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(54) Multi-functional belt buckle

(57) The belt buckle has an indentation on the front surface accommodating a removable cap element held by magnetic attraction. The indentation has a stepwise bottom surface for easy removal of the cap element. In an alternative embodiment, the indentation accommodates a removable carrier member capable of integrating various functions such as electronic clock or remote control. The carrier member in turn has an indentation for removably holding a cap element by magnetic attraction. The carrier member's indentation has a stepwise bottom surface for easy removal of the cap element.

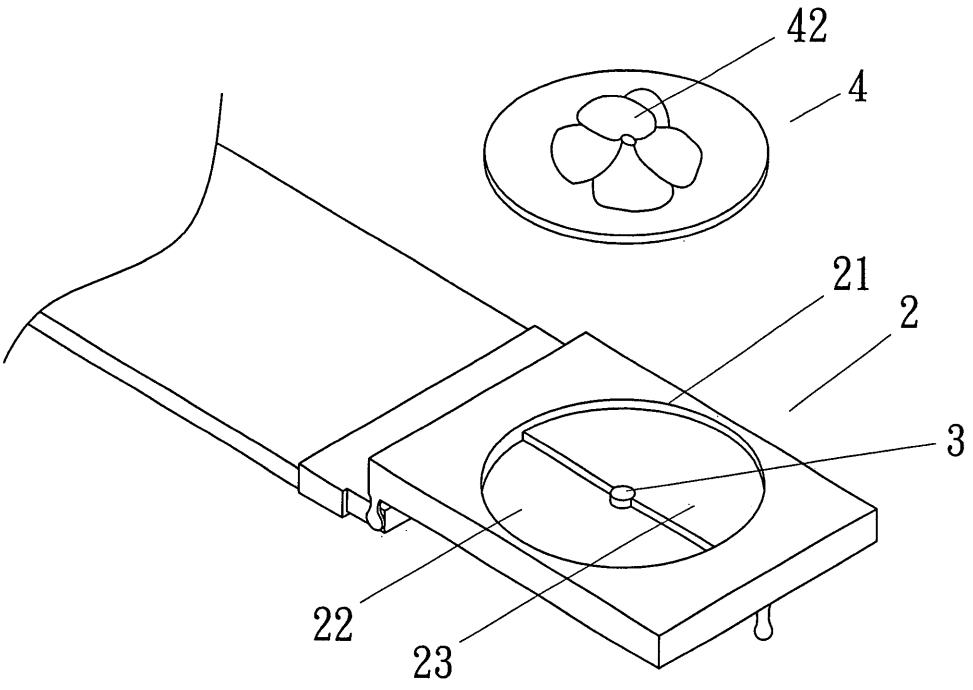

FIG . 3

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Description

(a) Technical Field of the Invention

[0001] The present invention generally relates to belt buckles, and more particularly to a belt buckle having a removable cap element.

(b) Description of the Prior Art

[0002] As shown in FIG 1, a conventional belt 1 has a belt buckle 12 fixedly attached to an end of a belt member 11. The other end of the belt member 11 is then locked to the belt buckle 12 for fastening the belt 1 around the waist. The basic structure of the belt just described has not been changed for a very long time. Variations are usually centered around the material used for the belt member 11, how the belt buckle 12 locks the tip of the belt member 11, or the ornamental design of the belt buckle 12.

SUMMARY OF THE INVENTION

[0003] A major objective of the present invention is to provide a novel belt buckle which has an indentation on the front surface accommodating a removable cap element held by magnetic attraction. The indentation has a stepwise bottom surface for easy removal of the cap element.

[0004] Another major objective of the present invention is to provide a novel belt buckle which has an indentation on the front surface accommodating a removable carrier member capable of integrating various function such as electronic clock and remote control. The carrier member in turn has an indentation for removably holding a cap element by magnetic attraction. The carrier member's indentation has a stepwise bottom surface for easy removal of the cap element.

[0005] The foregoing objectives and summary provide only a brief introduction to the present invention. To fully appreciate these and other objects of the present invention as well as the invention itself, all of which will become apparent to those skilled in the art, the following detailed description of the invention and the claims should be read in conjunction with the accompanying drawings. Throughout the specification and drawings identical reference numerals refer to identical or similar parts.

[0006] Many other advantages and features of the present invention will become manifest to those versed in the art upon making reference to the detailed description and the accompanying sheets of drawings in which a preferred structural embodiment incorporating the principles of the present invention is shown by way of illustrative example.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007]

FIG 1 is a perspective diagram showing a conventional belt buckle.

FIG 2 is a perspective diagram showing a belt buckle according to a first embodiment of the present invention.

FIG 3 is a perspective exploded diagram showing the various components of the belt buckle of FIG 2.

FIG 4 is a sectional diagram showing the belt buckle of FIG 2.

FIG 5 is a sectional diagram showing how the cap element of the belt buckle of FIG 2 is removed.

FIG 6 is a perspective exploded diagram showing the various components of a belt buckle according to a second embodiment of the present invention.

FIG 7 is a sectional diagram showing the belt buckle of FIG. 6.

FIG 8 is a sectional diagram showing how the cap element of the belt buckle of FIG 6 is removed.

FIG 9 is a perspective exploded diagram showing the various components of a belt buckle according to a third embodiment of the present invention.

FIG 10 is a sectional diagram showing the belt buckle of FIG 9.

FIG 11 is a perspective diagram showing a belt buckle according to a fourth embodiment of the present invention.

FIG 12 is a perspective exploded diagram showing the various components of the belt buckle of FIG 11.

FIG 13 is a sectional diagram showing the belt buckle of FIG 11.

FIG 14 is a perspective diagram showing an electronic clock is provided in the belt buckle of FIG. 11.

FIG 15 is a perspective diagram showing a remote control is provided in the belt buckle of FIG 11.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0008] The following descriptions are exemplary embodiments only, and are not intended to limit the scope, applicability or configuration of the invention in any way. Rather, the following description provides a convenient illustration for implementing exemplary embodiments of the invention. Various changes to the described embodiments may be made in the function and arrangement of the elements described without departing from the scope of the invention as set forth in the appended claims.

[0009] As shown in FIGS. 2, 3, and 4, a belt buckle 2 according to an embodiment of the present invention has an indentation 21 on the front surface of the body of the belt buckle 2. The bottom surface of the indentation 21 is divided into two parts of substantially equal sizes, a first bottom 22 having a greater depth and a second bottom 23 having a smaller depth. A magnet 3 is fixedly positioned in the center of the indentation 21 at where the first and second bottoms 22 and 23 interface with each other.

[0010] The indentation 21 allows the accommodation

of a cap element 4. Another magnet 41 is fixedly embedded on the bottom surface of the cap element 4. The magnet 41 has a polarity opposite to that of the magnet 3 and is positioned such that, when the cap element 4 is placed inside the indentation 21, the magnets 3 and 41 are next to each other. The magnetic attraction between the magnets 3 and 41 therefore removably holds the cap element 4 inside the indentation 21. The front surface of the cap element 4 can have an ornamental pattern 42 such as a company, club, or team logo or even a picture for enhanced appearance.

[0011] As shown in FIGS. 4 and 5, when the cap element 4 is placed inside the indentation 21, a gap is reserved between the bottom surface of the cap element 4 and the first bottom 22. As such, by pressing the part of the cap element 4 above the gap, the other part of the cap element 4 will be raised out of the indentation 21. The cap element 4 therefore can be easily removed from the indentation 21. In the present embodiment, the cap element 4 is very much like a coin and therefore can be used in various occasions as a substitue. For example, on the golf course, it can be used by a golfer to mark the position of the golf ball. For another example, in the supermarket, it can be used as a substitute for a coin to retrieve a chained shopping cart.

[0012] As shown in FIGS. 6 and 7, in another embodiment of the present invention, the aperture of the indentation 21 is slightly larger than the cap element 4. The bottom surface of the indentation 21 again contains a deeper first bottom 22 and a shallower second bottom 23. In addition, the bottom surface of the indentation 21 further contains a narrow third bottom 24 between the first bottom 22 and the circumference of the indentation 21. The third bottom 24 is as high as the second bottom 23. The magnet 3 is configured slightly close to the third bottom 23. As such, when the cap element 4 is placed inside the indentation 21, the magnetic attraction would automatically draw the cap element 4 to rest on the second and third bottoms 23 and 24. In this way, the cap element 4 will not be accidentally removed from the indentation 21 as its edge is supported by the third bottom 24. To remove the cap element 4 in the present embodiment, the user slides the cap element 4 away from the third bottom 24 so that a part of the cap element 4 is entirely above the first bottom 22. Then, by pressing the part of the cap element 4 above the first bottom 22, as shown in FIG 8, the other part of the cap element 4 is raised out of the indentation 21 for easy removal of the cap element 4.

