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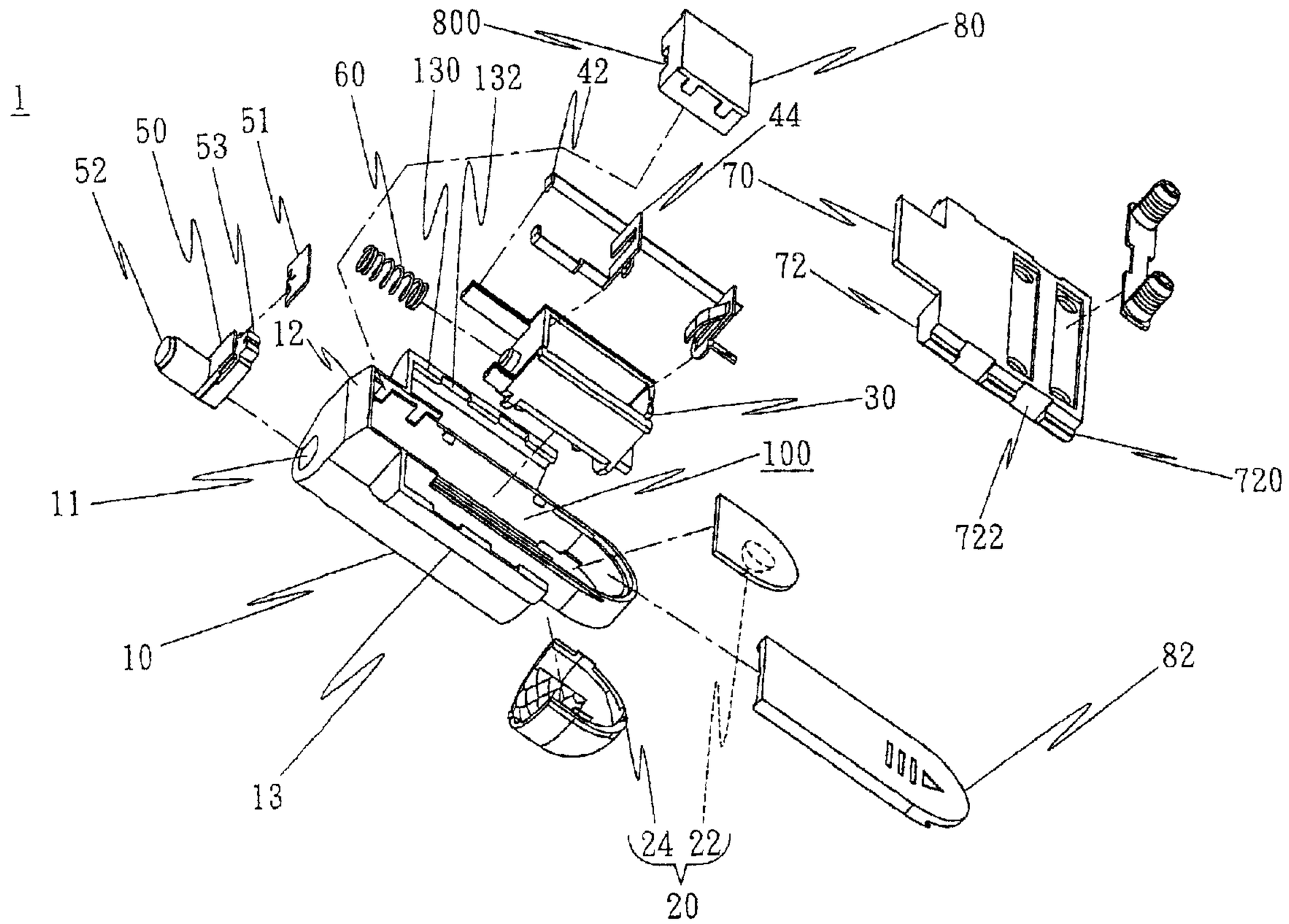

(57) Abrégé/Abstract:
The present invention relates to a lamp structure capably installed inside a cabinet for illuminating the inside of the cabinet, when the doors of the cabinet is opened, the lamp structure is automatically turned on for illumination that allows clear viewing of the positions of objects inside, and when doors of the cabinet is closed, the lamp structure is automatically shut off.

ABSTRACT

LAMP STRUCTURE

The present invention relates to a lamp structure capably installed inside a cabinet for illuminating the inside of the cabinet, when the doors of the cabinet is opened, the lamp structure is automatically turned on for illumination that allows clear viewing of the positions of objects inside, and when doors of the cabinet is closed, the lamp structure is automatically shut off.

LAMP STRUCTURE

FIELD OF THE INVENTION

The present invention relates to a lamp structure, more particularly to a lamp structure that can be turned on or off by touching a movable tongue member.

BACKGROUND

Cabinets on the market in general meet the aesthetic and pragmatic demands, but not necessarily the general demand for convenience. The illumination is apparently one of the problems. Cabinets are commonly seen furniture in homes and offices. But the majority of cabinets do not come with illumination fixture, or if they do, they tend to be much more expensive and mostly require an external plug, hence not as convenient as desired. This invention is the product of research, design and continuous modification.

