United States Patent

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[54] **GUITAR BRIDGE AND TAILPIECE**
10 Claims, 6 Drawing Figs.

[52] **U.S. Cl.** **84/298**
[51] **Int. Cl.** **G10d 3/04**
[50] **Field of Search** 84/299, 297, 298, 301, 307, 267, 268

[56] **References Cited**

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ABSTRACT: A combined bridge and tailpiece for a guitar or similar stringed musical instrument includes a base member having an elongated bridge strip projecting from the forward surface thereof and arranged generally perpendicular to the strings. Below the bridge strip the base member includes a plurality of holes, for receiving the strings, passing from its forward surface to its lower surface. A reinforcing strip of metal is inset in the rear surface of the base member and arranged so that the string openings pass therethrough.

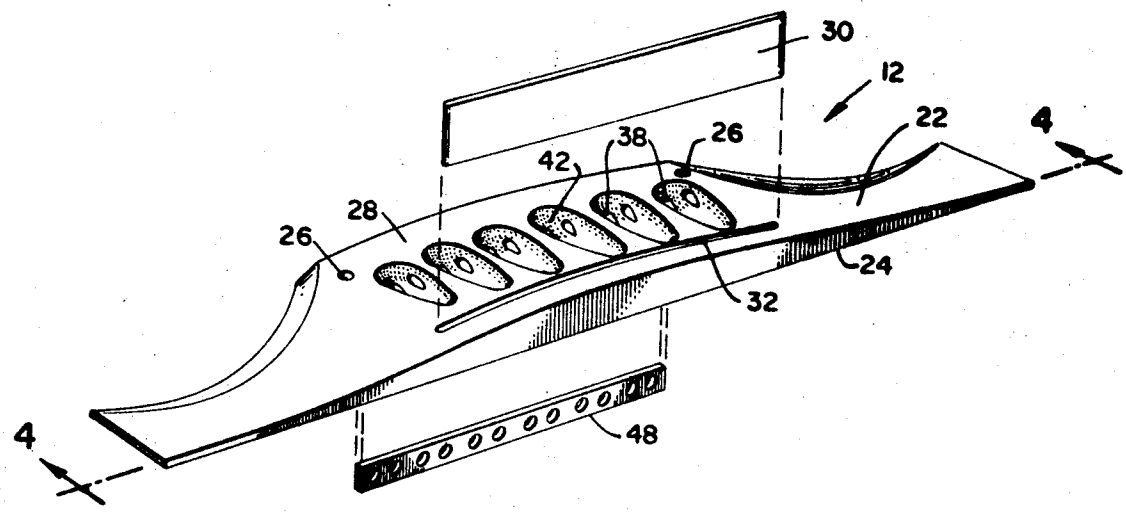


FIG. 1

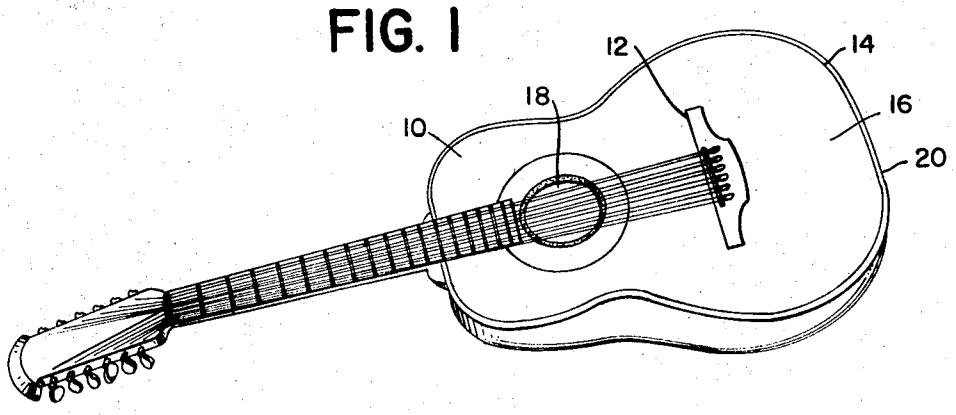


FIG. 2

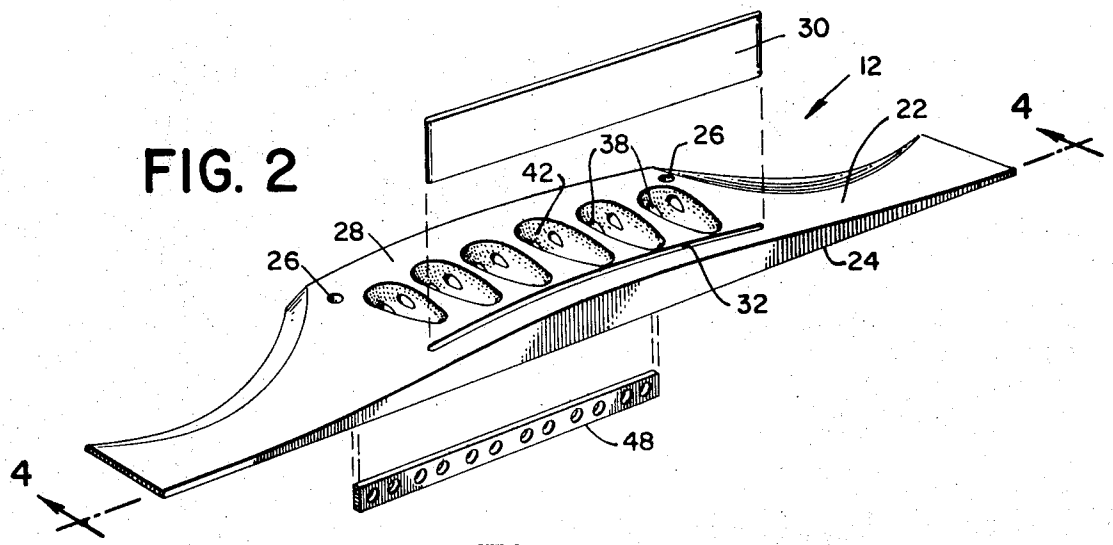
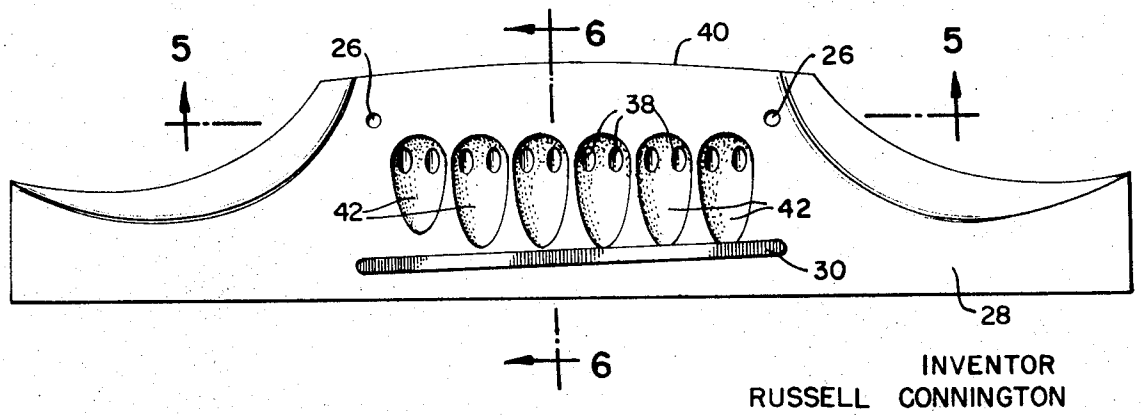


