

DESCRIPTION

Title of Invention: WET CLEANING TOOL

Technical Field

[0001]

5 The present invention relates to a wet cleaning tool, and particularly to a wet cleaning tool that is capable of cleaning a surface-to-be-cleaned while applying a liquid agent to the surface-to-be-cleaned by supplying the liquid agent to a cleaning head section.

Background Art

10 [0002]

 A cleaning tool that cleans a surface-to-be-cleaned such as a floor surface with a cleaning head section, to which a cleaning sheet made of e.g. a nonwoven fabric is attached so as to preferably cover the cleaning surface of the cleaning head section, can be used to handily clean the surface-to-be-cleaned by wiping the surface-to-be-cleaned while holding, with the hand, a handle section connected to the cleaning head section, to thereby make dust, dirt, and soil adhere to the cleaning sheet.

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[0003]

 There has also been developed a wet cleaning tool that has a liquid-agent-containing tank section preferably attached to the handle section, and that can clean a surface-to-be-cleaned while applying a liquid agent for cleaning/finishing, such as a liquid cleaning agent or a wax agent, to the surface-to-be-cleaned by supplying the liquid agent to the cleaning head section (see, for example, Patent Literature 1). In this wet cleaning tool, it is necessary to be able to stop supplying the liquid agent when the liquid agent is not in use, and also, it is desirable to be able to adjust the amount of liquid agent to be supplied to the cleaning head. Thus, the wet cleaning tool of Patent Literature 1 is provided with an adjustment mechanism that allows flow-amount adjustment, including stoppage of the supply of liquid agent.

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[0004]

The adjustment mechanism of the wet cleaning tool of Patent Literature 1 performs flow-amount adjustment, including stoppage of the supply of liquid agent, by pressing down or up on a midstream section of a flexible or moderately pliable flow tube, which forms a flow path for supplying the liquid agent, to thereby curve or bend the flow tube and change the degree of opening of the flow path of the flow tube.

Citation List

Patent Literature

[0005]

Patent Literature 1: JP11-197081 A

Summary of Invention

[0006]

The present invention is a wet cleaning tool including a cleaning head section, a handle section, and a liquid-agent-containing tank section, the wet cleaning tool being capable of cleaning a surface-to-be-cleaned while applying a liquid agent to the surface-to-be-cleaned by supplying the liquid agent from the liquid-agent-containing tank section to the cleaning head section. The wet cleaning tool is provided with a liquid-amount adjusting section to which a flexible tube for sending out the liquid agent from the liquid-agent-containing tank section to the cleaning head section is attached, or to which a flexible tube for sending air into the liquid-agent-containing tank section is attached, the liquid-amount adjusting section being capable of adjusting the supply amount of the liquid agent to be supplied from the liquid-agent-containing tank section to the cleaning head section. The liquid-amount adjusting section is constituted by including: a tube disposing groove in which the flexible tube is disposed; and a pressing-moving member that is movable, along the direction in which the tube disposing groove extends, in a state where a pressing end section thereof for pressing the flexible tube is protruded into the tube disposing groove. The tube disposing groove has a gradient section at the bottom surface of the groove, the gradient section being inclined along the direction in which the groove extends. The flow amount of the liquid agent to be supplied from the liquid-agent-containing tank section to the cleaning head section can be adjusted by moving the pressing-moving member in a state where the flexible tube is squashed by being sandwiched between the bottom surface of the tube disposing groove and the pressing end section of the pressing-moving member, and thereby adjusting the

amount by which the flexible tube is squashed in the gradient section and controlling the flow amount of the liquid agent or the air that passes through the flexible tube.

Brief Description of Drawings

[0007]

- 5 [Fig. 1] Fig. 1 is a perspective view describing the overall construction of a wet cleaning tool according to a preferred embodiment of the present invention.
- [Fig. 2(a)] Fig. 2(a) is a perspective view describing the construction of a cleaning head section of a wet cleaning tool according to a preferred embodiment of the present invention.
- 10 [Fig. 2(b)] Fig. 2(b) is an exploded perspective view describing the construction of a cleaning head section of a wet cleaning tool according to a preferred embodiment of the present invention.
- [Fig. 2(c)] Fig. 2(c) is a cross-sectional view taken along line A-A in Fig. 2(a) describing the construction of a cleaning head section of a wet cleaning tool according to a preferred embodiment of the present invention, and an enlarged view of section B.
- 15 [Fig. 3(a)] Fig. 3(a) is a vertical sectional view of an open/close adjustment unit describing the construction of a liquid-amount adjusting section of a wet cleaning tool according to a preferred embodiment of the present invention.
- [Fig. 3(b)] Fig. 3(b) is a lateral sectional view taken along line C-C in Fig. 3(a).
- 20 [Fig. 4(a)] Fig. 4(a) is a side view describing the construction of a liquid-agent-containing tank section of a wet cleaning tool according to a preferred embodiment of the present invention.
- [Fig. 4(b)] Fig. 4(b) is a side view describing the construction of a liquid-agent-containing tank section of a wet cleaning tool according to a preferred embodiment of the present invention.
- 25 [Fig. 4(c)] Fig. 4(c) is a side view describing the construction of a liquid-agent-containing tank section of a wet cleaning tool according to a preferred embodiment of the present invention.
- [Fig. 5(a)] Fig. 5(a) is a cross-sectional view describing the construction of a liquid-agent-containing tank section of a wet cleaning tool according to a preferred embodiment of the present invention.
- 30 [Fig. 5(b)] Fig. 5(b) is a perspective view of an elastomeric check valve describing the construction of a liquid-agent-containing tank section of a wet cleaning tool according

to a preferred embodiment of the present invention.

[Fig. 6] Fig. 6 is a cross-sectional view describing another embodiment for attaching a flexible tube to a liquid-amount adjusting section and making it possible to adjust the amount of liquid agent to be supplied from a liquid-agent-containing tank section to a cleaning head section.

Description of Embodiments

[0008]

In the adjustment mechanism of Patent Literature 1, the flow path of the flow tube is opened/closed and the degree of opening of the flow path is changed stepwise in several steps by sliding and moving an operation protrusion, which is connected to a pressing part for pressing down or up on the flow tube, along a vertical groove formed in the side surface of a handle section of the cleaning tool, and selectively latching the operation protrusion into one of a plurality of lateral grooves provided, in several steps, so as to protrude in the lateral direction from the vertical groove. Thus, it is difficult to finely adjust, accurately and linearly, the amount of liquid agent to be supplied to the cleaning head.

[0009]

The present invention relates to a wet cleaning tool that can clean or polish up a surface-to-be-cleaned while applying a liquid agent by finely adjusting, accurately and linearly, the supply amount of liquid agent to be delivered from a liquid-agent-containing tank section to a cleaning head section.

