FLOOR MOPPING MACHINE AND CLEANING DOCK FOR FLOOR MOPPING MACHINE

TECHNICAL FIELD

[0001] The present application relates to a technical field of cleaning appliances, in particular to a floor mopping machine and a cleaning dock of the floor mopping machine.

BACKGROUND

[0002] Floor mopping machines have been gradually used in household floor cleaning, which has many advantages such as labor-saving and good cleaning effect. After the floor mopping machine has been running for a period of time, a rag set at a bottom of the floor mopping machine will become dirty. Users usually need to remove the rag for cleaning, so that it can be used next time. This method has disadvantages such as cumbersome steps and troublesome cleaning, which makes the user experience poor.

[0003] In addition, liquid in a water tank of the floor mopping machine usually needs to be manually injected. Due to the limitation of the structure and function of the water tank of the floor mopping machine, an upper part of the water tank is not allowed to be opened with a large water injection hole, so when users need to inject liquid into the water tank of the floor mopping machine, it is easy to spill.

SUMMARY

[0004] In view of the shortcomings in the above-mentioned technology, the present application provides a floor mopping machine and a cleaning dock of the floor mopping machine.

[0005] Technical solutions adopted by the present application to solve the technical problems are as follows.

[0006] A first aspect of the present application provides a floor mopping machine including: a machine body being provided with a water tank of the floor mopping machine; and at least one

valve body being in communication with the water tank of the floor mopping machine; wherein after a cleaning dock is put into the floor mopping machine, the floor mopping machine communicates with a water tank of the cleaning dock through the valve body, and/or the floor mopping machine communicates with a cleaning nozzle of the cleaning dock through the valve body.

[0007] Using the floor mopping machine provided by the first aspect of the application, the machine body is provided with the water tank of the floor mopping machine, the base is provided with at least one valve body, and the valve body is in communication with the water tank of the floor mopping machine, when the floor mopping machine is in communication with the water tank of the cleaning dock through the valve body after being put into the cleaning dock, and/or is in communication with the cleaning nozzle of the cleaning dock through the valve body, the floor mopping machine has the advantages of simple connection structure and convenient use.

[0008] A second aspect of the present application provides a control method for a floor mopping machine, including: receiving a cleaning instruction after a water tank of the floor mopping machine is in communication with a second plug nozzle on a cleaning plate; controlling a first water pump of the floor mopping machine to turn on according to the cleaning instruction, so as to deliver liquid in the water tank of the floor mopping machine to the cleaning plate to wet a rag of the floor mopping machine; and controlling a power device of the floor mopping machine to rotate the rag of the floor mopping machine on the cleaning plate after the first water pump operates for a first preset time.

[0009] A third aspect of the present application provides a controller for a floor mopping machine, including: a receiving unit adapted to receive a cleaning instruction after a water tank of the floor mopping machine is in communication with a second plug nozzle on a cleaning plate; a water pump control unit adapted to control a first water pump of the floor mopping machine to turn on according to the cleaning instruction to deliver liquid in the water tank of the floor mopping machine to the cleaning plate to wet a rag of the floor mopping machine; and a power control unit adapted to control a power device of the floor mopping machine to rotate the rag of the floor mopping machine on the cleaning plate after the first water pump works for a first preset time.

[0010] A fourth aspect of the present application provides a floor mopping machine, wherein the floor mopping machine has the controller.

[0011] The second aspect of the present application provides a control method for a floor mopping machine, and the floor mopping machine can cooperate with the cleaning dock, thereby solving the pain points of the user inconvenience in cleaning the rag and increasing the user's comfort.

[0012] The floor mopping machine and the cleaning dock are connected through a first valve body and a second valve body and a plug nozzle, which has the advantages of simple structure and convenient connection.

[0013] When the floor mopping machine is placed on the cleaning dock, the two are in communication with each other, which can realize the charging of the floor mopping machine, and has the advantage of convenient use.

[0014] A water level sensor is arranged in the water tank of the floor mopping machine to detect the water level in the water tank of the floor mopping machine. When the water level is low, the water tank of the cleaning dock is used for water replenishment, so as to avoid manual water replenishment work to the water tank of the floor mopping machine, which has the advantage of high degree of automation.

BRIEF DESCRIPTION OF DRAWINGS

[0015] FIG. 1 is a schematic view of an overall structure of the present application;

[0016] FIG. 2 is a schematic view of an exploded structure of the present application;

[0017] FIGS. 3 to 5 are schematic views of a structure of a cleaning plate in the present application;

[0018] FIG. 6 is a schematic view of an overall structure of the present application;

[0019] FIG. 7 is a schematic view of an exploded structure of the present application;

[0020] FIG. 8 is a schematic view of a structure of a cleaning assembly in the present application;

[0021] FIG. 9 is a schematic view of installation of a driving assembly in the present application;

[0022] FIG. 10 is a schematic view of a structure of the driving assembly in the present application;

[0023] FIG. 11 is a schematic view of a structure in a state where the floor mopping machine is installed on the present application;

[0024] FIGS. 12 and 13 are schematic views of an overall structure of the floor mopping machine;

[0025] FIGS. 14 and 15 are schematic views of a partial structure of the floor mopping machine;

[0026] FIG. 16 is a schematic view of a connection position of a valve body;

[0027] FIG. 17 is a schematic view of an overall structure of the present application;

[0028] FIGS. 18 and 19 are schematic views of a structure of a cleaning plate in the present application;

[0029] FIG. 20 is a schematic view of an exploded structure of a flow path in the present application;

[0030] FIG. 21 is a schematic view of an internal structure of a mechanical valve in the present application;

[0031] FIG. 22 is a schematic view of an overall structure of the present application;

[0032] FIG. 23 is a schematic view of an exploded structure of the present application;

[0033] FIG. 24 is a schematic cross-sectional structure view of the present application;

[0034] FIG. 25 is a schematic view of a structure of a pump assembly in the present application;

[0035] FIG. 26 is a schematic structural view of the present application in a state where the floor mopping machine is installed;

[0036] FIGS. 27 and 28 are schematic views of an overall structure of the floor mopping

machine;

[0037] FIGS. 29 and 30 are schematic views of a partial structure of the floor mopping machine;

[0038] FIG. 31 is a schematic view of an overall structure of the present application;

[0039] FIG. 32 is a schematic view of an exploded structure of the present application;

[0040] FIGS. 33 and 34 are schematic views of a structure of a cleaning plate in different viewing angles in the present application;

[0041] FIG. 35 is a schematic view of an internal structure of a cleaning valve body in the present application;

[0042] FIG. 36 is a schematic view of an internal structure of the valve body for water replenishment in the present application;

[0043] FIG. 37 is a schematic view of cooperative relationship between the floor mopping machine and the cleaning dock according to the present application;

[0044] FIG. 38 is a schematic view of a structure of the floor mopping machine according to the present application;

[0045] FIG. 39 is a schematic view of an exploded structure of a base in a second embodiment of the present application;

[0046] FIG. 40 is a schematic view of an exploded structure between the cleaning dock and the floor mopping machine in the second embodiment of the present application;

[0047] FIG. 41 is a schematic bottom view of the base in the second embodiment of the present application;

[0048] FIG. 42 is a first schematic view of a partial structural exploded view of the cleaning dock in the second embodiment of the present application;

[0049] FIG. 43 is a second schematic view of a partial structural exploded view of the cleaning dock in the second embodiment of the present application;

[0050] FIG. 44 is a schematic bottom view of the cleaning plate in the second embodiment of the present application;

[0051] FIG. 45 is a schematic view of an exploded structure of a dock seat in the second embodiment of the present application;

[0052] FIG. 46 is one of the schematic cross-sectional views of a connection structure of the cleaning dock and the floor mopping machine in the second embodiment of the present application;

[0053] FIG. 47 is a schematic view of an enlarged structure of area C in FIG. 46;

[0054] FIG. 48 is a second schematic cross-sectional view of the connection structure of the cleaning dock and the floor mopping machine in the second embodiment of the present application;

[0055] FIG. 49 is a schematic diagram of the connection structure in a first embodiment of the present application;

[0056] FIG. 50 is a schematic diagram of the connection structure in a second embodiment of the present application;

[0057] FIG. 51 is a schematic diagram of the connection structure in a third embodiment of the present application;

[0058] FIG. 52 is a schematic structural view of a first valve body in a first embodiment of the present application;

[0059] FIG. 53 is one of the schematic views of a working state of the first valve body in the first embodiment of the present application;

[0060] FIG. 54 is a second schematic view of the working state of the first valve body in the first embodiment of the present application;

[0061] FIG. 55 is a schematic structural view of a second valve body of the present application;

[0062] FIG. 56 is one of the schematic views of the working state of the second valve body of

the present application;

[0063] FIG. 57 is a second schematic view of the working state of the second valve body of the present application;

[0064] FIG. 58 is a schematic view of the structure of the first valve body in the second embodiment of the present application;

[0065] FIG. 59 is one of the schematic views of the working state of the first valve body in the second embodiment of the present application;

[0066] FIG. 60 is a second schematic view of the working state of the first valve body in the second embodiment of the present application;

[0067] FIG. 61 is a flowchart of the present application;

[0068] FIG. 62 is a schematic view of a positional relationship between the floor mopping machine and the cleaning dock of the present application;

[0069] FIG. 63 is a schematic view of a structure of the floor mopping machine of the present application;

[0070] FIG. 64 is a schematic view of a positional relationship between the base of the floor mopping machine and the cleaning dock of the present application;

[0071] FIG. 65 is a schematic view of the structure of the base of the floor mopping machine of the present application;

[0072] FIG. 66 is one of the structural schematic views of the cleaning dock of the present application;

[0073] FIG. 67 is a second structural view of the cleaning dock of the present application;

[0074] FIG. 68 is a schematic view of the structure of the dock seat of the cleaning dock of the present application;

[0075] FIG. 69 is a schematic view of the floor mopping machine and cleaning dock of the present application when installed in place;

[0076] FIG. 70 is a schematic view of an enlarged structure of area C in FIG. 69;

[0077] FIG. 71 is a schematic view of the floor mopping machine and cleaning dock of the present application when not installed in place;

[0078] FIG. 72 is a schematic view of the structure of the first valve body of the present application;

[0079] FIG. 73 is one of the schematic views of the working state of the first valve body of the present application;

[0080] FIG. 74 is the second schematic view of the working state of the first valve body of the present application;

[0081] FIG. 75 is a schematic structural view of the second valve body of the present application;

[0082] FIG. 76 is one of the schematic views of the working state of the second valve body of the present application;

[0083] FIG. 77 is the second schematic view of the working state of the second valve body of the present application;

[0084] FIG. 78 is a schematic structural view of the present application in a state where the floor mopping machine is installed;

[0085] FIG. 79 is a schematic view of an overall structure of the present application;

[0086] FIG. 80 is a schematic view of an exploded structure of the present application;

[0087] FIGS. 81 and 82 are schematic views of a structure of a cleaning plate in different viewing angles in the present application;

[0088] FIG. 83 is a schematic view of a structure of a pumping device in the present application;

[0089] FIGS. 84 and 85 are schematic views of a partial structure of the floor mopping machine;

[0090] FIG. 86 is a schematic view of an internal structure of a water replenishment valve in the present application;

[0091] FIG. 87 is an isometric view of an overall structure of a cleaning plate of the floor mopping machine;

[0092] FIG. 88 is a schematic top view of the overall structure of the cleaning plate of the floor mopping machine;

[0093] FIG. 89 is a schematic view of a nozzle installation structure; and

[0094] FIGS. 90 to 92 are schematic views of a bottom structure of the cleaning plate of the floor mopping machine from different perspectives.

[0095] In FIGS. 1 to 5: 11, dock body; 1120, water storage tank; 12, cleaning plate; 122, nozzle; 13, water pump; 111, lower dock body; 112, upper dock body; 1121, sealing cover; 120, plate body; 121, cleaning rib; 124, reinforcing rib; 123, drain hole; 14, flow path; 141, enclosure plate; 142, cover plate; 1410, slot; 1420, protruding strip; 140, plug nozzle; 131, water inlet pipe; 132, water outlet pipe; 1110, sewage holding cavity.

[0096] In FIGS. 6 to 10: 21, dock body; 2120, cleaning water tank; 22, automatic cleaning unit; 23, water pump; 222, support plate; 24, driving assembly; 224, mounting hole; 211, lower dock body; 212, upper dock body; 2111, support boss; 2121, sealing cover; 231, water inlet pipe; 232, water outlet pipe; 220, cleaning plate; 2211, first rib; 2212, second rib; 223, drain hole; 240, driving motor; 242, shell; 241, worm; 243, worm gear; 244, rotating shaft; 2110, receiving cavity; 213, sewage container; 2112, water channel.

[0097] In FIGS. 11 to 21: 310, dock body; 311, cleaning plate; 323, rag of floor mopping machine; 314, nozzle; 321, water tank; 32, floor mopping machine; 320, machine body; 322, mounting base; 327, driving assembly; 324, charging plug; 3100, charging socket; 313, plug nozzle; 325, valve body; 3253, first valve port; 3252, second valve port; 326, spray head; 3251, third valve port; 3250, flow cavity; 3254, valve core; 3255, elastic member; 3220, through hole of base; 3111, rib; 3110, drain hole; 312, sewage storage tank; 3112, reinforcing rib; 315, flow path; 3151, enclosure plate; 3152, cover plate.

