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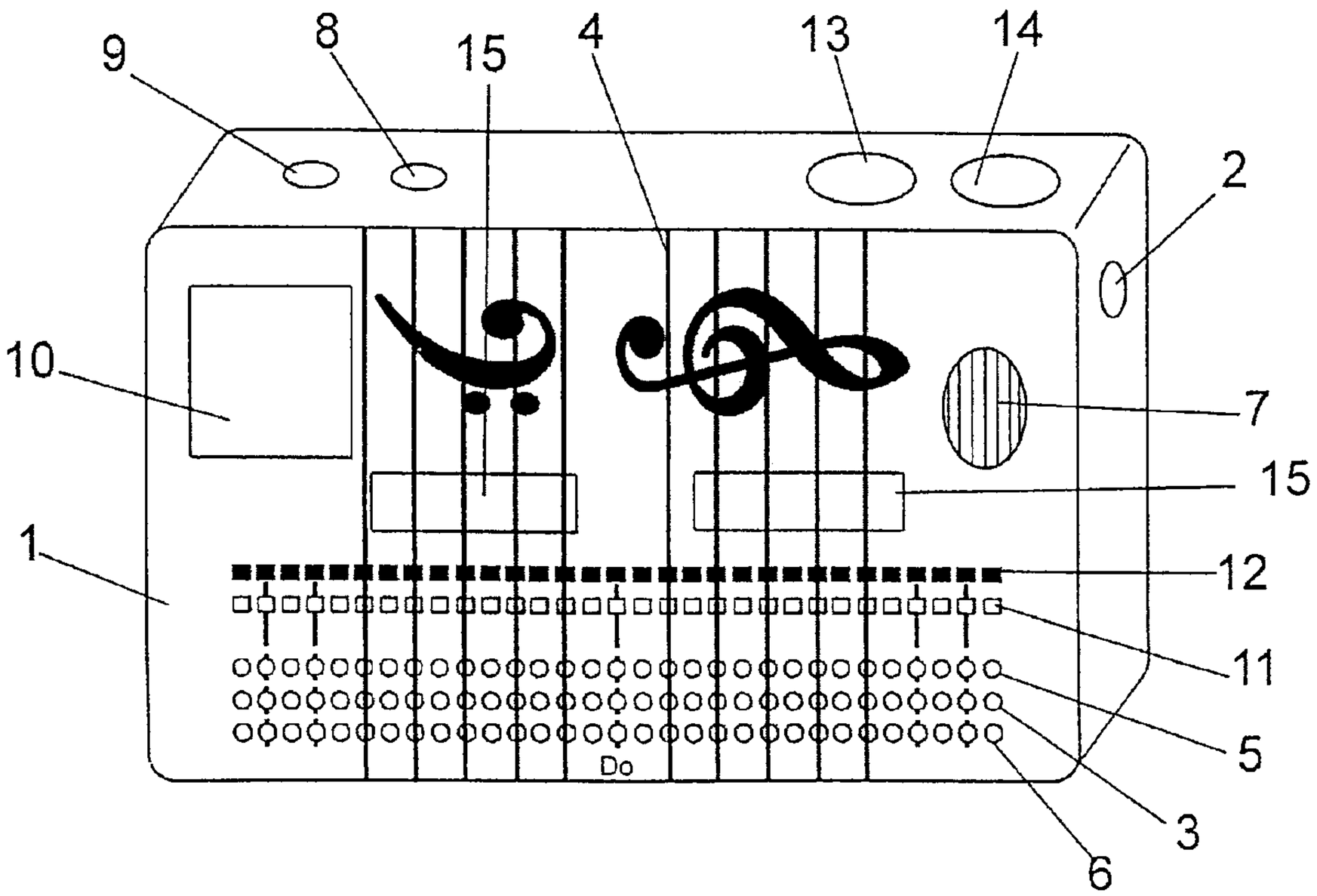
(54) Titre : CONTROLEUR MUSICAL
(54) Title: MUSICAL CONTROLLER

FIG. 1



(57) Abrégé/Abstract:
Specially designed for relating musical sounds to the conventional way of writing on a staff and vice versa, the controller comprises a casing (1) which is flat, cylindrical or some other shape, on which a staff (4) is depicted, with, in the areas of the staff corresponding to each of the musical notes, sensors/push-buttons (3-5-6) corresponding to natural, flat and sharp notes (or double sharp or double flat or natural sign, if present on the frame), as well as light indicators (11-12). The notes can thus be identified aurally when working on the device as if the music was written on a staff, while if a MIDI signal is connected to the control circuit it is possible to display, in real time, on said staff and via the light indicators (11-12), each of the notes of said melody, enabling quick and easy identification of said notes.

