

UNITED STATES PATENT OFFICE.

EDWIN DAVID WILBER, OF DETROIT, MICHIGAN.

STRINGED MUSICAL INSTRUMENT.

1,259,062.

Specification of Letters Patent. Patented Mar. 12, 1918.

Application filed June 1, 1916. Serial No. 101,091.

To all whom it may concern:

Be it known that I, EDWIN DAVID WILBER, a citizen of the United States, residing at Detroit, in the county of Wayne, State of Michigan, have invented a new and useful Stringed Musical Instrument; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to an improved stringed musical instrument.

One of the objects of the invention is to improve, simplify and render more practical the stringed musical instrument, set forth, illustrated and claimed in the United States Patent No. 1,168,153, issued to Nathaniel Richard Boswell and Edwin David Wilber upon the eleventh day of January 1916. In brief the broad idea of the invention consists in the employment of a body having a neck and a head, and a series of strings stretched over the sounding board of the body and tuned, there being means to be manipulated by the fingers of the operator for loosening and tightening said strings, whereby various slide notes may be played, for instance major chords and the augmented fifth chord of G when the strings are played open. Also a relative minor chord of G, the dominant seventh chord of C, the relative diminished chord of G, and the relative minor chord of E flat, and other chords may be played, especially when said movable finger in the form of a steel bar in the hand of a player is set across certain selected strings opposite selected frets, while plucking or twanging such fretted and non-fretted strings.

A further object of the invention is the provision of tightening means for each and every string in lieu of the usual tail piece, to be operated by manipulating various buttons, for raising the pitch of the different strings, whereby slides of different pitch may be sounded.

A further object of the invention is to provide means for use on a musical stringed instrument of the kind set forth, whereby the number of strings as used on the instrument shown, set forth and claimed in said Patent No. 1,168,153 may be reduced, and yet permit of the same result as attained in said patent.

One of the features of the invention is the

provision of a plurality of keys or buttons mounted in guides of any suitable fiber plate mounted upon the resonant board of the body, and so connected to the tail ends of the strings, whereby the pitch of each and every string may be raised to different degrees.

Another object of the invention is to provide buttons that may be so adjusted, that when any one of the buttons is depressed in order to contact with the fiber plate acting as a stop, the string to which said button is connected, when plucked or twanged, will give forth the tone in the key that is desired. Therefore, it is to be noted that by adjusting the buttons, the tones of the strings may be varied to different keys.

In practical fields the details of construction may necessitate alterations falling within the scope of what is claimed.

The invention comprises further features and combination of parts as hereinafter set forth, shown in the drawings and claimed.

In the drawings:—

Figure 1 is a view in perspective of the improved stringed musical instrument constructed in accordance with the invention.

Fig. 2 is a longitudinal sectional view on line 2—2 of Fig. 1.

Fig. 3 is a horizontal sectional view on line 3—3 of Fig. 2.

Fig. 4 is an enlarged detail perspective view of the connecting means between each of said depressible buttons and the tail end of each string.

Referring more especially to the drawings 1^a designates the body of the instrument, which is of a comparatively flat shape, substantially resembling the shape of the guitar. 2^a denotes the neck and 3^a the head, which is provided with the usual tuning or string stretching means 4^a. The neck 2^a is provided with a series of spaced frets 5^a, which are numbered from 1 to 17 inclusive. Mounted upon the sounding board 6^a is the usual bridge 7^a, and carried by the neck 2^a adjacent the head 3^a is the nut 8^a, over which the strings engage. The sounding board 6^a is provided with the usual opening 9, between the bridge and the extension 10 (on to which the frets extend) of the neck. Secured in a depression 11 of the sounding board 6^a by means of screws 13 is a fiber plate 12. These screws 13 are long enough to pass through the thin portion 14 of the fiber plate and the flange 15 of the sounding

