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(54) **Electronically interactive game apparatus with fanciful characters**

(57) An electronically interactive game apparatus with fanciful characters (1), each having a predetermined level of virtual power associated therewith for generating a virtual power recognizable as a multiplier of the one detected in the character (1). The apparatus comprises a base (5) having at least one socket (10, 11) with electrical connections (12, 13) designed to be connected to corresponding mating connections (6, 7) on the character and having such a shape as to allow coupling with at least one mating shape on the character, a power source (19), at least one circuit (14) for detecting the level of virtual power associated with the character (1) connected to the base socket, a device (18, 20) for generating information about the detected level of virtual power, a circuit (21) for the player to generate a virtual power, and a device (18, 20) for producing information about the virtual power generated by the player, said circuits and devices being powered by said power source (19). The virtual power associated with the character (1) and said virtual power generated by the player are represented by respective voltage drops detected in the respective circuits powered by said power source (19). The virtual power associated with a character (1) is given by the voltage drop caused by an electric resistor (R) having a predetermined fixed value for each character (1) whereas said virtual power generated by the player is given by the voltage drop caused by the bioelectric impedance of the player.

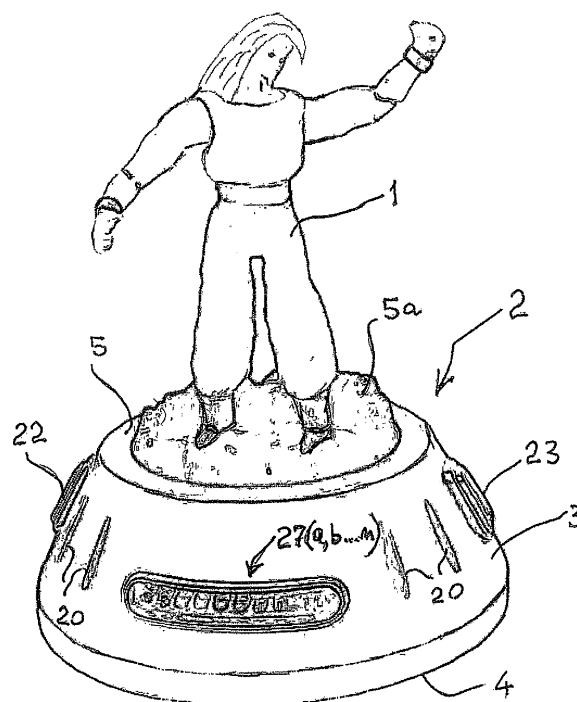


Fig. 1

Description

[0001] The present invention relates to an electronically interactive game apparatus with fanciful characters, each having a predetermined level of virtual power associated therewith.

[0002] The invention also relates to a type of character including electric or electronic means for interaction with the apparatus.

[0003] Various types of fanciful toy characters are known to be used in the field of children games, possibly representing powerful warriors each having a different virtual power, typically assigned according to the appearance and name of the character.

[0004] The object of the present invention is to provide an interactive game apparatus having characters as mentioned above, which allows detection of the virtual power and recognition of a character and allows the player to generate a virtual power that can be recognized as a multiplier of the power of his/her own character.

[0005] These and other objects, as better explained hereafter, are fulfilled by an apparatus as defined in claim 1.

[0006] The characteristics and advantages of the present invention will appear more clearly from the following detailed description of one practical embodiment, which is illustrated without limitation in the annexed drawings, in which:

- Figure 1 is a schematic perspective view of the apparatus with an interactive character fitted therein;
- Figure 2 is a schematic perspective and partially sectional view of a character designed to interact with the apparatus;
- Figure 3 is a side perspective view of the base of the apparatus of Figure 1;
- Figure 4 is a partially perspective top view of the base of Figure 3;
- Figure 5 shows a diagram of the electric circuits of the apparatus;
- Figure 6 shows the diagram of the electric circuit that is used for each character to allow interaction thereof with the base of the apparatus.

[0007] Referring to the above figures, numeral 1 designates a fanciful character, such as a warrior, having a special virtual power that can be also recognized through the name and appearance of the character.

[0008] Numeral 2 generally designates the apparatus of the invention, which comprises a hollow body of frustoconical circular shape, with the larger surface 4 acting as a standing base and the smaller surface 5 acting as a base for character recognition, as better explained hereafter.

