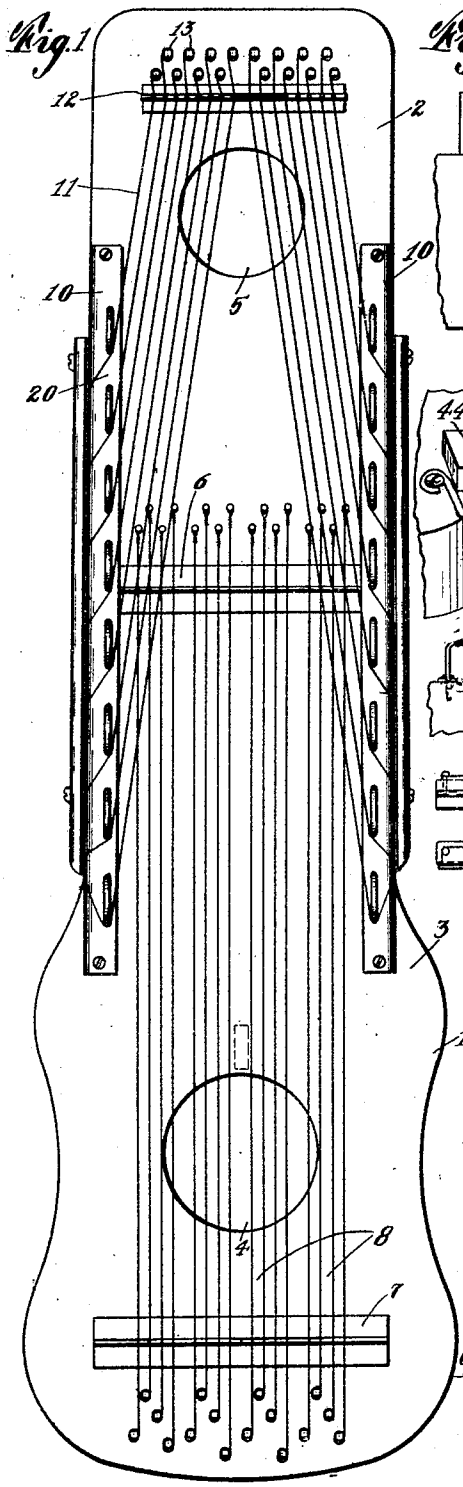
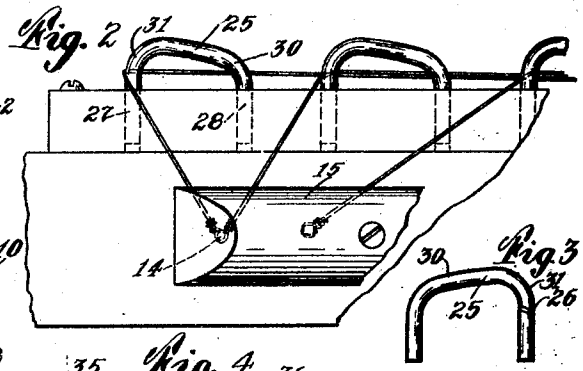
April 6, 1926. 1,579,780

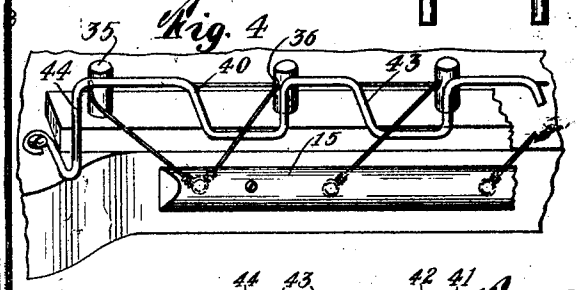
P. F. RICHTER

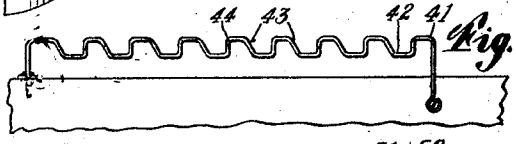
STRINGED MUSICAL INSTRUMENT

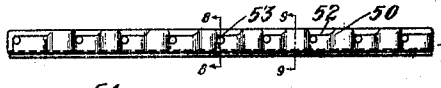
Filed Dec. 3, 1924

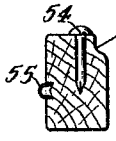












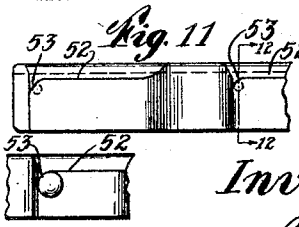


Fig. 13

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Att'ys.

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UNITED STATES PATENT OFFICE.