SUMMARY OF THE INVENTION

The primary object of the invention is to provide a lamp structure that provides illumination when user opens the cabinet door.

Certain exemplary embodiments can provide a lamp structure, comprising: a housing being a casing structure comprising a first end, a second end, two opposite sides each having an insertion slots formed thereon for coupling with a stationary board assembled thereto, and a hollow member surrounded with the first end, the second end and the two opposite sides and provided with a first lateral opening formed on one hollow end of the hollow member and a second lateral opening formed on the other hollow end respectively, and further comprising an opening member formed on and penetrated through the first end of the housing to communicate with the first lateral opening of the hollow member; an illumination member including one or more illuminating elements and being arranged inside the second lateral opening of the hollow member of the housing; a power supply member being a power supply arranged in the hollow member of the housing; an electrical loop member being electrically connected to the illumination member and the power supply member and comprising a first electric terminal and a second electric terminal both generally being in electrically disconnected state; a tongue member being slidably disposed inside the first lateral opening of the

hollow member of the housing and comprising an extension member generally protruded outside from the opening member of the housing and a conductive piece served as an electric conductor for electrically connecting or disconnecting the first electric terminal and the second electric terminal of electrical loop member; an elastic element disposed inside the hollow member and biased between the power supply member and the tongue member; a first plate body covered to the first lateral opening of the hollow member for confining the tongue member to be moved between a first position and a second position inside the hollow member of the housing; and a second plate body other than the first plate body being a cover covered to the hollow member of the housing; whereby the illumination member shall produce light for illumination only the tongue member is confined to reach the second position inside the housing to have the conductive piece electrically connected to both the first electric terminal and the second electric terminal of electrical loop member.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an exploded view of the lamp structure according to the invention;

FIG. 2 is an assembly view of the lamp structure according to the invention;

FIG. 3 is a diagram illustrating the electric connection between elements of the lamp structure according to the invention;

FIG. 4 is a diagram depicting the first position state of the lamp structure according to the invention; and

FIG. 5 is a diagram depicting the second position state of the lamp structure according to the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIGS 1 to 5, the lamp structure (1) of the invention comprises a housing (10), an illumination member (20), a power supply member (30), an electrical loop member (40) (as shown in FIG. 3), a tongue member (50), an elastic element (60), and a stationary board (70).

In the lamp structure (1) of the invention, the housing (10) is a casing structure comprising a first end, a second end, two opposite sides each having an insertion slots (13) formed thereon and a hollow member (100) surrounded with the first end, the second end and the two opposite sides. And one hollow end of the hollow member (100)

is formed as a first lateral opening and the other end is formed as a second lateral opening. Further, On the first end of the housing (10) has an opening member (11), which is penetrated through the casing of the housing (10) and communicated with the first lateral opening of the hollow member (100) of the housing (10), and a beveled guide plane (12) formed on outer edge of the first end having the opening member (11) formed thereon for the reduction of the volume of the housing (10) and for the convenience of housing (10) installation.

In the lamp structure (1), the illumination member (20) includes one or more illuminating elements (22), e.g. a light-emitting diode (LED) or any light source, driven by DC power. The illumination member (20) can further include a transparent shade body (24) engaged to the second lateral opening of the hollow member (100) of the housing (10) for covering the illuminating elements (22).

To soften the light rays emitted from the illuminating element (22), the transparent shade body (24) may be formed as an optical structure, such as either an optical lens arrays or a marking structure with special design, to confine the effective irradiating direction of the light rays.

In the lamp structure (1), the power supply member (30) provides the power source for the lamp structure (1). More specifically in an embodiment, the power supply member (30) is assembled in the hollow member (100) of the housing (10). The power supply member (30) contains a battery holder to support a general battery (not shown in drawings) for power supply.

In addition, the power supply member (30) can also be a power source outside the housing (10). Specifically, the power supply member (30) is an external battery pack or a transformer electrically connected to the city power system. The electrical connection that guides the power supplied by the power supply member (30) to the electrical loop member (40) can supply the power needed by the illumination member (20).

In the lamp structure (1), the electrical loop member (40) which comprises a first electric terminal (42) and a second electric terminal (44) is an electrical loop electrically connecting the illumination member (20) to the power supply member (30). The first electric terminal (42) and the second electric terminal (44) are in the state of disconnection. And, the first electric terminal (42) and the second electric terminal (44) can respectively be a plate body with conductivity that is made of conductive material or a non-conductive baseboard with conductive material arranged thereon.

In the lamp structure (1), the tongue member (50) is arranged inside the first lateral opening of the hollow member (100) of the housing (10) and confined to move between a first position (as shown in FIG. 4) and a second position (as shown in FIG. 5), and disposed with a conductive piece (51) thereon. The conductive piece (51) is served as a conductor corresponding to the first electric terminal (42) and the second electric terminal (44).

The tongue member (50) further comprises an extension member (52) and a guide block (53); when the tongue member (50) is reached at the first position, the extension member (52) is retracted inside the opening member (11); when the tongue member (50) is reached at the second position, the extension member (52) protrudes outside from the opening member (11) of the housing (10).

