(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 3 289 948 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
07.03.2018 Bulletin 2018/10

(51) Int Cl.:
A47L 13/58 *(2006.01)* ***A47L 13/254*** *(2006.01)*
A47L 13/20 *(2006.01)*

(21) Application number: **17185135.5**

(22) Date of filing: **07.08.2017**

(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

(30) Priority: **08.08.2016 CN 201620881524 U**
08.08.2016 CN 201610668636

(71) Applicant: **Chen, Shiguang**
Wuyi County, Zhejiang Province (CN)

(72) Inventor: **Chen, Shiguang**
Wuyi County, Zhejiang Province (CN)

(74) Representative: **Viering, Jentschura & Partner mbB**
Patent- und Rechtsanwälte
Am Brauhaus 8
01099 Dresden (DE)

(54) CLEANING TOOL

(57) A cleaning tool comprises a mop, a cleaning base and a bucket, wherein the mop comprises a mop rod, and a cleaning head provided with a wiper is arranged at the lower end of the mop rod; the cleaning base is connected to the bucket through a guide rail and can move up and down relative to the bucket in a guided mode through the guide rail; the cleaning base can abut against the wiping surface of the cleaning head erected in the bucket and can move up and down relatively. The cleaning tool is characterized in that a water pumping device is arranged in the bucket or between the cleaning base and the bucket, and the cleaning base moves up and down relative to the bucket so that the water pumping device can be driven to deliver water in the bucket to the wiping surface of the cleaning head of the mop for cleaning. The water pumping device is arranged, the cleaning base moves up and down relative to the bucket to drive the water pumping device to discharge water onto the wiping surface of the cleaning head erected in the bucket for cleaning, the water pumping device is easy, convenient and fast to operate, and the cleaning base abuts against the wiper of the cleaning head for operation, so that the cleaning effect is better; the working efficiency of the cleaned mop is high, and bacterium breeding can be prevented when the clean mop is stored.

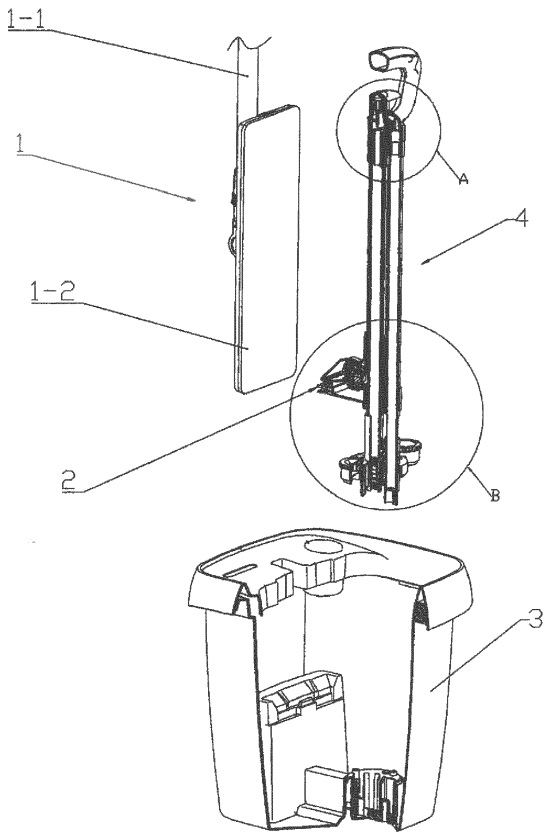


FIG. 1

EP 3 289 948 A1

Description

BACKGROUND OF THE INVENTION

1. Technical Field

[0001] The invention relates to a cleaning tool.

2. Description of Related Art

[0002] At present, cleaning tools of various structures are available. For example, a cleaning tool comprises a mop, a cleaning base and a bucket, wherein the mop comprises a mop rod, and a cleaning head provided with a wiper is arranged at the lower end of the mop rod; during wringing, the cleaning base moves up and down relatively after abutting against the wiping surface of the cleaning head arranged in the bucket, so that extruding wringing is achieved. However, on one hand, the wiper of the cleaning head can be stained after being used for mopping multiple times and consequentially affects the mopping effect, manual cleaning of the stained wiper of the cleaning head is large in time consumption and labor consumption and insanitary, the stained wiper of the cleaning head cannot be completely cleaned by being placed in a water container to be stirred, and if the stained wiper of the cleaning head is washed through a water source, operation is complex, and waste of water resources can be caused by one-time washing of the stained wiper; on the other hand, bacterium breeding and odor can be easily caused when the wiper, which is not completely cleaned, of the cleaning head is stored.

BRIEF SUMMARY OF THE INVENTION

[0003] The invention aims to provide a cleaning tool for solving these problems.

[0004] According to the technical scheme adopted by the invention for achieving the aim, the cleaning tool comprises a mop, a cleaning base and a bucket, wherein the mop comprises a mop rod, and a cleaning head provided with a wiper is arranged at the lower end of the mop rod; the cleaning base is connected to the bucket through a guide rail and can move up and down relative to the bucket in a guided mode through the guide rail; the cleaning base can abut against the wiping surface of the cleaning head erected in the bucket and can move up and down relatively; the cleaning tool is characterized in that a water pumping device is arranged in the bucket or between the cleaning base and the bucket, and the cleaning base moves up and down relative to the bucket so that the water pumping device can be driven to deliver water in the bucket to the wiping surface of the cleaning head of the mop for cleaning.

[0005] The invention has the advantages that the water pumping device is arranged, the cleaning base moves up and down relative to the bucket to drive the water pumping device to discharge water to the wiping surface of the cleaning head erected in the bucket for cleaning, the water pumping device is easy, convenient and fast to operate, and the cleaning base abuts against the wiper of the cleaning head for operation, so that the cleaning effect is better; the working efficiency of the cleaned mop is high, and bacterium breeding can be prevented when the clean mop is stored.

[0006] According to the first scheme of the invention, the water pumping device is arranged between the cleaning base and the bucket and comprises an inner rod and an outer rod sleeving the inner rod, a sealing device is arranged between the inner rod and the outer rod, a lower rod of one of the inner rod and the outer rod is connected into the bucket and internally provided with a water inlet channel, and the water inlet channel can communicate with a water storage part in the bucket and is connected with a water inlet device; an upper rod of one of the inner rod and the outer rod is connected with the cleaning base and internally provided with a water outlet channel, and the water outlet channel is connected with a water outlet device; a cavity between the water inlet device and the water outlet device of the water pumping device is the water storage part of the water pumping device, and the cleaning base can move up and down relative to the bucket in a guided mode through the inner rod and the outer rod sleeving the inner rod. The water inlet channel can extend out of the lower rod, the water inlet device comprises a movable abutting piece arranged in the water inlet channel, and the abutting piece can seal the water inlet end of the water inlet channel in an abutting mode through self gravity or by being connected with a reset device and can move to not seal the water inlet channel in the abutting mode anymore; the water outlet channel can extend out of the upper rod, the water outlet device comprises a movable abutting piece arranged in the water outlet channel, and the abutting piece can seal the water storage part end of the water outlet channel in an abutting mode through self gravity or by being connected with a reset device and can move to not seal the water outlet channel in the abutting mode anymore. The cleaning base moves up and down relative to the cleaning head erected in the bucket so that the water pumping device can be driven to deliver water in the bucket to the wiping surface of the cleaning head of the mop for cleaning.

[0007] According to the invention, the water pumping device is connected with a control mechanism which comprises an exhaust port formed in the water storage part of the water pumping device, the exhaust port is connected with a movable exhaust valve, and the exhaust valve can move to seal the exhaust port in an abutting mode or to not seal the exhaust port in the abutting mode anymore; the water pumping device can pump water or stop pumping water by controlling the exhaust port to be in the sealed state or the non-sealed state. The control mechanism can control the water pumping device to discharge water to the wiping surface of the cleaning head erected in the bucket or to stop discharging water

to the wiping surface of the cleaning head.

[0008] According to the second scheme of the invention, the water pumping device is arranged between the cleaning base and the bucket and comprises a rotatable impeller arranged in the bucket, the cleaning base is connected with a threaded rod piece, a rotating piece is arranged in the impeller, a thread which is matched with the threaded rod piece is arranged in the rotating piece, and the cleaning base can move up and down relative to the bucket in a guided mode through matching between the threaded rod piece and the impeller; a one-way transmission mechanism is arranged between the rotating piece and the impeller, and the threaded rod piece can move up and down relative to the bucket to drive the impeller to rotate in one direction; a shell is arranged on the periphery of the impeller and connected to the water storage part of the bucket, and the shell is connected with a water outlet pipeline which can deliver water to the wiping surface of the cleaning head; an opening communicating with the water storage part in the bucket is formed in the shell, and the threaded rod piece moves up and down relative to the impeller to discharge water in the shell to the wiping surface of the cleaning head, erected in the bucket, of the mop through the water outlet pipeline.

[0009] The cleaning base moves up and down relative to the cleaning head erected in the bucket so that the water pumping device can be driven to deliver water in the bucket to the wiping surface of the cleaning head of the mop for cleaning.

[0010] According to the invention, the one-way transmission mechanism comprises a transmission gear arranged at the bottom of the rotating piece and a transmission gear arranged at the bottom of the inner side of the impeller, and the two transmission gears are provided with engaging surfaces and sliding surfaces matched with the engaging surfaces, and the rotating piece can move up and down relative to the impeller; when the rotating piece rotates in one direction to make the engaging surfaces of the two transmission gears abut against each other, one-way transmission is formed; when the rotating piece rotates in another direction to make the sliding surfaces of the two transmission gears abut against each other, the rotating piece moves relative to the impeller, so that idling is formed. The one-way transmission mechanism can achieve the one-way transmission function.

[0011] According to the invention, the water pumping device is connected with a control mechanism which comprises a movable or rotatable water outlet pipeline connected into the shell, and the water pumping device can discharge water to the wiping surface of the cleaning head erected in the bucket or discharge water deviating from the wiping surface of the cleaning head by controlling the direction of a water outlet of the water outlet pipeline. The water outlet end of the water outlet pipeline is sleeved with a rotatable water connector. The control mechanism can control the water pumping device to discharge water to the wiping surface of the cleaning head erected in the bucket or to stop discharging water to the wiping surface of the cleaning head.

[0012] According to the third scheme of the invention, the water pumping device is arranged in the bucket and comprises a pump body, a piston and a driving piece, wherein the pump body is connected to the bucket, a water storage cavity is formed in the pump body and connected with a water inlet channel, the water storage cavity can communicate with the water storage part in the bucket through the water inlet channel, and the water inlet channel is connected with a water inlet device; one end of the driving piece is arranged outside the pump body and can abut against the cleaning base arranged in the bucket, the other end of the driving piece penetrates into the water storage cavity of the pump body, and the driving piece can move up and down relative to the pump body; the piston is arranged in the water storage cavity, and the outer side wall of the piston abuts against the side wall of the water storage cavity; the piston is connected with the end, arranged in the water storage cavity, of the driving piece and can move up and down relative to the pump body along with the driving piece; the water storage cavity is connected with a water outlet channel and can communicate with the outside of the pump body through the water outlet channel, and the water outlet channel is connected with a water outlet device; the cleaning base can move up and down relative to the bucket to make the driving piece move in an abutting mode. The water inlet device comprises a movable abutting piece arranged in the water inlet channel, and the abutting piece can seal the water inlet end of the water inlet channel in an abutting mode through self gravity or by being connected with a reset device and can move to not seal the water inlet channel in the abutting mode anymore; the water outlet device comprises a movable abutting piece arranged in the water outlet channel, and the abutting piece can seal the water storage part end of the water outlet channel in an abutting mode through self gravity or by being connected with a reset device and can move to not seal the water outlet channel in the abutting mode anymore; a reset device is arranged between the pressed driving piece and the pump body. The cleaning base moves up and down relative to the cleaning head erected in the bucket so that the water pumping device can be driven to deliver water in the bucket to the wiping surface of the cleaning head of the mop for cleaning.

[0013] According to the invention, the control mechanism comprises a movable or rotatable water outlet channel connected to the water storage cavity, and the water pumping device can discharge water to the wiping surface of the cleaning head erected in the bucket or discharge water deviating from the wiping surface of the cleaning head by controlling the direction of a water outlet of the water outlet channel. The water outlet end of the water outlet channel is sleeved with a rotatable water connector. The control mechanism can control the water pumping device to discharge water to the wiping surface of the cleaning head erected in the bucket or to stop dis-

charging water to the wiping surface of the cleaning head.

[0014] According to the invention, the guide rail comprises an inner rod and an outer rod, and the inner rod is sleeved with the outer rod; a lower rod of one of the inner rod and the outer rod is connected to the bucket, and an upper rod of one of the inner rod and the outer rod is connected with the cleaning base; the cleaning base can move up and down relative to the bucket in a guided mode through the inner rod and the outer rod sleeving the inner rod. The cleaning base can move up and down relative to the bucket in the guided mode through the guide rail.

[0015] According to the invention, the guide rail comprises a guiding piece and a guiding rail, and the guiding piece is sleeved with the guiding rail; the guiding rail is arranged on the side wall of the bucket, the guiding piece is connected to the cleaning base, and the cleaning base can move up and down relative to the bucket in a guided mode through matching between the guiding piece and the guiding rail. The cleaning base can move up and down relative to the bucket in the guided mode through the guide rail.

[0016] According to the invention, the cleaning base comprises a brush or a scraping strip, and the wiping surface of the cleaning head erected in the bucket can abut against the brush or the scraping strip.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

[0017]

FIG. 1 is an exploded sectional view of a cleaning tool in the first embodiment of the invention.

FIG. 2 is a structural sectional view of the cleaning tool in the first embodiment of the invention.

FIG. 3 is an exploded sectional view of a water pumping device in the first embodiment of the invention.

FIG 4 is an enlarged sectional view A of a local part of the water pumping device in the first embodiment of the invention.

FIG 5 is an enlarged sectional view B of the local part of the water pumping device in the first embodiment of the invention.

FIG 6 is a structural sectional view of the water pumping device in the first embodiment of the invention.

FIG 7 is an exploded sectional view of a control mechanism in the first embodiment of the invention.

FIG 8 is a structural sectional view of the control mechanism controlling an exhaust valve to seal an exhaust port of a water storage part of the water pumping device in an abutting mode in the first embodiment of the invention.

FIG 9 is a structural sectional view of the control mechanism controlling the exhaust valve to not seal the exhaust port of the water storage part of the water pumping device in the abutting mode in the first embodiment of the invention.

FIG 10 is an exploded sectional view of a cleaning tool in the second embodiment of the invention.

FIG 11 is an exploded sectional view of a water pumping device in the second embodiment of the invention.

FIG 12 is a structural sectional view of the water pumping device in the second embodiment of the invention.

FIG. 13 is an exploded sectional view of a control mechanism in the second embodiment of the invention.

FIG. 14 is a structural view of the control mechanism controlling a water outlet of a water outlet channel to face the wiping surface of a cleaning head in the second embodiment of the invention.

FIG 15 is a structural view of the control mechanism controlling the water outlet of the water outlet channel to deviate from the wiping surface of the cleaning head in the second embodiment of the invention.