[0098] In FIGS. 22 to 25: 412, water tank; 42, cleaning plate; 4122, enclosure portion; 4124, first water storage cavity; 4121, side box portion; 4123, second water storage cavity; 4120,

sealing cover; 413, side support block; 421, cleaning rib; 411, support dock body; 43, water pump; 4320, water distribution pipe; 430, nozzle; 431, water inlet pipe; 432, main water outlet pipe; 433, water outlet branch pipe; 420, nozzle mounting hole; 4110, drain hole; 414, sewage storage tank; 41, cleaning dock body.

[0099] In FIGS. 26 to 36: 51, dock body; 512, water replenishment tank; 54, cleaning plate; 52, floor mopping machine; 521, water tank of floor mopping machine; 523, rag of floor mopping machine; 511, support base; 520, machine body; 522, base of floor mopping machine; 527, rotation driving device; 526, spray head; 524, charging plug; 514, charging socket; 542, nozzle; 551, cleaning plug nozzle; 5252, cleaning valve body; 5291, first cleaning valve port; 5292, second cleaning valve port; 5293, third cleaning valve port; 5510, cleaning flow path; 540, plate body; 541, cleaning rib; 543, drain hole; 544, reinforcing rib; 53, water replenishment pump; 552, water replenishment plug nozzle; 5251, water replenishment valve body; 5281, first water replenishment valve port; 5282, second water replenishment valve port; 5520, water replenishment flow path; 5521, flow path plug nozzle; 531, water inlet pipe; 532, water outlet pipe; 5120, side box body; 5121, sealing cover; 5110, mounting cavity; 5111, drain hole; 513, sewage cleaning tank; 580, second flow cavity; 581, second valve core; 582, second elastic member; 590, first flow cavity; 591, first valve core; 592, first elastic member.

[00100] In FIGS. 37 to 60, 610, base; 611, first insertion hole; 612, second insertion hole; 613, first valve body; 614, second valve body; 615, nozzle of floor mopping machine; 6151, hose; 616, rotating disc; 6161, rag; 617, support; 618, cover; 619, driving unit; 620, machine body; 621, water tank of floor mopping machine; 622, charging port; 623, connection portion; 630, handle; 640, cleaning dock; 641, first plug nozzle; 642, second plug nozzle; 643, cleaning plate; 6431, cleaning nozzle; 6432, first water flow channel; 6433, second water flow channel; 6434, rib; 644, dock seat; 6441, base; 6442, enclosure seat; 6443, sewage collection tank; 645, water pump of cleaning dock; 6451, water inlet pipe; 6452, water outlet pipe; 646, charging needle unit; 647, sewage port.

[00101] In FIGS. 61 to 77: 710, base; 713, first valve body; 714, second valve body; 715, nozzle of floor mopping machine; 7151, hose; 716, rotating disc; 7161, rag of floor mopping machine 719, driving unit; 720, machine body; 721, water tank of floor mopping machine; 722, charging port; 723, connection portion; 730, handle; 731, power button; 732, cleaning button; 740, cleaning dock; 741, first plug nozzle; 742, second plug nozzle; 743, cleaning plate; 7431, cleaning nozzle; 7432, first water flow channel; 7433, second water flow channel; 7434, rib; 744, dock seat; 7441, base; 7442, enclosure seat; 7443, sewage collection tank; 745, second

water pump; 7451, inlet pipe; 7452, outlet pipe; 746, charging needle; 747, sewage port.

DETAILED DESCRIPTION

[00102] The present application will be further described in detail below in conjunction with accompanying drawings, so that those skilled in the art can implement it with reference to the text of the description.

[00103] As shown in FIGS. 1 to 5, the present application provides a cleaning dock for cleaning a rag of a floor mopping machine. The cleaning dock includes a dock body 11, a water storage tank 1120 and a cleaning plate 12. The dock body 11 is generally barrel-shaped, and it defines an accommodating space. The water storage tank 1120 is arranged on the dock body 11. The cleaning plate 12 is detachably installed in the accommodating space of the dock body 11. In order to facilitate the removal of the cleaning plate 12, the cleaning plate 12 can also be provided with an arc-shaped handle (not shown in the drawings). Two ends of the handle are pivotally arranged on two opposite edges of the cleaning plate 12. When the handle is not in use, the handle can be placed so that it is placed along the edge of the cleaning plate 12. When the cleaning plate 12 needs to be taken out and cleaned, the cleaning plate 12 can be taken out by rotating the handle by approximately 90 degrees. A nozzle 122 for wetting the rag of the floor mopping machine is installed on the cleaning plate 12. A water pump 13 for diverting liquid from the water storage tank 1120 to the nozzle 122 is installed in the cleaning dock.

[00104] As an embodiment of the present application, the dock body 11 includes a lower dock body 111 and an upper dock body 112 which is disposed on the lower dock body 111. The lower dock body 111 plays a supporting role, and the accommodating space is formed in the lower dock body 111. The water storage tank 1120 is formed in the upper dock body 112. The water storage tank 1120 is annularly arranged above the lower dock body 111. The water storage tank 1120 with this structure can effectively balance the weight distribution of the cleaning dock, and keep the entire cleaning dock stable.

[00105] The cleaning plate 12 is detachably installed to the lower dock body 111. The upper dock body 112 is sleeved around the cleaning plate 12. A sealing structure (not shown in the drawing) is provided between the lower dock body 111 and the upper dock body 112, which can effectively prevent water from flowing out from the junction of the two.

[00106] In another embodiment, the lower dock body 111 and the upper dock body 112 can be

integrally formed, which can increase the sealing performance.

[00107] As an embodiment of the present application, a support device of the floor mopping machine is formed on one side of the upper dock body 112. An inside of the support device is in communication with the water storage tank 1120, which can increase the water storage capacity and effectively support the floor mopping machine.

[00108] As an embodiment of the present application, the water storage tank 1120 is provided with a water injection hole for injecting the liquid, and the water injection hole is hermetically covered by a sealing cover 1121.

[00109] As an embodiment of the present application, the cleaning plate 12 includes a plate body 120 on which a plurality of cleaning ribs 121 arranged in an annular shape are formed.

[00110] As an embodiment of the present application, a reinforcing rib 124 is formed on the plate body 120.

[00111] As an embodiment of the present application, the plate body 120 is provided with a plurality of drain holes 123 for draining cleaning water.

[00112] As an embodiment of the present application, a flow path 14 communicating with the nozzle 122 is formed on the cleaning plate 12.

[00113] As an embodiment of the present application, the flow path 14 includes an enclosure plate 141 formed on the cleaning plate 12 and a cover plate 142 fixed to the enclosure plate 141. The enclosure plate 141 and the cover plate 142 are jointly formed with a water flow cavity in communication with the nozzle 122.

[00114] As an embodiment of the present application, a slot 1410 is formed on the enclosure plate 141, and a protruding strip 1420 is formed on the cover plate 142. The protruding strip 1420 can be inserted and fixed in the slot 1410 to improve the installation stability of the enclosure plate 141 and the cover plate 142.

[00115] As an embodiment of the present application, the enclosure plate 141 and the cover plate 142 are fixed by one of an ultrasonic connection process, a dispensing connection process, an implant connection process, and a friction connection process.

[00116] As an embodiment of the present application, the flow path 14 is formed with a plug nozzle 140 in communication with the flow path 14.

[00117] As an embodiment of the present application, the water pump 13 is fixedly installed in the lower dock body 111. The water pump 13 is in communication with the water storage tank 1120 through a water inlet pipe 131, and the water pump 13 is in communication with the plug nozzle 140 through a water outlet pipe 132.

[00118] As an embodiment of the present application, the dock body 11 located at a lower part of the cleaning plate 12 is formed with a sewage holding cavity 1110 for holding the cleaning water.

[00119] The working principle of the cleaning dock for cleaning the rag of the floor mopping machine is as follows.

[00120] When the floor mopping machine is placed on the dock body 11, the water pump 13 pumps the liquid from the water storage tank 1120, and sprays the liquid on the top of the cleaning plate 12 through the nozzle 122. At the same time, the floor mopping machine drives the rag set at its bottom to rotate.

[00121] The rag is cleaned by friction with water on the cleaning ribs 121, and a good cleaning effect is achieved. The cleaning water after cleaning the rag is led to the sewage holding cavity 1110 through the drain hole 123 for being cleaned up afterwards.

[00122] As shown in FIGS. 6 to 10, the present application provides an automatic cleaning dock for a rag of a floor mopping machine. The automatic cleaning dock includes:

[00123] a dock body 21;

[00124] an automatic cleaning unit 22 installed in the dock body 21; and

[00125] a pipeline for supplying liquid to the automatic cleaning unit 22;

[00126] wherein the automatic cleaning unit 22 includes:

[00127] a support plate 222;

[00128] a nozzle;

[00129] a cleaning assembly which is rotatably disposed on the support plate 222 for friction washing the rag of the floor mopping machine; and

[00130] a driving assembly 24 which is fixed on the support plate 222 for supplying rotating power to the cleaning assembly;

[00131] wherein an outlet end of the pipeline is in communication with the nozzle, so that the liquid is pumped out of the nozzle to wet the rag of the floor mopping machine.

[00132] As an embodiment of the present application, the automatic cleaning dock for the rag of the floor mopping machine further includes: a cleaning water tank 2120 disposed on the dock body 21, and the cleaning water tank 2120 is in communication with an inlet end of the pipeline.

[00133] As an embodiment of the present application, the automatic cleaning dock for the rag of the floor mopping machine further includes: a water pump 23 disposed between the cleaning water tank 2120 and the pipeline, and adapted for pumping the liquid in the cleaning water tank to the automatic cleaning unit 22.

[00134] As an embodiment of the present application, the inlet end of the pipeline is communicated with a water tank of the floor mopping machine.

[00135] As an embodiment of the present application, a plurality of mounting holes 224 are formed on the support plate 222, and the nozzles are fixed in the mounting holes 224.

[00136] As an embodiment of the present application, the dock body 21 is composed of a lower dock body 211 and an upper dock body 212 which is seated on the lower dock body 211. The cleaning water tank 2120 is fixedly arranged on a side of the upper dock body 212. The support plate 222 is detachably installed on the lower dock body 211.

[00137] As an embodiment of the present application, a side portion of the lower dock body 211 is formed with a support boss 2111 for supporting the cleaning water tank 2120 at the bottom.

[00138] As an embodiment of the present application, a water injection hole for injecting the liquid is formed on the cleaning water tank 2120, and a sealing cover 2121 is hermetically covered on the water injection hole.

[00139] As an embodiment of the present application, the water pump 23 is fixedly installed in the lower dock body 211. The water pump 23 is in communication with the cleaning water tank 2120 through a water inlet pipe 231, and the water pump 23 is in communication with the nozzle through a water outlet pipe 232.

[00140] As an embodiment of the present application, the number of cleaning assemblies is two, which are symmetrically arranged on the support plate 222.

[00141] As an embodiment of the present application, the cleaning assembly includes a cleaning plate 220. A plurality of cleaning ribs arranged in an annular shape are formed on a top of the cleaning plate 220.

[00142] As an embodiment of the present application, the cleaning ribs include a plurality of first ribs 2211 and a plurality of second ribs 2212. The first ribs 2211 and the second ribs 2212 are disposed at intervals. Outer ends of the first ribs 2211 and outer ends of the second ribs 2212 are located on a same circular line, and the first rib 2211 is shorter than the second rib 2212.

[00143] As an embodiment of the present application, the cleaning plate 220 is provided with a plurality of drain holes 223 for draining the cleaning water.

[00144] As an embodiment of the present application, the driving assembly 24 includes:

[00145] a driving motor 240 fixed on the support plate 222;

[00146] a shell 242 fixed on the support plate 222;

[00147] a worm 241 connected to an output shaft end of the driving motor 240;

[00148] a worm gear 243 rotatably installed in the shell 242, and the worm gear 243 being in meshing connection with the worm 241; and

[00149] a rotating shaft 244 fixed to the worm gear 243 for transmitting rotating power to the cleaning assembly.

[00150] As an embodiment of the present application, the cleaning plate 220 is fixedly connected to the rotating shaft 244.

[00151] As an embodiment of the present application, a receiving cavity 2110 for installing the

automatic cleaning unit 22 is formed on the lower dock body 211.

[00152] As an embodiment of the present application, a sewage container 213 is provided in the lower dock body 211. The receiving cavity 2110 includes a water channel 2112 for guiding cleaning water into the sewage container 213.

[00153] The working principle of the automatic cleaning dock of the floor mopping machine is as follows.

[00154] When the floor mopping machine needs to be cleaned after working for a period of time, firstly, the floor mopping machine is placed on the cleaning dock. Then, the operation of the water pump 23 and the driving assembly 24 is controlled. The water pump 23 pumps out the liquid in the cleaning water tank 2120, and wets the rag of the floor mopping machine through the nozzle. The continuously rotating cleaning assembly is washed by the cleaning ribs and the rag with water friction so as to achieve the purpose of cleaning the rag. The cleaning water drained from the rag is diverted to the sewage container 213 through the water channel 2112 for being treated afterwards.

[00155] As shown in FIGS. 11 to 20, the present application provides a new type of cleaning dock for a floor mopping machine. The cleaning dock includes a dock body 310 and a cleaning plate 311 provided in the dock body 310. The cleaning plate 311 is provided with a nozzle 314 for wetting a rag 323 of the floor mopping machine. The nozzle is used to spray liquid on the top of the cleaning plate. In this embodiment, the nozzle communicates with the water tank 321 on the floor mopping machine through a pipe. The water in the water tank 321 is used to wet the rag 323 of the floor mopping machine. In a specific embodiment, the floor mopping machine 32 includes a water tank 321 and a water pump. The water pump can pump the cleaning water in the water tank 321 to the nozzle 314. The cleaning water is used for wetting the rag 323 of the floor mopping machine, wherein the rag 323 is rotatably arranged at the bottom of the floor mopping machine 32. In another embodiment, the water pump is included in the cleaning dock. An outlet end of the water pump is in communication with the nozzle, and the other end is in communication with the water tank 321 of the floor mopping machine through a pipeline. The pipeline here can be a commonly used connection pipeline in daily life.