PAUL F. RICHTER, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE PHONOHARP COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MAINE.

STRINGED MUSICAL INSTRUMENT.

Application filed December 3, 1924. Serial No. 753,607.

To all whom it may concern:

Be it known that I, PAUL F. RICHTER, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Stringed Musical Instruments, of which the following is a specification.

This invention relates to stringed musical instruments, more particularly of that type in which each of a plurality of strings is designed to be sounded at one portion of its length, the sounding portions of successive strings, tuned to successive tones being arranged adjacent to each in substantial alinement so that the sounding element may be readily moved from one to another. The sounding element may, if desired, be a bow. In instruments of this type it is important that the bow should be readily moved from the sounding portion of one string to that of another string without danger of catching or receiving injury.

The primary object of this invention, therefore, is to provide means acting to guide the bow or the like so that it may pass from one to another of the string-sounding portions readily and without danger of catching on the string guides which retain these strings in proper position or becoming frayed or otherwise injured. For this purpose I provide an implement guide which may be so formed that the strings bear thereover, or it may consist of another member positioned adjacent to string guide posts or pins for supporting the strings, this guide presenting surfaces against which the bow or other implement may ride when passing from one to another string and presenting a smooth surface thereto preferably of such a nature that the playing implement is guided naturally into any selected playing position.

For a more complete understanding of this invention, reference may be had to the accompanying drawings in which

Figure 1 represents in plan an instrument provided with one form of the subject matter of this invention.

Figure 2 is a fragmentary side elevation to an enlarged scale of the same.

Figure 3 is a detail elevation of a bow guide and string-supporting element such as is shown in Figures 1 and 2.

Figure 4 is a view similar to Figure 2, but showing a modified construction.

Figure 5 is a fragmentary side elevation showing one of the guide members, the string supports being removed.

Figures 6 and 7 are side and plan views, respectively, of another form of combined guide and string support.

Figures 8 and 9 are detail sections on lines 8—8 and 9—9, respectively, of Figure 7.

Figure 10 is a view similar to Figure 6, but illustrating a further modification.

Figure 11 is a fragmentary plan to an enlarged scale of the form shown in Figure 10.

Figure 12 is a detail section on line 12—12 of Figure 11.

Figure 13 is an enlarged fragmentary detail plan of the construction shown in Figures 8 and 9.

Referring first to Figure 1, the instrument shown comprises a hollow body portion 1 having extended therefrom a hollow neck portion 2, both portions having tone chambers, the upper face 3 of the instrument having openings 4 and 5 communicating with the respective chambers. Midway of the length of the neck portion is shown a fret 6 and a fret 7 is positioned adjacent the lower end of the body portion. Between these frets are strung a plurality of series of strings 8, each series preferably being tuned in a manner so that a whole series when sounded together form an accompaniment chord. This portion of the instrument, however, is not concerned in the present invention and may be omitted or modified as desired. On opposite sides of the forward face of the neck portion are positioned bridge members 10 over each of which passes a plurality of melody strings 11 arranged in substantially parallel relation and passing over a nut 12 at the upper end of the neck portion to tuning posts 13 to which the upper ends of the strings are attached. The lower ends of the strings pass about suitable guide elements extending upwardly from the bridges 10 and down to the sides of the instrument where they

are fixed as by means of anchorage pins 14 (see Figure 2) which may be overlaid by molding strips 15 in order to present smooth edge portions of pleasing appearance to the instrument.

It will be noted that the strings 11 are arranged in two series, one passing over each of the bridges 10, these bridges being arranged angularly with reference to the strings. The upper surfaces of the bridges are higher than the upper surface of the nut 12 so that each of the strings 11 extends downwardly toward the nut 12, all being substantially on the same level where they extend over the bridge, but at a lower level in a position nearer toward the nut 12. As the strings pass over the bridges 10 at the different lengthwise positions thereof, it results that the strings are presented at progressively different levels in lines laterally of the instrument, as clearly shown in Figure 2, so that if a playing implement such as a bow is passed between the string supporting elements on the bridge, it strikes only the string next adjacent thereto, those further removed toward the central longitudinal axis of the instrument being at a lower level since further removed from the bridge and hence out of position to be reached by the bow. It will thus be seen that the string-supporting elements on the bridges define between them playing spaces as 20 therebetween, each playing space providing access to one string only, playing spaces arranged successively along the bridges furnishing access to successive strings of the series.