[0009] As particularly shown in Figure 2, the character 1, which is one of a set of various characters of identical or different types, has pairs of electrical connectors 6 and 7 at the ends of the legs, i.e. the right and left legs re-

spectively. Preferably, these connectors are located in special recesses 8 and 9 at the ends of the respective legs to prevent them from protruding out of the character figure.

[0010] Furthermore, these recesses 8 and 9 conventionally have a contour, having no special designation in the drawings, that creates a form fit with mating sockets 10 and 11 on the base surface 5 of the apparatus 2, as shown in Figure 4.

[0011] As shown in this example, the sockets 10 and 11 include respective pairs of female connectors 12 and 13 for electrical connection with the pairs of connectors 6 and 7 on the character 1.

[0012] According to the invention, the virtual power of each character, such as the one designated in the drawings by numeral 1, is given by the voltage drop caused by an electrical resistor R having a predetermined fixed value for each character, which is mounted to each character 1 and is connected to one of said pairs of connectors 6 and 7, through which the character is connected to the pairs of connectors 12, 13 held by the sockets 10, 11 of the base 5.

[0013] The resistor R has a particular value for each type of character 1 and its connection to the pair of connectors 6 or 7 only depends on the range of resistor values. Those within a certain range of values, i.e. not exceeding a certain value of the virtual power of characters, will be connected to one pair of connectors, those within a different range of values will be connected to the other pair of connectors.

[0014] The above arrangement is only intended to simplify the operation of the microprocessor that controls the apparatus, as will be more apparent hereinafter.

[0015] Figure 6 shows the diagram of the resistor R mounted to a character with its pair of connectors 6 or 7 in an engagement relationship with the corresponding pair of female connectors on one of the sockets 10 or 11.

[0016] Particularly referring to the embodiment as shown in Figure 5, the electric circuit that controls the operation of the game apparatus of the invention is a circuit generally designated by numeral 14, for recognition of the character and detection of the virtual power associated therewith. Such circuit, including the lines 15, 16 and 17 connects the pairs of the female connectors of the sockets 10 and 11 to a microprocessor, generally designated by numeral 18 in Figure 5.

[0017] The microprocessor 18 is powered by a power source which, in this example, is a battery 19 held within the cavity of the frustoconical body 3 underlying the base 5 but may alternatively consist of a low voltage supply conventionally provided outside the apparatus 2.

[0018] Once a particular character 1 is fitted onto the sockets 10, 11, its virtual power is detected by the circuit 14 based on the voltage drop across the resistor R mounted to the character 1.

[0019] Then, the microprocessor 18 sends information, preferably a sound message, through loudspeakers 20 mounted to the body 3 of the base 5.

[0020] This message may include information concerning not only the power level of the character 1 but also the fancy name or type of the character.

[0021] Still referring to Figure 5, the game apparatus of the invention comprises a circuit, generally designated by numeral 21, for allowing the player, namely a child, to generate a virtual power.

[0022] The circuit 21 is also powered by the power source 19 and consists of a device for detecting the bioelectric impedance of the player and determining the voltage drop in the circuit caused by such bioelectric impedance created from time to time by the player. In brief, what is detected is the voltage drop caused by a variable-value resistor.

[0023] Such circuit 21 has a pair of electrically conductive connections 22 and 23 accessible to the player and connectable to two distinct locations of his/her body.

[0024] The connections 22 and 23 are part of a conventional bioelectric impedance detection circuit which includes a pair of transistors 24, 25 and the resistor 26.

[0025] In practice, in the preferred embodiment as shown in Figure 1, the connections 22 and 23 are plate-like electrically conductive elements, to be placed on the body 3 of the base 5. Connection with the player occurs when the latter touches such connections with the ends of at least one finger of each hand. Thus, the impedance of his/her body becomes part of the circuit 21 and the voltage drop caused by the instantaneous impedance value is detected and deemed to be representative of a corresponding virtual power.

[0026] It will be understood that the higher the pressure exerted by the player's fingers on the connection elements 22 and 23, the greater the contact surface with the body and the lower the bioelectric impedance introduced in the circuit, and hence the lower the resulting voltage drop.

[0027] This means that the relation between the voltage drop caused by the bioelectric impedance of the player and the level of virtual power generated by the player is inversely proportional.

[0028] The microprocessor 18 will detect this level and send sound message information concerning the level of virtual power that has been achieved through the loudspeakers 20 as well as visual information.

