June 2, 1970 J. F. APPLETON 3,515,025

NUT ASSEMBLY FOR STRINGED MUSICAL INSTRUMENTS

Filed Oct. 31, 1968

FIG. 1

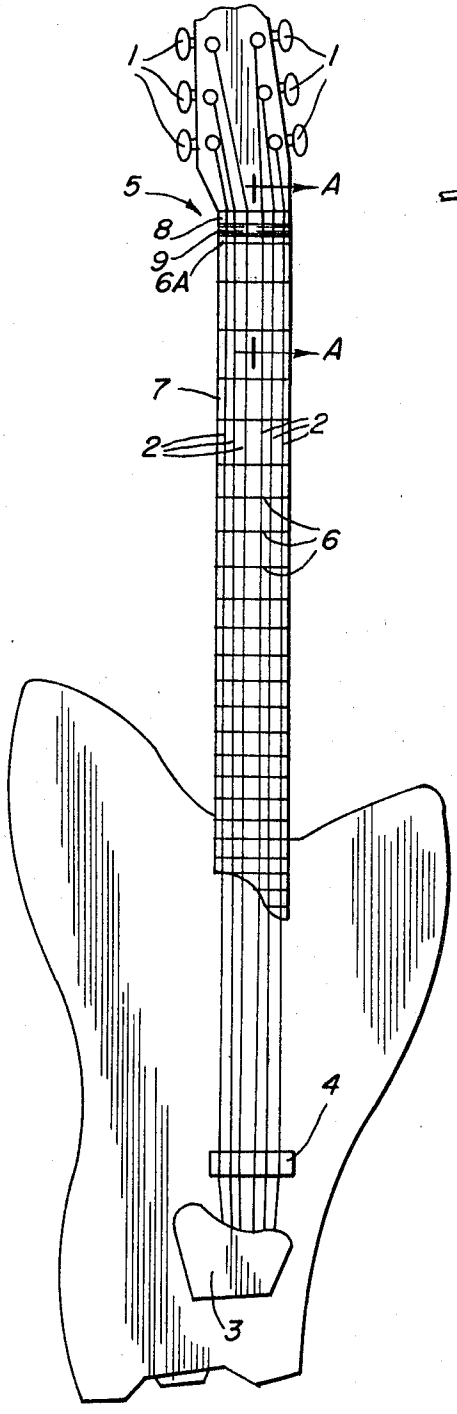


FIG. 2

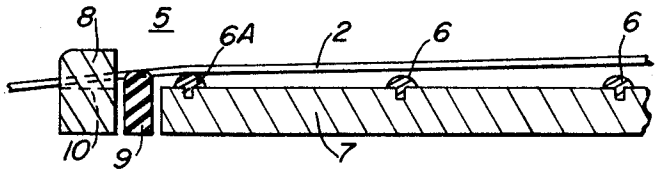


FIG. 3

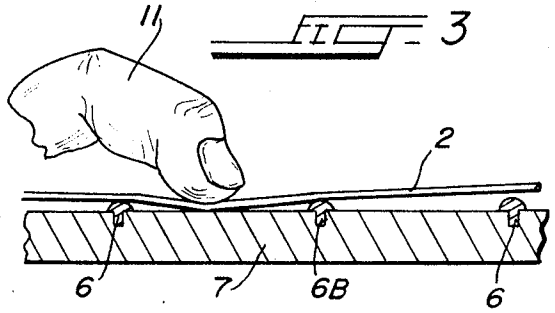
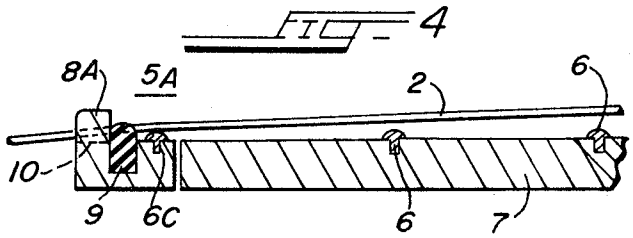


FIG. 4



INVENTOR.

JAMIE F. APPLETON

BY Wm. T. Hutz

ATTY.

United States Patent Office 3,515,025 Patented June 2, 1970

3,515,025

NUT ASSEMBLY FOR STRINGED MUSICAL INSTRUMENTS

Jamie F. Appleton, 800 S. 7th St., Burlington, Iowa 52601

Filed Oct. 31, 1968, Ser. No. 772,161
Int. Cl. G10d 3/04
U.S. Cl. 84—314 3 Claims

ABSTRACT OF THE DISCLOSURE

A nut assembly for stringed musical instruments which controls the harmonic content and volume decay of a vibrating string that is unstopped so as to obtain a close duplication of the harmonic content and volume decay of a string stopped behind a fret with the flesh of a human finger.

BACKGROUND OF THE INVENTION—FIELD OF THE INVENTION

This invention pertains to stringed musical instruments and more particularly to a nut assembly for stringed musical instruments, the nut assembly being at one end of the vibrating portion of an untopped string and being so constructed as to make an unstopped string closely resemble in harmonic content and volume decay the sound of a string stopped by the flesh of a human finger.

