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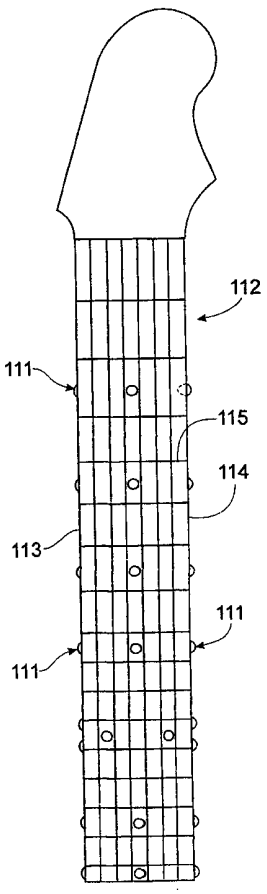
(54) Title: TACTILE GUIDE MARKS FOR STRINGED MUSICAL INSTRUMENTS



(57) Abstract: Tactile finger position indicators (111, 211, 311) are fitted to the neck (112) of a musical instrument (e.g. a guitar 10) to indicate the respective positions of selected frets (115) on the neck (112). The indicators (111) enable a musical training system for the fingering of the musical instrument (10) to be taught.

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patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

TITLE: TACTILE GUIDE MARKS FOR STRINGED MUSICAL INSTRUMENTS

BACKGROUND OF THE INVENTION

1. Field of the Invention

THIS INVENTION relates to improvements in musical instruments.

The invention is particularly suitable for, but not limited to, stringed instruments with necks, including guitars (both acoustic and electric), banjoes, mandolins, violins, violas, cellos and basses and the like. The invention relates to tactile position indicators on the musical instrument necks; methods for providing the indicators; and a music training method using the indicators.

2. Prior Art

Musical teachers often find that students encounter difficulty in determining the correct position(s) for their finger(s) on the necks of their instruments to play given notes or chords.

Guitars are usually provided with visual markers (eg., dots painted or printed on the faces of the necks) but these are useless for blind or dyslexic musicians; and even for professional musicians playing in darkened venues, who cannot see the visual indicators, and who wish to play looking at the crowd.

Enhanced visual indicators, provided in or on the necks of stringed instruments, have been disclosed in JP 09-006331A (Casio Computer Co. Ltd); WO 90/02396 (Optek Music Systems), and

US 4807509 (Graham). The first and third documents disclose arrangements where lights indicate the finger positions, while the second document discloses an arrangement where a fingering display apparatus includes a number of electrical switches manually operable to designate a desired musical note.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a tactile finger position indicator system for musical instruments.

It is a preferred object to provide a tactile indicator system which does not adversely affect the playing of the instrument.

It is a further preferred object to provide an indicator system which can be incorporated into new instruments or be easily retro-fitted to existing instruments.

It is a still further preferred object to provide a system which is inexpensive.

It is a still further preferred object to provide one or more simple methods for applying the system to new, or existing, musical instruments.

It is a still further preferred object to provide a musical training method using the system.

Other preferred objects will become apparent from the following description.

In one aspect, the present invention resides in a tactile

finger position indicator system for musical instruments including at least one projection or protrusion and/or recess at one or more selected locations on a neck of a stringed musical instrument.

The projections or protrusions may include one or more raised projections, eg pins, buttons, strips, preferably no more than 5mm high and no less than 0.1mm high. The recesses may include holes, slots, grooves, cuts or the like, preferably no more than 10mm deep.

The indicators, ie., projections/protrusions/recesses may be provided along one, or both, sides of the neck and/or on the rear face of the neck.

For a guitar, the indicators may be provided to indicate where the third, fifth, seventh, ninth, twelfth and fifteenth frets are located on the neck.

The musicians' fingers can slide along the neck and feel where the designated frets are, to indicate the position(s) of the fingers on the neck.

In a second aspect, the present invention resides in a method for providing at least one tactile finger position indicator on a neck of a musical instrument, including the steps of:

(a) placing a drilling jig having at least one locating hole on the neck at a desired location;

(b) drilling a hole into the neck using a drilling bit

passing through one of the locating holes in the drilling jig; and

(c) inserting a shank of the indicator into the drilled hole, the indicator having a head forming a projection from the neck of the musical instrument.

Two or more of the indicators can be fitted at a desired location by repeating steps (b) and (c).

In a third aspect, the present invention resides in a method for providing at least one tactile finger position indicator on a neck of a musical instrument, including the step of:

applying a length of tape to the neck at the desired location, the tape having a body of a first material, covering, or having embedded therein, a length of a second material operable to cause a portion of the body to project from the neck.

The second material may include a planar or convex strip, a filament, length of cord or the like.

In a fourth aspect, the present invention resides in a method of musical training where selected locations on the neck of the musical instrument are indicated by the indicator system of the first aspect, or by the system produced by the method of the second or third aspect.

BRIEF DESCRIPTION OF THE DRAWINGS

To enable the invention to be fully understood, a preferred embodiment will now be described with reference to the

accompanying drawings in which:

FIG. 1 is a perspective view of an electric guitar;

FIG. 2 is an isometric view of a guitar neck provided with a first embodiment of the indicator system of the present invention;

FIG. 3 is a front view corresponding to FIG. 2;

FIG. 4 is a perspective view of a drilling jig used to install the indicator system;

FIG. 5 is an end view showing the jig in use;

FIG. 6 is a similar view showing an indicator being driven into the neck of the guitar;

FIG. 7 is a chart explaining the use of the indicator system for new users;

FIGS. 8(a) to 8(o) illustrate how the system is used to play different exercises;

FIGS 9(a) to 9(i) illustrate how to play different scales using the system;

FIGS. 10(a) to 10(m) illustrate how to play a number of different chords using the system;

FIG. 11 is a plan view of two alternative indicator strips of a second embodiment;

FIG. 12 is a similar view of three further strips of the second embodiment; and

FIG. 13 is a perspective view showing the strips of FIGS.

11 and 12 applied to the neck of the guitar.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIG. 1 shows a perspective view of a conventional electric guitar 10 where painted dots 11 are provided at the third, fifth, seventh, ninth, twelfth, fifteenth, seventeenth and nineteenth frets on the neck 12. (It will be noted that the twelfth fret is indicated by a pair of dots.)

Referring to FIGS. 2 and 3, raised tactile finger position indicator pins 111 (eg 0.5mm high) are provided along the side faces 113, 114 of the neck 112 (of a modified guitar) at, eg the third, fifth, seventh, ninth, twelfth, fifteenth and seventeenth frets 115.

Alternatively, as indicated by the dashed lines on FIG. 2, the indicators may be provided by recesses 111a or slots 111b in the neck 112.

In a further alternative, the system may incorporate a combination of two or more of the raised indicator pins 111 and recesses/slots 111a, 111b.

The indicator pins 111 (and recesses/slots 111a/111b) are dimensioned so that they can be felt by the musician's fingers without affecting the movement of the fingers along the neck 112.

Referring to FIGS. 4 to 6, the method of installing the position indicator pins 111 will now be described.

A drilling jig 120 has a substantially L-shaped body 121,

with a base 122 (with elongate slot 123), an intermediate portion 124 and inclined leg 125. A plurality of drilling guide holes 126 are provided in the intermediate portion 124. Resilient pads 127 protect the guitar neck 112 from damage by the drilling jig 120.

Referring to FIG. 5, the drilling jig 120 is placed on the neck 112, with the base 122 on the upper face (below the strings (not shown)) and the intermediate portion adjacent a side face 114 of the neck.

A drill bit 130 fitted to an electric drill 131 extends through one of the guide holes 126 and drills a hole into the side face 114. (If more than one position indicator pin 111 is to be fitted at that location, eg the 12th fret, a second hole is drilled.)

As shown in FIG. 6, the shanks 111a of the indicator pins 111 are driven into the drilled holes 112b in the neck 112 using a light hammer or mallet 140. The heads 111b of the indicator pins 111 extend eg 0.5-1.0 mm from the side face 114 of the neck 112 to indicate eg the position of the 12t fret 115.

The position, type and size of the indicator pins 111 can be varied to suit the particular musician's preferences, and the indicators can be easily fitted to existing instruments.

The indicators can also be readily applied to instruments without frets, eg., violins and basses.

HOW TO USE THE SYSTEM

The use of the indicator pins 111 will now be described with reference to FIGS. 7 to 10(m).

"If you have fitted the indicator pins to your guitar, you will soon see how much quicker and easier you can find your way around the fret board. No more guessing or counting, you can quickly slide up to the 7th or 9th fret and be in the correct position to play every time. You will find this will greatly increase the accuracy of your timing straight away.

Using this indicator system you will quickly be able to break away from only playing around the first five frets and play those same chord shapes further up the neck. You will begin to play with a whole new world of feeling!

A traditional chord frame shows the six strings as vertical lines. The strings from left to right are the 6th, 5th, 4th, 3rd, 2nd and 1st. The thick horizontal line at the top of each chord frame indicates the nut. An "X" indicates that string is not to be played but in fact muted (not picked or strummed). An "O" indicates that string is to be played as an open note which means you do not press your finger down on the string while strumming it. A circle like this indicates the position where you place your fingers on the vertical strings and on which fret and with which fingers. Please refer to the finger chart on FIG. 7. This first example "A" chord is commonly

known as an open chord.

To play the same chord shape but further up the instrument neck, the open strings previously indicated by an "O" will now be played as a bar chord. Please refer to the description and example of a bar chord on FIG. 7. Using the indicator pins, slide your hand along the neck (while maintaining the bar chord shape) to the position marked by the first pin (positioned near the third fret). This is a new chord as specified by the music note at the top of each chord chart. Repeat the sliding action again up to the second pin (positioned bear the 5th fret) to access another chord as indicated at the top of that chord frame. Repeat this action again up to the 7th, 9th and 12th fret to easily expand your knowledge and use the fret board.

Of course you can use the indicator pins to quickly locate the 2nd, 4th, 6th, etc fret positions as well. The chord variations in FIGS. 8(a) to (10(m) are presented for easy location and understanding of the system. This does not mean you cannot utilize the system for playing solos. Remember an "X" always refers to a muted or un-played string, for all chord positions."

Referring to FIGS. 11 to 13, the indicator pins 111 may be replaced by indicator tape strips 211, 311.

In FIG. 11, the indicator tape strips have a plastic body 211a which overlies a narrow strip 211b of a second material, the

latter having a planar or convex upper face 211c.

In FIG. 12, the indicator strips 311 have a plastic body 311a which overlies, or in which is imbedded, a length of chord or a filament 311b.