[0010]

The present invention is a wet cleaning tool including a cleaning head section, a handle section, and a liquid-agent-containing tank section, the wet cleaning tool being capable of cleaning a surface-to-be-cleaned while applying a liquid agent to the surface-to-be-cleaned by supplying the liquid agent from the liquid-agent-containing tank section to the cleaning head section. The wet cleaning tool is provided with a liquid-amount adjusting section to which a flexible tube for sending out the liquid agent from the liquid-agent-containing tank section to the cleaning head section is attached, or to which a flexible tube for sending air into the liquid-agent-containing tank section is

attached, the liquid-amount adjusting section being capable of adjusting the supply amount of the liquid agent to be supplied from the liquid-agent-containing tank section to the cleaning head section. The liquid-amount adjusting section is constituted by including: a tube disposing groove in which the flexible tube is disposed; and a pressing-moving member that is movable, along the direction in which the tube disposing groove extends, in a state where a pressing end section thereof for pressing the flexible tube is protruded into the tube disposing groove. The tube disposing groove has a gradient section at the bottom surface of the groove, the gradient section being inclined along the direction in which the groove extends. The flow amount of the liquid agent to be supplied from the liquid-agent-containing tank section to the cleaning head section can be adjusted by moving the pressing-moving member in a state where the flexible tube is squashed by being sandwiched between the bottom surface of the tube disposing groove and the pressing end section of the pressing-moving member, and thereby adjusting the amount by which the flexible tube is squashed in the gradient section and controlling the flow amount of the liquid agent or the air that passes through the flexible tube.

[0011]

A wet cleaning tool 10 according to a preferred embodiment of the present invention as illustrated in Fig. 1 is employed, for example, at the time of cleaning the surface of a floor, as the surface-to-be-cleaned, by detachably and replaceably attaching a disposable cleaning sheet 20 so as to cover the cleaning surface 11a of a cleaning head section 11. The wet cleaning tool 10 of the present embodiment is provided with a liquid-agent-containing tank section 13 containing a liquid agent for cleaning/finishing, such as a liquid cleaning agent or a wax agent, and is made so that it can clean the surface-to-be-cleaned while applying the liquid agent to the surface-to-be-cleaned by supplying the liquid agent from the liquid-agent-containing tank section 13 to the cleaning head section 11 via a flexible tube 14 (cf. Fig. 3(a)). Further, the wet cleaning tool 10 of the present embodiment is provided with a liquid-amount adjusting section 15, and thereby, has the function of finely adjusting, accurately and linearly, the supply amount of the liquid agent to be supplied from the liquid-agent-containing tank section 13 to the cleaning head section 11.

[0012]

The wet cleaning tool 10 of the present embodiment includes the aforementioned

cleaning head section 11, a handle section 12, and the aforementioned liquid-agent-containing tank section 13, and is capable of cleaning a surface-to-be-cleaned while applying a liquid agent to the surface-to-be-cleaned by supplying the liquid agent from the liquid-agent-containing tank section 13 to the cleaning head section 11. As illustrated in Figs. 2(a) to 2(c) and Figs. 3(a) and 3(b), the wet cleaning tool is provided with a liquid-amount adjusting section 15 to which a flexible tube 14 for sending out the liquid agent from the liquid-agent-containing tank section 13 to the cleaning head section 11 is attached, the liquid-amount adjusting section 15 being capable of adjusting the supply amount of the liquid agent to be supplied from the liquid-agent-containing tank section 13 to the cleaning head section 11. The liquid-amount adjusting section 15 is constituted by including: a tube disposing groove 16 in which the flexible tube 14 is disposed; and a pressing-moving member 17 that is movable, along the direction in which the tube disposing groove 16 extends, in a state where a pressing end section 17a thereof for pressing the flexible tube 14 is protruded into the tube disposing groove 16 (cf. Figs. 3(a) and 3(b)). The tube disposing groove 16 has a gradient section 16a' at the bottom surface 16a of the groove 16, the gradient section 16a' being inclined along the direction in which the groove 16 extends. The flow amount of the liquid agent to be supplied from the liquid-agent-containing tank section 13 to the cleaning head section 11 can be adjusted by moving the pressing-moving member 17 in a state where the flexible tube 14 is squashed by being sandwiched between the bottom surface 16a of the tube disposing groove 16 and the pressing end section 17a of the pressing-moving member 17, and thereby adjusting the amount by which the flexible tube 14 is squashed in the gradient section 16a' and controlling the flow amount of the liquid agent that passes through the flexible tube 14.

[0013]

Further, the present embodiment is provided with an engaging-holding mechanism 18 that holds the pressing-moving member 17 at positions to which the pressing-moving member 17 has been moved along the tube disposing groove 16. Preferably, the engaging-holding mechanism 18 is constituted by a gear mechanism 19 including a rack section 19a provided to an opening edge of the tube disposing groove 16 along the direction in which the groove 16 extends, and a pinion section 19b provided to the pressing-moving member 17; and the pressing-moving member 17 has a disk shape that is coaxially provided with the pinion section 19b, the pressing-moving member 17 being

movable, along the tube disposing groove 16 while rotating, in a state where a peripheral end section thereof is protruded, as the pressing end section 17a, into the tube disposing groove 16.

[0014]

5 In the present embodiment, the cleaning head section 11 constituting the wet cleaning tool 10 includes a head body 21 and a base body 22, as illustrated in Figs. 2(a) to 2(c). The head body 21 is, for example, a flat plate-shaped member made of plastic and having a rectangular planar shape wherein the long side is about 200 to 600 mm and the short side is about 50 to 150 mm. A handle-supporting joint section 23 is provided to
10 the head body 21 in the central section on the upper surface thereof. A rotary joint section 27 provided at the lower end section of the handle section 12 is rotatably joined to the handle-supporting joint section 23, and thereby, it is possible to perform cleaning with the wet cleaning tool 10 while turning the handle section 12 in the front-and-rear direction and also the left-and-right direction with respect to the cleaning head section 11.

15 [0015]

Further, in the present embodiment, a pipe attachment groove 24 is formed between one of the long sides of the head body 21 and the handle-supporting joint section 23 so as to extend linearly in parallel to the aforementioned one long side. A liquid-agent dispersion pipe 25 which has a tube-connecting section 25a protruding therefrom at the
20 central section and which has substantially the same length as the pipe attachment groove 24 is attached and fixed to the pipe attachment groove 24 in a state where it is covered by a pipe cover 26.

[0016]

The pipe cover 26 is a linear cover member having a substantially arc-shaped cross section and having substantially the same length as the pipe attachment groove 24. An annularly opened protruding wall section 26a in which the tube-connecting section 25a of the liquid-agent dispersion pipe 25 is disposed is provided in the central section of the pipe cover 26. The pipe cover 26 has engagement protrusions 26b that are provided at a plurality of locations with intervals therebetween in the length direction of the pipe cover
30 and that protrude downward from the lower end sections on both sides of the substantially

arced cross-sectional shape. By engaging the engagement protrusions 26b into engagement grooves 24b formed in the opening edges on both sides of the pipe attachment groove 24 of the head body 21 so as to correspond to the pitch according to which the engagement protrusions 26b are provided, the pipe cover 26 can position and
 5 fix the liquid-agent dispersion pipe 25 with respect to the pipe attachment groove 24 in a manner so as to cover the liquid-agent dispersion pipe 25.