[00156] As an embodiment of the present application, the floor mopping machine 32 further includes a machine body 320. The water tank 321 is detachably installed on the machine body 320. The water pump is fixedly arranged in the machine body 320. The floor mopping machine

32 further includes a mounting base 322 which is swingably arranged on the machine body 320. A driving assembly 327 is fixed in the mounting base 322. The rag 323 of the floor mopping machine is rotatably connected to the driving assembly 327. The driving assembly 327 can drive the rag 323 of the floor mopping machine to rotate for wiping and cleaning the floor to be cleaned and for self-cleaning on the cleaning plate 311.

[00157] As an embodiment of the present application, a charging plug 324 is provided on the floor mopping machine 32. A charging socket 3100 is provided on the dock body 310. The charging plug 324 can be inserted into the charging socket 3100 to charge the battery in the floor mopping machine 32 so as to continuously provide working power for the driving assembly 327.

[00158] As an embodiment of the present application, in order to quickly connect the cleaning dock and the floor mopping machine together for cleaning, the cleaning plate 311 or the dock body 310 is provided with a plug nozzle 313 communicating with the nozzle 314; and the floor mopping machine 32 is equipped with a valve body 325 capable of hermetically communicating and plugging with the plug nozzle 313. Referring to FIGS. 18 to 20, the plug nozzle 313 is arranged on the cleaning plate 311 and communicates with the nozzle 314 through a flow path 315.

[00159] As an embodiment of the present application, as shown in FIG. 21, the valve body 325 includes a first valve port 3253 connected to the water pump and a second valve port 3252 capable of hermetically plugging with the plug nozzle 313. When the plug nozzle 313 and the second valve port 3252 are disconnected, the second valve port 3252 and the first valve port 3253 are in a disconnected state. When the plug nozzle 313 and the second valve port 3252 are connected in a sealed connection, the second valve port 3252 and the first valve port 3253 are in a communicating state.

[00160] As an embodiment of the present application, the floor mopping machine 32 is also provided with a spray head 326 for wetting the ground to be cleaned. The valve body 325 also includes a third valve port 3251 communicating with the spray head 326. When the plug nozzle 313 and the second valve port 3252 are disconnected, the third valve port 3251 and the first valve port 3253 are in a communicating state. When the plug nozzle 313 and the second valve port 3252 are communicated in a sealed manner, the third valve port 3251 and the first valve port 3253 are in a disconnected state.

[00161] As an embodiment of the present application, the valve body 325 is a solenoid valve. The solenoid valve is configured to conduct only one of the second valve port 3252 and the third valve port 3251. As an embodiment of the present application, the valve body 325 is a mechanical valve. The mechanical valve is configured such that when the plug nozzle 313 is in communication with the second valve port 3252, the third valve port 3251 is blocked under the action of the plug nozzle 313. Referring to FIG. 21, the valve body 325 is formed with a flow cavity 3250 which is in communication with the first valve port 3253, the second valve port 3252, and the third valve port 3251. A valve core 3254 is installed in the flow cavity 3250 for conducting or cutting off a passage between the first valve port 3253 and the second valve port 3252, and a passage between the first valve port 3253 and the third valve port 3251. An elastic member 3255 for resetting the valve core 3254 is provided in the valve body 325. The elastic member 3255 is defined to be able to cut off the passage between the first valve port 3253 and the second valve port 3252 by acting on the valve core 3254 when the plug nozzle 313 is pulled out. In one embodiment, the elastic member 3255 is a spring. One end of the spring abuts on the valve body 325, and the other end of the spring abuts on the valve core 3254. The valve core 3254 is formed with a valve core flow channel for conducting the first valve port 3253, the second valve port 3252, and the first valve port 3253 and the third valve port 3251. A sealing ring for sealing the second valve port 3252 or the third valve port 3251 is fixed on the valve core 3254. The valve core 3254 is configured as a column structure with a cross-shaped cross section, and a valve core flow channel is formed between two adjacent column sides of the valve core 3254. The valve core 3254 is inserted inside the spring, so that the entire valve core 3254 is vertical as a whole, which can play a guiding role. This causes the valve core 3254 to move along the axis of the valve body 325, so that the sealing surface of the sealing ring is fully sealed with the second valve port 3252 or the third valve port 3251.

[00162] As an embodiment of the present application, the mounting base 322 is provided with a through hole 3220 of the base 322 for mounting the valve body 325.

[00163] A plurality of ribs 3111 for enhancing the cleaning effect of the rag are fixed on the cleaning plate 311, and a plurality of drain holes 3110 for draining the cleaning water are opened on the cleaning plate 311.

[00164] In order to facilitate the collection of sewage, a sewage storage tank 312 for storing cleaning water drained from the drain holes 3110 is provided at the bottom of the dock body 310.

[00165] As an embodiment of the present application, a reinforcing rib 3112 is formed on the cleaning plate 311. The cleaning plate 311 is provided with a flow path 315 for communicating the plug nozzle 313 and the nozzle 314. The flow path 315 is formed by an enclosure plate 3151 formed on the cleaning plate 311 and a cover plate 3152 fixedly connected to the enclosure plate 3151. The flow path 315 is formed with a flow channel cavity which is communicated with the plug nozzle 313 and the nozzle 314.

[00166] The working principle of the cleaning dock of the new floor mopping machine is as follows.

[00167] When the floor mopping machine 32 is used to clean the ground, the driving assembly 327 rotates the rag of the floor mopping machine to wipe and clean the ground. In addition, the cleaning dock can control the operation of the water pump through a corresponding button. The water pump can pump the cleaning water out of the water tank 321. The cleaning water is pumped to the spray head 326 through the first valve port 3253 and the third valve port 3251 in sequence, and the cleaning water is sprayed onto the bottom surface to be cleaned through the spray head 326.

[00168] When the rag 323 of the floor mopping machine needs to be cleaned, the floor mopping machine 32 is placed on the dock body 310. When the charging plug 324 is inserted into the charging socket 3100 and is in a power-on state, it is deemed that the floor mopping machine 32 has been installed in place. Subsequently, the driving assembly 327 rotates the rag 323 of the floor mopping machine to rub against the cleaning plate 311 in rotation. At the same time, the operation of the pump is controlled by the corresponding button. The water pump can pump the cleaning water out of the water tank 321. The cleaning water is pumped to the nozzle 314 through the first valve port 3253, the second valve port 3252, the plug nozzle 313, and the flow path 315 in sequence, and the cleaning water is sprayed onto the cleaning plate 311 through the nozzle 314 to wet the rag 323 of the floor mopping machine.

[00169] The rag 323 of the floor mopping machine has a cleaning effect under the water friction washing by the ribs 3111. The cleaning water flowing down from the rag 323 of the floor mopping machine is led down into the sewage storage tank 312 for being treated afterwards.

[00170] As shown in FIGS. 22 to 25, the present application provides a cleaning dock for a floor mopping machine with stable installation. The cleaning dock includes a water tank 412, a

pump assembly, and a cleaning plate 42. The water tank 412 is used for storing liquid, and has an enclosure portion 4122. A first water storage cavity 4124 for storing liquid is formed in the enclosure portion 4122. The enclosure portion 4122 is defined by an annular inner wall and an outer wall arranged on the outer edge of the annular inner wall. A liquid containing space is defined between the inner wall and the outer wall for containing liquid. The entire enclosure portion 4122 is generally ring-shaped. At the same time, the annular water tank defines an accommodating space for placing a wiper head of the floor mopping machine. The cleaning plate can be placed in the accommodating space. The cleaning plate 42 is used to clean the rag of the floor mopping machine. The pump assembly is used to pump the liquid from the water tank 412 and deliver the liquid to the rag of the floor mopping machine. When the rag of the floor mopping machine is rotated on the cleaning plate, the rag is cleaned by the cleaning plate.

[00171] As an embodiment of the present application, the enclosure portion 4122 is a racetrack-shaped structure which includes two straight portions arranged in parallel. Two semicircular portions and two straight portions are both arranged tangentially so as to form the closed enclosure portion 4122.

[00172] In other embodiments, the enclosure portion 4122 can also be formed into a semi-enclosing structure. Specifically, the enclosure portion 4122 may have a semi-annular shape (not shown in the drawing).

[00173] As an embodiment of the present application, a side portion of the enclosure portion 4122 is formed with a side box portion 4121. A second water storage cavity 4123 is formed in the side box portion 4121 to communicate with the first water storage cavity. Specifically, the side box portion 4121 has a certain height, which is higher than the enclosure portion 4122, so as to form a support to the handle of the floor mopping machine. In this embodiment, the side box portion 4121 has a cuboid shape as a whole, and its lower end is flush with the ground to form an effective support. The side box portion 4121 is provided with a side support block 413 for side support of the floor mopping machine. The side support block 413 defines a groove for receiving the handle of the floor mopping machine. An electrical connection device can be arranged in the groove. After the electrical connection device and the handle are conducted, users can control the water pump through a button on the handle.

[00174] As an embodiment of the present application, the side box portion 4121 is provided with a water injection hole for injecting liquid, and the water injection hole is hermetically covered by a sealing cover 4120.

[00175] As an embodiment of the present application, a plurality of protruding and parallel cleaning ribs 421 are formed on the cleaning plate 42.

[00176] As an embodiment of the present application, the cleaning dock of the floor mopping machine with stable installation further includes a support dock body 411. The cleaning plate 42 and the water tank 412 are both seated on the support dock body 411. The pump assembly is fixedly disposed in the support dock body 411.

[00177] Referring to FIG. 23, as an embodiment of the present application, the cleaning plate 42 and the water tank 412 can be detachably mounted on the support dock body 411. As an embodiment of the present application, the pump assembly includes:

[00178] a water pump 43, which is in communication with the water tank 412 through a water inlet pipe 431;

[00179] a water distribution pipe 4320, which is in communication with the water pump 43 through a main water outlet pipe 432; and

[00180] a plurality of nozzles 430, which are communicated with each other through an outlet branch pipe 433 and a water distribution pipe 4320;

[00181] wherein the water pump 43 can pump the liquid in the water tank 412 to the nozzles 430, and spray the liquid on the cleaning plate 42 through the nozzles 430 for wetting the rag of the floor mopping machine.

[00182] As an embodiment of the present application, the cleaning plate 42 is provided with a plurality of nozzle mounting holes 420 for the nozzles 430 to be inserted and installed.

[00183] As an embodiment of the present application, the support dock body 411 is provided with a mounting cavity for installing the cleaning plate 42. A lowest terrain area is provided on a bottom surface of the mounting cavity, and a drain hole 4110 is formed on the lowest terrain area.

[00184] The liquid after cleaning the rag of the floor mopping machine can be diverted to the outside of the mounting cavity through the drain hole 4110.

[00185] As an embodiment of the present application, a sewage storage tank 414 is provided in

the support dock body 411 for storing the cleaning water diverted from the drain hole 4110.

[00186] As an embodiment of the present application, the water tank 412 is integrally formed on the top of the support dock body 411, and the water tank 412 and the support dock body 411 together constitute a cleaning dock body 41.

[00187] The working principle of the cleaning dock of the floor mopping machine with stable installation is as follows.

[00188] When the floor mopping machine is placed on the cleaning plate 42, the water pump 43 pumps the liquid from the water tank 412 and sprays the liquid on the top of the cleaning plate 42 through the nozzle 430. At the same time, the floor mopping machine drives the rag set at its bottom to rotate.

[00189] The rag is cleaned by friction with water on the cleaning ribs 421, and a good cleaning effect is achieved. The cleaning water after cleaning the rag is led down into the sewage storage tank 414 through the drain hole 4110 for being cleaned up afterwards.

[00190] Since the water tank 412 has the enclosure portion 4122, the weight of the water tank 412 is dispersed, so that the cleaning dock 41 can be stably seated on the ground, and the occurrence of unstable seating caused by weight concentration is avoided. Moreover, since the water tank 412 includes the enclosure portion 4122 and the side tank portion 4121, the capacity of the water tank 412 is expanded, so that the rag of the floor mopping machine can be cleaned multiple times.

[00191] As shown in FIGS. 26 to 34, the present application provides a cleaning dock capable of replenishing water for the floor mopping machine. The cleaning dock includes a dock body 51, a cleaning plate 54, a water supply assembly, and a water replenishment assembly. The dock body 51 includes a water replenishment tank 512 for containing liquid. The liquid can be clean water or cleaning liquid. The cleaning plate 54 is arranged on the dock body 51 and is used to clean the rag of the floor mopping machine. The cleaning plate 54 is configured to a structure similar to a washboard to effectively clean the rag. The water supply assembly is used for guiding the liquid from the water tank 521 installed on the floor mopping machine 52 to the cleaning plate 54 so as to wet the rag 523 of the floor mopping machine to be cleaned. The water replenishment assembly is used to replenish the liquid from the water replenishment tank 512 to the water tank 521 of the floor mopping machine.

[00192] As an embodiment of the present application, the dock body 51 further includes a support base 511. The water replenishment tank 512 is seated on the support base 511. The cleaning plate 54 is detachably seated on the support base 511.

[00193] As an embodiment of the present application, the water tank 521 of the floor mopping machine is provided with a water level sensor for collecting water level information of the liquid in the water tank 521, which can monitor the water level of the liquid in the water tank 521. The water level sensor can be either a gravity sensor or an optical sensor, which will not be described in detail here.

