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V. DI MARZIO

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RESILIENT BRIDGE FOR STRINGED MUSICAL INSTRUMENTS

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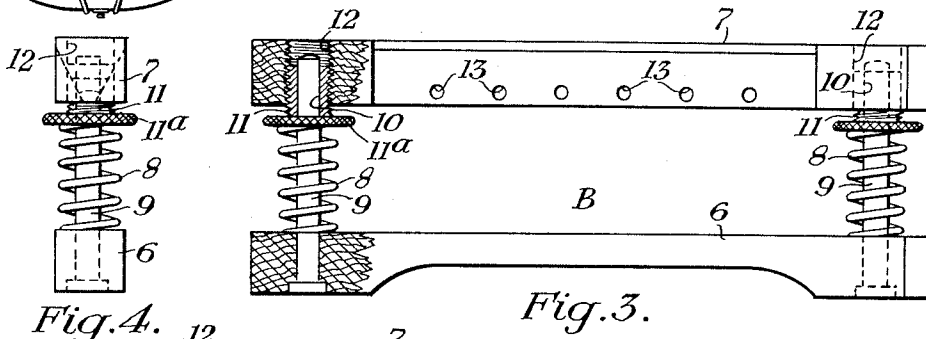
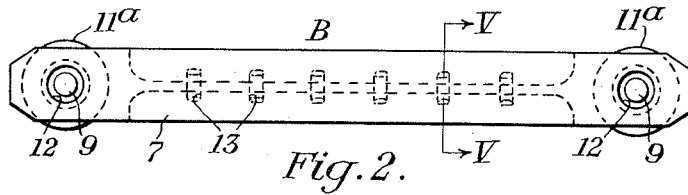
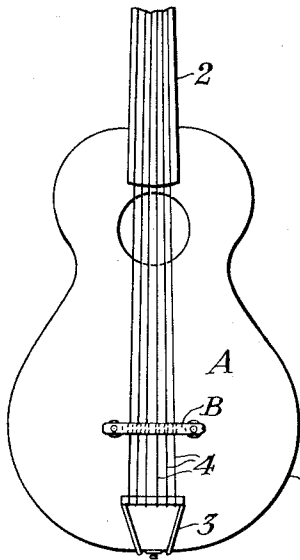


Fig. 4.

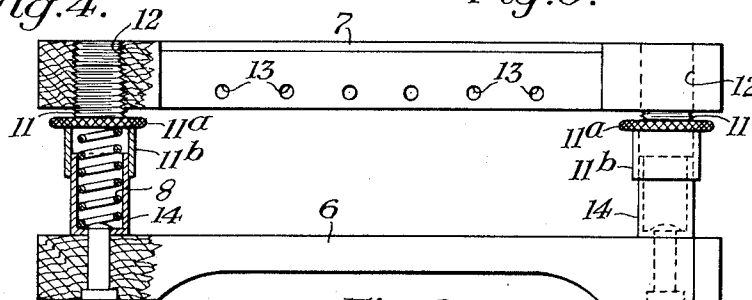


Fig. 6.

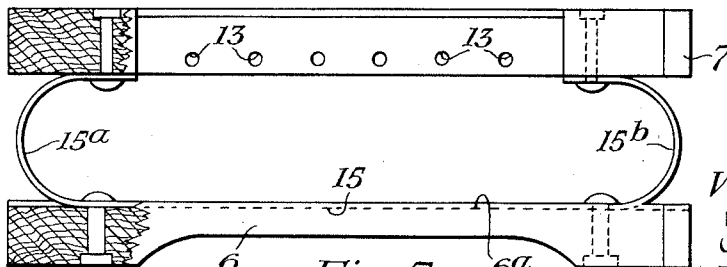


Fig. 7.

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RESILIENT BRIDGE FOR STRINGED
MUSICAL INSTRUMENTS

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5 Claims. (Cl. 84—307)

My invention relates to resilient bridges for stringed musical instruments, and particularly to resilient bridges for instruments which are played by picking or plucking the strings, such for example, as guitars, mandolins, and the like, although it is also useful on other stringed instruments of this general class or type.

One object of my invention is to increase the life of the strings of the instrument on which it is used.

Another object of my invention is to improve the tone quality of the instrument on which it is used.

A further object of my invention is to enable the player of an instrument on which it is used to obtain vibrato or tremolo tones more readily than has heretofore been possible.

I will describe three forms of bridges embodying my invention, and will then point out the novel features thereof in claims.

In the accompanying drawing, Fig. 1 is a top plan view showing a guitar provided with a bridge embodying my invention. Fig. 2 is a top plan view showing, on an enlarged scale, the bridge removed from the instrument. Fig. 3 is a front view, partly in elevation and partly in section, of the bridge shown in Fig. 2. Fig. 4 is an end view of the bridge shown in Figs. 2 and 3. Fig. 5 is a sectional view taken on the line V—V of Fig. 2. Fig. 6 is a view similar to Fig. 2 showing a modified form of bridge also embodying my invention. Fig. 7 is another view similar to Fig. 2 showing another form of bridge embodying my invention.

Similar reference characters refer to similar parts in each of the several views.

