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M. MACCAFERRI

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CHORD PLAYER

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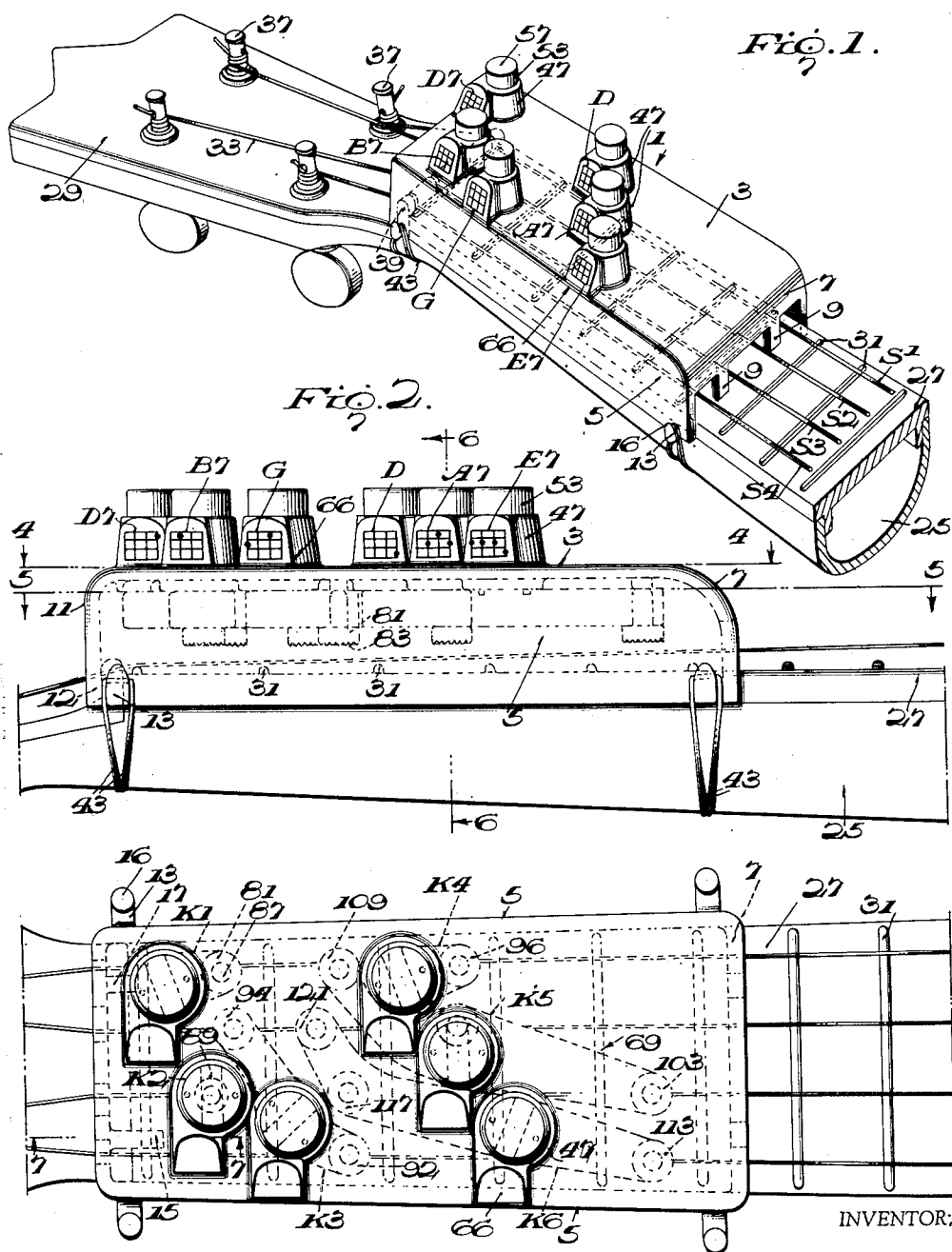


FIG. 3.

