



(12) **EUROPEAN PATENT APPLICATION**
published in accordance with Art. 153(4) EPC

(43) Date of publication:
16.01.2019 Bulletin 2019/03

(51) Int Cl.:
A47G 19/22 (2006.01)

(21) Application number: **18723656.7**

(86) International application number:
PCT/CN2018/072124

(22) Date of filing: **10.01.2018**

(87) International publication number:
WO 2018/209992 (22.11.2018 Gazette 2018/47)

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
MA MD TN

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(30) Priority: **18.05.2017 CN 201710375992**

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(54) **QUICK CUP LID**

(57) The invention relates to a convenient lid, comprising a housing, a lid opening, a press plate, a button, an insertion plate, a guide plate and a threaded body, the lid opening and the threaded body being provided on the lower part of the housing, the side of the lid being provided with a concave cavity, a fixing body and a guide column being provided in the concave cavity, a switch device and a security device being provided on the fixing body and the guide column, a guide plate, an insertion plate and a press plate being provided inside the lid, a concave ring and a guide strip being provided on the outside of the lid opening, a convex ring, a guide slot and a latch being provided on the inner side of the threaded body, ribs and threads being provided on the outer side of the threaded body, the switch device being composed of a press plate and a movable shaft, the security device being composed of the button and the movable plate and being provided in the press plate, the rotating shaft being connected to the shaft hole on the buckle plate, the insertion body being connected to the guide plate within the lid, the insertion plate being connected to the top plate, the top plate being provided with a soft edge and a pin, the pin being connected to the circular hole on the insertion plate, the soft edge being provided on the back of the water outlet, the card slot on the buckle plate being fastened onto the latch of the lid.

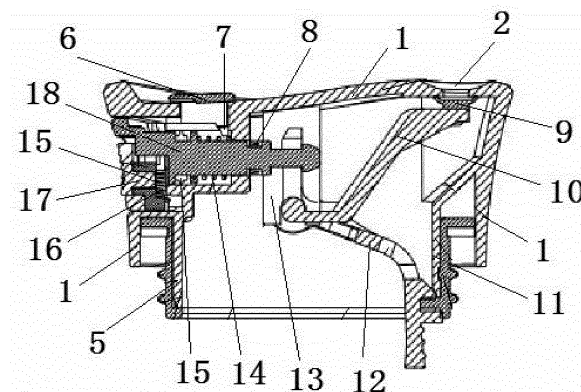


Fig.2

Description

Technical Field

[0001] The present invention relates to an accessory for tea sets, and in particular, to a convenient lid for various thermal insulated containers.

Background

[0002] With the development of society, economic prosperity, and improvement of living standards, people work, surfing the Internet, and chat, with increasingly demands for quality of life. Leisure travel and outdoor sports are increasing. Drinking tea is also an indispensable part of people's lives. Therefore, a lid for a thermal insulated container, with a security switch, is popular among people, such as a lid patent with the application No. 201320246931.0, which is anti-fragile and leak-proof. However, during tea drinking, the lid requires both hands to uncover, that is, people first press the security switch and then uncover the lid to drink tea, which cannot meet the different needs of those who live fast or busy.

Summary

[0003] In order to overcome the deficiencies of the above problems, the present invention provides a convenient lid. With the convenient lid, people need to use only one hand to hold the thermal insulated container, press down the press plate on the lid with the thumb, slide the button downwards, and then uncover the lid switch, to drink tea. After the thumb moves away, the lid switch will automatically lock, and also the switch can be automatically secured. In order to firmly bond the container and the threaded body without leak, a concave ring and a guide strip are provided in the lid opening, and a convex ring and a guide slot are provided on the threaded body, and the threaded body is pressed into the lid opening using the principle of thermal expansion and contraction of plastic. In order to open the security device and the switch with one hand, the security device is placed in the switch device. In order to facilitate the cleaning of the dirt on the lid, all the accessories in the lid are placed on the insertion plate. To facilitate disassembly, the insertion plate and the guide plate are combined in a movable manner, which is convenient, clean and leak-proof.