[0013] In another embodiment of the present invention as shown in FIGS. 9 and 10, the indentation 21 has a flat bottom surface, instead of a stepwise bottom surface as in the previous embodiments. A rod 28 having an embedded magnet (not shown) is provided in the center of the indentation 21. As such, the cap element 4 can be held on top of the rod 28. A user can press any part of the cap element 4 other than the center to raise an opposite part of the cap element 4 for easy removal.

[0014] In yet another embodiment of the present invention as shown in FIGS. 11 and 12, the belt buckle 2 has an indentation 25 on the front surface of the body. The indentation 25 is extended to two opposing sides of the belt buckle 2 via two aligned troughs 26, respectively. On the flat bottom surface of the indentation 25, at least a magnet 27 is provided so as to attract and hold a carrier member 5 inside the indentation 25. The carrier member 5 can also be held inside the indentation 25 by other means such as clamping in alternative embodiments. The carrier member 5 has an indentation 51 on the front surface. The bottom surface of the indentation 51 is, like the previous embodiments, divided into two parts of substantially equal sizes, a first bottom 52 having a greater depth and a second bottom 53 having a smaller depth. A magnet 6 is fixedly positioned in the center of the indentation 51 at where the first and second bottoms 52 and 53 interface with each other. The indentation 51 allows the accommodation of a cap element 7. Another magnet 71 is fixedly embedded on the bottom surface of the cap element 7. The magnet 71 has a polarity opposite to that of the magnet 6 and is positioned such that, as shown in FIG 13, when the cap element 7 is placed inside the indentation 51, the magnets 6 and 71 are next to each other. The magnetic attraction between the magnets 6 and 71 therefore removably holds the cap element 7 inside the indentation 51. The front surface of the cap element 7 can have an ornamental pattern 72.

[0015] The removal of the cap element 7 from the carrier member 5 can be conducted in the same way described earlier. To remove the carrier member 5 out of the indentation 25, a user could use the finger to reach the rim of the carrier member 5 through the trough 26 and lift the carrier member 5 out of the indentation 25.

[0016] The carrier member 5 itself can have other integrated functions. For example, the carrier member 5 can contain an electronic clock 53 with the readings shown on the back surface. As shown in FIG 14, when the cap element 7 is removed, the carrier member 5 can be flipped with its back surface facing outwards. A user therefore can enjoy the various timing functions of the electronic clock 54. For another example, as shown in FIG 15, a remote control 55 (e.g., for the garage door) is integrated to the carrier member 5 with its control buttons on the back surface so that the user will never forget to bring remote control or where the remote control is placed. These are only two examples and various other utility functions can be integrated to the carrier member 5..

[0017] It will be understood that each of the elements described above, or two or more together may also find a useful application in other types of methods differing from the type described above.

[0018] While certain novel features of this invention have been shown and described and are pointed out in the annexed claim, it is not intended to be limited to the details above, since it will be understood that various omissions, modifications, substitutions and changes in

the forms and details of the device illustrated and in its operation can be made by those skilled in the art without departing in any way from the spirit of the present invention.

Claims

1. A multi-functional belt buckle comprising an indentation on the front surface and a cap element removably embedded in said indentation; wherein

   the bottom surface of said indentation comprises a first bottom, and a second bottom having a smaller depth than that of said first bottom; and a first magnet is provided at where said first and second bottoms interface with each other for attracting said cap element.

2. The belt buckle according to claim 1, wherein said cap element has an ornamental pattern on the front surface of said cap element.

3. The belt buckle according to claim 1, wherein said cap element has a second magnet on the bottom surface of said cap element at a position corresponding to said first magnet when said cap element is embedded in said indentation; and the polarity of said second magnet is opposite to that of said first magnet.

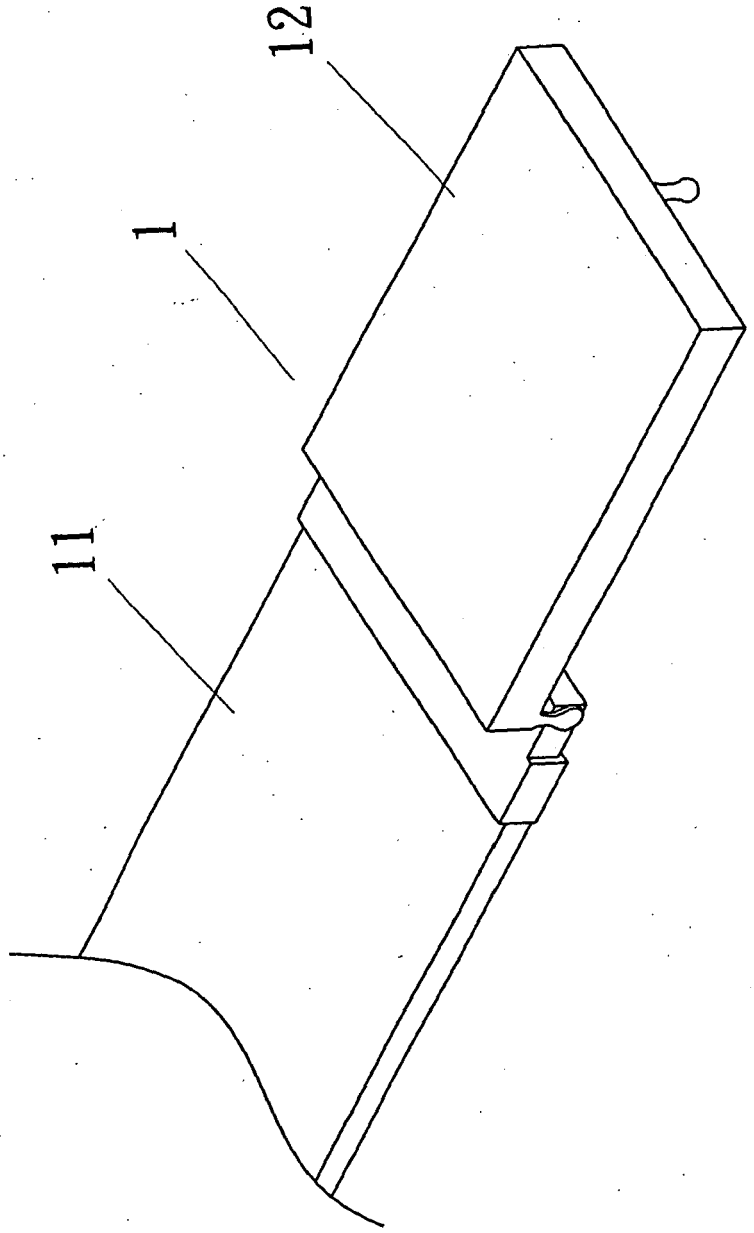
4. The belt buckle according to claim 1, wherein the aperture of said indentation is slightly larger than said cap element; the bottom surface of said indentation further comprises a narrow third bottom having the same depth as that of said second bottom between said first bottom and the circumference of said indentation; and said first magnet is positioned slightly towards said third bottom so that said cap element, when embedded into said indentation, is automatically drawn to rest on said second and third bottoms.

5. A multi-functional belt buckle comprising:

   a first indentation on the front surface of said belt buckle;
   a carrier member removably embedded in said first indentation, said carrier member having a second indentation on the front surface of said carrier member;
   a cap element removably embedded in said second indentation; wherein
   the bottom surface of said second indentation comprises a first bottom, and a second bottom having a smaller depth than that of said first bottom; and
   a first magnet is provided at where said first and second bottoms interface with each other for attracting said cap element.