Mario Maccaferri  
BY Pech & Pech

INVENTOR:

ATTORNEYS

Feb. 16, 1954

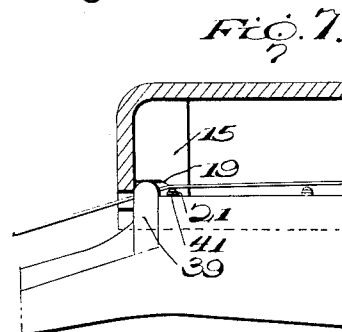
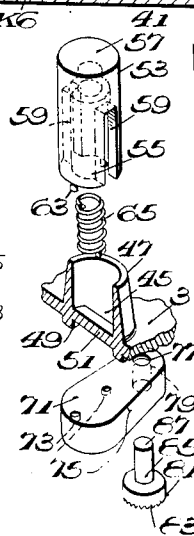
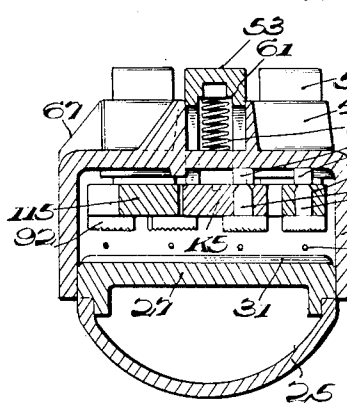
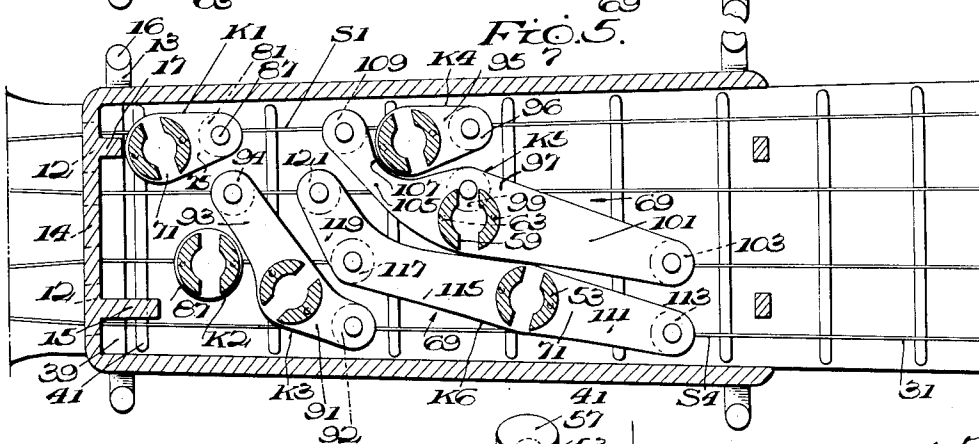
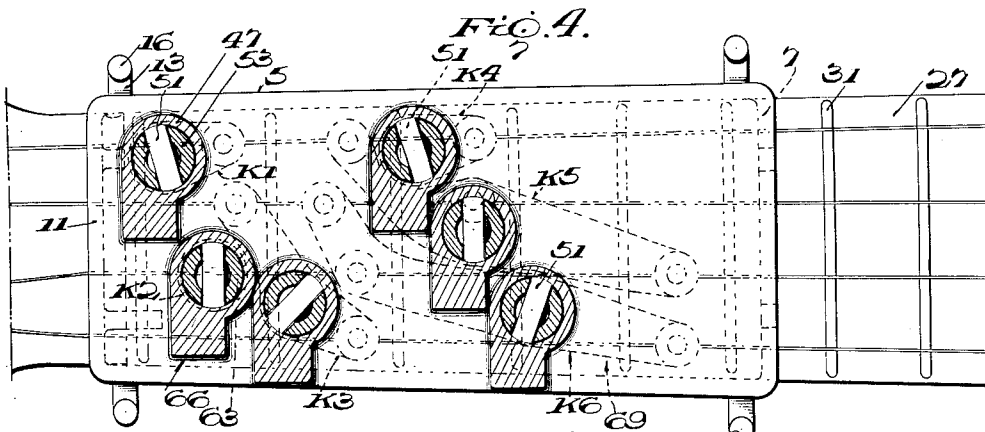
M. MACCAFERRI

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2 Sheets-Sheet 2



INVENTOR: Mario Maccaferri

BY Peda + Peda

ATTORNEY

## UNITED STATES PATENT OFFICE

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## CHORD PLAYER

Mario Maccaferri, Rye, N. Y.

