Dec. 20, 1927. 1,653,241

R. VANA

MUSICAL INSTRUMENT

Filed Nov. 30. 1926 2 Sheets-Sheet 1

Fig.1. Fig.4. Fig.7. Fig.9.

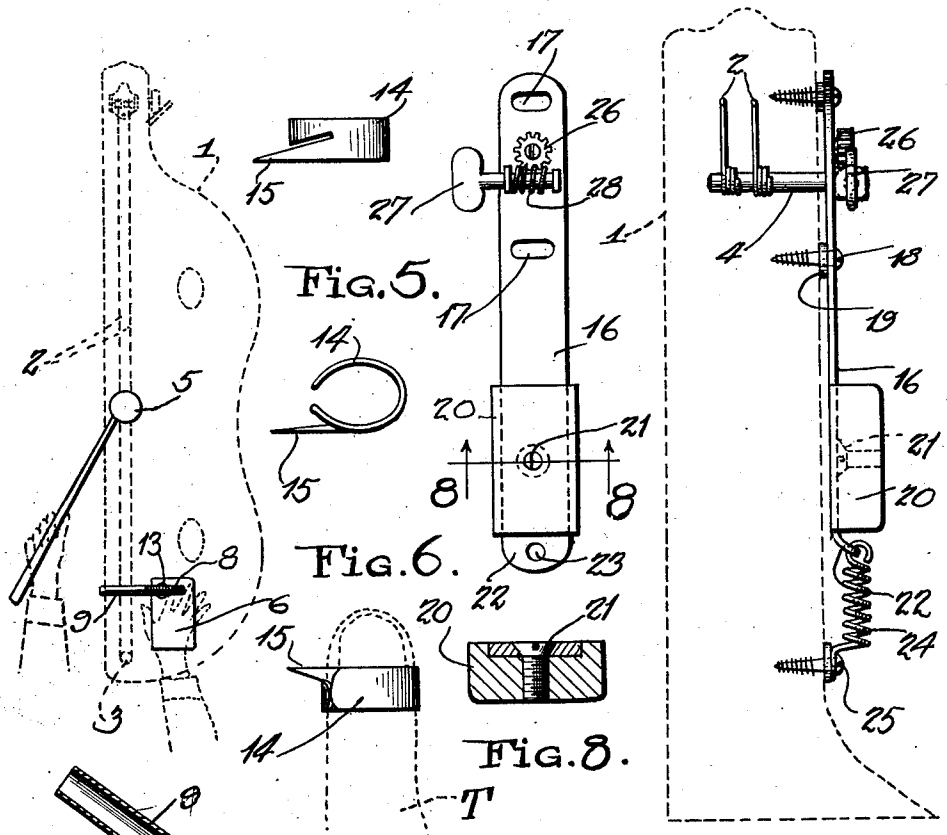


Fig.5.

Fig.6.

Fig.8.

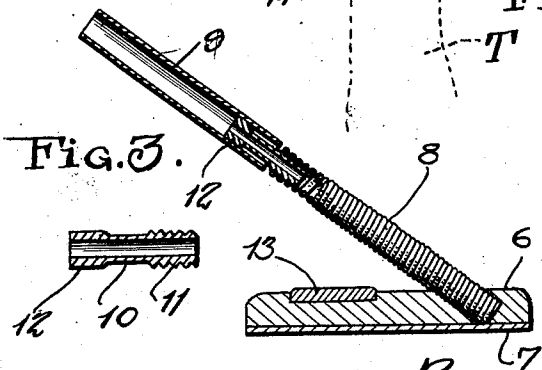


Fig.3.

Fig.2.

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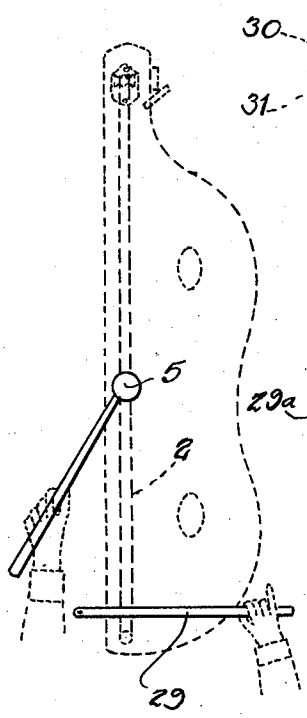
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MUSICAL INSTRUMENT

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Fig. 10. Fig. 11. Fig. 12. Fig. 16.