[0017]

Further, in the present embodiment, the pipe attachment groove 24 has, in the bottom section thereof, a plurality of liquid opening protrusions 24c that are opened in the
 10 lower surface of the head body 21 with intervals therebetween along the length direction of the pipe attachment groove 24, and that protrude downward. When the base body 22 is attached integrally to the head body 21, the liquid opening protrusions 24c are inserted into respective liquid opening insertion holes 22c that are formed so as to correspond to the pitch according to which the liquid opening protrusions 24c are provided and that are
 15 formed so as to penetrate the base body 22 from the front side to the back side thereof. Further, a plurality of liquid-agent ejection holes 25c are formed so as to penetrate a lower section of the liquid-agent dispersion pipe 25 on the opposite side from the upper section thereof from which the tube-connecting section 25a protrudes, the liquid-agent ejection holes 25c being formed so as to correspond to the pitch according to which the liquid
 20 opening protrusions 24c of the pipe attachment groove 24 are provided. When the liquid-agent dispersion pipe 25 is attached and positioned with respect to the pipe attachment groove 24, the liquid opening protrusions 24c of the pipe attachment groove 24 coincide with the respective liquid-agent ejection holes 25c in the liquid-agent dispersion pipe 25.

[0018]

Thus, the plurality of liquid-agent ejection holes 25c in the liquid-agent dispersion pipe 25, the plurality of liquid opening protrusions 24c of the pipe attachment groove 24, and the plurality of liquid opening insertion holes 22c in the base body 22 are arranged so as to be lined up in the vertical direction, the inner diameters thereof increasing in this
 30 order. In this way, the liquid agent supplied from the liquid-agent-containing tank section 13 via the flexible tube 14 can temporarily be stored in the liquid-agent dispersion pipe 25, and after being distributed over substantially the entire area in the length

direction of the cleaning head section 11, the liquid agent can be smoothly discharged downward from the plurality of liquid-agent ejection holes 25c formed dispersedly in the length direction of the liquid-agent dispersion pipe 25. The liquid agent dispersedly discharged from the liquid-agent ejection holes 25c then passes through the liquid opening protrusions 24c and the liquid opening insertion holes 22c, which have increasing inner diameters in order from the liquid-agent ejection holes 25c, and drops downward without wetting the attachment surface between the head body 21 and the base body 22--i.e., the lower surface of the head body 21 and the upper surface of the base body 22. The liquid agent that has dropped soaks into the cleaning sheet 20, which is attached so as to preferably cover the cleaning head section 11's cleaning surface 11a constituted by the lower surface of the base body 22, over a wide range in the length direction of the cleaning head section 11. Thus, the cleaning tool can clean the surface-to-be-cleaned while efficiently applying the liquid agent to the surface-to-be-cleaned.

[0019]

It should be noted that, in the present embodiment, the head body 21 has, in each of both side sections on the upper surface thereof, a stepped-cross-sectional portion 21a formed so as to be gradually stepped in the height direction without changing the cross-sectional thickness. By forming the stepped-cross-sectional portions 21a on the upper surface of the head body 21, the lengthwise strength of the head body 21 can be increased, and warpage in the vertical direction can be reduced. Further, the load applied to the central section of the head body 21 via the handle section 12 can be distributed uniformly over the entire head body 21, and as a result, the cleaning surface 11a of the cleaning head section 11 will be pressed against the surface-to-be-cleaned with uniform force, and thus, soil on the surface-to-be-cleaned can be removed uniformly. Also, the design aesthetics of the cleaning head section 11 as viewed from the upper surface side can be improved.

[0020]

In the present embodiment, the base body 22 integrally attached to the head body 21 is made of an elastically deformable synthetic resin material, such as urethane resin, polyethylene (PE) resin, or EVA (ethylene-vinyl acetate copolymer) resin. The base body 22 has a rectangular planar shape that is a size larger than the head body 21. The base body 22 includes a bottom surface section 22a and a peripheral wall section 22b

provided in the peripheral edge of the bottom surface section 22a. The bottom surface section 22a is formed, for example, so as to be about 0.5 to 10 mm thick. The peripheral wall section 22b has a substantially triangular cross-sectional shape. A recessed fitting section into which the head body 21 is fitted is formed on the upper surface side of the base body 22 surrounded by the peripheral wall section 22b on all four sides. Further, as described above, the aforementioned plurality of liquid opening insertion holes 22c are opened and formed in the bottom surface section 22a of the base body 22 along one of the long sides of the base body 22, the liquid opening insertion holes 22c being provided at positions corresponding to the plurality of liquid opening protrusions 24c provided on the bottom section of the pipe attachment groove 24 of the head body 21.

[0021]

In the present embodiment, the plurality of liquid opening protrusions 24c on the lower surface of the head body 21 are inserted from above into the respective liquid opening insertion holes 22c formed in the bottom surface section 22a of the base body 22, and the head body 21 is fitted into the recessed fitting section surrounded by the peripheral wall section 22b on all four sides of the base body 22, and the head 21 and the base body 22 are bonded with e.g. an adhesive, and thereby, the cleaning head section 11, in which the head body and the base body have been integrated, is formed.

[0022]

Further, in the present embodiment, a disposable cleaning sheet 20 having, for example, substantially the same size and shape as the rectangular planar shape of the base body 22 is detachably and replaceably attached to the cleaning head section 11's cleaning surface 11a, which is constituted by the lower surface of the base body 22, so as to cover the cleaning surface 11a by using, for example, a known attachment means such as a double-faced adhesive tape or a Magic Tape (Velcro) (registered trademark). As for the cleaning sheet 20, it is possible to use various types of known cleaning sheets made, for example, of olefin-based ultrafine fiber nonwoven fabric.

[0023]

In the present embodiment, the handle section 12 connected to the upper surface of the head body 21 of the cleaning head section 11 is a hollow rod-shaped pipe member

made, for example, of an aluminum alloy or an ABS resin. The handle section 12 is formed such that the entire length thereof, including the gripping section 28 at the upper end section thereof, is, for example, about 100 to 150 cm which is suitable for cleaning. The handle section 12 can be made to turn in the front-and-rear direction and also the left-and-right direction with respect to the cleaning head section 11 by connecting the rotary joint section 27 provided at the lower end section of the handle section 12 to the handle-supporting joint section 23 provided in the central section on the upper surface of the head body 21 of the cleaning head section 11.

[0024]

In the present embodiment, the liquid-agent-containing tank section 13 is attached to the handle section 12 in the upper end section thereof near the gripping section 28, and also, a later-described open/close adjustment unit 29, which includes therein the aforementioned liquid-amount adjusting section 15, is attached to the handle section 12 and arranged below the liquid-agent-containing tank section 13. Because the liquid-agent-containing tank section 13 is attached to the upper end section of the handle section 12 near the gripping section 28, in a case where, for example, the cleaning head section 11 is moved in the length direction (left-and-right direction) of the cleaning head section 11 along the surface-to-be-cleaned in a state where the gripping section 28 is gripped with the dominant hand, the barycentric position of the liquid-agent-containing tank section 13 is located near the gripping section 28 which serves as the fulcrum; thus, the cleaning head section 11 can be handled with a smaller force, compared to cases where the liquid-agent-containing tank section 13 is attached to the central section of the handle section 12.