[0004] The technical solution adopted by the present invention to solve the technical problems is: a convenient lid, comprising a housing, a lid opening, a press plate, a button, an insertion plate, a guide plate and a threaded body, a water outlet and a press buckle being provided on the upper part of the housing, the press buckle being provided with a buckle foot, the lid opening and the threaded body being provided on the lower part of the housing, the side of the lid being provided with a concave cavity, a fixing body and a guide column being provided in the concave cavity, a switch device and a security de-

vice being provided on the fixing body and the guide column, a guide plate, an insertion plate and a press plate being provided inside the lid, a concave ring and a guide strip being provided on the outside of the lid opening, a convex ring, a guide slot and a latch being provided on the inner side of the threaded body, ribs and threads being provided on the outer side of the threaded body; the press buckle being provided above the vent; the switch device being composed of a press plate and a movable shaft, a retaining ring being provided at the front end of the movable shaft, a top ring and a slot column being provided in the middle of the movable shaft, and a seal block, a spring and a movable plate being provided at the rear portion of the movable shaft, the seal block being provided with a seal ring; a rubber ring being provided between the top ring and the slot column, wherein the rubber ring can be installed or removed without the need for tools and the switch device can be directly assembled or disassembled by hand; a spring being provided on the slot column; the top ring and the retaining ring being provided on the guide plate; the guide plate being provided with a long slot; an guide body being provided within the long slot; the guide plate being provided in the housing; the security device being composed of a button and a movable plate and being provided in the press plate; a concave cavity being provided on the press plate, a button being provided on the concave cavity, and a blocking plate, a fixing column and a square hole being provided on the movable plate; a spring being provided on the fixing column; the button being provided with a non-slip strip and a square body, the square body being connected with the square hole on the movable plate, one end of the buckle plate being provided with a shaft hole and the other end being provided with a card slot; the insertion plate being provided with a circular hole at one end thereof, an insertion body at the other end of the insertion plate, and a rotating shaft in the middle of the insertion plate, the rotating shaft being connected with the shaft hole of the buckle plate, the insertion body being connected with the guide plate inside the lid, and the insertion plate being connected with the top plate; the top plate being provided with a soft edge and a pin, the pin being connected with the circular hole on the insertion plate, the soft edge being provided on the back of the water outlet, and the card slot on the buckle plate being fastened on the latch of the lid.

[0005] The beneficial effect of the present invention is that with the convenient lid, people only need to use one hand to hold the thermal insulated container, press down the press plate on the lid with the thumb, slide the button downwards, and then uncover the lid switch to drink tea. After the thumb moves away, the lid switch will automatically lock, and also the switch can be automatically secured. In order to firmly bond the container and threaded body without leak, a concave ring and a guide strip are provided in the lid opening, and a convex ring and a guide slot are provided on the threaded body, and the threaded body is pressed into the lid opening using the principle

of thermal expansion and contraction of plastic. In order to open the security device and the switch with one hand, the security device is placed in the switch device. In order to facilitate the cleaning of the dirt on the lid, all the accessories in the lid are placed on the insertion plate. To facilitate disassembly, the insertion plate and the guide plate are combined in a movable manner, which is convenient, clean and leak-proof.

Brief Description of the Drawings

[0006]

FIG. 1 is a schematic structural view of the present invention.

FIG. 2 is a sectional view of the present invention.

FIG. 3 is a schematic structural view of a threaded body in the present invention.

FIG. 4 is a schematic structural view of a switch device in the present invention.

FIG. 5 is a schematic structural view of a press buckle in the present invention.

FIG. 6 is a schematic structural view of an insertion body and a buckle plate in the present invention.

FIG. 7 is a schematic structural view of the disassembled present invention.

FIG. 8 is a schematic structural view of the switch device and the security device in the present invention.

