

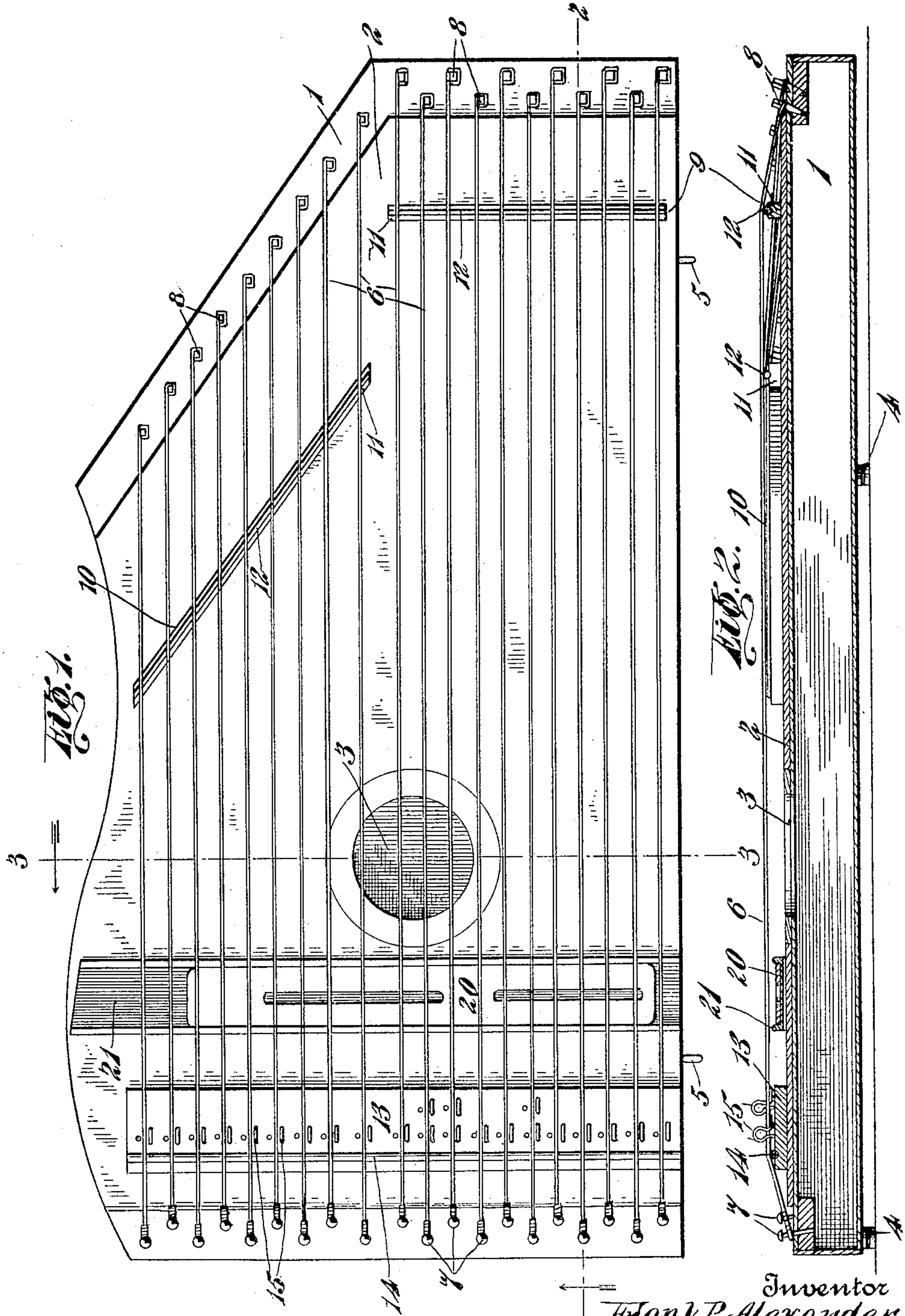
No. 808,802.

PATENTED JAN. 2, 1906.

F. P. ALEXANDER.  
STRING MUSICAL INSTRUMENT.

APPLICATION FILED JAN. 30, 1905.