As shown in FIG. 13, the indicator tape strips 211,311 can be applied to the side faces 113,114 and/or the rear face 116 of the guitar neck 112 to indicate the position of the selected fret 115.

The following advantages of the present invention will be apparent to the skilled addressee:

What problems does it solve?

a) playing concerts in the dark or in poor light;

b) finding the frets on the neck faster without looking;

c) it will assist beginners who are learning;

d) it will assist teachers in teaching the guitar;

e) great for people who are blind or vision impaired;

f) people with dyslexia can relate to a physical sign faster than they can relate to a mental sign;

g) when playing live, guitarists prefer to look at the crowd rather than their guitar.

Who will use it?

It will be used by everybody who wants to play or learn a stringed instrument:

a) beginners or learners;

b) people with bad sight, eg., people who wear glasses;

c) people who are blind;

d) teachers - as a teaching tool to the student;

e) A-grade guitarists;

f) primary schools;

g) high schools;

h) private schools;

i) tutors of music;

j) colleges;

k) guitar institutes;

l) everybody.

Advantages and benefits for user

a) the advantage of the tactile indicators on an instrument is that the player does not always have to look at the guitar when playing;

b) because everybody has a good sense of feel in their fingers, it takes less time to find different parts of the neck by feel, rather than counting mentally - the brain can also work out a physical feeling quicker;

c) an excellent device for teachers and students for quicker learning of an instrument;

d) with the current fret markers installed on only

some guitars today, many players cannot see them so they are useless to many people.

Various changes and modifications may be made to the embodiments described and illustrated without departing from the present invention.

CLAIMS:

1. A tactile finger position indicator system for musical instruments including:

at least one projection or protrusion and/or recess at one or more selected locations on a neck of a stringed musical instrument.

2. A system as claimed in Claim 1 wherein:

the projections or protrusions include one or more raised projections, such as pins, buttons or strips, no more than 5mm high.

3. A system as claimed in Claim 2 wherein:

the projections are no less than 0.1mm high.

4. A system as claimed in Claim 1, wherein:

the recesses include holes, slots, grooves, cuts or the like no more than 10mm deep.

5. A system as claimed in any one of claims 1 to 4 wherein:

the projections/protrusions/recesses are provided along one, or both, sides of the neck and/or on the rear face of the neck.

6. A system as claimed in any one of claims 1 to 5, wherein:

for a guitar, the indicators are provided to indicate where the third, fifth, seventh, ninth, twelfth and fifteenth frets are located on the neck.

7. A system as claimed in Claim 6 wherein:

a musicians' fingers can slide along the neck and feel

where the designated frets are, to indicate the position(s) of the fingers on the neck.

8. A method for providing at least one tactile finger position indicator on a neck of a musical instrument, including the steps of:

(a) placing a drilling jig having at least one locating hole on the neck at a desired location;

(b) drilling a hole into the neck using a drilling bit passing through one of the locating holes in the drilling jig; and

(c) inserting a shank of the indicator into the drilled hole, the indicator having a head forming a projection from the neck of the musical instrument.

9. A method according to Claim 8 wherein:

two or more of the indicators can be fitted at a desired location by repeating steps (b) and (c).

10. A method for providing at least one tactile finger position indicator on a neck of a musical instrument, including the step of:

applying a length of tape to the neck at the desired location, the tape having a body of a first material, covering, or having embedded therein, a length of a second material operable to cause a portion of the body to project from the neck.

11. A method according to Claim 10 wherein:

the second material includes a planar or convex strip, a filament, length of cord or the like.

12. A method of musical training where selected locations on the neck of the musical instrument are indicated by the indicator system of any one of Claims 1 to 7, or by the system produced by the method of any one of Claims 8 to 11.