[0007] Reference signs in the drawings: 1, housing; 2, press buckle; 3, button; 4, press plate; 5, threaded body; 6, water outlet; 7, vent; 8, rubber ring; 9, top plate; 10, insertion plate; 11, lid opening; 12, buckle plate; 13, guide plate; 14, spring; 15, seal ring; 16, movable plate; 17, security device; 18, switch device; 19, latch; 20, convex ring; 21, guide slot; 22, thread; 23, rib; 24, movable shaft; 25, sealing block; 26, buckle foot; 27, rotating shaft; 28, circular hole; 29, insertion body; 30, shaft hole; 31, card slot; 32, soft edge; 33, pin; 34, concave cavity; 35, guide column; 36, fixing body; 37, square hole; 38, fixing column; 39, blocking plate; 40, retaining ring; 41, top ring; 42, slot column; 43, anti-slip strip; 44, square body.

Detailed Description of the Embodiments

[0008] The following examples are intended to illustrate the present invention but are not intended to limit the scope of the present invention.

[0009] In FIG. 1 and FIG. 2, a housing 1 is provided, on the upper part thereof, with a water outlet 6 and a press buckle 2. The press buckle 2 is connected to a buckle foot. The lower part of the housing 1 is connected to a lid opening and has a threaded body 5 provided thereon. The side of the lid has a concave cavity in which a fixing body and a guide column are installed. A switch device 18 and a security device 17 are installed on the fixing body and the guide column. A guide plate 13, an

insertion plate 10 and a buckle plate 12 are installed in the lid. A concave ring and a guide strip are provided on the outer side of the lid opening 11. A convex ring, a guide slot and a latch are provided on the inner side of the threaded body 5, ribs and threads are provided on the outer side of the threaded body 5, and the press buckle 2 is installed above the vent 7. The switch device 18 is composed of a press plate 4 and a movable shaft. The movable shaft is provided with a retaining ring at the front end, a top ring and a slot column in the middle, and a seal block, a spring and a movable plate in the rear portion. A seal ring 15 is mounted on the seal block, and a rubber ring 8 is installed between the top ring and the slot column. The rubber ring can be installed or removed without the need for tools and the switch device can be directly assembled or disassembled by hand. A spring 14 is installed on the slot column. The top ring and the retaining ring are provided on the guide plate 13. The guide plate 13 is connected to the housing 1. A long slot is provided on the guide plate. An insertion body 10 is installed within the long slot. The security device 17 is composed of a button 3 and a movable plate 16 and is provided in the press plate 4. A concave cavity is provided on the press plate 4. A button 3 is provided on the concave cavity. A blocking plate, a fixing column and a square hole are provided on the movable plate 16. A spring 14 is provided on the fixing column. The button 3 is provided with a non-slip strip and a square body, and the square body is connected with the square hole on the movable plate. One end of the buckle plate 12 is provided with a shaft hole and the other end is provided with a card slot. The insertion plate 10 is provided with a circular hole at one end thereof, an insertion body at the other end, and a rotating shaft in the middle, the rotating shaft is connected with the shaft hole of the buckle plate, the insertion body is connected with the guide plate 13 inside the lid, and the insertion plate 10 is connected with the top plate 9. The top plate 9 is provided with a soft edge and a pin, the pin is connected with the circular hole on the insertion plate, the soft edge is provided on the back of the water outlet 6, and the card slot 31 on the buckle plate 12 is fastened on the latch of the lid. When people need to drink tea, people just use one hand to pick up the lid of the thermal insulated container, press the button on the lid with the thumb and slide it downwards at the same time, the top plate inside the lid will leave the back of the water outlet, tea will flow out of the water outlet, and people can drink the required tea.

[0010] In FIG. 3, the convex cavity 20, the guide slot 21, and the latch 19 are provided on the inner side of the threaded body 5, and the rib 23 and the thread 22 are provided on the outer side of the threaded body 5.

[0011] In FIG. 4, the switch device 18 is composed of a press plate 4 and a movable shaft 24. The movable shaft 24 is provided with a retaining ring on the front end thereof, a top ring and a slot column provided on the middle, and a sealing block 25 provided onto and a spring 14 and a movable plate 16 mounted on the rear portion

of the movable shaft 24.