6. The belt buckle according to claim 5, wherein said carrier member has an integrated electronic clock.

7. The belt buckle according to claim 5, wherein said carrier member has a integrated remote control.



PRIOR ART

FIG. 1

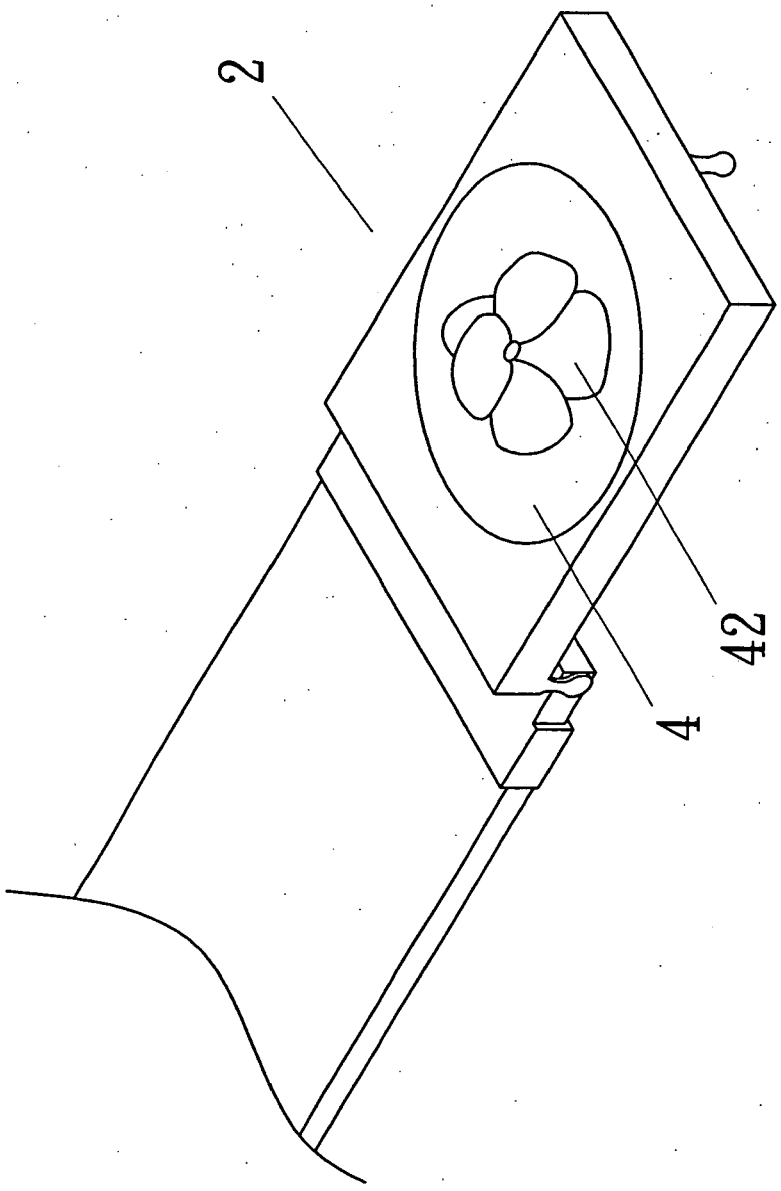


FIG. 2

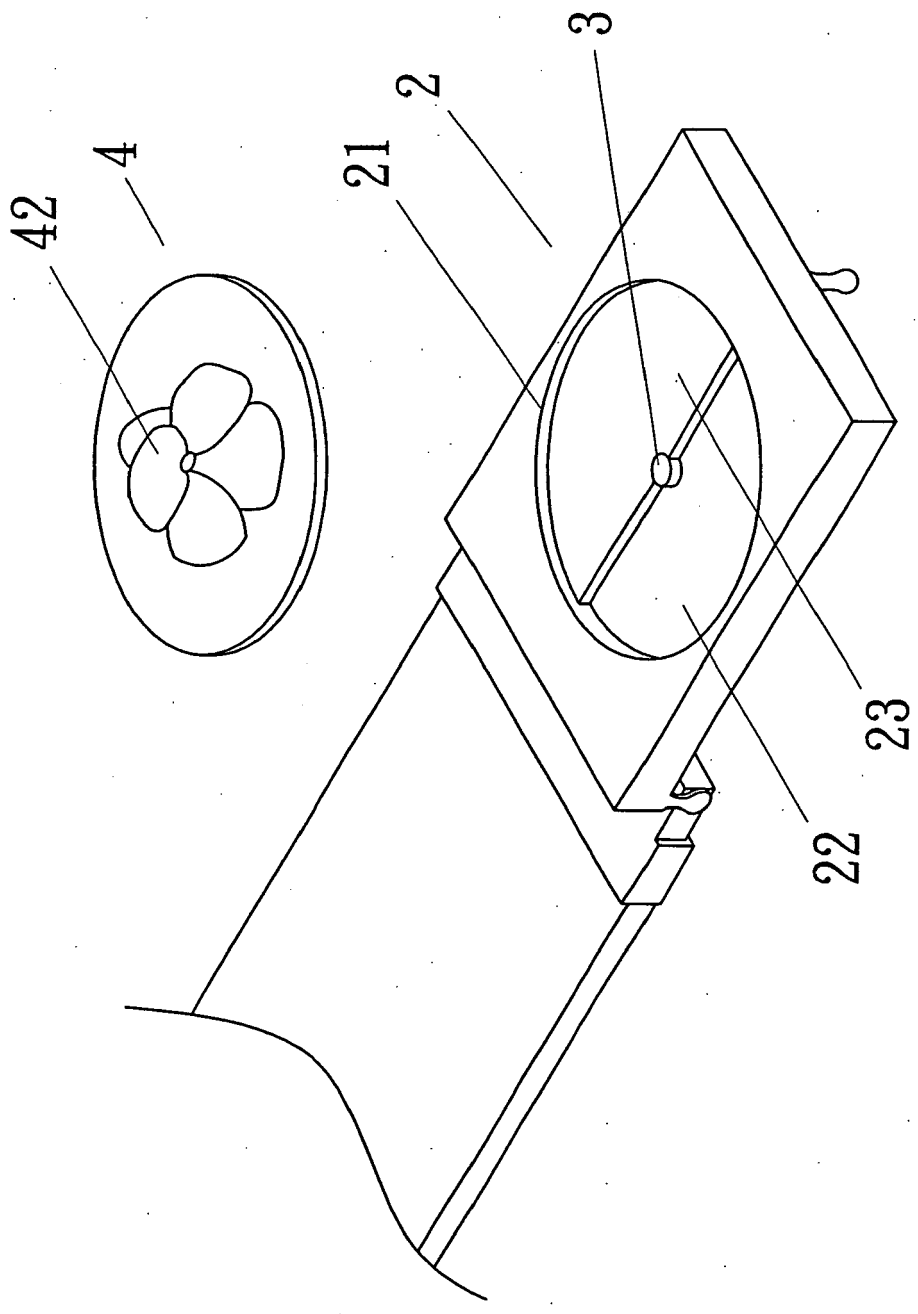