[00194] The floor mopping machine 52 includes a machine body 520 and a base 522 of the floor mopping machine. The water tank 521 of the floor mopping machine is detachably installed on the machine body 520. The base 522 of the floor mopping machine is swingably arranged on the machine body 520. A rotation driving device 527 is fixed on the base 522 of the floor mopping machine. The rag 523 of the floor mopping machine is rotatably connected to the rotation driving device 527. The floor mopping machine 52 also includes a spray head 526 for wetting the ground to be cleaned. The water pump of the floor mopping machine is arranged in the machine body 520. The water pump arranged on the floor mopping machine 52 can pump the liquid from the water tank 521 of the floor mopping machine to the spray head 526 arranged on the floor mopping machine 52 or to the cleaning plate 54.

[00195] As an embodiment of the present application, a charging plug 524 is provided on the floor mopping machine 52. A charging socket 514 is provided on the dock body 51. The charging plug 524 can be inserted into the charging socket 514 to charge the battery installed in the floor mopping machine 52.

[00196] As an embodiment of the present application, the water supply assembly includes:

[00197] a nozzle 542 which is a water outlet end of the water supply assembly;

[00198] a cleaning flow path 5510 including a first water inlet end and a first water outlet end, and the first water outlet end being in communication with the nozzle; and

[00199] a cleaning plug nozzle 551 being in communication with the first water inlet;

[00200] wherein after the cleaning plug nozzle 551 is communicated with a cleaning valve body 5252 provided on the floor mopping machine, the passage between the spray head 526

provided on the floor mopping machine and the cleaning valve body 5252 is cut off.

[00201] As an embodiment of the present application, the cleaning plug nozzle 551 can be plugged into the cleaning valve body 5252 in a sealing manner, and the spray head 526 and the water pump of the floor mopping machine are both in communication with the cleaning valve body 5252.

[00202] As an embodiment of the present application, the cleaning valve body 5252 is formed with:

[00203] a first cleaning valve port 5291, which is in communication with the water pump of the floor mopping machine;

[00204] a second cleaning valve port 5292, which is in communication with the spray head 526; and

[00205] a third cleaning valve port 5293, the cleaning plug nozzle 551 being plugged into the third cleaning valve port 5293 in a sealed manner;

[00206] wherein when the cleaning plug nozzle 551 and the third cleaning valve port 5293 are sealed and communicated, the third cleaning valve port 5293 and the first cleaning valve port 5291 are in a communicating state, and the second cleaning valve port 5292 and the first cleaning valve port 5291 are in a non-communicating state;

[00207] when the cleaning plug nozzle 551 is disconnected from the third cleaning valve port 5293, the third cleaning valve port 5293 and the first cleaning valve port 5291 are in a non-communicating state, and the second cleaning valve port 5292 and the first cleaning valve port 5291 is in a communicating state.

[00208] As an embodiment of the present application, the cleaning valve body 5252 is one of a mechanical valve or a solenoid valve. The cleaning valve body 5252 is arranged to conduct only one of the spray head 526 and the cleaning plug nozzle 551.

[00209] Referring to FIG. 35, as an embodiment of the present application, the cleaning valve body 5252 is formed with a first flow cavity 590 communicating with the first cleaning valve port 5291, the second cleaning valve port 5292, and the third cleaning valve port 5293. A first valve core 591 is installed in the first flow cavity 590 for conducting or cutting off a passage

between the first cleaning valve port 5291 and the second cleaning valve port 5292, and a passage between the first cleaning valve port 5291 and the third cleaning valve port 5293.

[00210] As an embodiment of the present application, the cleaning valve body 5252 is provided with a first elastic member 592 for resetting the first valve core 591. The first elastic member 592 is limited to be capable of cutting off the passage between the first cleaning valve port 5291 and the third cleaning valve port 5293 by acting on the first valve core 591 when the cleaning plug nozzle 551 is pulled out.

[00211] As an embodiment of the present application, the first elastic member 592 is a spring. One end of the spring abuts on the cleaning valve body 5252, and the other end of the spring abuts on the first valve core 591. The first valve core 591 is formed with a first cleaning valve port 5291, a second cleaning valve port 5292, and a flow path of the first valve core for conducting the first cleaning valve port 5291 and the third cleaning valve port 5293. A first sealing ring for blocking the second cleaning valve port 5292 or the third cleaning valve port 5293 is fixed on the first valve core 591. The first valve core 591 is configured as a column structure with a cross-shaped cross section, and the flow channel of the first valve core is formed between two adjacent column sides. The first valve core 591 is inserted inside of the first elastic member 592 so that the entire first valve core 591 is vertical as a whole. This can play a guiding role to move the first valve core 591 along the axis of the cleaning valve body 5252, so that the sealing surface of the first sealing ring can be fully sealed with the second cleaning valve port 5292 or the third cleaning valve port 5293.

[00212] As an embodiment of the present application, the cleaning plug nozzle 551 is fixed on the cleaning plate 54, and the cleaning flow path 5510 is formed on the cleaning plate 54. The cleaning plate 54 includes a plate body 540 on which a plurality of cleaning portions are provided. The cleaning portions include a plurality of cleaning ribs 541 arranged in an annular shape and disposed on the plate body 540. The cleaning portions also include a plurality of drain holes 543 formed on the plate body 540 for draining sewage. A reinforcing rib 544 is also provided on the plate body 540. The nozzle 542 is fixedly arranged on the plate body 540.

[00213] In a specific embodiment, the cleaning plate includes a plate body, a nozzle, and a first flow channel. In this embodiment, the plate body 51 is substantially rectangular, with four corners slightly curved. The shape here is just an example and is not limited in detail. The plate body 51 has an upper surface and a lower surface in a thickness direction thereof. The upper surface defines a cleaning area 52 for cleaning the cleaning member of the floor mopping

machine. The cleaning area 52 may be the entire upper surface of the plate, or a part of the upper surface. Preferably, the cleaning area 52 corresponds to the cleaning member. A plurality of cleaning structures protruding outwardly are provided in the cleaning area 52. The number of nozzles 523 is at least one, which is used to spray fluid to the cleaning member.

[00214] The cleaning area includes two circular areas corresponding to the shape of the cleaning member. The circular areas are slightly larger than the cleaning members, so that the cleaning members can be effectively cleaned. In this embodiment, at least one nozzle is provided in each cleaning area. The nozzle sprays the liquid to the side of the cleaning member facing the cleaning plate to wet the cleaning member. The cleaning structure is a rib plate integrally formed with the plate body. A plurality of ribs in the cleaning area are arranged in an annular shape along a predetermined center. The ribs are arranged protruding from the plate body, and the cross section of the rib is triangular. The plurality of ribs include a plurality of first ribs with a first length and a plurality of second ribs with a second length. The first ribs and the second ribs are arranged at intervals. Outer ends of the first ribs away from a preset center and outer ends of the second ribs away from the preset center are located on a same circumferential line. Arranging the two kinds of ribs with different lengths at intervals and leaving part of the space near the center of the circle can effectively avoid the effect of cleaning due to too dense ribs at the center of the circle.

[00215] Referring to FIGS. 26 to 28, further description of the ribs will be made. As an embodiment of the present application, both ends of each rib are formed with sloped surfaces 5213. Each rib is triangular as a whole to enhance the cleaning effect. The ribs and the plate body are integrally formed, and the ribs are hollow to save cost.

[00216] As an embodiment of the present application, the nozzle 523 and the plate body 51 are integrally formed. The nozzle 523 includes a nozzle boss 5231 which is provided with a nozzle hole 5233 communicating with the first flow channel 531. A V-shaped nozzle groove 5232 is provided at a spray position of the nozzle boss 5231. The V-shaped nozzle groove 5232 can spray the liquid in a scattering device to increase the wetting area of the cleaning member.

[00217] As an embodiment of the present application, the water replenishment assembly includes:

[00218] a replenishment pump 53, which is installed in the support base 511;

[00219] a water replenishment flow path 5520, which has a second water inlet and a second water outlet, the second water inlet being in communication with the water replenishment pump 53; and

[00220] a water replenishment plug nozzle 552, which is in communication with the second water outlet;

[00221] wherein the water replenishment plug nozzle 552 can be communicated with a water replenishment valve body 5251 provided on the floor mopping machine.

[00222] As an embodiment of the present application, the water replenishment plug nozzle 552 can be plugged into the water replenishment valve body 5251 in a sealed manner, and the water tank 521 of the floor mopping machine and the water replenishment valve body 5251 are in communication with each other.

[00223] As an embodiment of the present application, the water replenishment valve body 5251 is formed with:

[00224] a first water replenishment valve port 5281, which is communicated with the water tank 521 of the floor mopping machine; and

[00225] a second water replenishment valve port 5282, the water replenishment plug nozzle 552 capable of being plugged into the second water replenishment valve port 5282 in a sealed manner;

[00226] wherein when the water replenishment plug nozzle 552 and the second water replenishment valve port 5282 are communicated in a sealed manner, the first water replenishment valve port 5281 and the second water replenishment valve port 5282 are in a communicating state;

[00227] when the water replenishment plug nozzle 552 and the second water replenishment valve port 5282 are disconnected, the first water replenishment valve port 5281 and the second water replenishment valve port 5282 are in a non-communicating state.

[00228] As an embodiment of the present application, the water replenishment valve body 5251 is one of a mechanical valve or a solenoid valve.

[00229] Referring to FIG. 36, as an embodiment of the present application, the water replenishment valve body 5251 is formed with a second flow cavity 580 which is in communication with the first water replenishment valve port 5281 and the second water replenishment valve port 5282. A second valve core 581 is installed in the second flow cavity 580 for conducting or cutting off a passage between the first water replenishment valve port 5281 and the second water replenishment valve port 5282.

[00230] As an embodiment of the present application, the water replenishment valve body 5251 is provided with a second elastic member 582 for resetting the second valve core 581. The second elastic member 582 is limited to be able to cut off the passage between the first water replenishment valve port 5281 and the second water replenishment valve port 5282 by acting on the second valve core 581 when the water replenishment plug nozzle 552 is pulled out. The second elastic member 582 is a spring. One end of the spring abuts on the water replenishment valve body 5251, and the other end of the spring abuts on the second valve core 581. The second valve core 581 is formed with a flow passage of the second valve core for communicating the first water replenishment valve port 5281 and the second water replenishment valve port 5282. A second sealing ring for blocking the second water replenishment valve port 5282 is fixed on the second valve core 581. The second valve core 581 is configured as a column structure with a cross-shaped cross section, and a second valve core flow path is formed between two adjacent column sides. The second valve core 581 is inserted inside of the second elastic member 582 so that the entire second valve core 581 is vertical as a whole. This can play a guiding role to move the second valve core 581 along the axis of the water replenishment valve body 5251, so that the sealing surface of the second sealing ring can be fully sealed with the second water replenishment valve port 5282.

[00231] As an embodiment of the present application, the water replenishment plug nozzle 552 is fixed to the cleaning plate 54, and a water replenishment flow path 5520 is formed on the cleaning plate 54. A flow path plug nozzle 5521 is formed on the water replenishment flow path 5520. The water replenishment pump 53 is in communication with the water replenishment tank 512 through the water inlet pipe 531, and is in communication with the flow channel plug nozzle 5521 via the water outlet pipe 532.

[00232] As an embodiment of the present application, the water replenishment tank 512 is formed with a side box body 5120 for storing liquid. The side box body 5120 is provided with a water injection hole for injecting the liquid. A sealing cover 5121 is installed on the water injection hole in a sealable manner.

[00233] As an embodiment of the present application, a mounting cavity 5110 for mounting the cleaning plate 54 is formed on the support base 511. A bottom surface of the mounting cavity 5110 has a lowest terrain area in which a drain hole 5111 is opened. A sewage cleaning tank 513 for collecting sewage drained from the drain hole 5111 is detachably installed in the support base 511. The sewage flowing down from the cleaning plate 54 can pass through the drain hole 543 and the drain hole 5111, and be led down into the sewage cleaning tank 513 for being treated afterwards.

[00234] In a specific embodiment, the water replenishment tank 512 is used to store liquid. The water replenishment tank 512 has an annular enclosure portion. A first water storage cavity for storing the liquid is formed in the enclosure portion. The enclosure portion is defined by an annular inner wall and an outer wall arranged on an outer edge of the annular inner wall. A liquid containing space is defined between the inner wall and the outer wall for containing the liquid. The entire enclosure portion is roughly ring-shaped. At the same time, the annular water tank defines an accommodating space for placing a wiper head of the floor mopping machine. The cleaning plate can be placed in the accommodating space. A side portion of the enclosure portion is formed with a side box portion. A second water storage cavity is formed in the side box portion and in communication with the first water storage cavity. Specifically, the side box portion has a certain height, which is higher than the enclosure portion, to form a support for a handle of the floor mopping machine. In this embodiment, the side box portion has a cuboid shape as a whole, and its lower end is flush with the ground to form an effective support. The side box portion is provided with a side support block for side support of the floor mopping machine. The side support block defines a groove for receiving the handle of the floor mopping machine. An electrical connection device can be arranged in the groove. After the electrical connection device and the handle are conducted, users can control the water pump through a button on the handle.

[00235] The working principle of the cleaning dock capable of replenishing the floor mopping machine is as follows.

[00236] When the floor mopping machine 52 is used to clean a ground, the rotation driving device 527 rotates the rag 523 of the floor mopping machine to wipe and clean the ground. The floor mopping machine 52 can control the operation of the water pump of the floor mopping machine through a corresponding button. The water pump of the floor mopping machine can pump the liquid from the water tank 521 of the floor mopping machine. The liquid is pumped to the spray head 526 through the first cleaning valve port 5291 and the second cleaning valve port

5292 in sequence, and the liquid is sprayed onto the ground to be cleaned through the spray head 526.