[0012] In FIG. 5, a buckle foot 26 is connected to the press buckle 2.

[0013] In FIG. 6, the buckle plate 12 is provided with a shaft hole 30 at one end and a slot 31 at the other end. The insertion plate 10 is provided with a circular hole 28 at one end, an insertion body 29 connected to the other end, and a rotating shaft 27 connected to the middle. The rotating shaft 27 is connected to the shaft hole 30 of the buckle plate, the insert body 29 is connected with the guide plate inside the lid, the insertion plate 10 is connected with the top plate 9, and the soft edge 32 and the pin 33 are provided on the top plate 9.

[0014] In FIG. 7, a concave cavity 34 is provided on the side of the lid, a fixing body 36 and a guide column 35 are installed in the concave cavity 34, and a guide plate 13, a water outlet 6, and a latch 19 are installed in the lid.

[0015] In FIG. 8, the switch device 18 consists of a press plate 4 and a movable shaft 24. The movable shaft 24 is provided with a retaining ring 40 provided onto the front end thereof, a top ring 41 and a slot column 42 provided onto the middle thereof, and a seal block provided onto and a spring 14 and a movable plate 16 installed on the rear portion thereof. A seal ring 15 is mounted on the seal block. A rubber ring 8 is installed between the top ring 41 and the slot column 42. To install or remove the rubber ring, people can directly assemble or disassemble the switch device with hands without using a tool. The spring 14 is mounted on the slot column 42, and the top ring 41 and the retaining ring 40 are mounted on the guide plate. The security device which is composed of a button 3 and a movable plate 16 is installed in the press plate 4. A concave cavity 34 is provided onto the press plate 4, and the button 3 is mounted on the concave cavity 34. A block plate 39, a fixing column 38 and a square hole 37 are provided onto the movable plate 16. A spring 14 is mounted on the fixing column 38. A non-slip strip 43 and a square body 44 are provided on the button 3, and the square body 44 is connected to the square hole 37 on the movable plate.

[0016] Although the present invention has been described above in detail with general description and specific embodiments, it is obvious to those skilled in the art that some modifications or improvements can be made on the basis of the present invention. Therefore, these modifications or improvements made without departing from the spirit of the present invention all fall within the protection scope of the present invention.

Claims

1. A convenient lid, comprising a housing, a lid opening, a press plate, a button, an insertion plate, a guide plate and a threaded body, a water outlet and a press buckle being provided on the upper part of the housing, the press buckle being provided with a buckle

foot, the lid opening and the threaded body being provided on the lower part of the housing, the side of the lid being provided with a concave cavity, a fixing body and a guide column being provided in the concave cavity, a switch device and a security device being provided on the fixing body and the guide column, the switch device being composed of a press plate and a movable shaft, the security device being composed of the button and the movable plate and being provided in the press plate, a guide plate, an insertion plate and a press plate being provided inside the lid, the press buckle being provided above a vent, **characterized by:** a concave ring and a guide strip being provided on the outside of the lid opening, a convex ring, a guide slot and a latch being provided on the inner side of the threaded body, the movable shaft being provided with a retaining ring at the front end, a top ring and a slot column in the middle, and a seal block, a spring and a movable plate in the rear portion, the seal block being provided with a seal ring, a rubber ring being provided between the top ring and the slot column, a spring being provided on the slot column, the top ring and the retaining ring being provided on the guide plate, the guide plate being provided with a long slot, an insertion body being provided within the long slot, the guide plate being provided within the housing, a concave cavity being provided on the press plate, the button being provided on the concave cavity, the blocking plate, the fixing column and the square hole being provided on the movable plate, the spring being provided on the fixing column, a no-slit strip and a square body being provided on the button, the square body being connected to the square hole on the movable plate.

2. The convenient lid according to claim 1, **characterized in that** ribs and threads are provided on the outer side of the threaded body.

