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(54) **Lamp structure**

(57) A lamp structure (1) mainly installed inside a cabinet (60) has an electrical circuit to actuate a light emitting part (20) for lighting, if the cabinet door is opened, the light emitting part (20) will automatically generate light to illuminate the internal space of the cabinet (60), and if the cabinet door is closed, the light emitting part (20) will be powered off for extinguishment.

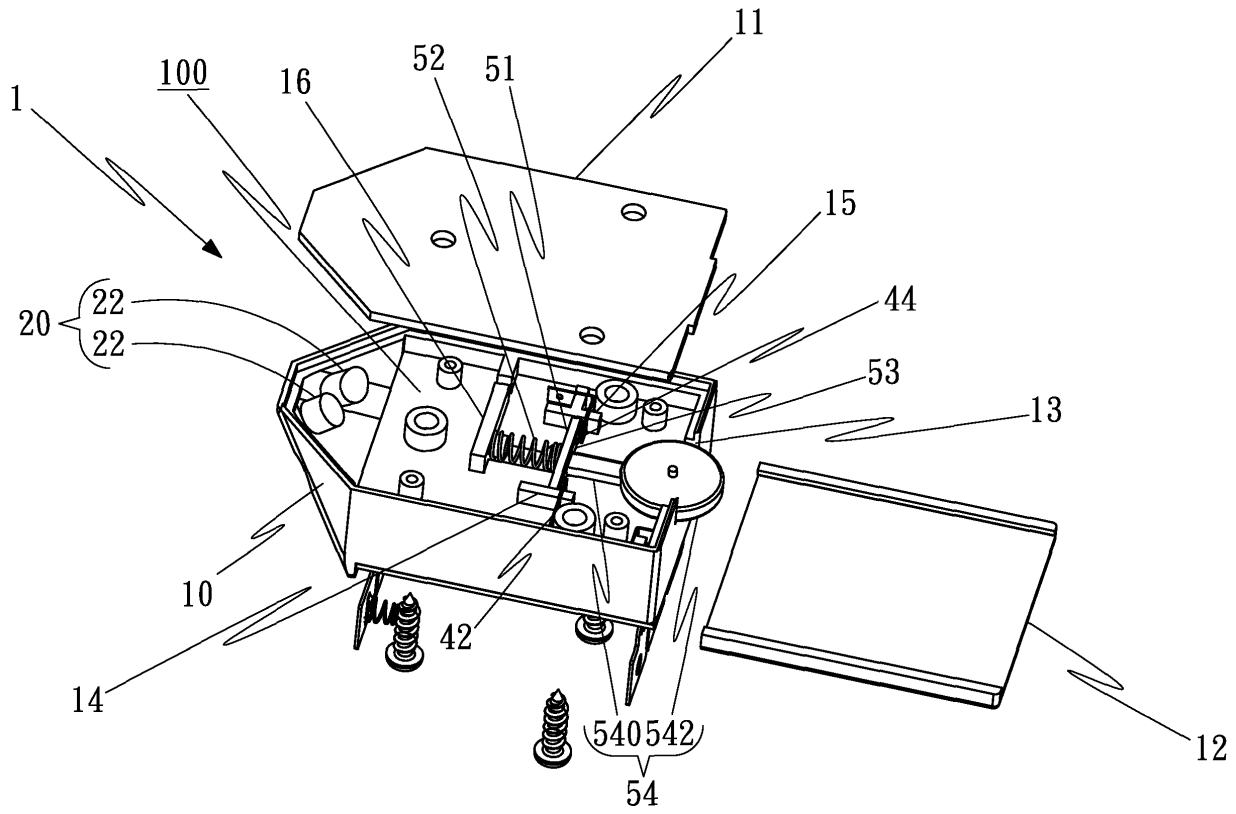

FIG. 1

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Description

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention relates to a lamp structure, more particularly to, a lamp structure installed internal to a cabinet.

2. Description of the Prior Art

[0002] Our everyday lives have become more and more convenient by each day, where we can see significant improvements to what we eat, what we wear, where we live, or how we travel; even still, the limitless human desire will not be easily satiated and we will continue take note of every single inconveniences in our lives in search of quick and easy solutions; as such, cabinets commonly present in homes or offices are usually available for storing things and objects, and are occasionally placed at locations low in visible light; these cabinets usually do not feature lighting equipment and the cabinets that are installed with lighting equipments are usually higher in cost, and some even require external power sockets to be able to utilize the lighting equipments, therefore these cabinets are not practical in reality; in light of this, the inventor after various modifications and research has created the innovative lamp structure.

SUMMARY OF THE INVENTION

[0003] The present invention relates to a lamp structure. The main object of the present invention is to provide a mechanism configuration, and the opening or closing action of the cabinet door will activate the mechanism, subsequently achieving automatic activation of the light-emitting element to generate the illumination effect through the non-electrical sensing method, in addition to conserving the power consumption of the lamp structure.

[0004] Another object of the present invention is to provide a lamp structure using batteries as the power source, thereby improving the convenience of installation for the lamp structure.