FIG. 16 is an exploded sectional view of a one-way transmission mechanism in the second embodiment of the invention.

FIG 17 is a structural sectional view of the one-way transmission mechanism in the second embodiment of the invention.

FIG. 18 is an exploded sectional view of a cleaning tool in the third embodiment of the invention.

FIG. 19 is an exploded sectional view of a water pumping device in the third embodiment of the invention.

FIG. 20 is a structural sectional view of the water pumping device in the third embodiment of the invention.

FIG. 21 is an exploded sectional view of a control mechanism in the third embodiment of the invention.

FIG 22 is a structural view of the control mechanism controlling a water outlet of a water outlet channel

to face the wiping surface of cleaning head in the third embodiment of the invention.

FIG 23 is a structural view of the control mechanism controlling the water outlet of the water outlet channel to deviate from the wiping surface of the cleaning head in the third embodiment of the invention.

DETAILED DESCRIPTION OF THE INVENTION

[0018] As is shown in FIGs. 1-9, a cleaning tool in the embodiment comprises a mop 1, a cleaning base 2 and a bucket 3, wherein the mop comprises a mop rod 1-1, and a cleaning head 1-2 provided with a wiper is arranged at the lower end of the mop rod; the cleaning base 2 is connected to the bucket 3 through a guide rail, and the cleaning base can move up and down relative to the bucket in a guided mode through the guide rail; the cleaning base 2 can abut against the wiping surface of the cleaning head 1-2 erected in the bucket 3 and can move up and down relatively; the cleaning tool is characterized in that a water pumping device 4 is arranged in the bucket 3 or between the cleaning base 2 and the bucket 3, and the cleaning base 2 moves up and down relative to the bucket 3 so that the water pumping device 4 can be driven to deliver water in the bucket 3 to the wiping surface of the cleaning head 1-2 of the mop for cleaning.

[0019] According to the invention, the water pumping device 4 is arranged between the cleaning base 2 and the bucket 3 and comprises an inner rod and an outer rod sleeving the inner rod, and a sealing device is arranged between the inner rod and the outer rod; a lower rod 1-3 of one of the inner rod and the outer rod is connected into the bucket 3 and internally provided with a water inlet channel 8, and the water inlet channel 8 can communicate with a water storage part in the bucket 3 and is connected with a water inlet device 9; an upper rod 1-4 of one of the inner rod and the outer rod is connected with the cleaning base 2 and internally provided with a water outlet channel 10, and the water outlet channel 10 is connected with a water outlet device 11; a cavity between the water inlet device 9 and the water outlet device 11 of the water pumping device 4 is the water storage part 12 of the water pumping device, and the cleaning base 2 can move up and down relative to the bucket 3 in a guided mode through the inner rod and the outer rod sleeving the inner rod.

[0020] According to the invention, the water inlet channel 8 can extend out of the lower rod 1-3, the water inlet device 9 comprises a movable abutting piece 9-1 arranged in the water inlet channel 8, and the abutting piece 9-1 can seal the water inlet end of the water inlet channel 8 in an abutting mode through self gravity or by being connected with a reset device 9-2 and can move to not seal the water inlet channel 8 in the abutting mode anymore; the water outlet channel 10 can extend out of the upper rod 1-4, the water outlet device 11 comprises a movable abutting piece 11-1 arranged in the water outlet channel 10, and the abutting piece 11-1 can seal the water storage part end of the water outlet channel 10 in an abutting mode through self gravity or by being connected with a reset device 11-2 and can move to not seal the water outlet channel 14 in the abutting mode anymore.

[0021] According to the invention, the water pumping device 4 is connected with a control mechanism 6 which comprises an exhaust port 12-1 formed in the water storage part 12 of the water pumping device, the exhaust port 12-1 is connected with a movable exhaust valve 12-2, and the exhaust valve 12-2 can move to seal the exhaust port 12-1 in an abutting mode or to not seal the exhaust port 12-1 in the abutting mode anymore; the water pumping device 4 can pump water or stop pumping water by controlling the exhaust port 12-1 to be in the sealed state or the non-sealed state. The control mechanism can control the water pumping device to discharge water to the wiping surface of the cleaning head erected in the bucket or to stop discharging water to the wiping surface of the cleaning head.

[0022] According to the invention, the cleaning base 2 comprises a brush or a scraping strip, and the wiping surface of the cleaning head 1-2 erected in the bucket 3 can abut against the brush or the scraping strip.

[0023] The operating process in the embodiment is as follows: when the mop is cleaned, the exhaust valve 12-2 of the control mechanism 6 seals the exhaust port 12-1 of the water storage part 12 of the water pumping device in an abutting mode, the cleaning base 2 moves up and down relative to the cleaning head 1-2 erected in the bucket 3 to oppositely stretch the inner rod and the outer rod of the water pumping device 4, the water outlet device 11 seals the water outlet channel 10, the water inlet device 9 moves through pulling force generated when the inner rod and the outer rod are oppositely stretched so as to not seal the water inlet channel 8 in the abutting mode anymore, and accordingly water can be stored in the water storage part 12 of the water pumping device; when the inner rod and the outer rod are oppositely contracted, the water inlet device 9 seals the water inlet channel 8, and the water outlet device 11 is forced to move to not seal the water outlet channel 10 in the abutting mode anymore after water stored in the water storage part 12 of the water pumping device is pressed, and thus water is discharged to the wiping surface of the cleaning head 1-2 erected in the bucket 3 for cleaning; when the mop is wrung or stops being cleaned, the exhaust valve 12-2 of the control mechanism 6 moves to not seal the exhaust port 12-1 in the abutting mode anymore, the cleaning base 2 moves up and down relative to the cleaning head 1-2 erected in the bucket 3, the water pumping device 4 stops discharging water to the wiping surface of the cleaning head 1-2 erected in the bucket 3, and the cleaning base 2 abuts against the wiping surface of the cleaning head 1-2 for extruding wringing.

[0024] According to the invention, the water pumping device is arranged, the cleaning base moves up and

down relative to the bucket so that the water pumping device can be driven to clean the wiping surface of the cleaning head erected in the bucket, the water pumping device is easy, convenient and fast to operate, and the cleaning base abuts against the wiper of the cleaning head for operation, so that the cleaning effect is better; the working efficiency of the cleaned mop is high, and bacterium breeding can be prevented when the clean mop is stored.

[0025] As is shown in FIGs. 10-17, another water pumping device is provided in the second embodiment of the invention. In the embodiment, the water pumping device 4 is arranged between the cleaning base 2 and the bucket 3 and comprises a rotatable impeller 13 arranged in the bucket 3, the cleaning base 2 is connected with a threaded rod piece 14, a rotating piece 15 is arranged in the impeller 13, a thread 15-1 matched with the threaded rod piece 14 is arranged in the rotating piece 15, and the cleaning base 2 can move up and down relative to the bucket 3 in a guided mode through matching between the threaded rod piece 14 and the impeller 13; a one-way transmission mechanism 16 is arranged between the rotating piece 15 and the impeller 13, and the threaded rod piece 14 can move up and down relative to the bucket 3 to drive the impeller 13 to rotate in one direction; a shell 17 is arranged on the periphery of the impeller 13 and connected to the water storage part of the bucket, and the shell 17 is connected with a water outlet pipeline 18 which can deliver water to the wiping surface of the cleaning head 1-2; an opening communicating with the water storage part in the bucket is formed in the shell 17, and the threaded rod piece 14 moves up and down relative to the impeller 13 to discharge water in the shell 17 to the wiping surface of the cleaning head 1-2, erected in the bucket, of the mop through the water outlet pipeline 18.

[0026] According to the invention, the one-way transmission mechanism 16 comprises a transmission gear 15-2 arranged at the bottom of the rotating piece 15 and a transmission gear 13-1 arranged at the bottom of the inner side of the impeller 13, the two transmission gears are provided with engaging surfaces and sliding surfaces matched with the engaging surfaces, and the rotating piece 15 can move up and down relative to the impeller 13; when the rotating piece rotates in one direction to make the engaging surfaces of the two transmission gears abut against each other, one-way transmission is formed; when the rotating piece rotates in another direction to make the sliding surfaces of the two transmission gears abut against each other, the rotating piece 15 moves relative to the impeller 13, so that idling is formed.

[0027] According to the invention, the water pumping device 4 is connected with a control mechanism 6 which comprises a movable or rotatable water outlet pipeline 18 connected to the shell 17, and the water pumping device 4 can discharge water to the wiping surface of the cleaning head 1-2 erected in the bucket 3 or discharge water deviating from the wiping surface of the cleaning head 1-2 by controlling the direction of a water outlet 18-4 of the water outlet pipeline 18. The water outlet end of the water outlet pipeline 18 is sleeved with a rotatable water connector 18-3. The control mechanism can control the water pumping device to discharge water to the wiping surface of the cleaning head erected in the bucket or to stop discharging water to the wiping surface of the cleaning head.

[0028] The operating process in the embodiment is as follows: when the mop is cleaned, the water connector 18-3 rotates to make the water outlet 18-4 of the water outlet pipeline 18 face the wiping surface of the cleaning head 1-2, the cleaning base 2 moves up and down relative to the cleaning head 1-2 erected in the bucket 3 to make the threaded rod piece 14 drive the impeller 13 to rotate in the shell 17 in the bucket, and the rotating impeller 13 pushes water stored in the shell 17 to be discharged to the wiping surface of the cleaning head 1-2 erected in the bucket for cleaning through the water outlet pipeline 18; when the mop is wrung or stops being cleaned, the water connector 18-3 rotates to make the water outlet 18-4 of the water outlet pipeline 18 deviate from the wiping surface of the cleaning head, the cleaning base 2 moves up and down relative to the cleaning head 1-2 erected in the bucket 3, the water pumping device 4 discharges water deviating from the wiping surface of the cleaning head 1-2 erected in the bucket 3, and the cleaning base 2 is made to abut against the wiping surface of the cleaning head 1-2 for extruding wringing.

[0029] As is shown in FIGs. 18-23, another water pumping device is provided in the third embodiment of the invention. In the embodiment, the water pumping device 4 is arranged in the bucket 3 and comprises a pump body 19, a piston 20 and a driving piece 21, the pump body 19 is connected to the bucket 3, a water storage cavity 19-1 is formed in the pump body 19 and connected with a water inlet channel 22, the water storage cavity 19-1 can communicate with the water storage part in the bucket through the water inlet channel 22, and the water inlet channel 22 is connected with a water inlet device 22-1; one end of the driving piece 21 is arranged outside the pump body 19 and can abut against the cleaning base 2 arranged in the bucket, the other end of the driving piece 21 penetrates into the water storage cavity 19-1 of the pump body, and the driving piece 21 can move up and down relative to the pump body 19; the piston 20 is arranged in the water storage cavity 19-1, and the outer side wall of the piston 20 abuts against the side wall of the water storage cavity; the piston 20 is connected to the end, arranged in the water storage cavity 19-1, of the driving piece 21, and the piston 20 can move up and down relative to the pump body 19 along with the driving piece 21; the water storage cavity 19-1 is connected with a water outlet channel 23 and can communicate with the outside of the pump body 19 through the water outlet channel 23, and the water outlet channel 23 is connected with a water outlet device 23-1; the cleaning base 2 can move up and down relative to the bucket 3 to make the

driving piece 21 move in an abutting mode.

[0030] According to the invention, the water inlet device 22-1 comprises a movable abutting piece 22-5 arranged in the water inlet channel 22, and the abutting piece 22-5 can seal the water inlet end of the water inlet channel 22 in an abutting mode through self gravity or by being connected with a reset device and can move to not seal the water inlet channel 22 in the abutting mode anymore; the water outlet device 23-1 comprises a movable abutting piece 23-3 arranged in the water outlet channel 23, and the abutting piece 23-3 can seal the water storage part end of the water outlet channel 23 through self gravity or by being connected with the reset device and can move to not seal the water outlet channel 23 in the abutting mode anymore; a reset device 26 is arranged between the pressed driving piece 21 and the pump body.

[0031] According to the invention, the control mechanism 6 comprises a movable or rotatable water outlet channel 23 connected to the water storage cavity 19-1, and the water pumping device 4 can discharge water to the wiping surface of the cleaning head 1-2 erected in the bucket or discharge water deviating from the wiping surface of the cleaning head 1-2 by controlling the direction of the water outlet 23-4 of the water outlet channel 23. The water outlet end of the water outlet channel 23 is sleeved with a rotatable water connector 23-2. The control mechanism controls the water pumping device to discharge water to the wiping surface of the cleaning head erected in the bucket or to stop discharging water to the wiping surface of the cleaning head.

[0032] According to the invention, the guide rail comprises an inner rod and an outer rod, the inner rod is sleeved with the outer rod, a lower rod 1-3 of one of the inner rod and the outer rod is connected to the bucket 3, an upper rod 1-4 of one of the inner rod and the outer rod is connected with the cleaning base 2, and the cleaning base 2 can move up and down relative to the bucket 3 in a guided mode through the inner rod and the outer rod sleeving the inner rod. The cleaning base can move up and down relative to the bucket in the guided mode through the guide rail.

[0033] According to the invention, the water outlet channel and the driving piece can be integrated, and the piston and the abutting piece of the water outlet channel can be integrated.

[0034] The operating process in the embodiment is as follows: when the mop is cleaned, the water connector 23-2 rotates to make the water outlet 23-4 of the water outlet channel 23 face the wiping surface of the cleaning head 1-2, the cleaning base 2 moves up and down relative to the cleaning head 1-2 erected in the bucket 3, the moving cleaning base 2 can make the driving piece 21 move in an abutting mode, and the moving driving piece 21 drives the piston 20 to move up and down relative to the water storage cavity 19-1; when the piston 20 moves upwards relative to the water storage cavity 19-1, the water outlet device 23-1 seals the water outlet channel 23, the water inlet device 22-1 moves through pulling force generated when the piston 20 moves upwards relative to the water storage cavity 19-1 so as to not seal the water inlet channel 22 in the abutting mode anymore, and thus water can be stored in the water storage cavity 19-1; when the piston 20 moves downwards relative to the water storage cavity 19-1, the water inlet device 22-1 seals the water inlet channel 22, the water outlet device 23-1 can be forced to move to not seal the water outlet channel 23 in the abutting mode anymore after water in the water storage cavity 19-1 is pressed, and thus water can be discharged to the wiping surface of the cleaning head 1-2 erected in the bucket for cleaning; when the mop is wrung or stops being cleaned, the water connector 23-2 rotates to make the water outlet 23-4 of the water outlet channel 23 deviate from the wiping surface of the cleaning head, the cleaning base 2 moves up and down relative to the cleaning head 1-2 erected in the bucket 3, the water pumping device 4 discharges water deviating from the wiping surface of the cleaning head 1-2 erected in the bucket 3, and the cleaning base 2 is made to abut against the wiping surface of the cleaning head 1-2 for extruding wringing.

[0035] According to the invention, the guide rail comprises a guiding piece and a guiding rail, and the guiding piece is sleeved with the guiding rail; the guiding rail is arranged on the side wall of the bucket, the guiding piece is connected to the cleaning base, and the cleaning base can move up and down relative to the bucket in a guided mode through matching between the guiding piece and the guiding rail. The cleaning base can move up and down relative to the bucket in the guided mode through the guide rail.