3. The convenient lid according to claim 1, **characterized in that** the press buckle is provided with a shaft hole at one end and a card slot at the other end.

4. The convenient lid according to claim 1, **characterized in that** the insertion plate is provided with a circular hole at one end thereof, an insertion body at the other end, and a rotating shaft in the middle, the rotating shaft being connected with the shaft hole of the buckle plate.

5. The convenient lid according to claim 1, **characterized in that** the insertion body is connected with the guide plate within the lid.

6. The convenient lid according to claim 1, **characterized in that** the insertion plate is connected with the top plate, the top plate is provided with a soft edge and a pin, the pin is connected with the circular hole

on the insertion plate, the soft edge is provided on the back of the water outlet.

7. The convenient lid according to claim 1, **characterized in that** the card slot on the buckle plate is fastened on the latch of the lid. 5

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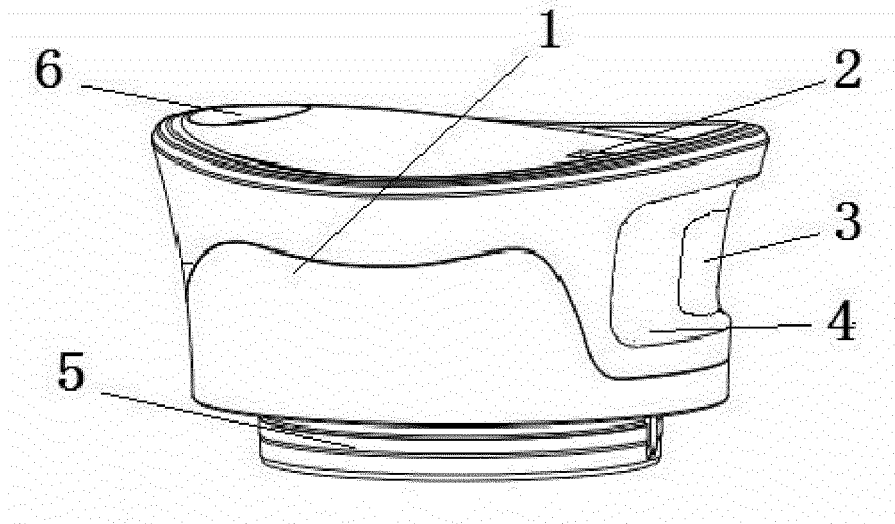