Moreover, under the action of the recoil force of the elastic element (60), the extension member (52) is not subject to external force such that the position corresponding to the conductive piece (51) is in contact with the first electric terminal (42) and the second electric terminal (44) to charge the electrical loop member (40); when the extension member (52) is under the push of external force, the conductive piece (51) disengages the first electric terminal (42) and the second electric terminal (44) such that the electrical loop member (40) is in electrically disconnected state.

The hollow member (100) of the housing (10) is further coupled with a first plate body (80) and a second plate body (82), wherein the first plate body (80) is covered to the first lateral opening of the hollow member (100) and used to confine the tongue member (50) to be moved between the first position and the second position inside the housing (10). The second plate body (82) is covered to other parts on said end of the hollow member (100). The first plate body (80) has a guide groove (800) that can be coupled with the guide block (53) of the tongue member (50). The coupling of guide block (53) and the guide groove (800) is to confine the moving direction of the tongue member (50) such that it only moves between the first position and the second position.

The elastic element (60) is a mechanical element with recoil force, such as a spring, a spring sheet or a block made of elastic material. The elastic element (60) is disposed inside the hollow member (100) and is biased between the tongue member (50) and the power supply member (30).

In the lamp structure (1), the conductive piece (51) of the tongue member (50) can select the state between the first electric terminal (42) and the second electric terminal

(44) to be disconnected or connected; the two electric terminals are in the state of connection when the conductive piece (51) is electrically connected to them and being in the state of disconnection when the conductive piece (51) disengages from them; the first position corresponds to the disconnection state as selected by the tongue member (50), while the second position corresponds to the connection state as selected by the tongue member (50); and the position at where the extension member (52) protrudes from the housing (10) surface corresponds to any position between the first position and second position of the tongue member (50).

Referring to FIGS 1 and 2, the stationary board (70) has two opposing protruding blocks (72) each extended from the sides of the stationary board (70) respectively, and the housing (10) has two opposing insertion slots (13) mentioned above, each is suitable for matching the correspondingly protruding block (72) of the stationary board (70). And, the insertion slot (13) of the housing (10) has an inwardly extended wing member (130) on the side, and the protruding block (72) of the stationary board (70) has a flange (720) on one side that matches the wing member (130) of the housing (10).

The wing member (130) of the housing (10) is further disposed with a first trough member (132), and the protruding block (72) of the stationary board (70) is disposed with a second trough member (722) at the side of the flange (720). The part of protruding block (72) of the stationary board (70) next to the second trough member (722) can be inserted directly into the first trough member (132) of the wing member (130) of the housing (10), and the part next to the first trough member (132) of the wing member (130) of the housing (10) can also be inserted into the second trough member (722) of protruding block (72) of the stationary board (70). Such design aims to reduce the path length during assembly to cut down the time of assembly by user.

Referring further to FIG.S 4 and 5, the lamp structure (1) of the invention is installed in a cabinet (90). When the lamp structure (1) tries to be installed inside a cabinet (90), the stationary board (70) of the lamp structure (1) is in advance mounted securely inside the cabinet (90) by screw or latch, after then, and the housing (10) of the lamp structure (1) is assembled to the stationary board (70) with its opening member (11) facing the exterior of the cabinet (90) to have the illumination member (20) of the housing (10) located in the interior of the cabinet (90).

When a door (92) of the cabinet (90) is closed, the door (92) would push the extension member (52) of the tongue member (50) and cause the tongue member (50)

move inwardly inside the housing (10) to drive the guide block (53) to move in the guide groove (800) and reach the predetermined first position. As such, the elastic element (60) is also squeezed and compressed so that the conductive piece (51) on the tongue member (50) would disengage the first electric terminal (42) and the second electric terminal (44) and results in electric disconnection. Therefore, the illumination member (20) does not produce light rays.

Conversely, if the door (92) of the cabinet (90) is opened so that the door (92) cannot exert force on the extension member (52), the elastic member (60) will release the recoil force to push the tongue member (50) forward to the predetermined second position to protrude the extension member (52) out of the opening member (11). As such, the conductive piece (51) on the tongue member (50) is in contact with the first electric terminal (42) and the second electric terminal (44). At this time, the circuit is charged and the illumination member (20) can produce light to illuminate the interior of the cabinet (90).

As described above, the invention provides a lamp structure that allows the user to light up the interior of a cabinet. And, the beveled guide plane (12) of the housing (10) is effective to prevent the mechanical interference between the cabinet door (92) and the housing (10) of the lamp structure (1) when mounting the housing (10) inside the cabinet (90), hence rendering the installation of housing (10) more convenient.

The present invention has been disclosed in detail. However the disclosed embodiment should not be construed as a limitation on the actual applicable scope of the invention, and as such, all modifications and alterations without departing from the spirits of the invention and appended claims shall remain within the protected scope and claims of the invention.

