Feb. 25, 1969 R. S. JONES, SR 3,429,214

NUT-MOUNT FOR FINGERBOARDS

Filed June 2. 1966 Sheet 1 of 2

FIG. 1

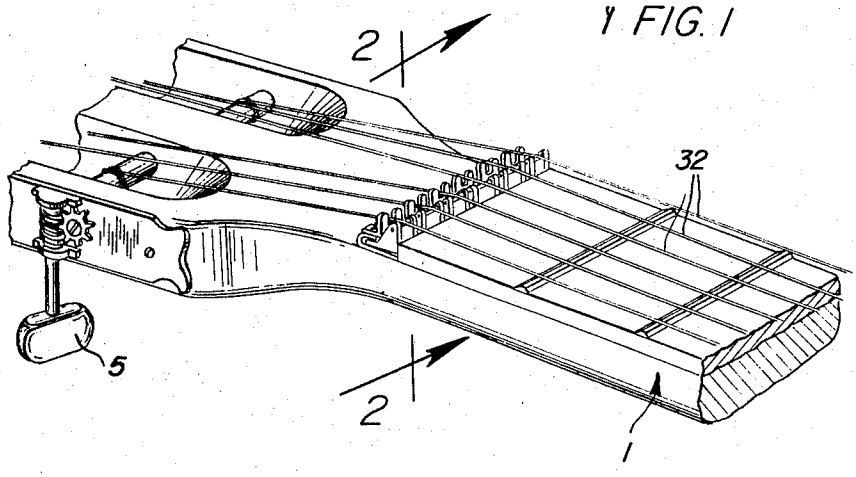
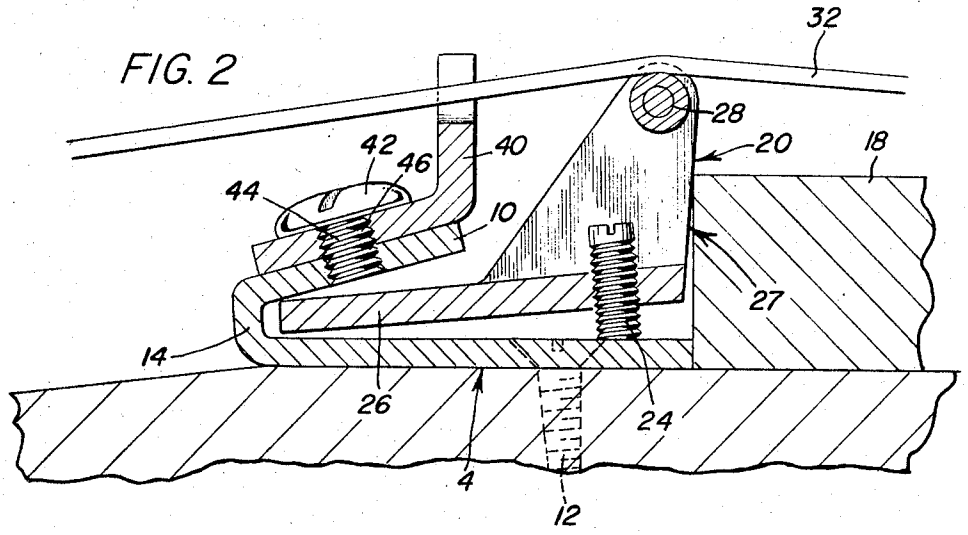