[0005] The present invention relates to a lamp structure which comprises a case including a housing structure with a hollow part, and the portion of the surface of the case includes an opening part penetrating through to the hollow part; a light emitting part including a plurality of light emitting elements installed on the surface of the box; a power supply as the main power source to the entire structure; an electrical circuit electrically connected between the light emitting part and the power supply, wherein the electrical circuit comprises a first electrical contact and a second electrical contact, the first and second electrical contact are open circuited in between; a sliding piece placed inside the case and is restricted between a first position and a second position, and the portions of the surface of the sliding piece has a conductor and an extension, the conductor is a conductive material that corresponds to the first electrical contact and the second electrical contact, and one end of the extension is connected to the sliding piece and the other end protrudes through the opening part and protrudes to the surface of the case; and a spring element that is a mechanical element with elastic recovery force, one end of the spring element is installed to the case, and the other end is secured to the sliding piece, wherein the conductor of the sliding piece can select an either state of a open circuit state or a close circuit state between the first electrical contact and the second electrical contact, in which, the close circuit state is the state of the conductor is electrically connected to the first electrical contact and the second electrical contact, the open circuit state is the state of the conductor is disengaged from the first electrical contact and the second electrical contact; the first position corresponds to the open circuit state selected by the sliding piece, and the second position corresponds to the close circuit state selected by the sliding piece; the protruded position of the extension of the sliding piece relative to the surface of the case corresponds to one of the first position and second position of the sliding piece, to determine whether if the light emitting element receives power for generating the light for illumination.

[0006] The objects, advantages, and novel features of the invention will become more apparent to those skilled in the art by referencing the accompanying drawings and the following detailed description.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007]

FIG. 1 is a 3-dimentional exploded diagram of the lamp structure of the present invention;

FIG. 2 is another 3-dimentional exploded diagram in different view direction of the lamp structure of the present invention;

FIG. 3 is a perspective diagram of the lamp structure of the present invention;

FIG. 4 is another perspective diagram in different view direction of the lamp structure of the present invention;

FIG. 5 is an electrical circuit applied on the lamp structure of the present invention;

FIG. 6 is an illustrated diagram to show the lamp structure of the present invention is installed in the cabinet and a sliding piece of the lamp structure of the present invention is restricted and located at the first position to actuate an electrical circuit to be in opened circuit when the cabinet is closed.; and

FIG. 7 is another illustrated diagram to show the sliding piece of the lamp structure of the present invention is located at the second position to actuate an electrical circuit to be in closed circuit when the cabinet is opened.

DESCRIPTION OF THE PREFERRED EMBODIMENT

[0008] Referring to FIG.S 1 to 7, the present invention relates to a lamp structure (1) comprises a case (10), a light emitting part (20), a power supply (30), an electrical circuit (40) as indicated in FIG. 5, a sliding piece (51) and a spring element (52); the embodiments of the present invention are described in details below.

[0009] The case (10) of the lamp structure (1) of the present invention is a housing structure with a hollow part (100) that has openings at both sides, each opening has an upper lid (11) and a lower lid (12), where the upper lid (11) and the lower lid (12) can seal off the two openings on both sides of the case (10), the surface at one end of the case (10) has an opening part (13) penetrated the hollow part (100) of the case (10) to the outside of the case (10).

[0010] In the inventive lamp structure (1), the light emitting part (20) comprises a plurality of light emitting elements (22), which can be LED (light emitting diode) or any light source driven by DC current source, and the light emitting elements (22) are installed in the case (10) where the light emitting areas are exposed at the portion surface to provide light illumination. Furthermore, the light emitting area of each light emitting element (22) is packaged with colored light-transmitting units to enable the light emitting elements (22) emitting the light source in the color of the light-transmitting unit; the packages for each light emitting element (22) forms the optical light-transmitting structure, thereby regulating the path of the emitted light source from the light emitting elements (22), and resulting in the convergence or uniform distribution effect of light. In addition, the surfaces of the light emitting element (22) can be covered with coloured light-transmitting materials, or further with optical light-transmitting structures, to achieve the emitted light source with corresponding colour or results the convergence or uniform distribution effect of light.

[0011] In the inventive lamp structure (1), the power supply (30) is the power source required by the lamp structure (1), and, one embodiment of the power supply (30) of the present invention is the power supply (30) to be installed internally to the case (10), and the power supply (30) comprises a battery holder, and can utilize common batteries (not shown) as the power source. Furthermore, the power supply (30) can also be an external power source to the case (10), and specifically, the power supply (30) is an external connected battery holder or an adapter electrically connected to the city power grid, the power supplied by the power supply (30) is directed to the electrical circuit (40) through the electrical connection to provide the desired power for the light emitting part (20).

[0012] In the inventive lamp structure (1), the electrical circuit (40) is the main electric circuit connecting the light emitting part (20) to the power supply (30), and the electrical circuit (40) comprises a first electrical contact (42) and a second electrical contact (44), where the first electrical contact (42) and the second electrical contact (44) are open circuited in between.

[0013] Furthermore, the first electrical contact (42) and the second electrical contact (44) can respectively be a plate with conductive property; the plates can be made with conductive materials, or by disposing the conductive materials on a non-conductive material substrate.