2 SHEETS—SHEET 1.



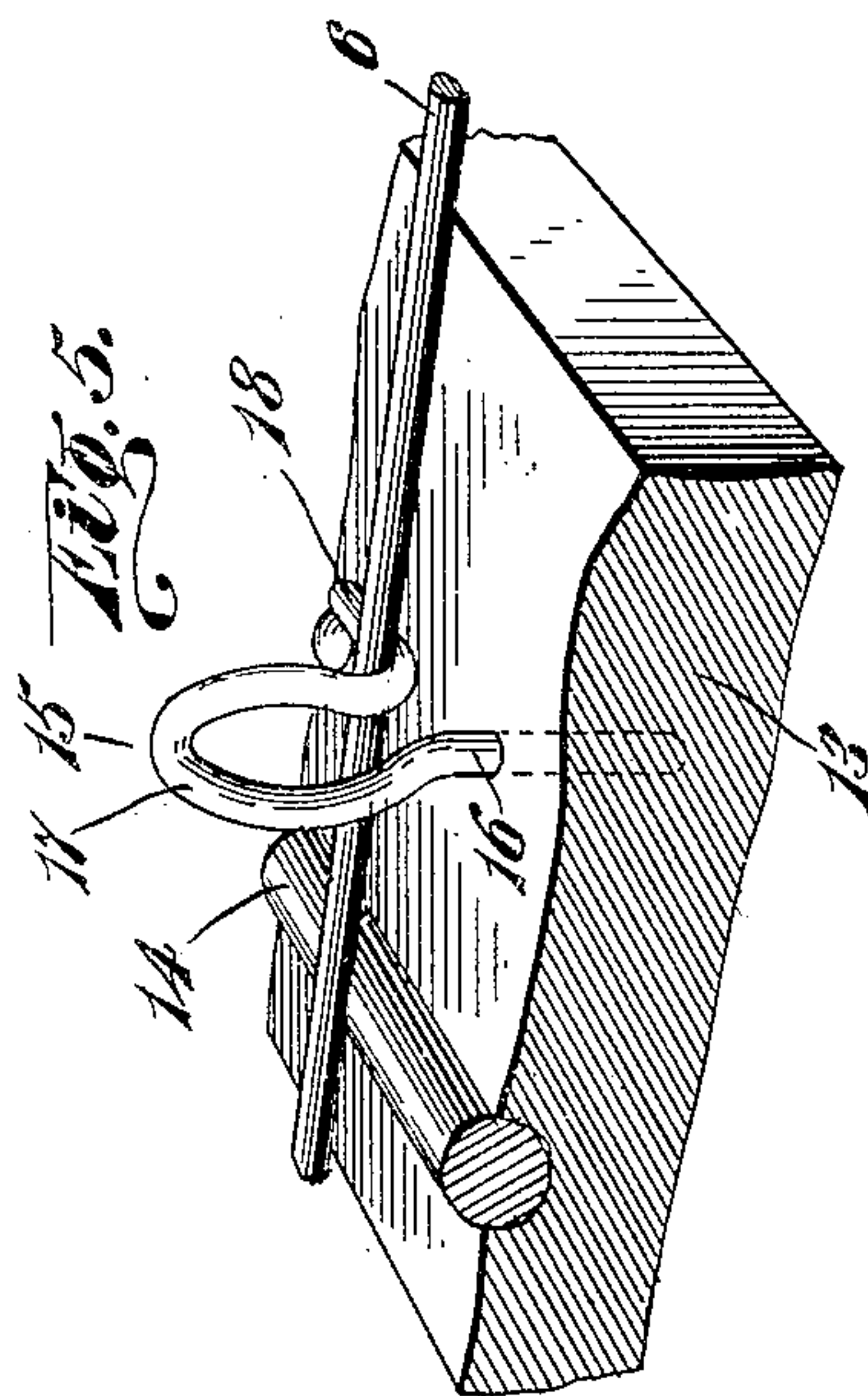
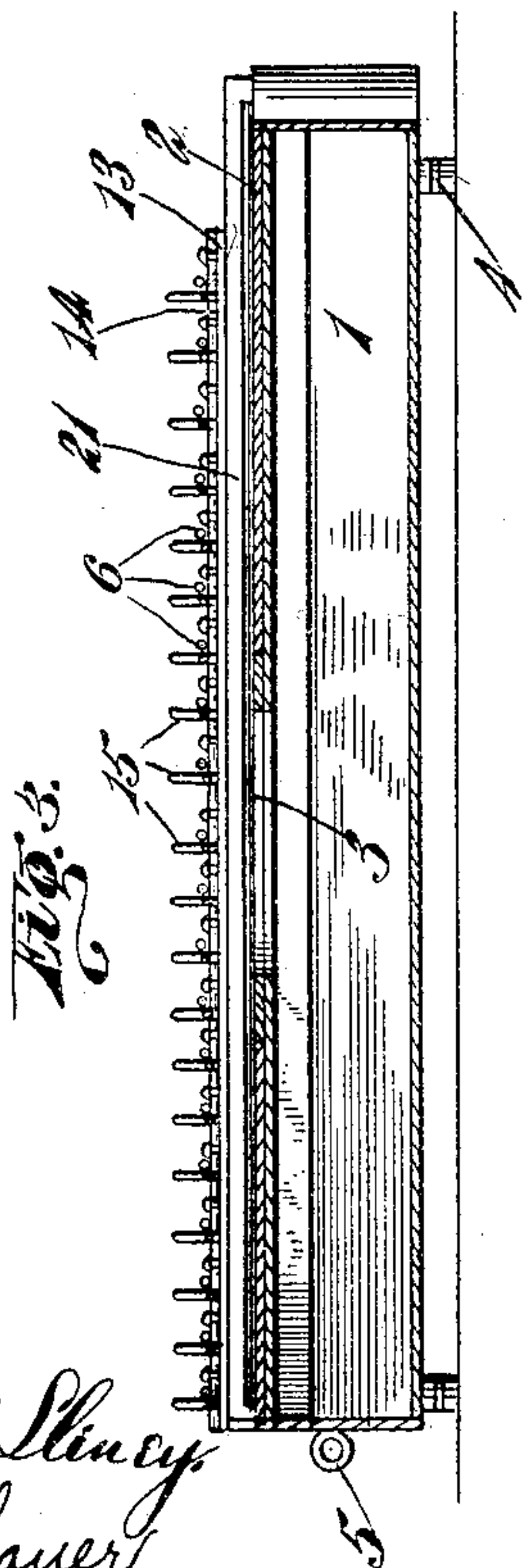