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6 Claims. (Cl. 84—317)

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This invention relates broadly to the art of chord players for stringed musical instruments, and in its more specific aspects it relates to a device for attachment to the finger board of a stringed musical instrument of the type of ukuleles, guitars and the like, whereby chords may be played by the selective operation of buttons or the like control elements on the device; and the nature and objects of the invention will be readily recognized and understood by those skilled in the arts to which it relates in the light of the following explanation and detailed description of the accompanying drawings illustrating what I at present believe to be the preferred embodiments and mechanical expressions of my invention from among various other forms, arrangements, combinations and constructions, of which the invention is capable within the spirit and scope thereof.

Stringed musical instruments of the general class of ukuleles, guitars and the like, which may be strummed or picked and which include a fretted finger board require relatively complicated fingering of the strings on the finger board in order to produce the chords necessary in playing. Instruments of this type require considerable practice and instruction before they can be mastered and many may only be played by an accomplished player.

Ukuleles, guitars and the like stringed musical instruments are primarily for accompaniment of songs and this is one reason for their popularity with the general public having no specific musical training. Another reason for the popularity of these instruments may be that the cost thereof is usually relatively less than the cost of many other musical instruments. Many persons purchase these popular instruments who have no musical knowledge or training and discover that it is difficult to learn to play the instrument immediately and that much practice, and often instruction, is necessary before the instrument can be played. Thus, many persons are deprived of the pleasure and relaxation obtained from playing musical instruments of the character of ukuleles.

One of the major obstacles standing in the way of quick and relatively easy mastery of a ukulele or the like is the fingering procedure. In order to produce desired chords it is necessary that the player use his fingers to contact certain strings behind certain frets on the fingerboard of the instrument. This fingering requires considerable finger dexterity which is difficult to acquire. A player must have not only finger dexterity but

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must also learn and mentally retain the location of the strings and the frets on the fingerboard. Obviously the acquisition of such skills is normally not a rapid process for patience and practice are needed.

Devices are known for association with the fingerboard of a ukulele whereby chords may be played in a simpler way than the conventional fingering. Such chord players may embody buttons or the like control elements for depression to engage a particular string or strings to thereby produce a desired chord. In using a chord player the player of the instrument only needs to know which control element to use to produce a certain chord, hence, the usual difficult fingering process is eliminated.

The chord players of which I am aware are not entirely satisfactory for a variety of reasons. For instance, a chord player may consist of a casing in which the keys or string contacting elements are operable, and this casing is removably mounted on the neck of the instrument over the fingerboard. It is desirable that the chord player unit be maintained in a certain position relative to the fingerboard. The mounting means used with many units is flexible and elastic for economy and ease of mounting and removal, and does not maintain the unit against displacement relative to the fingerboard. Without sacrificing economy and ease of mounting and removal, I have devised an anchoring means for my chord player which provides a positive fixing of the unit to the fingerboard so that its position relative thereto will be maintained against forces acting to displace it while in use, and, of course, it will maintain its position when the instrument is not in use.

As I have explained, a device of this character may embody a number of depressible control buttons, each of which produces a certain chord when it is depressed. It is desirable and of great advantage to the novice player to provide indicia or chord diagrams on or adjacent to each control element indicating the chord produced by the operation of each element. The player is thereby visually informed what chord each element will produce and the playing of the instrument is thereby expedited and simplified. The position of the indicia or chord diagrams is important, for if such indicia are placed on top of the control elements they may not be seen with ease when the instrument is in playing position and the purpose of the indicia is thereby defeated. If the chord diagrams are positioned adjacent each control element the

problem is not solved in chord players with which I am familiar for the reason that the control elements are positioned one behind the other so that certain of the diagrams would be hidden from the player's view when the instrument is in playing position. I have overcome this problem by so positioning and arranging the control elements or buttons that a chord diagram may be placed in front of each element and be clearly visible to the player when the instrument is in playing position. I place the chord diagram on the inclined front face of a block to position it for even greater visual accessibility for the player of the instrument. By my novel and unique relative positioning of the control elements or buttons, and the particular positioning of the chord diagrams the selection by the player of a particular control element representing a chord is greatly facilitated and the playing of the instrument is simplified.

In the chord players which are now known it is customary for a mounting member for string contacting fingers to be operated to cause contact of one or more strings by said fingers upon operation of the control element by the player to thereby sound the chord as the strings are strummed or picked. As the buttons and mounting members are operated in playing the instrument objectionable clicking noises are produced by the contact of the mounting members with the case upon their retraction. I have devised a structure which overcomes this defect in prior art devices as well as delivering a rich full tone upon contact with a string.