Fig.1

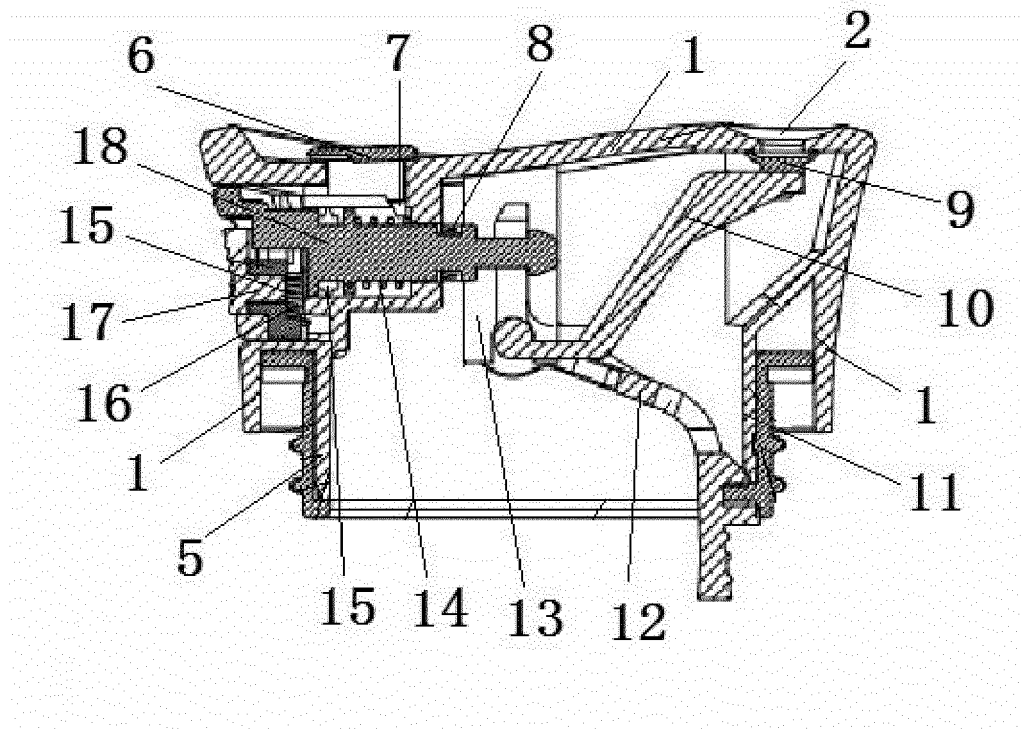


Fig.2

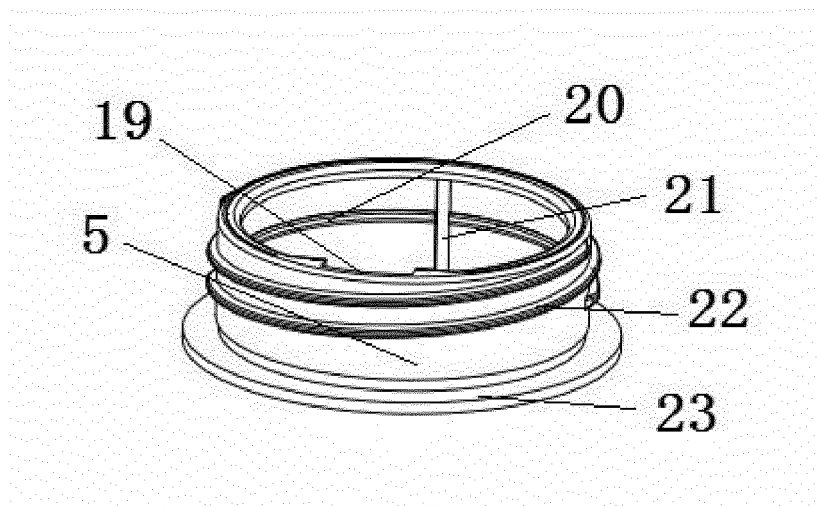


Fig.3

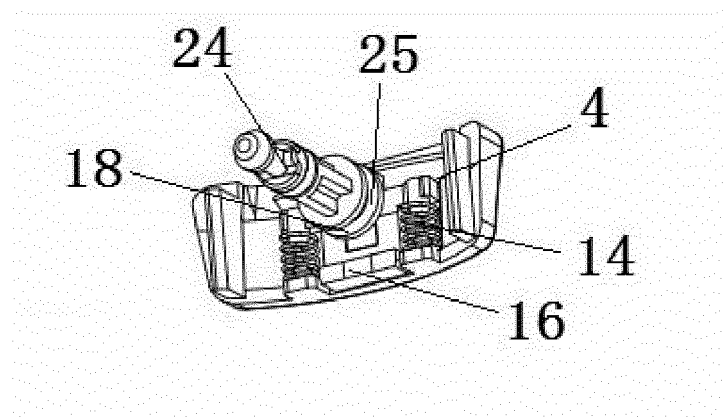


Fig.4

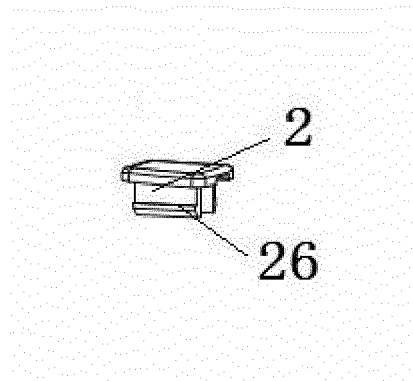


Fig.5

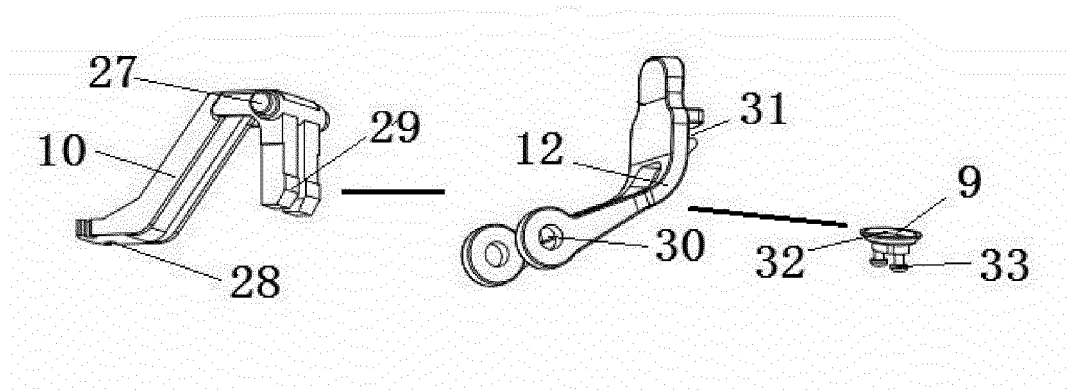


Fig.6

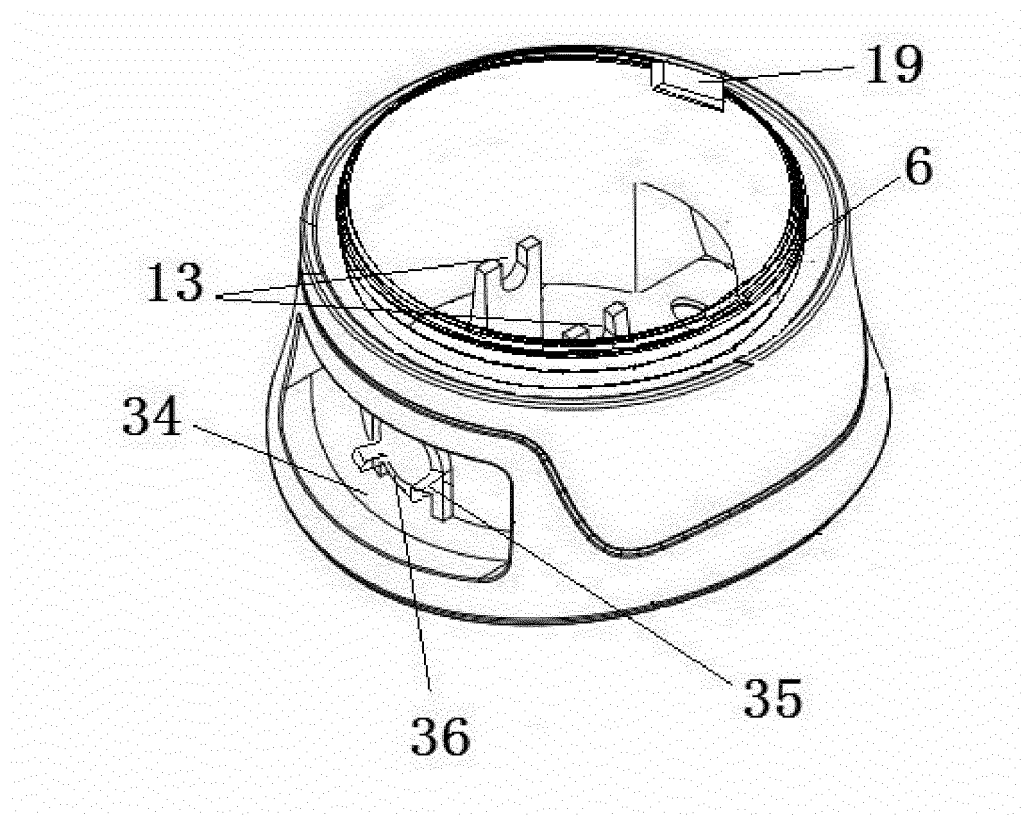


Fig. 7

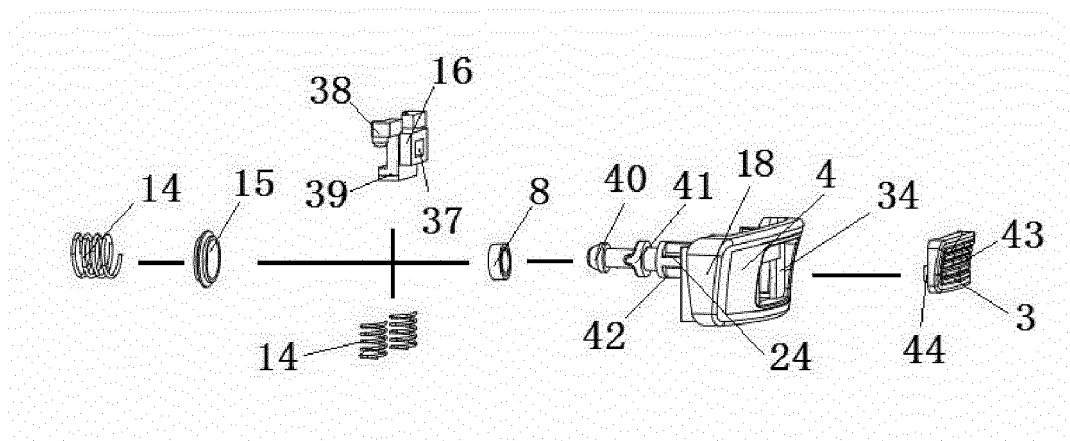


Fig. 8

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2018/072124

A. CLASSIFICATION OF SUBJECT MATTER

A47G 19/22 (2006.01) i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A47G; B65D; A45F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CNKI, CNPAT, EPODOC, WPI, 黄黎明, 杯, 盖, 开关, 保险, 按钮, 按键, 锁, 密封, 水口, 水孔, 气, 弹簧, 单手, cup, cover, lid, botton, lock, seal, orifice, opening, hole, gas, spring, one w hand, single w hand