board. In addition to these screws the fiber plate is designed to be adhesively secured in said depression 11, so that the fiber plate will be substantially solid with the resonant board. The fiber plate 12 is provided with a plurality of downwardly extensions 16 having cylindrical guide bores 17. Secured to the inner face of the wall 18 of the tail end of the body, by means of screws or the like 19 is a pair of oppositely disposed brackets 20, in bearings of which a pivot rod 21 is mounted, there being nuts 22 on the ends of said rod, to prevent endwise movement of the rod. Also secured by screws or the like 23 directly below the brackets 20 is a pair of brackets 24, in bearings of which a pivot rod 25 is mounted. Pivotaly mounted upon the rod 21 is a plurality of connecting bars *g*, *d*, *b*, *g*², *d*², *g*³, and *e*, which correspond to the plurality of strings 26 tuned respectively to G, D, B, G, D, G and E. These connecting bars, designated as a series by the numeral 27, are held in spaced relation by the collars 28, mounted upon the rod 21. Mounted upon the rod 25 is a plurality of levers 29, held in spaced relations by means of the collars 30. The levers 29 are mounted to extend vertically and disposed respectively in spaced relation to the arms 31 of the connecting bars 27. The upper end portions of the levers 29 are provided with slots 32 and 33, and protrude through the openings 34 in the rear portion of the resonant board 6^a. Secured to the inner face of the wall of the tail end of the body is a strip 35, the securing screws of which are designated by the numeral 36. Carried by the strip 35, so that their heads 37 are interposed between the strip and the inner face of the wall of the tail end of the body is a series of rods 38, which extend respectively through the slots 32 of the levers 29, there being coiled springs 39 upon said rods 38, between the levers 29 and the nuts 40, which are respectively threaded upon said rods 38, for regulating the tension of the springs 39. The strings extend respectively through the slots 33 of the levers 29, and have their tail ends provided with enlargements 41 to prevent said strings from pulling through the slots. Therefore, it is to be seen that said strings are stretched from the upper ends of the levers 29, over the bridge 7^a to the tuning means 4^a, which may be manipulated, in order to tune the strings G, D, B, G, D, G, and E. Extending through openings 42 of the wall at the tail end of the body are screws 43, which are threaded through the levers 29 respectively, so that their inner ends will bear against the downwardly extending tail pieces 31 of said connecting bars 27. These connecting bars 27 are curved or shaped, so that their forward ends are pivoted at 45 between the forks 46 at the lower ends of the shanks of the buttons (which are depressible) numbered from 1 to 7 inclusive, which correspond respectively to the strings G, D, B, G, D, G, and E. The shank of each button consists of two sections 47 and 48, the section 48 being threaded axially into the section 47, which in turn is connected to its respective bar 27. It is to be noted that the highest limit of each button will be as represented by button number 2, whereas the lowest adjustable limit of each button is represented by button number 3, hence an expert player of this type of musical instrument, may become so accustomed to manipulating the buttons, as to be able to determine, while playing the instrument, just how to depress each and every button, in order to raise the pitch of the strings gradually.

Before a player, who is not so well experienced in the manipulation of the instrument, can play the instrument in order to produce the various slide notes and chords, each button may be adjusted, so that when it is depressed in order to tilt its respective lever 27, the lower end of the button proper will contact with the fiber plate 12, thereby limiting the button in its depression, so that the string may be brought to a definite pitch.

Extending transversely of the sections 47 of the shanks of said buttons are pins 50, which limit the sections 47 in their upward movements. A player not so well experienced, should press the buttons until they contact with the upper face of the fiber plate, thereby limiting the buttons in their downward movements. In order to play a chord the buttons 2 and 3 may be depressed until they come in contact with the fiber plate raising the strings D and B respectively to definite pitches, as D sharp or C. Then the strings D and B and the other strings may be twanged together, thereby sounding a desired chord. When all the buttons are arranged at a height corresponding to button number 2, the player if an expert may depress the buttons to different degrees, so as to raise the pitch of the strings to different tones, while plucking or twanging the strings and at the same time fretting the strings with the movable finger, which is used in the same manner as the finger in said patent is employed. In other words the finger 52 is placed across the selected strings, fretting them upon their upper surfaces, instead of depressing the strings against the frets, which are only used as guides, opposite and between which the finger 52 is disposed. When depressing the buttons, the springs 39 assist in pushing the levers 29 rearwardly, which movement stretches the strings, so as to raise the pitch. It is to be noted that when a button is depressed, the arm 31 acts against the extremity of the screw 43 (which is carried by the lever 29) to move the lever 29 on its pivot, thereby raising the pitch of the respective string.