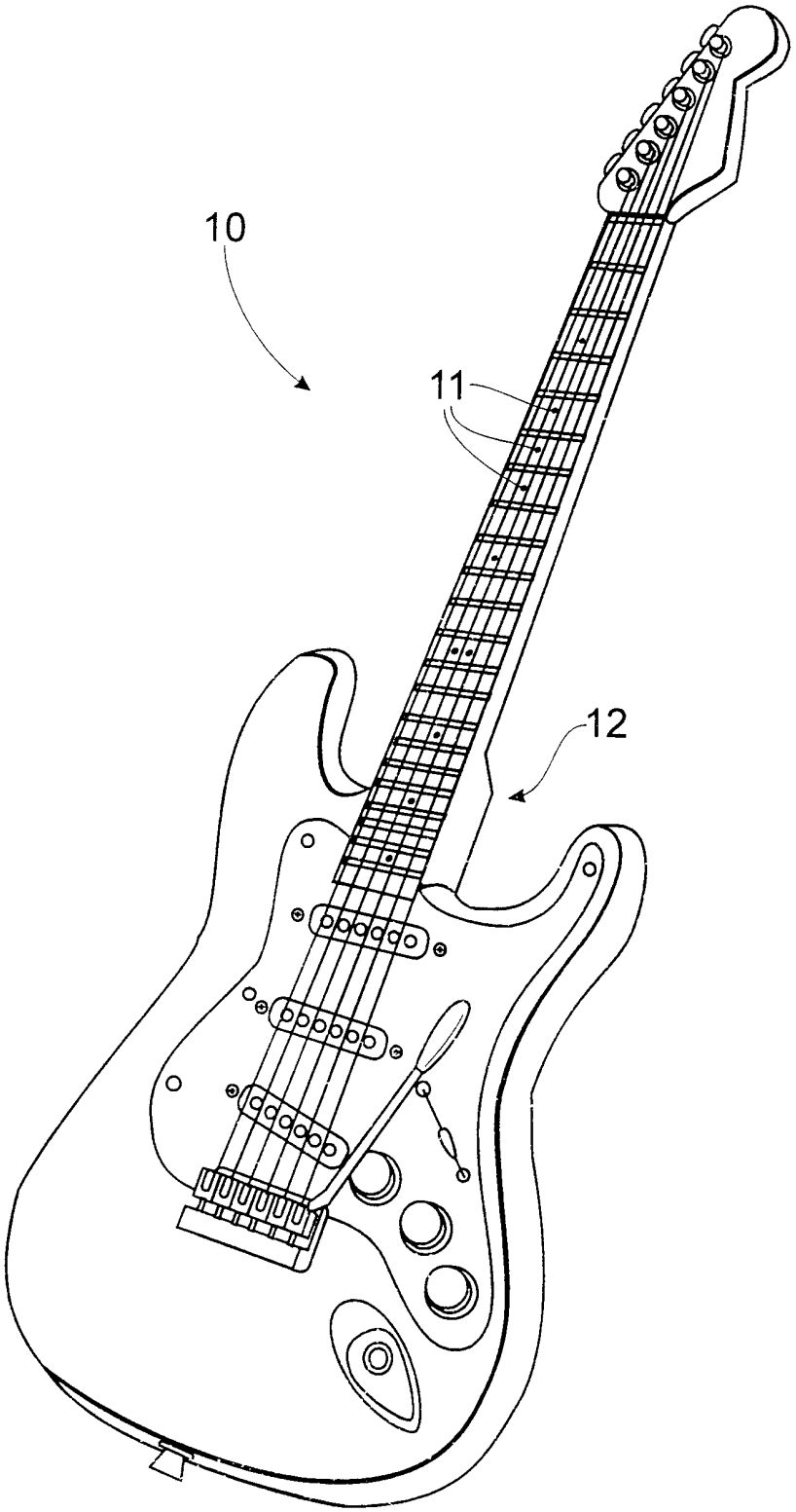


FIG. 1

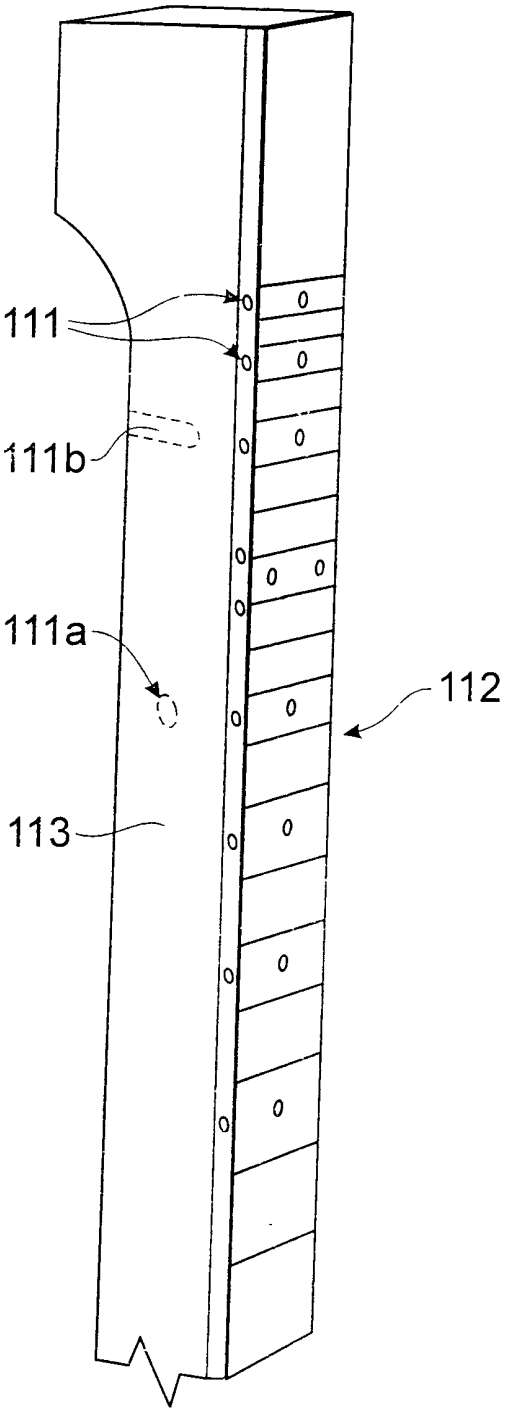


FIG. 2

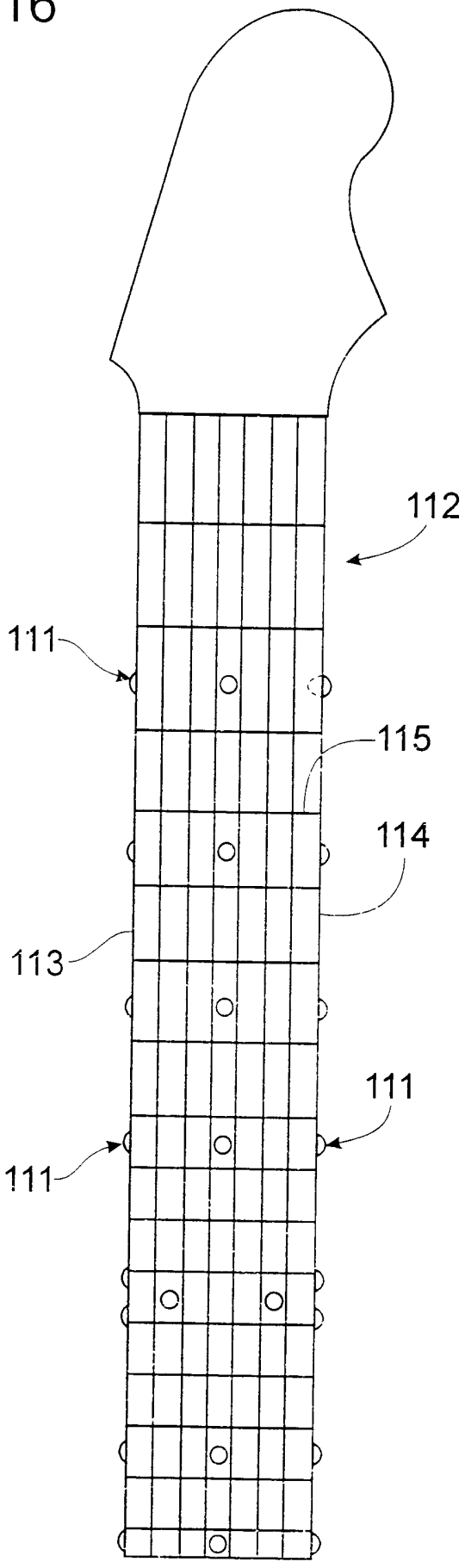


FIG. 3

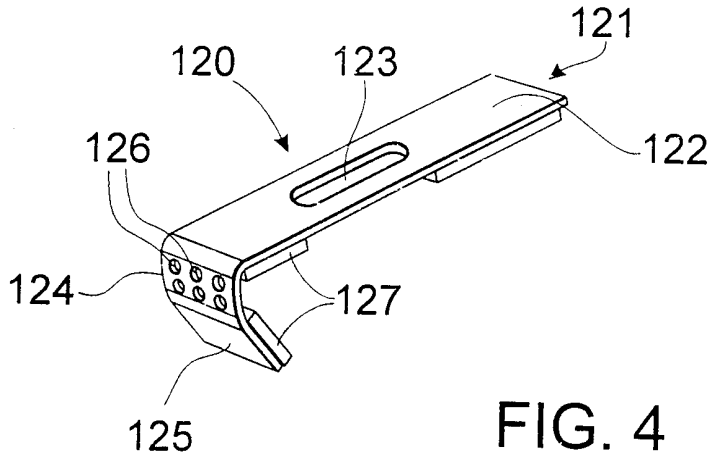


FIG. 4

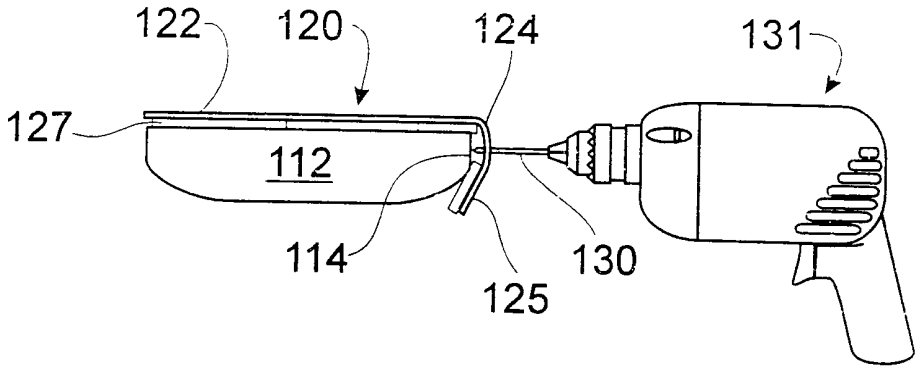


FIG. 5

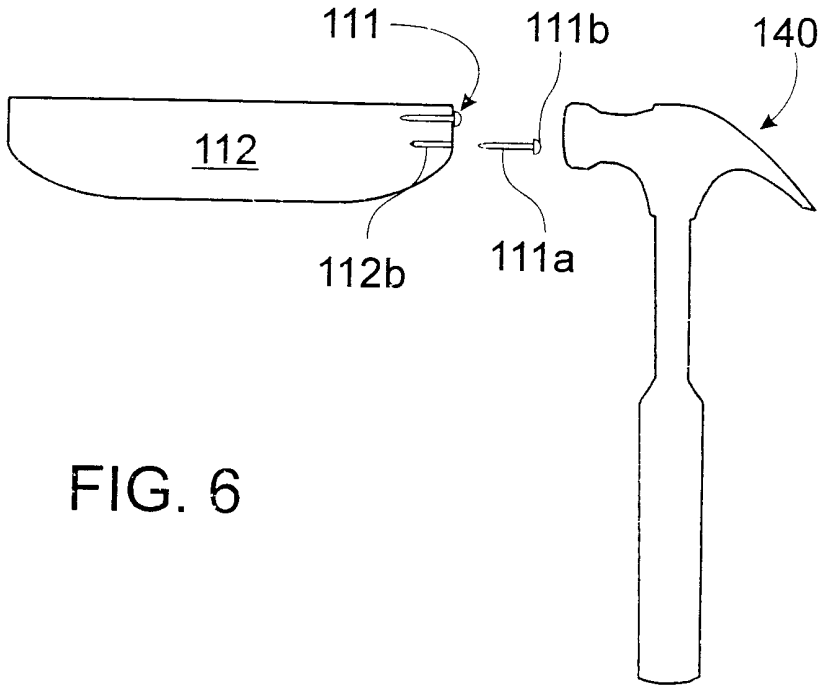


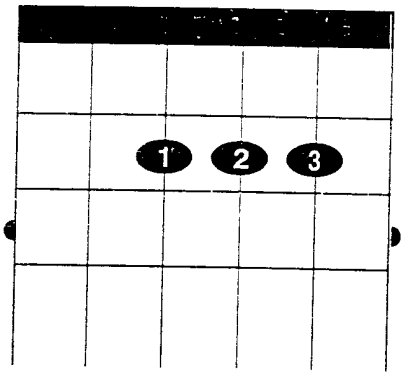
FIG. 6

How to Use

E A D G B E
6 5 4 3 2 1

A

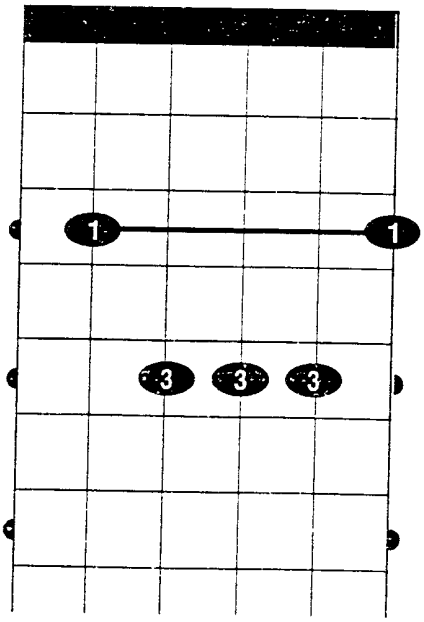
X O O



Example 1

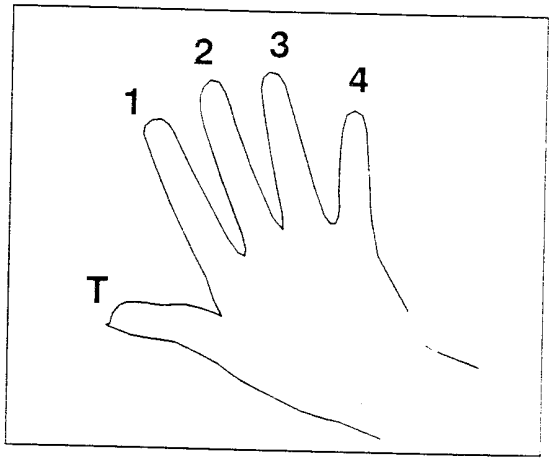
C

X



Example 2

6



LEGEND:	
T	Thumb
1	1st Finger
2	2nd Finger
3	3rd Finger
4	4th Finger
1—1	Bar Chords
⩘⩘⩘	Slide

Please note:
A bar chord is the placement of your first finger (index) across multiple strings.
In Example 2 on the left, the first finger bars over strings 1 thru 5 but not the 6th string indicated with an X (a muted or unplayed string)
Tablature (TAB) is a system of notation that graphically represents the strings, frets or steps of the guitar fingerboard.

FIG. 7

Playing TAB

Exercise 1

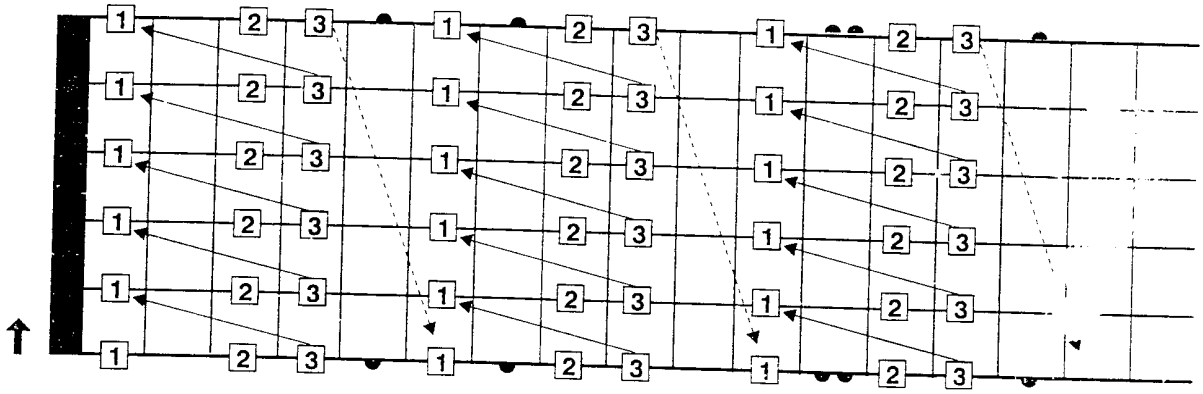


FIG. 8(a)