[0014] In the inventive lamp structure (1), the sliding piece (51) is installed in the hollow part (100) of the case (10) and is restricted between a first position (as indicated in FIG. 6) and a second position (as indicated in FIG. 7), and on one side of the sliding piece (51) has a conductor (53) and an extension (54) constituted by a extension rod (540) and a press detent (542), where the conductor (53) is a conductive material that corresponds to the first electrical contact (42) and the second electrical contact (44), one end of the extension rod (540) of the extension (54) is connected to the side face of the sliding piece (51) with the conductor (53), and the other end of the extension rod (540) of the extension (54) comes in contact with the side surface of the press detent (542) which is in the form of circular plate; wherein when the sliding piece (51) is located at the first position, the press detent (542) moves to be concealed within the opening part (13); and when the sliding piece is located at the second position, the press detent (542) moves to protrude out of the opening part (13). Furthermore, with the operation of the spring element (52), the position of the press detent (542) can directly move the position of the sliding piece (51) to form a sliding mechanism, and subsequently making contact for the conductor (53) to the first electrical contact (42) and the second electrical contact (44), completing the electrical connection to the electrical circuit (40), or the disengaging the conductor (53) from the first electrical contact (42) and the second electrical contact (44) to be an open circuit.

[0015] Additionally, the case (10) can provide with two parallel protruding strips (14, 15), where the sliding piece (51) is sandwiched in between, and the two protruding strips (14, 15) are in parallel with the extension rod (540). The two protruding strips (14, 15) are mainly for restricting the sliding piece (51) to move between the first position and the second position in parallel to their direction.

[0016] The spring element (51), such as a spring, is a mechanical element with elastic recovery force, and the spring element (51) is connected at one end to a stopper (16) in the case (10), and the other end is secured to the notch (55) on the sliding piece (51).

[0017] Based on the aforesaid inventive lamp structure (1), the conductor (53) on the sliding piece (51) can selected either state of the close circuit state or open circuit state between the first electrical contact (42) and the second electrical contact (44), in which, the close circuit state is the state of the conductor (53) electrically connected to the first electrical contact (42) and the second electrical contact (44), the open circuit state is the state of the conductor (53) disengages from the first electrical contact (42) and the second electrical contact (44); the first po-

sition corresponds to the open circuit selected by the sliding piece (51) and the second position corresponds to the close circuit selected by the sliding piece (51); and the protruded position of the press detent (542) relative to the surface of the case (10) corresponds to one of the first position and second position of sliding piece (51).

[0018] Referring to FIGS 6 and 7 again, the lamp structure (1) is installed internally to a cabinet (60) by means of screws or adherent substance. When installed in the cabinet (60), the opening part (13) of the case (10) of the lamp structure (1) will face toward the external space of the cabinet (60), while the side of the case (10) provided with the light emitting part (20) will face the internal space of the cabinet (60); when a door (62) on the cabinet (60) is closed, the door (62) will push against the press detent (542) to move the extension rod (540) of the extension (54) and the sliding piece (51) to the inside of the case (10), thereby reaching to the default first position as shown in FIG. 6; the spring element (52) will also be compressed by pushing to enable the conductor (53) on the sliding piece (51) disengage from the first electrical contact (42) and the second electrical contact (44), resulting in an open circuit state where the light emitting part (20) will not generate the light illumination.

[0019] In the contrast, if the cabinet (60) is opened, the door (62) will release the press detent (542) for the spring element (52) to recover from the compression and push on the sliding piece (51), subsequently the press detent (542) will protrude from the opening part (13), resulting in the sliding piece (51) to move to reach the default second position as shown in FIG. 7; hence the conductor (53) will come in contact with the first electrical contact (42) and the second electrical contact (44), at this time the whole circuit exhibits a closed circuit state, and the light emitting part (20) can generate the light illuminated to the internal space of the cabinet (60).

[0020] Therefore, the lamp structure (1) of the present invention is so convenient to the user to illuminate the internal space of the cabinet (60); thereby the lamp structure (1) the present invention is highly improved and conforms to the conditions of newly applied patents.

[0021] The present invention has been described above by way of a preferred embodiment but the embodiment is provided for illustration purposes only, it should be understood that the invention is not limited thereto; to the contrary, it is intended to cover various changes and modifications. Therefore, the scope of the appended claims should be accorded the broadest interpretation so as to encompass all such changes and modifications.

Claims

1. A lamp structure, comprising:

a case (10) including a housing structure with a hollow part (100), and a portion of the surface of the case (10) including an opening part (13) penetrated through to the hollow part (100);

a light emitting part (20) including a plurality of light emitting elements (22) installed on the surface of the case (10);

a power supply (30) as main power source of the entire structure;

an electrical circuit (40) for electrically connecting the light emitting part (20) to the power supply, wherein the electrical circuit comprises a first electrical contact (42) and a second electrical contact (44) to form an open circuit in between;

a sliding piece (51) installing inside the case (10) and restricting in between a first position and a second position and comprising a conductor (53) corresponding to the first electrical contact (42) and the second electrical contact (44) of the electrical circuit (40) and an extension (54) which one end is connected to the sliding piece (51) and the other end is extended through the opening part (13) and protruded out the surface of the case (10); and

a spring element (52) with elastic recovery force, which one end is affixed to the case (10), and the other end is secured to the sliding piece (51);

whereby the conductor (53) of the sliding piece (51) is selectively restricted to the first position or second position to actuate the electrical circuit (40) to be in an open circuit state or in a closed circuit state respectively.