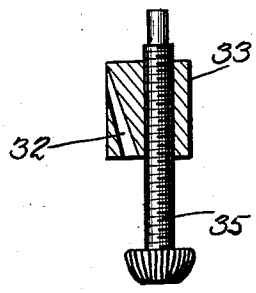
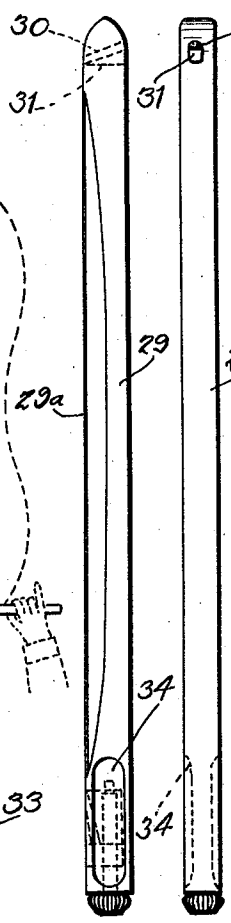


Fig. 13.



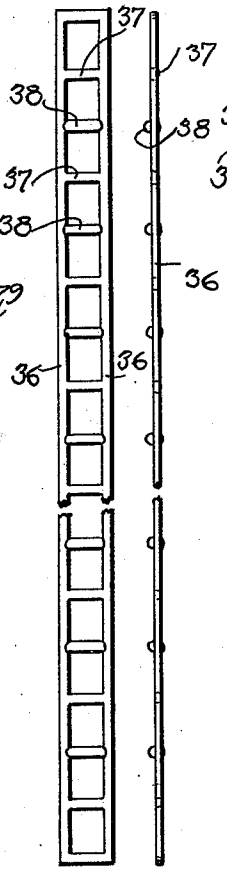


Fig. 14.

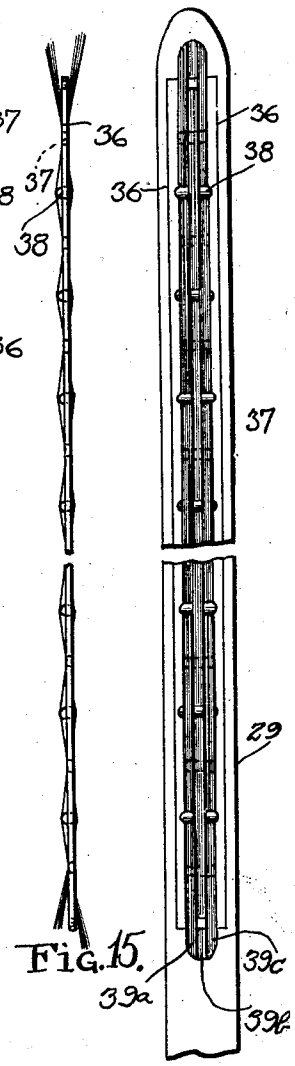


Fig. 15.

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Patented Dec. 20, 1927. 1,653,241

UNITED STATES PATENT OFFICE.

RUDOLPH VANA, OF BROWNSVILLE, TEXAS.

MUSICAL INSTRUMENT.

Application filed November 30, 1926. Serial No. 151,683.

This invention relates to certain new and useful improvements in musical instruments of the string type and more particularly relates to the character of musical instrument disclosed in Patent No. 1,593,809, granted to Rudolph Vana on July 27, 1926, an important object of this invention being to provide for the tremolo of sound vibrations similar to those produced by vibratory movement of the hands in the playing of a violin.

A further object of the invention is to provide a stringed musical instrument of the type disclosed in the above noted patent wherein a single looped string or wire associated with the instrument box or case has a hammer device in contact with the wire and manually movable thereover for the sounding of different notes and to act in lieu of the usual frets and with which instrument a resiliently mounted striker arm is associated to be moved into contact with the string or wire and being designed to permit vibratory movement thereof.