CLAIMS

1. A lamp structure, comprising:

a housing being a casing structure comprising a first end, a second end, two opposite sides each having an insertion slots formed thereon for coupling with a stationary board assembled thereto, and a hollow member surrounded with the first end, the second end and the two opposite sides and provided with a first lateral opening formed on one hollow end of the hollow member and a second lateral opening formed on the other hollow end respectively, and further comprising an opening member formed on and penetrated through the first end of the housing to communicate with the first lateral opening of the hollow member;

an illumination member including one or more illuminating elements and being arranged inside the second lateral opening of the hollow member of the housing;

a power supply member being a power supply arranged in the hollow member of the housing;

an electrical loop member being electrically connected to the illumination member and the power supply member and comprising a first electric terminal and a second electric terminal both generally being in electrically disconnected state;

a tongue member being slidably disposed inside the first lateral opening of the hollow member of the housing and comprising an extension member generally protruded outside from the opening member of the housing and a conductive piece served as an electric conductor for electrically connecting or disconnecting the first electric terminal and the second electric terminal of electrical loop member;

an elastic element disposed inside the hollow member and biased between the power supply member and the tongue member;

a first plate body covered to the first lateral opening of the hollow member for confining the tongue member to be moved between a first position and a second position inside the hollow member of the housing; and

a second plate body other than the first plate body being a cover covered to the hollow member of the housing;

whereby the illumination member shall produce light for illumination only the tongue member is confined to reach the second position inside the housing to have the conductive piece electrically connected to both the first electric terminal and the second electric terminal of electrical loop member.

2. The lamp structure as claimed in claim 1, wherein the tongue member has a guide block and the first plate body has a guide groove for coupling with the guide block of the tongue member.

3. The lamp structure as claimed in claim 1, wherein the stationary board has two opposing protruding blocks each extended from the sides of the stationary board for matching the corresponding insertion slots formed on the side of the housing.

4. The lamp structure as claimed in claim 3, wherein the insertion slot of the housing has an inwardly extended wing member, and the protruding block of the stationary board has a flange for matching the wing member of the housing.

5. The lamp structure as claimed in claim 4, wherein the wing member is disposed with a first trough member, and the protruding block is disposed with a second trough member on the same side.

6. The lamp structure as claimed in claim 1, wherein the power supply member includes a battery holder.

7. The lamp structure as claimed in claim 1, wherein the elastic element is a spring.

8. The lamp structure as claimed in claim 1, wherein the illumination member further comprises a transparent shade body engaged to the second lateral opening of the hollow member of the housing for covering the illuminating elements.

9. The lamp structure as claimed in claim 1, wherein the first end of the housing further has a beveled guide plane formed thereon.

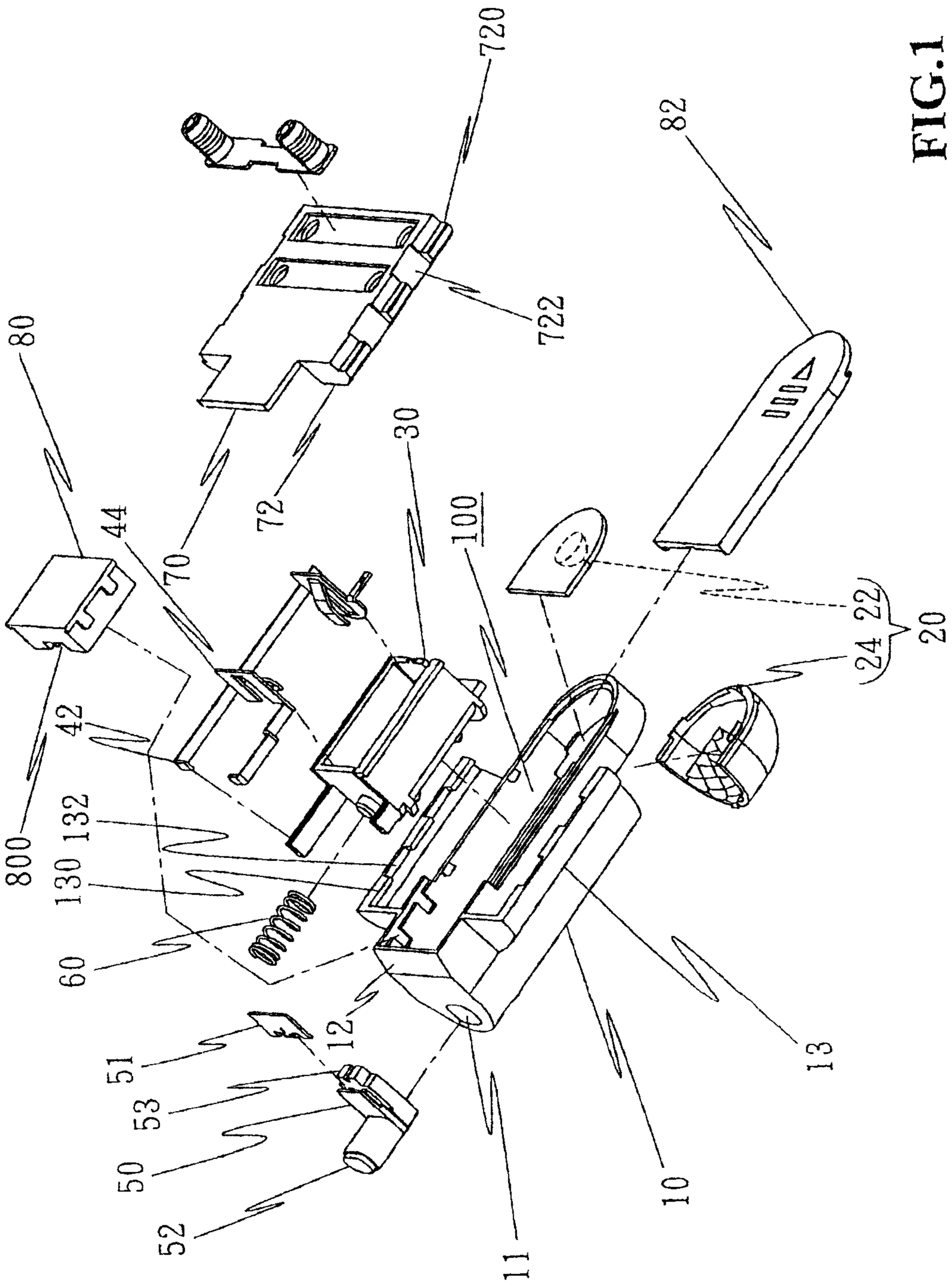
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FIG. 1