Exercise 2

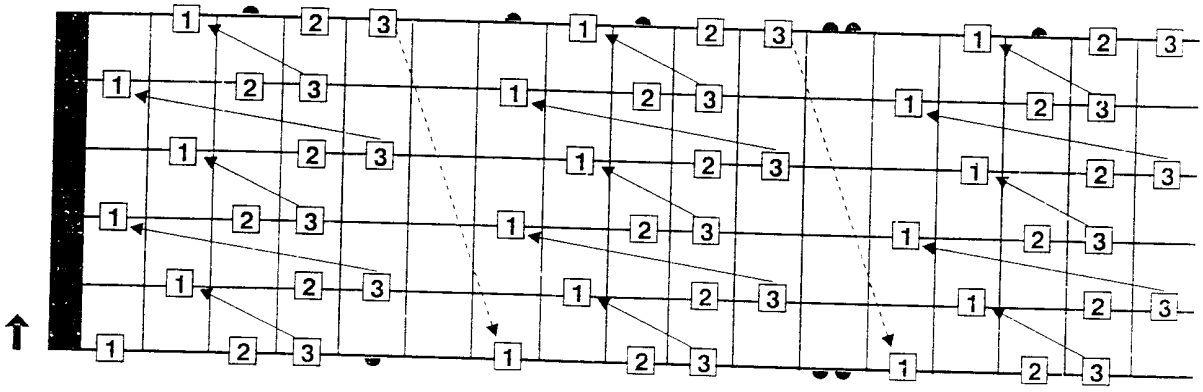
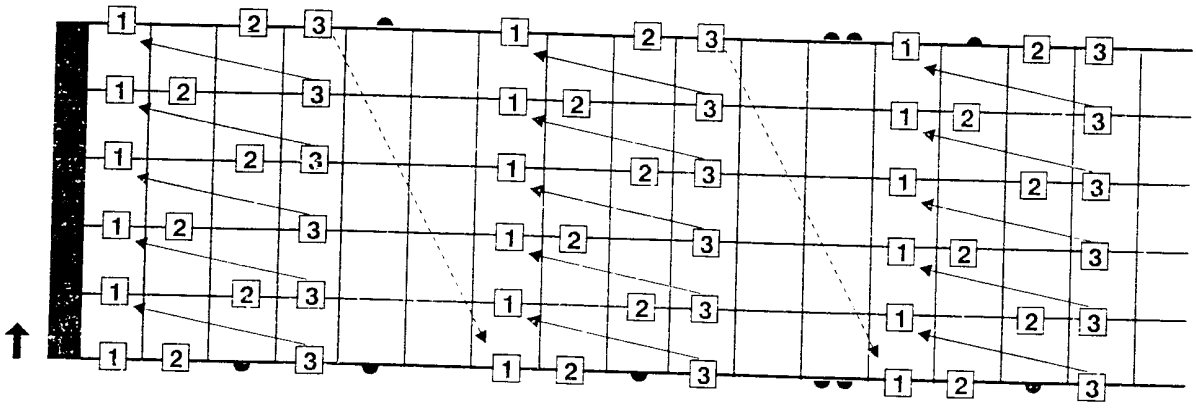


FIG. 8(b)

Exercise 3



↑ *Indicates starting point for each exercise*

FIG. 8(c)

Playing TAB

Exercise 4

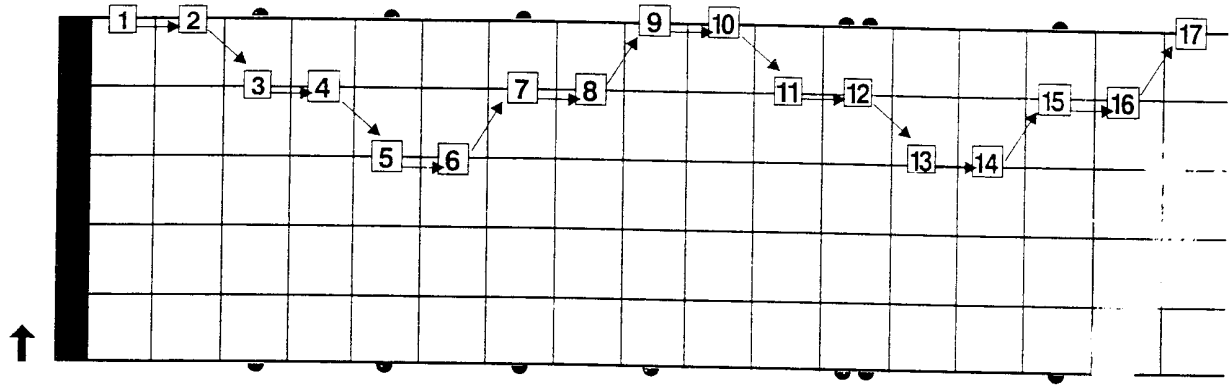


FIG. 8(d)

Exercise 5

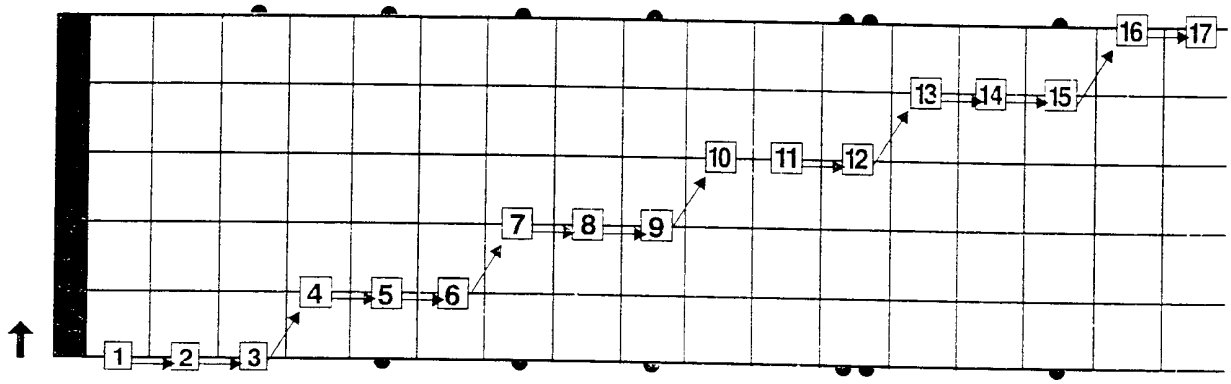
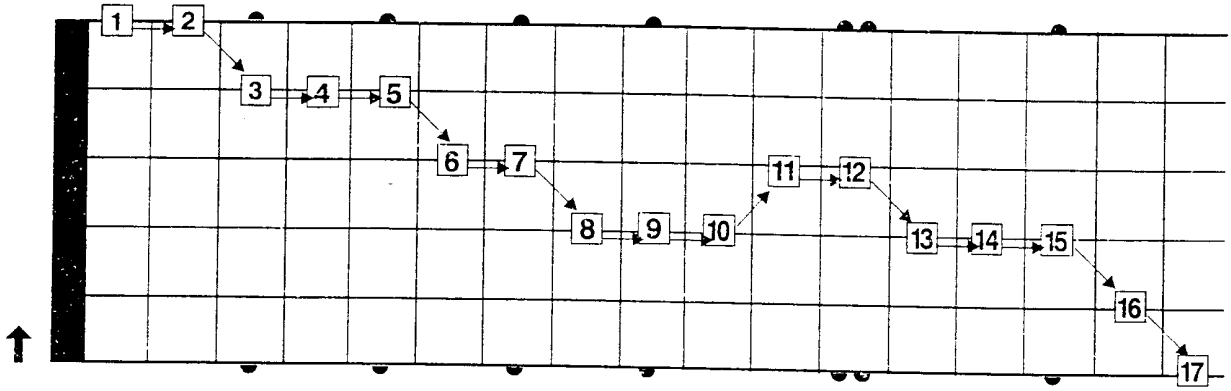


FIG. 8(e)

Exercise 6



8 ⬆ *Indicates starting point for each exercise*

FIG. 8(f)

Playing TAB

Exercise 7

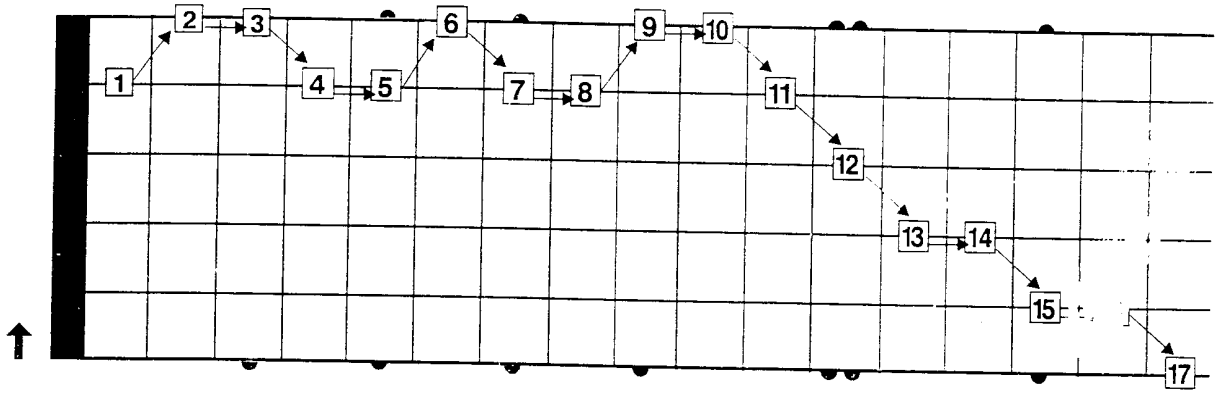


FIG. 8(g)