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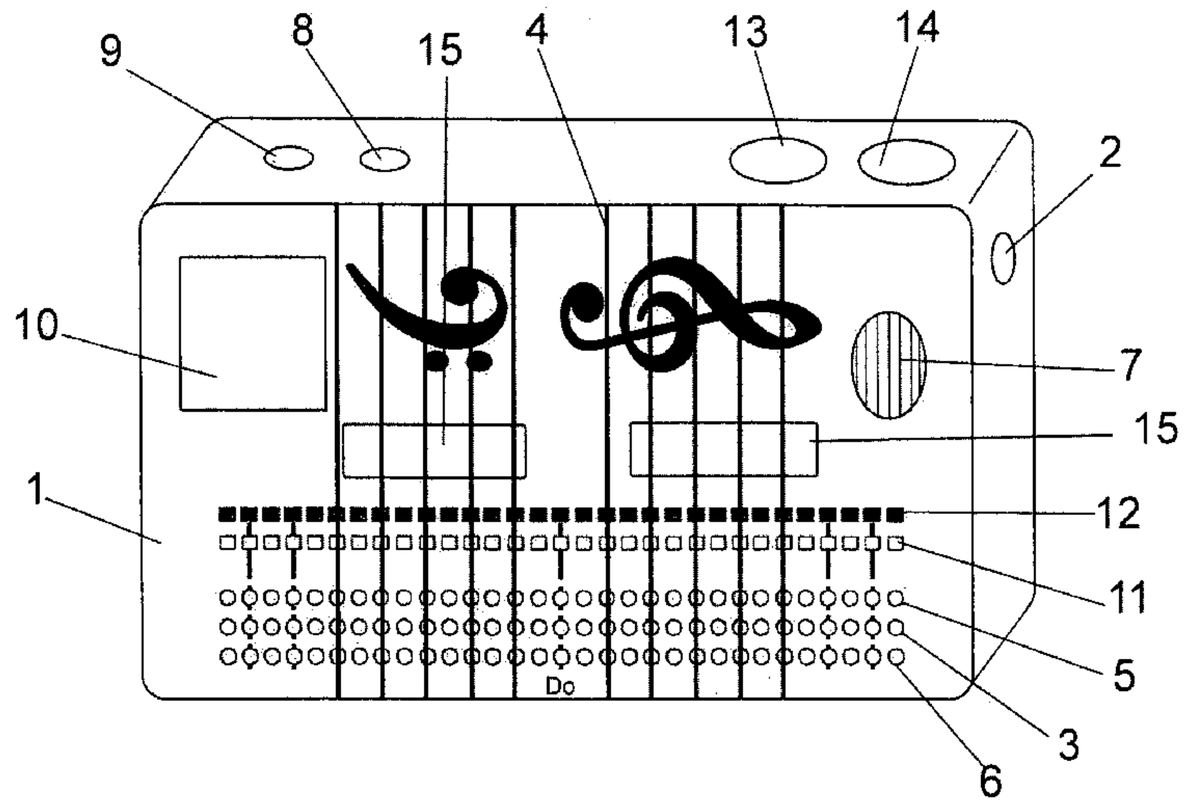
(54) Title: MUSICAL CONTROLLER

(54) Título: CONTROLADOR MUSICAL

FIG. 1



(57) Abstract: Specially designed for relating musical sounds to the conventional way of writing on a staff and vice versa, the controller comprises a casing (1) which is flat, cylindrical or some other shape, on which a staff (4) is depicted, with, in the areas of the staff corresponding to each of the musical notes, sensors/push-buttons (3-5-6) corresponding to natural, flat and sharp notes (or double sharp or double flat or natural sign, if present on the frame), as well as light indicators (11-12). The notes can thus be identified aurally when working on the device as if the music was written on a staff, while if a MIDI signal is connected to the control circuit it is possible to display, in real time, on said staff and via the light indicators (11-12), each of the notes of said melody, enabling quick and easy identification of said notes.