[00237] After the floor mopping machine 52 has been used, it is placed on the dock body 51. When the charging plug 524 is plugged into the charging socket 514 and both are in an energized state, it is deemed that the floor mopping machine 52 has been installed in place. That is, the cleaning plug nozzle 551 is plugged into the third cleaning valve port 5293 in a sealing and communicating manner. In addition, the water replenishment plug nozzle 552 has been plugged into the second replenishment valve port 5282 in a sealed and communicating manner.

[00238] At this time, the third cleaning valve port 5293 and the first cleaning valve port 5291 are in a communicating state. The second cleaning valve port 5292 and the first cleaning valve port 5291 are in a non-communicating state. And, the first water replenishment valve port 5281 and the second water replenishment valve port 5282 are in a communicating state.

[00239] During this period, the battery in the floor mopping machine 52 is continuously charged, and the water level sensor detects the liquid level in the water tank 521 of the floor mopping machine.

[00240] When the water level is below a max value, the replenishment pump 53 starts to operate. The replenishment pump 53 pumps the liquid from the replenishment tank 512 to the water tank 521 of the floor mopping machine through the water replenishment flow path 5520, the water replenishment plug nozzle 552, and the water replenishment valve body 5251 in sequence, until the water level in the water tank 521 of the floor mopping machine is not lower than the max value.

[00241] When the water level is not below the max value, the water replenishment pump 53 does not operate, that is, only the battery in the floor mopping machine 52 is charged.

[00242] When the rag 523 of the floor mopping machine needs to be cleaned, the corresponding button on the floor mopping machine 52 is pressed. At this time, the rotation driving device 527 drives the rag 523 of the floor mopping machine to rotate and rub on the cleaning plate 54. At the same time, the water pump of the floor mopping machine pumps the liquid from the water tank 521 of the floor mopping machine. The liquid sequentially passes through the first cleaning valve port 5291, the third cleaning valve port 5293, the cleaning plug nozzle 551, the cleaning flow path 5510, and the nozzle 542, and is sprayed onto the cleaning

plate 54 for wetting the rag 523 of the floor mopping machine. The rag 523 of the floor mopping machine obtains a cleaning effect under the water friction washing by the cleaning ribs 541. The sewage flowing down from the cleaning plate 54 is led to the sewage cleaning tank 513 for being cleaned up afterwards.

[00243] As shown in FIGS, 37, 38, and 49 to 51, the present application provides a floor mopping machine, including: a machine body 620 being provided with a water tank 621 of the floor mopping machine; and at least one valve body being in communication with the water tank 621 of the floor mopping machine; wherein after a cleaning dock 640 is put into the floor mopping machine, the floor mopping machine communicates with a water tank of the cleaning dock through the valve body, and/or the floor mopping machine communicates with a cleaning nozzle of the cleaning dock through the valve body.

[00244] First embodiment：

[00245] As shown in FIG. 39, the at least one valve body includes a first valve body 613 and a second valve body 614. The floor mopping machine includes a base 610 pivotally connected to the bottom end of the machine body 620. The base 610 is provided with the first valve body 613 and the second valve body 614. The floor mopping machine also includes a nozzle 615 of the floor mopping machine and a water pump (not shown in the drawing) of the floor mopping machine. The nozzle 615 and the water pump are in communication with the water tank 621 of floor mopping machine. As shown in FIG. 13, the water pump of the floor mopping machine is arranged between the water tank 621 of the floor mopping machine and the nozzle 615 of the floor mopping machine. The water pump of the floor mopping machine is used to spray the liquid in the water tank 621 of the floor mopping machine by the nozzle 615 of the floor mopping machine. The first valve body 613 is arranged between the water tank 621 of the floor mopping machine and the water pump of the floor mopping machine. The first valve body 613 is a three-way valve. The three-way valve can conduct the water tank 621 of the floor mopping machine and the water pump of the floor mopping machine at the same time, which means that two paths are communicated at the same time. One of the two paths is the water pump of the cleaning dock and the water tank 621 of the floor mopping machine, and the other of the two paths is the water pump of the cleaning dock and the water pump of the floor mopping machine. The second valve body 614 is arranged between the nozzle 615 of the floor mopping machine and the water pump of the floor mopping machine. The second valve body 614 communicates with the cleaning nozzle 6431. The second valve body 614 is configured to communicate the nozzle 615 of the floor mopping machine and the water pump of the floor mopping machine, or

to communicate the water pump of the floor mopping machine and the cleaning nozzle 6431. In this embodiment, the liquid in the water tank of the cleaning dock is used not only for water replenishment of the water tank 621 of the floor mopping machine, but also for supplying water for the cleaning dock to clean the cleaning nozzle 643.

[00246] As shown in FIGS. 52 to 54, the first valve body 613 has two connection ports at the same height. A first valve core and a compression spring of the first valve core are arranged in the valve cavity of the first valve body 613. A first connecting hole communicating with the valve cavity is formed at the bottom of the first valve body 613. The first connecting hole is a liquid inlet. As shown in FIG. 54, when an external connector is inserted into the first connecting hole and the first valve core moves upwardly under the action of the external connector. At this time, the two connection ports of the first valve body 613 are simultaneously conducted with the first connecting hole. As shown in FIG. 53, when the external connector is pulled out, the first valve core is reset under the action of the compression spring of the first valve core. The two connection ports of the first valve body 613 are cut off at the same time.

[00247] As shown in FIGS. 55 to 57, the second valve body 614 has two connection ports located at different heights. The two connection ports include an upper connection port and a lower connection port. The lower connection port is a liquid inlet. A second valve core and a compression spring of the second valve core are arranged in the valve cavity of the second valve body 614. A second connecting hole communicating with the valve cavity is formed at the bottom of the second valve body 614. As shown in FIG. 56, when an external connector is inserted into the second connecting hole and the second valve core is moved up to the preset position under the action of the external connector, the upper connection port and the second connecting hole are cut off by the second valve core, and the lower connection port is conducted with the second connecting hole. At this time, the cleaning nozzle 6431 is conducted. As shown in FIG. 57, when the external connector is pulled out, the second valve core is reset under the action of the compression spring of the second valve core. The lower connection port is in communication with the upper connection port, and the second connecting hole is cut off by the second valve core. At this time, the nozzle 615 of the floor mopping machine is conducted.

[00248] Second embodiment:

[00249] As shown in FIG. 50, the difference from the first embodiment is that the first valve body 613 is arranged at a different position. In this embodiment, the first valve body 613 is disposed between the water tank 621 of the floor mopping machine and the water pump 645 of

the cleaning dock. The first valve body 613 is a two-way valve. The two-way valve is only used to conduct the water tank 621 of the floor mopping machine, which means that the water tank 621 of the floor mopping machine is in communication with the water pump of the cleaning dock. As a result, the liquid in the water tank of the cleaning dock is supplemented into the water tank 621 of the floor mopping machine. Therefore, in this embodiment, the liquid in the water tank of the cleaning dock is only used for refilling the water tank 621 of the floor mopping machine.

[00250] In this embodiment, the structure of the first valve body 613 is shown in FIGS. 58 to 60. The first valve body 613 has a connection port which communicates with the water tank 621 of the floor mopping machine. A first valve core and a compression spring of the first valve core are arranged in the valve cavity of the first valve body 613. A first connecting hole communicating with the valve cavity is formed at the bottom of the first valve body 613. The first connecting hole is a liquid inlet. As shown in FIG. 60, when a first plug nozzle 641 is inserted into the first connecting hole, the first valve core moves upwardly under the action of the external connector. At this time, the connection port of the first valve body 613 is in communication with the first connecting hole. The water in the water tank of the cleaning dock can be pumped into the water tank 621 of the floor mopping machine. As shown in FIG. 59, when the first plug nozzle 641 is pulled out, the first valve core is reset under the action of the compression spring of the first valve core, and the connection port of the first valve body 613 is cut off.

[00251] In this embodiment, the structure of the second valve body 614 is the same as the structure of the second valve body 614 in the first embodiment. A second plug nozzle 642 is inserted into a second connecting hole of the second valve body 614.

[00252] Compared with the first embodiment, the first embodiment reduces one connecting pipe, which can effectively simplify the structure and reduce the production cost.

[00253] In this embodiment, as shown in FIGS. 39 to 42, specifically, a first valve body 613 and a second valve body 614 are provided on the base 610 of the floor mopping machine. A first insertion hole 611 corresponding to the first connecting hole is formed on the base 610 corresponding to the first valve body 613. A second insertion hole 612 corresponding to the second connecting hole is formed on the base 610 corresponding to the second valve body 614. The first valve body 613 and the second valve body 614 are respectively in communication with the water tank 621 of the floor mopping machine. A water tank of the cleaning dock and a

cleaning nozzle 6431 are formed on the cleaning dock 640. The cleaning dock 640 is formed with a first plug nozzle 641 which can be inserted into the first connecting hole and communicated with the water tank of the cleaning dock, and a second plug nozzle 642 which can be inserted into the second connecting hole and communicated with the cleaning nozzle 6431. As shown in FIGS. 46 and 48, when the first plug nozzle 641 and the second plug nozzle 642 are inserted into the first valve body 613 and the second valve body 614 respectively, the first valve body 613 and the second valve body 614 are triggered respectively, in order to realize the communication of the water tank of the cleaning dock, the water tank 621 of the floor mopping machine and the cleaning nozzle 6431. Thus, the water replenishment operation of the water tank 621 of the floor mopping machine and the water spray operation of the cleaning nozzle 6431 are realized. In this embodiment, as shown in FIGS. 37 and 38, a connection portion 623 is pivotally connected to the bottom end of the machine body 620. The pivot axis between the machine body 620 and the connection portion 623 is defined as an X axis. The connection portion 623 is pivotally connected to the base 610. The pivot axis between the connection portion 623 and the base 610 is defined as a Y axis. The machine body 620 can swing left and right relative to the connection portion 623, and the base 610 can swing up and down relative to the connection portion 623, which has the advantages of flexible connection and reliable movement. The top of the machine body 620 is provided with a handle 630, and the handle 630 is provided with a power button and a cleaning button. As shown in FIG. 3, the base 610 includes a support 617, a rotating disk 616, a driving unit 619 and a cover 618. The rotating disk 616 is located under the support 617 and is rotatably arranged on the support 617. The driving unit 619 is adapted for driving the rotating disk 616 to rotate and is provided on the support 617. The cover 618 is placed above the driving unit 619 and covers the support 617. The cover 618 and the support 617 are enclosed to form an accommodating cavity. The driving unit 619, the first valve body 613, and the second valve body 614 are all located in the accommodating cavity. The bottom of the rotating disk 616 is detachably provided with a rag 6161. As shown in FIGS. 37 and 40, the first valve body 613 is in communication with the water tank 621 of the floor mopping machine through a first connecting pipe (not shown). The second valve body 614 is in communication with the water tank 621 of the floor mopping machine through a second connecting pipe (not shown). The second connecting pipe is provided with a water pump of the floor mopping machine (not shown).

[00254] As shown in FIGS. 39 and 40, the nozzle 615 of the floor mopping machine on the base 610 is connected to the second valve body 614 through a hose 6151. The second valve body 614 is configured as a switching valve for the nozzle 615 of the floor mopping machine

and the cleaning nozzle 6431. The nozzle 615 of the floor mopping machine is used to spray water onto a work floor. The cleaning nozzle 6431 is used to spray water on the rag 6161. The main function of the cleaning button on the handle 630 is a trigger button of the nozzle 615 of the floor mopping machine when the floor mopping machine is working alone, and it works on demand. After the floor mopping machine is connected to the cleaning dock 640, the cleaning button is a trigger button of the cleaning nozzle 6431. As shown in FIGS. 39 and 40, the first valve body 613 is configured as a water replenishment valve of the water tank 621 of the floor mopping machine. When the first valve body 613 is conducted, the water in the water tank of the cleaning dock is pumped into the water tank 621 of the floor mopping machine through the first valve body 613, so as to realize the water replenishment of the water tank 621 of the floor mopping machine. As shown in FIGS. 39 to 42, a rotating disk 616 is provided at the bottom of the base 610. The rag 6161 is provided at the bottom of the rotating disk 616. A cleaning cavity for accommodating the base 610 is formed on the cleaning dock 640. A cleaning plate 643 for cleaning the rag 6161 is provided in the cleaning cavity. The cleaning nozzle 6431 is embedded on the cleaning plate 643. The first plug nozzle 641 and the second plug nozzle 642 are detachably provided on the cleaning plate 643. Specifically, the cleaning plate 643 is provided with threaded holes. The bottoms of the first plug nozzle 641 and the second plug nozzle 642 are provided with external threads. The first plug nozzle 641 and the second plug nozzle 642 are screwed on the cleaning plate 643, which has the advantages of convenient and reliable connection. As shown in FIGS. 42 and 45, the cleaning dock 40 includes a dock seat 644 formed with a cleaning cavity. The dock seat 644 includes a base 6441, an enclosure seat 6442 located on the top of the base 6441 and surrounding the top edge of the base 6441. The enclosure seat 6442 and the base 6441 are enclosed together to form a cleaning cavity. The cleaning plate 643 is supported on the base 6441. The enclosure seat 6442 is hollow inside so as to form a water tank of the cleaning dock. The enclosure seat 6442 has a structure of double-layer side walls, and an accommodating area between the double-layer side walls is the water tank of the cleaning dock. The bottom end surface of the enclosure seat 6442 is open. The enclosure seat 6442 is sealed and abutted above the base 6441 to form a closed water storage space. As shown in FIGS. 43 and 44, the bottom of the cleaning plate 643 is formed with a first water flow channel 6432 communicating with the first plug nozzle 641, and a second water flow channel 6433 communicating with the second plug nozzle 642. The first water flow channel 6432 and the second water flow channel 6433 are independent of each other. The first water flow channel 6432 is in communication with the water tank of the cleaning dock through the water pump 645 of the cleaning dock. The cleaning nozzle 6431 communicates with the second water flow channel 6433. In this embodiment, both the first water flow channel 6432 and the second water

