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(54) **NOZZLE COMPONENT AND CONTAINER WASHING APPARATUS USING THE SAME**

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(57) **ABSTRACT**

The present invention intends to provide a container washing apparatus capable of suppressing a positional displacement of a container during washing process with simple structure. A nozzle component includes a nozzle body **103** extending in a predetermined direction, at least one first nozzle for injecting a fluid from the nozzle body in an extending direction of the nozzle body; and at least one second nozzle for injecting the fluid from the nozzle body to an opposite side direction relative to a fluid injecting direction of the first nozzle.

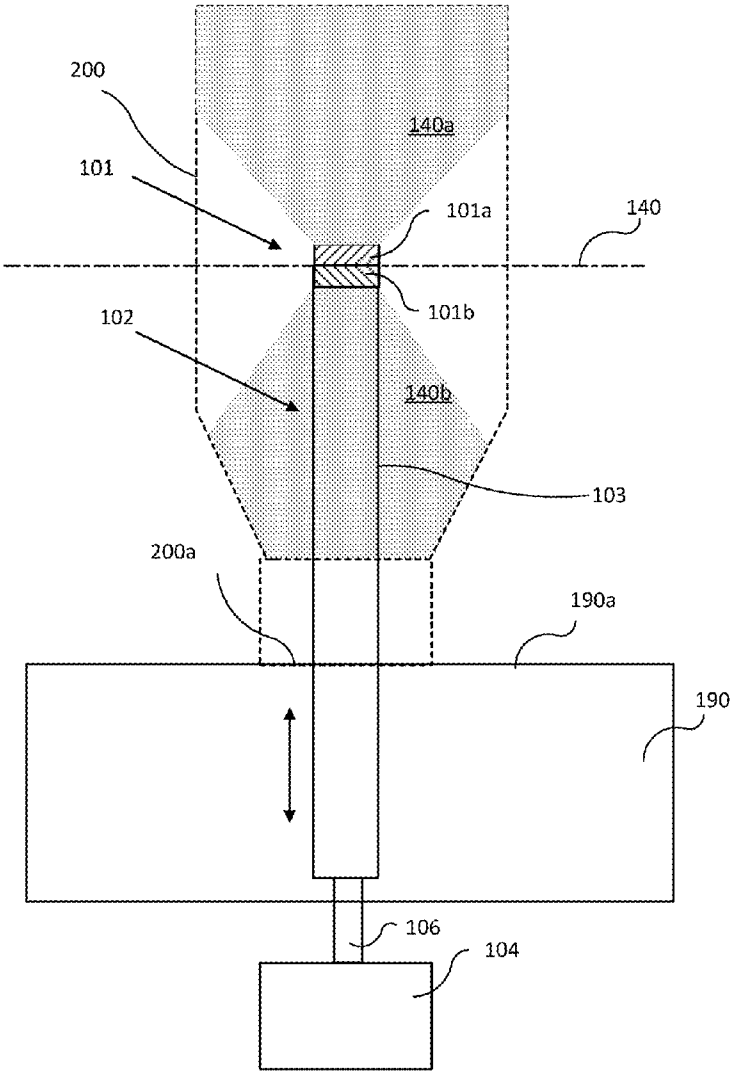


Fig. 1

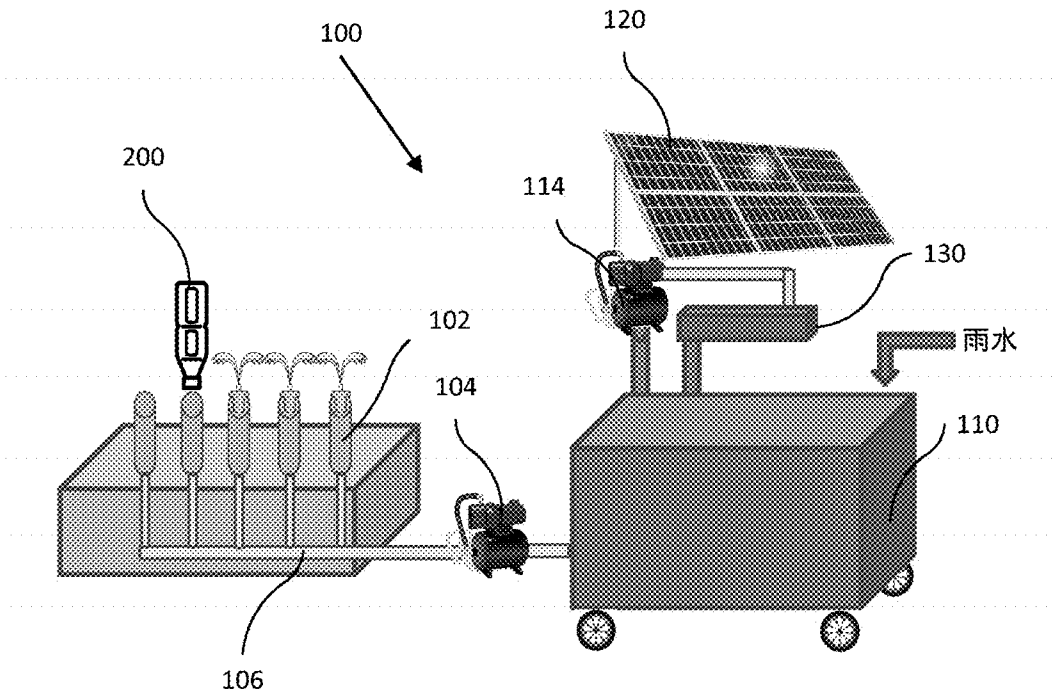


Fig. 2

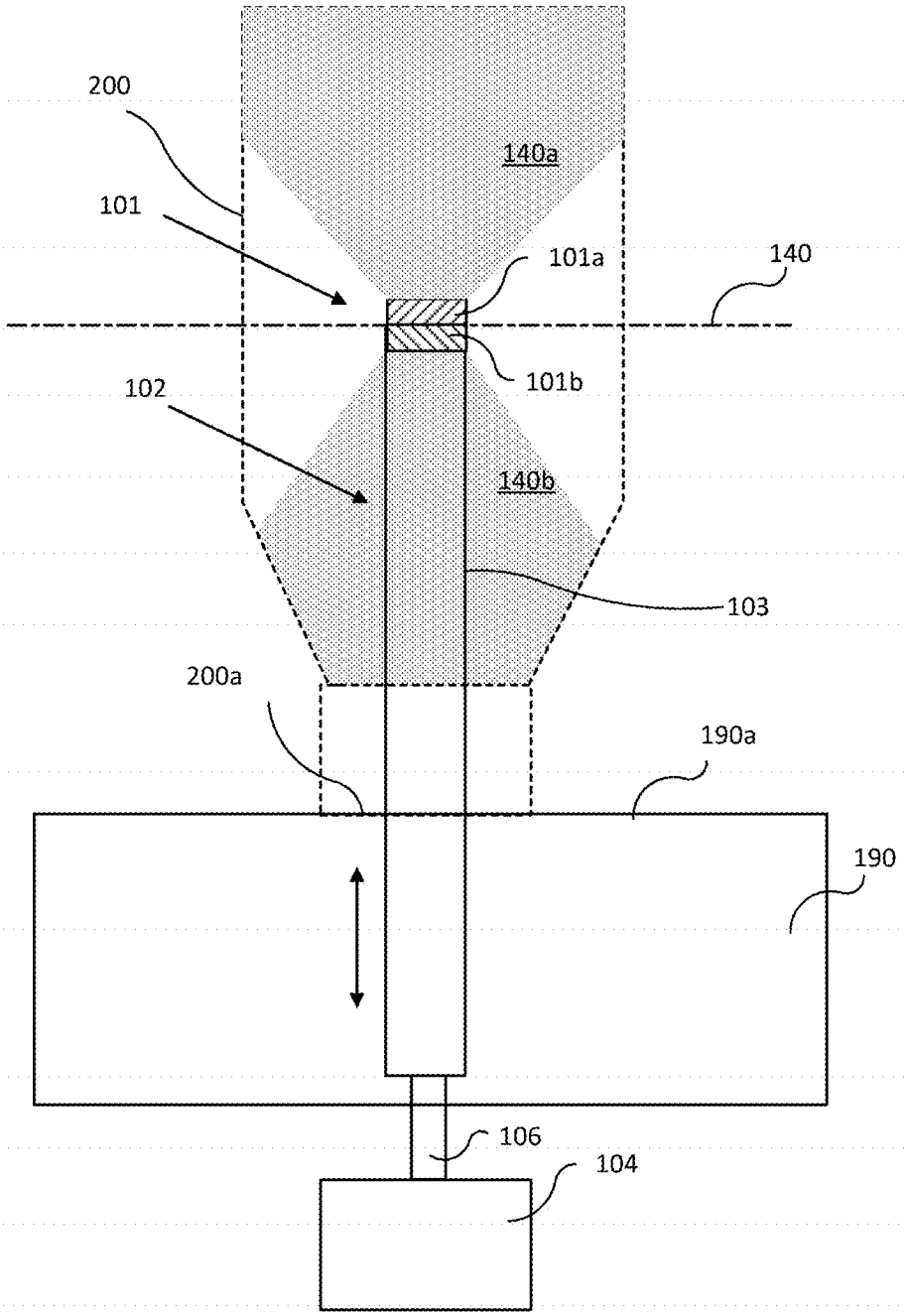


Fig. 3

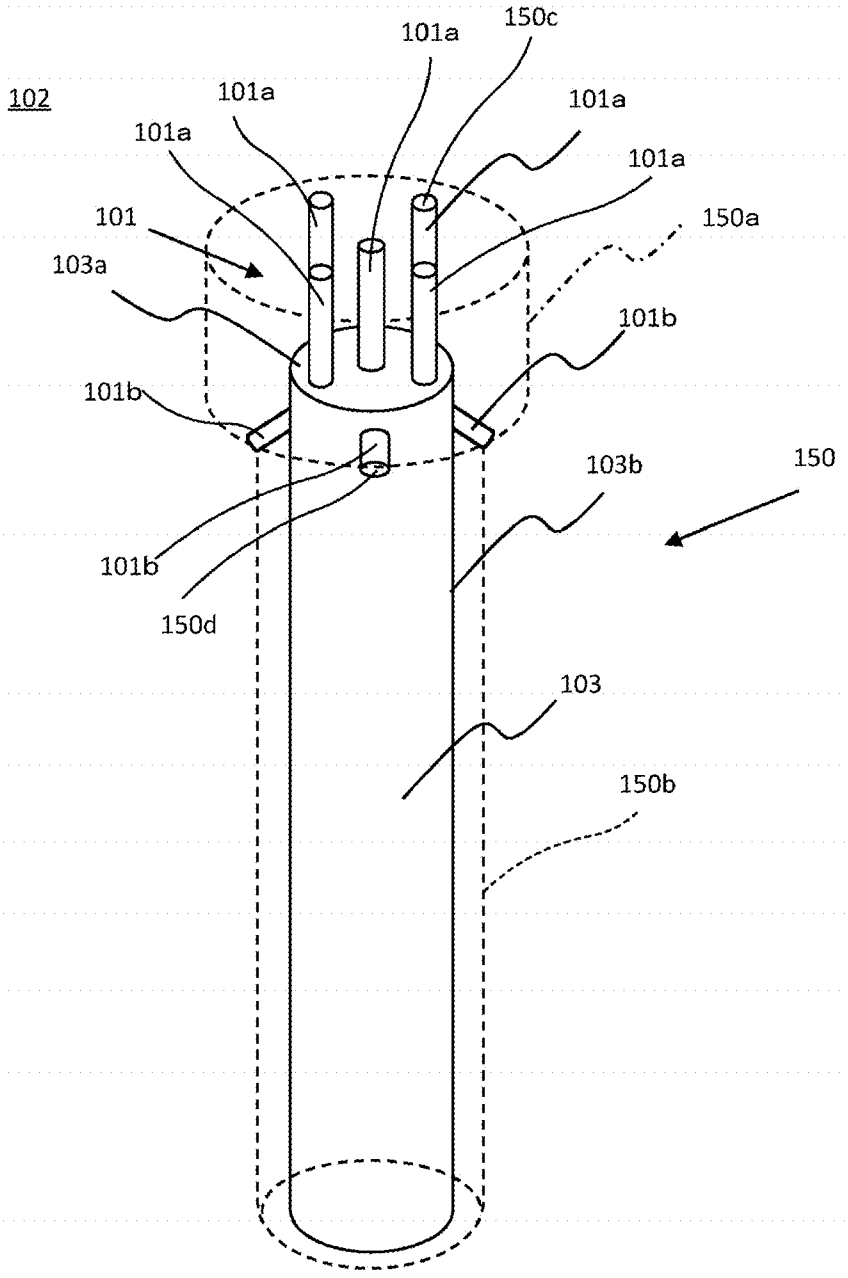

102
101a
101a
101a
101a
101a
150c
101
150a
103a
101b
101b
101b
150
103b
150d
103
150b