Exercise 8

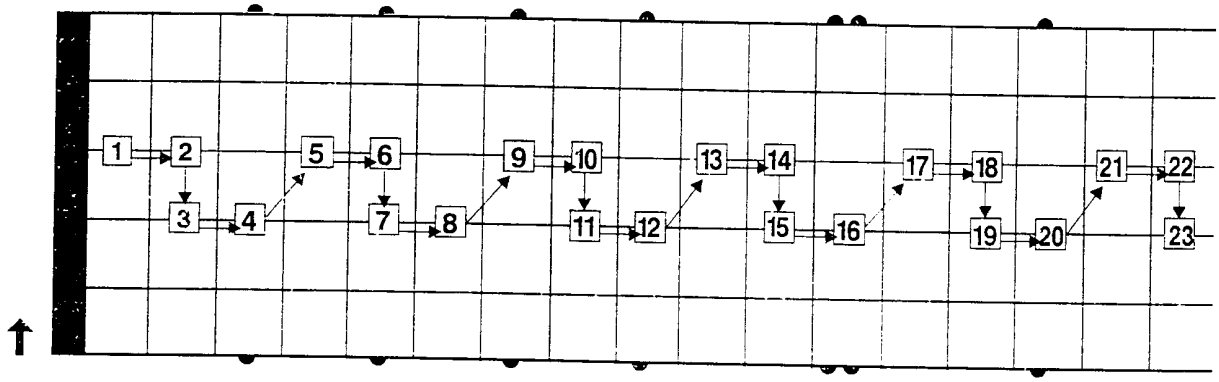
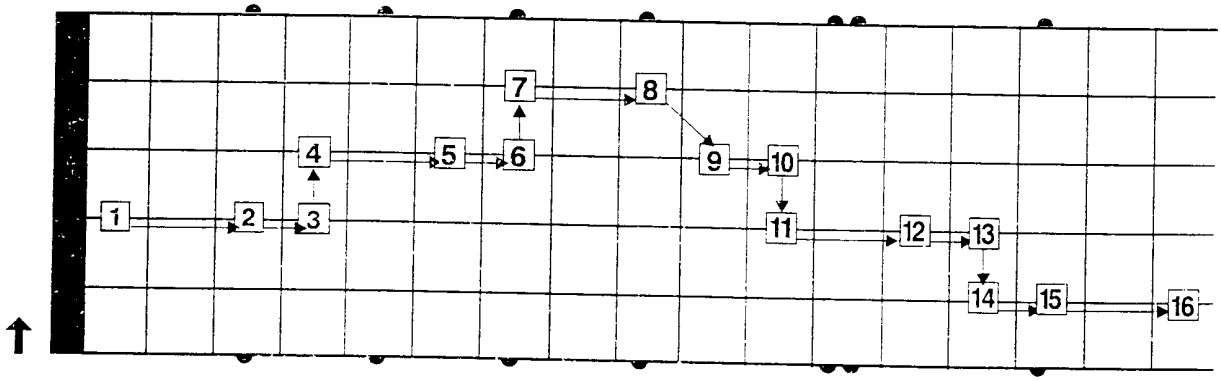


FIG. 8(h)

Exercise 9



↑ *Indicates starting point for each exercise*

9

FIG. 8(i)

Playing TAB

Exercise 10

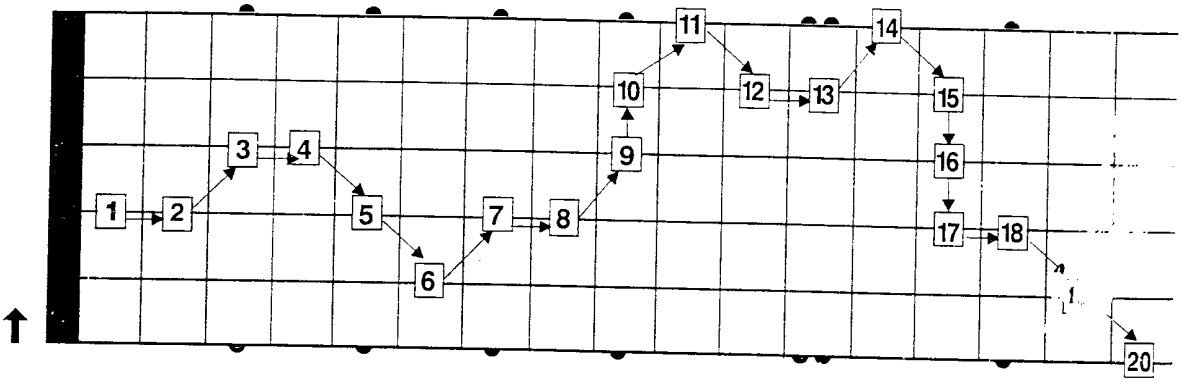


FIG. 8(j)

Exercise 11

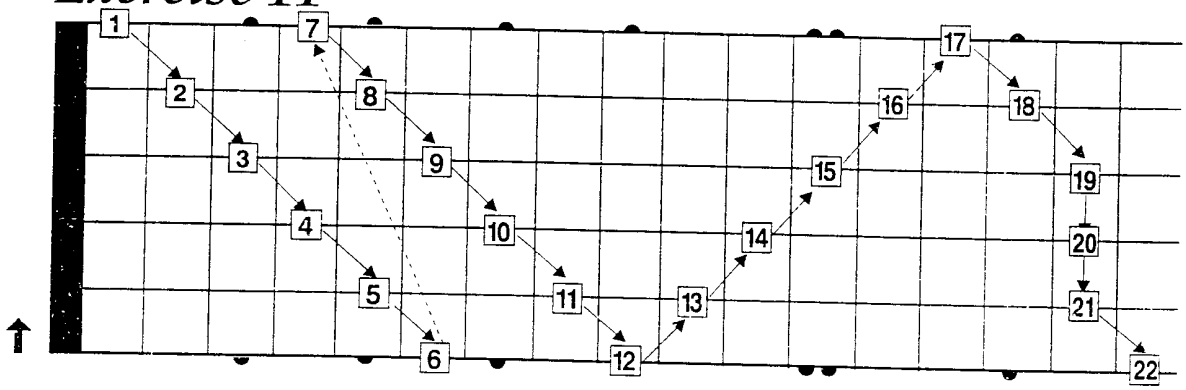
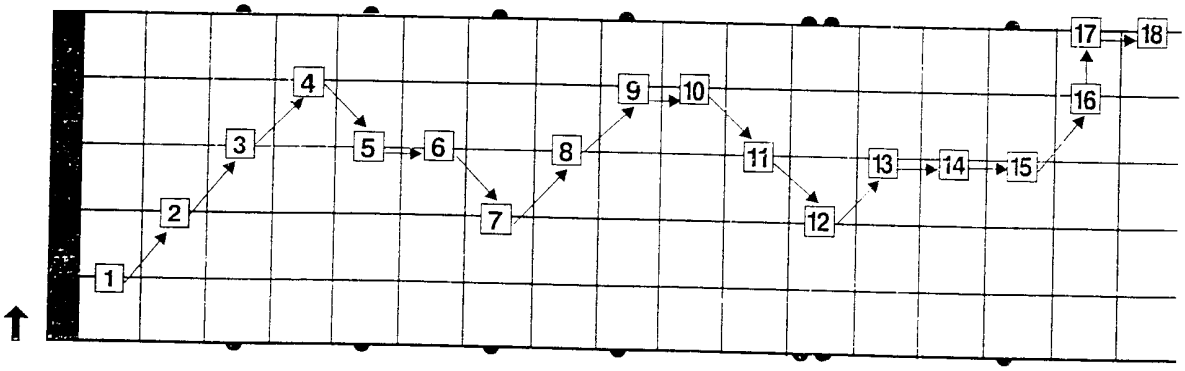


FIG. 8(k)

Exercise 12



10 ⬆ *Indicates starting point for each exercise*

FIG. 8(l)

Playing TAB

Exercise 16

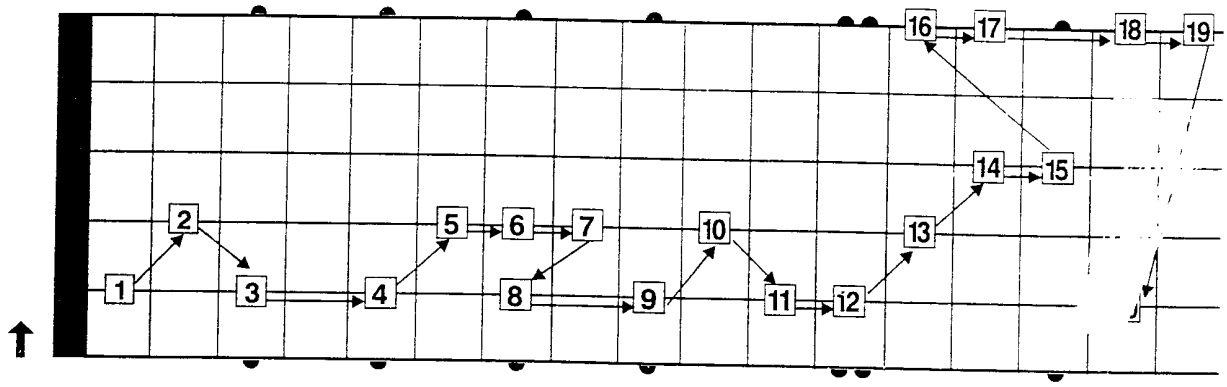


FIG. 8(m)

Exercise 17

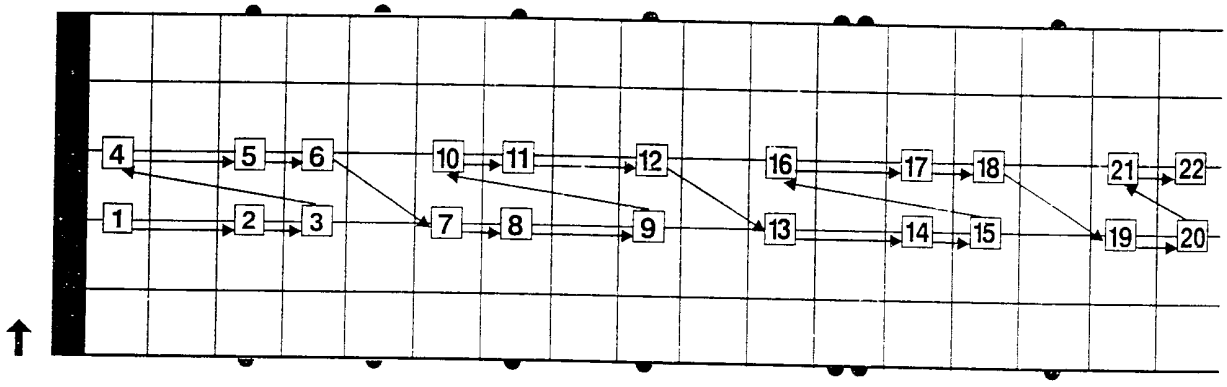
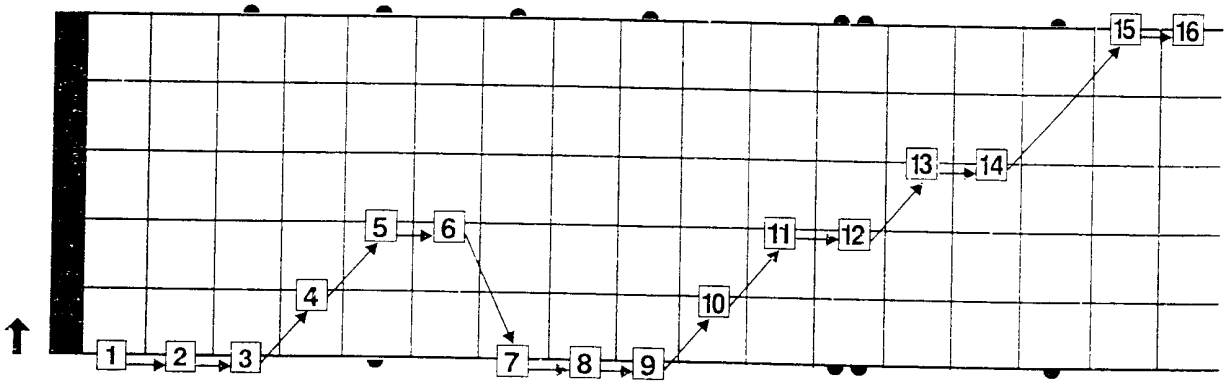