When the button 2 is depressed to a certain degree it raises the pitch of the second string substantially a half tone. Should the button 2 be depressed further, the pitch of the second string is raised a whole tone, and should the button 2 be depressed still further, the pitch of the second string is raised a tone and a half. It is obvious that two or more buttons may be used simultaneously if desired.

In using this improved musical instrument, the strings thereof may be tuned by manipulating the tuning keys 4^a, or by adjusting the screws 43, then by manipulating the buttons 1 to 7 inclusive, or by utilizing the finger piece 52 between the frets in the manner herein set forth, or as set forth in the Patent No. 1,168,153, Hawaiian musical pieces or strains may be played. Such musical pieces or strains consist mostly of slides, and such slides may be accomplished by manipulating or depressing the various buttons 1 to 7 inclusive as they are needed, or by sliding the finger piece on the strings in between the frets. It is to be noted that the springs 39 are not designed to have sufficient stress to bring the strings up to their proper pitch, but are designed primarily to render it easier on the operator's fingers when depressing the buttons. In order to obtain more than two notes from any one string, all the buttons may be adjusted outwardly to their limit, such as indicated by the position of button No. 2. Then it will be observed that an expert player, say for instance, may depress the button 2, one third, or one fourth, or one fifth of its full movement, and thus cause a slide note to be made.

The invention having been set forth what is claimed as new and useful is:—

1. In a stringed musical instrument, a body having a sounding board and a neck having a head provided with tuning means, a set of strings stretched over said sounding board and connected to said tuning means, a plurality of levers, each having its free end connected to the tail end of one of the strings, each lever having a screw, a plurality of pivoted bars, each having an arm engaging with the screw of said lever, and depressible means connected to each bar to move its respective lever, to stretch its respective string to different pitches.

2. In a stringed musical instrument, a body having a sounding board and a neck having a head provided with tuning means, a set of strings stretched over said sounding board and connected to said tuning means, a plurality of levers, each having its free end

connected to the tail end of one of the strings, each lever having a screw, a plurality of pivoted bars, each having an arm engaging with the screw of said lever, and depressible means connected to each bar to move its respective lever, to stretch its respective string to different pitches, and means for cushioning each of said levers as it resumes its normal position.

3. In a stringed musical instrument, a body having a sounding board and a neck having a head provided with tuning means, a set of strings stretched over said sounding board and connected to said tuning means, a plurality of levers, each having its free end connected to the tail end of one of the strings, each lever having a screw, a plurality of pivoted bars, each having an arm engaging with the screw of said lever, and depressible means connected to each bar to move its respective lever, to stretch its respective string to different pitches, said depressible means comprising buttons having shanks pivoted to the free end of said bars, and means carried by said shanks to limit their upward movements.

4. In a stringed musical instrument, a body having a sounding board, a neck having a head provided with tuning means, a set of strings stretched over said sounding board and connected to said tuning means, a plurality of levers, each having its free end connected to the tail end of one of the strings, each lever having a screw, a plurality of pivoted bars, each having an arm engaging with the screw of each lever, and depressible means connected to each bar to move its respective lever, to stretch its respective string to different pitches, said depressible means comprising buttons having shanks pivoted to the free ends of said bars, and means carried by said shanks to limit their upward movements, guides for said shanks with which guides said limiting means cooperate, each shank comprising two sections, one threaded axially into the other, whereby the buttons may be adjusted to different positions relative to the upper face of the resonant board, so that the depressing of each button will raise the pitch of the respective string hence making a slide note.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDWIN DAVID WILBER.