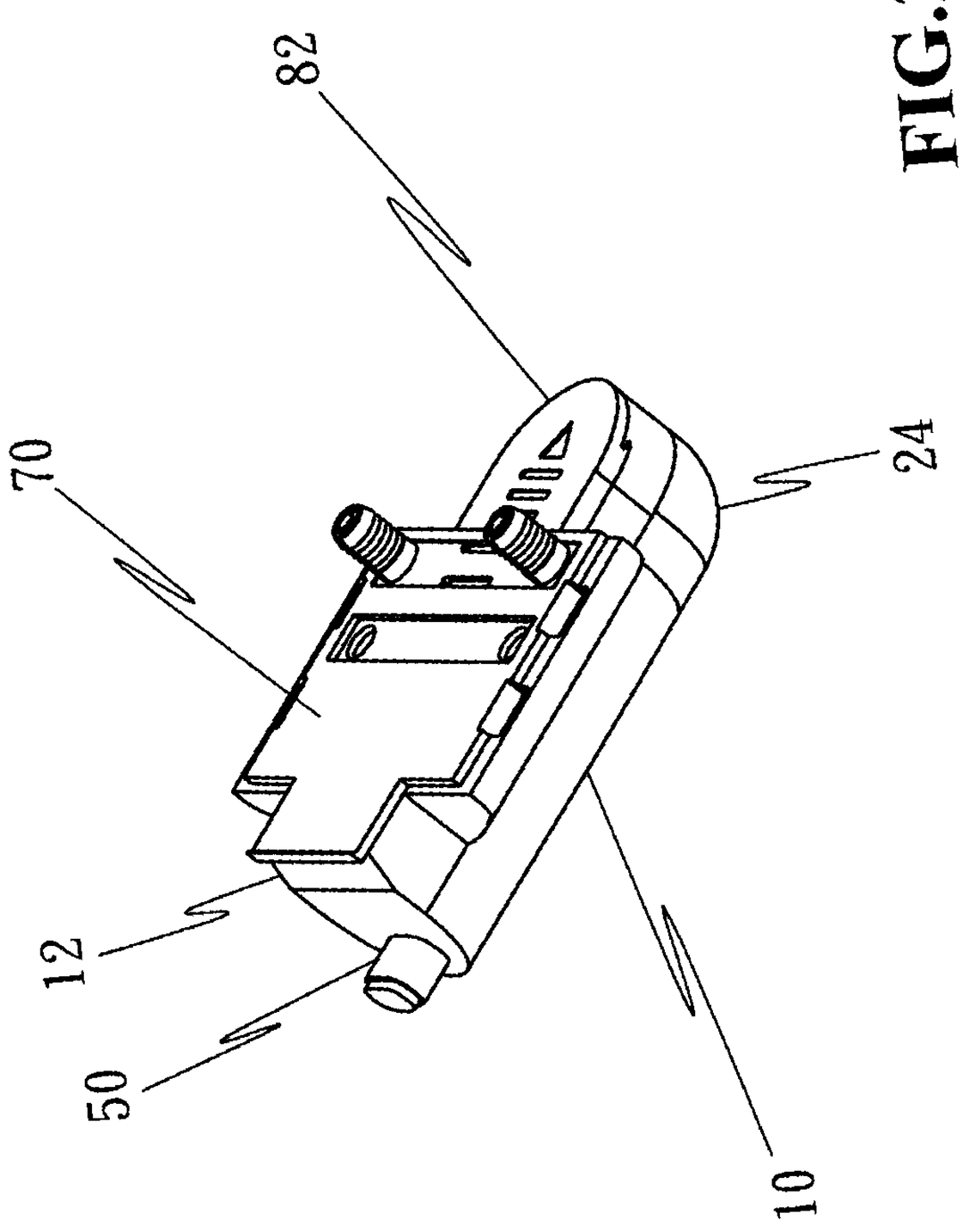


FIG.2

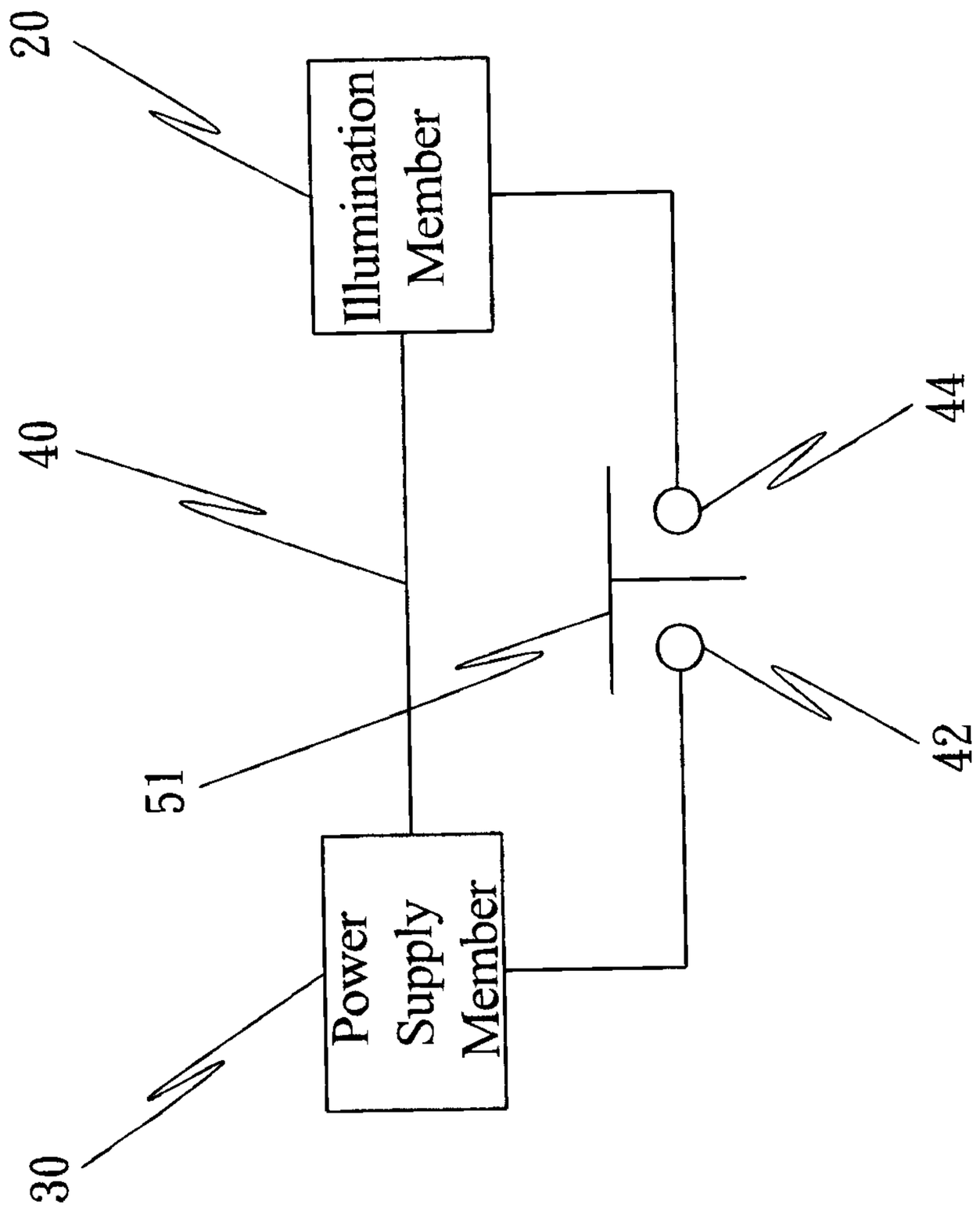