FIG. 3



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FIG. 4

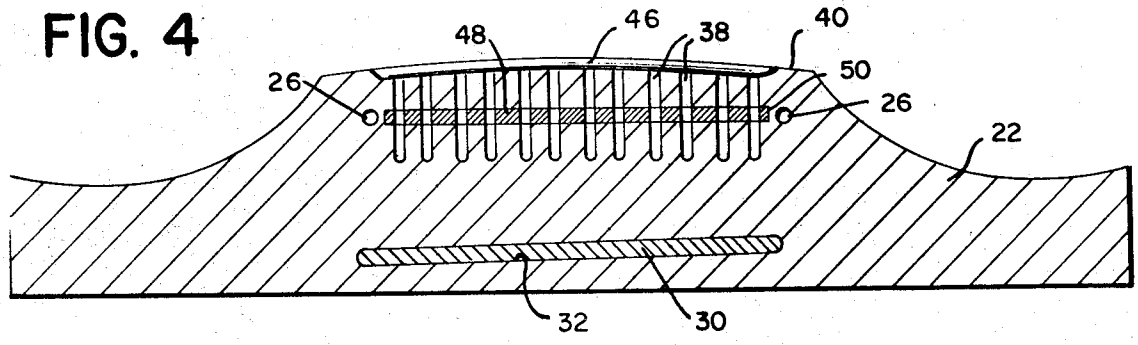


FIG. 5

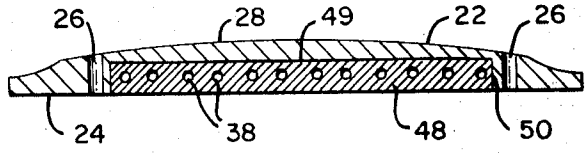
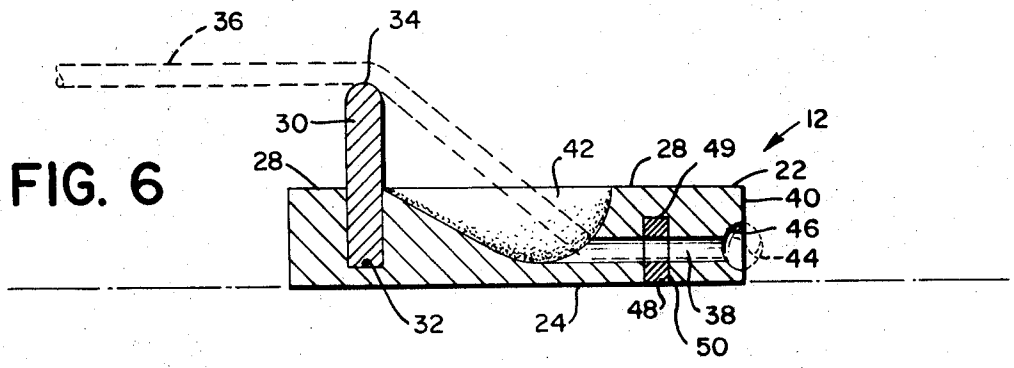


FIG. 6



GUITAR BRIDGE AND TAILPIECE

BACKGROUND OF THE INVENTION

This invention relates to guitars and other similar stringed musical instruments and deals more particularly with a combined bridge and tailpiece for use with such an instrument.

Various different styles of guitars and other similar stringed musical instruments utilize a combined bridge and tailpiece consisting of a base member, usually made of wood, having a flat rear surface and attached to the top surface of the instrument body between the sound hole and the bottom end thereof by glue and/or one or more screws or other fasteners passing into or through the instrument top. This base member carries an elongated bridge strip projecting forwardly from its forward surface and arranged generally perpendicular to the strings so as to engage, at its forward edge, the strings in a usual bridge fashion. Below this bridge strip the base member includes a plurality of openings, for receiving the individual strings, passing from its forward surface to its lower surface and which lower surface is usually arranged generally perpendicular to the instrument top. This lower surface is engageable with the beads on the lower ends of the instrument strings and therefore constitutes an abutment surface for preventing the strings from moving upwardly.

The strings pass generally forwardly and upwardly in passing from the upper ends of the aforementioned holes to the bridge strip, and since they are, when properly tuned, under considerable tension, they apply forces to the material of the base member, at the upper ends of the holes, tending to rupture or separate the material of the base member along the plane containing the openings, and due to the presence of the openings the base member is weakened along this plane. Accordingly, it has not been an uncommon occurrence in the past for combined bridge and tailpiece units of this general nature to fail by cracking or splitting in the vicinity of the string openings.

The general object of this invention is to provide a combined bridge and tailpiece of the aforedescribed character which is constructed so as to substantially avoid or overcome the problem of splitting as a result of the forces applied thereto by the strings. A more particular object is to provide such a combined bridge and tailpiece including a reinforcing member which acts to avoid such splitting or cracking and which reinforcing member is hidden from view so as not to detract from the appearance of the combined bridge and tailpiece.

SUMMARY OF THE INVENTION

This invention resides in a combined bridge and tailpiece consisting of a base member adapted for attachment to the associated instrument and having a means affixed thereto providing a bridge surface located forwardly from its forward surface and extending generally perpendicular to the strings so as to support the strings in normal bridgelike fashion. Below the bridge surface the base member includes a plurality of string receiving openings passing from its forward surface to its lower surface, and located between the opposite ends of these openings and extending generally perpendicular thereto is a reinforcing strip of metal or other strong material through which the openings pass. The string forces are therefore reacted by the reinforcing strip which distributes them uniformly over the adjacent material of the base member and thereby avoids stress concentrations tending to initiate cracking and splitting of the base member material. Preferably, the reinforcing member is inset in the base member from the rear surface thereof and terminates a substantial distance short of the forward surface of the base member so as to be both hidden from view and to have a substantial body of base member material against which the forces applied thereto may be reacted.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a guitar equipped with a combined bridge and tailpiece embodying this invention.

FIG. 2 is an exploded perspective view showing the combined bridge and tailpiece of FIG. 1.