[0029] In the preferred embodiment as shown in Figure 1, the latter information is given through an array of light emitting sources 27 (a, b, ..., n), namely ten LEDs, to provide an easily identifiable value scale. The light emitting sources can possibly emit colored light.

[0030] The higher the level of virtual power achieved by the player the greater the number of light-emitting sources 27 (a, b, ... n) that are turned on.

[0031] The messages sent through the loudspeakers 20 to indicate the level of virtual power that has been generated by the player also include a message that accounts for the level that has been achieved as a multiplier of the virtual power of the character 1 associated with the base 5 of the apparatus at that time.

[0032] As far as construction is concerned, the base 5 of the apparatus may have the appearance of a fanciful landscape, designated by 5a.

[0033] It will be appreciated from the above that the invention is susceptible of various embodiments, possibly differing from those described and illustrated herein, without departure from the inventive scope, as defined by the annexed claims.

Claims

1. An electronically interactive game apparatus with fanciful characters (1), each having a predetermined level of virtual power associated therewith for generating a virtual power recognizable as a multiplier of the one detected in the character (1), **characterized in that** it comprises a base (5) having at least one socket (10, 11) with electrical connections (12, 13) designed to be connected to corresponding mating connections (6, 7) on the character and having such a shape as to allow coupling with at least one mating shape on the character, a power source (19), at least one circuit (14) for detecting the level of virtual power associated with the character (1) connected to the base socket, a device (18, 20) for generating information about the detected level of virtual power, a circuit (21) for the player to generate a virtual power, and a device (18, 27 a, b, ... n) for producing information about the virtual power generated by the player, said circuits and devices being powered by said power source (19).
2. A game apparatus as claimed in claim 1, **characterized in that** said virtual power associated with a character (1) and said virtual power generated by the player are represented by respective voltage drops detected in the respective circuits (14, 21) powered by said power source (19).
3. A game apparatus as claimed in claims 1 and 2, **characterized in that** said virtual power associated with a character (1) is constituted by the voltage drop caused by an electric resistor (R) having a predetermined fixed value for each character, which is fitted on each character and can be connected to said detection circuit (14) through said electrical connections (6, 7) on the character (1) and said electrical connections (12, 13) in the socket (10, 11) of the base (5).
4. A game apparatus as claimed in claims 1 and 2, **characterized in that** said virtual power generated by the player is constituted by the voltage drop caused by a player-driven variable-value resistor introduced in the corresponding generator circuit (21).
5. A game apparatus as claimed in claims 1 to 3, **char-**

- acterized in that** said virtual power generated by the player is constituted by the voltage drop caused by the bioelectric impedance of the player, the relevant generator circuit (21) having at least one pair of electrically conductive connections (22, 23) accessible to the player and connectable to two distinct locations of his/her body.
6. A game apparatus as claimed in claim 5, **characterized in that** said pair of connections (22, 23) are electrically conductive plate-like elements, placed on the body (3) of said base (5) and said distinct locations of the body of the player are the ends of at least one finger of each hand.
7. A game apparatus as claimed in any one of claims 1 to 6, **characterized in that** the information concerning the level of virtual power detected in the character connected to the base and that concerning the level of virtual power generated by the player are in sound form.
8. A game apparatus as claimed in claim 7, **characterized in that** said information in sound form includes messages sent through loudspeakers (20).
9. A game apparatus as claimed in any one of claims 1 to 8, **characterized in that** said device for producing information concerning the level of virtual power generated by the player comprises a plurality of light-emitting elements (27 a, b, ..., n) the number of elements to be turned on being proportional to the level of virtual power that has been generated and detected.
10. A game apparatus as claimed in claim 9, **characterized in that** said light-emitting elements (27a, b, ... n) are placed on the body (3) of said base (5) in a row.
11. A game apparatus as claimed in any one of claims 1 to 10, **characterized in that** said power source comprises a battery (19) held within said hollow body (3) of said base (5).
12. A game apparatus as claimed in any one of claims 1 to 11, **characterized in that** said electric circuits are integrated in a microprocessor (18) installed in said hollow body (3) of said base (5).
13. A game apparatus as claimed in any one of claims 1 to 12, **characterized in that** said base (5) comprises a frustoconical circular hollow body with a cavity interposed between the larger standing surface (4) and the opposite smaller surface (5), said cavity containing the circuits and the operating and functional components of the apparatus, whereas said smaller surface (5) is equipped with said connections (10, 11) to said character (1).
14. A game apparatus as claimed in claim 13, **characterized in that** said smaller surface (5) of the frustoconical hollow body (3) has a configuration (5a) representing a fancy landscape.
15. A fanciful character (1) adapted for electronic interaction with the apparatus as claimed in any one of claims 1 to 14, **characterized in that** it comprises an electric resistor (R) mounted thereon, having a predetermined fixed value related to the virtual power associated with the character, at least one pair of electrical connectors (6, 7) for connecting said resistor to a voltage drop detecting circuit (14) placed on said apparatus, as well as at least one area (8, 9) adapted to create a form fit with at least one of the sockets (10, 11) of the apparatus.