BACKGROUND OF THE INVENTION—DESCRIPTION OF THE PRIOR ART

Heretofore nut assemblies of stringed musical instruments have been constructed in two ways. One construction consisted of a piece of hard material such as bone, hard plastic, wood or metal, which had a notch for each string extending over the nut assembly. In this type of nut assembly the lateral string spacing was determined by the lateral spacing of the notches and the height of each string was determined by the depth of each notch. The edge of the nut assembly was placed at the beginning of the fret scale and thus determined the vibrating length of the unstopped strings. The other form of nut assembly consisted of two elements, the first being a notched piece of hard material wherein the notches were relatively deeper than in the form previously described, and the second being a fret placed adjacent to the piece of hard material. The lateral spacing of the notches determined the lateral spacing of the strings but in this second form the height of the strings and the vibrating length of the strings was determined by the adjacent fret, which fret was the beginning of the fret scale.

In both forms of nut assembly heretofore used the end of the vibrating portion of the string was held against a hard surface and almost 100% of the vibrating energy of a string was reflected back into the string. This sustained the vibration of the string and resulted in a relatively long period of volume decay and a relatively high harmonic content for the string.

SUMMARY OF THE INVENTION

The nut assembly for stringed musical instruments herein described provides a means to prevent the nut assembly from reflecting all the vibration of the unstopped string back into the string and from giving the string a relatively high harmonic content because of such reflection.

It is, therefore, an object of this invention to provide a nut assembly for stringed musical instruments which will absorb an amount of the vibrating energy of an unstopped string that is approximately equal to the amount of energy of a stopped string absorbed by the flesh of a human finger.

It is a further object of this invention to provide a nut assembly for stringed musical instruments wherein the amount of energy of a vibrating unstopped string absorbed by the nut assembly causes the volumn decay and the harmonic content of the unstopped string to be approximately equal to the volumn decay and the harmonic content of a string stopped by the flesh of a human finger.

It is a further object of this invention to provide a nut assembly for stringed musical instruments wherein by simple construction eliminating the use of a separate damper, the harmonic content and volume decay of a string stopped by the flesh of a human finger is duplicated.

Further objects and advantages of this invention will become apparent from the following drawings, descriptions and claims.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a plan view of a stringed musical instrument in the form of a guitar. FIG. 2 is a sectional view of the nut assembly taken on line A—A of FIG. 1. FIG. 3 is a sectional view of the finger board of the stringed musical instrument showing the position of a string stopped by the flesh of a human finger. FIG. 4 is a modification of the nut assembly shown in section on the same line as that used to show FIG. 2.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings, the guitar shown therein has located thereon tuning pegs **1** stretching strings **2** from tailpiece **3** over bridge **4** and nut assembly **5**. Frets **6** are located on finger board **7** of the guitar. The nut assembly **5** consists of a notched spacer **8** made of a hard material and a rubberlike energy absorber **9**. The fret **6A** that is adjacent to the energy absorber **9** determines the vibrating length and the height of the string **2**. The lateral spacing of the notches **10** determine the lateral spacing of the strings **2**. When a string **2** is stopped by the flesh of a human finger **11** as shown in FIG. 3, the string **2** touches the finger board **7** and the fret **6B** causes the vibrating length of the string **2** to be the same as the distance of the fret **6B** to the bridge **4**. When the string **2** is opened by removing the finger **11** from the string **2** it is free to vibrate between the fret **6A** and the bridge **4**. With the string **2** opened the energy absorber **9** reacts the same on the string **2** as the finger **11** does to make the harmonic content and volume decay similar.

The height of the energy absorber **9** must be slightly more than the fret **6A** in order that the string **2** makes firm contact with the energy absorber **9** when the string **2** is tightened between a peg **1** and the tailpiece **3**. It can readily be seen that if the height of the energy absorber **9** was too great the string **2** would ride on the energy absorber rather than the fret **6A** giving the effect of a partially stopped string and distorting the tone of the string **2**. It can also be seen that if the height of the energy absorber **9** is too small the string **2** would not come in contact with it and the effect as described herein would not be obtained.

Referring now to FIG. 4, a modification of the nut assembly **5** is shown. The difference being that the last or terminal fret **6C** is located in a part of the notched spacer **8A** that encompasses the energy absorber **9** rather than having the energy absorber **9** held between the notched spacer **8** and the finger board **7**. In the modification the nut assembly **5A** could be used to replace existing nut assemblies by removing the hard notched piece of material which is the old nut and inserting the new nut assembly **5A** shown in FIG. 4.

I claim:

1. A musical instrument comprising a finger board having frets thereon, including a terminal fret at one end of the finger board, a plurality of strings extending above

and longitudinally of said finger board, tuning means for said strings positioned beyond said terminal fret from said finger board, and a rubberlike energy absorber positioned between said terminal fret and said tuning means, said energy absorber having a height such that said strings make firm contact with both said terminal fret and said energy absorber.

2. The musical instrument of claim 1 further comprising a notched spacer for the strings positioned between said terminal fret and said tuning means.

3. The stringed musical instrument of claim 2, the terminal fret being located in the notched spacer so that the energy absorber is held between the terminal fret and the notches through which the strings pass.

References Cited

UNITED STATES PATENTS

577,930	3/1897	Prince	84—318
2,214,957	9/1940	Furginele	84—314

RICHARD B. WILKINSON, Primary Examiner

L. R. FRANKLIN, Assistant Examiner