Fig. 4A

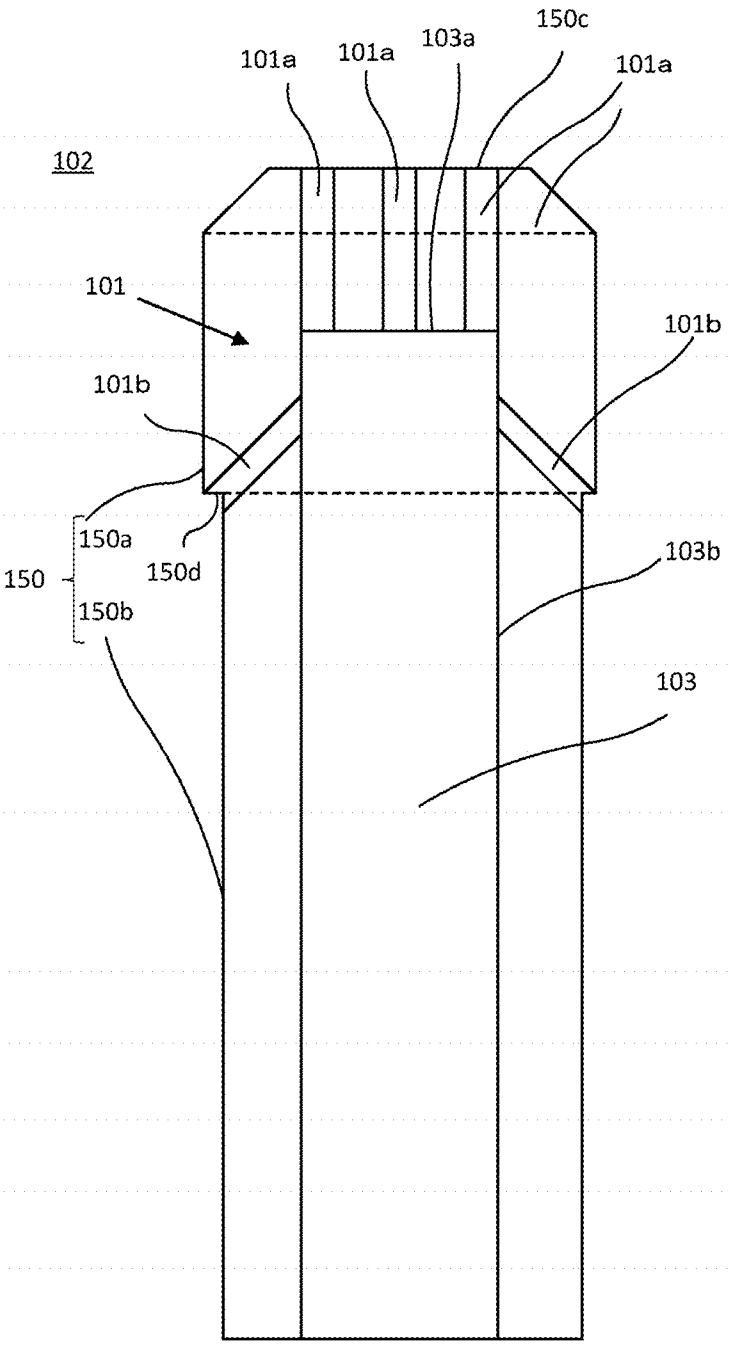

150c
101a
101a
103a
101a
102
101
101b
101b
150a
150d
150
150b
103b
103

Fig. 4B

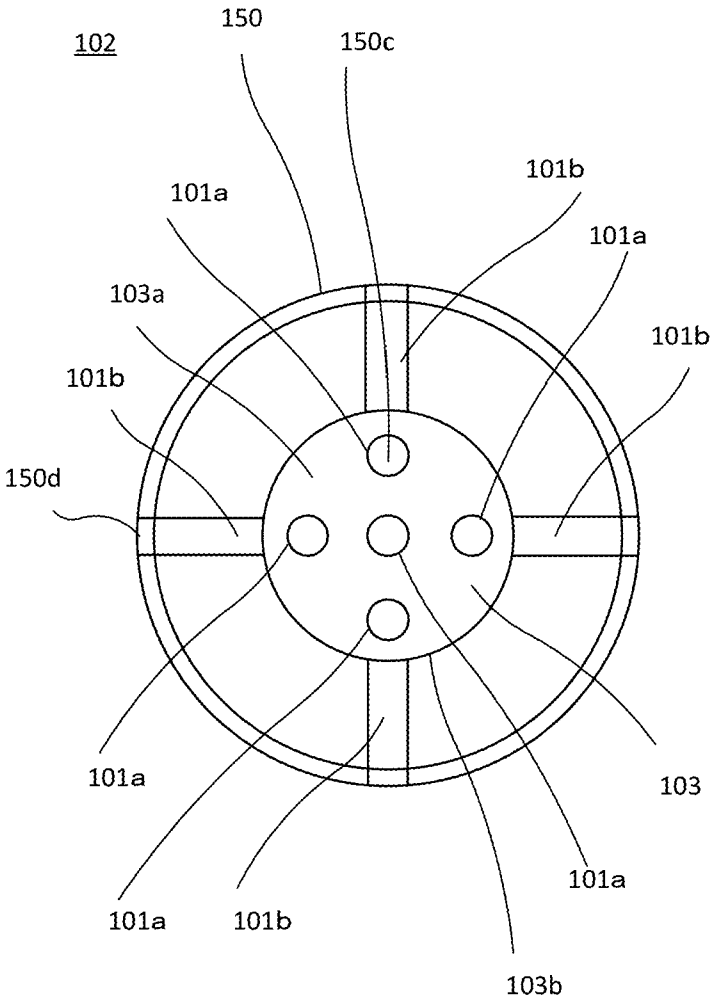
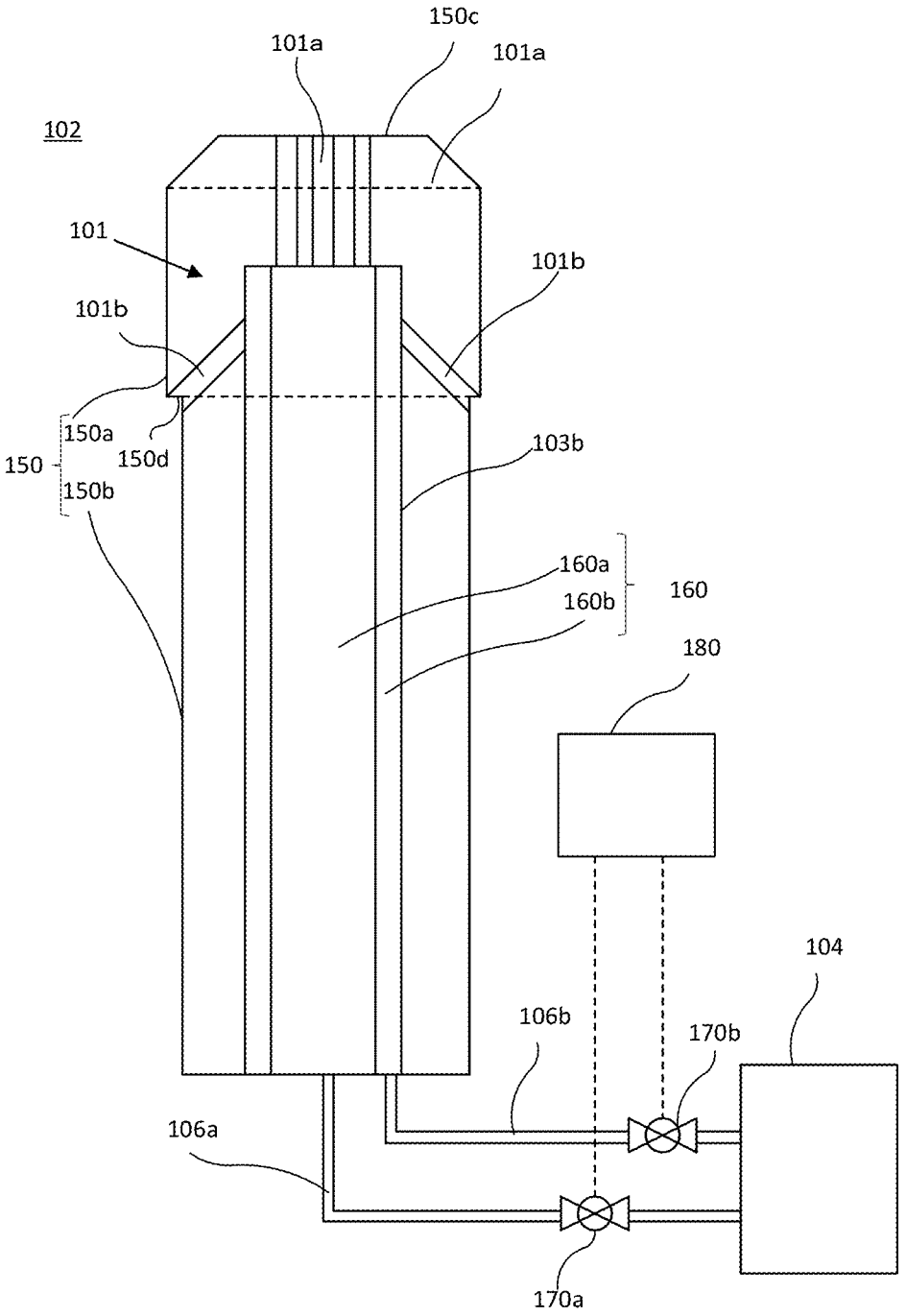

102
150
150c
101b
101a
101a
103a
101b
101b
150d
101a
103
101a
101a
101b
103b

Fig. 5


150c
101a
101a
102
101
101b
101b
150a
150d
150
150b
103b
160a
160b
160
180
104
106b
170b
106a
170a

NOZZLE COMPONENT AND CONTAINER WASHING APPARATUS USING THE SAME

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit and priority of Japanese Patent Application No. 2015-010767, filed Jan. 22, 2015. The entire disclosure of the above application is incorporated herein by reference.