(57) Resumen: Especialmente concebido para permitir relacionar los sonidos musicales con la escritura tradicional en pentagrama y viceversa, el controlador está constituido a partir de una carcasa (1) aplanada, cilindrica o de distinta forma, sobre la que se establece un pentagrama

[Continúa en la página siguiente]

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(4), de manera que en las zonas del pentagrama correspondientes a cada una de las notas musicales se establecen sensores/pulsadores (3-5-6) correspondientes a las notas naturales, bemoles y sostenidos (o doble sostenido o doble bemol o becuadro si estuviese en la armadura), así como testigos luminosos (11-12). De esta forma, pueden identificarse auditivamente las notas cuando se opera sobre el dispositivo como si se tratara de la escritura de un pentagrama, mientras que si al circuito de control se conecta una señal M.I.D.I., es posible visualizar en tiempo real sobre el citado pentagrama y a través de los testigos luminosos (11-12) cada una de las notas de dicha melodía, permitiendo una fácil y rápida identificación de las mismas.

MUSICAL CONTROLLER

DESCRIPTION

OBJECT OF THE INVENTION

The present invention relates to a musical controller, in other words to a device of the type that incorporate a series of keys that enable data to be entered in a computer or digital device, and that can be used via said devices as musical instruments.

Likewise, those keys can actuate a percussion, string or wind instrument.

The object of the invention is to provide a device with an independent interface of the wide and varied type of instrument that can be simulated via the controller, depicting the appearance of a staff, whereby the sound can be related to the conventional way of writing on a staff.

BACKGROUND OF THE INVENTION

Many controllers are known, designed to be connected to a computer or digital device, which make it possible to generate sounds by pressing their keys, which by electric signals are interpreted by said digital devices via the corresponding audio circuit to emit that particular sound.

These types of controllers have a configuration similar to a traditional musical instrument, such as a piano keyboard, a guitar, wind instruments, etc, so that, although they can be used to digitally generate sounds of multiple musical instruments, it is typical that they are only used to reproduce the sounds of the musical instrument to which their external configuration corresponds.

In this regard, to use said controllers it is necessary to have musical knowledge as well as knowledge of the particular instrument for their use.

Although devices exist that offer an interface by way of a staff, they do not allow by simply pressing to

touch the twelve chromatic notes in all possible tonalities, but they have a complex structure, whereby it is necessary to press several keys at the same time to obtain different tones.

DESCRIPTION OF THE INVENTION

The musical controller that the invention proposes resolves in a fully satisfactory manner the aforementioned problem, providing an interface by way of a staff, whereby the sounds to be generated can be related to the conventional way of writing on a staff.

Therefore, the device disclosed is based on a casing, whereon are represented the twelve chromatic musical notes in independent spaces that correspond to those of musical writing on a standard staff.

Each note is assigned three sensors or push-buttons, so that said sensors detect the pressing of the corresponding natural, sharp or flat note, (or double sharp or double flat or natural sign if the note was altered on the frame) and a light indicator associated to said note is activated via a control circuit, as well as generating the corresponding electric signal to generate via an internal audio circuit, or by connection of the device to an external audio circuit, the sound corresponding to said musical note.

In accordance with another of the characteristics of the invention, it has been provided that the device has a MIDI input associated to its control circuit, so that via its connection to a computer or any other similar device that generates signals of this type, it is possible to analyse the musical notes of the input audio signal, by the illumination of the corresponding light indicators established on the corresponding staff, which means the device is an extremely effective teaching application, making it possible to analyse each of them musical notes in real time.

Therefore, the device that the invention proposes incorporates all the features of a conventional keyboard or MIDI instrument, adding the possibility of representing the musical notes, both visually and acoustically via a staff, in real time.

Finally, it should be stated that said sensors or push-buttons can be replaced by an equivalent solution, such as the inclusion of a touch screen that groups together all of them, or pressing by way of a hammer for string or percussion instruments, or valves for wind instruments.

DESCRIPTION OF THE DRAWINGS

To complement the description being made and in order to aid towards a better understanding of the characteristics of the invention, in accordance with a preferred example of practical embodiment thereof, a single page of plans is attached, wherein with an illustrative and non-limiting character, a perspective view of a musical controller has been represented, made in accordance with the object of the present invention.