[0036] The above embodiments are only certain cases of the invention, and it should be understood that any substitutions made according the spirit of the invention or any combinations of the embodiments are included in the protection scope of the invention.

Claims

1. A cleaning tool, comprising a mop (1), a cleaning base (2) and a bucket (3), wherein the mop comprises a mop rod (1-1), and a cleaning head (1-2) provided with a wiper is arranged at the lower end of the mop rod; the cleaning base (2) is connected to the bucket (3) through a guide rail, and the cleaning base can move up and down relative to the bucket in a guided mode through the guide rail; the cleaning base (2) can abut against the wiping surface of the cleaning head (1-2) erected in the bucket (3) and can move up and down relatively; **characterized in that** a water pumping device (4) is arranged in the bucket (3) or between the cleaning base (2) and the bucket (3), and the cleaning base (2) moves up and down relative to the bucket (3) so that the water pumping device (4) can be driven to deliver water in

the bucket (3) to the wiping surface of the cleaning head (1-2) of the mop for cleaning.

2. The cleaning tool according to Claim 1, **characterized in that** the water pumping device (4) is arranged between the cleaning base (2) and the bucket (3) and comprises an inner rod and an outer rod sleeving the inner rod, and a sealing device is arranged between the inner rod and the outer rod; a lower rod (1-3) of one of the inner rod and the outer rod is connected into the bucket (3) and internally provided with a water inlet channel (8), and the water inlet channel (8) can communicate with a water storage part in the bucket (3) and is connected with a water inlet device (9); an upper rod (1-4) of one of the inner rod and the outer rod is connected with the cleaning base (2) and internally provided with a water outlet channel (10), and the water outlet channel (10) is connected with a water outlet device (11); a cavity between the water inlet device (9) and the water outlet device (11) of the water pumping device (4) is the water storage part (12) of the water pumping device, and the cleaning base (2) can move up and down relative to the bucket (3) in a guided mode through the inner rod and the outer rod sleeving the inner rod.

3. The cleaning tool according to Claim 2, **characterized in that** the water inlet channel (8) can extend out of the lower rod (1-3), the water inlet device (9) comprises a movable abutting piece (9-1) arranged in the water inlet channel (8), and the abutting piece (9-1) can seal the water inlet end of the water inlet channel (8) in an abutting mode through self gravity or by being connected with a reset device (9-2) and can move to not seal the water inlet channel (8) in the abutting mode anymore; the water outlet channel (10) can extend out of the upper rod (1-4), the water outlet device (11) comprises a movable abutting piece (11-1) arranged in the water outlet channel (10), and the abutting piece (11-1) can seal the water storage part end of the water outlet channel (10) in an abutting mode through self gravity or by being connected with a reset device (11-2) and can move to not seal the water outlet channel (10) in the abutting mode anymore.

4. The cleaning tool according to Claim 2, **characterized in that** the water pumping device (4) is connected with a control mechanism (6) which comprises an exhaust port (12-1) formed in the water storage part (12) of the water pumping device, the exhaust port (12-1) is connected with a movable exhaust valve (12-2), and the exhaust valve (12-2) can move to seal the exhaust port (12-1) in an abutting mode or to not seal the exhaust port (12-1) in the abutting mode anymore; the water pumping device (4) can pump water or stop pumping water by controlling the exhaust port (12-1) to be in the sealed state or the non-sealed state.

5. The cleaning tool according to Claim 1, **characterized in that** the water pumping device (4) is arranged between the cleaning base (2) and the bucket (3) and comprises a rotatable impeller (13) arranged in the bucket (3), the cleaning base (2) is connected with a threaded rod piece (14), a rotating piece (15) is arranged in the impeller (13), a thread (15-1) matched with the threaded rod piece (14) is arranged in the rotating piece (15), and the cleaning base (2) can move up and down relative to the bucket (3) in a guided mode through matching between the threaded rod piece (14) and the impeller (13); a one-way transmission mechanism (16) is arranged between the rotating piece (15) and the impeller (13), and the threaded rod piece (14) can move up and down relative to the bucket (3) to drive the impeller (13) to rotate in one direction; a shell (17) is arranged on the periphery of the impeller (13) and connected to the water storage part of the bucket, and the shell (17) is connected with a water outlet pipeline (18) which can deliver water to the wiping surface of the cleaning head (1-2); an opening communicating with the water storage part in the bucket is formed in the shell (17), and the threaded rod piece (14) moves up and down relative to the impeller (13) to discharge water in the shell (17) to the wiping surface of the cleaning head (1-2), erected in the bucket, of the mop through the water outlet pipeline (18).

6. The cleaning tool according to Claim 5, **characterized in that** the one-way transmission mechanism (16) comprises a transmission gear (15-2) arranged at the bottom of the rotating piece (15) and a transmission gear (13-1) arranged at the bottom of the inner side of the impeller (13), the two transmission gears are provided with engaging surfaces and sliding surfaces matched with the engaging surfaces, and the rotating piece (15) can move up and down relative to the impeller (13); when the rotating piece rotates in one direction to make the engaging surfaces of the two transmission gears abut against each other, one-way transmission is formed; when the rotating piece rotates in another direction to make the sliding surfaces of the two transmission gears abut against each other, the rotating piece (15) moves relative to the impeller (13), so that idling is formed.

7. The cleaning tool according to Claim 5, **characterized in that** the water pumping device (4) is connected with a control mechanism (6) which comprises a movable or rotatable water outlet pipeline (18) connected to the shell (17), and the water pumping device (4) can discharge water to the wiping surface of the cleaning head (1-2) erected in the bucket (3) or discharge water deviating from of the wiping sur-

face of the cleaning head (1-2) by controlling the direction of a water outlet (18-4) of the water outlet pipeline (18).

8. The cleaning tool according to Claim 7, **characterized in that** the water outlet end of the water outlet pipeline (18) is sleeved with a rotatable water connector (18-3).

9. The cleaning tool according to Claim 1, **characterized in that** the water pumping device (4) is arranged in the bucket (3) and comprises a pump body (19), a piston (20) and a driving piece (21), the pump body (19) is connected to the bucket (3), a water storage cavity (19-1) is formed in the pump body (19) and connected with a water inlet channel (22), the water storage cavity (19-1) can communicate with the water storage part in the bucket through the water inlet channel (22), and the water inlet channel (22) is connected with a water inlet device (22-1); one end of the driving piece (21) is arranged outside the pump body (19) and can abut against the cleaning base (2) arranged in the bucket, the other end of the driving piece (21) penetrates into the water storage cavity (19-1) of the pump body, and the driving piece (21) can move up and down relative to the pump body (19); the piston (20) is arranged in the water storage cavity (19-1), and the outer side wall of the piston (20) abuts against the side wall of the water storage cavity; the piston (20) is connected to the end, arranged in the water storage cavity (19-1), of the driving piece (21), and the piston (20) can move up and down relative to the pump body (19) along with the driving piece (21); the water storage cavity (19-1) is connected with a water outlet channel (23) and can communicate with the outside of the pump body (19) through the water outlet channel (23), and the water outlet channel (23) is connected with the water outlet device (23-1); the cleaning base (2) can move up and down relative to the bucket (3) to make the driving piece (21) move in an abutting mode.

10. The cleaning tool according to Claim 9, **characterized in that** the water inlet device (22-1) comprises a movable abutting piece (22-5) arranged in the water inlet channel (22), and the abutting piece (22-5) can seal the water inlet end of the water inlet channel (22) in an abutting mode through self gravity or by being connected with a reset device and can move to not seal the water inlet channel (22) in the abutting mode anymore; the water outlet device (23-1) comprises a movable abutting piece (23-3) arranged in the water outlet channel (23), and the abutting piece (23-3) can seal the water storage part end of the water outlet channel (23) through self gravity or by being connected with the reset device and can move to not seal the water outlet channel (23) in the abutting mode anymore; a reset device (26) is arranged between the pressed driving piece (21) and the pump body.

11. The cleaning tool according to Claim 9, **characterized in that** the control mechanism (6) comprises a movable or rotatable water outlet channel (23) connected to the water storage cavity (19-1), and the water pumping device (4) can discharge water to the wiping surface of the cleaning head (1-2) erected in the bucket or discharge water deviating from the wiping surface of the cleaning head (1-2) by controlling the direction of the water outlet (23-4) of the water outlet channel (23).

12. The cleaning tool according to Claim 11, **characterized in that** the water outlet end of the water outlet channel (23) is sleeved with a rotatable water connector (23-2).

13. The cleaning tool according to Claim 9, **characterized in that** the guide rail comprises an inner rod and an outer rod, the inner rod is sleeved with the outer rod, a lower rod (1-3) of one of the inner rod and the outer rod is connected to the bucket (3), an upper rod (1-4) of one of the inner rod and the outer rod is connected with the cleaning base (2), and the cleaning base (2) can move up and down relative to the bucket (3) in a guided mode through the inner rod and the outer rod sleeving the inner rod.

14. The cleaning tool according to Claim 9, **characterized in that** the guide rail comprises a guiding piece and a guiding rail, and the guiding piece is sleeved with the guiding rail; the guiding rail is arranged on the side wall of the bucket, the guiding piece is connected to the cleaning base, and the cleaning base can move up and down relative to the bucket in a guided mode through matching between the guiding piece and the guiding rail.

15. The cleaning tool according to Claim 1, **characterized in that** the cleaning base (2) comprises a brush or a scraping strip, and the wiping surface of the cleaning head (1-2) erected in the bucket (3) can abut against the brush or the scraping strip.