I provide one or more fingers on a mounting member for contacting the strings and construct these fingers of a relatively soft material which produces the desired full tone upon contact with a string. Each string contacting finger is constructed so that it also functions as a cushioning element between the case and the mounting member to eliminate the objectionable clicking noises which have heretofore reduced the effectiveness of prior art chord players.

As certain chords are produced by contact with more than one string it will be appreciated that certain buttons will carry mounting members having more than one finger associated therewith. Since each finger should contact a particular string behind a particular fret it is necessary that the mounting members with the fingers thereon be fixed against displacement by the playing operation of the device. The mounting members are fixed to the buttons against relative movement and I fix the depressible buttons against rotary movement relative to the case so that no twisting action can occur to displace the mounting members and fingers from their chord playing positions. Thus, the initial assembly positions of the buttons, mounting members and fingers cannot be upset by operation of the chord player or by any rough usage to which it may be subjected.

My chord player has been designed for ease of attachment to all standard makes of ukuleles and the like instruments, and is relatively inexpensive to produce and will require no operational upkeep.

With the foregoing general objects, features and results in view, as well as certain others which will be apparent from the following explanation, the invention consists in certain novel features in design, construction, mounting and combination of elements, as will be more fully

and particularly referred to and specified hereinafter.

Referring to the accompanying drawings:

Fig. 1 is a view in perspective of my chord player operatively mounted and attached on the neck over the fingerboard of a stringed musical instrument of the ukulele type, parts of the musical instrument being broken away.

Fig. 2 is a view in side elevation of the chord player in operative position on the neck of the instrument, the view illustrating the position of the chord player relative to the musician's line of vision when using the chord player.

Fig. 3 is a top plan view of the chord player in operative position on the neck of the instrument, certain operating parts of the chord player being shown in dotted lines.

Fig. 4 is a view taken on line 4—4 of Fig. 2.

Fig. 5 is a view taken on line 5—5 of Fig. 2.

Fig. 6 is a view taken on line 6—6 of Fig. 2.

Fig. 7 is a side view in section through the narrow end of the chord player.

Fig. 8 is a disassembled view in detail of a control button and the parts controlled thereby.

In the accompanying drawings I have illustrated, as an example of my invention, a chord player which includes a housing or casing 1 for the operating elements of the device, the housing being of greater length than width and, as will be explained hereinafter, is adapted to be mounted on the neck of a ukulele or the like stringed instrument overlying a length of the fingerboard thereof.

This housing or casing may be made of any suitable strong material of light weight, preferably a plastic, and includes an upper surface or top 3 and side walls 5 depending therefrom, the housing being of increasing width toward one end thereof as clearly illustrated in the drawings. A flange 7 extends downwardly from the wide end of the casing, the flange 7 being of less width than that of the side walls 5, and a pair of spaced supporting feet or prongs 9 project downwardly from the flange 7 in the plane thereof, the ends of the feet being above the lower edge of the side walls. At the opposite or narrow end of the casing I provide a further downwardly extending flange 11 which may be of greater depth or width than the flange 7. I provide a plurality of spaced projections 12 extending downwardly from and in the plane of the flange 11, and I also may provide a central projection 14 which is of greater dimensions than the projections 12 and which extends downwardly from and in the plane of the flange 11. Attaching lugs or hooks 13 having protuberances 15 on their outer ends project laterally from adjacent the end of each side wall 5.

At the narrow end of the casing I provide transversely spaced ribs or webs 15 and 17 which extend downwardly within the casing from the upper surface 3 and end wall 11 thereof. The ends of the webs are above the plane of the edges of the side walls 5, and the web 15 is of greater width than the web 17. The lower edge of web 15 is notched as at 19 providing a relatively wide recess having a shoulder 21 at the inner end thereof. The webs 15 and 17 function as anchoring and supporting members, respectively, for the device on the fingerboard of the instrument, as will become apparent as the description proceeds.

A standard ukulele or stringed instrument generally of the ukulele type includes a hollow body or bell (not shown) from one end of which pro-

jects a neck 25 mounting a fingerboard 27 which terminates at the outer end thereof in a tuning key mounting head 29. The neck and fingerboard are of outwardly narrowing form and a series of frets 31 extend transversely across the fingerboard. Four strings S1, S2, S3, and S4 extend from a bridge on the sounding board of the instrument (not shown) over the fingerboard to conventional tuning keys 37, the strings passing through a nut or divider 39. The fingerboard may include a master fret 41 positioned in close proximity to the nut or divider.