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
PX	CN 106974516 A (HUANG, Liming), 25 July 2017 (25.07.2017), claims 1-8	1-7
A	CN 204292792 U (ZHEJIANG LINYAN GROUP CO., LTD.), 29 April 2015 (29.04.2015), description, paragraphs [0023]-[0027], and figures 1-6	1-7
A	CN 202567541 U (ZHEJIANG YONGHENG HOUSEHOLD CO., LTD.), 05 December 2012 (05.12.2012), entire document	1-7
A	CN 204091581 U (ZHEJIANG YONGHENG HOUSEHOLD CO., LTD.), 14 January 2015 (14.01.2015), entire document	1-7
A	CN 204292778 U (POWCAN GROUP CO., LTD.), 29 April 2015 (29.04.2015), entire document	1-7
A	CN 204743547 U (POWCAN GROUP CO., LTD.), 11 November 2015 (11.11.2015), entire document	1-7
A	WO 0034143 A1 (IBRAHIM, T.), 15 June 2000 (15.06.2000), entire document	1-7

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	
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"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	"&" document member of the same patent family

Date of the actual completion of the international search
29 March 2018

Date of mailing of the international search report
12 April 2018

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Patent Documents referred in the Report	Publication Date	Patent Family	Publication Date
CN 106974516 A	25 July 2017	None	
CN 204292792 U	29 April 2015	None	
CN 202567541 U	05 December 2012	None	
CN 204091581 U	14 January 2015	US 2016114944 A1	28 April 2016
CN 204292778 U	29 April 2015	None	
CN 204743547 U	11 November 2015	None	
WO 0034143 A1	15 June 2000	AU 1850000 A	26 June 2000

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- WO 201320246931 A [0002]