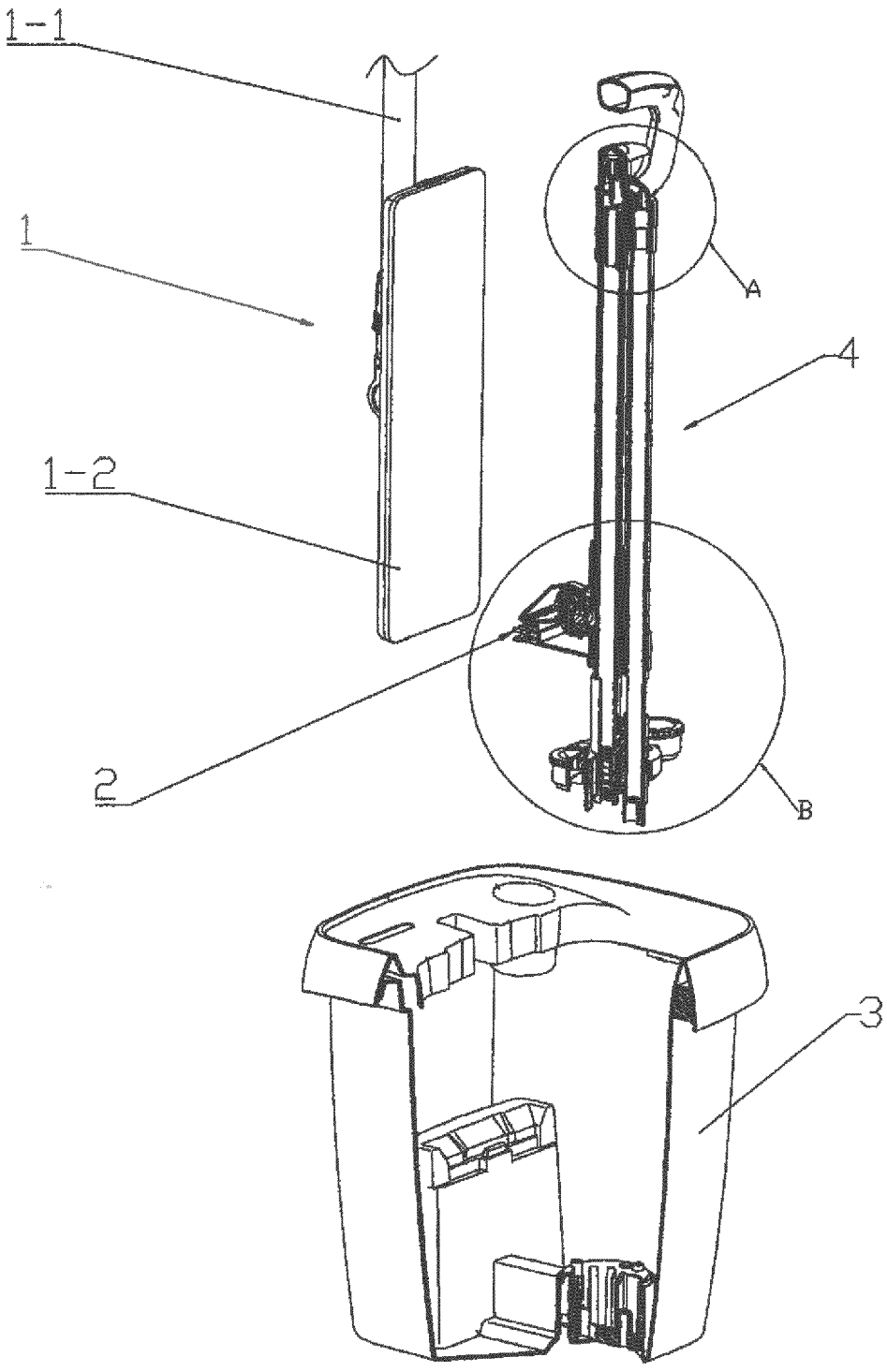


FIG. 1

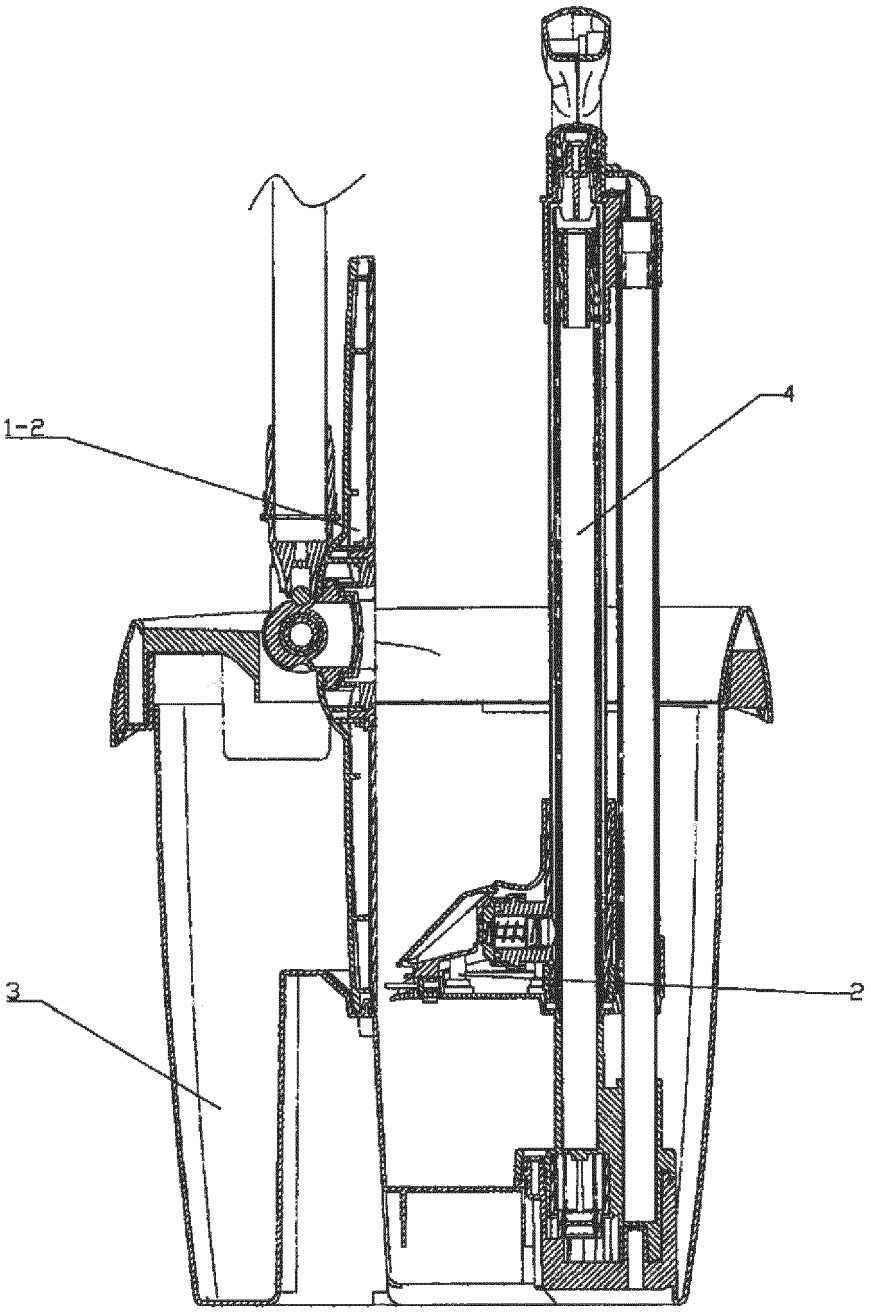


FIG. 2

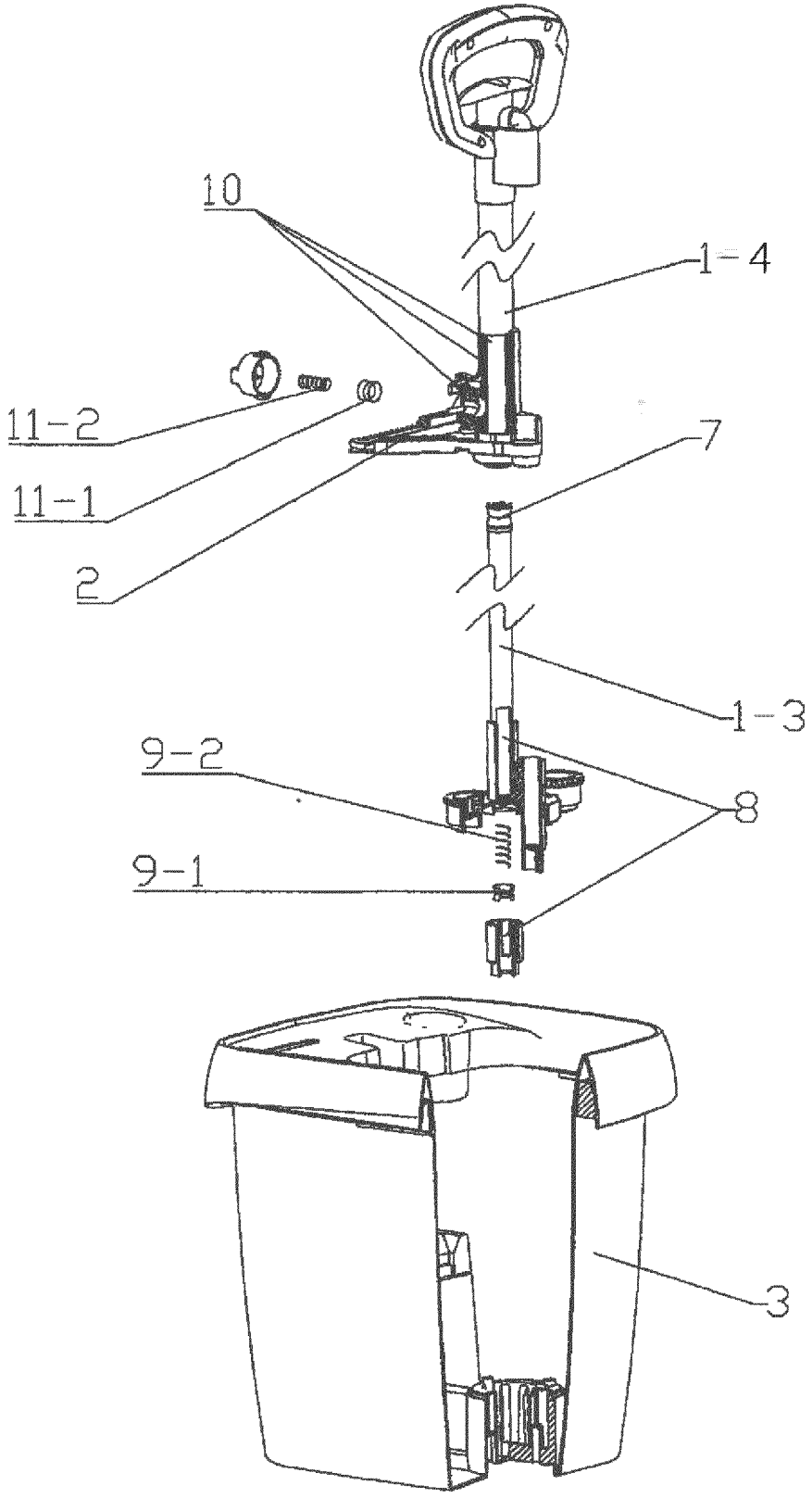


FIG. 3

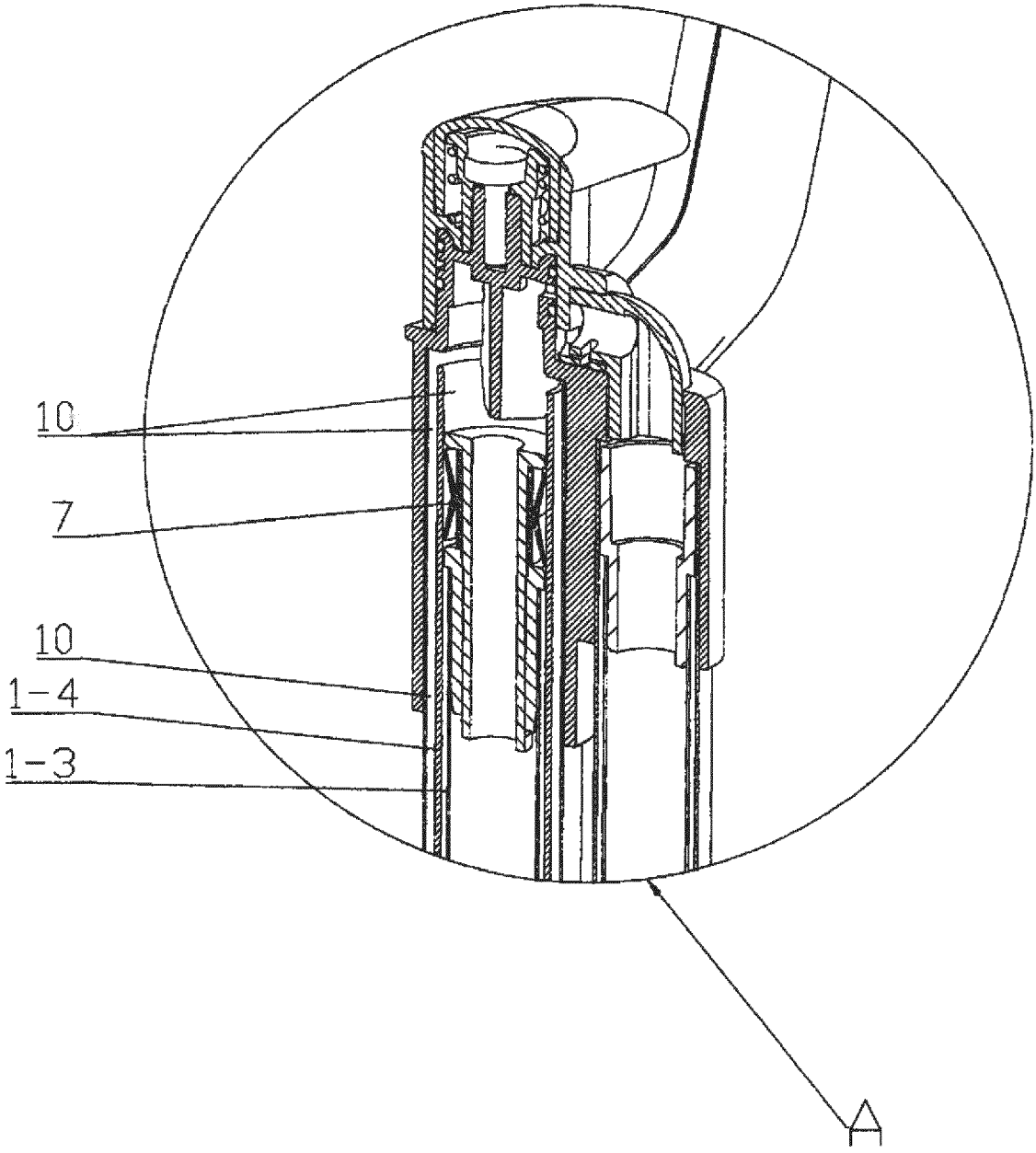


FIG. 4

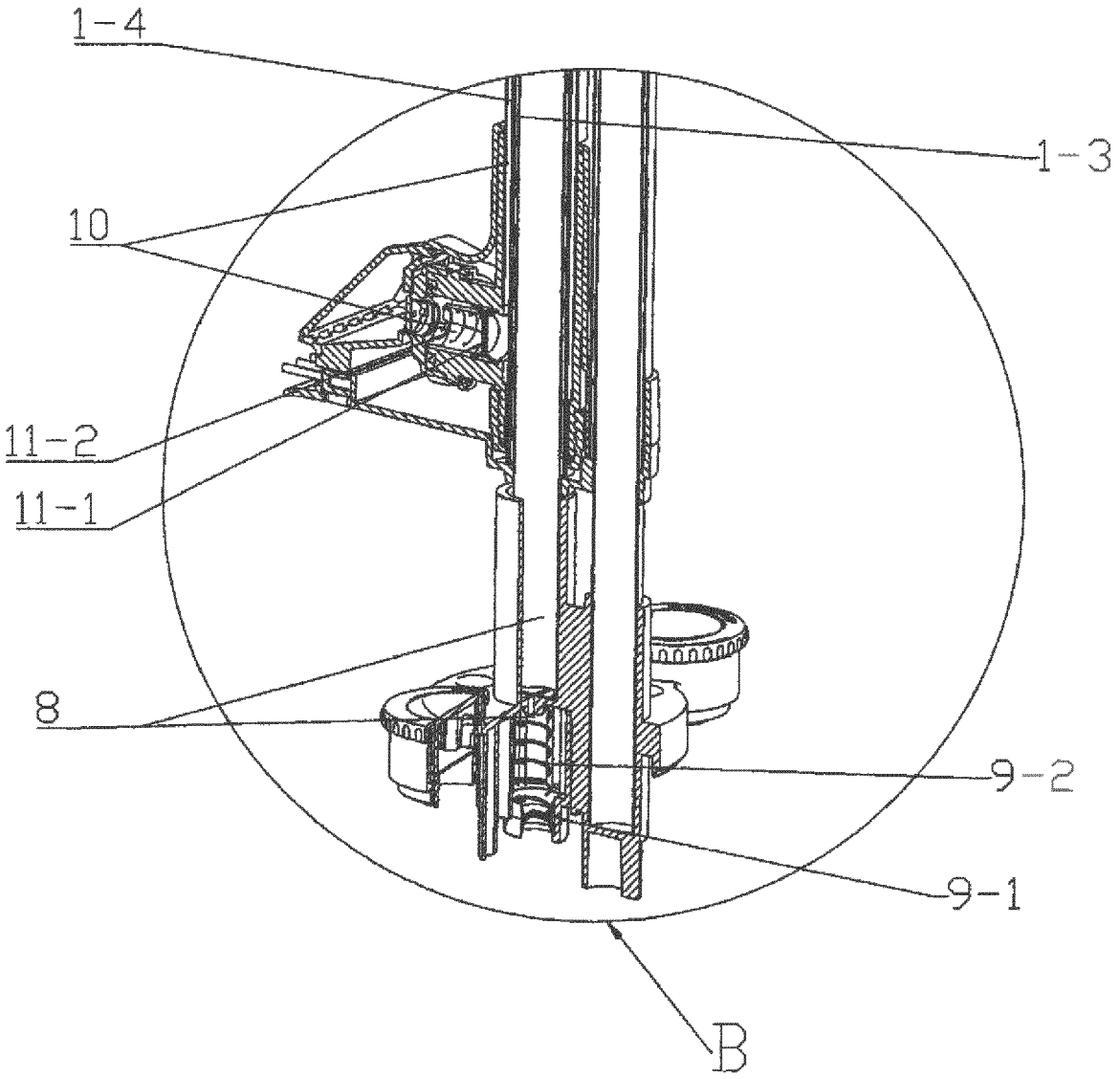


FIG. 5

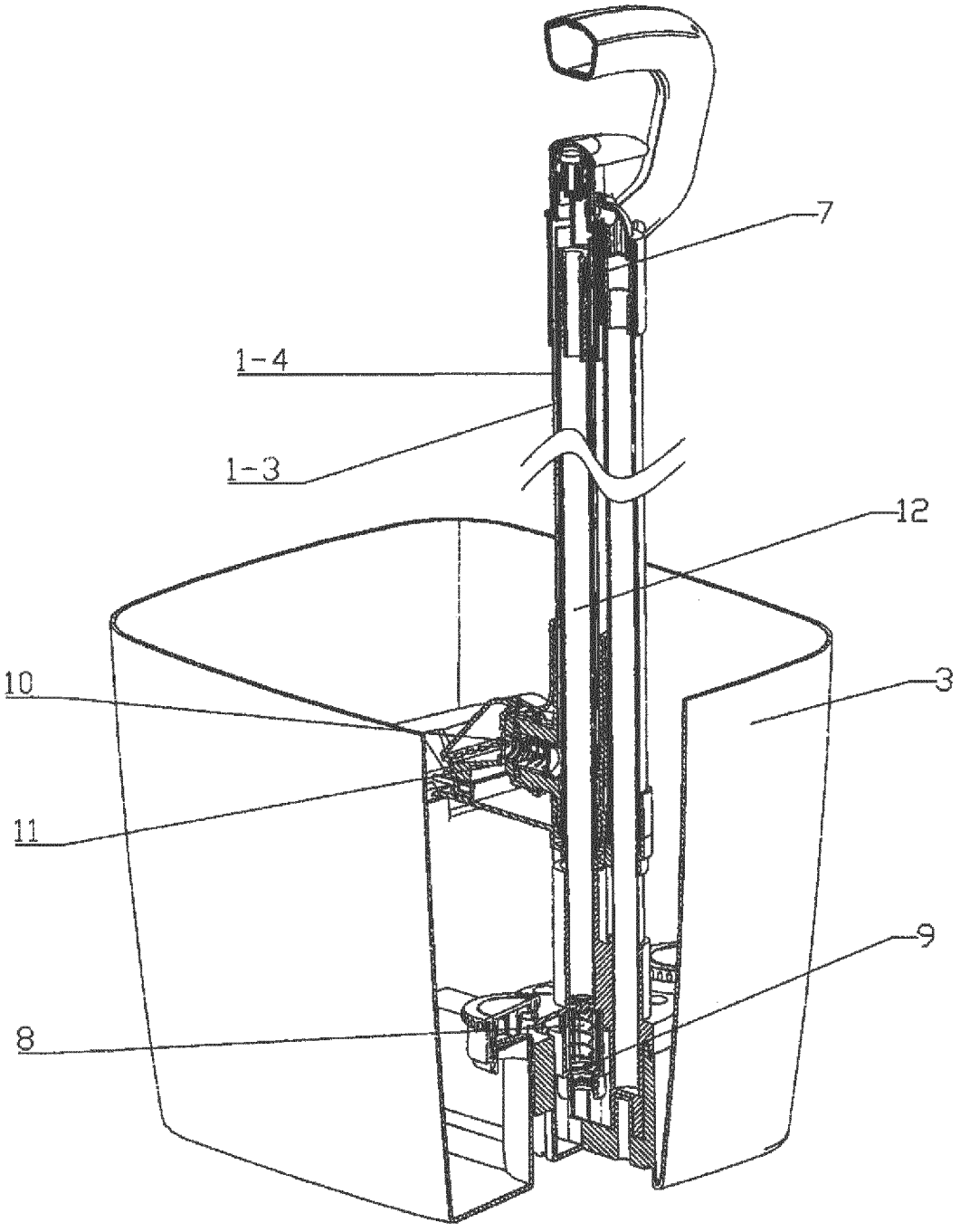


FIG. 6

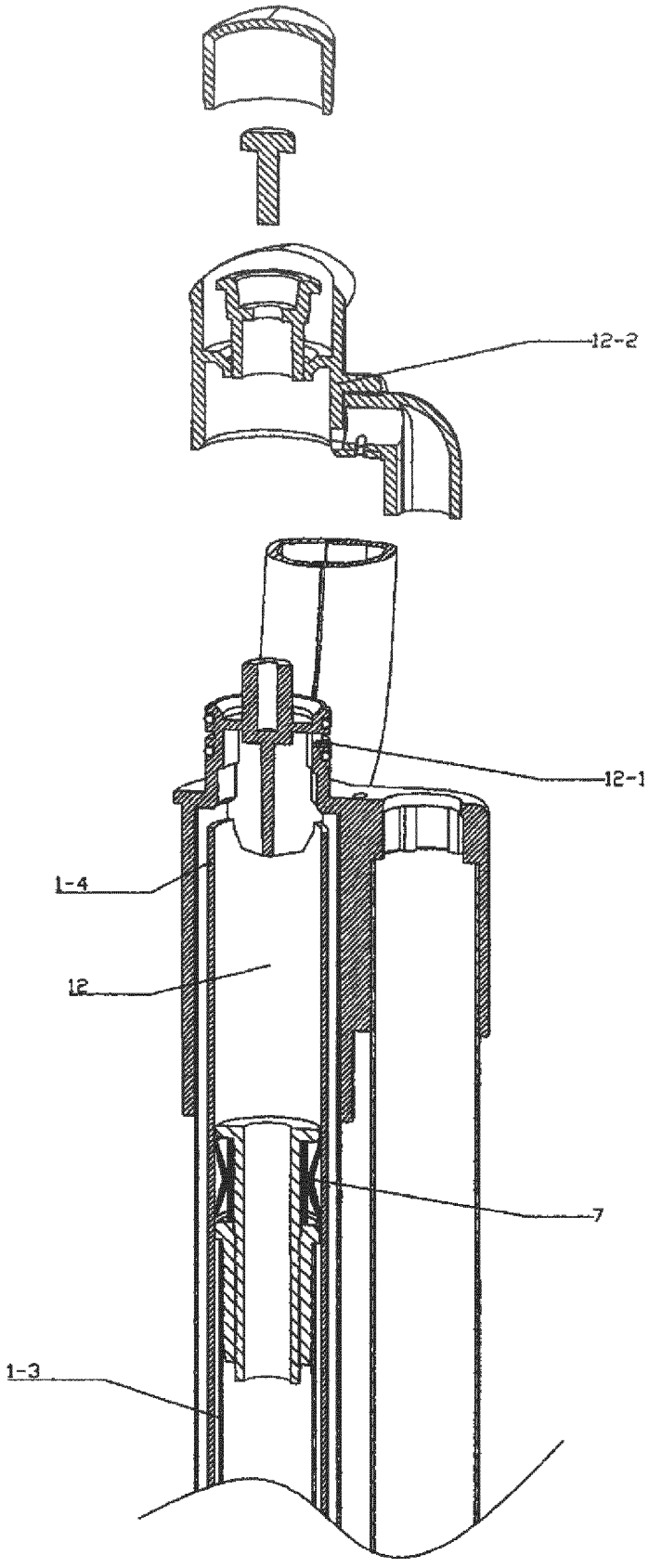


FIG. 7

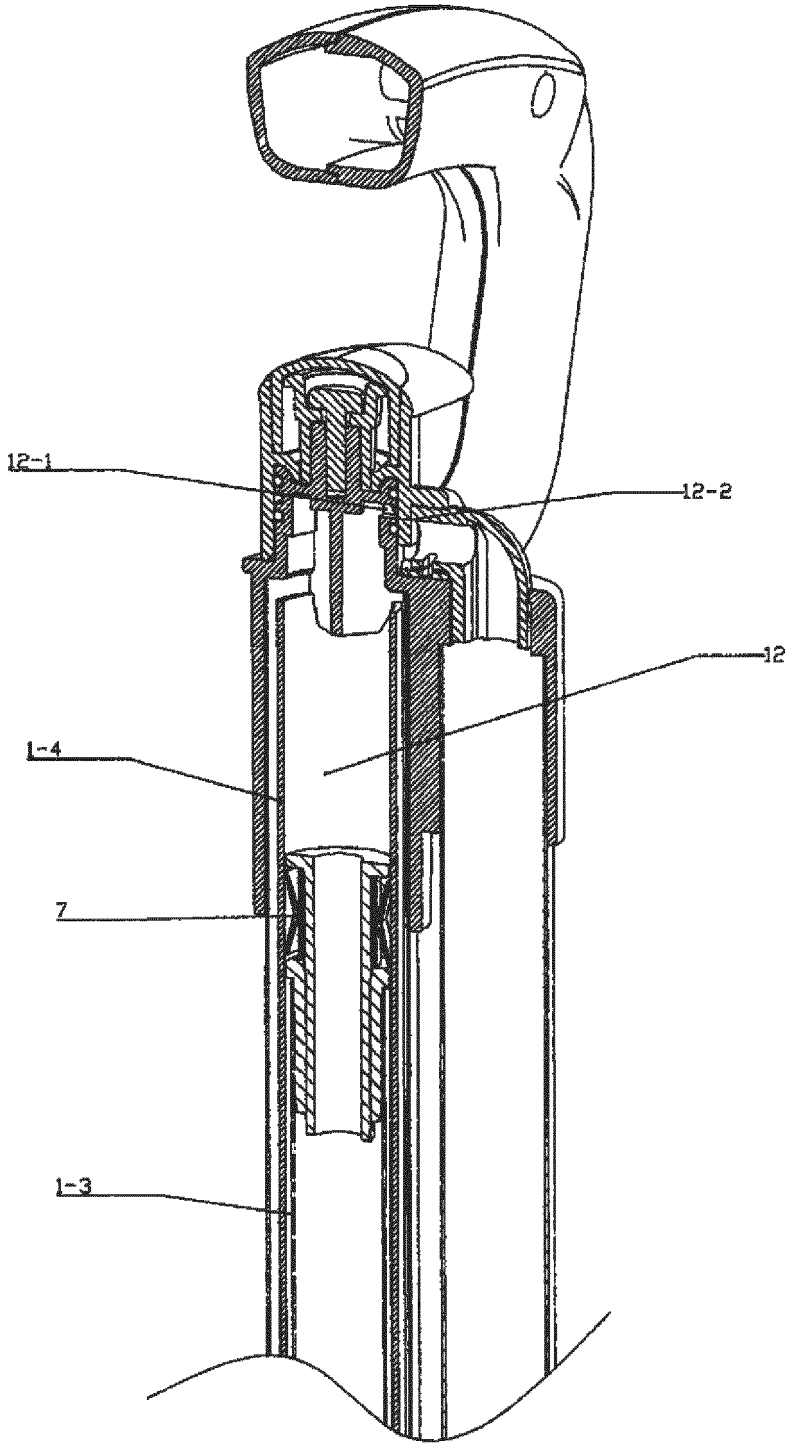


FIG. 8

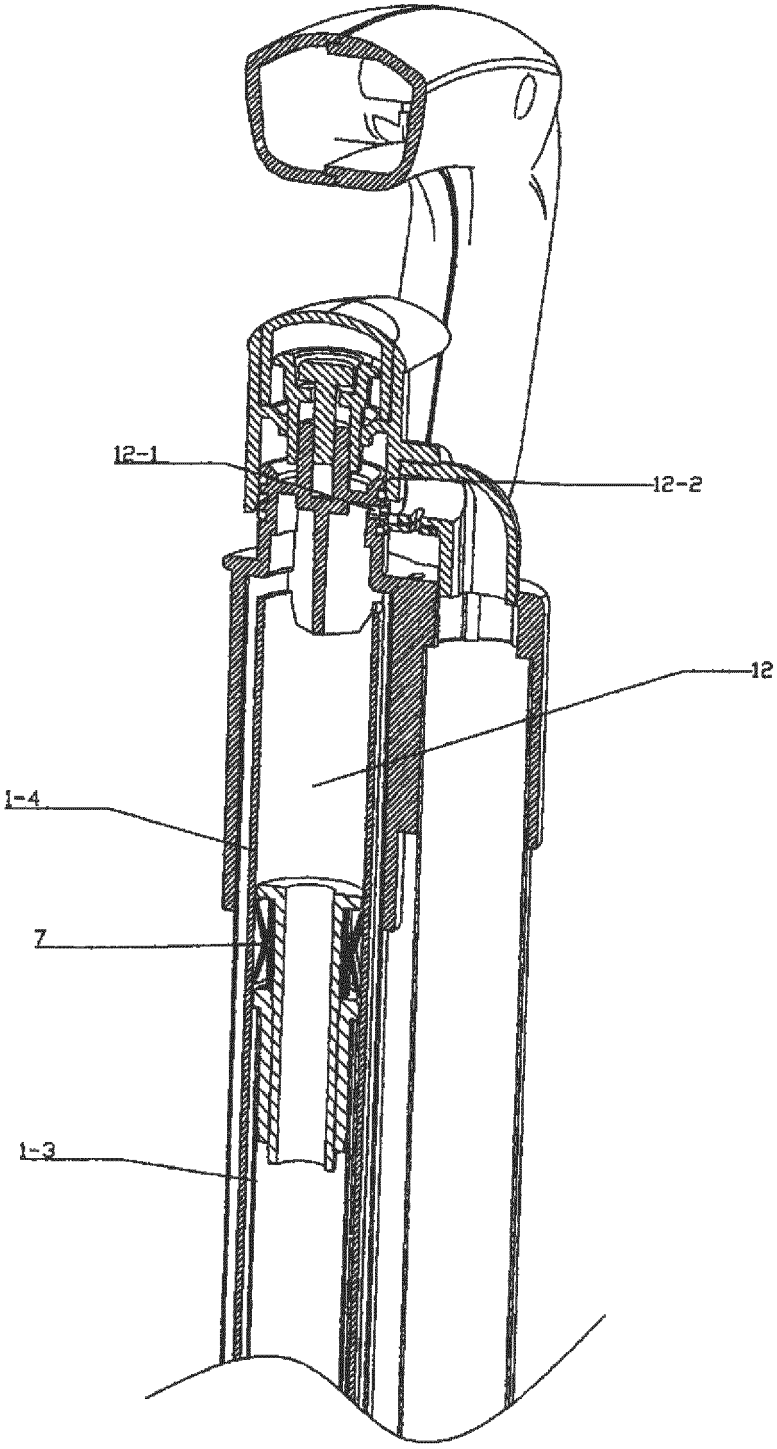


FIG. 9

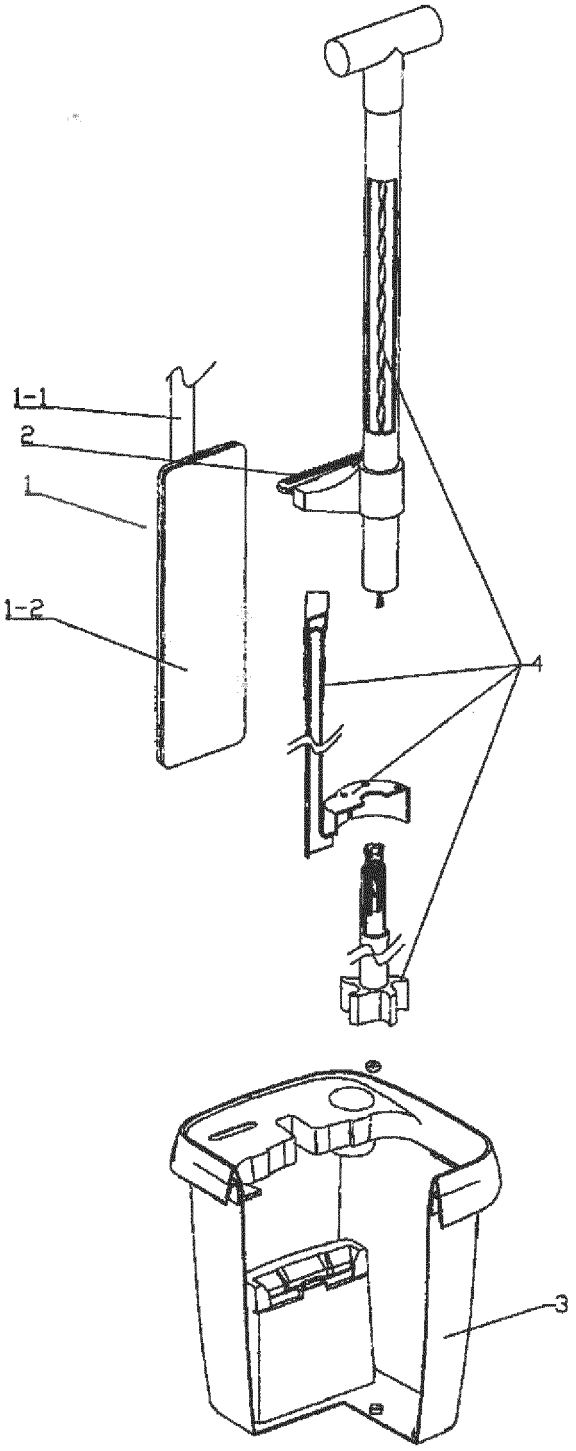


FIG. 10

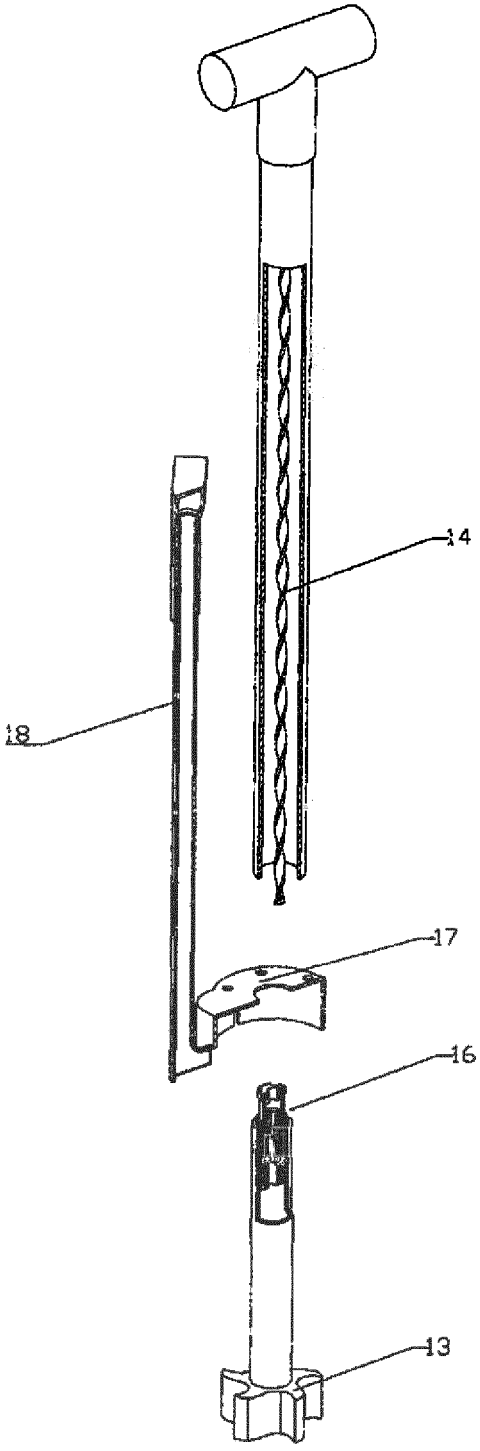


FIG. 11

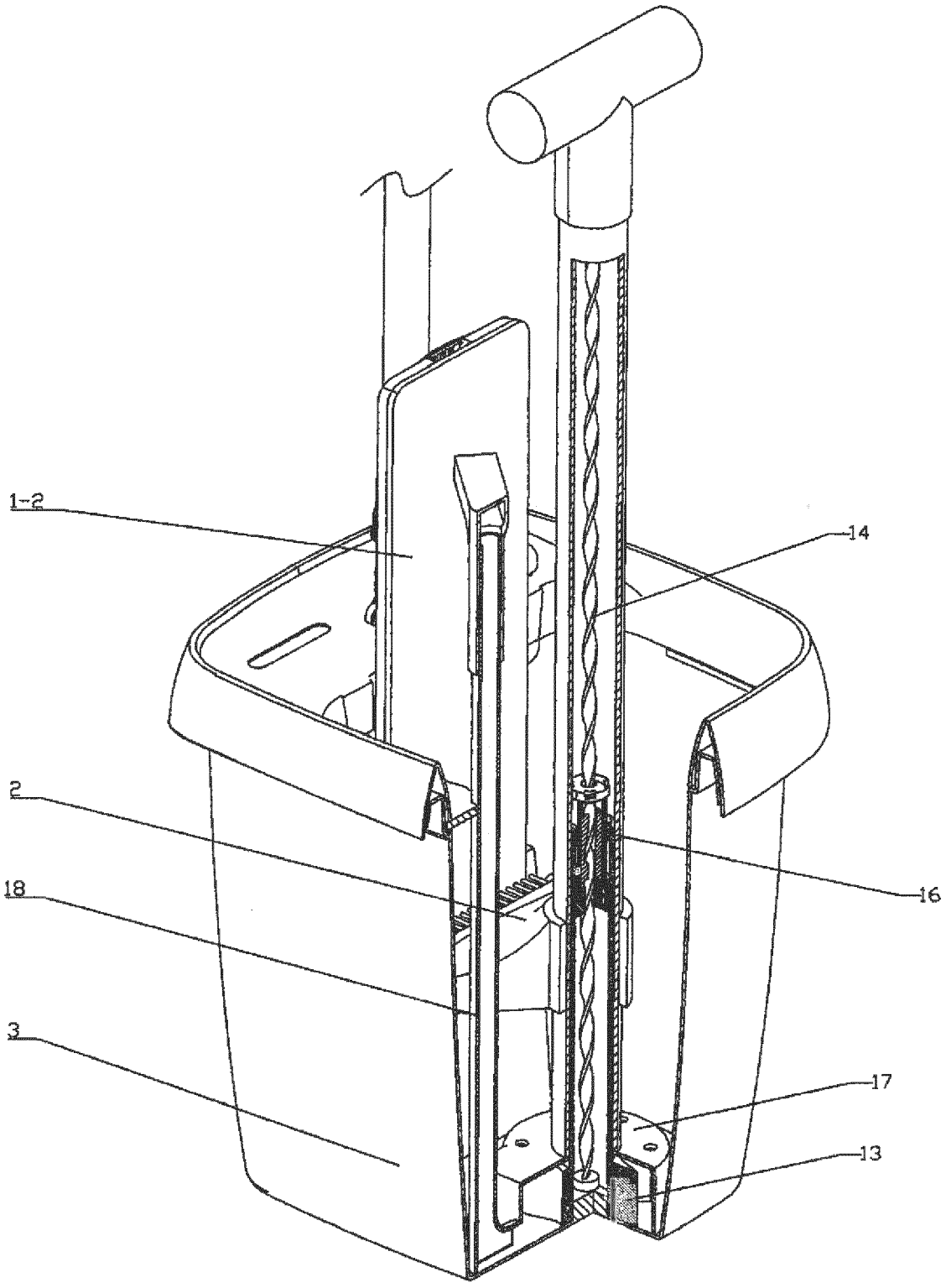


FIG. 12