[0025]

Further, in the present embodiment, substantially the entirety, except for some portions, of the flexible tube 14 for supplying the liquid agent from the liquid-agent-containing tank section 13 to the cleaning head section 11 is inserted and contained in the hollow inner section of the handle section 12. Because substantially the entirety, except for some portions, of the flexible tube 14 is inserted and contained in the hollow inner section of the handle section 12, the design aesthetics of the wet cleaning tool 10 can be improved, and the flexible tube 14 can be kept from becoming a hindrance during cleaning.

[0026]

In the present embodiment, the liquid-agent-containing tank section 13, which is attached to the handle section 12, includes a tank body 30, a tank attaching-turning section 31, and a tank inverted-state supporting section 32, as illustrated in Figs. 4(a) to 4(c) and Figs. 5(a) and 5(b).

[0027]

The tank body 30 is a bottle-shaped container having a hollow circular cross section, and a liquid agent is contained therein. A male screw thread is formed on the outer peripheral surface of a mouth/neck section 30a of the tank body 30. By screwing the male screw thread to a female screw thread formed in the inner peripheral surface of an attachment recess 31b in a substantially hemispherical attachment lid 31a provided to the tank attaching-turning section 31, the tank body 30 is detachably attached to the tank attaching-turning section 31 in a state where an air intake tube 33, which has a check valve member 33a attached to the tip end section thereof, is inserted and arranged inside the tank body 30 (cf. Fig. 5(a)).

[0028]

The tank attaching-turning section 31 includes a handle fixing section 31c, and a turning section 31d that is provided with the substantially hemispherical attachment lid 31a and that is turnably coupled via a pin to the handle fixing section 31c. The tank body 30 can be held in an inverted state by: first attaching and fixing the tank body 30, which contains the liquid agent therein, to the attachment lid 31a in an upright state where the mouth/neck section 30a is arranged upward; then turning the turning section 31d upward, for example by 180 degrees, together with the tank body 30; and then fitting the tank body 30 into the tank inverted-state supporting section 32 (cf. Figs. 4(a) to 4(c)).

[0029]

Further, in the present embodiment, an air introduction tube 31e is attached to the substantially hemispherical attachment lid 31a of the turning section 31d, the air introduction tube 31e penetrating the lid so as to reach the attachment recess 31b from the top of the lid, as illustrated in Fig. 5(a). The air intake tube 33, which has the check valve member 33a attached to the tip end section thereof, is connected in series to a

protruding end of the air introduction tube 31e that protrudes to the inside of the attachment recess 31d. Thus, when the tank body 30 is attached and fixed to the attachment lid 31a, the check valve member 33a of the air intake tube 33 is arranged near the inner side of the bottom section of the tank body 30. Thanks to the provision of the air intake tube 33, when the tank body 30 attached and fixed to the attachment lid 31a is inverted, it is possible to send-in replacement air to the inner side of the tank body 30's bottom section--which is now located at the uppermost section--through the check valve member 33a arranged near the bottom section's inner side via the air introduction tube 31e and the air intake tube 33. Thus, the liquid agent can be smoothly sent out to the flexible tube 14 while being replaced with air inside the tank body 30.

[0030]

Also, in this way, there is no need to provide a hole for air replacement in the bottom section of the tank body 30, thus making it possible to effectively prevent the liquid agent contained in the bottle from leaking from the air-replacement hole. Moreover, there is no need for a step of opening a hole in the bottom section of the tank body 30, and the tank body 30 can be detached easily even if there is some liquid agent remaining therein.

[0031]

Herein, as for the check valve member 33a, it is possible to use any one of the various types of known check valves having the function of allowing the inflow of air from the air intake tube 33 into the tank body 30 but blocking the inflow of liquid agent from the tank body 30 to the air intake tube 33. In the present embodiment, it is possible to preferably use an elastomeric check valve that has, for example, a cylindrical shape with both side surfaces cut off diagonally, and in which two valve plates are arranged so as to overlap one another at the tip end section, as illustrated in Fig. 5(b), and the valve plates open and close at substantially the central section of the tip end. More specifically, a valve with the product name "duckbill check valve" (product from Vernay (U.S.)) may preferably be used.

[0032]

Further, in the present embodiment, a tube coupling section 31f that is in

communication with the attachment recess 31b is provided in the substantially hemispherical attachment lid 31a of the turning section 31d, as illustrated in Fig. 5(a). By connecting the upper end section of the flexible tube 14 to the attachment lid 31a via the tube coupling section 31f, the flexible tube 14 is brought into communication with the attachment recess 31d of the attachment lid 31a and the inside of the tank body 30 whose mouth/neck section 30a is attached to the attachment recess 31d. Thus, the liquid agent contained in the tank can be sent out smoothly from the inverted tank body 30 toward the liquid-amount adjusting section 15 and the cleaning head section 11 via the flexible tube 14 while sending-in air for replacement to the inside of the tank body 30 via the air intake tube 33. The flexible tube 14 connected to the tube coupling section 31f is inserted into the hollow inner section of the handle section 12 through a tube insertion hole 12a via the inside of the handle fixing section 31c, and extends toward the open/close adjustment unit 29.

[0033]

As illustrated in Figs. 4(a) to 4(c), the tank inverted-state supporting section 32 includes: a handle fixing section 32a; and a projecting holding section 32c that is provided so as to project sideward from the handle fixing section 32a and that includes a pair of leaf-spring-shaped elastic pieces 32b curved in an arc shape. At the time of attaching the mouth/neck section 30a to the attachment lid 31a of the tank attaching-turning section 31 and then turning the turning section 31d upward, for example by 180 degrees, and inverting the tank body 30, the pair of leaf-spring-shaped elastic pieces 32b are elastically deformed so as to widen the space therebetween, and the cylindrical barrel part of the tank body 30 is fitted into the projecting holding section 32c by being sandwiched between the elastic pieces. In this way, the tank body 30 can be held easily in a stable, inverted state. Further, for example, by turning the tank body 30 downward and widening the space between the pair of leaf-spring-shaped elastic pieces 32b, the tank body 30 can easily be released from its fitted state in the projecting holding section 32c.

[0034]

In the present embodiment, as illustrated in Figs. 3(a) and 3(b), the open/close adjustment unit 29 attached to the handle section 12 and arranged below the liquid-agent-containing tank section 13 is a thick-plate-shaped unit member that has a

laterally long (or vertically long), substantially rectangular frontal shape and that is thicker than the outer diameter of the handle section 12, which is a hollow rod-shaped pipe member. As described later, the open/close adjustment unit 29 includes the aforementioned liquid-amount adjusting section 15 and a supply opening/closing section 34.