FIELD

[0002] The present disclosure generally relates to a nozzle component and a container washing apparatus using the same.

BACKGROUND

[0003] Recently, a container such as a polyethylene terephthalate (PET) bottle or a glass bottle has used for various objects, such as for foods, beverages, cosmetics, seasonings, pharmaceuticals, etc. These various containers are manufactured in factories or the like and washed using a container washing apparatus prior to shipment. Further, used containers are also washed for reusage.

[0004] In a conventional container washing apparatus, a container is provided upside down such that an opening of the container (for example an opening of a PET bottle for beverage) faces downward. Then, the container washing apparatus injects (jet sprays) fluid such as washing liquid upward from the opening toward the inside of the container. Thus, the container washing apparatus washes the internal surface of the container. The container washing apparatus may wash the internal surface of the container by inserting a nozzle into the opening of the container by injecting the fluid from the nozzle being inserted.

[0005] However, in a container washing apparatus as described as related art above, due to the pressure of sprayed fluid posed on the inner surface of the container, the container can be displaced while the container is being washed. That is, there is a possibility of upward positional displacement of the container by collision of the fluid onto a surface (for example, a bottom surface of the PET bottle) opposite to the opening of the container. As a result, the conventional container washing apparatus may not be able to wash the container properly. Thus, some of conventional container washing apparatuses to be provided with a stopper to prevent upward positional displacement of the container during washing process. However, if the container washing apparatus is provided with a component such as the stopper, a configuration of the apparatus is likely to be complicated.

SUMMARY

[0006] Accordingly, the present invention intends to provide a nozzle component and a container washing apparatus with a simple configuration capable of suppressing a positional displacement of the container during the washing process.

[0007] An embodiment of a nozzle component according to the present invention is a nozzle component for injecting fluid, the component includes a nozzle body extending in a predetermined direction; at least one first nozzle for injecting the fluid supplied from the nozzle body in an extending direction of the nozzle body; and at least one second nozzle for injecting the fluid from the nozzle body to the opposite side direction relative to a fluid injecting direction of the first nozzle.

[0008] In an embodiment of the nozzle component, the first nozzle extends from end face (or top end surface) of the nozzle body along the extending direction of the nozzle body, the second nozzle obliquely extends from a side surface of the nozzle body to the opposite side direction relative to the fluid injecting direction of the first nozzle.

[0009] An embodiment of a container washing apparatus according to the present invention is a container washing apparatus for washing a container by injecting a fluid, the apparatus includes a nozzle body extending in a predetermined direction; a supply portion for supplying the fluid to the nozzle body; at least one first nozzle for injecting the fluid from the nozzle body in an extending direction of the nozzle body; and at least one second nozzle for injecting the fluid from the nozzle body to an opposite side direction relative to a fluid injecting direction of the first nozzle.

[0010] In an embodiment of the container washing apparatus, the first nozzle extends from an end face of the nozzle body along an extending direction of the nozzle body, the second nozzle obliquely extends from a side surface of the nozzle body to an opposite side direction relative to a fluid injecting direction of the first nozzle.

[0011] In an embodiment of the container washing apparatus, the nozzle body has an injecting portion for injecting the fluid, the first nozzle injects the fluid toward a first region separated at the injecting portion by a virtual boundary plane perpendicular to the extending direction of the nozzle body, the second nozzle injects the fluid toward a second region separated by the virtual boundary plane.

[0012] In an embodiment of the container washing apparatus, the nozzle body extends such that the injecting portion can be inserted into the inside of the container via an opening formed on the container, the second nozzle is configured to inject the fluid from the injecting portion inserted into the inside of the container toward a region in side of the opening, the first nozzle is configured to inject the fluid from the injecting portion inserted into the inside of the container toward a region opposite to the region where the opening exists.

[0013] In an embodiment of the container washing apparatus, the nozzle body has a double tubular structure, the first nozzle is in fluid communication with a first nozzle body inside the double tubular structure, the second nozzle is in fluid communication with a second nozzle body outside the double tubular structure, the supply portion supplies the fluid to the first nozzle body via a first flow passage and supplies the fluid to the second nozzle body via a second flow passage, the container washing apparatus further comprising: a first open/close valve for opening/closing the first flow passage; a second open/close valve for opening/closing the second flow passage; and a control unit for controlling the open/close operation of the first open/close valve and the second open/close valve.

[0014] In an embodiment of the container washing apparatus, the apparatus further comprising a tank for reserving rain water, wherein the supply portion supplies the rain water after filtrated through a filter and reserved in the tank to the nozzle body.

[0015] According to the present invention, for example, it is possible to provide the container washing apparatus capable

of suppressing position displacement of the container during washing processes of the container with a simple configuration.

DRAWINGS

[0016] FIG. **1** is a schematic view showing an entire configuration of a container washing apparatus according to the present embodiment.

[0017] FIG. **2** is a view showing a detailed configuration of the container washing apparatus according to the present embodiment.

[0018] FIG. **3** is a view showing one example of the configuration of a nozzle component according to the present embodiment.

[0019] FIG. **4**A is a view showing one example of the configuration of a nozzle component according to the present embodiment.

[0020] FIG. **4**B is a view showing one example of the configuration of a nozzle component according to the present embodiment.

[0021] FIG. **5** is a view showing one example of other configuration of a container washing apparatus according to the present embodiment.

DETAILED DESCRIPTION

[0022] Hereinafter, a nozzle component and a container washing apparatus using the same according the present embodiments are described with referring to the attached drawings.

[0023] FIG. **1** is a schematic view showing an entire configuration of the container washing apparatus according to the present embodiment. As shown in FIG. **1**, the container washing apparatus **100** is a piece of equipment for washing a container **200** such as a PET bottle or a glass bottle by injecting a fluid.

[0024] The container washing apparatus **100** includes a nozzle component **102** and a pump **104** as a supply portion for supplying a fluid to the nozzle component **102**. The pump **104** and the nozzle component **102** are connected via fluid passage **106**.