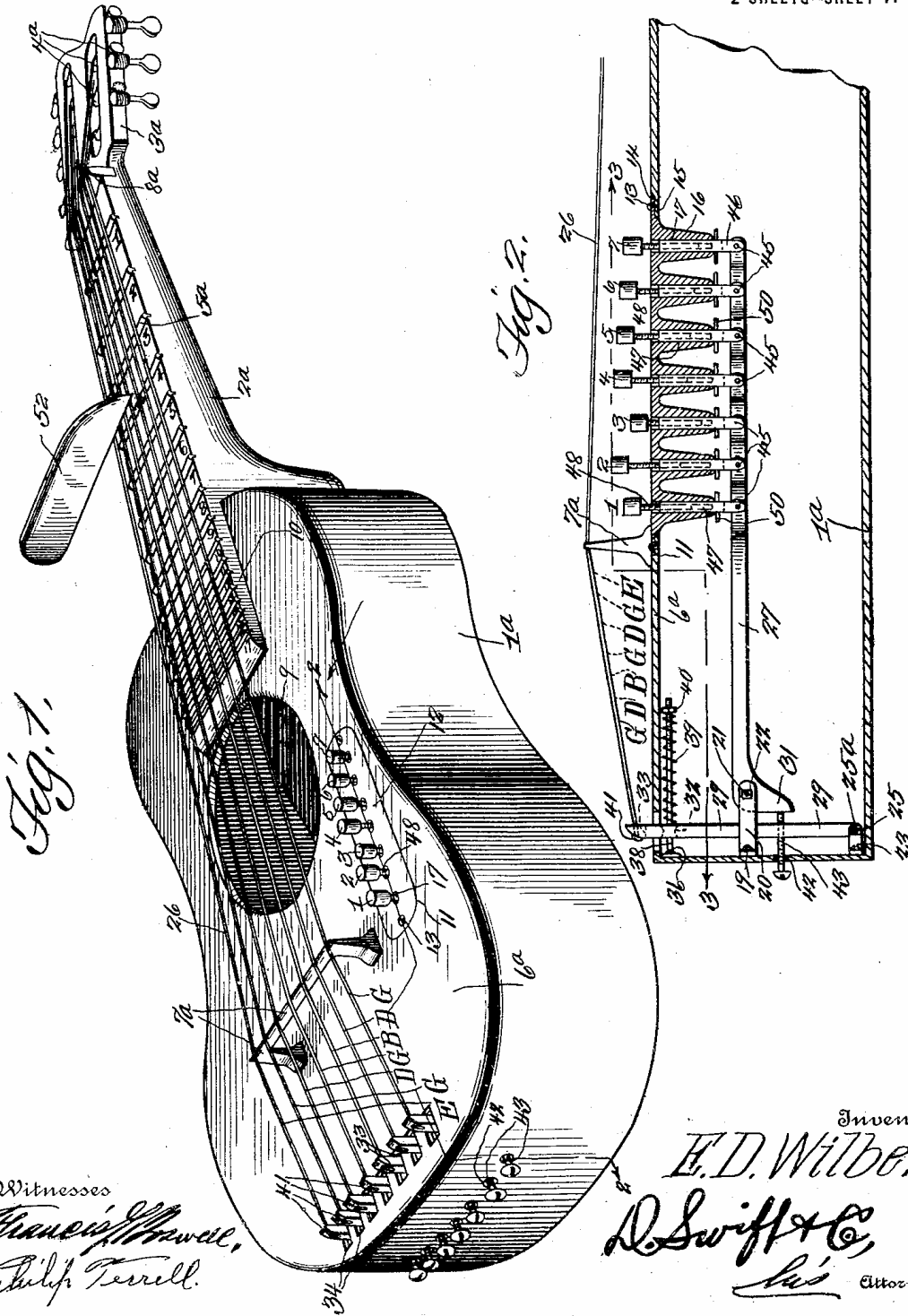
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2 SHEETS—SHEET 1.



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 2 SHEETS—SHEET 2.