Referring first to Fig. 1, I have here shown one form of bridge embodying my invention applied to a guitar A having the usual body 1, neck 2, tail piece 3, and strings 4. The bridge, which bridge is designated as a whole by the reference character B, comprises a base member 6 which rests on the top of the instrument, and a top bar 7 which is resiliently supported on the base member 6 by suitable means, here shown as a pair of coil springs 8. The coil springs are held in the proper positions between the base member 6 and the top bar 7 by means of posts 9 which project upwardly from the base member through the springs and through clearance holes 10 provided in adjusting nuts 11 which are screwed into tapped holes 12 formed in the top bar 7. The top bar is provided with holes 13 through which the strings 4 pass, and it will be obvious that by screwing the adjusting nuts

11 into or out of the tapped holes 12, the top bar 7 may be lowered or raised, thus enabling the elevation of the strings above the fingerboard to be adjusted to meet the requirements of the particular instrument, or the desires of the player. To facilitate adjustment of the adjusting nuts, these nuts are provided with knurled flanges 11^a, which flanges also serve to provide a good bearing surface for the upper ends of the springs 8. The central portion of the top bar 7, that is to say that portion in which the holes 13 for the reception of the strings 4 are provided, is preferably made triangular in shape, as shown in Fig. 5, and the lower portions of the holes 13 are rounded in the manner shown, to decrease wear on the strings. The base member 6 and top bar 7 may be made of any suitable materials, the preferred material being hard wood, such for example, as ebony.

With the bridge constructed in the manner described, it will be apparent that the bridge is held in place on the instrument by the component forces of the strings 4 in tension, which component forces compress the springs 8 to a point where a balance is reached. It will also be apparent that any sudden stresses which are produced in the strings when the instrument is being played will be cushioned by the springs, and the life of the strings is therefore greatly lengthened. Furthermore, I have found that by properly designing the parts, and particularly the springs 8, it is possible to obtain from inferior instruments tones having a quality which can generally be obtained only from the better grades of instruments. I have also found that by resting the palm of the hand which is used to pick the strings on the top of the top bar 7, and moving the hand in a manner to vibrate the top bar, it is possible to readily obtain a vibrato or tremolo tone, which tone is extremely difficult to obtain on instruments which are provided with the usual solid type of bridge.

Referring now to Fig. 6, in the modified form of bridge here shown the springs 8 which resiliently support the top bar 7 are enclosed within tubular members 14 which are secured at their lower ends to the base member 6, and which slidably cooperate at their upper ends with cup shaped guides 11^b formed integrally with the flanged portions 11^a of the nuts 11. It will be obvious that when the bridge is constructed in the manner shown in Fig. 6, it will function in the same manner as when it is constructed in the manner illustrated in the preceding views,

but the appearance of the bridge is improved due to the fact that the springs are wholly hidden from view.

Referring now to Fig. 7, in the modified form of bridge here shown, the resilient means for supporting the top bar 7 comprises a leaf spring 15 provided at its ends with U-shaped return bends 15^a and 15^b. The lower portion of the leaf spring is secured to the base member 6 within a groove 6^a which is provided in the upper side of the base member, while the confronting ends of the return bends are secured to the underside of the top bar. The construction shown in Fig. 7 is cheaper than that shown in the preceding views, but is subject to the disadvantage that the height of the top bar with respect to the base member 6 is not adjustable.

It should be particularly pointed out that while it is preferable in all forms of my invention to use a top bar having holes through which the strings pass rather than grooves for the reception of the strings because of the fact that it is contemplated to vibrate the top bar by placing the hand on it, the top bar may, if desired, be provided with notches in its upper surface in place of the holes 13 for the reception of the strings.

Although I have herein shown and described only three forms of resilient bridges embodying my invention, it is understood that various changes and modifications may be made therein within the scope of the appended claims without departing from the spirit and scope of my invention.

Having thus described my invention, what I claim is:

1. In a bridge for stringed musical instruments, the combination of a base member, upwardly projecting posts secured to said base member adjacent its ends, coil springs surrounding said posts, a top bar provided with screw threaded holes through which the upper ends of said posts pass with clearance, and adjusting nuts screwed into said holes and resting on the upper ends of said springs and provided with holes which slidably receive the upper ends of said posts, whereby

said top bar is resiliently supported in an adjustable position by means of said springs.

2. In a bridge for stringed musical instruments, the combination of a base member, a top bar supported on said base member by means of springs and provided with means for the reception of the strings, and adjustable means for varying the elevation of said top bar relative to said base member.

3. In a bridge for stringed musical instruments, the combination of a base member which is adapted to rest on the top of the instrument, a top bar mounted for sliding movement relative to said base member and provided with through holes for the reception of the strings, and spring means interposed between said base member and said top bar for urging said top bar to a spaced position relative to said base member.

4. In a bridge for stringed musical instruments, the combination of a base member adapted to be mounted on the top of the instrument and a top bar resiliently supported on said base member by means of springs, said top bar being provided with a central triangular portion having its base disposed at the top of the bar and having holes extending therethrough near the apex thereof, said holes being formed with rounded lower portions to decrease string wear.

5. In a bridge for stringed musical instruments, the combination of a base member, an upwardly extending tubular member secured to said base member adjacent each end of said base member, a coil spring disposed in each tubular member, a top bar disposed in alignment with said base member and provided adjacent each end with a screw threaded hole which aligns axially with one of said tubular members, and an adjusting nut screwed into each screw threaded hole and resting at its lower end on the upper end of the adjacent spring and provided with a cup shaped guide which slidably receives the upper end of the adjacent tubular member, whereby said top bar is resiliently supported in an adjustable position by means of said springs.

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