FIG. 8(n)

Exercise 18



12

⬆ *Indicates starting point for each exercise*

FIG. 8(o)

Playing Scales

Ionian

Starting at the 3rd fret

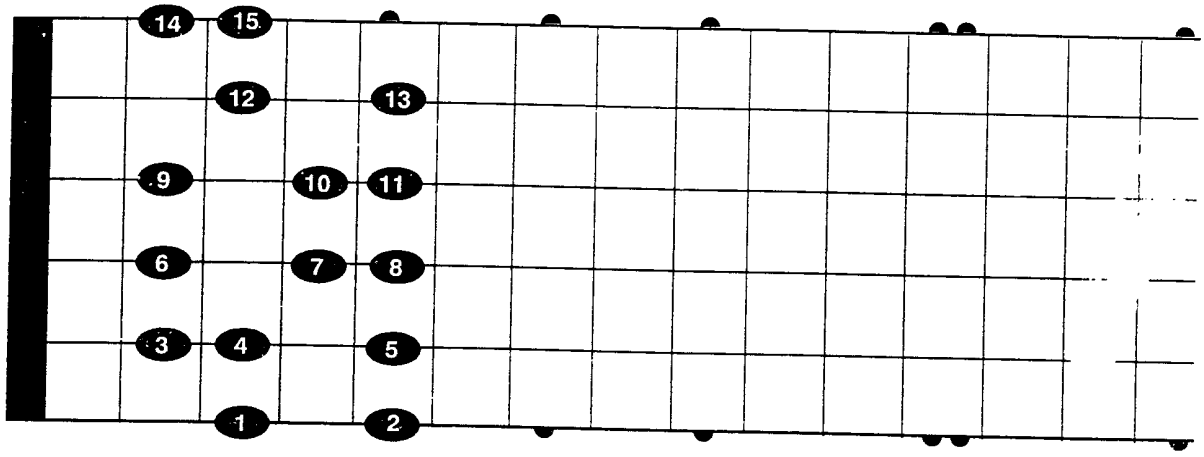


FIG. 9 (a)

Dorian

Starting at the 5th fret

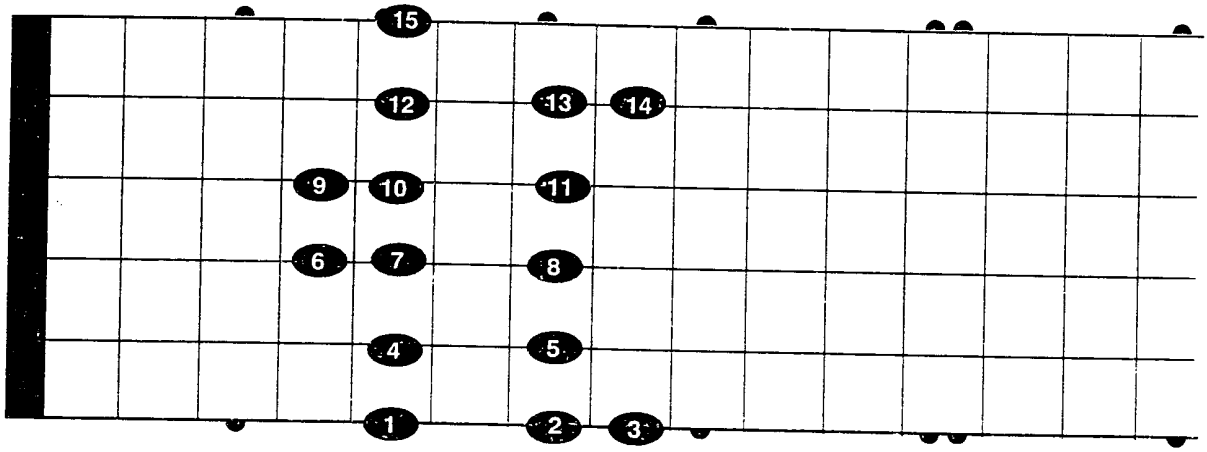


FIG. 9 (b)

Phrygian

Starting at the 7th fret

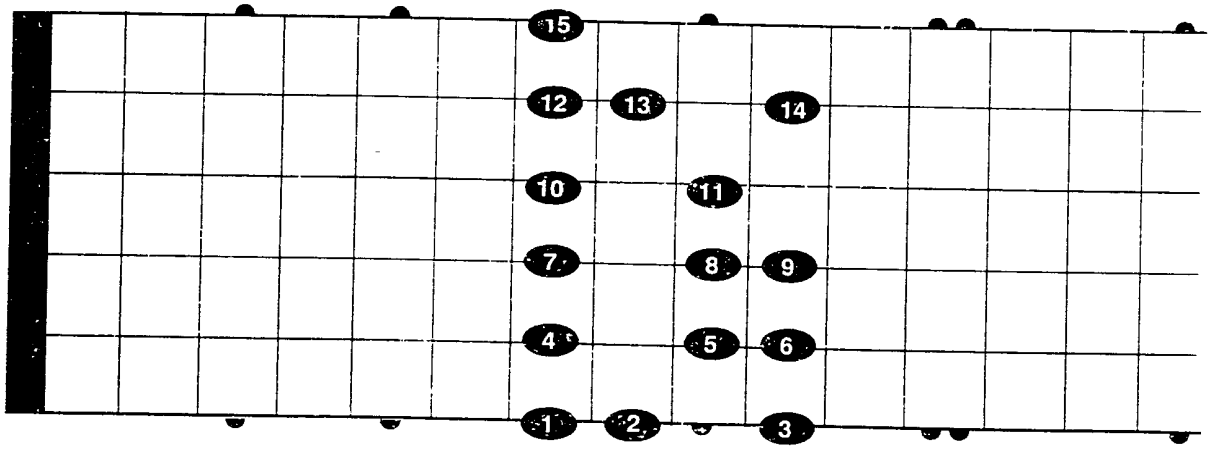


FIG. 9 (c)

Playing Scales

Lydian

Starting at the 8th fret

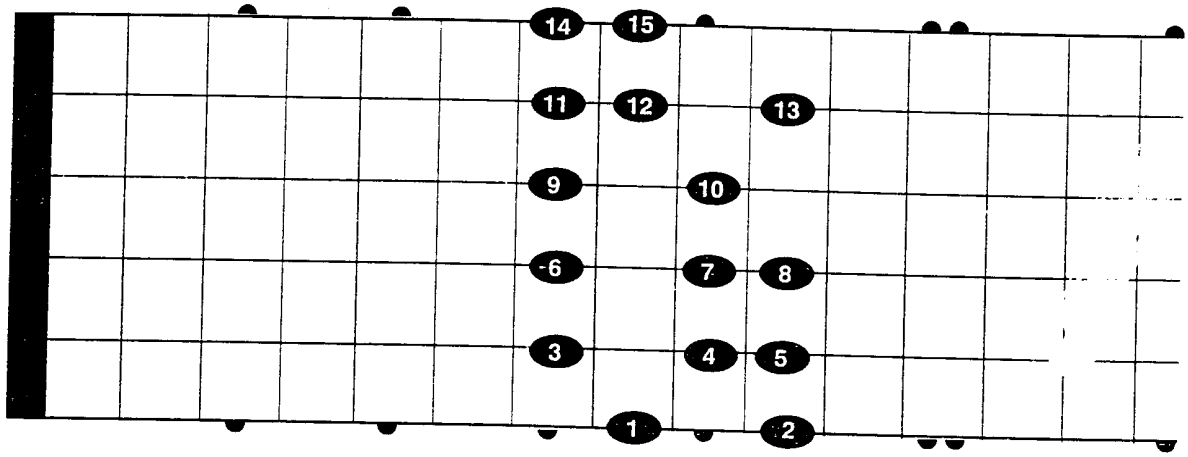


FIG. 9(d)