FIG. 3

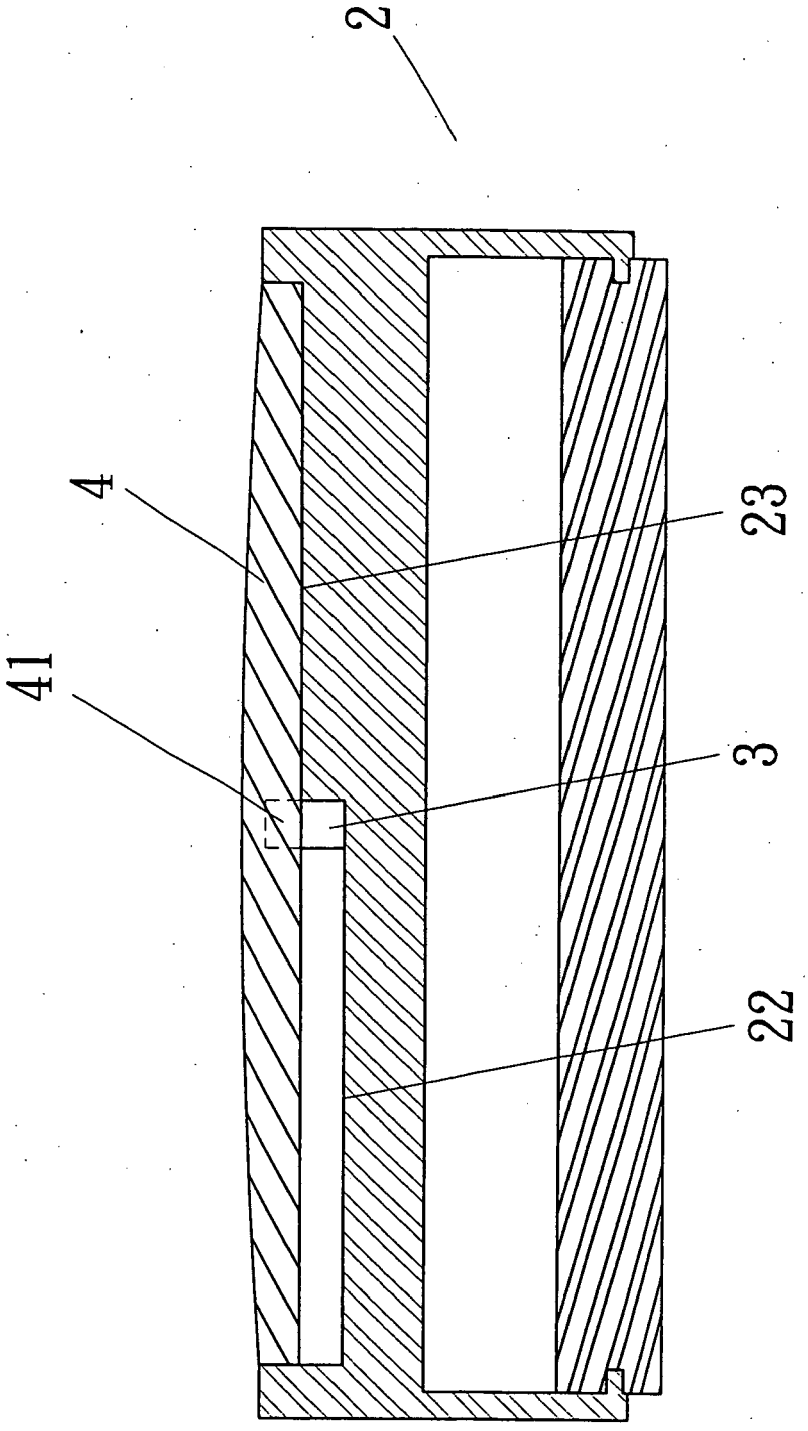


FIG. 4

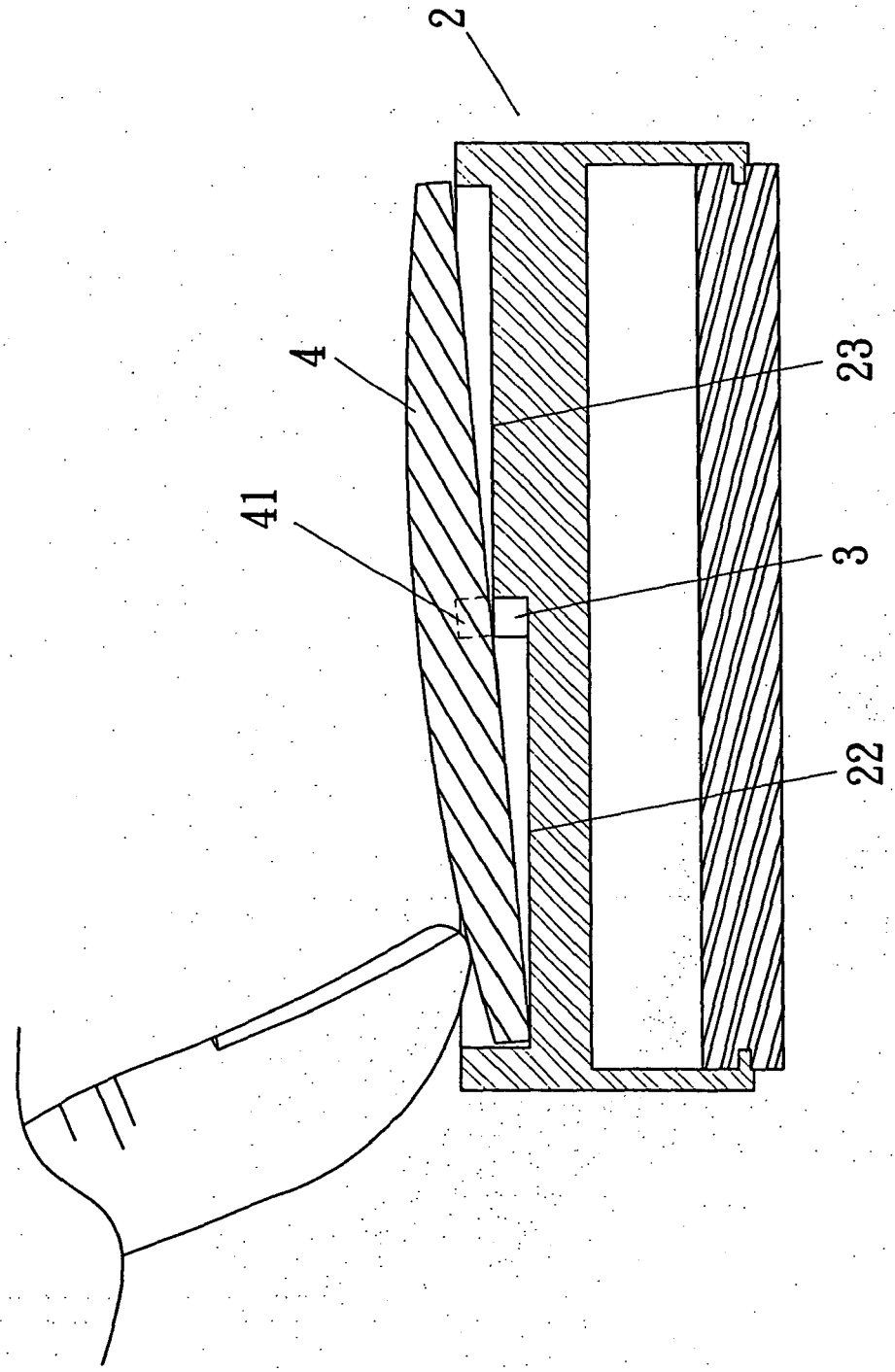


FIG. 5

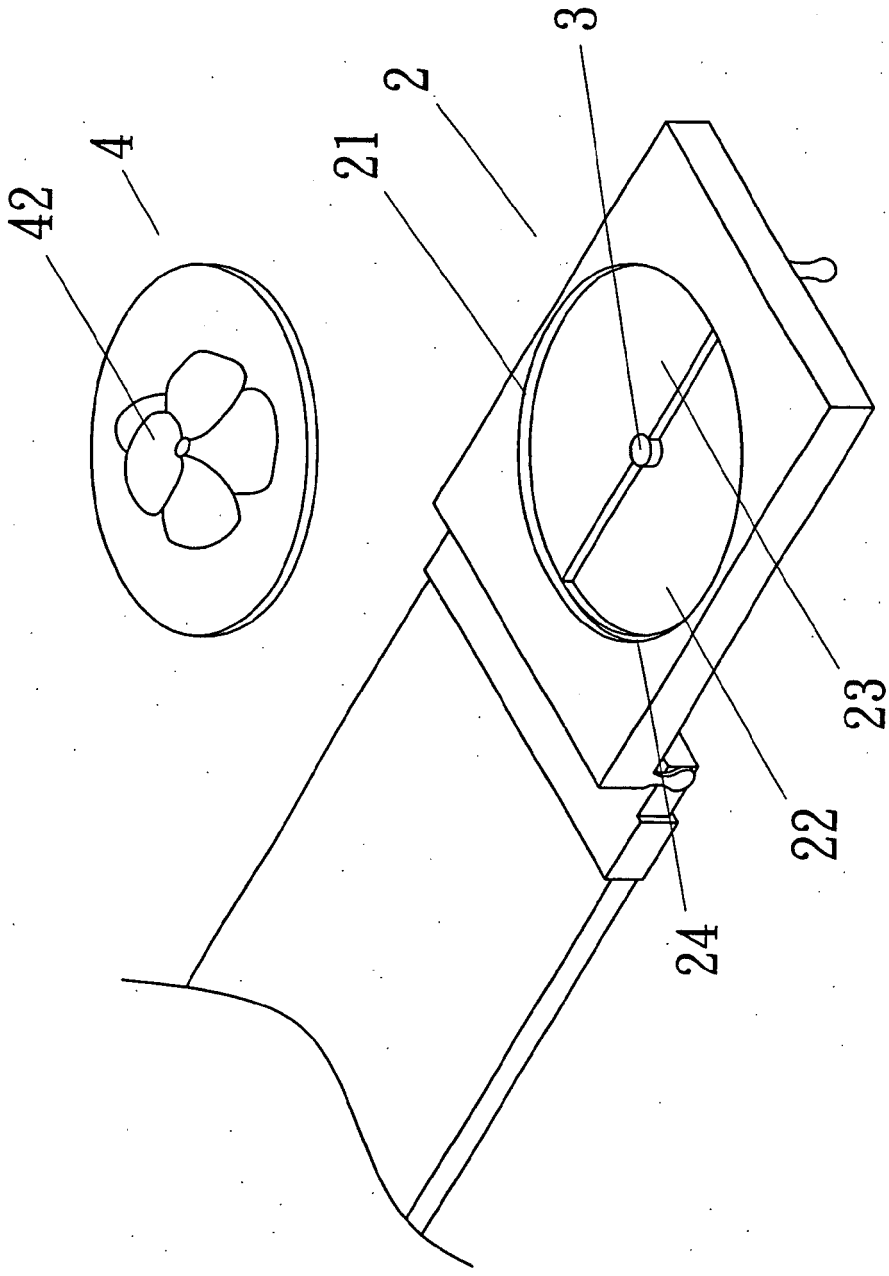


FIG. 6

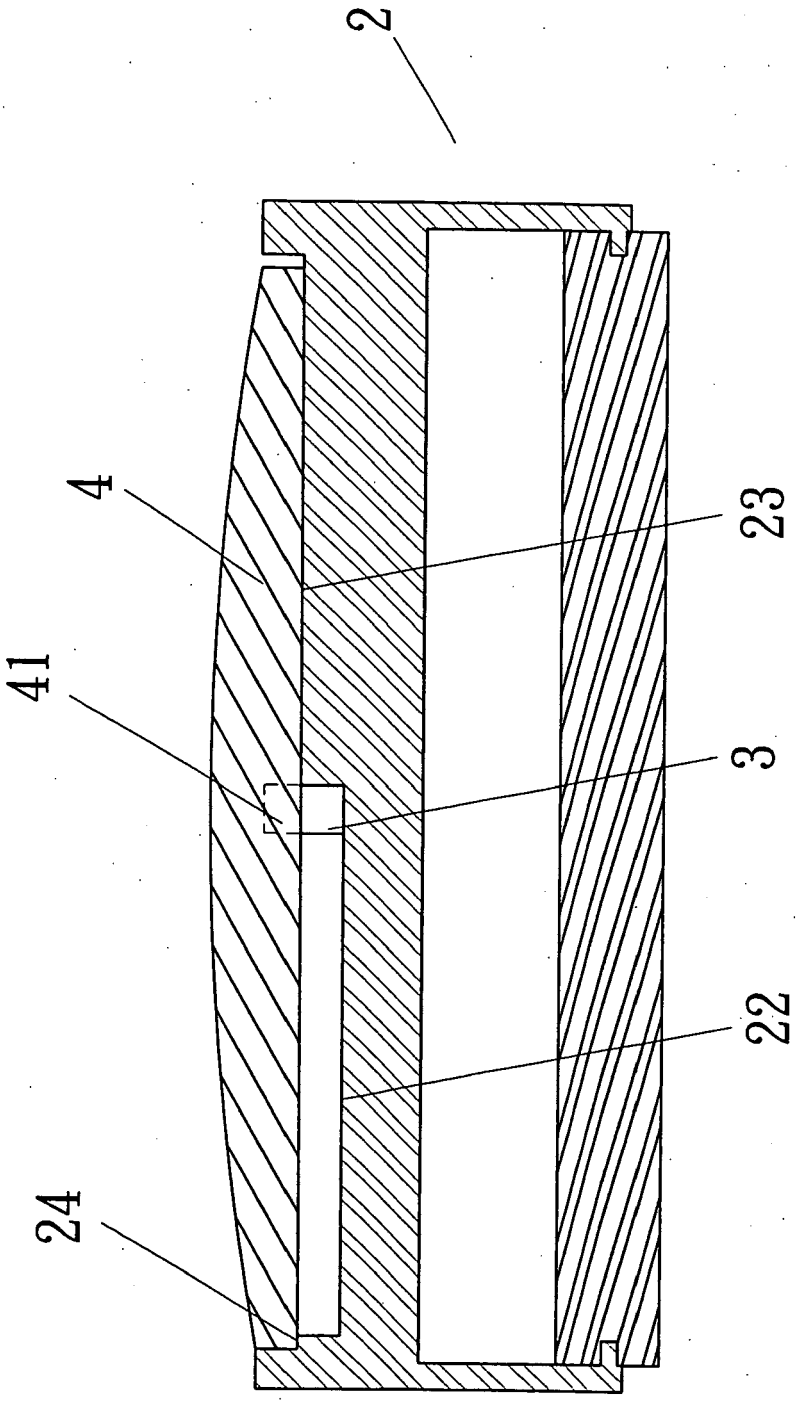


FIG. 7

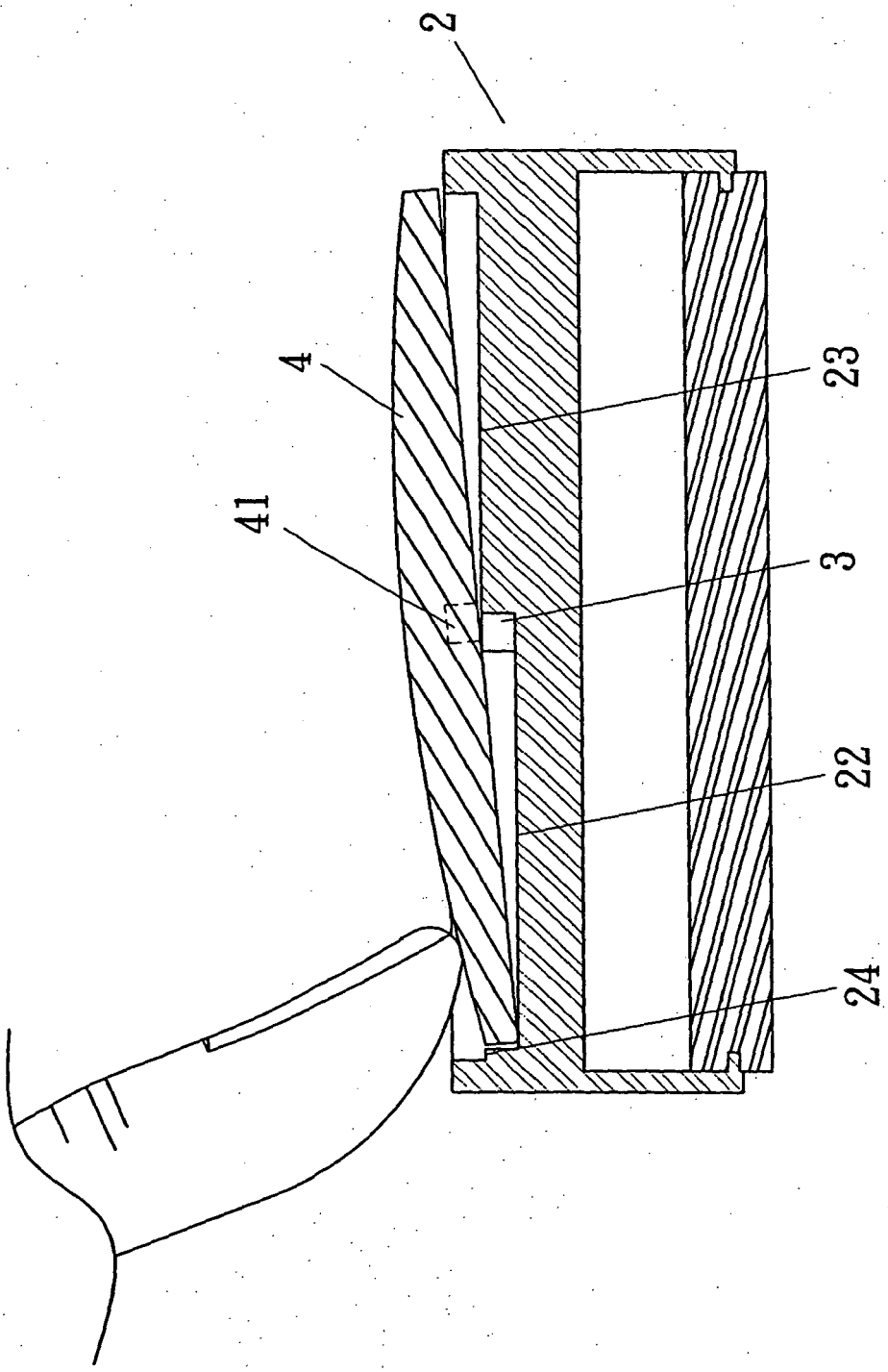


FIG. 8