The chord player is mounted on the neck of the ukulele over the fingerboard in operative playing position by disposing the narrow end of the casing over the nut 39 so that the notch or recess 19 in web 15 will bridge the nut and the master fret 41 and the shoulder 21 will be in engagement with the side of the master fret while the lower edge of web 15 will rest on the nut. With the chord player so positioned the projections 12 and 14 will extend on the outer side of the nut and will maintain the player against inward sliding movement while shoulders 21 will maintain it against outward movement. The opposite side or wide end of the casing will be supported on the fingerboard by the prongs or feet 9 and since the side walls 5 of the casing extend below the feet and the webs they will extend slightly below the fingerboard. With the casing so mounted it is removably fastened in position by hooking elastic bands or the like 43 at each end over the lugs 13 and passing them under the neck 25 of the instrument. The bands will be kept from slipping off the lugs by the protuberances 16. When the chord player is mounted on the neck extending over the fingerboard as described it is maintained against longitudinal sliding movement by the seating of the nut and master fret in the recess of web 15 with shoulder 21 bearing against the master fret and projections 12 and 14 bearing against the nut, and of course the elastic bands exert a constant pressure on the casing toward the fingerboard.

The upper surface or cover 3 of the casing is molded or otherwise formed with a plurality of circular openings 45 therein, in this instance six of such openings are formed in the cover of the casing. An annular upstanding collar or sleeve 47 surrounds each opening, in concentric relation thereto and a further collar or rib 49 may be provided depending from the under side of the cover 3 and surrounding the openings 45 in concentric relation thereto. Each opening 45 is bridged by an element or locking bar 51. The locking bar is preferably formed integral with the casing and is rigid therewith and forms a locking means for each control element or button as will be clearly explained hereinafter.

A control element or button 53 is adapted to reciprocate in each opening 45 in order to produce a desired chord. Each control button is of substantially cylindrical shape and is open at one end as at 55 and closed at the opposite or upper end thereof as at 57. The control buttons are all of a diameter to be slidably received in the openings 45 and collars 47 and 49 and the axial dimension of each button is greater than the combined depth of collars 47 and 49 and the thickness of casing 3. Diametrically opposed slots are cut in the walls of each button and extend axially thereof from the open end of a button a distance toward but spaced from the closed end thereof. The walls of each button at the

upper or closed end thereof are thickened providing an annular shoulder 61, and a pair of diametrically opposed feet or lugs 63 project from the bottom edges of the cylinder.

In assembling the buttons 53 into operative position a coiled spring 65 is positioned within each button, whereupon a button carrying a spring is inserted in each opening with the bridge element 51 received in the slots 59. With the buttons operatively associated with the casing, as described, it will be recognized that one end of the spring will bear against shoulder 61 while the other end will bear against bridge 51 or locking bar so that the button may be depressed into sleeve 47 against the action of the spring, and that upon release of pressure on the button it will be urged upwardly in the collar under the action of the compression spring. In using the player a button is depressed to produce a desired chord, and, as will be explained, it is necessary that the buttons be mounted for reciprocation within the collars while restrained therein against rotary movement. A button may not rotate within its collar due to the extension of locking bar through the axial slots in the button.

As I have pointed out above, each button or control element represents a chord, that is, the depression of a button produces a particular chord, due to the operation of means about to be described, which are operatively associated with each button. It is highly advantageous to provide visual means in connection with each button which is clearly visible to the player when the instrument is in playing position to thereby expedite the selection of the correct button for depression to produce the chord.

I provide a generally triangular shaped block forming a chord or symbol diagram, this block being designated by the numeral 66. The block may constitute a molded component of the collar 47 at each opening 45, it being understood that there is a block for each button at each collar. Each block is so positioned that the hypotenuse 67 thereof presents a surface directed generally upwardly when the chord player is attached to the instrument and the instrument is in playing position. Upon the inclined surface 67 I engrave, mold or otherwise place a chord diagram or other indicia showing the player of the instrument that by depressing the button adjacent a block the chord represented on the inclined face of that block will be produced.