PREFERRED EMBODIMENT OF THE INVENTION

In light of the indicated figure, it can be observed how the musical controller disclosed is formed by a casing (1), which is flat, cylindrical or some other suitable shape, wherein is established a control circuit, not represented in this figure, electrically powered via batteries or by a plug (2) connected to the mains, a control circuit whereto are associated a series of sensors or push-buttons, which are disposed on the surface of said casing (1), in three alignments.

A first row of sensors (3) corresponds to the natural notes (or altered, if the note was present on the frame), for which purpose a staff (4) will be represented on the casing, establishing each sensor or push-button (3) according to the possible notes that can be made on

said staff.

A second alignment of sensors or push-buttons (5) is disposed in parallel to the previous, those corresponding to sounds half a tone lower: flats (or double flat or natural sign, if the note was present on the frame).

Finally, the device incorporates a third alignment of sensors or push-buttons (6) disposed in parallel and in opposition to the sensors (5) with respect to the sensors (3), sensors or push-buttons (6) that correspond to sounds half a tone sharper: the sharps, (or double sharp or natural sign, if the note was present on the frame).

Hence, and via the control circuit, by pressing the different push-buttons or sensors (3-5-6) in the positions of the staff (4) corresponding to the different musical notes, a melody or harmony is generated via the control circuit which can be directly listened to via an internal audio circuit, with the collaboration of at least one internal loudspeaker (7), or be played via the corresponding output (8) for its connection to a sound system, computer, amplifier or similar device, or directly as a string, percussion or wind instrument.

In this regard, it has been provided that the device also incorporates a headphone socket (9).

In accordance with the above, the device may incorporate a display (10) which can display data corresponding to the status thereof, as well as selecting the type of instrument that one wants to simulate using the device, information that will be coded by the control circuit and sent to the computer or device concerned so that it plays it when emitting the corresponding musical notes.

Additionally, the device may also incorporate another two displays (15), by way of a frame, to define the tonality or alterations of the musical work.

Complementarily, it has been provided that, in correspondence with each sensor/push-button (3), a light indicator (11) is established in parallel, which displays the musical note which has been activated via said push-button, having provided the inclusion of light indicators (12), parallel to the previous ones that give an illuminated display of the sharp/flat alteration (or double sharp, double flat or natural sign) of the note that is sounding, if it had any.

In accordance with another characteristic of the invention, it has been provided that the control circuit incorporates MIDI signal processing means, for which it will have an input (13) and an output (14) therefor, so that, by means of an input MIDI signal of this type, it is possible to display the different light indicators(11-12) established on the staff (4), the different notes composing the melody or harmony, so that the sound is related to the conventional way of writing on a staff visually and in real time.

CLAIMS

1. Musical controller which, being of the type which incorporate a casing wherein is established a control circuit for the processing of audio signals, via the pressing of sensors/push-buttons corresponding to different musical notes and/or via the input of audio signals in MIDI format, is characterized in that on the device casing (1) a staff (4) is established, wherein on each note thereof are established three sensors/push-buttons associated thereto, one (3) corresponding to the natural note (or altered, if the note was present on the frame), a second sensor/push-button (5) corresponding to half a tone lower: the flats (double flat or natural sign, if present on the frame) and a third sensor/push-button (6) corresponding to sounds half a tone sharper: the sharps, (double sharp or natural sign, if the note was present on the frame), sensors associated to the control circuit.

2. Musical controller, according to claim 1, characterized in that in parallel to each grouping of sensors/push-buttons (3-5-6) is disposed a series of light indicators (11-12) that can be activated by the pressing of said sensors via the control circuit, indicative of the note that is sounding, or, that can also be activated by means of said control circuit with the input of a MIDI signal via a connector (13).

3. Musical controller, according to claim 1, characterized in that the grouping of sensors/push-buttons (3-5-6) can be replaced by a touch screen.

4. Musical controller, according to claim 1, characterized in that the grouping of sensors/push-

buttons (3-5-6) can be replaced by keys, which by way of a hammer, actuate a string or percussion instrument.

5. Musical controller, according to claim 1, characterized in that the grouping of sensors/push-buttons (3-5-6) can be replaced by valves to actuate a wind instrument.