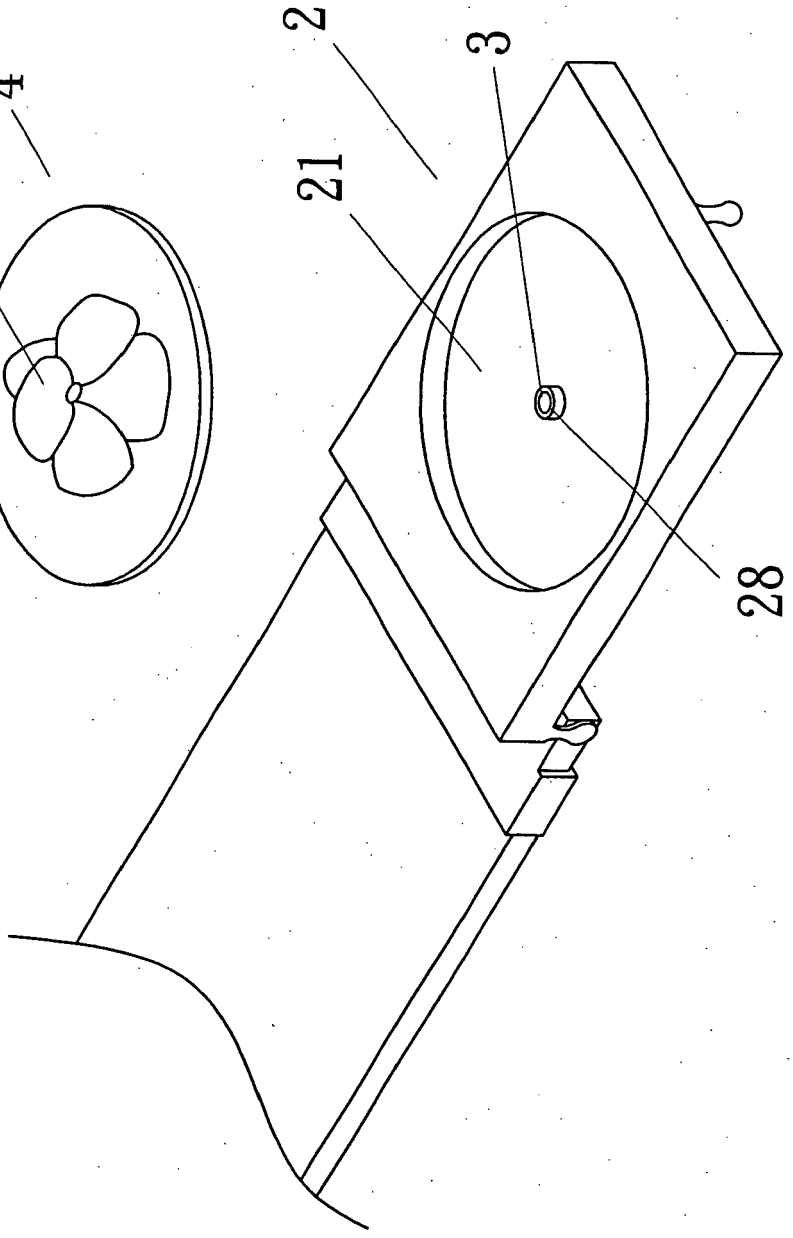


FIG. 9

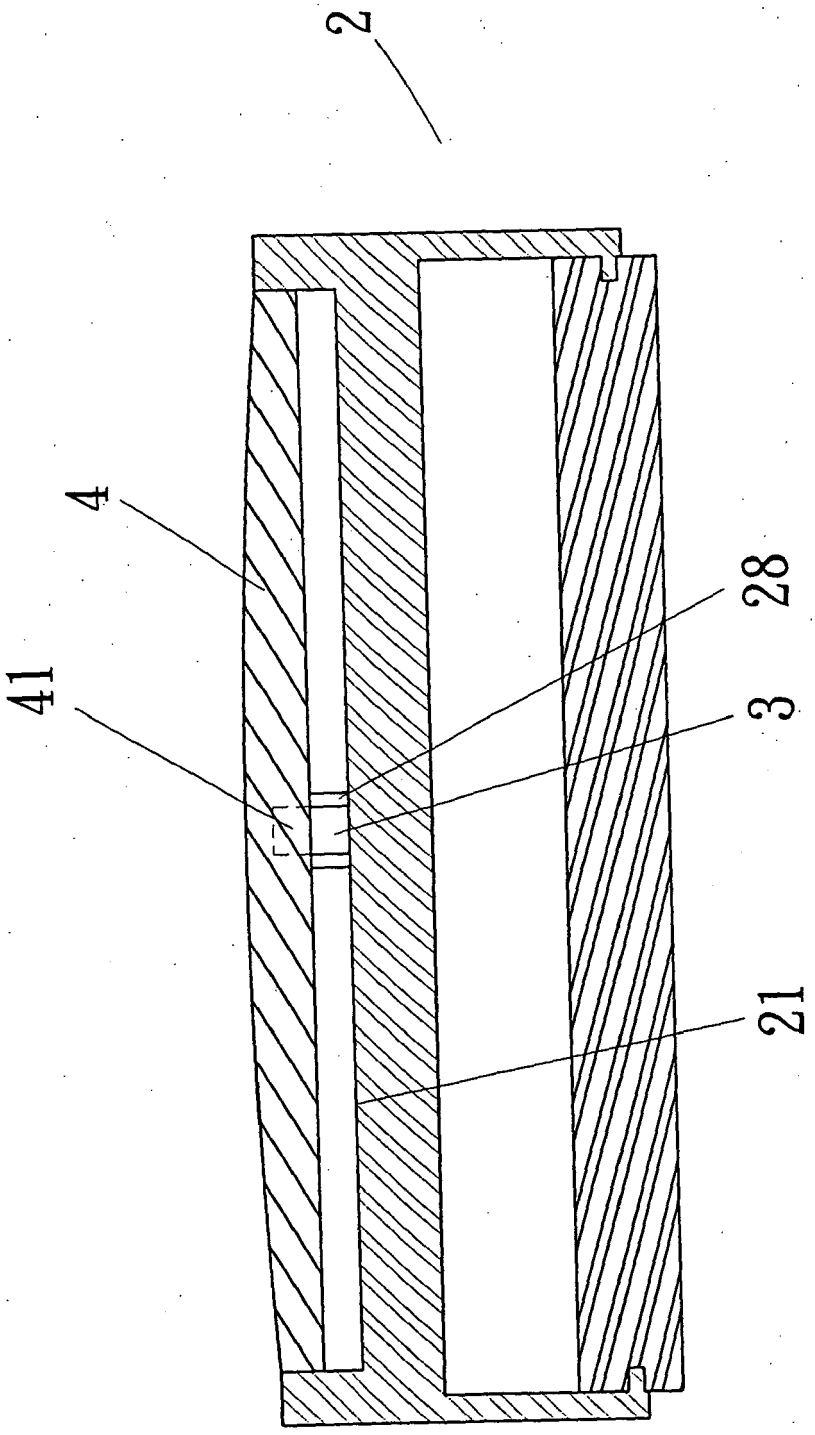


FIG. 10

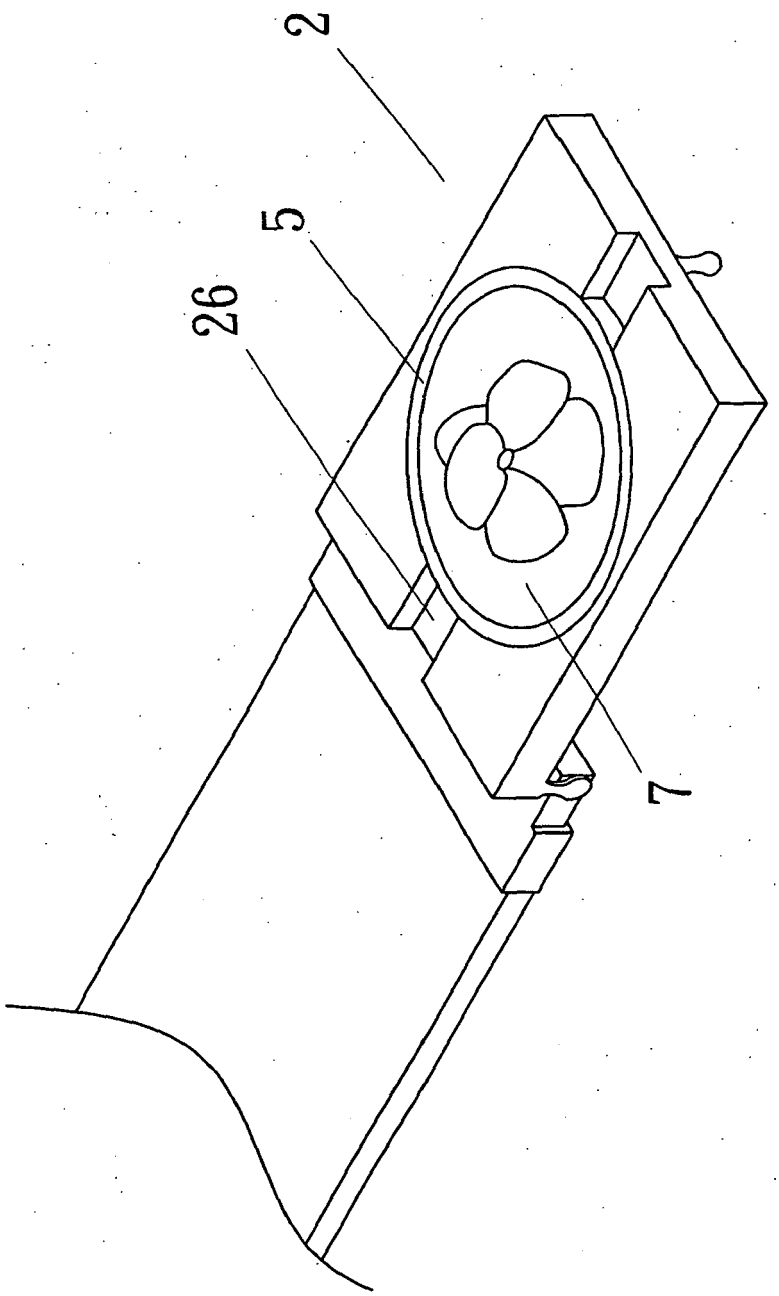


FIG. 11

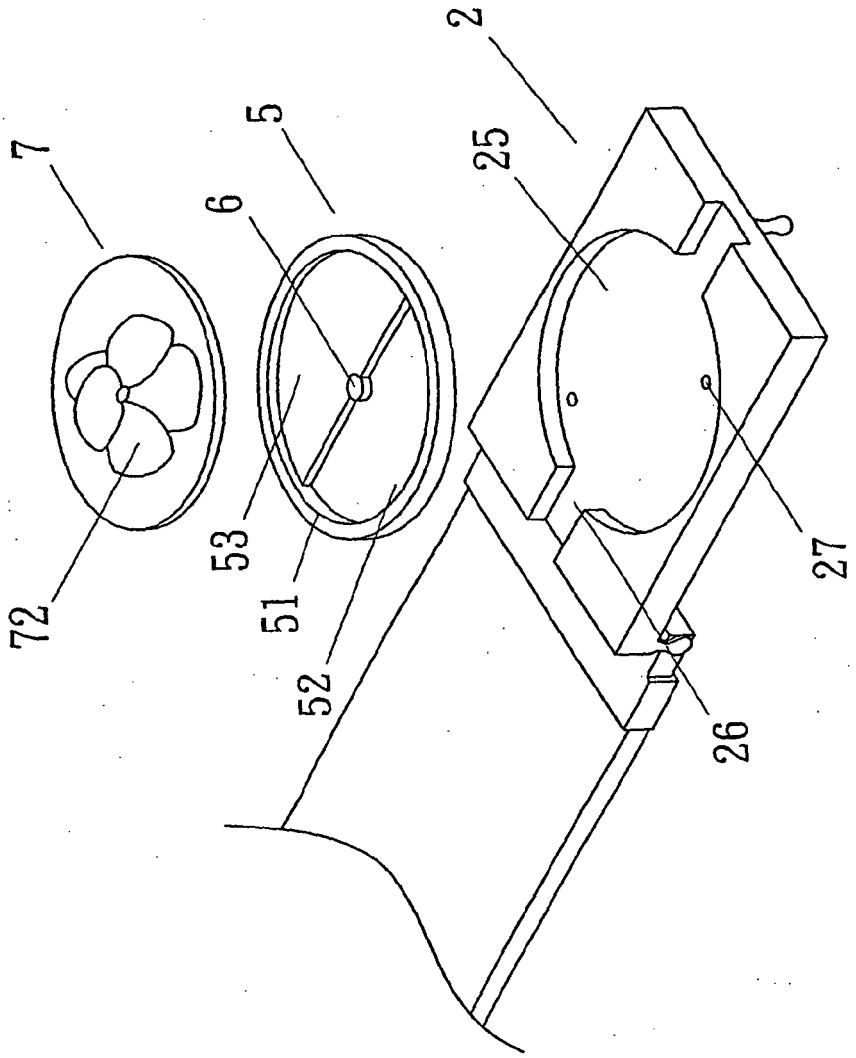


FIG. 12

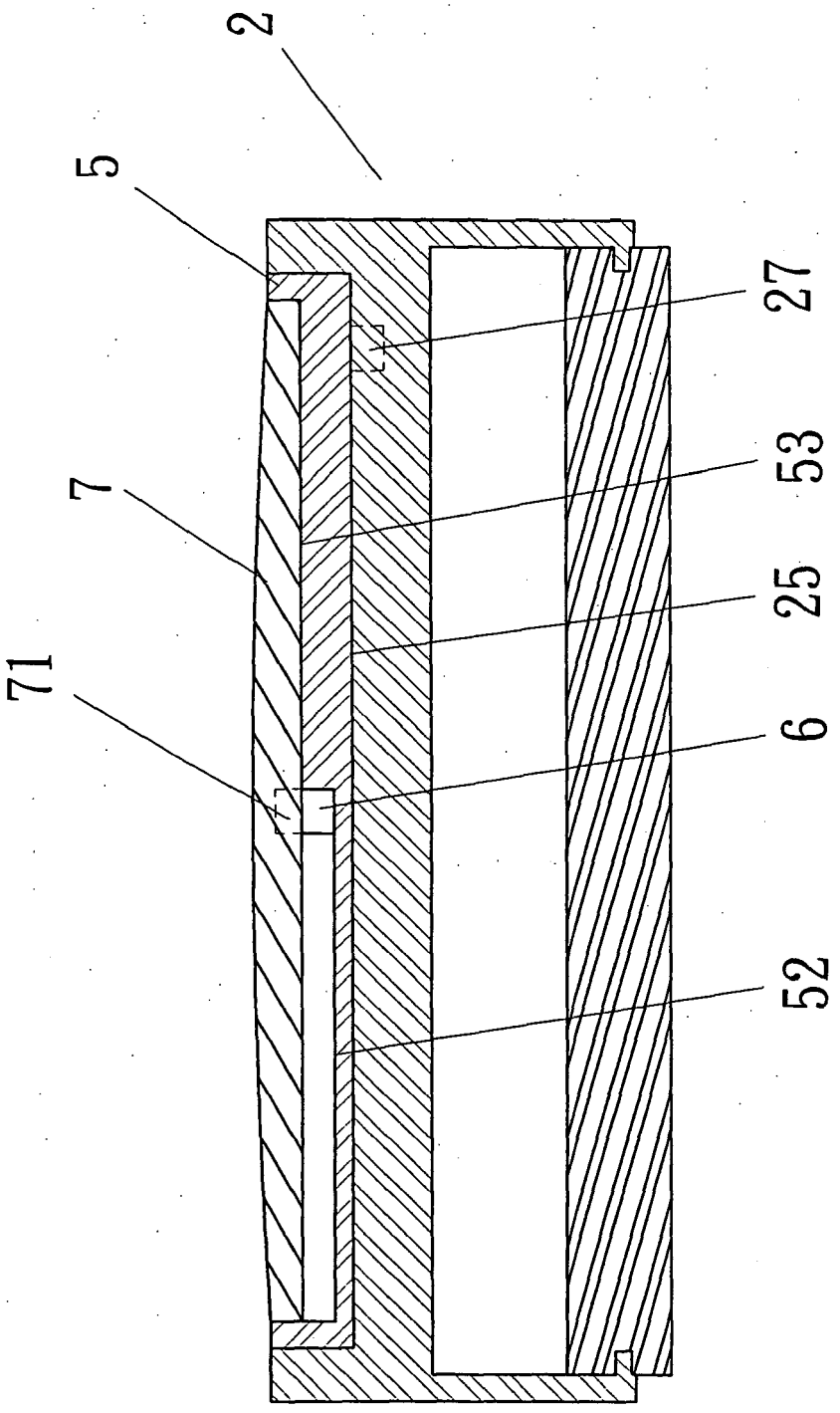


FIG. 13

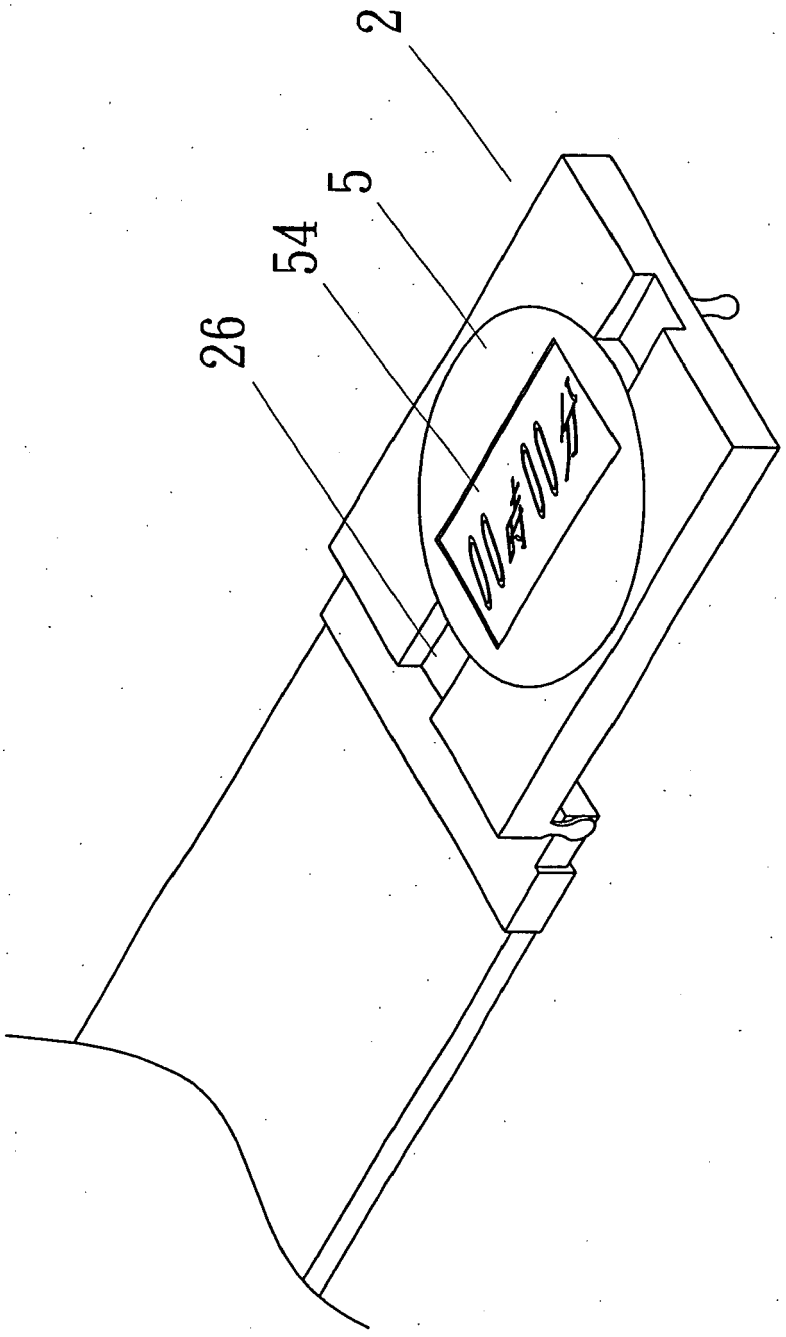


FIG. 14