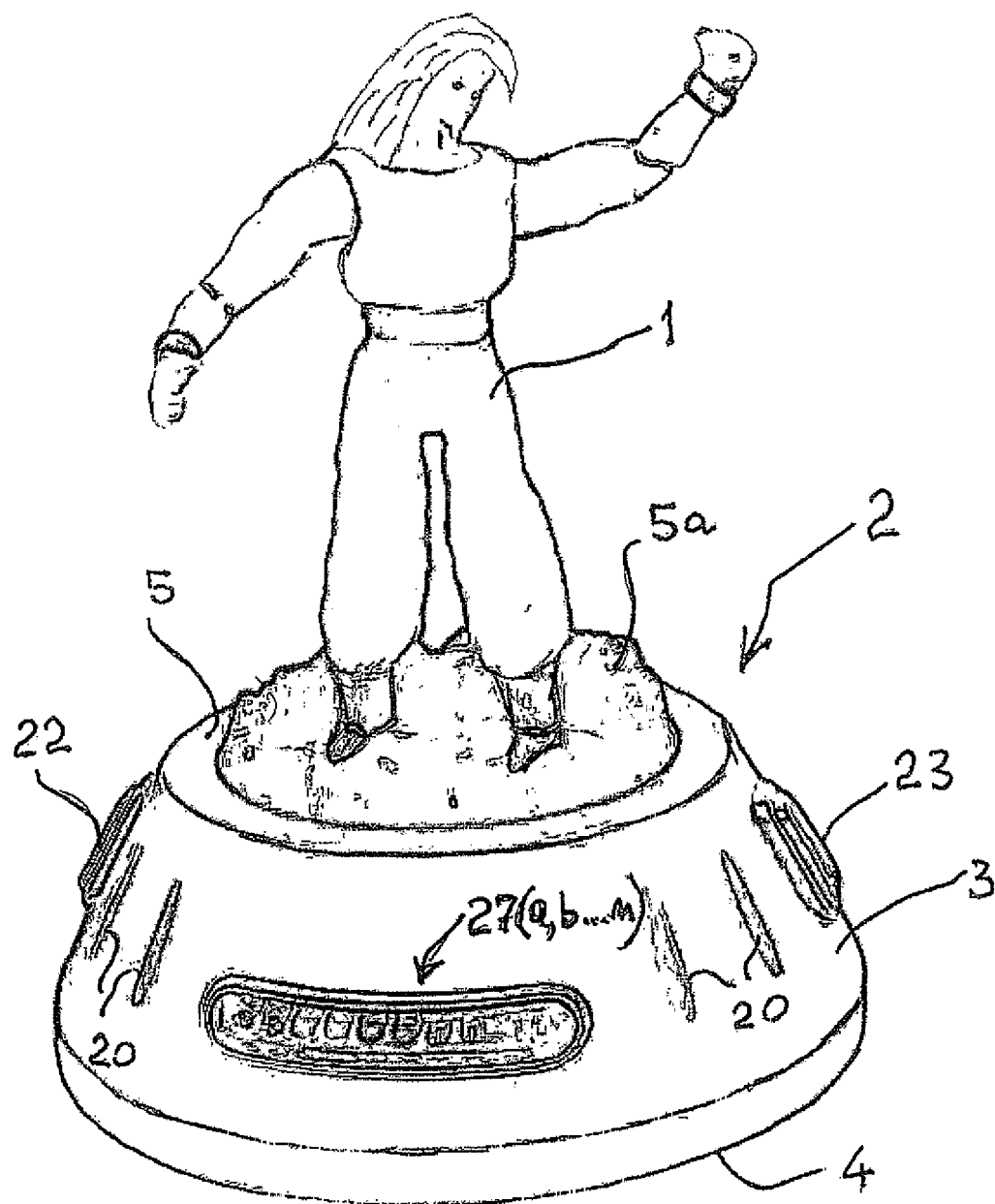


Fig. 1



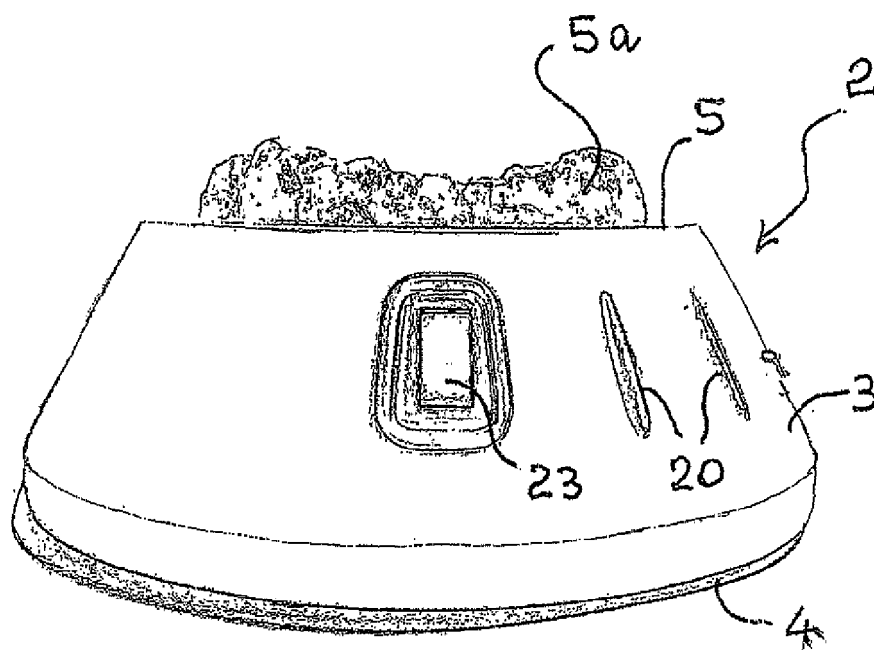


Fig. 3

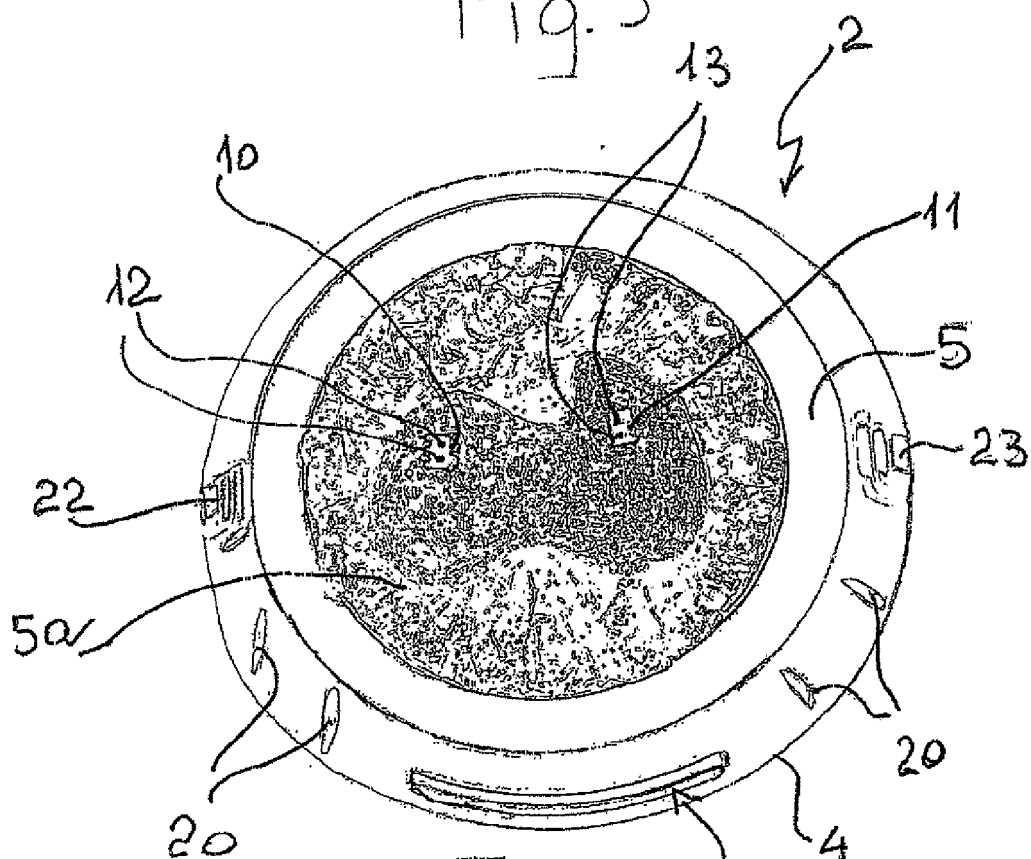


Fig. 4

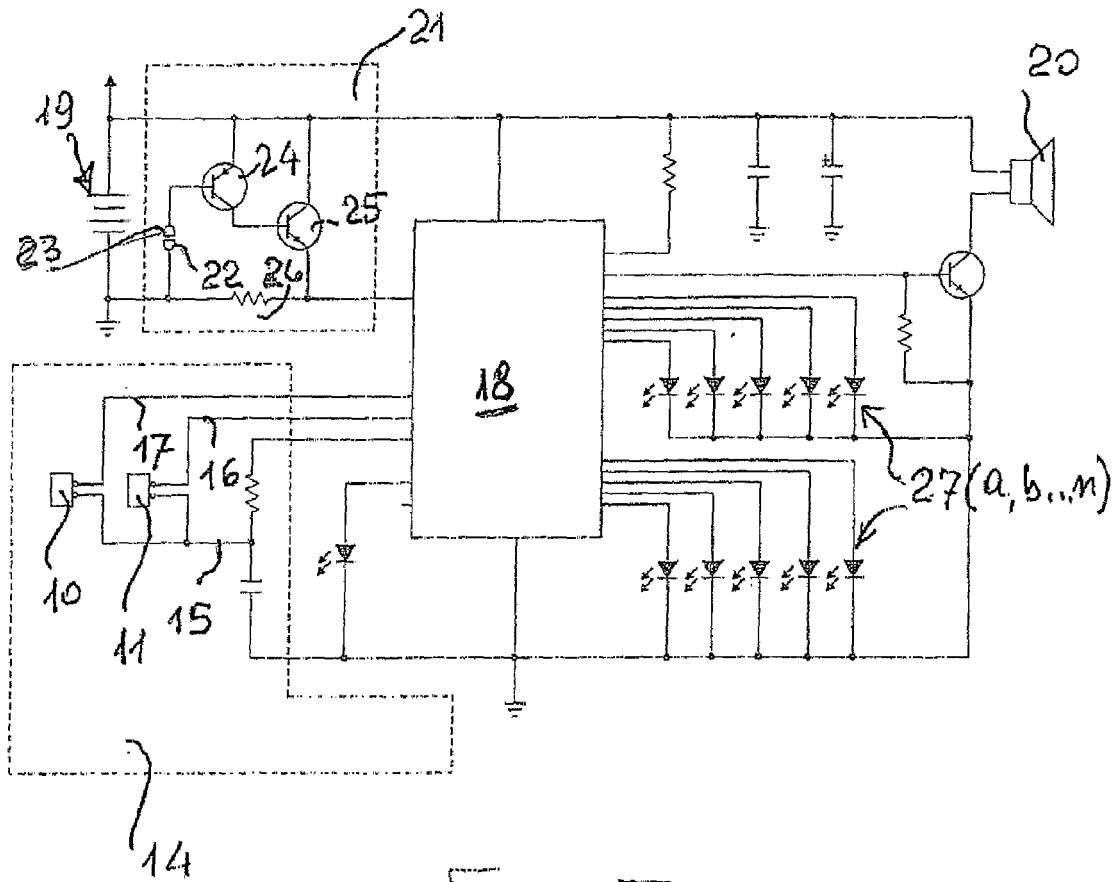


Fig. 5

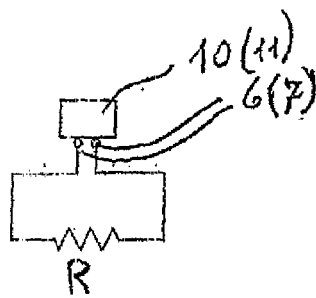


Fig. 6



European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 08 15 6180

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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 21 August 2008	Examiner Shmonin, Vladimir
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 08 15 6180

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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