flow channel 6433 include a rib plate a formed on the bottom end surface of the cleaning plate 643, and a pressing plate b sealed and pressed on the bottom of the rib plate a. The rib plate a and the pressing plate b are connected by a welding process to form a water flow channel. The rib plate a is directly formed on the bottom of the cleaning plate 643 to minimize parts, reduce installation time, improve assembly efficiency, and reduce cost. The water inlet of the water pump 645 of the cleaning dock is in communication with the water tank of the cleaning dock through a water inlet pipe 6451. The water outlet of the water pump 645 of the cleaning dock communicates with the first water flow channel 6432 through a water outlet pipe 6452. As shown in FIGS. 42 to 44, the end surface of the cleaning plate 643 facing the rag 6161 is formed with a plurality of ribs 6434 for cleaning the rag 6161. The ribs 6434 are distributed on the cleaning plate 643 in a circular array. The ribs 6434 are distributed in a radiating shape with the center of the circular array as the center. The ribs 6434 include first ribs and second ribs with different lengths. The first ribs and the second ribs are distributed at intervals. Ends of the first ribs and the second ribs away from the radiating center are defined as distal ends, and ends of the first ribs and the second ribs close to the radiating center are defined as proximal ends. In this embodiment, the distal ends of the first ribs and the second ribs are located on a same circle. The proximal ends of the first ribs and the second ribs are located on two concentric circles, respectively. As shown in FIG. 42, a plurality of water leakage holes are also opened on the cleaning plate 643, and the diameter of each water leakage hole is larger than 4 mm in order to facilitate the leakage of dirty water. The dock seat 644 also includes a sewage collection tank 6443 arranged at the bottom of the base 6441 in a pull-out manner. A sewage port 647 for the sewage to flow into the sewage collection tank 6443 is also formed on the base 6441. As shown in FIGS. 46 to 48, the bottom end of the machine body 620 is also provided with a charging port 622. The cleaning dock 640 is provided with a charging needle unit 646 corresponding to the charging port 622. When the charging port 622 is inserted into the charging needle unit 646, the charging circuit is conducted, and the lithium battery chip starts charging.

[00255] Third embodiment:

[00256] As shown in FIG. 51, the difference from the first embodiment is that when the at least one valve body is one valve body, the valve body is arranged between the water tank of the floor mopping machine and the water pump of the cleaning dock, and the valve body communicates with the cleaning nozzle. The valve body is configured to communicate the water pump of the cleaning dock and the water tank of the floor mopping machine, or communicate the water pump of the cleaning dock and the cleaning nozzle. The valve body is a three-way valve. In this

embodiment, the liquid in the water tank of the cleaning dock is used to replenish water to the water tank of the floor mopping machine or to clean the nozzle itself.

[00257] The structure of the valve body in this embodiment is the same as the structure of the second valve body in the first embodiment.

[00258] As shown in FIGS. 61 to 71, the present application provides a control method for controlling a floor mopping machine, including: receiving a cleaning instruction after the water tank 721 of the floor mopping machine is in communication with a second plug nozzle 742 provided on a cleaning plate 743; controlling a first water pump of the floor mopping machine to turn on according to the cleaning instruction, so as to deliver liquid in the water tank 721 of the floor mopping machine to the cleaning plate 743 to wet a rag 7161 of the floor mopping machine; and controlling a power device of the floor mopping machine to rotate the rag of the floor mopping machine on the cleaning plate 743 after the first water pump operates for a first preset time.

[00259] As an embodiment of this solution, it further includes: controlling the first water pump to turn off after the rag 7161 of the floor mopping machine is rotated for a second preset time.

[00260] As an embodiment of this solution, it further includes: controlling the rag 7161 of the floor mopping machine to continue to rotate for a third preset time after the first water pump is turned off.

[00261] As an embodiment of this solution, after controlling the rag 7161 of the floor mopping machine to continue to rotate for the third preset time after the first water pump is turned off, detecting a water level of the liquid in the water tank 721 of the floor mopping machine; if the water level of the liquid is lower than a first preset water level, controlling a second water pump 745 communicated with the water tank 721 of the floor mopping machine to replenish water to the water tank 721 of the floor mopping machine.

[00262] As an embodiment of this solution, after receiving the cleaning instruction, detecting a water level of the liquid in the water tank 721 of the floor mopping machine; if the water level of the liquid is lower than a first preset water level, controlling a second water pump 745 communicated with the water tank 721 of the floor mopping machine to replenish water to the water tank 721 of the floor mopping machine.

[00263] As an embodiment of this solution, the first preset time is 0-30S, the second preset time is 0-30S, and the third preset time is 0-30S.

[00264] A controller for a floor mopping machine, includes: a receiving unit adapted to receive a cleaning instruction after a water tank 721 of the floor mopping machine is in communication with a second plug nozzle 742 on a cleaning plate 743; a water pump control unit adapted to control a first water pump of the floor mopping machine to turn on according to the cleaning instruction to deliver liquid in the water tank 721 of the floor mopping machine to the cleaning plate 743 so as to wet a rag 7161 of the floor mopping machine; and a power control unit adapted to control a power device of the floor mopping machine to rotate the rag 7161 of the floor mopping machine on the cleaning plate 743 after the first water pump works for a first preset time.

[00265] As an embodiment of this solution, the water pump control unit is further configured to control the first water pump to turn off after the rag 7161 of the floor mopping machine is rotated for a second preset time; and wherein the power control unit is further configured to control the rag of the floor mopping machine to continue to rotate for a third preset time after the first water pump is turned off.

[00266] As an embodiment of this solution, the water pump control unit is adapted to control the second water pump 745 in communication with the water tank 721 of the floor mopping machine according to a water level signal of the liquid in the water tank 721 of the floor mopping machine, so as to replenish water to the water tank 721 of the floor mopping machine.

[00267] A floor mopping machine is provided with the controller.

[00268] The floor mopping machine includes a machine body 720. As shown in FIGS. 61 to 63, a water tank 721 of the floor mopping machine is detachably provided on the machine body 720. The top of the machine body 720 is provided with a handle 730. A power button 731 and a cleaning button 732 are provided on the handle 730. A connection portion 723 is pivotally connected to the bottom of the machine body 720. A base 710 is pivotally connected to the connection portion 723. As shown in FIG. 63, the pivot axis between the machine body 720 and the connection portion 723 is defined as an X axis. The pivot axis between the connection portion 723 and the base 710 is defined as a Y axis. The machine body 720 can swing left and right relative to the connection portion 723, and the base 710 can swing up and down relative to the connection portion 723. A rotating disk 716 is provided on the base 710. The rotating disk

716 is located below the base 710. A rag 7161 is detachably provided on the rotating disk 716. The base 710 is provided with a driving unit 719 for driving the rotating disk 716 to rotate. The base 710 is provided with a first valve body 713 and a second valve body 714. As shown in FIG. 61, the first valve body 713 is in communication with the water tank 721 of the floor mopping machine through a first connecting pipe (not shown). The second valve body 714 is in communication with the water tank 721 of the floor mopping machine through a second connecting pipe (not shown). A first water pump (not shown) is provided on the second connecting pipe. The first water pump is arranged between the water tank 721 of the floor mopping machine and the nozzle 715 of the floor mopping machine, and is used to spray the liquid in the water tank 721 of the floor mopping machine by the nozzle 715 of the floor mopping machine. The first valve body 713 is disposed between the water tank 721 of the floor mopping machine and the second water pump 745. The first valve body 713 is a two-way valve. The two-way valve is used to conduct the water tank 721 of the floor mopping machine, which means that the water tank 721 of the floor mopping machine is connected to the second water pump, so that the liquid in the water tank of the cleaning dock is replenished to the water tank 721 of the floor mopping machine. The structure of the first valve body 713 is shown in FIGS. 72 to 74. The first valve body 713 has a connection port communicating with the water tank 721 of the floor mopping machine. A first valve core and a compression spring of the first valve core are arranged in the valve cavity of the first valve body 713. The bottom of the first valve body 713 is formed with a first connecting hole communicating with the valve cavity, and the first connecting hole is a liquid inlet. As shown in FIG. 74, when the first plug nozzle 741 is inserted into the first connecting hole the first valve core moves upwardly under the action of the external connector. At this time, the connection port of the first valve body 713 is in communication with the first connecting hole. As shown in FIG. 73, when the first plug nozzle 741 is pulled out, the first valve core is reset under the action of the compression spring of the first valve core, and the connection port of the first valve body 713 is cut off. As shown in FIGS. 75 to 77, the second valve body 714 has two connection ports located at different heights. The two connection ports include an upper connection port and a lower connection port. The lower connection port is a liquid inlet. A second valve core and a compression spring of the second valve core are arranged in the valve cavity of the second valve body 714. A second connecting hole communicating with the valve cavity is formed at the bottom of the second valve body 714. As shown in FIG. 76, when the second plug nozzle 742 is inserted into the second connecting hole and the second valve core moves upwardly to the preset position under the action of the external connector, the upper connection port and the second connecting hole is cut off by the second valve core, and the lower connection port is in communication with the second

connecting hole. At this time, the cleaning nozzle 7431 is conducted. As shown in FIG. 17, when the second plug nozzle 742 is pulled out, the second valve core is reset under the action of the compression spring of the second valve core. The lower connection port is in communication with the upper connection port, and the second connecting hole is cut off by the second valve core. At this time, the nozzle 715 of the floor mopping machine is conducted. When the floor mopping machine is cleaning the ground, press the power button 731 on the handle 730 of the floor mopping machine, and the rotating disk 716 on the base 710 of the floor mopping machine drives the rag 7161 to rotate under the drive of the driving unit 719 to realize the cleaning of the floor. After cleaning the floor, press the power button 731 of the handle 730 to stop the rag 7161 from working. In the above process, the nozzle 715 of the floor mopping machine can be triggered by pressing the cleaning button 732 on the handle 730, so that the nozzle 715 of the floor mopping machine sprays water to the ground. The nozzle 715 of the floor mopping machine is arranged on the base 710 and connected to the second valve body 714 through a hose 7151. The cleaning button 732 is configured to work on demand. Each time the cleaning button 732 is pressed, the nozzle 715 of the floor mopping machine sprays a preset amount of water.

[00269] When in use, the floor mopping machine is first placed on the cleaning dock 740, and the floor mopping machine and the cleaning dock 740 are installed in place. At this time, the cleaning program of the rag 7161 is in a standby state. As shown in FIGS. 64 and 66 to 68, the cleaning dock 740 includes a water tank. The cleaning dock 740 includes a dock seat 744 formed with a cleaning cavity. The dock seat 744 includes a base 7441 and an enclosure seat 7442 located on the top of the base 7441 and surrounding the top edge of the base 7441. The enclosure seat 7442 and the base 7441 are jointly enclosed to form a cleaning cavity. The cleaning cavity is used for accommodating the base 710 of the floor mopping machine. A cleaning plate 743 for cleaning the rag 7161 is provided in the cleaning cavity. The cleaning plate 743 is supported on the base 7441. The enclosure seat 7442 is hollow inside in order to form a water tank of the cleaning dock. The enclosure seat 7442 has a structure of double-layer side walls, and an accommodating area between the double-layer side walls is the water tank of the cleaning dock. The bottom end surface of the enclosure seat 7442 is open. The enclosure seat 7442 is sealed against the top of the base 7441 to form a closed water storage space. A cleaning nozzle 7431 is embedded on the cleaning plate 743. The cleaning nozzle 7431 is disposed toward the rag 7161. A plurality of ribs 7434 for cleaning the rag 7161 are formed on the end surface of the cleaning plate 743 facing the rag 7161. The cleaning plate 743 can also be detachably provided with a first plug nozzle 741 and a second plug nozzle 742. The bottom of

the cleaning plate 743 is formed with a first water flow channel 7432 communicating with the first plug nozzle 741, and a second water flow channel 7433 communicating with the second plug nozzle 742. The first water flow channel 7432 and the second water flow channel 7433 are independent of each other. The first water flow channel 7432 communicates with the water tank of the cleaning dock through the second water pump 745. The second water pump 745 is provided on the cleaning dock 740. The cleaning nozzle 7431 is in communication with the second water flow channel 7433. The water inlet of the second water pump 745 is in communication with the water tank of the cleaning dock through the water inlet pipe 7451. The water outlet of the second water pump 745 communicates with the first water flow channel 7432 through a water outlet pipe 7452. The cleaning plate 743 is also provided with a plurality of water leakage holes, and a diameter of the water leakage hole is larger than 4 mm in order to facilitate the leakage of dirty water. The dock seat 744 also includes a sewage collection tank 7443 which is drawn and arranged at the bottom of the base 7441. A sewage port 747 for sewage to flow into the sewage collection tank 7443 is also formed on the base 7441. As shown in FIGS. 69 to 71, the installation of the floor mopping machine and the cleaning dock 740 in place refers to a position state where the first plug nozzle 741 and the second plug nozzle 742 of the cleaning dock 740 are inserted into the first valve body 713 and the second valve body 714 of the base 710, respectively. When the first plug nozzle 741 is inserted into the first valve body 713, the first valve body 713 is triggered. At this time, the water level sensor in the water tank 721 of the floor mopping machine detects whether the water level in the water tank 721 of the floor mopping machine is lower than the first preset water level. If the water level in the water tank 721 of the floor mopping machine is lower than the first preset water level, a water replenishment operation is performed. The first valve body 713 is configured as a water replenishment valve of the water tank 721 of the floor mopping machine. When the first valve body 713 is conducted, the water in the water tank of the cleaning dock is pumped into the water tank 721 of the floor mopping machine through the first valve body 713 to realize the water replenishment of the water tank 721 of the floor mopping machine. The second water pump 745 is configured to pump the water in the water tank of the cleaning dock into the water tank 721 of the floor mopping machine. When the second plug nozzle 742 is inserted into the second valve body 714, the water tank 721 of the floor mopping machine is in communication with the cleaning nozzle 7431. The water tank 721 of the floor mopping machine supplies water to the cleaning nozzle 7431. When the floor mopping machine cleans the ground, the water tank 721 of the floor mopping machine is in communication with the nozzle 715 of the floor mopping machine. The water tank 721 of the floor mopping machine supplies water to the nozzle 715 of the floor mopping machine. The second valve body 714 is configured as a

