

April 18, 1950

R. M. SULLIVAN

2,504,752

STRINGED MUSICAL INSTRUMENT

Filed April 15, 1948

FIG. 1

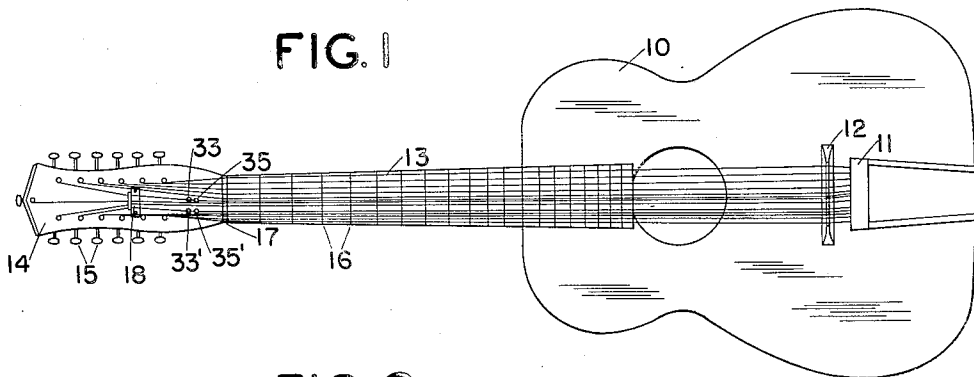


FIG. 2

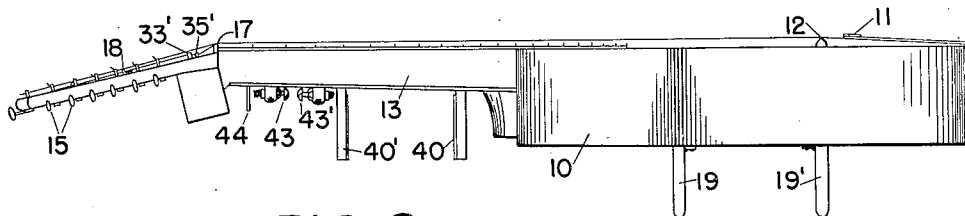


FIG. 3

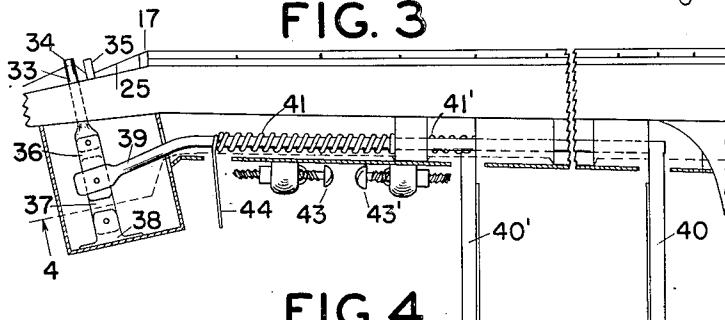


FIG. 4

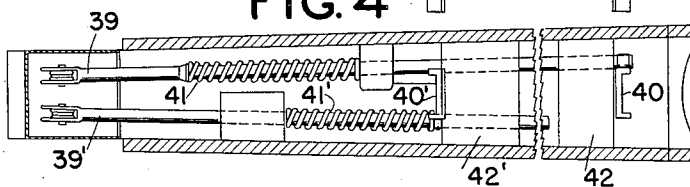


FIG. 7

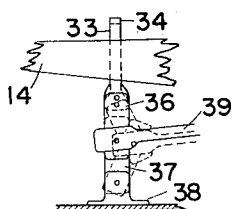
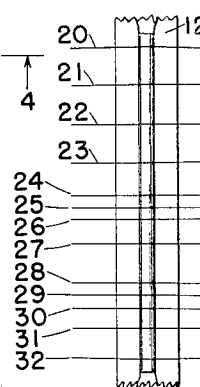


FIG. 5

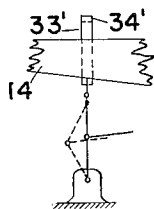


FIG. 6

INVENTOR.
ROY M. SULLIVAN
BY *Edw. T. Newton*
ATTORNEY

UNITED STATES PATENT OFFICE

2,504,752

STRINGED MUSICAL INSTRUMENT

Roy M. Sullivan, Atlanta, Ga., assignor of one-half to Horace W. Sullivan, Decatur, Ga.