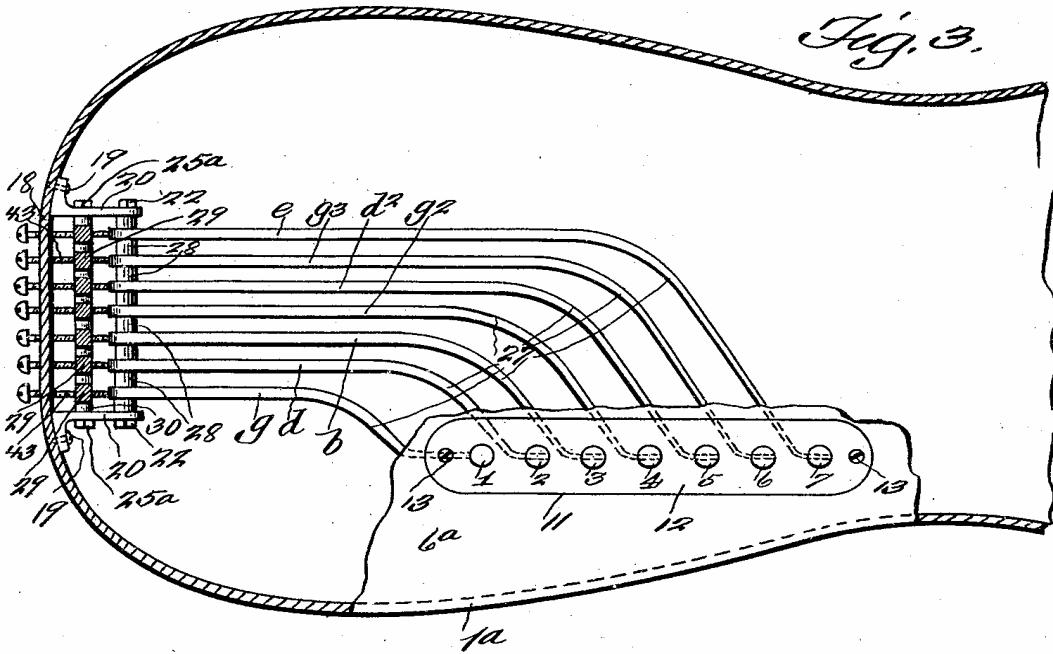


Fig. 3.

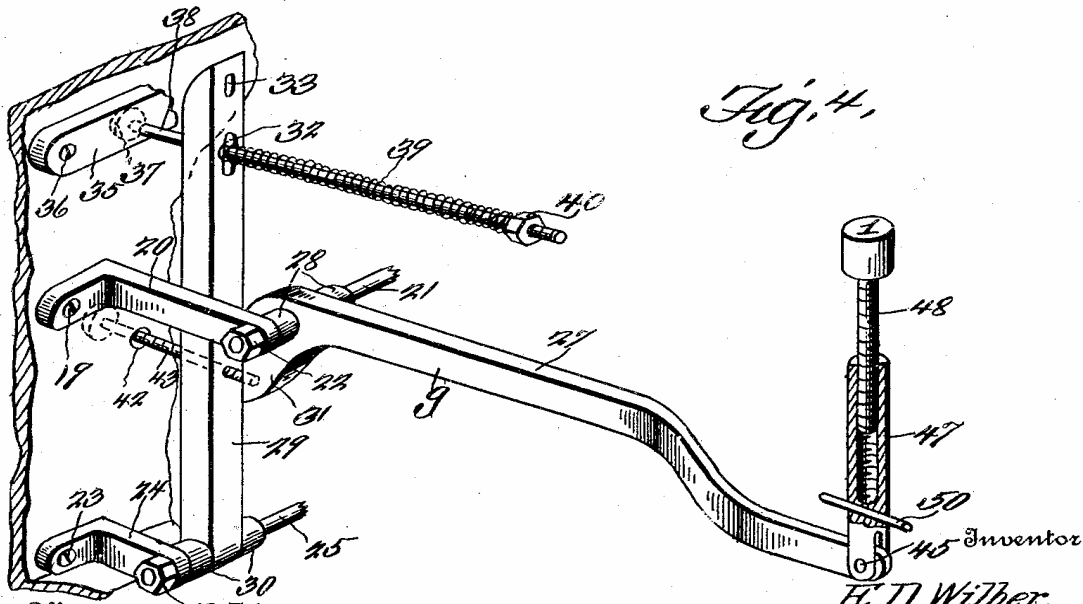


Fig. 4.

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