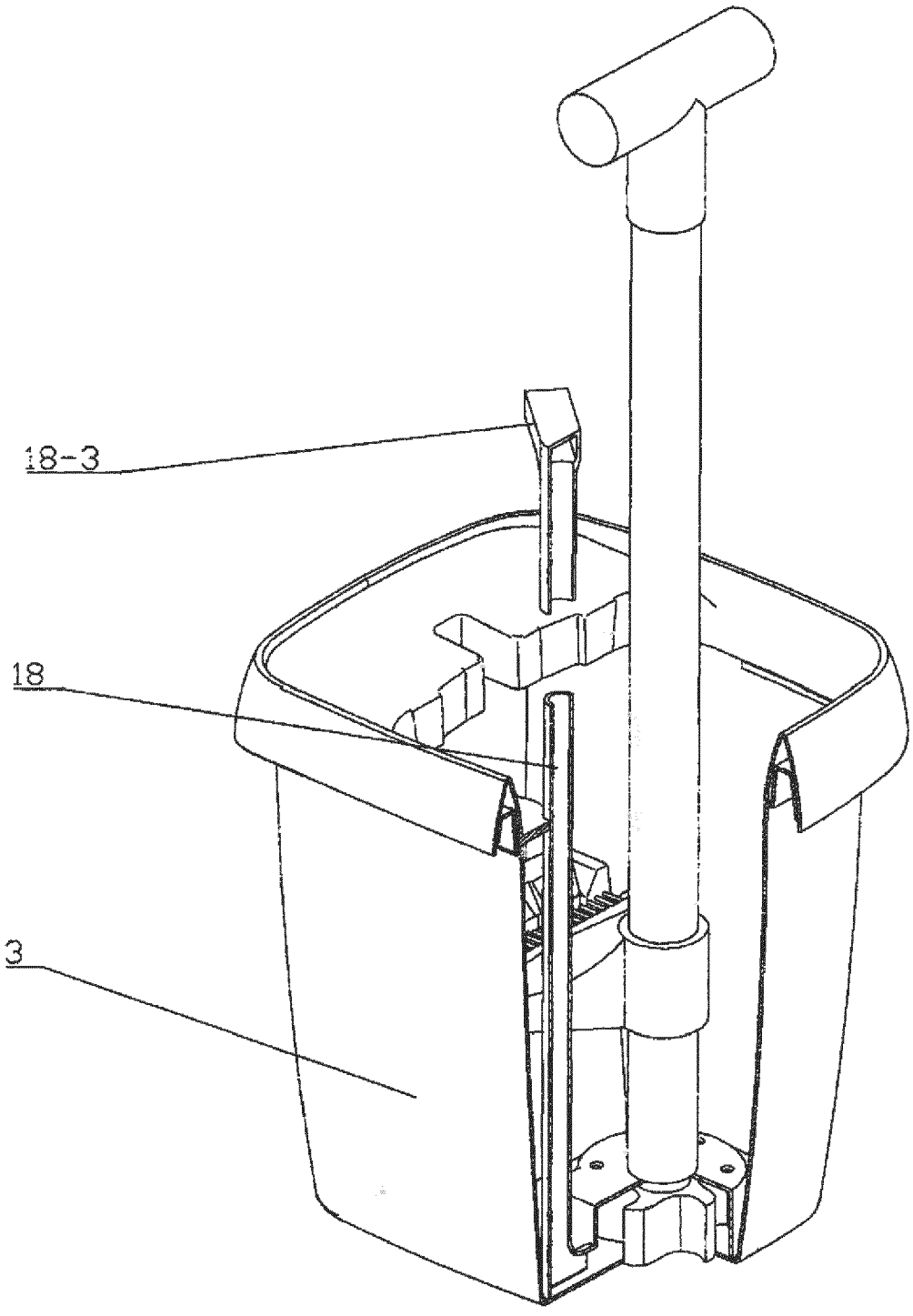


FIG. 13

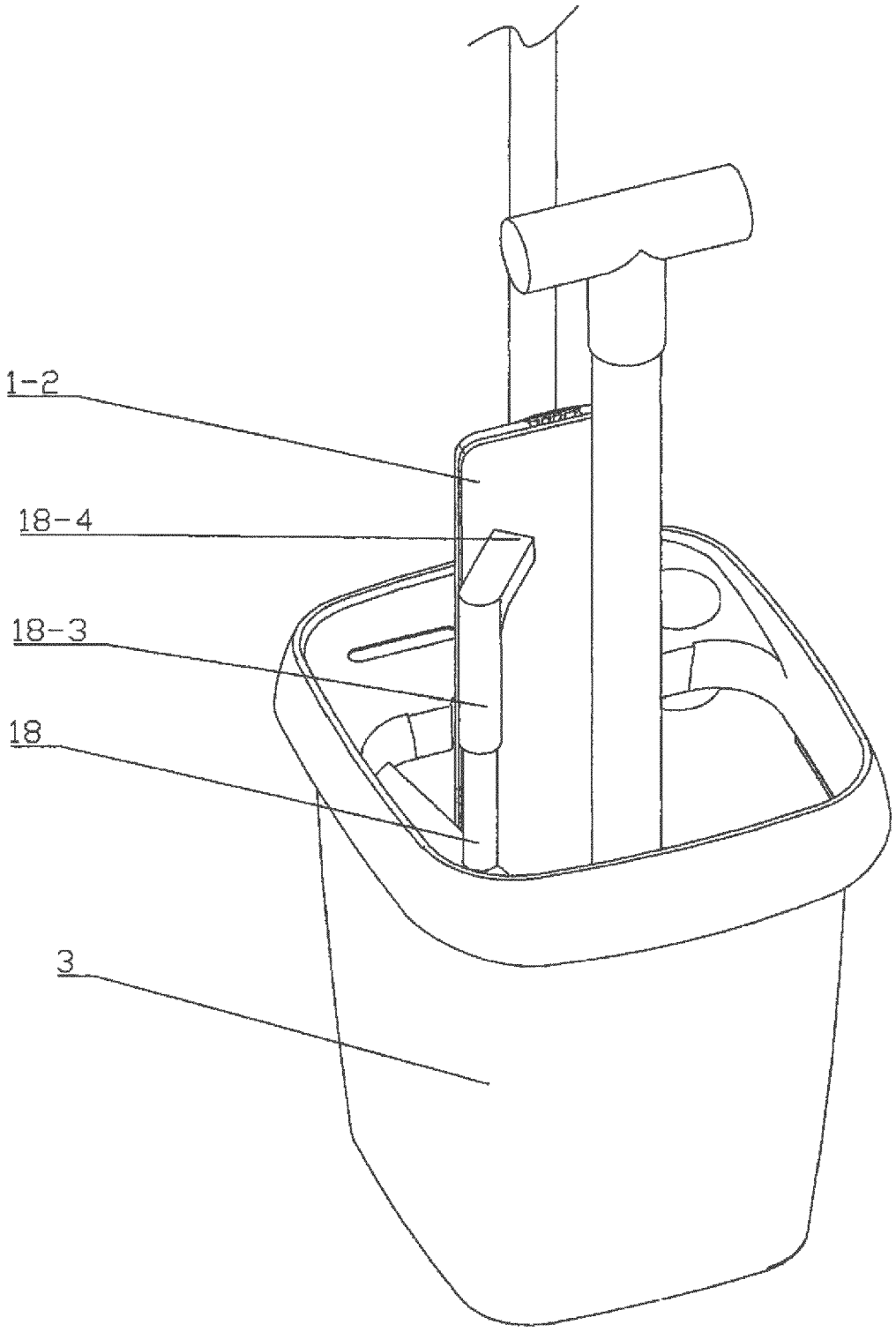


FIG. 14

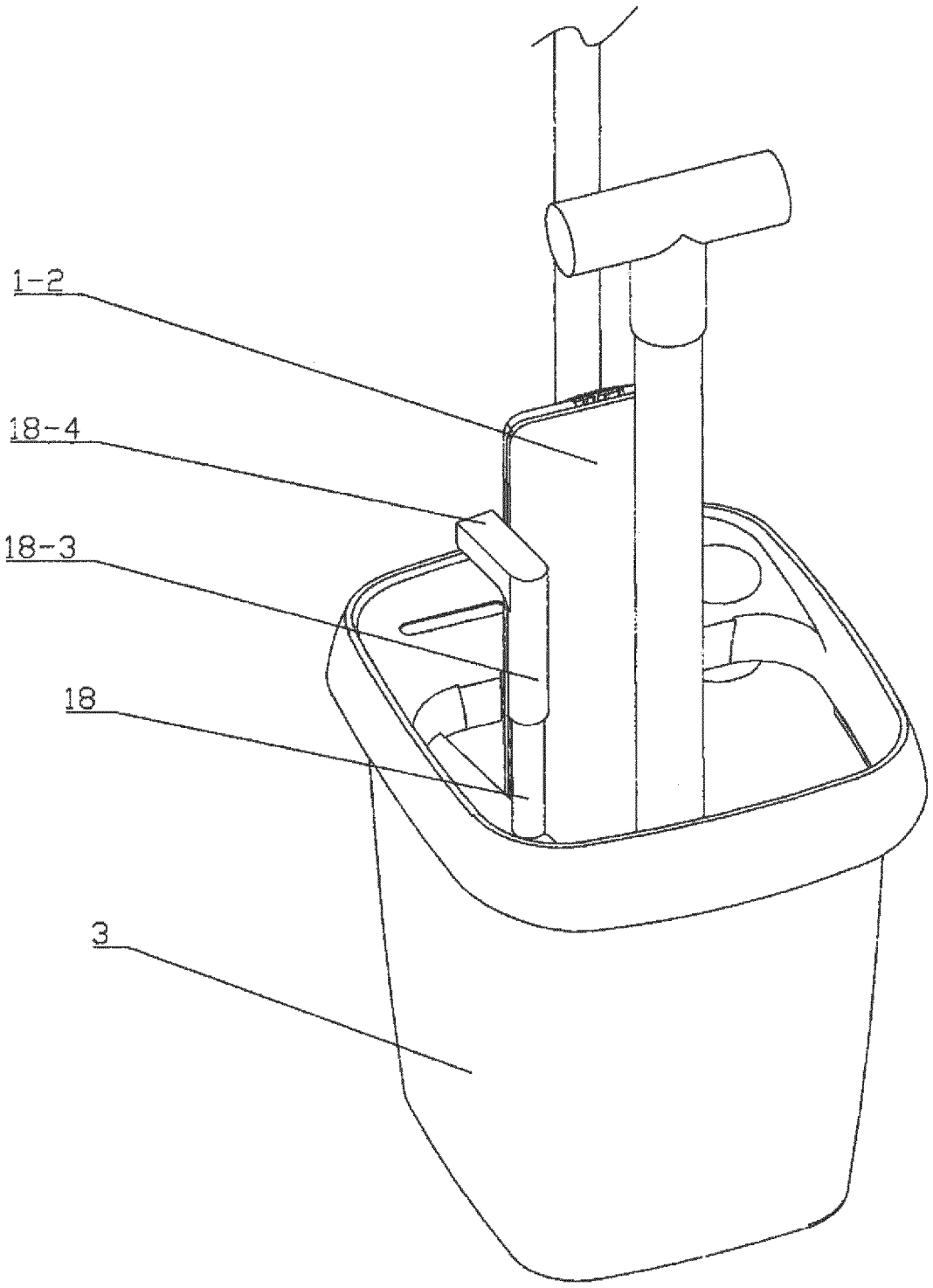


FIG. 15

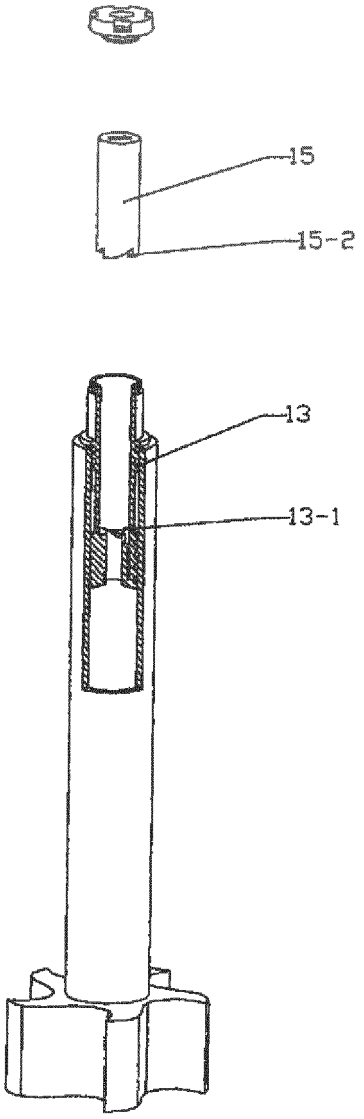


FIG. 16

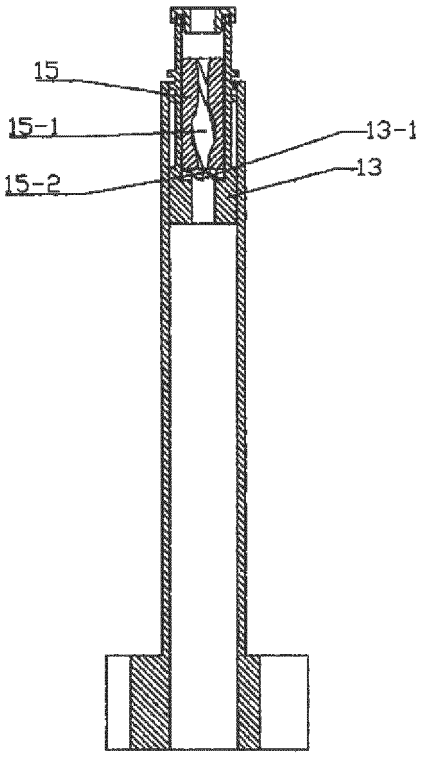


FIG. 17

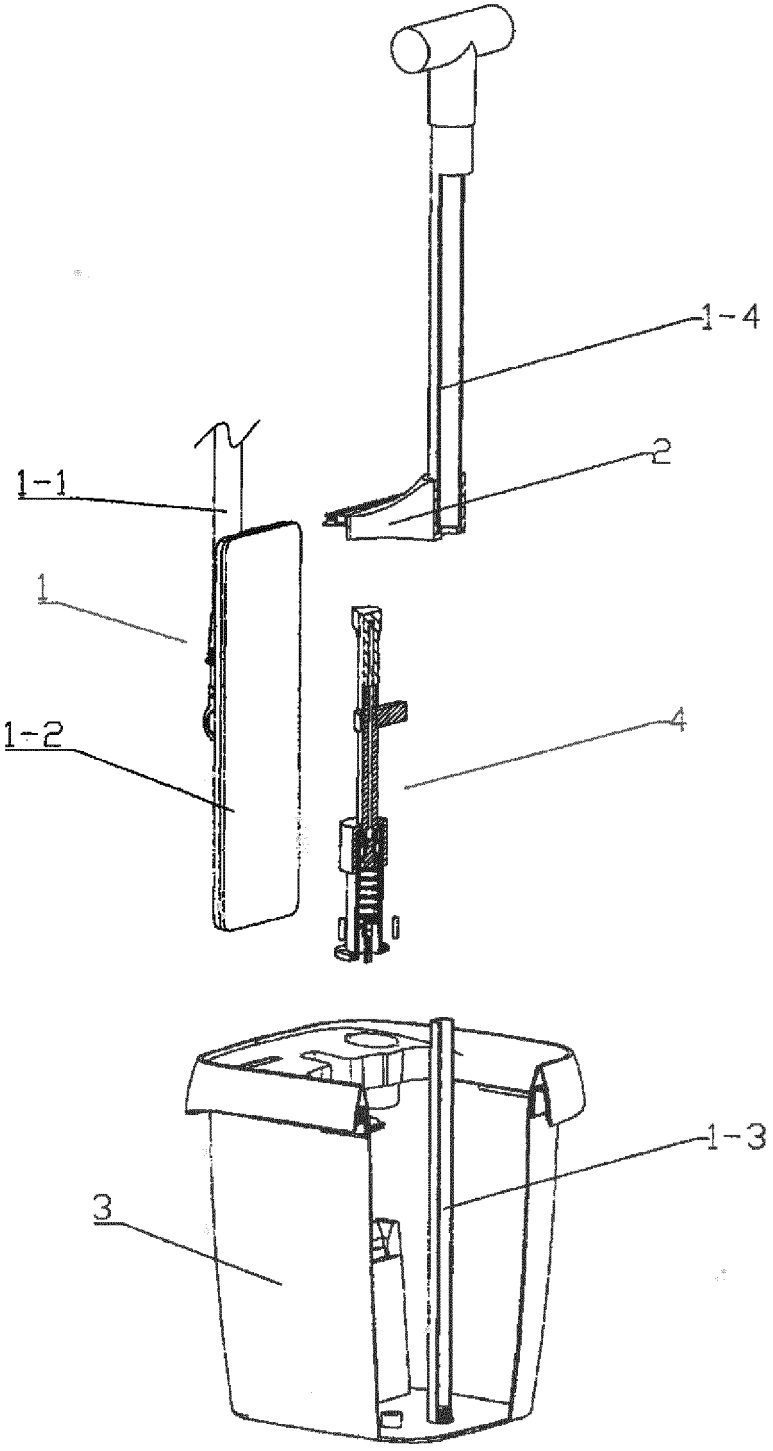


FIG. 18

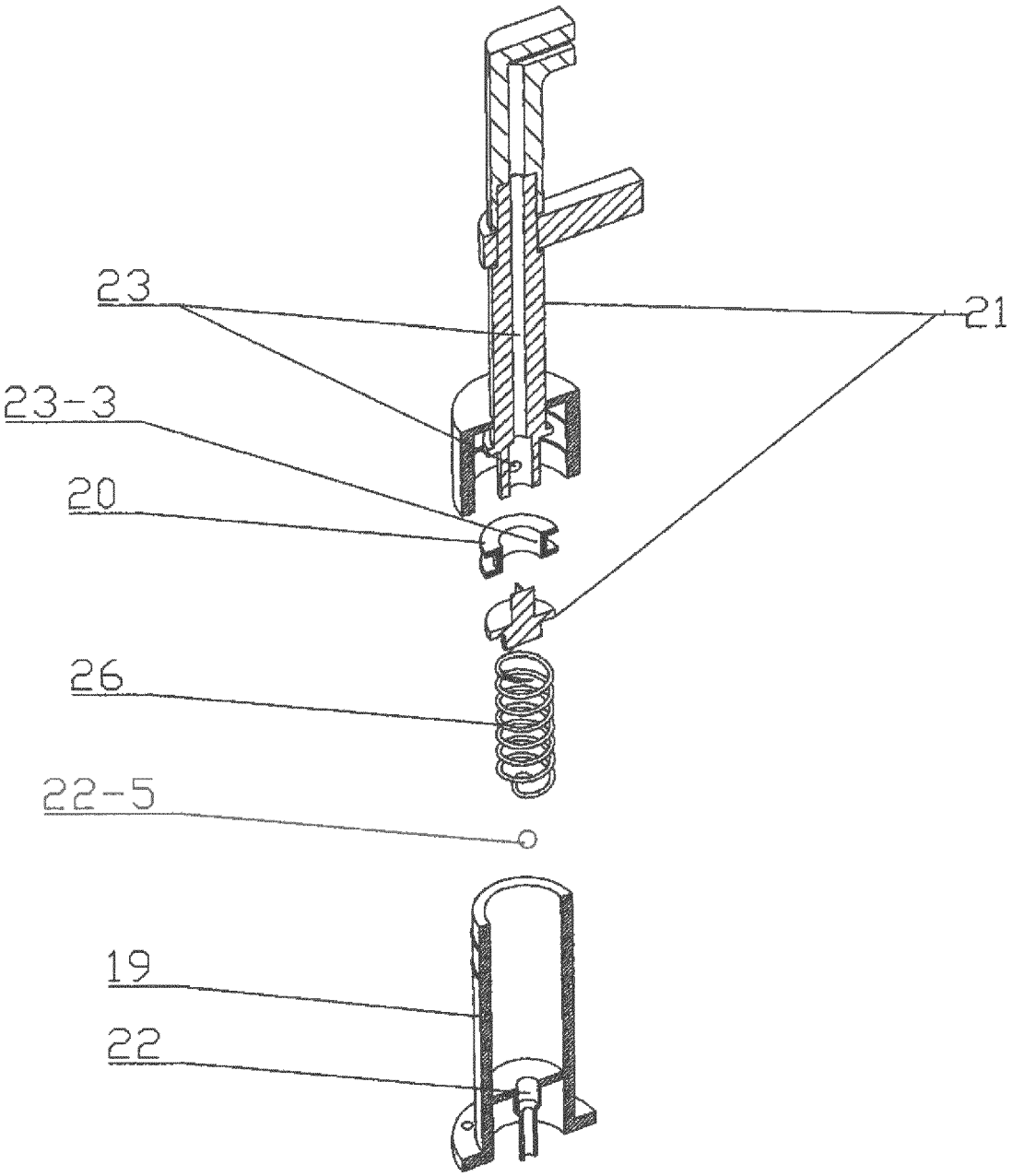


FIG. 19

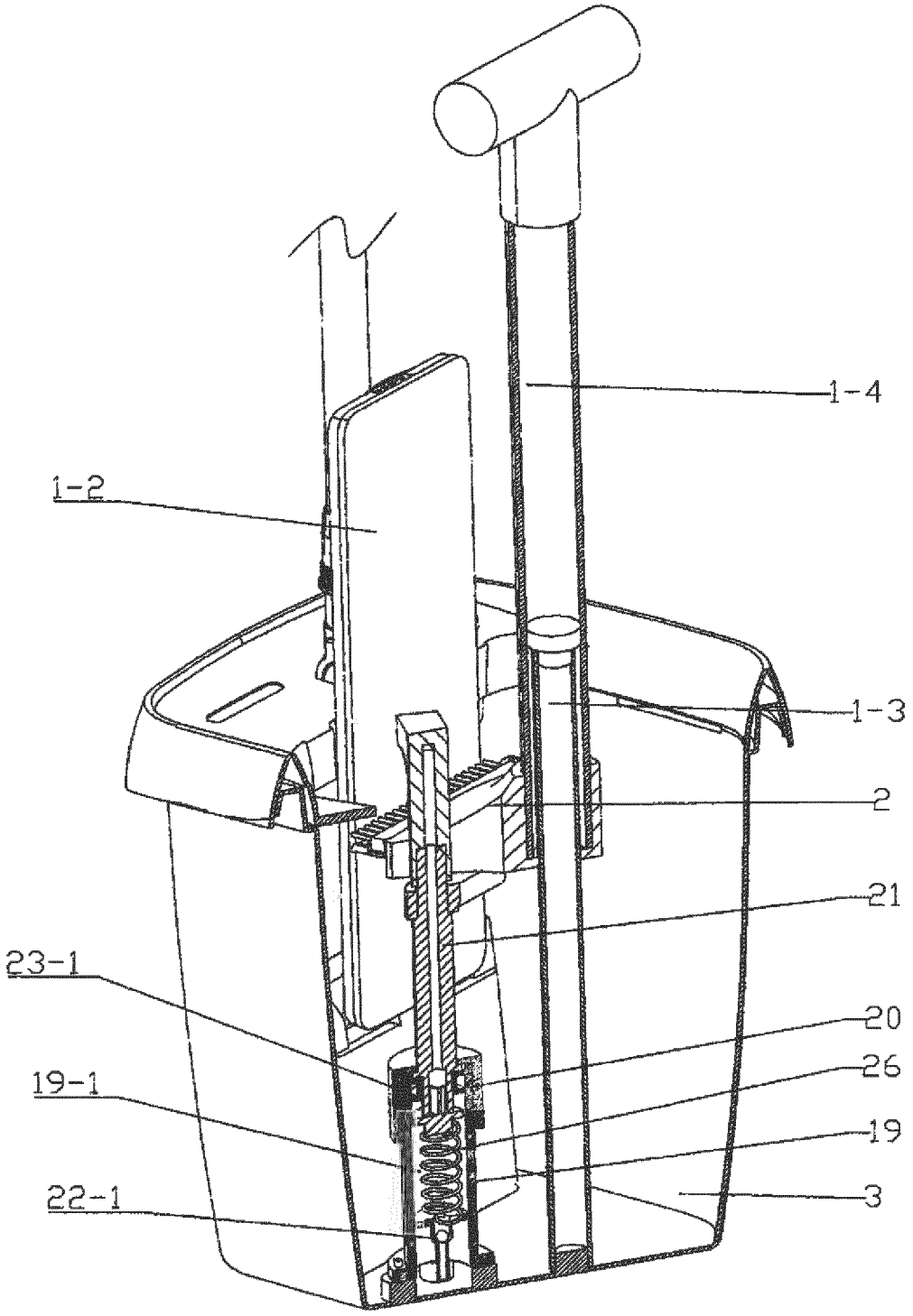


FIG. 20

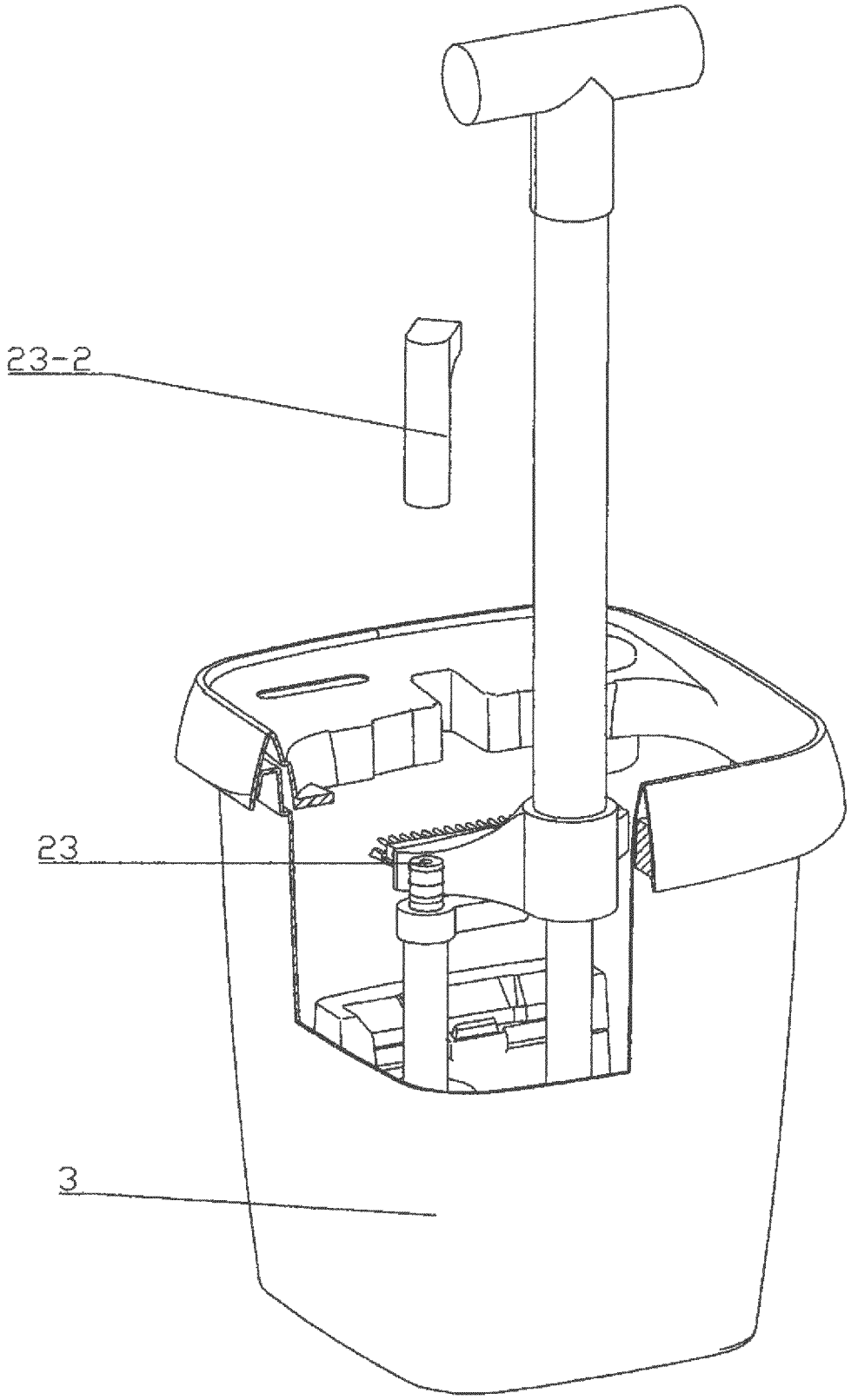


FIG. 21

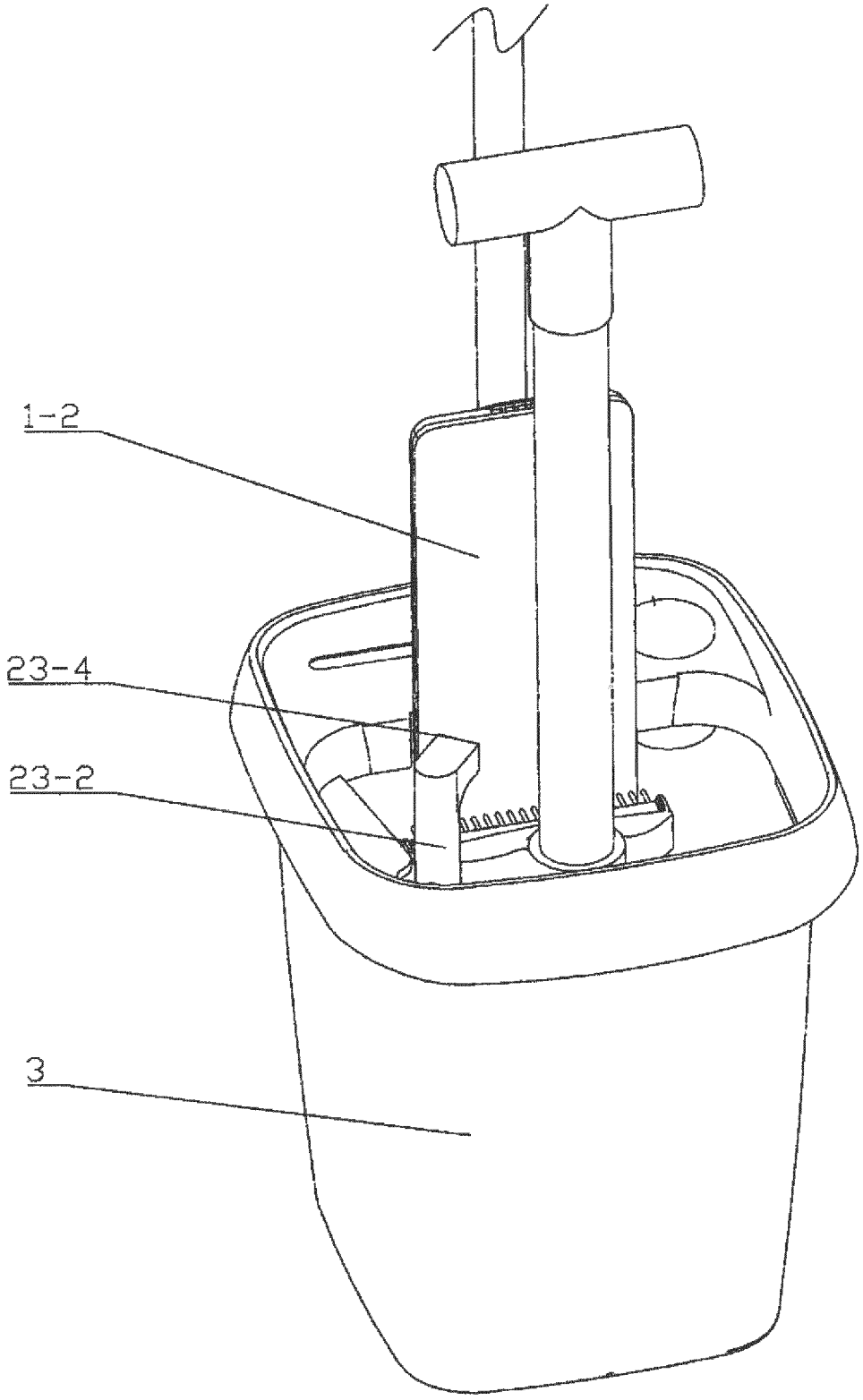


FIG. 22

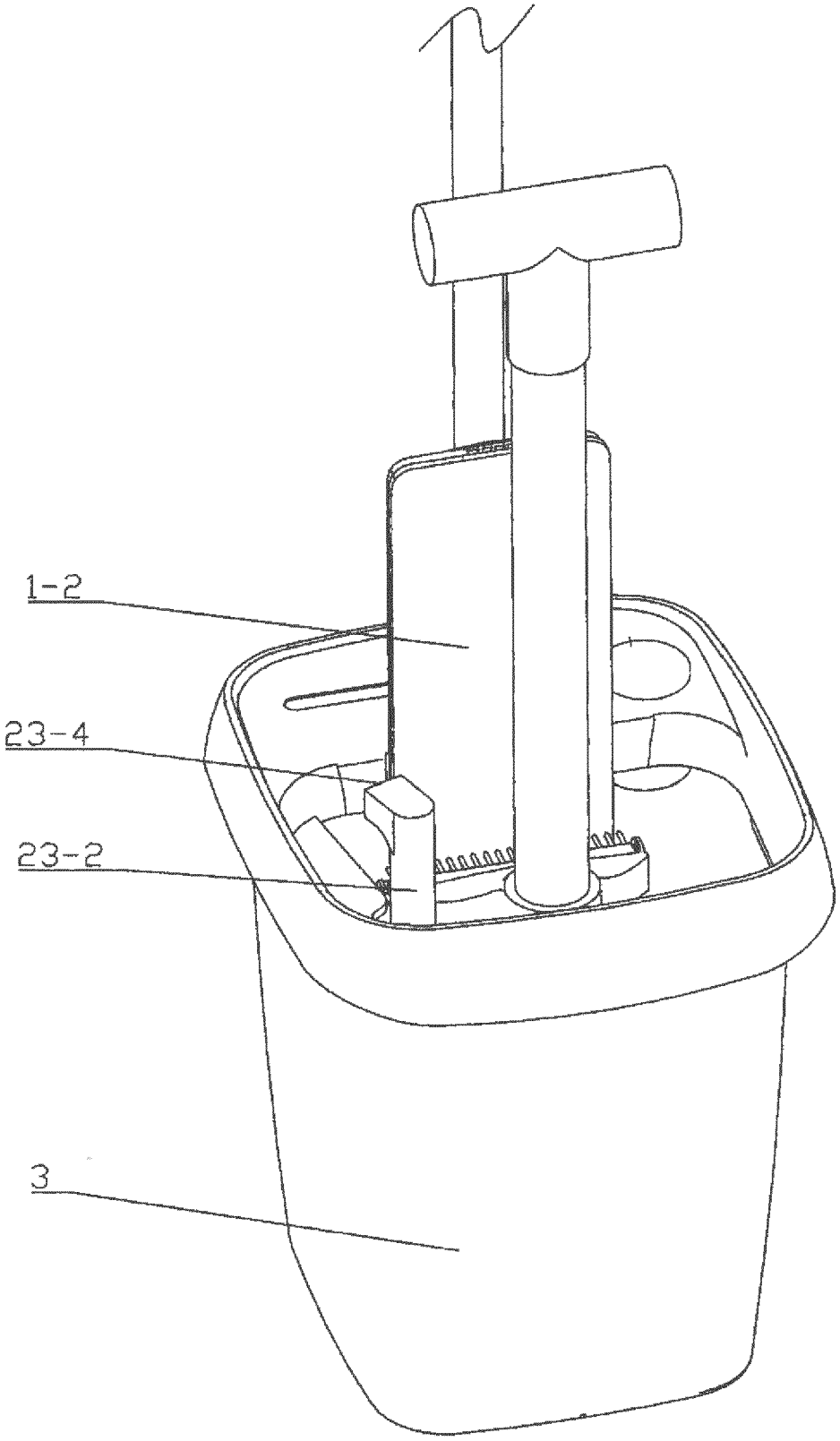


FIG. 23

Europäisches Patentamt
European Patent Office
Office européen des brevets