Application April 15, 1948, Serial No. 21,220

7 Claims. (Cl. 84-267)

1

This invention relates to improvements in a stringed musical instrument, and particularly to a guitar capable of producing harmonious melody and chord accompaniment in unison, and wherein only one finger is required for fretting to produce all the chords.

It is an object of my invention to provide a stringed musical instrument having four melody strings and strings for two open chords tuned in unison with the melody strings.

Another object of my invention is to provide a stringed musical instrument having four melody strings and strings for two open chords, each with the proper bass members for playing and alternating the bass.

Another object of my invention is to provide a stringed musical instrument having four melody strings, with strings for the major tonic chord and proper bass member strings next, and then strings for the dominant seventh chord and its proper bass members strung next, making a total of thirteen strings.

Another object of my invention is to provide a stringed musical instrument in which tuning in both the major and seventh chords is changeable by tuning units operated other than by the hands of the operator.

Other and further objects and advantages of my invention will be apparent from the following description taken in connection with the accompanying drawing in which like characters of reference designate corresponding parts throughout the several views, wherein:

Fig. 1 is a top plan view of an instrument according to my invention.

Fig. 2 is a side elevation of the instrument shown in Fig. 1.

Fig. 3 is an enlarged cross-sectional view showing details of the control mechanism.

Fig. 4 is a cross-sectional view taken along the line 4-4 in Fig. 3.

Fig. 5 is a detail view showing operation of a plunger.

Fig. 6 is a schematic detail view illustrating operation of a plunger.

Fig. 7 is an enlarged detail plan view of the bridge showing string spacing.

In the embodiment of the invention, herein described, the hollow body 10, which may be of conventional shape such as is used in the construction of an ordinary guitar, is provided with an anchor plate 11 to which the strings are fastened, a primary bridge 12 over which the strings pass, and a neck 13 which may be hollow and which terminates in a head 14 constructed

2

to accommodate conventional tuning devices 15. The usual longitudinally spaced frets 16 are provided on the finger board. A secondary bridge is shown at 17, and an auxiliary bridge or string guide 18 may be employed to assist in maintaining proper alignment of the strings. In the playing position, the body 10 is placed on the lap of the performer and in order that it may be conveniently held in a stationary position it is provided with hinged brackets 19, 19' which serve as abutments against each side of the right leg of the performer.

According to my invention, thirteen strings are provided. Strings 20, 21, 22 and 23 are the melody strings which are customarily tuned E, C sharp, A and E, in the order named. The remaining nine strings 24, 25, 26, 27, 28, 29, 30, 31 and 32, which may be distinguished as chord accompaniment strings, are divided into four groups or sets which will be presently described. All of the strings are of course of appropriate gauge dependent upon the system of tuning employed by the performer.

Strung next to the melody strings is a group of three strings 24, 25 and 26 which may be tuned normally as E, C sharp and A in the order named. Strung next to this group of three strings and associated with it is a single string 27 which may be tuned A bass to provide the proper bass accompaniment.

Then follows another group of three strings 28, 29 and 30 which may be tuned normally as D, G sharp and E in the order named. Strung next to this group of three strings and associated with it is a group of two strings 31 and 32 which may be tuned B bass and E bass, in the order named, to provide the proper bass accompaniment.

Additionally, according to my invention, means are provided for automatically changing the tuning in the major and seventh chords to minor and sixth tuning, respectively, at the will of the performer. In order to accomplish this, movable plungers 33, 33' are provided under strings 25 and 28, respectively. The plungers 33, 33' are slotted at their upper ends as at 34, 34', respectively, to receive strings 25 and 28, respectively, after they pass through the needle eye in guide pins 35, 35', respectively, which are fixed to the head 14. The plungers 33, 33' extend through holes in the head 14 and are pivotally connected at their lower ends to a system of pivoted links arranged to raise and lower the plungers. For example, plunger 33 is pivotally connected at its lower end with the upper end of a link 36 which is arranged to cooperate with a link 37