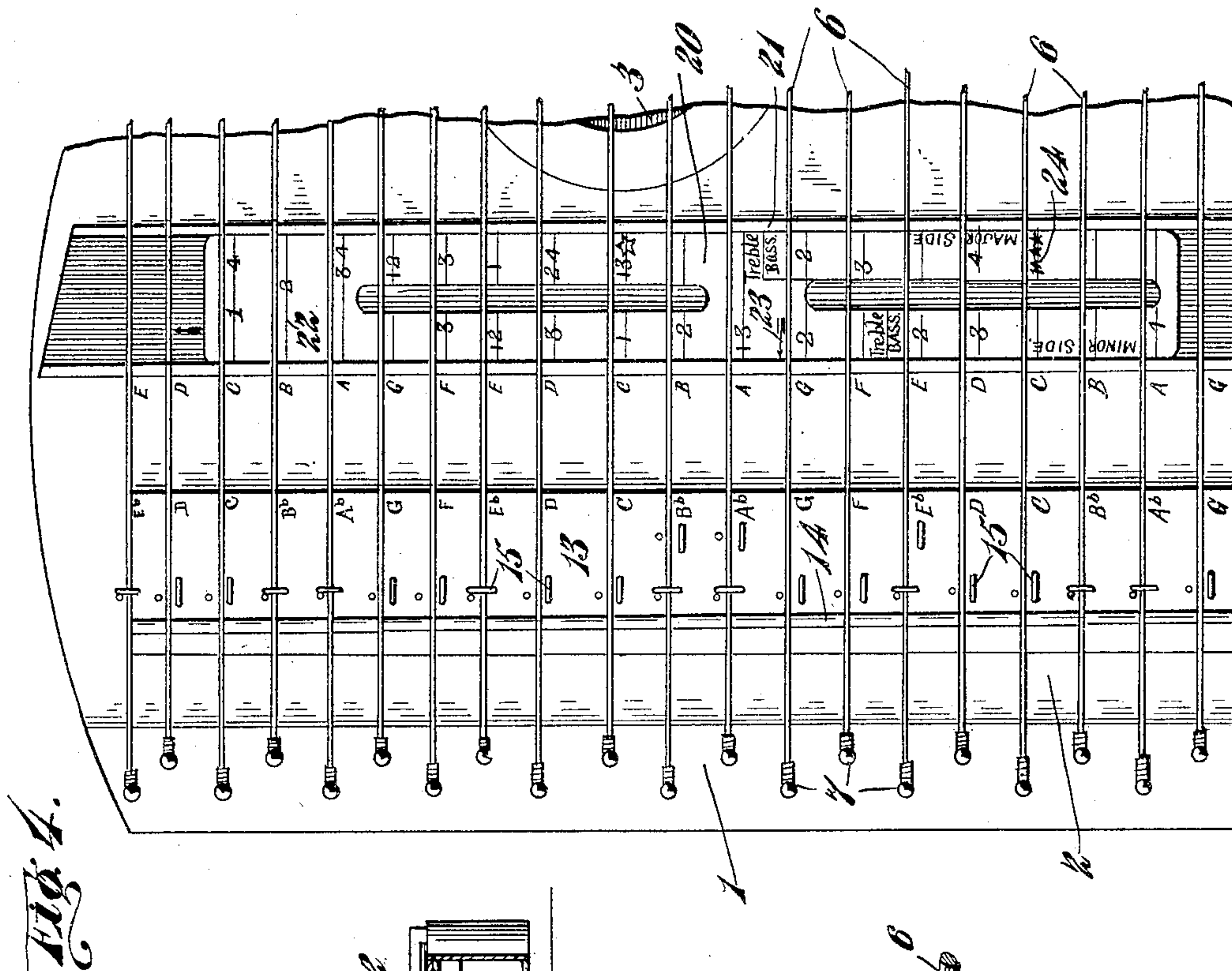
Witnesses  
Eugene M. Slincy.  
C. H. Griesbauer.