[0025] Further, the container washing apparatus **100** includes a tank **110** for reserving rain water. The pump **104** supplies the rain water reserved in the tank **110** to the nozzle component **102**. Specifically, the container washing apparatus **100** includes a pump **114** operated on electricity produced by a solar panel **120** and a filter **130** for filtering rain water. The container washing apparatus **100** filters the rain water by recirculating the rain water reserved in the tank **110** to the filter **130** with use of pump **114**. The pump **104** supplies the rain water reserved in the tank **110** and filtrated by the filter **130** to the nozzle component **102**.

[0026] As shown in FIG. **1**, the container **200** placed upside down so that the opening faces downwardly relative to the nozzle component **102**. The container washing apparatus **100** washes the container **200** by injecting the filtered rain water from the nozzle component **102** into the inside of the container **200**.

[0027] Note that, the present embodiment shows an example of washing the container **200** using rain water. However, the rain water may not be used. The container washing apparatus **100**, for example, may be used in a manufacturing factory for washing the container **200** made of PET or glass. Further, although the tank **110** of the present embodiment is a movable having wheel(s), the tank **110** may not be movable. Moreover, as shown in FIG. **1**, this embodiment shows the example of a plurality of nozzle components **102** are connected to the pump **104**. By providing a plurality of nozzle components **102**, a plurality of containers **200** can be washed simultaneously. However, the number of nozzle components **102** may not be limited.

[0028] Next, a specific configuration of the container washing apparatus may be described. FIG. **2** shows the specific configuration of the container washing apparatus according to the present embodiment. In FIG. **2**, the container **200** and a fixing stage **190** for fixing the nozzle component **200** is drawn by broken lines for the convenience of explanation.

[0029] As shown in FIG. **2**, the nozzle component **102** includes a nozzle body **103** extending in a predetermined direction and injecting portion **101** disposed at the upper end of the nozzle body **103**. In this embodiment, the nozzle body **103** extends downward in a vertical direction into a hole formed on an upper surface of the rectangular fixing stage **190** and fixed to the fixing stage **190**. The container **200** may be placed on the fixing stage **190** so that the opening **200***a* faces downward. The container **200** is placed on the fixing stage **190** with the opening **200***a* of the container **200** being in contact with the upper surface (a placing surface **190***a*) of the fixing stage **190**. Note that, a spacer may be provided between the opening **200***a* and the placing surface **190***a* so that the opening **200***a* of the container **200** can be away from the placing surface **190***a* in order to improve drainage of the fluid from the container **200**. Alternatively, a gap may be maintained between the opening **200***a* and the placing surface **190***a* by inclining the placing surface **190***a* while disposing the nozzle body **103** along the vertical direction.

[0030] The injecting portion **101** is a portion for injecting the rain water outside of the nozzle body **103**. The rain water being supplied to the nozzle body **103**. Here, it assumes a case in which space with the container **200** is divided into two regions by a virtual boundary surface **140** extending perpendicular to an extending direction of the nozzle body **103** in the injecting portion **101** of the nozzle body **103**. The space is divided into a first region **140***a* and a second region **140***b*. The injecting portion **101** includes a first nozzle **101***a* for injecting the fluid toward the first region **140***a* divided by the virtual boundary surface **140**. Further, the injecting portion **101** includes a second nozzle **101***b* for injecting the fluid toward the second region **140***b* divided by the virtual boundary surface **140**. Note that the nozzle body may be movable in a vertical direction.

[0031] Further, as shown in FIG. **2**, the nozzle body **103** extends so that the injecting portion **101** can be inserted into the inside of the container **200** via the opening **200***a* of the container **200**. In this case, the second nozzle **101***b* is configured to be able to inject the fluid from the injecting portion **101** inserted into the inside of the container **200** toward the region in side of the opening **200***a* (the second region **140***b*). Further, the first nozzle **101***a* is configured to be able to inject the fluid from the injecting portion **101** inserted into the inside of the container **200** toward the opposite side region relative to the opening **100***a* (the first region **140***a*).

[0032] Next, the nozzle component of the present embodiment is described in detail. FIGS. **3** and **4** show one example of configuration of the nozzle component according to the present embodiment. FIG. **3** is a perspective view schematically showing the configuration of the nozzle component.

FIG. **4**A shows a vertical cross section view of the nozzle component and FIG. **4**B shows a plan view of the nozzle component.

[0033] As shown in FIGS. **3** and **4**, the nozzle component **102** includes a nozzle body **103** extending in a predetermined direction, first nozzles **101***a* for injecting the fluid (the rain water) from the nozzle body **103** in the extending direction of the nozzle body **103** and second nozzles **101***b* for injecting the fluid from the nozzle body **103** in a direction opposite to the direction in which the first nozzles **101***a* inject the fluid.

[0034] Specifically, the first nozzle **101***a* extends from an end face **103***a* of the nozzle body **103** in the extending direction of the nozzle body **103**. As shown in FIGS. **3** and **4**B, in this embodiment, the five first nozzles **101***a* are provided, however, any number of the first nozzle **101***a* are acceptable. Note that, the first nozzles **101***a* are not required to be precisely parallel to the extending direction of the nozzle body **103**, the first nozzle **101***a* may be inclined relative to the extending direction.

[0035] Further, the second nozzles **101***b* obliquely extend from the side surface **103***b* of the nozzle body **103** to the opposite side direction relative to the fluid injecting direction of the first nozzles **101***a*. For example, if the extending direction of the first nozzles **101***a* is defined as upward direction, the second nozzles **101***b* obliquely extend downward from the side surface **103***b* of the nozzle body **103**. As shown in FIG. **4**B, in this embodiment, the four second nozzles **101***b* are provided, any number of the second nozzles **101***b* are acceptable. Further, as shown in FIG. **4**B, the second nozzles **101***b* may be provided at positions corresponding to the four first nozzles **101***a* surrounding the center of the first nozzles **101***a*, respectively. Further, as shown in FIG. **3**, the second nozzles **101***b* may be provided at a position corresponding to interval of the four first nozzles **101***a* surrounding the center of the first nozzle **101***a*, respectively. The nozzle body **103** of 10 mm in diameter, for example, may be formed. Further, the first nozzles **101***a*, and the second nozzles **101***b* may be formed 1.5 mm in diameter.