2. The lamp structure as claimed in claim 1, wherein the power supply (30) is installed internally to the case (10).

3. The lamp structure as claimed in claim 2, wherein the power supply (30) comprises a battery holder.

4. The lamp structure as claimed in one of claims 1 to 3, wherein the case (10) is provided with two parallel protruding strips (14, 15), and the sliding piece (51) is sandwiched therebetween, the two protruding strips being in parallel to the extension (54).

5. The lamp structure as claimed in claim 4, wherein the extendable face of the sliding piece (51) in contact with the spring element (52) has a notch (55), the extending direction of the notch (55) being parallel with the protruding strips (14, 15).

6. The lamp structure as claimed in claim 5, wherein the spring element (52) is a spring.

7. The lamp structure as claimed in one of claims 1 to 6, wherein the extension (54) comprises a extension rod (540) and a press detent (542), one end of the extension rod (540) connecting to the side face of the sliding piece (51) with the conductor (53), the

press detent (542) being in the form of a circular plate, and the other end of the extension rod (540) coming in contact with the side surface of the press detent (542).

8. The lamp structure as claimed in one of claims 1 to 7, wherein the first electrical contact (42) and the second electrical contact (44) are both an electrode plate.

9. The lamp structure as claimed in one of claims 1 to 8, wherein the light emitting area of the light emitting elements (22) is covered with coloured light-transmitting materials.

10. The lamp structure as claimed in one of claims 1 to 8, wherein the light emitting area of the light emitting elements (22) is covered with light-transmitting materials with optical light-transmitting structure.