Mixolydian

Starting at the 10th fret

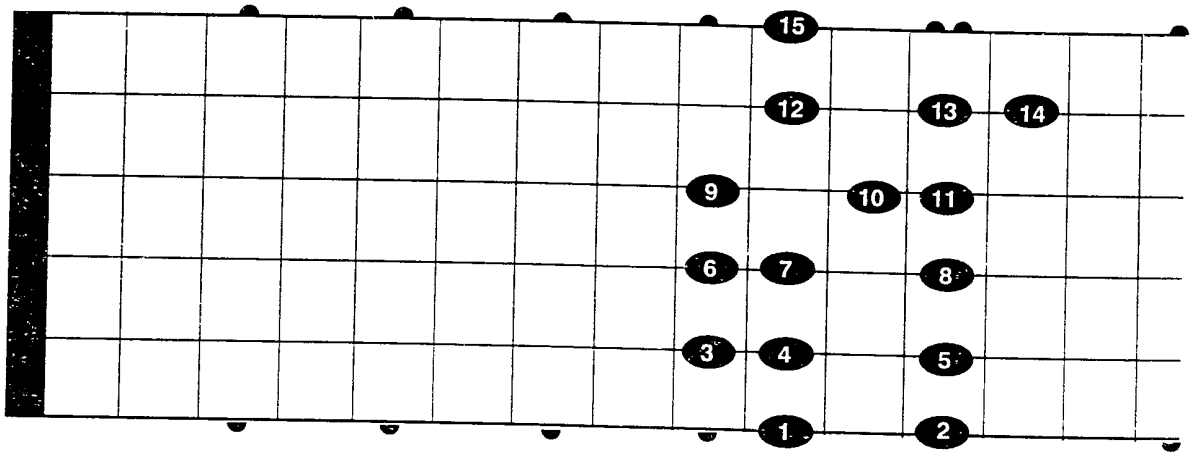
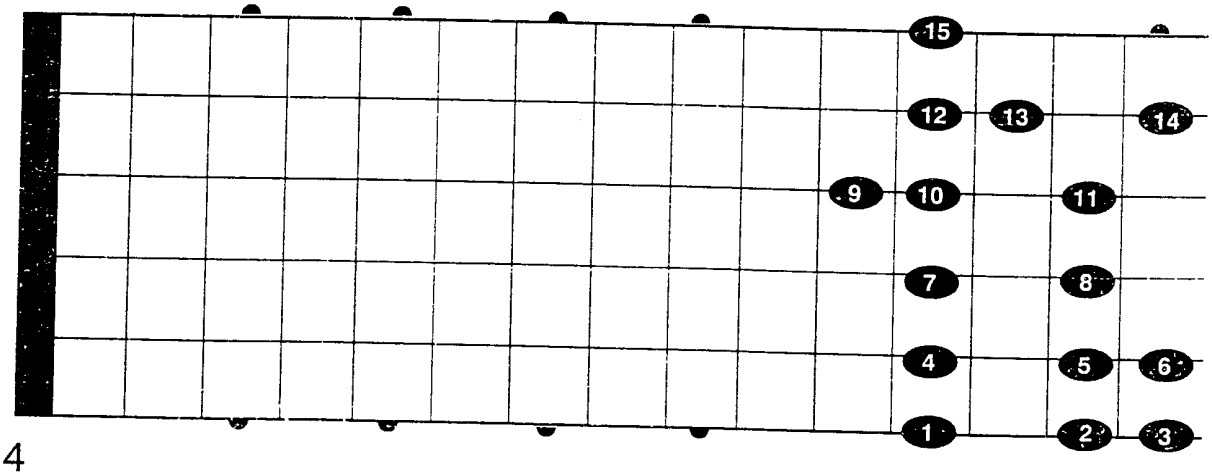


FIG. 9(e)

Aeolian

Starting at the 12th fret



14

FIG. 9(f)

Playing Scales

Locrian

Starting at the 14th fret

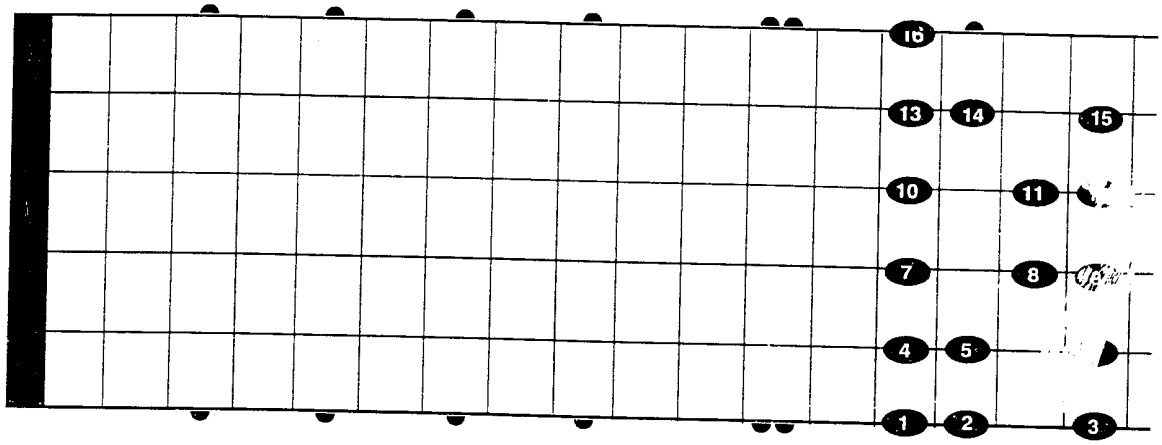


FIG. 9(g)

= a slide between notes

G Major scale over 3 octaves

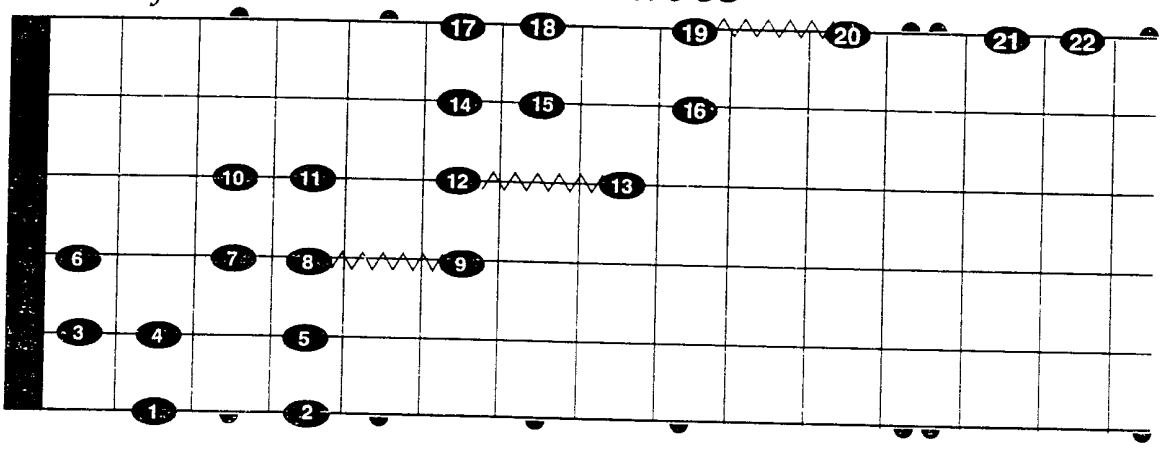


FIG. 9(h)

G Major scale over 3 octaves coming down

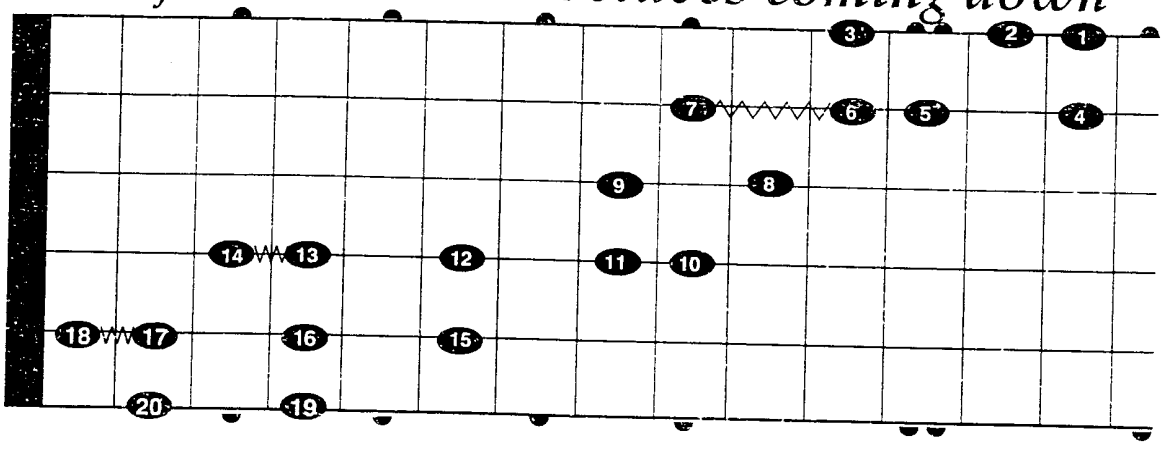


FIG. 9(i)

Major Flat Five Open Chords

1 3 ♭5

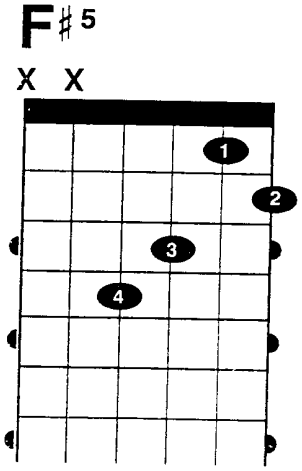


FIG. 10(a)

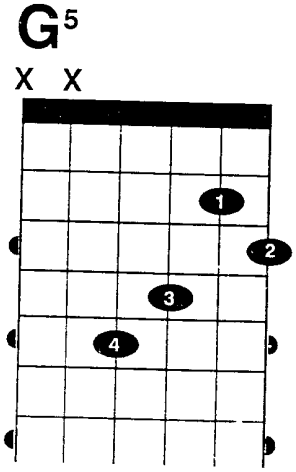


FIG. 10(b)

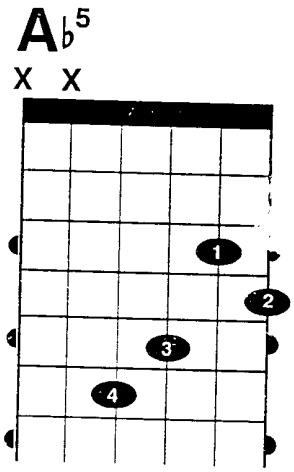


FIG. 10(c)

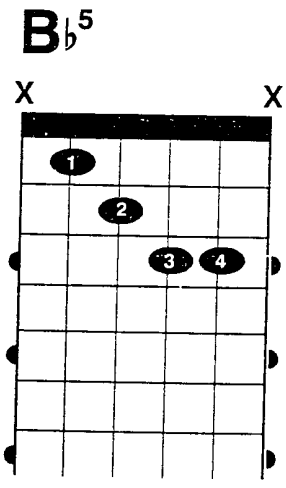


FIG. 10(d)

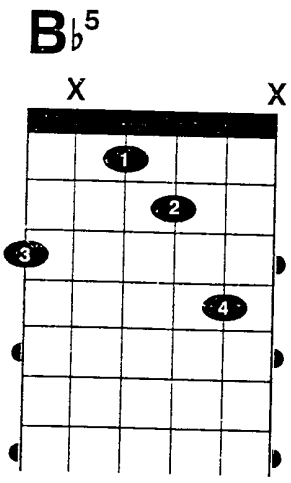


FIG. 10(e)

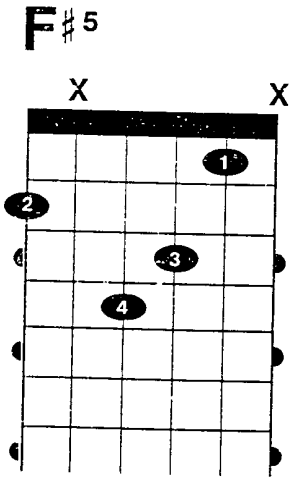


FIG. 10(f)