[0036] Further, the nozzle component **102** includes a housing **150** for covering the nozzle body **103**, the first nozzles **101***a*, and the second nozzles **101***b*. The housing **150** includes a first housing **150***a* for mainly covering the injecting portion **101** (the first nozzles **101***a*, and the second nozzles **101***b*) and second housing **150***b* for mainly covering the nozzle body **103**. The second housing **150***b* has a diameter smaller than that of the first housing **150***a*.

[0037] The housing **150** has five openings **150***c* formed in the end face of the first housing **150***a*. Each of the five openings **150***c* is in communication with each of the five first nozzles **101***a*, respectively. Further, the housing **150** has four openings **150***d* formed in the connection portion between the first housing **150***a* and the second housing **150***b*. Each of the four openings **150***d* is in communication with each of the second nozzles **101***b*.

[0038] The nozzle component and the container washing apparatus of the present embodiment can suppress the positional displacement of the container **200** during washing process with simple configuration by providing the first nozzles **101***a* and the second nozzles **101***b*. That is, since the conventional container washing apparatus merely upwardly injecting the fluid, an upward force is applied to the container **200** by the pressure caused by the fluid injected the inner wall of the container **200** (e.g., the bottom surface of the container **200**). As a result, there is a risk that the positional displacement of the container **200** will occur or the container **200** will come off from the nozzle component **102**. A stopper as a countermeasure may be provided in order to suppress the upward positional displacement of the container **200** during the washing process or coming off of the container from the nozzle component **102**. However, providing the component such as the stopper renders the apparatus configuration complex.

[0039] On the other hand, as shown in FIG. **2**, the nozzle component **102** and the container washing apparatus **100** of the present embodiment, apply the downward force to the container **200** by means of collision of the fluid injected from the second nozzles **101***b* to the inner wall of the container **200**. This downward force applied on the container **200** can cancel the upward force (the force applied in direction which removes the container **200** from the nozzle component **102**) applied to the container **200** by means of collision of the fluid injected from the first nozzle **101***a* to the inner wall of the container **200**. As a result, the container washing apparatus **100** according to the present embodiment can suppress the positional displacement of the container **200** during the washing process with a simple structure without adding a special component, such as a stopper. Note that, at least one of the first nozzles **101***a* and the second nozzles **101***b* may be able to inject the fluid having circumferential velocity component toward the inner wall of the container **200**. Thus, the container **200** is rotated in response to the injection of the fluid, the inside of the container **200** can be uniformly washed.

[0040] Further, the container washing apparatus **100** may firstly inject the fluid from the second nozzles **101***b* upon washing the container **200**, then the injection of the fluid from the first nozzles **101***a* is started while the fluid being injected from the second nozzles **101***b*. According to this, the downward force is firstly applied to the container **200**, then, the upward force is applied while the downward force is continuously applied. Therefore, the positional displacement of the container **200** during the washing process can be surely suppressed.

[0041] As shown in FIG. **5**, the container washing apparatus **100** may include, for example a double tubular nozzle body **160** instead of the nozzle body **103** shown in FIGS. **2**, **3**, **4**A, **4**B in order to vary the injection timing of the fluid from the first nozzles **101***a* and the second nozzles **101***b*. The nozzle body **160** includes a first nozzle body **160***a* and the second nozzle body **160***b* surrounding the outer side of the first nozzle body **160***a*. The first nozzle **101***a* extends from the end face of the first nozzle body **160***a* along the extending direction of the first nozzle body **160***a*. The second nozzle **101***b* extends obliquely from the side surface of the second nozzle body **160***b* in an opposite side direction relative to the fluid injecting direction of the first nozzle **101***a*. For example, if the extending direction of the first nozzle **101***a* is defined as the upward direction, the second nozzle **101***b* extends obliquely downward from the side surface of the second nozzle body **160***b*.

[0042] The pump **104** supplies the fluid to the first nozzle body **160***a* via a first flow passage **106***a*. The container washing apparatus **100** includes a first open/close valve **170***a* provided in the first flow passage **106***a*. The first open/close valve **170***a* is a valve capable of opening and closing the first flow passage **106***a*.

[0043] Further, the pump **104** supplies the fluid to the second nozzle body **160***b* via a second flow passage **106***b*. The

container washing apparatus **100** includes a second open/close valve **170***b* provided in a second flow passage **106***b*.

[0044] The second open/close valve **170***b* is a valve capable of opening and closing the second flow passage **106***b*.

[0045] Further, the container washing apparatus **100** includes the control unit **180** which controls the opening/closing of the first open/close valve **170***a* and the second open/close valve **170***b*. The control unit **180** closes the first open/close valve **170***a* and opens the second open/close valve **170***b* during washing process of the container **200**. Accordingly, the fluid from the second nozzles **101***b* is injected by the control unit **180**. Then, the control unit **180** opens the first open/close valve **170***a* in a state where the second open/close valve **170***b* opens. Accordingly, the control unit **180** can operate such that the fluid from the first nozzles **101***a* can be injected while continuously injecting the fluid from the second nozzles **101***b*. According to this, the downward force is initially applied to the container **200**, then the upward force is applied in the state where the downward force is continuously applied to the container **200**. Therefore, the positional displacement of the container **200** during the washing process can be surely suppressed.