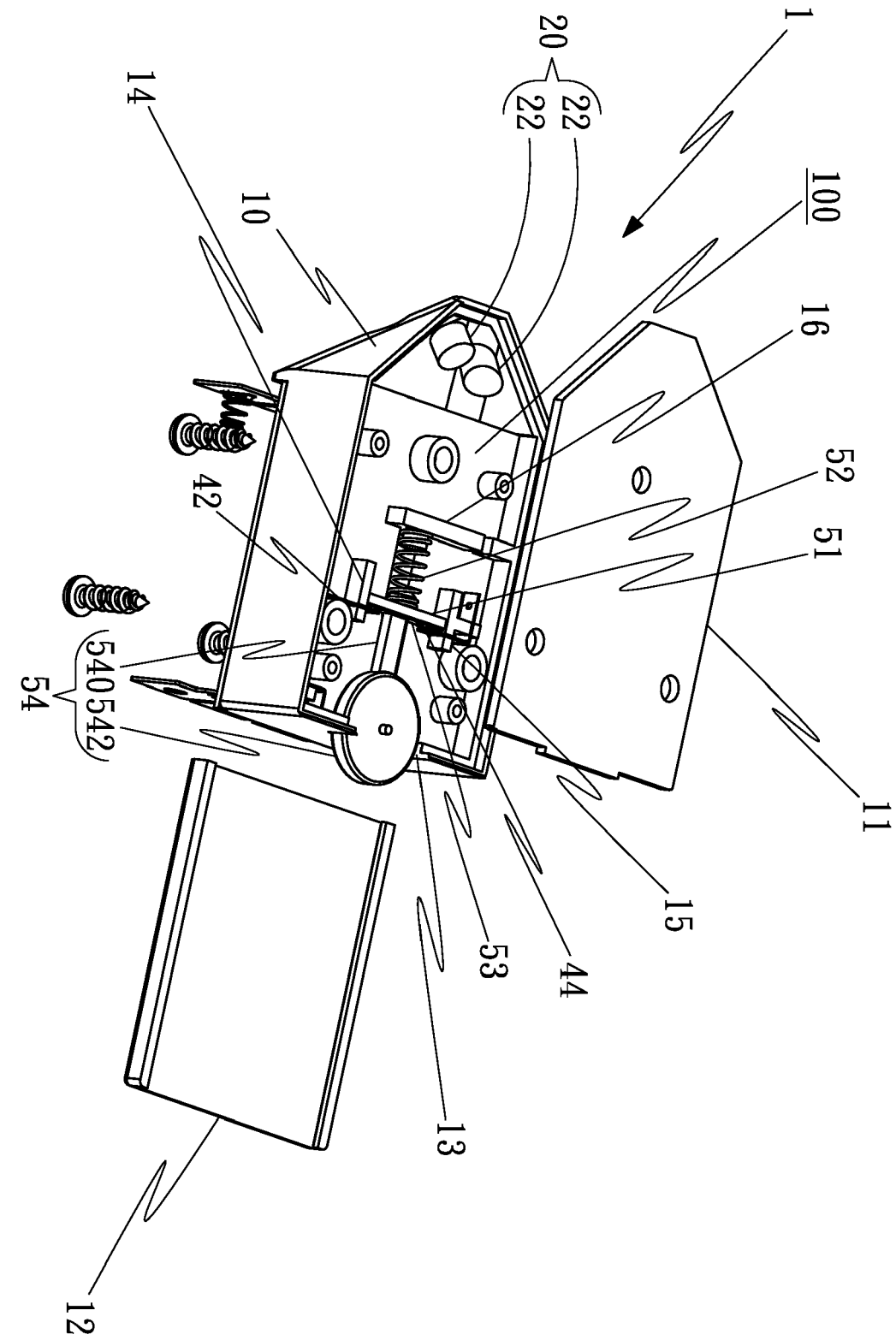

FIG. 1

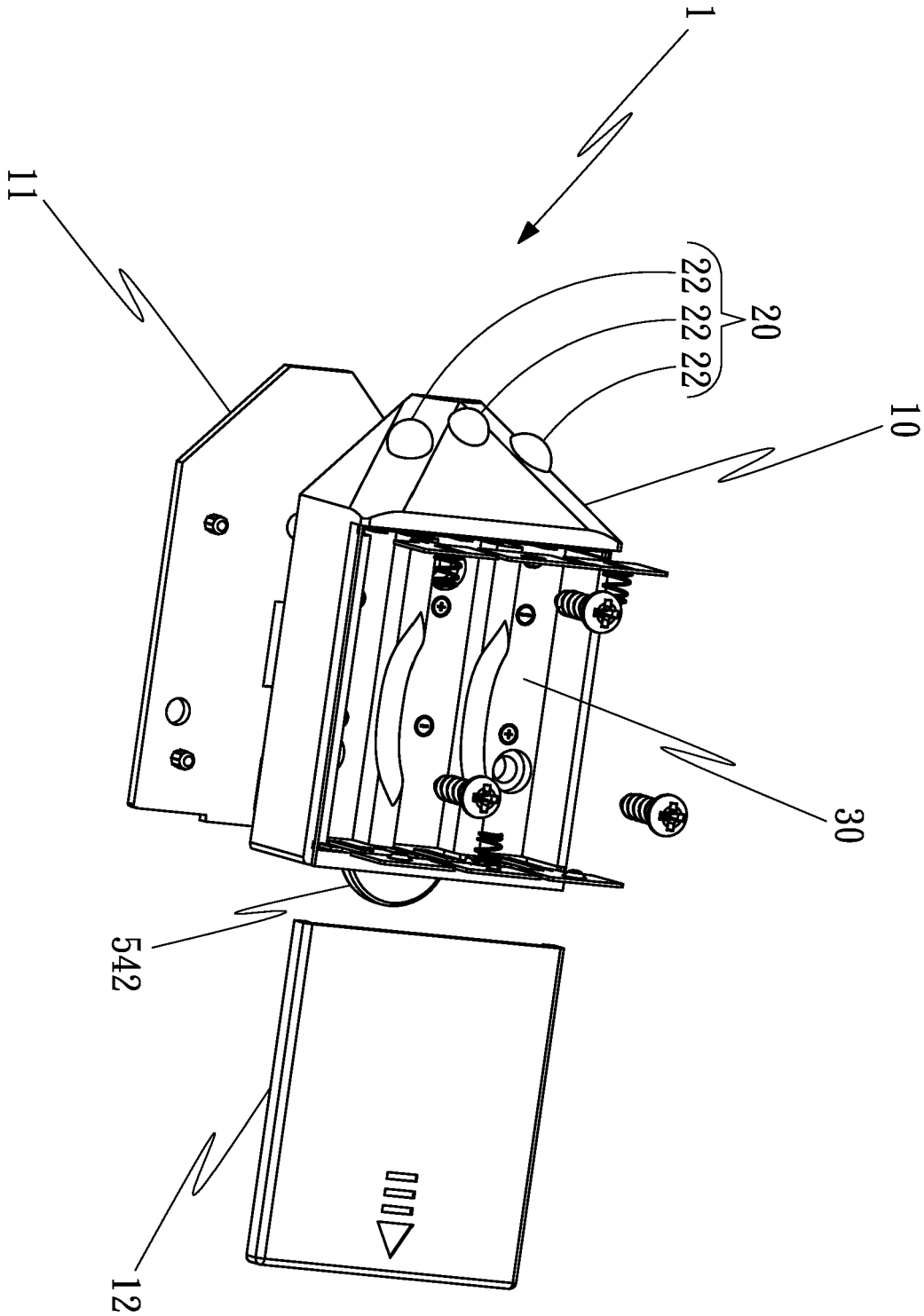

FIG. 2

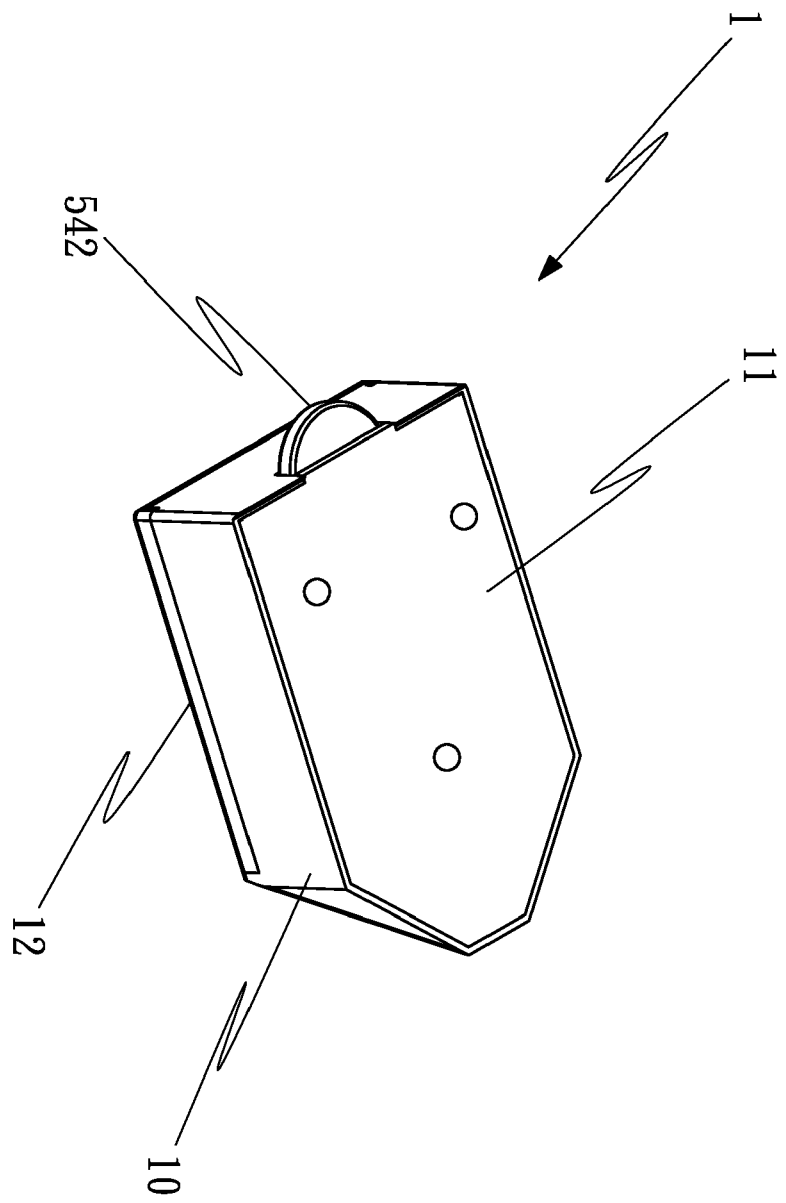

FIG. 3