[0035]

The open/close adjustment unit 29 has a fit-attachment through hole 29a that is formed so as to penetrate substantially the lower half, in Figs. 3(a) and 3(b), of the open/close adjustment unit in the length direction thereof. The open/close adjustment unit 29 is fixed and attached to the handle section 12 at a predetermined height-wise position by passing the pipe-shaped handle section 12 through the fit-attachment through hole 29a in a state where the outer peripheral surface of the handle section 12 is placed in tight contact with the inner peripheral surface of the fit-attachment through hole 29a. A pair of tube insertion holes 12a is formed in the handle section 12 at the section where the open/close adjustment unit 29 is fixed. Through these tube insertion holes 12a, the flexible tube 14 passed through the hollow inner section of the handle section 12 can be guided toward the liquid-amount adjusting section 15 and the supply opening/closing section 34.

[0036]

In the present embodiment, the flexible tube 14 is a known hollow tube member having excellent flexibility and pliability and made, for example, of a polyurethane resin, a nylon resin, or a fluorocarbon resin, and has an outer diameter of about 2 to 8 mm, for example. Preferably, a connection fitting 35 is attached as appropriate to each end section of the flexible tube 14. In the present embodiment, the end section of the flexible tube 14 is connected, via the respective connection fittings 35, to the tube coupling section 31f provided to the attachment lid 31a of the liquid-agent-containing tank section 13 and to the supply opening/closing section 34 of the open/close adjustment unit 29.

[0037]

Further, in the present embodiment, the flexible tube 14 is separated into: a first

tube section 14a extending from the attachment lid 31a of the liquid-agent-containing
 tank section 13 to the supply opening/closing section 34 of the open/close adjustment unit
 29 via the hollow inner section of the handle section 12; and a second tube section 14b
 extending from the supply opening/closing section 34 to the cleaning head section 11 via
 the hollow inner section of the handle section 12. By connecting respective end sections
 of the first tube section 14a and the second tube section 14b to the supply opening/closing
 section 34, the first tube section 14a and second tube section 14b are made continuous in
 an openable/closable manner via the supply opening/closing section 34. Further, as
 illustrated in Fig. 2(a), the lower end section of the second tube section 14b on the side of
 the cleaning head section 11 is guided out from the hollow inner section of the handle
 section 12 via a tube insertion hole 12a formed in the lower end section of the handle
 section 12, and is then connected to the tube-connecting section 25a of the liquid-agent
 dispersion pipe 25 attached to the cleaning head section 11. Thus, a necessary amount
 of the liquid agent can be supplied from the tank body 30 of the liquid-agent-containing
 tank section 13 to the liquid-agent dispersion pipe 25 of the cleaning head section 11 in a
 state where the supply of the liquid agent can be stopped by the supply opening/closing
 section 34 and in a state where the supply amount (the supply amount per unit time) can
 be controlled by the liquid-amount adjusting section 15.

[0038]

In the present embodiment, the supply opening/closing section 34 provided to the
 open/close adjustment unit 29 is an opening/closing device having a known flow-path
 opening/closing mechanism including a communication flow path, an open/close valve,
 and the like. As illustrated in Fig. 3(a), an end section (the lower end section) of the
 flexible tube 14's first tube section 14a, which extends along a guide passage 29b after
 being guided out from the hollow inner section of the handle section 12 via the tube
 insertion hole 12a, is connected to one end section of the supply opening/closing section
 34. An end section (the upper end section) of the flexible tube 14's second tube section
 14b, which extends along the guide passage 29b after being guided out from the hollow
 inner section of the handle section 12 via the tube insertion hole 12a and which is
 installed in the liquid-amount adjusting section 15 by being disposed in the tube disposing
 groove 16 of the liquid-amount adjusting section 15, is connected to the other end section
 of the supply opening/closing section 34.

[0039]

In the supply opening/closing section 34, for example, the communication flow path, which links the first tube section 14a and the second tube section 14b, can be opened and closed by, for example, turning and operating a knob 34a that is arranged so as to protrude from a side surface 29c of the open/close adjustment unit 29 on the opposite side from the fit-attachment through hole 29a. In this way, it is possible to smoothly conduct or stop the supply, toward the cleaning head section 11, of the liquid agent that is contained in the tank body 30 and that is sent out via the flexible tube 14 from the liquid-agent-containing tank section 13 by the hydrostatic pressure thereof, for example.

[0040]

As described above, in the present embodiment, the liquid-amount adjusting section 15 provided in the open/close adjustment unit 29 is constituted by including: a tube disposing groove 16 in which the flexible tube 14 is disposed; and a pressing-moving member 17 that is movable, along the direction in which the tube disposing groove 16 extends, in a state where a pressing end section 17a thereof for pressing the flexible tube 14 is protruded into the tube disposing groove 16. The liquid-amount adjusting section 15 is constructed such that, in a state where the supply opening/closing section 34 is opened, it can adjust the supply amount (the supply amount per unit time) of the liquid agent supplied from the tank body 30 toward the cleaning head section 11.

[0041]

More specifically, in the present embodiment, as illustrated in Figs. 3(a) and 3(b), the tube disposing groove 16, in which the flexible tube 14 is disposed, has a gradient section 16a' at the bottom surface 16a of the groove 16, the gradient section 16a' being inclined along the direction in which the groove 16 extends. The flow amount of the liquid agent to be supplied from the liquid-agent-containing tank section 13 to the cleaning head section 11 can be adjusted by moving the pressing-moving member 17 along the tube disposing groove 16 in a state where the flexible tube 14 is squashed by being sandwiched between the bottom surface 16a of the tube disposing groove 16 and the pressing end section 17a of the pressing-moving member 17, and thereby adjusting the amount by which the flexible tube 14 is squashed in the gradient section 16a' and controlling the flow amount of the liquid agent that passes through the flexible tube 14.

[0042]

Furthermore, the present embodiment includes an engaging-holding mechanism 18 that holds the pressing-moving member 17 at positions to which the pressing-moving member 17 has been moved along the tube disposing groove 16. In the present
5 embodiment, the engaging-holding mechanism 18 is constituted by a gear mechanism 19 including: rack sections 19a provided to the opening edges on the outer sides of the tube disposing groove 16 along the direction in which the groove 16 extends; and pinion sections 19b provided to the pressing-moving member 17. The pressing-moving member 17 has a disk shape that is coaxially provided with the pinion sections 19b, the
10 pressing-moving member 17 being movable, along the tube disposing groove 16 while rotating, in a state where a peripheral end section of the disk shape is protruded, as the pressing end section 17a, into the tube disposing groove 16.

[0043]

In the present embodiment, the tube disposing groove 16 is a groove having a
15 rectangular cross-sectional shape that: has a wider width than the outer diameter of the flexible tube 14 and is, for example, about 2.5 to 8.5 mm wide; has a greater depth/height than the outer diameter of the flexible tube 14 and is, for example, about 2.5 to 8.5 mm deep; and has an upper side section constituting an opened surface. The tube disposing groove 16 is provided so as to be interposed between the guide passage 29b, which guides
20 the second tube section 14b of the flexible tube 14, and the other end section of the supply opening/closing section 34, and extends over a length of about 30 to 60 mm, for example. Thus, a considerably long portion of the second tube section 14b of the flexible tube 14--i.e., the portion between the second tube section's tip end which is connected to the other end section of the supply opening/closing section 34 and the part of the second tube
25 section inserted in the guide passage 29b--is installed in the tube disposing groove 16 in a state where the entire cross section thereof is disposed inside the groove 16.

