Claims

1. A spray arm, comprising:

a body (1;1') having a top surface (1a;1a'), a bottom surface (1b) and a side wall (1c;1c') between the top surface (1a;1a') and the bottom surface (1b);

a top plate (2;2') disposed above the body (1;1');

wherein,

the body (1;1') has a flow channel (11) extending along a length of the body (1;1');

the body (1;1') has a water inlet (12) in communication with the flow channel (11) arranged on the bottom surface (1b) of the body (1;1');

the body (1;1') has a plurality of water spray holes (13) arranged on the top surface (1a;1a') and / or the sidewall (1c;1c') of the body (1;1');

an air collection chamber (20;20') for storing air is defined between the top plate (2;2') and the top surface (1a;1a') of the body (1;1'), the positions of the water spray holes (13) are distributed corresponding to the air collection chamber (20;20');

the top plate (2;2') has a plurality of spray openings (21) each corresponding to one water spray hole (13), and a gap (100) where negative pressure is generated during water flow spraying is formed between a top end of each water spray hole (13) and a bottom end of the corresponding spray opening (21);

and an air inlet (154) in communication with the air collection chamber (20;20') is arranged on the top plate (2;2') and / or the side wall (1c;1c') of the body (1;1');

the body (1;1') has two ends and a central portion, the top surface (1a;1a') of the body

(1;1') has a recessed area sinking downward which is defined as a drainage area (15;15'), a water outlet (151;151') for draining water is arranged at an edge of the drainage area (15;15').

2. The spray arm of claim 1, wherein the drainage area (15;15') is the recessed area gradually sinking downward from the two ends to the central portion of the top surface (1a;1a') of the body (1;1').

3. The spray arm of claim 1, wherein the top plate (2') has a top wall and a side wall (2a'), the body (1;1') has a top wall (1d') extending upward from the top surface (1a') of the body (1;1') corresponding to the side wall (2a') of the top plate (2'), the edge of the drainage area (15;15') is enclosed by the top wall (1d'), and the water outlet (151') is located at a bottom of the top wall (1d').

4. The spray arm of claim 1, wherein the body (1) has a water collection chamber (16) in communication with the water inlet (12) at the central portion of the body (1) and under the top surface (1a) of the body (1), and the drainage area (15) is located above the water

collection chamber (16).

5. The spray arm of claim 4, wherein the body (1) has a mounting hole (17) at the top surface (1a) of the body (1) corresponding to the water collection chamber (16), the mounting hole (17) is in communication with the drainage area (15) and is for receiving an output shaft (31) of a power mechanism (3), a sealing ring (18) is arranged in the mounting hole (17) to prevent water from entering the air collection chamber (20) from the water collection chamber (16).

6. The spray arm of claim 5, wherein the body (1) has a mounting recess (19) arranged around the mounting hole (17) and opening toward the water collection chamber (16), the sealing ring (18) is arranged inside the mounting recess (19), the sealing ring (18) has a shaft hole (181) at a center of the sealing ring (18) for receiving the output shaft (31), and the sealing ring (18) resists against an inner wall of the mounting recess (19).

7. The spray arm of claim 6, wherein a gap (170) is defined between an inner wall of the mounting hole (17) of the body (1) and a periphery of the output shaft (31), the sealing ring (18) has an annular liquid collection recess (182) opening upward around the shaft hole (181), the mounting hole (17) is in communication with the liquid collection recess (182).

8. The spray arm of claim 4, wherein an annular border (152) is arranged at the drainage area (15) between an inner surface of the top plate (2) and the top surface (1a) of the body (1), and the annular border (152) has a plurality of notches (153) for water to go through.

9. The spray arm of claim 1, wherein the water outlet (151) is located at the top surface (1a) of the body (1), and the body (1) has an inclined diversion plane (1511) at the bottom of the water outlet (151) which gradually inclines downward from inside to outside of the body (1), a top of the inclined diversion plane (1511) is approximately flush with the top surface (1a) of the body (1).

10.The spray arm of any one of claims 1, wherein the thickness of the central portion of the body (1) is greater than the thicknesses of the flow channels at two sides, and the central portion of the body (1) sinks downward relative to the flow channels at two sides of the central portion of the body (1).

11. A water pumping mechanism with the spray arm of any one of claims 1, comprising:
a power mechanism (3);
an impeller assembly (4) having an upper portion and a lower portion;
the spray arm (A);

wherein,

the upper portion of the impeller assembly (4) is a centrifugal impeller that passes through the water inlet (12) and is located inside the spray arm (A), and the lower portion of the impeller assembly (4) is an axial impeller arranged below the water inlet (12), the power mechanism (3) is arranged below the impeller assembly (4), and the output shaft (31) is connected to the impeller assembly (4).

12. A cleaning machine with the water pumping mechanism of claim 11, comprising: a box having a bottom;

wherein,

the water pumping mechanism (B) is disposed at the bottom of the box for pumping the water at the bottom of the box upward through the spray arm (A).

13. A spray arm, comprising:

a body (1;1') having a top surface (1a;1a'), a bottom surface (1b) and a side wall (1c;1c') between the top surface (1a;1a') and the bottom surface (1b);

a top plate (2;2') disposed above the body (1;1');

wherein,

the body (1;1') has a flow channel (11) extending along a length of the body (1;1');

the body (1;1') has a water inlet (12) in communication with the flow channel (11) arranged on the bottom surface (1b) of the body (1;1');

the body (1;1') has a plurality of water spray holes (13) arranged on the top surface (1a;1a') and / or the sidewall (1c;1c') of the body (1;1');

an air collection chamber (20;20') for storing air is defined between the top plate (2;2') and the top surface (1a;1a') of the body (1;1'), the positions of the water spray holes (13) are distributed corresponding to the air collection chamber (20;20');

the top plate (2;2') has a plurality of spray openings (21) each corresponding to one water spray hole (13), and a gap (100) where negative pressure is generated during water flow spraying is formed between a top end of each water spray hole (13) and a bottom end of the corresponding spray opening (21);

and an air inlet (154) in communication with the air collection chamber (20;20') is arranged on the top plate (2;2') and / or the side wall (1c;1c') of the body (1;1');

the body (1) has an inclined plane (1541) at the bottom of the air inlet (154) which gradually inclines downward from inside to outside of the body (1), a top of the inclined plane (1541) is approximately flush with the top surface (1a) of the body (1).

14. The spray arm of claim 13 wherein the air inlet (154) is located at the side wall (1c) at the end of the body (1).

15. The spray arm of claim 13, wherein the body (1) has a plurality of first nozzles (14) each protruding upward from the top surface (1a) of the body (1) around a corresponding water spray hole (13), and correspondingly, the top plate (2) has a plurality of second nozzles (22) each extending upward around a corresponding spray opening (21).

16. The spray arm of claim 15, wherein each first nozzle (14) has a tapered section (141) and a first straight section (142) connected to the tapered section (141) arranged along a direction of water flow, and an inner diameter of the tapered section (141) gradually decreases along the direction of water flow.

17. The spray arm of claim 15, wherein an inner diameter of each second nozzle (22) is greater than an inner diameter of a top end of the first nozzle (14).

18. The spray arm of claim 15, wherein an axial length of each second nozzle (22) is 5 mm-7 mm.

19. The spray arm of claim 15, wherein a width of the gap (100) between the top end of each first nozzle (14) and a bottom end of each second nozzle (22) is 2 mm-5 mm.

20. The spray arm of claim 13, wherein the plurality of water spray holes (13) is located at the side wall (1c') of the body (1').