In order that the front or inclined surfaces 67 with the chord diagrams thereon may be visible to the player of the instrument and no front surface of any block obscured by a collar or button adjacent any other block I have positioned the openings 45 so that every indicia carrying surface of every block is clearly within the line of vision of the player of the instrument. For instance the D7 chord is produced by depression of the outermost button on the player, next to it in inwardly and upwardly spaced relation thereto is the E7 chord and adjacent to that but inwardly and upwardly spaced is the G chord. Similarly the next group of buttons are positioned so that the chord diagrams are clearly visible. The D chord button is inwardly and downwardly spaced from the G chord button so its chord diagram will not be obscured thereby, while the A7 chord button is upwardly and inwardly spaced from the D chord button, and finally the button representing the E7 chord is inwardly and downwardly spaced from the A7

chord button. By this arrangement of the buttons it will be evident that no buttons are aligned transversely of the chord player so that the front face of every block will be clearly visible to the player of the instrument when it is in playing position.

Mounting members designated generally by the numeral 69 are fixed to and adapted to be moved by operation of a control element or button. Every mounting member includes a body portion 71 having spaced recesses 73 therein. Each mounting member 69 is fixed to and supported from a button 53 by fixing the feet or lugs 63 in the recesses 73 in the mounting member by cementing or in any other suitable manner.

Because of the arrangement of the buttons to provide unobstructed views of the chord diagrams it will be recognized that certain of the buttons will be offset relative to the string or strings which must be contacted to produce the chord represented by a particular button. It follows, therefore, that the mounting members which I use are of different configurations so that the fingers or string contacting means which are carried thereby will contact the proper string behind the proper fret. The mounting member K1 corresponding to the D7 chord is fixed to the D7 button at the body portion 71 thereof and a laterally extending portion 75 projects from the body and adjacent the outer end thereof which is disposed over string S1 a circular aperture 77 is formed, having the upper end thereof slightly constricted as illustrated at 79.

I provide a string contacting element or finger which comprises a bumper or head 81 having a serrated surface 83 thereon for actual contact with a string. A neck 85 extends from the opposite side of the head and includes a cushioning portion 87 on its end. The finger is associated with the mounting member by inserting the neck into the aperture 77 so that the portion 87 thereof extends beyond the aperture between the mounting member and the under side of the casing cover 3, the finger being maintained in position carried by the mounting member due to the constriction 79 which pinches and holds the finger in mounting member supported position.

The finger may be made of polyethylene, or if desired it may be made of rubber.

When the finger 53 representing chord D7 is depressed against the action of spring 65 the mounting member will be depressed and the serrated surface 83 of bumper 81 will contact string S1 to produce chord D7. The serrated surface of the bumper keeps the string from slipping from the bumper. When pressure is removed from the button the mounting member will be retracted and the bumper withdrawn from contact with the string, the spring will force the button and mounting member upwardly away from the fingerboard until the cushioning portion 87 of neck 85 of the finger engages the under side of surface 3. Since the finger and portion 87 are formed of a material having cushioning properties it will function as a cushion between the mounting member and casing and no objectionable clicking sounds will occur and the operation of the playing mechanism will be relatively silent.

The mounting member K2 is fixed to the button representing the E7 chord and is the only button which is not offset relative to the string or strings to be contacted by its mounting member, in this instance the string S3. Thus, mounting member K2 only includes a body portion 71 having recesses 73 therein into which the feet 63 are

fixed to support the mounting member from the button. In this instance where the button is not offset relative to the string the mounting member K2 is formed with a concentric aperture 89 therein into which the finger is fixed, and since all of the fingers on all the mounting members are of the same construction the one description thereof which I have made will not be repeated. Since all the mounting members are fixed to the buttons in the same way this will not be repeated with the description of each mounting member, and since all the fingers are fixed to the apertures in the same manner this construction will not be explained in detail when each finger is discussed. In the case of mounting member K2 the cushioning portion 87 of the finger will engage bridge 51 to keep the remaining parts of the mounting member from coming into noise making contact with collar 49.

The mounting member K3 is fixed to the button representing the G chord and is formed with a lateral extension 91 extending over string S4 having a finger 92 fixed therein in position to contact string S4 when the button is depressed. Mounting member K3 has a further lateral extension 93 extending over string S2 and mounting a finger 94 thereon in position to contact string S2.

Mounting member K4 is fixed to the control button representing chord D and includes a lateral extension 95 positioned so that the finger 96 carried by the extension will contact string S1 upon depression of the button representing chord D.