[0044]

Further, in the present embodiment, the gradient section 16a' is formed at the bottom surface 16a of the tube disposing groove 16 on the opposite side from the opened
30 surface on the upper end of the groove, the gradient section 16a' being inclined downward from the side of the guide passage 29b toward the supply opening/closing section 34 along the direction in which the tube disposing groove 16 extends. In the present

embodiment, the gradient section 16a' has two levels of gradients. More specifically, from the side of the guide passage 29b toward the supply opening/closing section 34, first, a gentle gradient section 16a1' having a small gradient angle is provided over a given length, and then a steep gradient section 16a2' having a greater gradient angle than the gentle gradient section 16a1' is provided over a given length. The flexible tube 14 is sandwiched between: the bottom surface 16a of the tube disposing groove 16 where the gentle gradient section 16a1' is formed; and the pressing end section 17a of the pressing-moving member 17. From the viewpoint of being able to finely adjust, accurately and linearly, the supply amount of liquid agent to be delivered from the liquid-agent-containing tank section 13 to the cleaning head section 11, and also from the viewpoint of machineability, the gentle gradient section 16a1' is preferably formed so as to have a linear gradient. Alternatively, the gentle gradient section 16a1' may have a curved gradient, depending on the viscosity of the liquid agent and/or the outer diameter, rigidity, etc., of the flexible tube 14, or depending on the engaging-holding mechanism. On the other hand, the gradient angle of the steep gradient section 16a2' is set so as to be greater than that of the gentle gradient section 16a1' in order to easily guide the second tube section 14b of the flexible tube 14 into the tube disposing groove 16.

[0045]

In the present embodiment, the pressing-moving member 17 has a disk shape whose thickness is slightly thinner than the width of the tube disposing groove 16 and is, for example, about 2 to 8 mm thick, and whose diameter is, for example, about 8 to 16 mm. The pressing-moving member 17 is integrally provided with pinion sections 19b that protrude outward from the respective side surfaces on both sides of the disk shape and that are arranged coaxially with the pressing-moving member 17, each pinion section 19b having a smaller outer diameter than the diameter of the pressing-moving member 17. Also, the pressing-moving member 17 is integrally provide with slide-guide protrusions 36 that protrude more outward than the respective pinion sections 19b provided on both sides and that are arranged coaxially with the respective pinion sections 19b, each slide-guide protrusion 36 having a smaller outer diameter than the outer diameter of the pinion section 19b.

[0046]

The pressing-moving member 17 is attached to the liquid-amount adjusting section

15 in a state where the pinion sections 19b on both sides are meshed with the respective rack sections 19a, which constitute the gear mechanism 19 together with the pinion sections 19b and which are provided to the opening edges on both sides of the tube disposing groove 16 along the direction in which the groove 16 extends. Further, the pressing-moving member 17 is attached to the liquid-amount adjusting section 15 in a state where the slide-guide protrusions 36 on both sides are rotatably and slidably inserted and engaged to respective slide-guide recess grooves 37 that extend in parallel to the respective rack sections 19a provided on both sides, each slide-guide recess groove 37 being formed in a vertical wall surface provided on the outside of each rack section 19a. Thus, the pressing-moving member 17 can slide and move, while rotating, along the tube disposing groove 16 while being guided by the slide-guide recess grooves 37, to which the slide-guide protrusions 36 are engaged, in a state where the flexible tube 14 is sandwiched between the bottom surface 16a of the tube disposing groove 16 and the pressing end section 17a by making the peripheral end section of the disk shape protrude into the tube disposing groove 16 as the pressing end section 17a. Further, the pressing-moving member 17 can slide and move, while rotating, along the tube disposing groove 16 by employing the gear mechanism 19, which includes the rack sections 19a and the pinion sections 19b, as the engaging-holding mechanism 18 that holds the pressing-moving member 17 at various positions to which the pressing-moving member 17 has been moved along the tube disposing groove 16.

[0047]

Further, in the present embodiment, a section of the pressing-moving member 17 on the side radially opposite from the pressing end section 17a, which is the part of the peripheral end section of the disk-shaped pressing-moving member 17 to be protruded into the tube disposing groove 16, is made to protrude, as a rotation operating section 17b, from e.g. the side surface 29c of the open/close adjustment unit 29 on the opposite side from the fit-attachment through hole 29a thereof. By rotating and operating the pressing-moving member 17 by pressing, for example, the thumb against the rotation operating section 17b which protrudes from the side surface 29c of the open/close adjustment unit 29, the pressing-moving member 17 can be made to smoothly slide and move forward and backward, while being rotated, along the tube disposing groove 16.

[0048]

Further, in the present embodiment, anti-slip projections and recesses 17c are formed on the entire outer peripheral surface of the disk-shaped pressing-moving member 17. By forming the anti-slip projections and recesses 17c on the outer peripheral surface of the disk-shaped pressing-moving member 17, the operation of rotating the pressing-moving member 17, which is conducted by e.g. pressing the thumb against the rotation operating section 17b, can be conducted in a more stable state. Further, the flexible tube 14 can be sandwiched between and squashed by the pressing end section 17a and the bottom surface 16a of the tube disposing groove 16 in a more stable state by increasing the frictional force between the pressing end section 17a, which is constituted by the peripheral end section of the pressing-moving member 17, and the flexible tube 14. Anti-slip projections and recesses 16c may be formed also on the bottom surface 16a of the tube disposing groove 16.

[0049]

Furthermore, in the present embodiment, the slide-guide recess grooves 37, which extend parallel to the respective rack sections 19a and to which the respective slide-guide protrusions 36 on the pressing-moving member 17 are inserted and engaged, are formed over substantially the same length as the tube disposing groove 16, and a stopper plate 38 is fitted into a section of each slide-guide recess groove 37 on the side of the supply opening/closing section 34. The end surface of the stopper plate 38, which is fitted into the slide-guide recess groove 37, on the opposite side from the supply opening/closing section 34 functions as a stopper section 38a that restricts the sliding movement of the pressing-moving member 17 toward the supply opening/closing section 34. By providing the stopper section 38a which restricts the sliding movement of the pressing-moving member 17 toward the supply opening/closing section 34, it is possible to prevent the degree of opening of the flexible tube 14--which is sandwiched in a squashed state between the gradient section 16a' (particularly the steep gradient section 16a2') of the bottom surface 16a of the tube disposing groove 16, which is inclined downward toward the supply opening/closing section 34, and the pressing end section 17a, which is constituted by the peripheral end section of the pressing-moving member 17--from becoming too large, and to limit the maximum supply amount (the supply amount per unit time) of the liquid agent that is sent out from the tank body 30 of the liquid-agent-containing tank section 13 to the liquid-agent dispersion pipe 25 of the cleaning head section 11.