6. Musical controller, according to claim 1, characterized in that in correspondence with each note of the staff (4) are established two light indicators, a first indicator (11) corresponding to the natural notes, and a second light indicator (12) corresponding to the sharp or flat notes (or double sharp or double flat or natural sign).

7. Musical controller, according to claim 1, characterized in that the control circuit is associated to at least one internal loudspeaker (7).

8. Musical controller, according to claim 1, characterized in that the control circuit is associated to an audio output (8).

9. Musical controller, according to claim 1, characterized in that the control circuit is associated to an earphone output (9).

10. Musical controller, according to claim 1, characterized in that the control circuit is associated to a display (10) of status of the device, as well as displays that act as a frame.

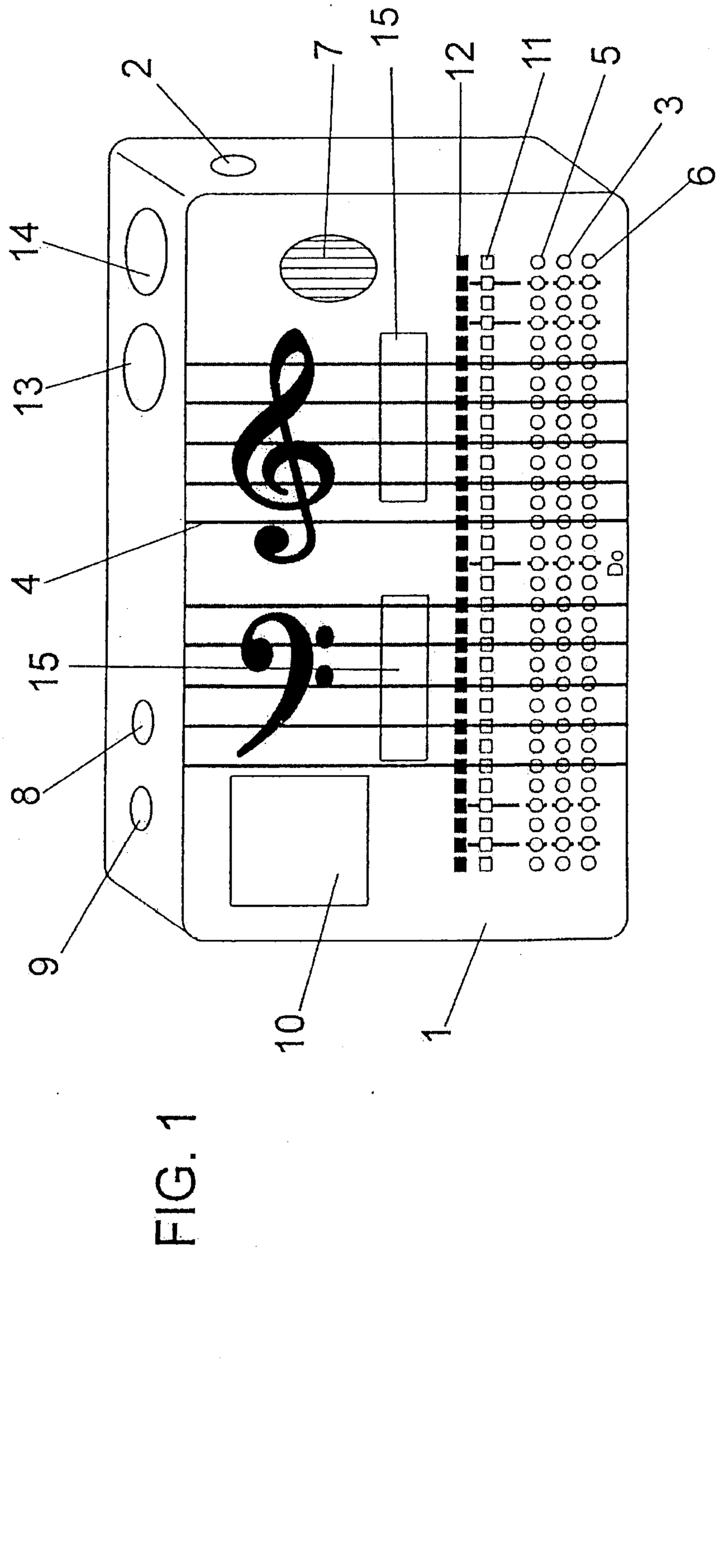

FIG. 1

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