FIG. 2



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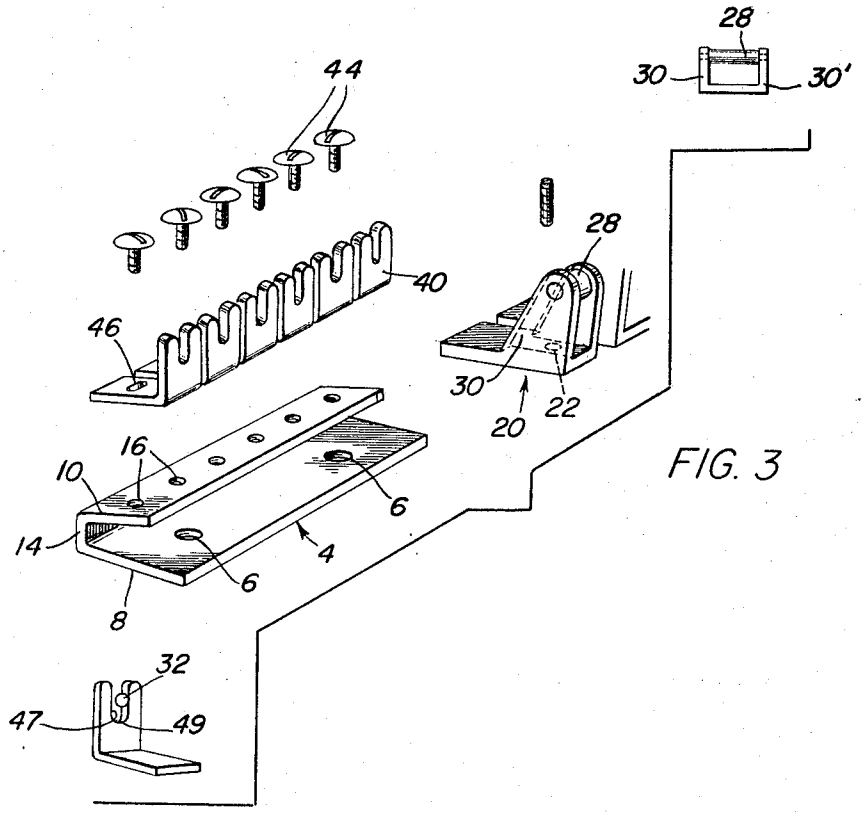

FIG. 3

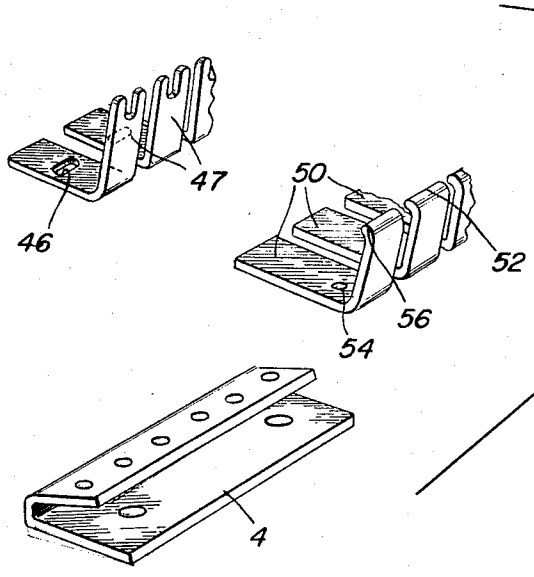

FIG. 4

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NUT-MOUNT FOR FINGERBOARDS

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U.S. Cl. 84—314 5 Claims
Int. Cl. G10d 3/00

ABSTRACT OF THE DISCLOSURE

This is a nut mounting for stringed instruments which guides, spaces and supports the strings in micrometric adjustable relation in such a manner as to prevent their wearing down the mounting. Further, the nut mounting herein, substantially decreases friction between various strings and the mounting, thereby allowing the strings to return easily to normal tension after playing pressure may be released.

Cross-references to related applications

This invention is closely related to my copending patent application Ser. No. 722,620, filed April 19, 1968, and entitled Nut-Mount for Stringed Instrument Fingerboards.

Background of the invention

The conventional nut, as it is called on a fretted instrument, is a bar of ivory, wood or other material at the top end or neck of the fingerboard, upon which the strings rest to give proper spacing above the fingerboard. It is also used to give proper spacing between the fingerboard and the strings to prevent the strings from buzzing when they are vibrating. It also keeps the strings close enough so that it takes minimum pressure to press the string down to the frets to produce a clear note.

The bar has a number of notches in it to keep the strings from moving sideways, the number of notches corresponding to the number of strings. After some use, as well as during tuning, the friction exerted by the strings on the notches wears the notches down too deep. This necessitates replacement of the bar, which is a critical and precision job. It requires a great deal of time and is relatively expensive.

Also, the conventional bar provides no side adjustment therefor to allow a change in string width to suit different finger sizes. Further, when changing the tension on strings for instruments having a vibrato, there is a drag through the notches. Thus, when a tension greater than that necessary to create normal pitch is applied and then withdrawn, there is a gradual creeping of the string through the notch, since the string is not free to return easily to normal uniform tension.