Inventor  
Frank P. Alexander.  
By A. B. Wilson  
Attorney

F. P. ALEXANDER.  
STRING MUSICAL INSTRUMENT.

APPLICATION FILED JAN. 30, 1905.

2 SHEETS—SHEET 2.



Witnesses  
Eugene M. Stacey  
C. H. Griesbauer.

Inventor  
Frank P. Alexander.

By *A. B. Wilson*  
Attorney



# UNITED STATES PATENT OFFICE.

FRANK P. ALEXANDER, OF LUDINGTON, MICHIGAN.

## STRING MUSICAL INSTRUMENT.

No. 808,802.

Specification of Letters Patent.

Patented Jan. 2, 1906.

Application filed January 30, 1905. Serial No. 243,318.

*To all whom it may concern:*

Be it known that I, FRANK P. ALEXANDER, a citizen of the United States, residing at Ludington, in the county of Mason and State of Michigan, have invented certain new and useful Improvements in String Musical Instruments; and I do 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 improvements in stringed musical instruments; and it consists in the novel features of construction, combination, and arrangement of devices hereinafter fully described and claimed.

One object of my invention is to provide practical and efficient means for instantly raising and lowering the tone or pitch of the strings of a musical instrument a predetermined degree or interval, so that in such stringed instruments as autoharps, dulcimers, and the like when the degree or interval of the tone through which their strings are raised or lowered is a minor interval or half-tone (or in respect to some strings two minor intervals or one major interval) the strings may be sharpened or flattened, as desired, to permit the performer to play in different keys without bothering about sharps and flats and with the use of the same fingered positions for the corresponding chords in the different keys.

Another object of my invention is to provide a simple and convenient chart to be used in connection with such tone or key changing means for the purpose of indicating the chords in both major and minor keys or scales.