switching valve for the nozzle 715 of the floor mopping machine and the cleaning nozzle 7431. As shown in FIGS. 69 to 71, when the floor mopping machine is placed on the cleaning dock 740 and installed in place, the charging port 722 on the floor mopping machine contacts the charging needle 746 on the cleaning dock 740. The charging circuit of the floor mopping machine is turned on. The lithium battery chip inside the floor mopping machine starts charging. Then, press the cleaning button 732 on the handle 730 of the floor mopping machine to start the cleaning procedure of the rag 7161. Then, after the cleaning program is started, the rag 7161 of the floor mopping machine rotates and contacts the ribs 7434 of the cleaning plate 743 on the cleaning dock 740. At the same time, the cleaning nozzle 7431 on the cleaning plate 743 continues to spray water on the rag 7161 for a period of time to realize the rinsing of the rag 7161. Finally, after the cleaning nozzle 7431 continues to spray water for a period of time, the cleaning nozzle 7431 stops spraying water on the rag 7161. At this time, the rag 7161 of the floor mopping machine continues to rotate for a period of time to achieve the drying of the rag 7161, thereby completing the self-cleaning operation of the rag 7161. The floor mopping machine is removed from the cleaning dock 740, and the floor cleaning operation is continued.

[00270] As shown in FIGS. 61 to 71, the floor mopping machine and the cleaning dock 740 are used in conjunction with each other, utilizing the working principle that the rag 7161 of the floor mopping machine itself can rotate, after the rag 7161 is used, it is put into the cleaning dock 740. After the charging port 722 of the floor mopping machine is in contact with the charging needle 746 of the cleaning dock 740, the charging circuit is turned on, and the lithium battery chip starts charging. A water level sensor is installed in the water tank 721 of the floor mopping machine to detect whether the water level is at a MAX value. When the water level is low, the water tank of the cleaning dock is used to supplement water. When the floor mopping machine is correctly placed on the cleaning dock 740, at this time, the first valve body 713 and the second valve body 714 are triggered by the first plug nozzle and the second plug nozzle, respectively. The cleaning program of the rag 7161 is in a standby state. A cleaning button 732 is provided on the handle 730 of the floor mopping machine. The cleaning button 732 is used to start the cleaning program of the rag 7161 in the standby state of the cleaning program, and the other state is the water spray button of the nozzle 715 of the floor mopping machine. The cleaning dock is equipped with a cleaning plate, a water tank of the cleaning dock and a sewage collection tank. After the self-cleaning program of the rag 7161 is started, the floor mopping machine uses its own rotation function to drive the rag 7161 to contact the ribs 7434 protruding from the cleaning plate 743. At the same time, the cleaning nozzle 7431 on the cleaning plate 743 sprays water. After the cleaning nozzle 7431 stops spraying water, the rag continues to

rotate. The sewage generated during cleaning is collected by the sewage collection tank below, thereby completing the self-cleaning work.

[00271] First embodiment:

[00272] As shown in FIGS. 78 to 86, the present application provides a dual-purpose cleaning dock for cleaning and replenishing, including:

[00273] a lower dock body 811;

[00274] an upper dock body 812 seated on the lower dock body 811, a water tank structure being formed on the upper dock body 812;

[00275] a cleaning plate 84 installed on the lower dock body 811 for friction cleaning of a rag 823 of the floor mopping machine; and

[00276] a water pumping device arranged in the lower dock body 811 for pumping cleaning water from the water tank structure; wherein the water pumping device pumps the cleaning water to the water tank 821 installed on the floor mopping machine 82 and to the cleaning plate 84.

[00277] The water tank structure includes a side water tank 8121 and a surrounding water tank 8122. The surrounding water tank 8122 and the side water tank 8121 are integrally formed, and a water storage cavity for storing the cleaning water is formed in communication between the surrounding water tank 8122 and the side water tank 8121. This enables the water storage cavity to have a large water storage capacity, and enables the upper dock body 812 to be stably seated on the lower dock body 811. The side water tank 8121 is provided with a water injection hole for injecting the cleaning water. The sealable cover on the water injection hole is equipped with a sealing buckle 8123. The water injection hole can be sealed and covered by the sealing buckle 8123. The lower dock body 811 and the upper dock body 812 together constitute a cleaning dock body 81.

[00278] Specifically, the water pumping device includes:

[00279] a water pump 83 fixed in the lower dock body 811, the water pump 83 and the water tank structural being in communication with each other;

[00280] a water replenishment plug nozzle 85, the water replenishment plug nozzle 85 being in communication with the water pump 83 through a water replenishment pipeline 833; and

[00281] a water replenishment valve 825, the water replenishment valve 825 being installed on the floor mopping machine 82, and the water replenishment valve 825 being in communication with the water tank 821 of the floor mopping machine;

[00282] wherein the water replenishment plug nozzle 85 is capable of being hermetically inserted on the water replenishment valve 825, so as to divert cleaning water into the water tank 821 of the floor mopping machine.

[00283] The water replenishment valve 825 is provided with a first valve port 8251 and a second valve port 8252. The first valve port 8251 is in communication with the water tank 821 of the floor mopping machine. The second valve port 8252 can be communicated and plugged with the water replenishment plug nozzle 85 in a sealed manner.

[00284] When the water replenishment plug nozzle 85 and the second valve port 8252 are in a plug-in state, the first valve port 8251 and the second valve port 8252 are in a communicating state. When the water replenishment plug nozzle 85 and the second valve port 8252 are disconnected from each other, the first valve port 8251 and the second valve port 8252 are in a non-communicating state. The water replenishment valve 825 is a solenoid valve. The solenoid valve is limited to conduction between the water replenishment valve 825 and the water replenishment plug nozzle 85 when they are mated with each other. When the water replenishment valve 825 is disconnected from the water replenishment plug nozzle 85, the water replenishment valve 825 cuts off the flow. Referring to FIG. 86, the water replenishment valve 825 is a mechanical valve. A flow cavity 8250 is formed in the water replenishment valve 825. The flow cavity 8250 is in communication with the first valve port 8251 and the second valve port 8252. A valve core 8253 is installed in the flow cavity 8250. The valve core 8253 is used to conduct or cut off a passage between the first valve port 8251 and the second valve port 8252. An elastic member 8254 for resetting the valve core 8253 is provided in the water replenishment valve 825. The elastic member 8254 is defined to be able to cut off the passage between the first valve port 8251 and the second valve port 8252 by acting on the valve core 8253 when the water replenishment plug nozzle 85 is pulled out. The elastic member 8254 is a spring. One end of the spring abuts on the water replenishment valve 825, and the other end of the spring abuts on the valve core 8253. The valve core 8253 is formed with a valve core flow passage for conducting the first valve port 8251 and the second valve port 8252. A sealing ring for sealing the second

valve port 8252 is fixed on the valve core 8253. The valve core 8253 is configured as a column structure with a cross-shaped cross section, and a valve core flow channel is formed between two adjacent column sides. The valve core 8253 is inserted inside the elastic member 8254 so that the entire valve core 253 is vertical as a whole. This can play a guiding role, and make the valve core 8253 move along the axis of the water replenishment valve 825, so that the sealing surface of the sealing ring can be fully sealed with the second valve port 8252.

[00285] The water replenishment plug nozzle 85 is fixedly installed on the cleaning plate 84. The cleaning plate 84 is formed with a water replenishment channel 850 for diverting cleaning water to the water replenishment plug nozzle 85. A water replenishment plug nozzle 851 is formed on the water replenishing channel 850. The water replenishment pipe 833 can be in communication with the water replenishment plug nozzle 851 in a hermetically and communicative manner. The water pumping device further includes a nozzle 842 in communication with the water pump 83 through a cleaning pipeline 834. The nozzle 842 is used to spray the cleaning water in the water tank structure onto the cleaning plate 84 to wet the rag 823 of the floor mopping machine. The nozzle 842 is fixedly installed on the cleaning plate 84. The cleaning plate 84 is formed with a cleaning flow path 8420 for guiding cleaning water to the nozzle 842. A cleaning plug nozzle 8421 is formed on the cleaning flow path 8420. The cleaning pipeline 834 can be in communication with the cleaning plug nozzle 8421 in a sealing manner. The water pump 83 is in communication with the water tank structure through a water inlet pipe 831. A water outlet pipe 832 is also in communication with the water pump 83. One end of the water outlet pipe 832 is in communication with a branching tee 8320. The cleaning pipeline 834 and the water replenishment pipeline 833 are both in communication with the branching tee 8320 for guiding the cleaning water after the split.

[00286] A solenoid check valve 8331 for water replenishment is installed on the water replenishment pipeline 833 to control the conduction or shutoff of the water replenishment pipeline 833. A cleaning solenoid check valve 8332 is installed on the cleaning pipeline 834 to control the conduction or shutoff of the cleaning pipeline 834.

[00287] A plurality of cleaning portions are formed on the cleaning plate 84. The nozzle 842 is provided in the cleaning portion. The cleaning portions include a plurality of circular cleaning ribs 841. The cleaning ribs 841 include a plurality of first ribs 8411 and a plurality of second ribs 8412. The first ribs 8411 and the second ribs 8412 are spaced apart from each other. Outer ends of the first ribs 8411 and outer ends of the second ribs 8412 are located on the same circular line. The first rib 8411 is shorter than the second rib 8412. The cleaning ribs 841 are

provided protruding from the cleaning plate 84. The cleaning rib 841 has a triangular prism shape. The cleaning plate 84 is provided with a plurality of drain holes 843 for draining sewage. The lower dock body 811 is formed with a mounting cavity 8110 for mounting the cleaning plate 84. The bottom surface of the mounting cavity 8110 has a lowest terrain area. A drain hole 8111 is opened in the lowest terrain area. A sewage cleaning tank 813 for collecting sewage drained from the drain hole 8111 is detachably installed in the lower dock body 811. The sewage flowing down from the cleaning plate 84 can pass through the drain hole 843 and the drain hole 8111, and be led down into the sewage cleaning tank 813 for being treated afterwards.

[00288] The floor mopping machine 82 includes a machine body 820. The water tank 821 of the floor mopping machine is detachably installed on the machine body 820. The base 822 of the floor mopping machine is swingably arranged on the machine body 820. A rotation driving device 827 is fixed on the base 822 of the floor mopping machine. The rag 823 of the floor mopping machine is rotatably connected to the rotation driving device 827.

[00289] As an embodiment of the present application, the floor mopping machine 82 further includes a spray head 826 and a water pump of the floor mopping machine. The spray head 826 is used to spray cleaning water to the ground to be cleaned. The water pump of the floor mopping machine is provided in the machine body 820 for pumping the cleaning water in the water tank 821 of the floor mopping machine to the spray head 826. The water replenishment valve 825 is fixed in the base 822 of the floor mopping machine. The bottom of the base 822 of the floor mopping machine is provided with a through hole 824 for installing the water replenishment valve 825. The water tank 821 of the floor mopping machine is provided with a water level sensor for collecting water level information of the cleaning water in the water tank 821.

[00290] The working principle of the dual-purpose cleaning dock for cleaning and replenishing water is as follows.

[00291] When the floor mopping machine 82 is used to clean the ground, the rotation driving device 827 rotates the rag 823 of the floor mopping machine to wipe and clean the ground. The floor mopping machine 82 can control the water pump operation of the floor mopping machine through a corresponding button. The water pump of the floor mopping machine can pump the cleaning water from the water tank 821 of floor mopping machine. The cleaning water is pumped into the spray head 826, and the cleaning water is sprayed onto the ground to be cleaned through the spray head 826.

[00292] After the floor mopping machine 82 has been used, it is placed on the cleaning dock 81. At the same time, the water replenishment plug nozzle 85 is plugged into the second valve port 8252 in a sealed and communicating manner. At this time, the first valve port 8251 and the second valve port 8252 are in a communicating state.

[00293] Subsequently, a water level sensor arranged on the water tank 821 of the floor mopping machine detects the cleaning water level in the water tank 821 of the floor mopping machine. When the water level is below a max value, the water pump 83 starts to work and the solenoid check valve 8331 for water replenishment is turned on. The water pump 83 pumps the cleaning water from the water tank structure into the water tank 821 of the floor mopping machine sequentially through the water inlet pipe 831, the water outlet pipe 832, the branching tee 8320, the water replenishment pipe 833, the water replenishment channel 850, the water replenishment plug nozzle 85 and the water replenishment valve 825. After the water level in the water tank 821 of the floor mopping machine is not lower than the max value, the water pump 83 stops working and the solenoid check valve 8331 for water replenishment is in a shut-off state. When the water level is not below the max value, the solenoid check valve 8331 for water replenishment is in a shut-off state, and the water replenishment pump 83 is not in operation.