FIG.3

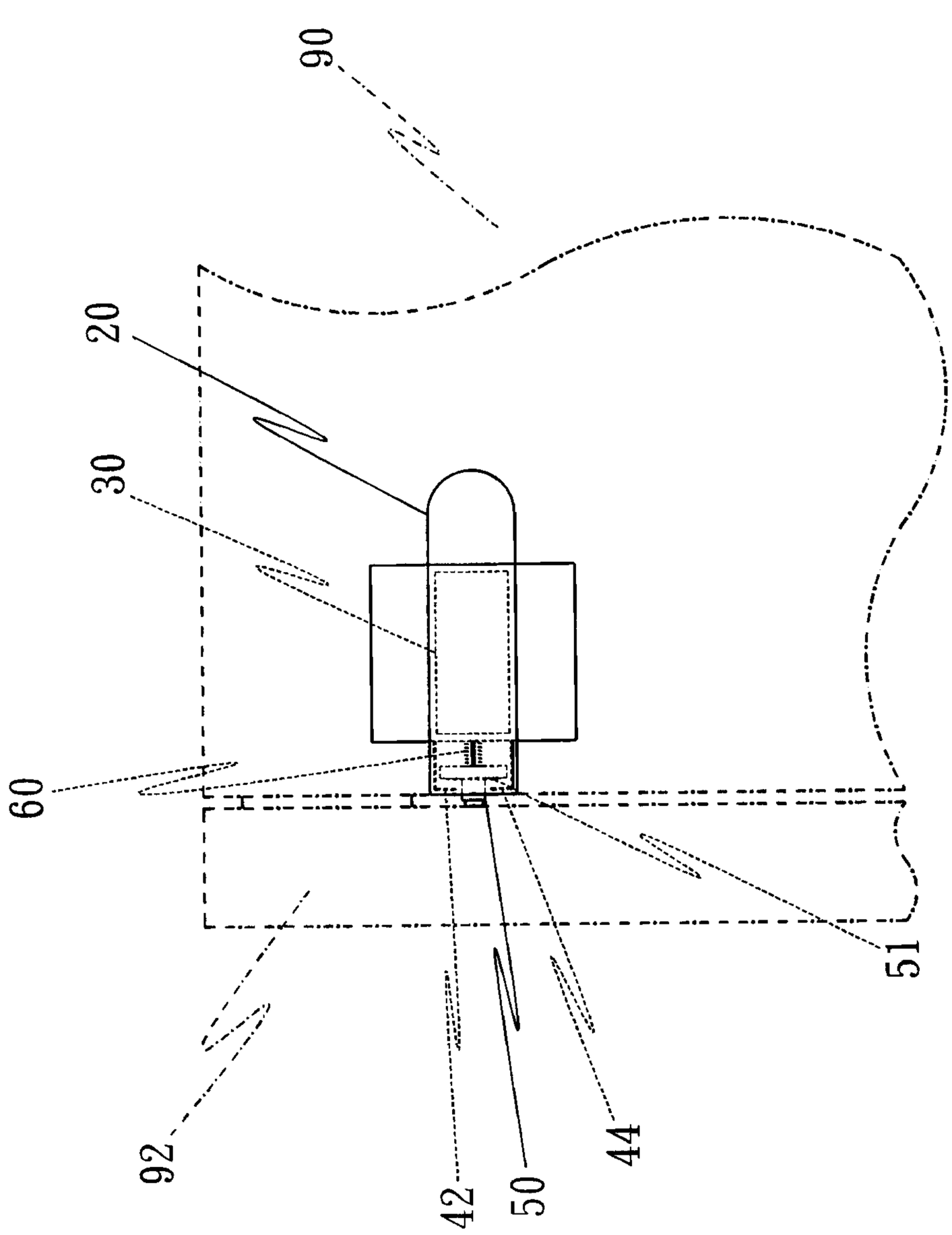