Summary

The present invention is concerned with a nut and its associated mounting for use on a fretted instrument, which will fit the necks of all fingerboard instruments with minimal adjustment. Each string rests on a separate smooth bar, thereby eliminating the usual dampening effect of the conventional V-groove nut. Alternatively, the string can rest on a bar roller. This permits the strings to be tightened or loosened without sliding over the bar when subjected to pressure. Further, my invention is very effective when using a vibrato, since it permits string tensions to be varied easily, and further maintains a uniform tension from one end of the string to the other. This improves vibrato control.

It is therefore an object of invention to provide a nut for use on fretted instruments, which is not subject to wearing down because of string friction, and which is therefore permanent.

It is another object of invention to provide a nut for use on fretted instruments which improves vibrato control, and adjustability in string tension variation.

It is another object of invention to provide a string stabilizer which is adjustable at 90° angles with respect to the strings, to provide maximum string width variation.

It is still a further object of invention to provide vertical adjustment at the nut contact with the string, thus assuring precision height for proper parallel of the strings in relation to the frets thereby effecting easiest possible playing.

These and other objects of invention will be apparent from the following specification and drawings in which:

Brief description of the drawings

FIGURE 1 is an isometric view of the neck of a fingerboard instrument, illustrating how the nut-mount combination which I have invented is attached at the end of the fingerboard;

FIGURE 2 is a sectional view taken along section lines 2—2 of FIGURE 1, illustrating the nut-mount connection to the fingerboard instrument, and the position of the strings thereover;

FIGURE 3 are isometric views of the various parts comprising the nut-mount combination, illustrating how they are interconnected;

FIGURE 4 are isometric views of another embodiment of this invention, illustrating the use of a rounded edge support for the strings as an alternative to the bar rollers illustrated in FIGURES 1–3.

Description of the preferred embodiments

As illustrated in FIGURES 2 and 3, mount **4** comprises a substantially U-shaped member with side **8** being longer than side **10**, and defining holes **6**. Screws **12** have threads which are complementary to female threads defined by hole **6**, and secures mount **4** to the instrument. Side **14** connects ends **8** and **10**, and is substantially perpendicular to side **8**. Sides **10** and **8** diverge from their common side **14** connection, at an acute angle.

Side **10** defines a plurality of holes **16**, corresponding to the number of strings in the instrument. String supports **20** are provided to fit securely between the end of fingerboard **18**, and the angular channel defined by ends **8** and **10** of support **4**. The number of string supports **20** corresponds to the number of strings on the instrument. End **27** of support **20** forms an angle slightly greater than 90° with the base thereof. This, together with making the length of the base slightly smaller than side **8** creates a lock for support **20** between the end of fingerboard **18** and the angular channel formed by ends **8** and **10**.

Roller string support **20** defines threaded holes **22**, designed to fit the head of vertical adjusting screw **24**. The head of vertical adjusting screw **24** is provided with a recess for varying the position of the threads relative to the female threads of hole **22**.

The screw-hole combination **24–26** provides vertical adjustment of the roller support **20**; this is the reason for having an angular coupling receptacle formed by ends **8** and **10** of mount **4**. Rollers **28** are mounted at the top and between flange sections **30** and **30'** of roller support **20**, and provide a smooth, substantially frictionless support for strings **32**.

Individual nuts **40** are secured via bolts **42** to mount **4**, as illustarted in FIGURES 1–3. Bolts **42** are provided with threads **44** that are complementary to female threads **16** of the string guide **40** and mount **4**, respectively. The interconnection of nut **40** and mount **4** is illustrated in FIGURES 1 and 2.

Thus, strings **32** are supported by rollers **28**, and then extend through slots **46** defined by nuts **40**, and finally are connected to pegs **5**. Strings **32** do not contact the bottom portion **49** of U-slots **47** as illustrated in FIGURE 3, but contact the sides of the slots only. Thus, when applying increasing tension to the string, leeway is provided so that the strings never contact the bottom portion **49** of U-slot **47**. This prevents the strings from frictionally wearing the guides.