[0050]

With the wet cleaning tool 10 of the present embodiment having the aforementioned features, it is possible to clean or polish up a surface-to-be-cleaned while applying a liquid agent by finely adjusting, accurately and linearly, the supply amount of liquid agent to be delivered from the liquid-agent-containing tank section to the cleaning head section.

[0051]

More specifically, in the present embodiment, the liquid-amount adjusting section 15, which can adjust the supply amount of liquid agent supplied from the liquid-agent-containing tank section 13 to the cleaning head section 11, is constituted by including: the tube disposing groove 16 in which the flexible tube 14 is disposed; and the pressing-moving member 17 that is movable, along the direction in which the tube disposing groove 16 extends, in a state where the pressing end section 17a thereof for pressing the flexible tube 14 is protruded into the tube disposing groove 16. The tube disposing groove 16 has a gradient section 16a' at the bottom surface 16a of the groove 16, the gradient section 16a' being inclined along the direction in which the groove 16 extends. Because the pressing-moving member 17 moves in a state where the flexible tube 14 is squashed by being sandwiched between the bottom surface 16a of the tube disposing groove 16 and the pressing end section 17a of the pressing-moving member 17, the degree of opening of the flexible tube 14--which is squashed and sandwiched between the pressing end section 17a and the gradient section 16a' of the bottom surface 16a--can be finely adjusted easily, in accordance with the position of movement of the pressing-moving member in the gradient section 16a' of the bottom surface 16a of the tube disposing groove 16 (particularly the gentle gradient section 16a1') which gently slopes continuously. By thus controlling, accurately and linearly, the flow amount of the liquid agent that passes through the flexible tube 14 with the liquid-amount adjusting section 15, it is possible to clean or polish up a surface-to-be-cleaned while applying the liquid agent, while finely adjusting the flow amount of the liquid agent to be supplied from the liquid-agent-containing tank section 13 to the cleaning head section 11.

[0052]

Further, the present embodiment includes an engaging-holding mechanism 18 that holds the pressing-moving member 17 at various positions to which the pressing-moving

member 17 has been moved along the tube disposing groove 16, the engaging-holding mechanism 18 being preferably constituted by a gear mechanism 19 including rack sections 19a and pinion sections 19b. Thus, it is possible to more efficiently clean or polish up a surface-to-be-cleaned while applying the liquid agent, while easily maintaining the liquid-agent supply amount that has been finely adjusted accurately.

[0053]

Fig. 6 illustrates another embodiment in which the supply amount of liquid agent to be supplied from a liquid-agent-containing tank section 13' to a cleaning head section 11 can be adjusted by attaching a flexible tube 14' to a liquid-amount adjusting section 15'. In this other embodiment illustrated in Fig. 6, for example, a flexible tube 14', which is connected to an air hole formed in the bottom section of a tank body 30' of a liquid-agent-containing tank section 13' and which sends-in air for replacement to the tank body 30', is attached to a liquid-amount adjusting section 15' which has the same construction as the liquid-amount adjusting section 15 employed in the wet cleaning tool 10 of the foregoing embodiment. In this other embodiment illustrated in Fig. 6, it is possible to adjust the supply amount of liquid agent to be supplied from the tank body 30' of the liquid-agent-containing tank section 13' to the cleaning head section 11 by controlling, with the liquid-amount adjusting section 15', the flow amount of replacement air that passes through the flexible tube 14' and that is sent into the tank body 30'. Further, in this other embodiment illustrated in Fig. 6, a supply opening/closing section 34' that has the same construction as the supply opening/closing section 34 employed in the wet cleaning tool 10 of the foregoing embodiment is provided, as a separate unit from the liquid-amount adjusting section 15', on the downstream side of the liquid-agent-containing tank section 13'.

[0054]

Even with this other embodiment illustrated in Fig. 6, by accurately and linearly controlling the flow amount of replacement air that passes through the flexible tube 14' with the liquid-amount adjusting section 15', it is possible to finely adjust the flow amount of the liquid agent to be supplied from the liquid-agent-containing tank section 13' to the cleaning head section 11, and thus achieve the same effect as that in the foregoing embodiment.

[0055]

As for the liquid agent to be used, it is possible to use the aforementioned liquid agents for cleaning/finishing, such as liquid cleaning agents or wax agents, or other liquid agents with which to impregnate wet sheets and that do not negatively affect various plastics while reliably providing wet sheets with fundamental properties (such as disinfection properties, soil removability, and antiseptic properties during storage) as disclosed, for example, in JP2010-138519 A filed by the Applicant of the present invention.

[0056]

It should be noted that the present invention is not limited to the foregoing embodiments, and various modifications are possible. For example, it is not absolutely necessary to provide an engaging-holding mechanism for holding the pressing-moving member at various positions along the tube disposing groove. As for the engaging-holding mechanism, other than a gear mechanism consisting of a rack section and a pinion section, it is possible to employ various other types of holding mechanisms that can hold the pressing-moving member at various positions along the tube disposing groove. Further, it is not absolutely necessary to provide a stopper section for restricting the movement of the pressing-moving member along the tube disposing groove. Further, the cleaning head section, the handle section, and the liquid-agent-containing tank section are not limited to the structures described in the foregoing embodiments.

Industrial Applicability

[0057]

With the wet cleaning tool of the present invention, it is possible to clean or polish up a surface-to-be-cleaned while applying a liquid agent by finely adjusting, accurately and linearly, the supply amount of liquid agent to be delivered from a liquid-agent-containing tank section to a cleaning head section.

CLAIMS

[Claim 1] A wet cleaning tool comprising a cleaning head section, a handle section, and a liquid-agent-containing tank section, the wet cleaning tool being capable of cleaning a surface-to-be-cleaned while applying a liquid agent to the surface-to-be-cleaned by supplying the liquid agent from the liquid-agent-containing tank section to the cleaning head section, wherein:

the wet cleaning tool is provided with a liquid-amount adjusting section to which a flexible tube for sending out the liquid agent from the liquid-agent-containing tank section to the cleaning head section is attached, or to which a flexible tube for sending air into the liquid-agent-containing tank section is attached, the liquid-amount adjusting section being capable of adjusting the supply amount of the liquid agent to be supplied from the liquid-agent-containing tank section to the cleaning head section;

the liquid-amount adjusting section is constituted by including: a tube disposing groove in which the flexible tube is disposed; and a pressing-moving member that is movable, along the direction in which the tube disposing groove extends, in a state where a pressing end section thereof for pressing the flexible tube is protruded into the tube disposing groove;

the tube disposing groove has a gradient section at the bottom surface of the groove, the gradient section being inclined along the direction in which the groove extends; and

the flow amount of the liquid agent to be supplied from the liquid-agent-containing tank section to the cleaning head section can be adjusted by moving the pressing-moving member in a state where the flexible tube is squashed by being sandwiched between the bottom surface of the tube disposing groove and the pressing end section of the pressing-moving member, and thereby adjusting the amount by which the flexible tube is squashed in the gradient section and controlling the flow amount of the liquid agent or the air that passes through the flexible tube.