A further object of my invention is to provide a stringed instrument of the character hereinafter set forth which will have a sweet voluminous tone and which may be easily performed upon by persons with a limited knowledge of and capacity for music.

The above and other objects, which will appear as the nature of my invention is better understood, are accomplished by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of a stringed musical instrument embodying my invention. Fig. 2 is a vertical longitudinal sectional view through the same, taken on the line 2 2 in Fig. 1. Fig. 3 is a vertical transverse sectional view taken on the line 3 3 in Fig. 1. Fig. 4 is an enlarged plan view of one end of

the instrument, showing the pivoted bridges or frets for the strings and the chord-indicating chart; and Fig. 5 is a detail view of one of the pivoted string bridges or frets.

The embodiment of my invention illustrated in the drawings partakes of the nature of both harp and a dulcimer and is performed upon by picking the strings by hand the same as a harp.

As shown, the instrument comprises a hollow body 1, similar in shape to but a greater size than an autoharp and having at its top a sounding-board 2, formed with an opening or hole 3. This body, which may be of any ordinary or preferred construction, is adapted while being played to be supported upon a table or the like by means of legs 4, and to permit it to be readily carried a suitable supporting-strap or the like (not shown) may be attached to eyes 5, provided at one side of said body, as shown.

The strings 6, preferably of wire, are stretched over the sounding-board 2, and each one has one of its ends secured to the usual hitch-pins 7, disposed at one end of the body 1 and in the present instance in the form of screws. The opposite ends of the strings 6 are secured to and wound upon the usual tuning-pins or keys 8, which are disposed along the opposite end of the body 1. Adjacent to the latter-mentioned end of the body are arranged two angularly-disposed stationary bridges 9 and 10, each of which consists of a body or block 11, having along its upper edge a metal strip or rod 12, preferably in the form of a piece of steel wire. Adjacent to that end of the body 1 at which the hitch-pins 7 are located is secured upon the top of the sounding-board a transversely-disposed block or strip 13, which forms a support for a stationary bridge 14, which consists, preferably, of a piece of heavy steel wire secured upon the top of said block 13 and engaged by the strings or wires 6.

For the purpose of raising the tone or pitch of the strings a predetermined interval or degree, preferably a minor interval or half-tone, I provide the block or support 13 with a plurality of individual bridges or frets 15 for the said strings, one or more of the same being provided for each string, as desired. These movable bridges or frets 15 are adapted to be moved under the strings, so as to shorten their span, and thereby change their tone or pitch, and they may be of any desired construction that will accomplish this result. As



shown, they are in the form of short pieces of wire or metal rods bent, as shown, to form a lower portion 16, which is pivoted in the block or support 13, a loop or finger-piece 17, and a laterally-projecting portion 18, which is adapted to be moved into and out of engagement with one of the strings, said portion 18 being disposed beneath its string when engaged therewith, as shown. It will be seen that by means of these individual pivotally-mounted bridges or frets the tone or pitch of the string may be instantly raised a predetermined degree—that is, a minor interval or half-tone—and those strings which have two of such individual bridges or frets may be instantly raised two minor or one major interval. By means of this construction the tone or pitch of the strings may be instantly sharpened or flatted, so that the performer may play in any key without the necessity of bothering about sharps and flats and with the use of the same fingered positions of the corresponding chords in the various keys.

The natural or open key of the instrument—that is, the key to which the instrument is tuned without bringing any of the individual bridges or frets into use—is preferably the scale or key of E-flat—that is, each string lettered B, E, and A upon the block or support 13 is flatted. It will be seen that when the bridges or frets 15 for the A-strings are engaged with the latter the instrument will be in the key of B-flat. Similarly by throwing the ones under E-flat strings the latter are changed to E and the instrument is thrown into the scale or key of F, and by similarly changing the B-flat strings the key of the instrument will be changed to C, as it is illustrated in Fig. 4 of the drawings. When the instrument is in this key, the various other keys may be readily obtained by simply sharpening and flattening the proper strings by means of said bridges or frets 15, as will be readily understood.