FIG. 3 is a plan view of the combined bridge and tailpiece of FIG. 1.

FIG. 4 is a longitudinal sectional view through the combined bridge and tailpiece of FIG. 1 and taken on the plane passing through the string openings thereof, such plane being indicated generally by the line 4–4 of FIG. 2.

FIG. 5 is a transverse sectional view taken generally on the line 5–5 of FIG. 3.

FIG. 6 is a transverse sectional view taken on the line 6–6 of FIG. 3.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIG. 1, this figure shows a guitar 10 having a combined bridge and tailpiece 12 embodying the present invention. The guitar 10 has a body 14 with a flat top 16 to which the combined bridge and tailpiece 12 is attached both by an adhesive and by fasteners passing therethrough and into and through the top 16. The combined bridge and tailpiece 12 is located in a conventional manner between the sound hole 18 of the guitar body and its lower end 20. In the case of the particular guitar 10 illustrated the guitar is a 12-string guitar and the combined bridge and tailpiece 12 is accordingly constructed for use with 12 strings. The invention however is obviously not limited to a combined bridge and tailpiece usable with this number of strings and in accordance with the invention a combined bridge and tailpiece may be made to accommodate various other numbers of strings. Also, the combined bridge and tailpiece of this invention is not strictly limited to use with guitars and it may be applied to other types of appropriate instruments, such as for example mandolins and lutes, if desired.

Referring to FIGS. 2 to 6 for detailed description of the combined bridge and tailpiece 12 of FIG. 1, this unit, as shown, comprises a base member 22. This member as is customary with similar members of prior art devices may be made from a wood such as ebony or rosewood, from a plastic, or from a resin impregnated wood such as rosewood impregnated with a phenolic resin. The base member 22 is of a generally elongated shape and, as shown in FIG. 1, is adapted to be attached to a guitar with its longitudinal axis generally perpendicular to the axis of the strings. Its rear surface 24 is relatively flat so as to flatly engage the flat top surface 16 of the guitar. Two openings 26, 26 pass through the base member 22 from its forward surface 28 to its rear surface 24 for receiving screws, bolts or other fasteners used to retain or aid in retaining the device to the associated guitar.

The base member 22 has a means affixed thereto defining a bridge surface located forwardly of its forward surface 28 and extending generally perpendicular to the strings so as to support the latter in normal bridge fashion. The means providing this bridge surface may vary without departing from the broader aspects of the invention, but in the illustrated case it consists of an elongated bridge strip 30 which is received in a correspondingly shaped recess 32 communicating with the forward surface 28 of the base member 22. The recess 32, as best shown in FIG. 6, does not extend fully through the thickness of the base member 22 and the width of the bridge strip 30 is substantially greater than the depth of the recess 32 so that it projects a substantial distance beyond the forward surface 28 of the base member. The forward edge 34 of the bridge strip in turn defines the bridge surface which engages the strings, one of which is shown by the broken lines of FIG. 6 at 36. The strip 30 may either be press fit in the recess 32 or held therein by a suitable adhesive.

Below the bridge strip 30 the base member 22 includes a plurality of openings 38, 38 for receiving the lower ends of the instrument strings, there being twelve such openings in the illustrated device. Each of these openings 38, 38 passes from

the lower surface **40** of the base member to its forward surface **28**, the lower surface **40** being the surface extending between the rear surface **24** and the forward surface **28** at the lower edge of the base member. The forward surface of the base member **22** in turn includes six recesses or cavities **42, 42**, each of a shape generally similar to that formed by a gouge and each communicating with a respective pair of the openings **38, 38**. These cavities **42, 42** provide freedom for the strings so as to allow them to pass freely from the upper ends of the openings **38, 38** to the bridge surface **34**, as shown best in FIG. **6**. Also as shown in FIG. **6** the bridge and tailpiece **12** is designed for use with a string such as shown at **36** having a bead **44** at its lower end which bead engages the lower surface **40** of the base member to restrain the string **36** against upward movement as it is tightened. Preferably, and as shown in FIGS. **4** and **6**, the lower surface **40** includes an elongated groove **46** passing across the lower ends of the openings **38, 38** for accommodating the beads of the various strings.

As will be evident from FIG. **6** the tension of the strings receive by the base member **22** applies upwardly directed forces to the material of the base member located above the plane of the openings **38, 38**, and this in turn tends to cause splitting of the material of the base member **22** in the plane of the openings, the base member in addition being weakened in this area due to the presence of the openings.

