardly. A bridge for string instruments and the like, a string mounting portion adapted to receive the normal number of strings having laterally outwardly extended portions at each side thereof extending beyond said string mounting portion, one of said laterally extended portions being about twice as long as the other, the thickness of said extending portions gradually decreasing outwardly.
tions extending outwardly from and beyond said string mounting portion, the thickness of said extending portions gradually decreasing outwardly, one of said end portions being curved lengthwise and being greater in length than the other end portion.

6. A bridge for string instruments and the like adapted to receive the normal number of strings and comprising a base and a string mounting portion on said base, said base increasing in width and thickness from the treble side to the bass side of the bridge and having end portions extending outwardly from and beyond said string mounting portion, the thickness of said extending portions gradually decreasing outwardly, the end portion at the bass side being greater in length than the end portion at the treble side and being curved lengthwise.

7. A bridge for string instruments and the like adapted to receive the normal number of strings and comprising a base and a string mounting portion on said base, said base increasing in width and thickness from the treble side to the bass side of the bridge and having end portions extending outwardly from and beyond said string mounting portion, the thickness of said extending portions gradually decreasing outwardly, the end portion at the bass side being greater in length than the end portion at the treble side, and a string mounting member on said base having a crest inclined in the same direction said base is curved.

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