A further object of the invention is to provide a tremolo attachment for the instrument wherein the ends of a single looped string or wire are attached to a tuning key or shaft with the shaft carried by a resiliently mounted plate to permit increased vibration of the string during playing of the instrument.

A still further object of the invention is to provide a novel type of bow for playing the stringed instrument and wherein a device is associated with the hairs of the bow to create a tremolo effect when the bow is drawn across the string, and in addition, the invention provides for a novel type of pick with which the instrument may be played.

With the above and other objects in view that will appear as the nature of the invention is better understood, the same consists in the novel form, combination and arrangement of parts and in the details of construction hereinafter more fully described, shown in the accompanying drawings and claimed.

In the accompanying drawings, wherein like reference characters are employed to designate corresponding parts throughout the several views,

Figure 1 shows by dotted lines, a top plan view of a musical instrument constructed in accordance with the present invention, and in which instrument there is provided a single looped playing string having a hammer device movable thereover to operate in lieu of the instrument fret, one form of the invention being shown in full lines in Figure 1 wherein a resilient mounted striking arm for the string is carried by the instrument case;

Figure 2 is a cross-sectional view of the striking arm and its supporting plate detached from the instrument case and showing the spring support for the tubular string striking arm;

Figure 3 is a detail sectional view of the conducting member between the tubular striking arm and the spring support for the same;

Figures 4 and 5 are side and top plan views of a novel form of pick employed for playing the strings;

Figure 6 is a side view of the pick operatively positioned upon the thumb of a hand that is shown by dotted lines;

Figure 7 is a front elevational view of a tremolo device detached from the instrument case;

Figure 8 is a cross-sectional view taken on line 8—8 of Figure 7;

Figure 9 is an edge elevational view of the tremolo device in position upon the stringed instrument that is illustrated by dotted lines and showing the ends of the single looped string attached to the pin that is rotated by the tuning key which in turn is carried by the tremolo device;

Figure 10 is a top plan view, similar to Figure 1 showing the playing of the instrument accomplished by a bow;

Figures 11 and 12 are side and rear elevational views of the bow;

Figure 13 is a detailed sectional view showing the screw adjusted slots to which one end of the group of hairs is attached;

Figure 14 shows front and edge elevational views of an attachment for the bow which creates a tremolo effect;

Figure 15 is an edge elevational view of the tremolo attachment with the hairs of the bow engaged therewith; and

Figure 16 is a fragmentary front elevational view of the bow equipped with a tremolo device.

The musical instrument disclosed in this application being of the same general type as the instrument illustrated in Patent 1,593,809 above referred to and which has only been illustrated by dotted lines in this

case comprises an instrument case 1, preferably of the design shown with a single string 2 looped around the pin 3 at one end of the casing 1 while the free ends of the single looped string 2 that extend to the opposite end of the case and over a roller with the two ends secured to a journaled pin 4 interiorly of the case as shown in Figure 9 and which pin is rotated for the purpose of tuning the single string by the usual tuning key. The upper side of the instrument case 1 being free of the usual arrangement of frets with which the strings are associated in instruments of this general character, there is provided a hammer device 5 engaging both sections of the looped string 2 to be manually shifted thereover for raising and lowering the pitch of the playing end of the string, it being understood that a scale chart, if desired, may be carried by the upper side of the case in proximity of the string 2 as a guide in manipulating the hammer 5.

One of the devices used in the playing of the instrument is shown in Figures 1 to 3 and comprises a base plate 6 of any configuration desired, preferably rectangular as illustrated and is formed of wood or like material that may have the same color finish as the instrument case. The base plate 6 is movable over the upper surface of the instrument case 1 to assume proper relation with respect to the string 2 and in order to prevent injury or marring of the surface of the case, the lower face of the base plate 6 carries a fabric or felt covering 7 as shown in Figure 2. A coiled spring 8 having the convolutions thereof contiguous has one of its ends received in a socket in the base plate 6 adjacent one edge and end of the base plate to extend upwardly across the base plate at an acute angle thereto to form a resilient support for the tubular member 9 which may be formed of brass or similar material to provide for increased vibratory or ringing effect during playing of the instrument. The connector pin 10 shown in Figure 3 is interposed between the coil spring 8 and tubular member 9 and includes an externally threaded end 11 received in the convolutions of the coil spring 8, while the other end 12 thereof is frictionally received in the tubular member 9 to permit longitudinal adjustment of the latter with respect to the spring. A pad 13 of leather, felt or the like is set into a recess in the upper face of the base plate 6 to prevent contact of the coil spring 8 with the base plate to eliminate all extraneous noises.