Mounting member K5 is fixed to the control button representing chord A7 and includes a somewhat enlarged body portion 97 mounting a finger 99 in position to contact string S2. A lateral extension 101 projects from body portion 97 and at the end thereof mounts a finger 103 over string S3, and a further lateral extension 105 extends in the opposite direction from the body portion and is curved as at 107 to avoid the button representing chord D and mounts a finger 109 at the end of the extension in position over string S1.

Mounting member K6 is fixed to the control button representing chord E7 and includes a lateral extension 111 mounting a finger 113 at the end thereof in position to contact string S4. A lateral extension 115 extends from the body portion of the mounting member in a direction opposite to that of extension 111 and extension 115 mounts a finger 117 over string S3, while an extension 119 extends from extension 115 in angular relation thereto and mounts a finger 121 on the end thereof over string S2.

Consideration of the drawings illustrates that the recesses 73 in the body portions of the mounting member are formed therein adjacent to the lateral extensions. I so form the body portions for added strength and simplicity of construction whereby I am enabled to reduce the edge to edge width of the body portions of all those mounting members involving lateral extensions. All of the lateral extensions of the mounting members are of generally converging shape outwardly from the body portions of the mounting members.

Chord players of the general class of my invention are designed for the inexperienced player and it will be appreciated that I have devised such a device which gives clear and unobscured visible indications to the player for expediting the playing of the instrument and that by so

doing I have not sacrificed compactness of the device nor reduced the musical effectiveness of the tones produced. My device has also been designed for the elimination of the usual objectionable clicking sounds which are audible when prior art devices are playing.

**I claim:**

1. A chord player for stringed musical instruments, including a casing and a top therefor having a plurality of openings therethrough, a collar upstanding from the top about each opening and a control element reciprocally mounted to extend through each opening and collar, string contacting means associated with and controlled by said control elements, a block connected to each collar having a surface inclined at an angle to the plane of the top and extending upwardly therefrom and visual means on said inclined surface for indicating the chord represented by the adjacent control button and for viewing by the player of the stringed musical instrument when the instrument is in playing position.

2. A chord player for stringed musical instruments, including a casing and a top therefor having a plurality of openings therethrough, a cylindrical control element reciprocally mounted in each opening, string contacting means associated with and controlled by said control elements for producing a musical chord upon operation of a control element, and each control element having oppositely disposed aligned axially extending slots therein, and a locking bar fixed at opposite points to the wall defining each opening and extending across the opening and through the axial slots to prevent rotation of the control element relative to the casing.

3. A chord player for stringed musical instruments, including a casing, a plurality of control elements operatively associated therewith, a mounting member fixed to each control element for operation thereby and each mounting member having at least one opening therein having a constricted portion, and at least one string contacting element mounted on each mounting member, each string contacting element having a neck projecting therefrom and received in the opening in the mounting member and pinched therein by the constricted portion thereof for anchoring the string contacting element to the mounting member.

4. A chord player for stringed musical instruments, including a casing and a top therefor having a plurality of openings therethrough, a control element reciprocally mounted in each opening for depression by the player of the stringed musical instrument and means for re-

tracting said control elements from depressed position, a mounting member fixed to each control element for operation thereby, and each mounting member supporting at least one finger having a string contacting element at one end and at the other end a cushioning element positioned between the mounting member and the casing and in engagement with the casing when the mounting member is in retracted position.

5. A chord player for stringed musical instruments in accordance with claim 4, wherein each mounting member is provided with at least one opening therethrough and a finger is fixedly maintained in each opening, the string contacting part projecting from one end of the opening and the cushioning part projecting from the other end of the opening.

6. A chord player for stringed musical instruments including a casing having a top and opposite side walls and means for attaching the chord player in operative position on the stringed musical instrument so that one of said side walls of the chord player is in uppermost position when the stringed musical instrument is being played, said chord player including a plurality of control elements operatively mounted on the casing and string contacting members connected with and controlled by said control elements, a supporting surface adjacent each control element extending upwardly from the top of the casing at an obtuse angle thereto and each of said supporting surfaces being directed toward the plane of the side of the chord player which is in uppermost position when the stringed musical instrument is being played, each supporting surface having visual means thereon indicating the musical chord represented by the adjacent control element, and each of said supporting surfaces being in misalignment transversely of the chord player relative to every other supporting surface in relative positions to expose each of said supporting surfaces and visual means to the view of a player of the stringed musical instrument when said instrument is in playing position.

MARIO MACCAFERRI.

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