A♯=B♭ C♯=D♭ D♯=E♭ F♯=G♭ G♯=A♭

Minor Bar Chord Shapes

Root 6

1 ♭3 5

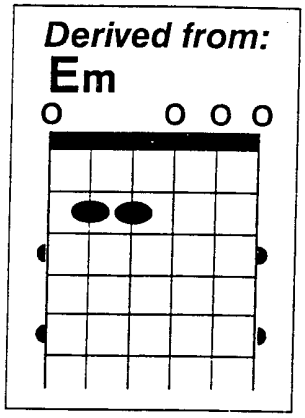


FIG. 10(g)

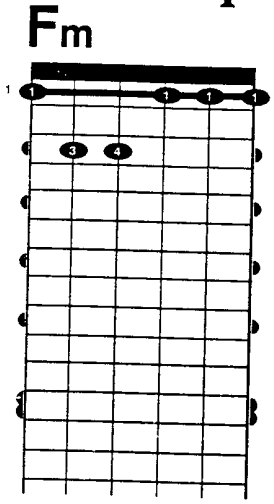


FIG. 10(h)

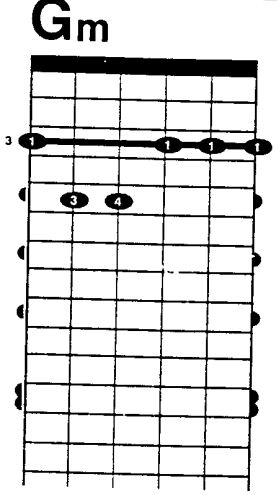


FIG. 10(i)

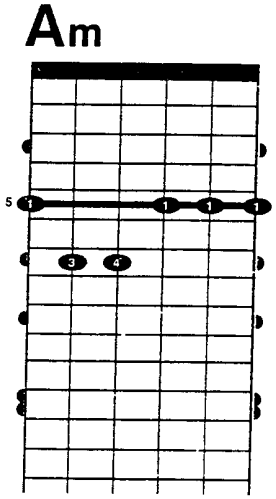


FIG. 10(j)

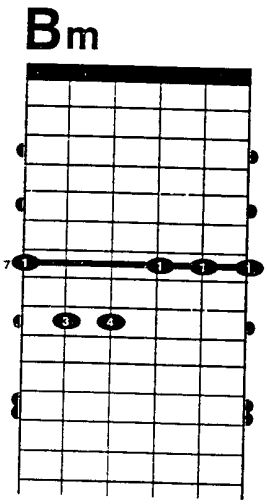


FIG. 10(k)

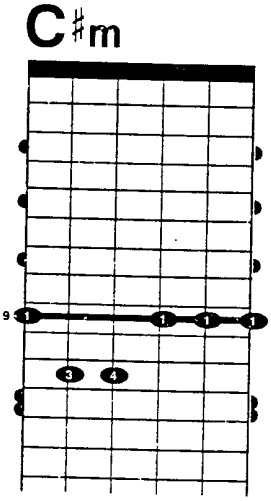


FIG. 10(l)

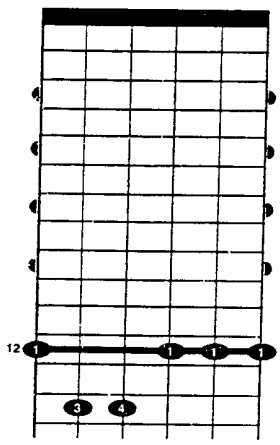


FIG. 10(m)

A♯=B♭ C♯=D♭ D♯=E♭ F♯=G♭ G♯=A♭

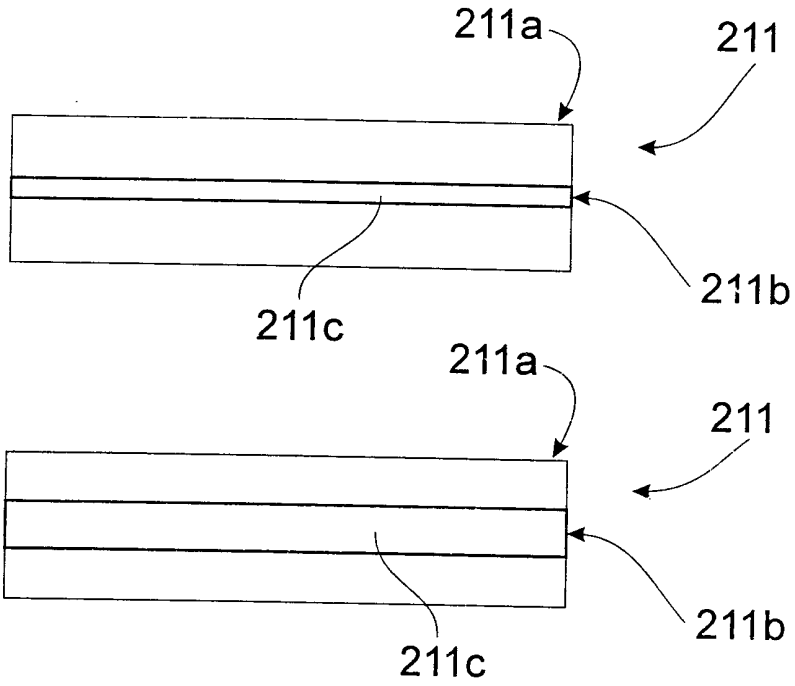

211a
211
211b
211c
211a
211
211b
211c

FIG. 11

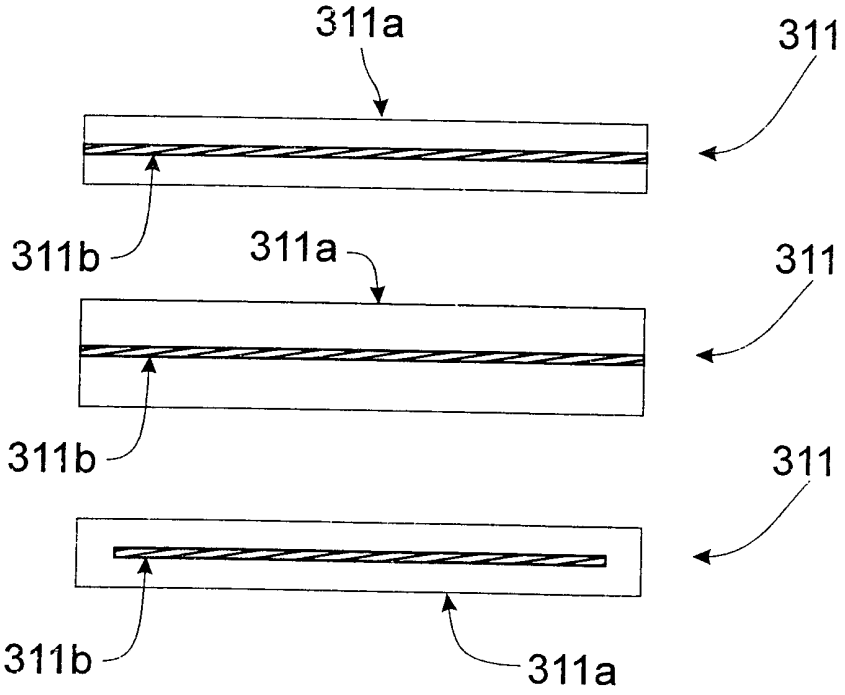

311a
311
311b
311a
311
311b
311
311b
311a

FIG. 12

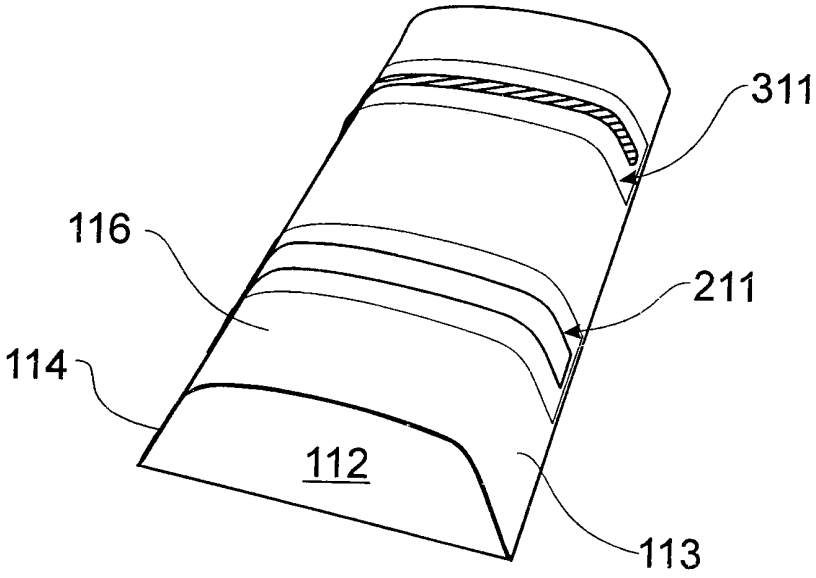


FIG. 13

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU00/01172

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl. [7]: G10D 3/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
G10D 3/--, G10D 1/--

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
WPAT: G10D-001/IC G10D-003/IC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
O, X	Web page: http://www.razemark.com/inventor.html downloaded 28 November 2000. See: "Razemark was developed three [3] years ago for one of my students who has a vision problem."	1 to 12
X	US-5247132-A (HENDERSON) 21 September 1993 See column 4 lines 4 to 26, and figure 2.	1 to 3, 5, & 12
X	US-4237765-A (VALDEZ) 9 December 1980 See whole document.	1, 5 to 7, & 12

[X] Further documents are listed in the continuation of Box C [X] See patent family annex

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search
28 November 2000

Date of mailing of the international search report
5 - DEC 2000

Name and mailing address of the ISA/AU

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU00/01172

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US-4095506-A (SMITH) 20 June 1978 See whole document.	1 to 7, & 12
X	US-4023460-A (KUHNKE) 17 May 1977 See whole document.	1 to 3, & 12
X	US-2455574-A (FELDMAN) 7 December 1948 See whole document.	1, 5, & 12
X	US-1348894-A (RAHNE) 10 August 1920 See whole document.	1 to 4, & 12
X	US-0939486-A (FISH) 9 November 1909 See whole document.	1 to 4, & 12

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/AU00/01172

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member
US	5247132	NIL
US	4237765	NIL
US	4095506	NIL
US	4023460	NIL
US	2455574	NIL
US	1348894	NIL
US	0939486	NIL

END OF ANNEX