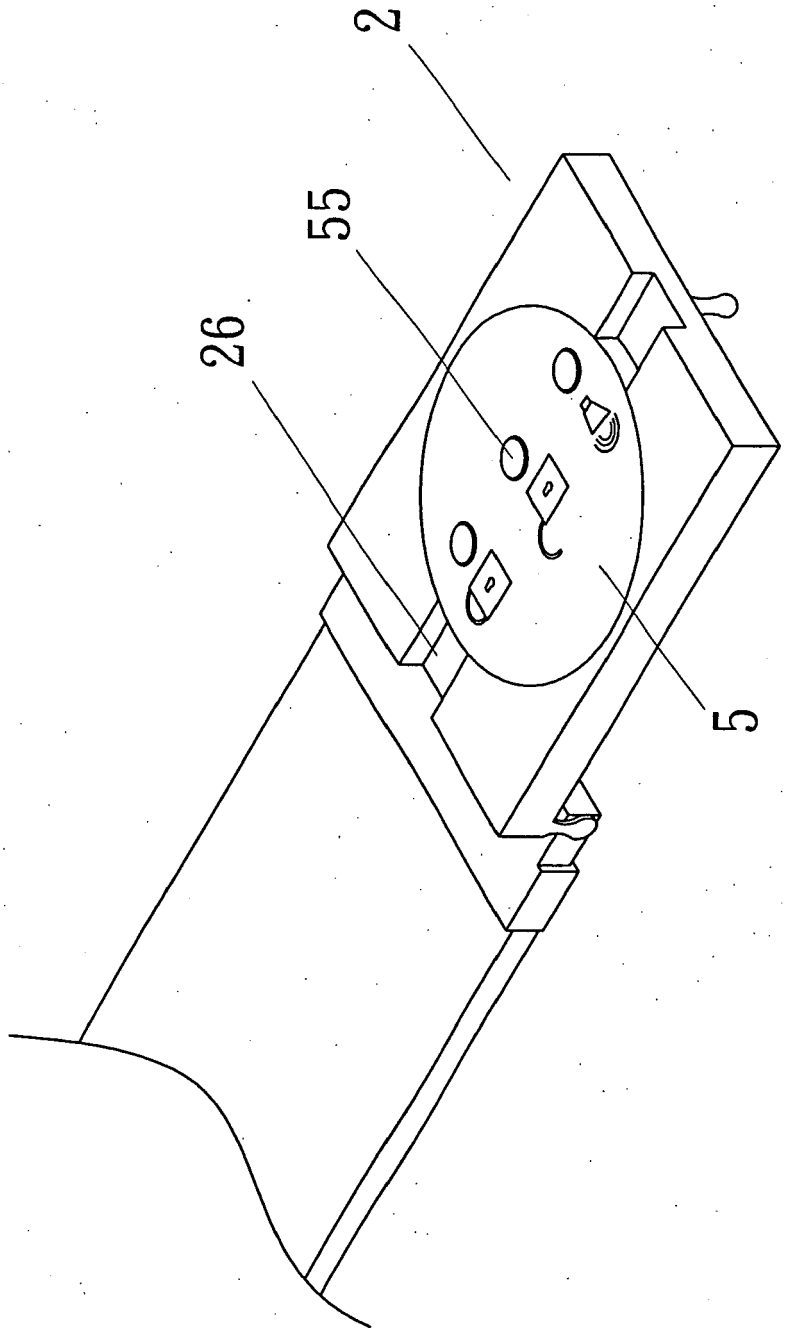


FIG. 15

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 07 01 2348

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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X	US 7 226 370 B1 (COPE JEFFREY L [US]) 5 June 2007 (2007-06-05) * column 9, line 27; figures 1-9,11,14 *	1-4	
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A	US 5 795 248 A (GIGLIO JAMES A [US]) 18 August 1998 (1998-08-18) * column 2, line 41 - column 3, line 40 *	1-5	
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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	23 August 2007	Richmond, Sarah

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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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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23-08-2007

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