In playing the instrument, the hammer 5 is moved over the string 2 to obtain the desired pitch or tone and the spring 8 engaged by one or more fingers as shown by dotted lines in Figure 1 to cause the tubular member 9 forcibly to strike the string 2 and said spring being retained in its lowered position in contact with the pad 13, the tubular member 9 will reverberate and strike the string several times and thereafter will continue to vibrate for a period of time until stopped by contact between a finger and the tubular member. The effect produced with a playing device of this character is similar to Hawaiian music when combined with the proper shifting of the hammer 5 and beautiful tone effects are made possible. The base plate 6 being freely supported upon the case 1 is easily shiftable thereover to obtain the desired position with respect to the string and hammer and the case 1 by the presence of the protecting pad 7.

The instrument may also be played in a manner similar to a mandolin or banjo by the use of a pick in the form of a ring as shown in Figures 4 to 6, the split ring 14 encircling the outer end of the thumb T and having a pick point 15 extended from one split end thereof. The pick may be constructed of any material desired, such as metal, celluloid or the like.

It is also intended to provide a tremolo attachment for the instrument, and as shown in Figures 7 to 9 the elongated metallic strip or plate 16 has transversely extending slotted openings 17 through which fastening screws 18 pass in entering the side of the case 1 as shown in Figure 9. Washers, or spacers 19 being interposed between the inner side of the plate 16 at the side of the case 1 to provide a space therebetween as illustrated. The inner end of the plate 16 has a balancing weight 20 secured thereto by the fastening device 21 while the extreme inner end of said plate carries an outturned lip 22 provided with an aperture 23 to receive one end of the coil spring 24 that has its other end secured as at 25 to the case. The pin 4 to which the looped string 2 is attached extends through the side of the case and plate 16 and has a worm wheel 26 secured to its outer end, the tuning key 27 having a worm portion 28 engaging the worm wheel 26 for rotating the pin 4 to acquire the desired pitch or tone for the string 2. The pin 4 being carried by the plate 16 that has limited movement by its pin and slot connection with the side of the instrument case 1, vibration from the strings 2 when disturbed or when playing thereof is communicated to the pin 4 and plate 16 to be increased by the balancing weight 20 and said weighted plate in return adds increased vibrations to the string 2 for the creation of vibratory tone waves without disturbing the pitch or tone that is determined by the provision of the hammer 5 upon the string 2.

The single stringed instrument may also be played with a bow of the type shown in Figures 10 to 13, the bow 29 having an opening 30 in its outer end to receive the

ends of a group of hairs that are retained therein by the wedge 31, the other ends of the group of hairs being received in the opening 32 and retained by a wedge in the block 33 at the inner end of the bow 29. The block 33 is set into an opening 34 at the inner end of the bow and the screw 35 having a swivel connection with the inner end of the bow and threaded through the block 33 moves the block toward and away from the inner end of the bow handle for tensioning the hair. The bow is movable over the string 2 in the manner illustrated in Figure 10.

An attachment is provided for the hairs 29^a of the bow to create a wavy or tremolo effect and is shown in Figures 14 to 16. As shown in Figure 14 the attachment is in the form of a ladder having side rails 36 and cross connecting arms 37 and 38, the arms lying in the same plane as the side rails 36 while the arms 38 that are alternately arranged with respect to the arms 37 are offset at one and the same side of the side rails 36 as shown in the edge view of Figure 14. The horse hairs are arranged in three sections as shown in Figure 16 by the numerals 39^a, 39^b, and 39^c. The central section 39^b of the hairs extends above the first cross arm 38 and below the second cross arm 38 to be intertwined with the alternate cross arms 38 and to be positioned outwardly of all of the alternate cross arms 37. The two outer or edge groups of hairs 39^a and 39^c pass below the first cross arm 38 and above the second cross arm 38 to be intertwined with the alternate cross arms 38 with the three groups of hairs all positioned above and outwardly of the alternate cross arms 37. The ends of the several groups of hairs are secured in any suitable manner to the bow stick 29. With the hairs of a bow equipped with the device shown in Figure 14 in the manner herein described, a wavy or tremolo effect is obtained in passing the bow of the string 2.