As illustrated in FIGURES 2 and 3, holes **46** defined by nuts **40** are elongated in the direction perpendicular to strings **32**. This provides for horizontal adjustment of the nuts, in a direction perpendicular to strings **32**, so as to provide proper fitting of the strings along the side of slots **47** relative to their contact with rollers **28** and their eventual fastening to pegs **5**. That is, the strings should just barely be contacting the sides of slots **47**. This horizontal variability provides a string stabilizer enabling maximum string diameter variation.

Another embodiment of the invention is illustrated in FIGURE 4. Mount **4** and nuts **40** are the same as illustrated in FIGURES 1–3. However, FIGURE 4 illustrates another type of vertical adjustable support for strings **32**, as an alternative to rollers **28**. Thus, in FIGURE 4, a number of L-shaped string supports are illustrated, the number corresponding to the number of strings on the instrument. The vertical portion of the L bracket **42** is smoothly rounded or curved for a substantial portion **56**, so that the strings are substantially frictionlessly contacted thereby. This prevents the strings, during application of varying tensions thereto, from wearing against the supports. The vertical adjustment mounting **24**, etc., is the same as illustrated in FIGURES 1–3.

Thus, my particular nut-mount invention provides vertical adjustment at the contact between it and the string, thereby assuring precision height for proper parallel of the string in relation to the frets. This greatly improves ease of playing the instrument. Further, the nut is permanent and will never require replacement since it is not worn down; it can be made of metal, plastic or other materials. Further, the U-shaped slots **47** provide string stabilizing means which are adjustable at 90° angles with respect to the strings, thereby providing maximum string width variation.

Also, each string rests on a separate smooth curved bar portion **56** or roller **28**, eliminating the usual dampening effect of the conventional V-groove nut. Bar roller **28** further allows the strings to be tightened or loosened without sliding over the bar, when pressure is applied. Further, in stringed instruments provided with a vibrato, use of which necessitates many changes in string tension, the invention is particularly effective since it easily allows variation in string tension. Also, the strings will maintain uniform tension from one end to the other. This improves vibrato control markedly.

It will be obvious from the aforementioned that the present invention may apply to any stringed instrument, whether fretted or nonfretted having strings picked, bowed or hammered to produce sound.

Having thus described my invention, I claim the following:

1. In a fretted instrument having conventional neck, a soundboard and strings connected between string anchors mounted adjacent said soundboard and pegs located at the neck end of said instrument, the improvement in nut mounts which comprises:

(A) individual string nuts horizontally anchored in transverse adjustable relation to a common bracket, each of said nuts defining a groove at one end thereof, said groove being of sufficient depth to avoid contact of said strings with the bottom of each said nut, each said nut likewise having fastening means connecting the nut to said bracket;

(B) individual string roller supports, each said support corresponding to each said string nut, and being aligned therewith, said supports each having a base which is mounted in lever-adjustable relation to said common bracket, each of said strings being connected between an anchor over the roller support, through the nut groove, to a peg;

(C) a common bracket for the string nuts and roller supports, said bracket being anchored to the instrument between the neck end of the fingerboard and the pegs, said bracket being bent upon itself and defining both a lever seat for the roller support at the bend thereof and individual nut seats at a free end thereof;

(D) means further connecting the roller supports and the common bracket for vertical adjustment of said supports with respect to said bracket and said nuts.

2. The instrument improvement as described in claim **1**, wherein each of said nuts is L-shaped and comprises two integral sections, the first section being secured to one of said brackets, the other section defining the groove.

3. The instrument improvement as described in claim **2** wherein said first nut section defines a hole, elongated in a direction perpendicular to said strings, and wherein said bracket defines a corresponding hole for each of said nuts;

(C) means to attach each nut to said bracket through said first section hole and its corresponding bracket, said elongated first section hole thereby providing maximum string width variation.

4. The instrument improvement as described in claim **1** wherein each string support has parallel flanges integral with said base and extending upward and away therefrom; and a roller mounted between said flanges in supporting contact with its corresponding string.

5. The instrument as described in claim **4** wherein said base defines a threaded hole; an adjusting screw having complementary threads to fit said threaded hole in said base; the adjusting screw being variable to bear upon and adjust the height of the support relative to said bracket.

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