To overcome this tendency to fail, and in accordance with the invention, the base member **22** includes an inset reinforcing member in the form of an elongated strip **48** made of metal or other material substantially stronger than that of the base member. The strip **48** is received in a conforming recess **50** formed in the base member **22** and is preferably held therein by a suitable adhesive. The recess **50** communicates with the rear surface **24** of the base member **22** and is of a depth less than the thickness of the base member **22** so as to leave a substantial thickness of the base member material between its inner end and the forward surface **28** of the base member. Therefore, the forward edge **49** of the reinforcing member **48** is located rearwardly of the forward surface **28** of the base member and the material of the base member extends over such forward edge. Due to the fact that the recess **50** opens onto the rear surface **24** the reinforcing strip **48** may be assembled with the base member **22** by inserting it from the rear surface **24** and when the base member **22** is applied to a guitar or other instrument as shown in FIG. **1** the reinforcing member is hidden from view and does not detract from the appearance of the combined bridge and tailpiece **12**.

The reinforcing strip **48** is arranged generally perpendicular to the openings **38, 38** and is located between the opposite ends of such openings so that the openings pass therethrough. In use the forces produced by the strings are reacted by the reinforcing member **48** and are spread thereby relatively uniformly across the adjacent material of the base member **22** so as to avoid any high concentration of stress tending to initiate a split or crack. As a result such splitting, cracking or other failure of the combined bridge and tailpiece is substantially eliminated.

I claim:

1. A combined bridge and tailpiece for a guitar or similar stringed instrument, said combined bridge and tailpiece comprising a base member having a rear surface adapted to engage the outer surface of the body of the instrument to which it is attached, a forward surface, and a bottom surface extending between said forward and rear surfaces, means fixed relative to said base member providing a bridge surface spaced forwardly of said forward surface of said base member for engagement with the strings of the instrument to which said base member is attached, said base member having a plurality of holes therein each extending from said bottom surface to said forward surface of said base member and each adapted to receive one string of the associated instrument which string passes therethrough and over said bridge surface, and an elongated reinforcing strip inset in said base member, said elongated reinforcing strip being arranged generally perpendicular to and between the opposite ends of said holes so that each of said holes passes therethrough.

2. A combined bridge and tailpiece as defined in claim **1** further characterized by said reinforcing strip having a forward edge located rearwardly of said forward surface of said base member, and said base member having the material of which it is made extending over said forward edge of said reinforcing strip.

3. A combined bridge and tailpiece as defined in claim **1** further characterized by said reinforcing strip being made of metal and said base member being made from a material other than metal.

4. A combined bridge and tailpiece as defined in claim **1** further characterized by said base member having an elongated recess therein for receiving said reinforcing strip, said recess being arranged so as to communicate with said rear surface of said base member so that the reinforcing strip may be assembled therewith by inserting it into said recess from said rear surface, said recess extending inwardly from said rear surface for a distance substantially less than the thickness of said base member so as to leave a substantial amount of the material of said base member between the inner boundary of said recess and said forward surface of said base member.

5. A combined bridge and tailpiece as defined in claim **4** further characterized by said base member including a plurality of separate cavities in its said forward surface each communicating with at least a respective one of said holes so as to freely accommodate the string passing through said at least one associated hole in its passage from said hole to said bridge surface.

6. A combined bridge and tailpiece as defined in claim **5** further characterized by each of said cavities being associated with a respective pair of said holes.

7. A combined bridge and tailpiece as defined in claim **1** further characterized by said means defining a bridge surface comprising an elongated strip of material inset into said base member and projecting forwardly from said forward surface thereof, said strip of material having a forward edge providing said bridge surface.

8. A combined bridge and tailpiece as defined in claim **7** further characterized by said elongated strip of material being made of a material different from that of said base member.

9. A combined bridge and tailpiece as defined in claim **1** further characterized by said means defining a bridge surface comprising an elongated strip of material different from the material of said base member inset into said base member and projecting forwardly from said forward surface thereof, said strip of material having a forward edge providing said bridge surface, an elongated recess in said base member for receiving said reinforcing strip, said recess being arranged so as to communicate with said rear surface of said base member so that said reinforcing strip may be assembled therewith by inserting it into said recess from said rear surface, said recess extending inwardly from said rear surface for a distance substantially less than the thickness of said base member so as to leave a substantial amount of the material of said base member between the inner boundary of said recess and said forward surface of said base member.

10. A combined bridge and tailpiece as defined in claim **1** further characterized by said base member including a plurality of cavities in said forward surface each communicating with at least a respective one of said holes so as to freely accommodate the string passing through said at least one associated hole in its passage from said hole to said bridge surface.