[Claim 2] The wet cleaning tool according to claim 1, comprising an engaging-holding mechanism that holds the pressing-moving member at positions to which the pressing-moving member has been moved along the tube disposing groove.

[Claim 3] The wet cleaning tool according to claim 2, wherein:

the engaging-holding mechanism is constituted by a gear mechanism including: a rack section provided to an opening edge of the tube disposing groove along the direction
 5 in which the groove extends; and a pinion section provided to the pressing-moving member; and

the pressing-moving member has a disk shape that is coaxially provided with the pinion section, the pressing-moving member being movable, along the tube disposing groove while rotating, in a state where a peripheral end section thereof is protruded, as the
 10 pressing end section, into the tube disposing groove.

[Claim 4] The wet cleaning tool according to any one of claims 1 to 3, comprising a stopper section that restricts the movement of the pressing-moving member along the tube disposing groove.

[Claim 5] The wet cleaning tool according to claim 1, wherein a cleaning sheet is
 15 detachably attached so as to cover a cleaning surface of the cleaning head section.

[Claim 6] The wet cleaning tool according to claim 1, wherein:

the cleaning head section includes a head body and a base body;

the head body is a flat plate-shaped member having a rectangular planar shape; and

a pipe attachment groove for attaching and fixing a liquid-agent dispersion pipe,
 20 which has a tube-connecting section protruding therefrom, is formed between one of the long sides of the head body and a handle-supporting joint section.

[Claim 7] The wet cleaning tool according to claim 6, wherein:

the pipe attachment groove has, in the bottom section thereof, a plurality of liquid opening protrusions that are opened in the lower surface of the head body with intervals
 25 therebetween along the length direction of the pipe attachment groove, and that protrude downward;

when the base body is attached integrally to the head body, the liquid opening protrusions are inserted into respective liquid opening insertion holes that are formed so

as to correspond to the pitch according to which the liquid opening protrusions are provided and that are formed so as to penetrate the base body from the front side to the back side thereof;

5 a plurality of liquid-agent ejection holes are formed so as to penetrate a lower section of the liquid-agent dispersion pipe on the opposite side from the upper section thereof from which the tube-connecting section protrudes, the liquid-agent ejection holes being formed so as to correspond to the pitch according to which the liquid opening protrusions of the pipe attachment groove are provided; and

10 when the liquid-agent dispersion pipe is attached and positioned with respect to the pipe attachment groove, the liquid opening protrusions of the pipe attachment groove coincide with the respective liquid-agent ejection holes in the liquid-agent dispersion pipe.

[Claim 8] The wet cleaning tool according to claim 6, wherein the head body has, in each of both side sections on the upper surface thereof, a stepped-cross-sectional portion
15 formed so as to be gradually stepped in the height direction without changing the cross-sectional thickness.

[Claim 9] The wet cleaning tool according to claim 1, wherein the liquid-agent-containing tank section is attached to the handle section in an upper end section thereof near a gripping section.

20 [Claim 10] The wet cleaning tool according to claim 1, wherein the liquid-agent-containing tank section which is attached to the handle section includes a tank body, a tank attaching-turning section, and a tank inverted-state supporting section.

[Claim 11] The wet cleaning tool according to claim 10, wherein:

25 a male screw thread is formed on the outer peripheral surface of a mouth/neck section of the tank body;

by screwing the male screw thread to a female screw thread formed in the inner peripheral surface of an attachment recess in an attachment lid provided to the tank attaching-turning section, the tank body is detachably attached to the tank attaching-turning section in a state where an air intake tube, which has a check valve

member attached to the tip end section thereof, is inserted and arranged inside the tank body;

the tank attaching-turning section includes a handle fixing section, and a turning section that is provided with the attachment lid and that is turnably coupled via a pin to the handle fixing section; and

the tank body is held in an inverted state by: first attaching and fixing the tank body, which contains the liquid agent therein, to the attachment lid in an upright state where the mouth/neck section is arranged upward; then turning the turning section upward together with the tank body; and then fitting the tank body into the tank inverted-state supporting section.

[Claim 12] The wet cleaning tool according to claim 11, wherein:

an air introduction tube is attached to the attachment lid of the turning section, the air introduction tube penetrating the lid so as to reach the attachment recess from the top of the lid; and

the air intake tube, which has the check valve member attached to the tip end section thereof, is connected in series to a protruding end of the air introduction tube that protrudes to the inside of the attachment recess.

[Claim 13] The wet cleaning tool according to claim 6, wherein:

the flexible tube is separated into: a first tube section extending from an attachment lid of the liquid-agent-containing tank section to a supply opening/closing section via a hollow inner section of the handle section; and a second tube section extending from the supply opening/closing section to the cleaning head section via the hollow inner section of the handle section;

by connecting respective end sections of the first tube section and the second tube section to the supply opening/closing section, the first tube section and second tube section are made continuous in an openable/closable manner via the supply opening/closing section; and

a lower end section of the second tube section on the side of the cleaning head section is connected to the tube-connecting section of the liquid-agent dispersion pipe attached to the cleaning head section.

[Claim 14] The wet cleaning tool according to claim 1, wherein the gradient section, which is formed at the bottom surface of the tube disposing groove so as to be inclined along the direction in which the tube disposing groove extends, is provided so as to be inclined downward.

5 [Claim 15] The wet cleaning tool according to claim 1, wherein the gradient section, which is formed at the bottom surface of the tube disposing groove so as to be inclined along the direction in which the tube disposing groove extends, is provided such that a gentle gradient section having a small gradient angle is provided over a given length, and
10 then a steep gradient section having a greater gradient angle than the gentle gradient section is provided over a given length.

[Claim 16] The wet cleaning tool according to claim 15, wherein the gentle gradient section is formed so as to have a linear gradient.

[Claim 17] The wet cleaning tool according to claim 15, wherein the gentle gradient section is formed so as to have a curved gradient.

15 [Claim 18] The wet cleaning tool according to claim 3, wherein:
the pressing-moving member is integrally provide with slide-guide protrusions that protrude more outward than the respective pinion sections provided on both sides of the pressing-moving member and that are arranged coaxially with the respective pinion sections, each the slide-guide protrusion having a smaller outer diameter than the outer
20 diameter of the pinion section; and

the pressing-moving member is attached to the liquid-amount adjusting section in a state where the slide-guide protrusions on both sides of the pressing-moving member are rotatably and slidably inserted and engaged to respective slide-guide recess grooves that extend in parallel to the respective rack sections provided on both sides, each the
25 slide-guide recess groove being formed in a vertical wall surface provided on the outside of each the rack section.

[Claim 19] The wet cleaning tool according to claim 1, wherein a section of the pressing-moving member on the side radially opposite from the pressing end section

constitutes a rotation operating section.

[Claim 20] The wet cleaning tool according to claim 1, wherein anti-slip projections and recesses are formed on the outer peripheral surface of the pressing-moving member.

[Claim 21] The wet cleaning tool according to claim 1, wherein anti-slip projections
5 and recesses are formed on the bottom surface of the tube disposing groove.