EUROPEAN SEARCH REPORT

Application Number
EP 17 18 5135

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	DE 100 65 373 A1 (BSH BOSCH SIEMENS HAUSGERAETE [DE]) 4 July 2002 (2002-07-04) * paragraph [0022] - paragraph [0032]; figure 1 *	1-15	INV. A47L13/58 A47L13/254 A47L13/20
A	GB 2 500 266 B (YOUNG RONALD ALEXANDER SCOT [GB]) 16 September 2015 (2015-09-16) * page 5, line 3 - page 16, line 2; figures 1,2 *	1-15	
A	DE 10 2004 044026 A1 (BSH BOSCH SIEMENS HAUSGERAETE [DE]) 16 March 2006 (2006-03-16) * paragraph [0024] - paragraph [0049]; figures 1-5 *	1-15	
A	DE 20 2015 105635 U1 (JIAXING JACKSON TRAVEL PRODUCTS CO [CN]) 28 October 2015 (2015-10-28) * paragraph [0030] - paragraph [0033]; figures 1-4 *	1-15	
			TECHNICAL FIELDS SEARCHED (IPC) A47L

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	11 January 2018	Blumenberg, Claus

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

EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 17 18 5135

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
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

11-01-2018

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 10065373 A1	04-07-2002	NONE	
GB 2500266 B	16-09-2015	AU 2013234084 A1	28-08-2014
		CA 2867437 A1	19-09-2013
		CN 104203061 A	10-12-2014
		EP 2825085 A1	21-01-2015
		GB 2500266 A	18-09-2013
		JP 2015509805 A	02-04-2015
		US 2015040942 A1	12-02-2015
		WO 2013136079 A1	19-09-2013
DE 102004044026 A1	16-03-2006	AT 461650 T	15-04-2010
		CN 101014275 A	08-08-2007
		DE 102004044026 A1	16-03-2006
		EA 200700410 A1	26-10-2007
		EP 1799091 A1	27-06-2007
		US 2007226942 A1	04-10-2007
		WO 2006027318 A1	16-03-2006
DE 202015105635 U1	28-10-2015	CN 204146974 U	11-02-2015
		DE 202015105635 U1	28-10-2015
		KR 20160049448 A	09-05-2016
		TW M515367 U	11-01-2016
		US 2016113471 A1	28-04-2016
		WO 2016065989 A1	06-05-2016

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82