From the above detailed description of the invention, it is believed that the construction and operation of the several forms thereof will be readily understood, and while there are herein shown and described the preferred embodiments of the invention it is nevertheless to be understood that minor changes may be made therein without departing from the spirit and scope of the invention as claimed.

What I claim as new is:—

1. In a stringed musical instrument of the character described, a resonance box, a single looped string, a tuning key to which the ends of the string are attached, a hammer movable over the string to operate in lieu of the usual frets, and a resiliently mounted device associated with the string to produce a tremolo effect.

2. In a stringed musical instrument of the character described, a resonance box, a single looped string, a tuning key to which the ends of the string are attached, a hammer movable over the string to operate in lieu of the usual frets, and a resiliently mounted device manually moved into striking engagement with the string to produce a tremolo effect.

3. In a stringed musical instrument of the character described, a resonance box, a single looped string, a tuning key to which the ends of the string are attached, a hammer movable over the string to operate in lieu of the usual frets, and a playing device for the string comprising a block movably mounted on the box, a tubular vibrating arm resiliently carried by the block and manually movable into striking engagement with the string to produce a tremolo effect.

4. In a stringed musical instrument of the character described, a resonance box, a single looped string, a tuning key to which the ends of the string are attached a hammer movable over the string to operate in lieu of the usual frets, and a playing device for the string comprising a block movably mounted on the box, a coil spring anchored at one end to the block and extending upwardly and across the same at an acute angle and a tubular resounding metallic member connected to the upper end of the spring and normally movable into contact with the string to produce a tremolo effect.

5. In a stringed instrument of the character described a resonance box, a single looped string, a tuning key to which the ends of the string are attached, a hammer movable over the string to operate in lieu of the usual frets, and a playing device for the string comprising a block movably mounted on the box, a coil spring anchored at one end of the block and extending upwardly and across the same at an acute angle and a tubular resounding metallic member connected to the upper end of the spring and normally movable into contact with the string to produce a tremolo effect, and an extensible connection between the coil spring and tubular member.

6. In a stringed musical instrument of the character described, a resonance box, a single looped string, a tuning key to which the ends of the string are attached, a hammer movable over the string to operate in lieu of the usual frets, a playing device for the string comprising a block movably mounted on the box, a coil spring anchored at one end to the block and extending upwardly and across the same at an acute angle and a tubular resounding metallic member connected to the upper end of the spring and normally movable into contact with the string to produce a tremolo effect, a fabric backing for the block and a cushion pad on the upper side of the block in the path of lowering movement of

the spring to prevent contact between the spring and block.

7. In a stringed musical instrument of the character described, a resonance box, a single looped string, a tuning key to which the ends of the string are attached, a hammer movable over the string to operate in lieu of the usual frets, and a playing device for the string comprising a block movably mounted on the box, a coil spring anchored at one end to the block and extending upwardly and across the same at an acute angle and a tubular resounding metallic member connected to the upper end of the spring and normally movable into contact with the string to produce a tremolo effect, an extensible connection between the coil spring and tubular member, a fabric backing for the block and a cushion pad on the upper side of the block in the path of lowering movement of the spring to prevent contact between the spring and block.

8. In a stringed musical instrument of the character described, a resonance box, a single looped string, a tuning key to which the ends of the string are attached, a hammer movable over the string to operate in lieu of the usual frets, and a tremolo device carried by the box and with which the string is associated.

9. In a stringed musical instrument of the character described, a resonance box, a single looped string, a tuning key to which the ends of the string are attached, a hammer movable over the string to operate in lieu of the usual frets, and a tremolo device resiliently supported on the box and with which the string is associated.

10. In a stringed musical instrument of the character described, a resonance box, a single looped string, a tuning key to which the ends of the string are attached, a hammer movable over the string to operate in lieu of the usual frets, and a weighted tremolo device resiliently supported on the box and with which the string is associated.

In testimony whereof I affix my signature.

RUDOLPH VANA.