The elements for supporting the strings over the bridges may be variously formed, for example, as shown in Figures 1, 2 and 3. Each element comprises a substantially staple shaped wire piece 25 having a notch 26 cut in one leg thereof at an angle in position to furnish a guide for the string passing about the element. Both legs of the element are set in suitable perforations 27 and 28 vertically arranged in the bridges 10. The top portion of each element 25 furnishes a guide for the playing implement as it passes from one to another playing space and presents a smooth surface thereto such that it may not catch and become frayed or otherwise injured and may be passed readily from one to another playing space. The angular position of the slot 26 is also of material benefit in giving a slope to the string merging with the surface of the piece 25. The string passes to its anchorage on a downward slope across its neighboring playing space which also is found to be of benefit in guiding the implement. The inner string of each series since it does not pass over a playing space of any other string outwardly of the piece 25 may be turned in any direction desired. As indicated, however, the upper end of the element 25 is unsymmetrically disposed, sloping downwardly in a direction toward the nut 12, thus presenting a gradual incline 30 to an implement passing thereover toward the body portion of the instrument and a shoulder 31 to the implement passing in the reverse direction. This construction causes the bow or other implement to be removed readily from one playing space to another while the shoulder 31 acts as a guide for the implement, preventing it from being moved inadvertently out of the desired playing space, the player employing the shoulder portion as an abutment against which the implement may rest as it is caused to traverse the desired string. By raising the implement, however, it is readily passed out of any one of the playing spaces over one of the elements 25.

Instead of utilizing the same element for both supporting the string in its proper lengthwise position over the bridge 10 and for guiding the playing implement, separate elements for performing these two functions may be employed, this being shown in Figures 4 and 5. As therein shown the strings are held in their proper position lengthwise of the bridge by means of guide posts or pins 35, each having a perforation 36 therethrough through which its respective string passes the string after passing through this perforation being brought down on the side of the instrument and there anchored as in the manner hereinbefore described, the molding 15 being placed over the anchorage elements. Adjacent to the pins 35 is shown an implement guide 40 which comprises a member bent up from wire, or other suitable material, and presenting a series of angular corrugations 41 separated by depressions 42. These depressions 42 define the playing spaces through which the implement passes, while the corrugations 41 come substantially opposite to the pins 35 so as to prevent the playing implement from contacting therewith, these presenting a somewhat rough irregular surface to the implement which might otherwise be liable to catch therein and be injured. Here again it will be noted that the corrugations 41 present a gradually inclined face 43 on one side of each playing space and a shoulder 44 at the opposite side, these being for the same purpose as the gradual incline 30 and the shoulder 31 of the elements 25.

Still another form of combined string support and implement guide is shown in Figures 6, 7, and 13, in which the elements are made integral with the bridge. Referring to these figures, 50 indicates a wooden strip cut away on its upper face at intervals at 51 to define playing spaces for the several strings separated by upstanding elements 51a

each presenting one gradually inclined face and one shoulder portion adjacent to each playing space. As shown also the upper inner edge of the strip is cut away to form a groove as shown at 52 to receive the strings which pass through the spaces at the shoulder portion thereof in notches 53 therein.

In order that the string may not cut into the material, metal reinforcements therefor may be provided. As shown best in Figure 8 these reinforcements may comprise headed metallic elements such as nails 54 driven into the upper face of the strip, their shank portions approaching closely to the face of the slots 53 where the strings bear thereon. On the outer face of the strip 50 a reinforcing rod or strip 55 may be partially set into the strip, the strings bearing over this rod on their way to their anchorages at the sides of the instrument. In place of the reinforcements 54 the heads of which show on the upper face of the strips, reinforcements may be driven in from the lower face of the strip as shown in Figures 11 and 12, such reinforcements comprising sections of wire 60 set in from the lower face of these strips 50 and passing upwardly in position to form the face of the notches 53, or slightly back therefrom, their upper ends, however, terminating somewhat short of the upper face of the bridge strips in order that they may not appear on the exposed surface thereof.

Having thus described certain embodiments of this invention it should be evident to those skilled in the art that various changes and modifications may be made therein without departing from its spirit or scope as defined by the appended claims.

I claim:

1. A stringed musical instrument having a series of strings arranged in substantially parallel relation, a nut adjacent to one end of said series, a bridge angularly disposed relative to said strings and having its upper surface at a higher level than said nut, and elements on said bridge between the strings passing thereover shaped to present a smooth guiding surface for a playing implement passing from one to another string.

2. A stringed musical instrument having a series of strings arranged in substantially parallel relation, a nut adjacent to one end of said series, a bridge angularly disposed relative to said strings and having its upper surface at a higher level than said nut, and means associated with said bridge for guiding a playing implement from one to another of said strings.

3. A stringed musical instrument having a series of strings, a bridge for supporting said strings, and means associated with said bridge for presenting a smooth guiding surface to a playing implement passing from one to another of said strings.

4. A stringed musical instrument having a series of strings, a bridge for supporting said strings and arranged at an angle thereto, and means on said bridge for retaining the strings in proper positions lengthwise thereof, said means being formed to present smooth guiding surfaces to a playing implement passing from one to another string.