FIG.4

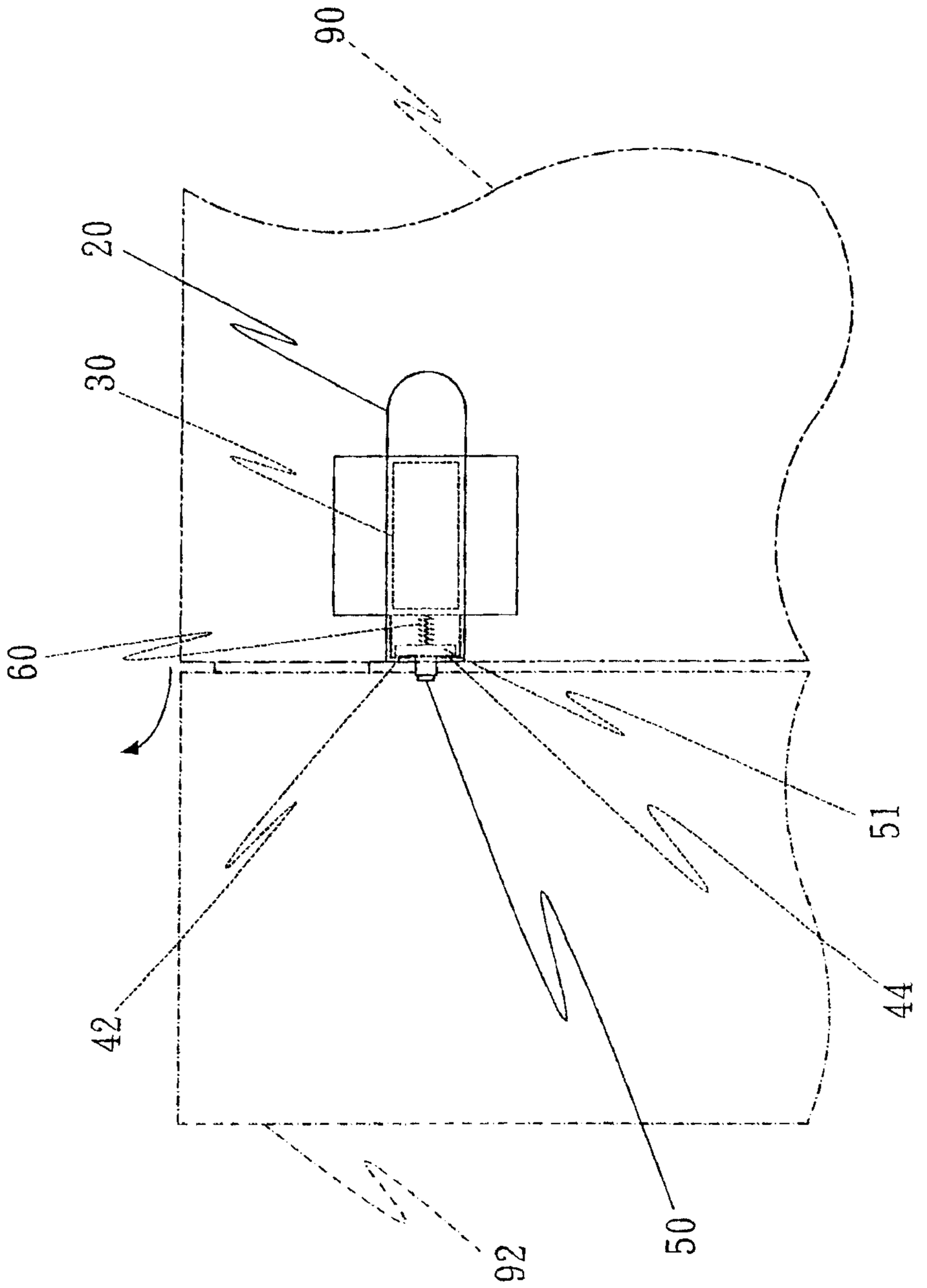
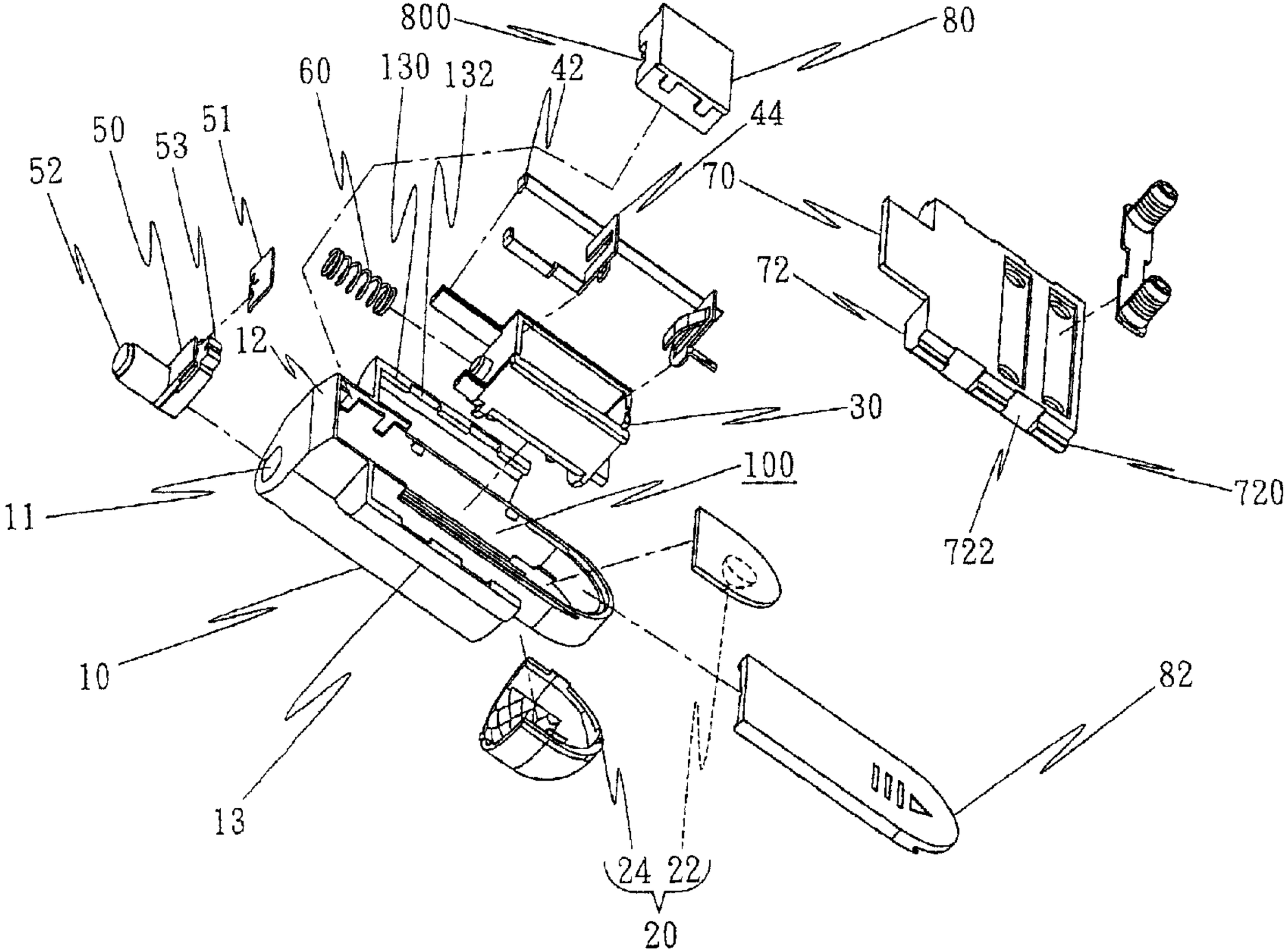


FIG.5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