[00294] When the rag 823 of the floor mopping machine needs to be cleaned, a corresponding button on the floor mopping machine 82 is pressed. At this time, the rotation driving device 827 drives the rag 823 of the floor mopping machine to rotate and rub on the cleaning plate 84. The operation of the water pump 83 is started, and the cleaning solenoid check valve 8332 is turned on. The water pump 83 pumps the cleaning water from the water tank structure to the cleaning plate 84 so as to wet the rag 823 of the floor mopping machine, sequentially through the water inlet pipe 831, the water outlet pipe 832, the branching tee 8320, the cleaning pipeline 834, the cleaning flow path 8420 and the nozzle 842. The rag 823 of the floor mopping machine obtains a cleaning effect under the water friction washing of the cleaning rib 841. The sewage flowing down from the cleaning plate 84 is led to the sewage cleaning tank 813 for being cleaned up afterwards.

[00295] In addition, the present application can also implement cleaning the rag 823 of the floor mopping machine while replenishing the water tank 821 of the floor mopping machine. During this process, the water pump 83 is operating, and the solenoid check valve 8331 for water replenishment and the solenoid check valve 8332 for cleaning are both in a communicating state.

[00296] In summary, when replenishing the cleaning water to the water tank 821 of the floor mopping machine or cleaning the rag 823 of the floor mopping machine, the water pump 83 is required to work. The floor mopping machine correspondingly guides the cleaning water through the pipelines that need to be connected, so as to realize the guide of the cleaning water in the water tank structure through two independent pipelines.

[00297] Second embodiment

[00298] Referring to FIGS. 87 to 92, the present application provides a cleaning plate for a floor mopping machine. The cleaning plate includes a plate body 81, a nozzle 823 and a first flow channel 831. In this embodiment, the plate body 81 is substantially rectangular with four corners being rounded. This shape is just an example but not limits the present application. The plate body 81 has an upper surface and a lower surface in a thickness direction thereof. The upper surface defines a cleaning area 82 for cleaning the cleaning members of the floor mopping machine. The cleaning area can be the entire upper surface of the plate, or a part of the upper surface. Preferably, the cleaning area corresponds to the cleaning member. A plurality of cleaning structures protruding outwardly are provided in the cleaning area 82. At least one nozzle 823 is provided, and is used to spray fluid to the cleaning member. The first flow channel 831 is used to deliver the fluid to the nozzle 823. The nozzle 823 can be connected to an indoor water pipe, can be connected to a water tank of a floor mopping machine, or can be connected to other devices with a conveying function. As an embodiment of the present application, the above-mentioned fluid is clean water. Of course, in order to increase the cleaning effect, the fluid can also be liquid added with a detergent.

[00299] As an embodiment of the present application, the cleaning area includes two circular areas corresponding to the shape of the cleaning member. The circular area is slightly larger than the cleaning member, so that the cleaning member can be effectively cleaned. In this embodiment, at least one nozzle is provided in each cleaning area. The nozzle sprays the liquid to a side of the cleaning member facing the cleaning plate so as to wet the cleaning member.

[00300] Specifically, the first flow channel 831 includes:

[00301] a groove integrally formed with the plate body 81; and

[00302] a first cover plate 8311 used to cooperate with the groove to form the first flow channel 831.

[00303] As an embodiment of the present application, the groove is surrounded by a first enclosure plate 832 formed on the plate body 81. A first flow cavity in communication with the nozzle 823 is formed in the first flow channel 831.

[00304] The groove is integrally formed on the plate body, which can effectively reduce the cost and save space. At the same time, the strength of the plate body in a lateral direction can also be improved. A first slot 8320 is formed on the first enclosure 832. A first protruding strip 8312 is formed on the first cover 8311. The first protruding strip 8312 can be inserted and fixed in the first slot 8320 to improve the installation stability between the first enclosure plate 832 and the first cover plate 8311. The first enclosure plate 832 and the first cover plate 8311 are fixed by one of an ultrasonic connection process, a dispensing connection process, an implant connection process, and a friction connection process. The nozzle 823 is integrally formed with the plate body 81. The nozzle 823 includes a nozzle boss 8231 with a nozzle hole 8233 communicating with the first flow channel 831. A V-shaped nozzle groove 8232 is provided at the spray area of the nozzle boss 8231. The V-shaped nozzle groove 8232 can spray the liquid in a scattering device, thereby increasing the wetting area of the cleaning member. The plate body 81 is formed with a water injection hole 830 communicating with the first flow channel 831. The cleaning structure is a rib plate integrally formed with the plate body 81. A plurality of ribs in the cleaning area are arranged in an annular shape along a predetermined center. The ribs are arranged protruding from the plate body 81, and a cross section of each rib is triangular. The plurality of ribs include a plurality of first ribs 8211 of which each has a first length and a plurality of second ribs 8212 of which each has a second length. The first ribs 8211 and the second ribs 8212 are arranged at intervals. Outer ends of the first ribs 8211 away from a preset center and outer ends of the second ribs 8212 away from the preset center are located on the same circumferential line. Arranging the two kinds of ribs with different lengths at intervals and leaving part of the space near the center of a circle can effectively avoid the effect of cleaning due to too dense ribs at the center of the circle.

[00305] The ribs are further described as follows. Both ends of each rib are formed with sloped surfaces 8213. The ribs are triangular as a whole to enhance the cleaning effect. The ribs and the plate body are integrally formed. At the same time, the ribs are hollow to save cost. A reinforcing rib 811 is provided on the plate body 81. The reinforcing rib is arc-shaped. Part of the reinforcing rib 811 is substantially parallel to the outer edge of the plate body, which can effectively enhance the strength of the plate body. The reinforcing rib can also be integrally formed with the plate body. A mounting plate 812 is provided around the outer edge of the plate

body 81. The mounting plate 812 is arranged on the outer edge of the plate body to support the plate body and at the same time further enhance the strength of the plate body. The plate body 81 is provided with an injection groove 810 for forming a rib. A second flow channel 841 is also formed on the plate body 81. The second flow channel 841 is formed by a second enclosure plate 842 formed on the plate body 81 and a second cover plate 8411 fixed on the second enclosure plate 842. A second flow cavity 8400 is formed in the second flow channel 841. A second slot 8420 is formed on the second enclosure plate 842. A second protruding strip 8412 is formed on the second cover 8411. The second protruding strip 8412 can be inserted and fixed in the second slot 8420 to improve the installation stability between the second enclosure plate 842 and the second cover plate 8411. The second enclosure plate 842 and the second cover plate 8411 are fixed by one of an ultrasonic connection process, a dispensing connection process, an implant connection process, and a friction connection process. A connecting pipe 8413 is formed on the second cover plate 8411 to communicate with the second flow cavity 8400. The plate body 81 is formed with a water outlet hole 840 communicating with the second flow cavity 8400. Both the water injection hole 830 and the water outlet hole 840 are threaded holes. The cleaning plate of the floor mopping machine further includes at least one drain hole 822 integrally formed with the plate body 81. The drain hole extends through the upper surface and the lower surface of the plate body. The drain hole is generally disposed between two ribs. In this embodiment, two drain holes are provided between every two adjacent ribs to quickly drain dirty water under the plate.

[00306] The present application also provides a cleaning device which defines an accommodating space. The above-mentioned cleaning plate of the floor mopping machine is placed in the accommodating space. The working principle of the cleaning plate of the floor mopping machine is as follows. The floor mopping machine is placed on the plate body 81. The cleaning water passes through the water injection hole 830 and the first flow path 831, and is sprayed onto a rotating rag by the nozzle 823. The rag achieves a cleaning effect under the friction action of the protruding ribs. The sewage after cleaning the rag of the floor mopping machine is discharged through the drain hole 822.

[00307] The first rib 8211 and the second rib 8212 disposed in the annular shape and having different lengths can make the rag of the floor mopping machine get better cleaning effect. The first enclosure plate 832 formed on the plate body 81 and the first cover plate 8311 fixed on the first enclosure plate 832 form the first flow channel 831, and the nozzle 823 is integrally formed on the plate body 81, so that the integration of the cleaning plate of the floor mopping machine

on the premise of meeting the functional requirements is greatly improved. At the same time, the number of assembly components is also reduced, which not only saves assembly time and improves assembly efficiency, but also reduces production costs.

[00308] Although the embodiments of the present application have been disclosed above, they are not limited to the applications listed in the specification and the embodiments, and they can be applied to various fields suitable for the present application. For those skilled in the art, additional modifications can be easily implemented. Therefore, without departing from the general concept defined by the claims and equivalent scope, the present application is not limited to the specific details and the legends shown and described here.

What is claimed is:

1. A floor mopping machine, comprising:

a machine body being provided with a water tank of the floor mopping machine; and

at least one valve body being in communication with the water tank of the floor mopping machine;

wherein after a cleaning dock is put into the floor mopping machine, the floor mopping machine communicates with a water tank of the cleaning dock through the valve body, and/or the floor mopping machine communicates with a cleaning nozzle of the cleaning dock through the valve body.

2. The floor mopping machine according to claim 1, wherein the at least one valve body comprises a first valve body and a second valve body.

3. The floor mopping machine according to claim 2, further comprising:

a nozzle, the nozzle of the floor mopping machine being in communication with the water tank of the floor mopping machine;

a water pump, the water pump of the floor mopping machine being disposed between the water tank of the floor mopping machine and the nozzle of the floor mopping machine, and the water pump of the floor mopping machine being adapted to spray liquid in the water tank of the floor mopping machine by the nozzle of the floor mopping machine;

wherein the first valve body is disposed between the water tank of the floor mopping machine and the water pump of the floor mopping machine.

4. The floor mopping machine according to claim 3, wherein the first valve body is a three-way valve which can simultaneously conduct the water tank of the floor mopping machine and the water pump of the floor mopping machine.

5. The floor mopping machine according to claim 2, wherein the second valve body is disposed between the nozzle of the floor mopping machine and the water pump of the floor mopping machine, and the second valve body is in communication with the cleaning nozzle.

6. The floor mopping machine according to claim 5, wherein the second valve body is configured to conduct the floor mopping machine and the water pump of the floor mopping machine, or to conduct the water pump of the floor mopping machine and the cleaning nozzle.

7. The floor mopping machine according to claim 2, further comprising a base pivotally connected to a bottom end of the machine body, and the base being provided with the at least one valve body.

8. The floor mopping machine according to claim 1, wherein when the at least one valve body is only one, the valve body is disposed between the water tank of the floor mopping machine and the water pump of the cleaning dock, and the valve body communicates with the cleaning nozzle.

9. The floor mopping machine according to claim 8, wherein the valve body is configured to conduct the water pump of the cleaning dock and the water tank of the floor mopping machine, or to conduct the water pump of the cleaning dock and the cleaning nozzle.

10. The floor mopping machine according to claim 8, wherein the valve body is a three-way valve.

11. A control method for a floor mopping machine, comprising:

receiving a cleaning instruction after a water tank of the floor mopping machine is in communication with a second plug nozzle on a cleaning plate;

controlling a first water pump of the floor mopping machine to turn on according to the cleaning instruction, so as to deliver liquid from the water tank of the floor mopping machine to the cleaning plate so as to wet a rag of the floor mopping machine; and

controlling a power device of the floor mopping machine to rotate the rag of the floor mopping machine on the cleaning plate after the first water pump operates for a first preset time.

12. The control method according to claim 11, further comprising:

controlling the first water pump to turn off after the rag of the floor mopping machine is rotated for a second preset time.

13. The control method according to claim 12, further comprising:

controlling the rag of the floor mopping machine to continue to rotate for a third preset time after the first water pump is turned off.

14. The control method according to claim 13, wherein

after controlling the rag of the floor mopping machine to continue to rotate for the third preset time after the first water pump is turned off, a water level of the liquid in the water tank of the floor mopping machine is detected; if the water level of the liquid is lower than a first preset water level, a second water pump communicated with the water tank of the floor mopping machine is controlled to replenish water to the water tank of the floor mopping machine.

15. The control method according to claim 11, wherein

after receiving the cleaning instruction, a water level of the liquid in the water tank of the floor mopping machine is detected; if the water level of the liquid is lower than a first preset water level, a second water pump communicated with the water tank of the floor mopping

machine is controlled to replenish water to the water tank of the floor mopping machine.

16. The control method according to claim 13, wherein

the first preset time is 0-30S, the second preset time is 0-30S, and the third preset time is 0-30S.

17. A controller for a floor mopping machine, comprising:

a receiving unit adapted to receive a cleaning instruction after a water tank of the floor mopping machine is in communication with a second plug nozzle on a cleaning plate;

a water pump control unit adapted to control a first water pump of the floor mopping machine to turn on according to the cleaning instruction to deliver liquid from the water tank of the floor mopping machine to the cleaning plate so as to wet a rag of the floor mopping machine; and

a power control unit adapted to control a power device of the floor mopping machine to rotate the rag of the floor mopping machine on the cleaning plate after the first water pump works for a first preset time.

18. The controller according to claim 17, wherein

the water pump control unit is further configured to control the first water pump to turn off after the rag of the floor mopping machine is rotated for a second preset time; and

wherein the power control unit is further configured to control the rag of the floor mopping machine to continue to rotate for a third preset time after the first water pump is turned off.

19. The controller according to claim 17, wherein

the water pump control unit is adapted to control the second water pump communicated with the water tank of the floor mopping machine according to a water level signal of the liquid in the water tank of the floor mopping machine, so as to replenish water to the water tank of the floor mopping machine.

20. A floor mopping machine, wherein the floor mopping machine includes a controller according to claim 17.