which is pivotally connected at its lower end to a fixed support 38. The lower end of link 36 and the upper end of link 37 are pivotally connected together and to the end of slidable rod 39, all as shown in Fig. 5. A similar set of links connects plunger 33' to slidable rod 39', as shown schematically in Fig. 6. Rods 39, 39' are slidably mounted for longitudinal movement within the hollow neck 13. Rigidly attached to the rods 39, 39' are operating members 40, 40', respectively, which are arranged to fit against opposite sides of the left leg of the performer so that rod 39' can be pushed to the right, against the action of coil spring 41, by pushing the left leg against operating member 40, and rod 39' can be pushed to the left, against the action of coil spring 41', by pushing the left leg against operating member 40'. Movement of rod 39 to the left is limited by brace member 42 which is arranged to abut against operating member 40 when the associated link system is extended to raise plunger 33. Movement of rod 39' to the right is similarly limited by brace member 42' which is arranged to abut against operating member 40' when the associated link system is extended to raise plunger 33'. Movement of rod 39 to the right is adjustably limited by thumb screw 43 which is arranged to abut the stop plate 44 which is rigidly attached to rod 39. Similarly, movement of rod 39' to the left is adjustably limited by thumb screw 43' which is arranged to abut operating member 40'.

Movement of the operating members 40, 40' against the tension in springs 41, 41', respectively, is selectively accomplished by pressure from the performer's knee, as explained above, to lower either plunger 33 or 33', as desired. Lowering the plunger 33 relieves some of the tension in string 25 so that by adjustment of thumb screw 43 this string may be tuned C natural, with the plunger 33 lowered, and thus create minor tuning. Upon releasing the pressure of the knee against operating member 40, the plunger 33 will again be raised by the action of spring 41, and major tuning restored. Lowering of the plunger 33' relieves some of the tension in string 28 so that by adjustment of thumb screw 43' this string may be tuned D flat, with the plunger 33' lowered, and thus create sixth tuning. Upon releasing the pressure of the knee against operating member 40', the plunger 33' will again be raised by the action of spring 41', and seventh tuning restored.

According to my invention the major tuning can be changed automatically to minor tuning and the seventh tuning can be changed automatically to sixth tuning, all by means operated other than by the performer's hands. The strings in both these chords are strung closely together, thus enabling the performer to fret the whole chord with the tip of one finger or both chords with one finger, thus giving the performer freedom of the rest of his fingers for fingering the key board and carrying the melody and any other parts of the composition desired. With my arrangement of strings and the automatic tuning as described, all the major, minor, sixth, and seventh chords can be made accurately while the melody is being played; and augmented fifths,

minor sixths and minor sevenths can be made by cooperation of the melody strings as will be understood.

While I have illustrated and described a certain embodiment of my invention, it will be understood that modifications, changes and adaptations may be made without departing from the scope of my invention as defined in the appended claims.

I claim:

1. A stringed musical instrument having 13 strings comprising four melody strings and strings for two open chords tuned in unison with the melody strings.

2. A stringed musical instrument having 13 strings comprising four melody strings and strings for two open chords, each with the proper bass members for playing and alternating the bass.

3. A stringed musical instrument having four melody strings, strings for the major tonic chord and proper bass member strings next, and then strings for the dominant seventh chord and its proper bass members strung next, making a total of thirteen strings.

4. A stringed musical instrument according to claim 3 in which means operable other than by the performer's hands are provided for changing the tuning in both the major and seventh chords.

5. A stringed musical instrument according to claim 4 in which leg operable means are provided for selectively varying the tension in the second string of the major tonic chord and the first string of the dominant seventh chord groups.

6. A stringed musical instrument having a group of four melody strings and nine other strings, said nine other strings being divided into four groups comprising a group of three strings which may be tuned normally as E, C sharp and A in the order named, a group consisting of a single string which may be tuned A bass, said single string being strung next to said group of three strings, a second group of three strings which may be tuned normally as D, G sharp and E in the order named, said second group of three strings being strung next to said single string, and a group of two strings which may be tuned B bass and E bass, said group of two strings being strung next to said second group of three strings.

7. A stringed musical instrument according to claim 6 in which leg operable means are provided for changing the tension in the second string of said first mentioned group of three strings so as to automatically change the tuning thereof from C sharp to C natural and back again at will, and for selectively changing the tension in the first string of the second group of three strings from D to D flat and back again at will.

ROY M. SULLIVAN.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,924,854	Harmon	Aug. 29, 1933
2,040,633	Schulz	May 12, 1936