5. A stringed musical instrument having a series of strings, a bridge for supporting said strings and arranged at an angle thereto, and means on said bridge for retaining the strings in proper positions lengthwise thereof, said means being formed to present smooth guiding surfaces to a playing implement passing from one to another string, and presenting a succession of gradual inclinations to the passage of the implement in one direction.

6. A stringed musical instrument having a series of strings, a bridge for supporting said strings and arranged at an angle thereto, and means on said bridge for retaining the strings in proper positions lengthwise thereof, said means being formed to present smooth guiding surfaces to a playing implement passing from one to another string, and presenting a succession of shoulders between the playing positions of successive strings to the passage of the implement in one direction.

7. A stringed musical instrument having a series of strings, a bridge for supporting said strings and arranged at an angle thereto, and means on said bridge for retaining the strings in proper positions lengthwise thereof, said means being formed to present smooth guiding surfaces to a playing implement passing from one to another string, and presenting a succession of gradual inclinations to the passage of the implement in one direction and a succession of shoulders to the passage of the implement in the opposite direction.

8. A stringed musical instrument having a series of strings, a bridge for supporting said strings and arranged at an angle thereto, and means for retaining said strings in proper position lengthwise of said bridge and having associated therewith means presenting a smooth guiding surface to a playing implement passing from one to another string.

9. A stringed musical instrument having a series of strings, a bridge for supporting said strings and arranged at an angle thereto, and means for retaining said strings in proper position lengthwise of said bridge and having associated therewith means presenting a smooth guiding surface to a playing implement passing from one to another string, said associated means comprising a succession of gradual inclinations to the movement of the implement in one direction.

10. A stringed musical instrument having

a series of strings, a bridge for supporting said strings and arranged at an angle thereto, and means for retaining said strings in proper position lengthwise of said bridge and having associated therewith means presenting a smooth guiding surface to a playing implement passing from one to another string, said associated means comprising a succession of shoulders presented to the implement on movement in one direction.

11. A stringed musical instrument having a series of strings, a bridge for supporting said strings and arranged at an angle thereto, and means for retaining said strings in proper position lengthwise of said bridge and having associated therewith means presenting a smooth guiding surface to a playing implement passing from one to another string, said associated means comprising a succession of gradual inclinations to the movement of the implement in one direction and a succession of shoulders to the movement of the implement in the opposite direction.

12. A stringed musical instrument having a series of strings, a bridge for supporting said strings and arranged at an angle to said strings, and elements projecting from said bridge between successive strings and defining between them playing spaces for the several strings and through which a playing implement therefor may be passed, said elements presenting smooth surfaces for guiding said implement from one to another playing space.

13. A stringed musical instrument having a series of strings, a bridge for supporting said strings and arranged at an angle to said strings, and elements projecting from said bridge between successive strings and defining between them playing spaces for the several strings and through which a playing implement therefor may be passed, said elements presenting smooth surfaces for guiding said implement from one to another playing space, and a gradual incline at one end of said space and a relatively abrupt shoulder at the other end.

14. A stringed musical instrument having a series of strings, a bridge for said strings arranged at an angle to said strings, and elements projecting from said bridge and having metal portions for supporting the strings and for holding the strings spaced along said bridge, said elements presenting smooth surfaces to the passage of a playing implement from one to another string.

15. A stringed musical instrument having a series of strings, a bridge for said strings arranged at an angle thereto, and staple shaped elements having their loop portions projecting above said bridge and against which said strings bear to hold them in spaced relation, said elements defining therebetween playing spaces for the several strings.

16. A stringed musical instrument having a series of strings, a bridge for said strings arranged at an angle thereto, and staple shaped elements having their loop portions projecting above said bridge and against which said strings bear to hold them in spaced relation, said loop portions sloping downwardly in one direction.

17. A stringed musical instrument having a series of strings, and means for defining playing spaces for the several strings, said instrument including means for preventing injury to a playing implement engaging a string in one of said spaces.

18. A stringed musical instrument having a series of strings, a bridge for said strings arranged at an angle thereto, and staple shaped elements having their loop portions projecting above said bridge and against which said strings bear to hold them in spaced relation, said loop portions sloping downwardly in one direction, each of said elements having a downwardly sloping string receiving slot therein.

19. A stringed musical instrument having a series of strings, a bridge for said strings arranged at an angle thereto, and elements extending upwardly from said bridge defining between them playing spaces for the several strings, the outer ends of certain of said strings sloping downwardly from said elements across said playing spaces and anchored to said instrument.

In testimony whereof I have affixed my signature.

PAUL F. RICHTER.