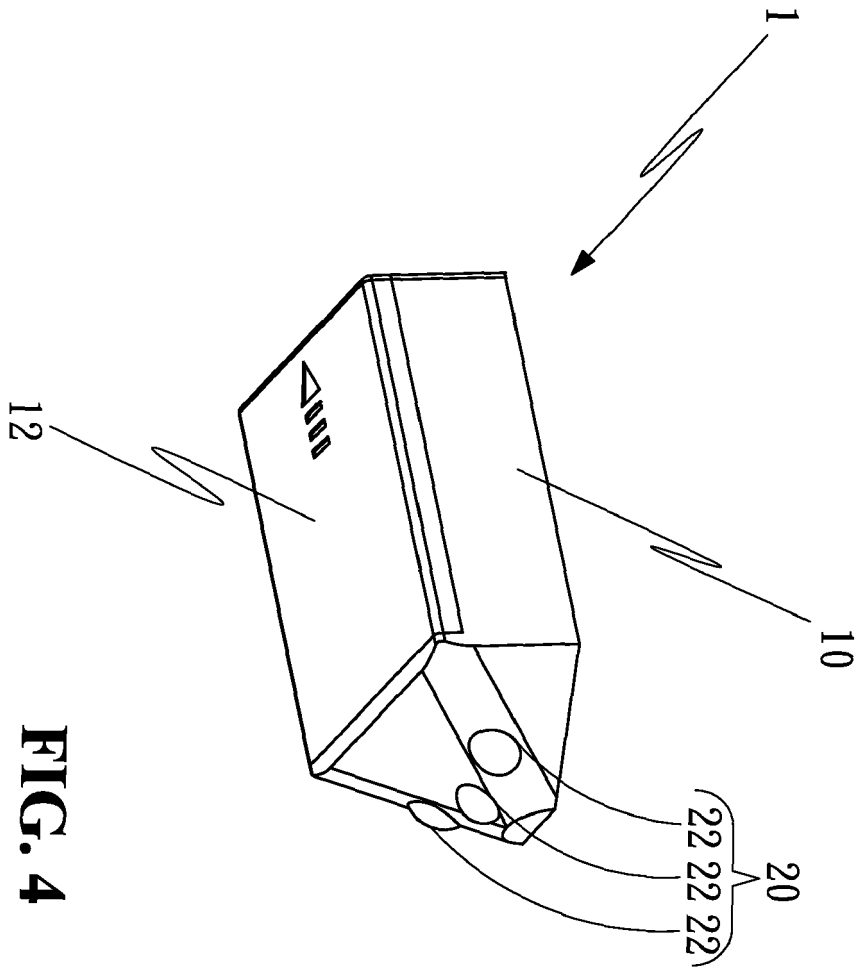

FIG. 4

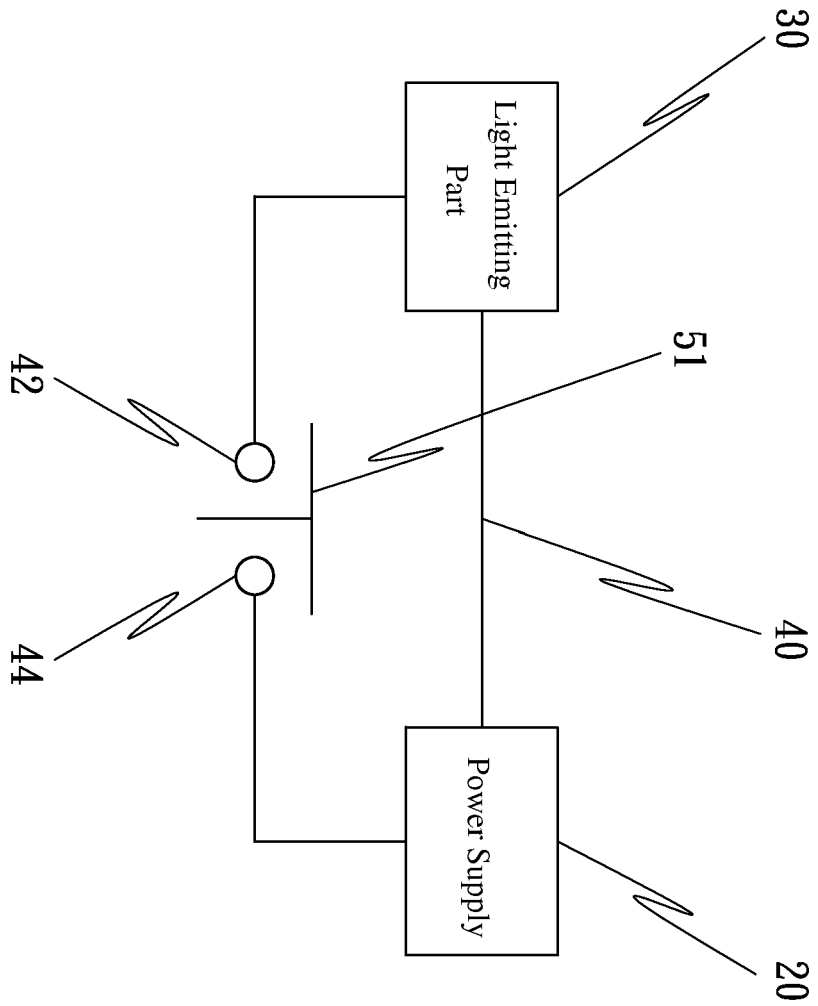

FIG. 5

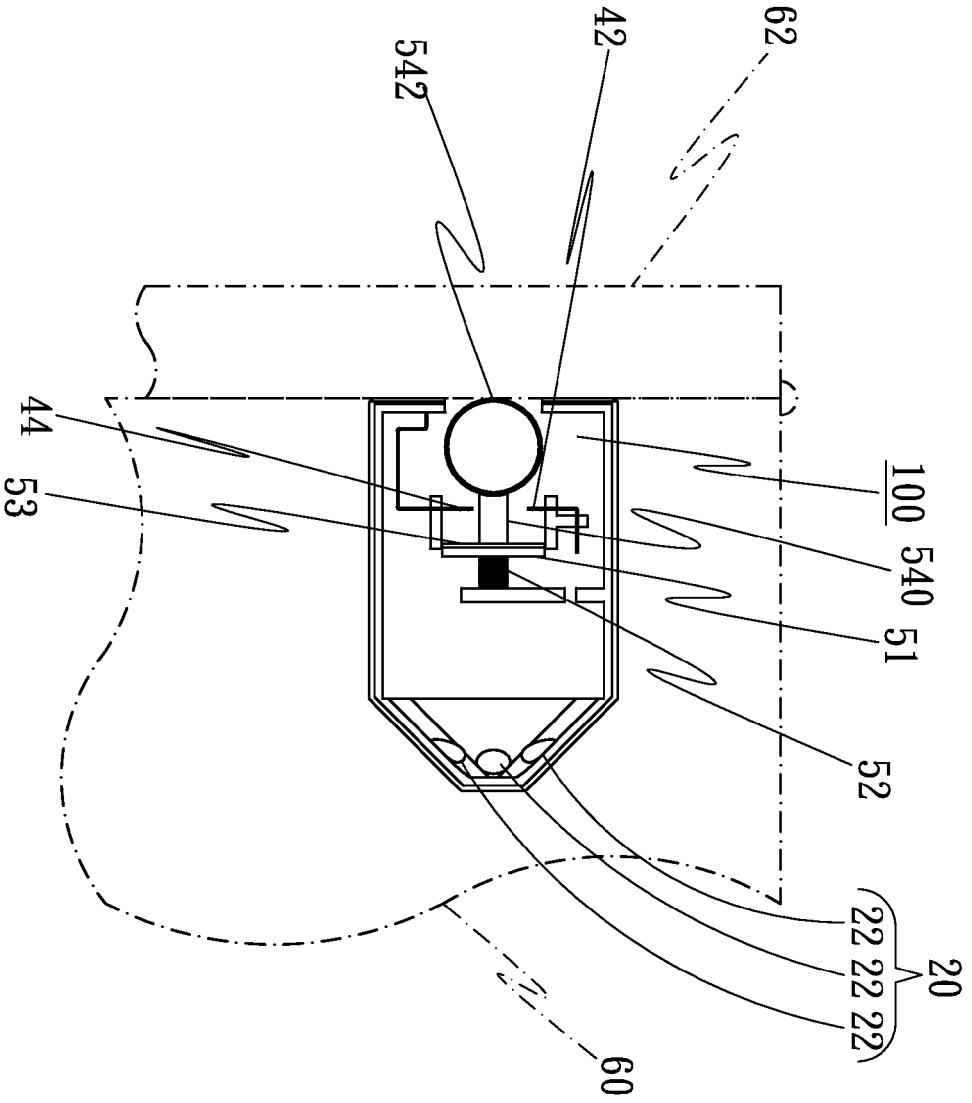

FIG. 6

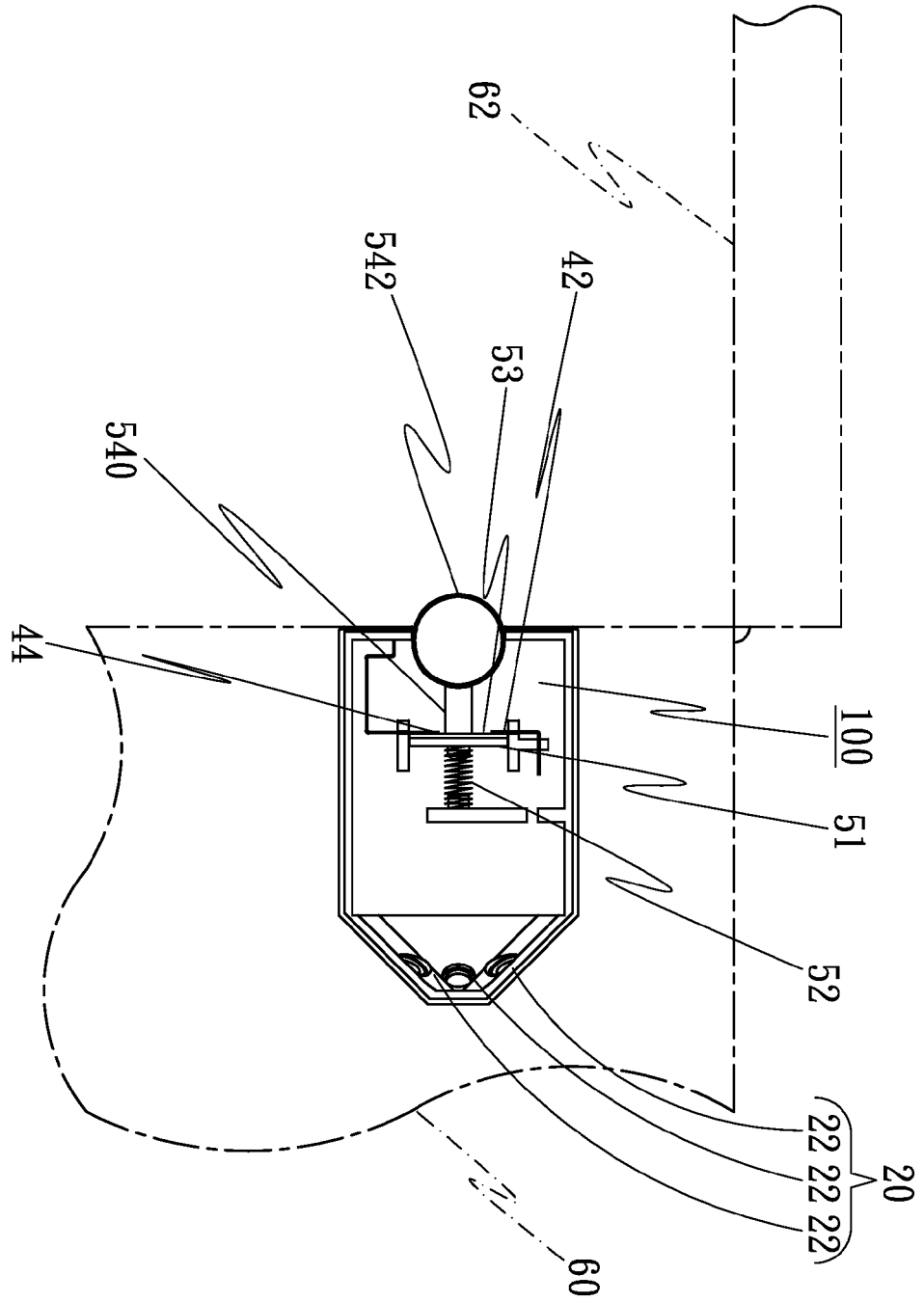

FIG. 7

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EUROPEAN SEARCH REPORT

Application Number
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	21 December 2007	Arsac England, Sally

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Application Number
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