In order to facilitate the adjustment of the movable bridges or frets 15 in changing the instrument from one key to another and for the purpose of indicating the several positions of the various major and minor keys, chords, or scales, I provide a movable chart 20 upon the sounding-board 2 beneath the strings and adjacent to the block 13. This chart 20 is rectangular in form and is slidably mounted in a transversely-disposed supporting-guide 21, secured at each of its ends to the body 1 of the instrument and having its bottom or under side spaced from the sounding-board 2. At one side of the support 21 on the sounding-board 2 are printed or otherwise marked the letters of the various strings similar to the lettering upon the block 13. The sliding chart 20 has its upper face ruled or marked, as shown at 22, to correspond to the strings 6, and upon said marks 22 are placed the numerals which indicate the dif-

ferent positions of a chord, the major chord being on one side and the minor upon the other, as shown. For instance, the strings of the first or tonic chord are indicated by the numeral "1," while the strings of the second or dominant chord are designated by the numeral "2," &c. Each major chord has one note sharpened that is not sharpened in its corresponding minor chord, and the single star on the chart will always indicate that particular string, so that the change from the major key to its corresponding minor key may be quickly done by simply turning the bridge or fret 15 of the string indicated by the star; but in changing from one major key to another the chart 20 must be moved longitudinally, so that the three stars 24 upon the chart will be moved under the letter of the key in which it is desired to play. Since the strings are sharpened or flatted according to the sharps or flats in the key in which it is desired to perform, the same fingered positions of the chords as indicated on the chart may be used in the various keys. In other words, all major chords are fingered exactly alike according to the fingers on the chart, the only difference being a shift of position. Hence in learning to play the instrument it is only necessary to learn two chords—one major and one minor—as indicated on the chart. This will permit a person to play in eight major keys with the same fingering and their accompanying relative eight minor keys with the same fingering.

From the foregoing description, taken in connection with the accompanying drawings, the construction, operation, and advantages of my invention will be readily understood without a more extended explanation.

While I have shown and described the preferred embodiment of my invention, it will be understood that I do not wish to be limited to the construction herein set forth, since various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a sounding-board, a plurality of strings stretched thereover between fixed bridges, and a plurality of removable individual bridges or frets for said strings, said individual bridges or frets comprising a wire finger-loop, a laterally-projecting portion and a shank or lower portion, the latter being pivotally mounted intermediate said stationary bridges and said laterally-projecting portions adapted to be swung under said strings for the purpose of varying the length of their vibratory portions and thereby changing their tones.

2. A musical instrument comprising a hol-



low body having a sounding-board, hitch-pins at one end of said body, tuning-pins or keys at its other end, stationary bridges adjacent to each end of said body, strings  
5 stretched over said sounding-board and said bridges and engaged with said tuning and hitch pins, and a plurality of removable pivotally-mounted individual bridges or frets for said strings disposed intermediate said sta-  
10 tionary bridges said frets consisting of wire finger-loops, a lower pivoted portion, and laterally - projecting portions adapted to be swung under said strings to vary the lengths of their vibratory portions, substantially as  
15 described.

3. A musical instrument comprising a hollow body having a sounding-board, hitch-pins at one end of said body, tuning-pins or keys at its other end, stationary bridges ad-  
20 jacent to each end of said body, strings stretched over said sounding-board and said bridges and engaged with said tuning and hitch pins, a plurality of removable pivotally-mounted individual bridges or frets for  
25 said strings said bridges or frets each comprising a wire finger-loop, and a lower por-

tion adapted to fit a hole in the sounding-board, said bridges or frets being disposed intermediate said stationary bridges and having portions adapted to be swung under said  
30 strings to vary the length of their vibratory portions and a movable chord - indicating chart upon said body, substantially as described.

4. The combination with a stringed mu-  
35 sical instrument having adjustable means for varying the length of the vibratory portion of one or more of its strings for the purpose of changing their tone or pitch, of a chart transversely slidable with respect to and under  
40 the strings of said instrument, said chart having means for indicating the chords of the major and the minor keys, substantially as described.

In testimony whereof I have hereunto set  
45 my hand in presence of two subscribing witnesses.

FRANK P. ALEXANDER.

Witnesses:

ETTA ARNOTT,  
M. F. BUTTERS.