[0046] Note that, in the present embodiment, an example provided with the control unit **180** is described, however, the present invention is not limited thereto. For example, the control unit **180** is not necessary if the first open/close valve **170***a* and the second open/close valve **170***b* can be manually opened and closed.

[0047] Further, in the present embodiment, an example of the container washing apparatus **100** including the nozzle body **103** extending along the vertical direction is described. However, the present invention is not limited thereto. That is, the nozzle body **103** may extend the arbitrary direction such as oblique direction or lateral direction.

[0048] Further, in the above description, each of the technical features has been described in association with each other. Therefore, by combining the technical features, the invention capable of obtaining special technical effect can be qualified as a valid invention. On the other hand, each of the above technical features may be able to define the invention. Accordingly, the invention assumed on the present application is not necessarily limited to the invention defined by combining a plurality of technical features, the present invention can be defined by solo technical feature or any combination of the technical features.

What is claimed is:

1. A nozzle component for injecting fluid, the component comprising:

a nozzle body extending in a predetermined direction;

at least one first nozzle for injecting the fluid from the nozzle body in an extending direction of the nozzle body; and

at least one second nozzle for injecting the fluid from the nozzle body to an opposite side direction relative to a fluid injecting direction of the first nozzle.

2. The nozzle component according to claim **1**, wherein

the first nozzle extends from an end face of the nozzle body along the extending direction of the nozzle body, the second nozzle obliquely extends from a side surface of the nozzle body to the opposite side direction relative to the fluid injecting direction of the first nozzle.

3. A container washing apparatus for washing a container by injecting a fluid, the apparatus comprising:

a nozzle body extending in a predetermined direction;

a supply portion for supplying the fluid to the nozzle body;

at least one first nozzle for injecting the fluid from the nozzle body in an extending direction of the nozzle body; and

at least one second nozzle for injecting the fluid from the nozzle body to an opposite side direction relative to a fluid injecting direction of the first nozzle.

4. The container washing apparatus according to claim **3**, wherein

the first nozzle extends from an end face of the nozzle body along an extending direction of the nozzle body, the second nozzle obliquely extends from a side surface of the nozzle body to an opposite side direction relative to a fluid injecting direction of the first nozzle.

5. The container washing apparatus according to claim **3**, wherein

the nozzle body has an injecting portion for injecting the fluid, the first nozzle injects the fluid toward a first region separated at the injecting portion by a virtual boundary plane perpendicular to the extending direction of the nozzle body, the second nozzle injects the fluid toward a second region separated by the virtual boundary plane.

6. The container washing apparatus according to claim **4**, wherein

the nozzle body has an injecting portion for injecting the fluid, the first nozzle injects the fluid toward a first region separated at the injecting portion by a virtual boundary plane perpendicular to the extending direction of the nozzle body, the second nozzle injects the fluid toward a second region separated by the virtual boundary plane.

7. The container washing apparatus according to claim **5**, wherein

the nozzle body extends such that the injecting portion can be inserted into an inside of the container via an opening formed on the container, the second nozzle is configured to inject the fluid from the injecting portion inserted into the inside of the container toward a region in side of the opening, the first nozzle is configured to inject the fluid from the injecting portion inserted into the inside of the container toward a region opposite to the region where the opening exists.

8. The container washing apparatus according to claim **6**, wherein

the nozzle body extends such that the injecting portion can be inserted into an inside of the container via an opening formed on the container, the second nozzle is configured to inject the fluid from the injecting portion inserted into the inside of the container toward a region in side of the opening, the first nozzle is configured to inject the fluid from the injecting portion inserted into the inside of the container toward a region opposite to the region where the opening exists.

9. The container washing apparatus according to claims **3**, wherein

the nozzle body has a double tubular structure, the first nozzle is in fluid communication with a first nozzle body inside the double tubular structure, the second nozzle is in fluid communication with a second nozzle body outside the double tubular structure,

the supply portion supplies the fluid to the first nozzle body via a first flow passage and supplies the fluid to the second nozzle body via a second flow passage,

the container washing apparatus further comprising:

a first open/close valve for opening/closing the first flow passage; a second open/close valve for opening/closing the second flow passage; and a control unit for controlling the open/close operation of the first open/close valve and the second open/close valve.

10. The container washing apparatus according to claim **4**, wherein

the nozzle body has a double tubular structure, the first nozzle is in fluid communication with a first nozzle body inside the double tubular structure, the second nozzle is in fluid communication with a second nozzle body outside the double tubular structure,

the supply portion supplies the fluid to the first nozzle body via a first flow passage and supplies the fluid to the second nozzle body via a second flow passage,

the container washing apparatus further comprising:

a first open/close valve for opening/closing the first flow passage; a second open/close valve for opening/closing the second flow passage; and a control unit for controlling the open/close operation of the first open/close valve and the second open/close valve.

11. The container washing apparatus according to claim **5**, wherein

the nozzle body has a double tubular structure, the first nozzle is in fluid communication with a first nozzle body inside the double tubular structure, the second nozzle is in fluid communication with a second nozzle body outside the double tubular structure,

the supply portion supplies the fluid to the first nozzle body via a first flow passage and supplies the fluid to the second nozzle body via a second flow passage,

the container washing apparatus further comprising:

a first open/close valve for opening/closing the first flow passage; a second open/close valve for opening/closing the second flow passage; and a control unit for controlling the open/close operation of the first open/close valve and the second open/close valve.

12. The container washing apparatus according to claim **6**, wherein

the nozzle body has a double tubular structure, the first nozzle is in fluid communication with a first nozzle body inside the double tubular structure, the second nozzle is in fluid communication with a second nozzle body outside the double tubular structure,

the supply portion supplies the fluid to the first nozzle body via a first flow passage and supplies the fluid to the second nozzle body via a second flow passage,

the container washing apparatus further comprising:

a first open/close valve for opening/closing the first flow passage; a second open/close valve for opening/closing the second flow passage; and a control unit for controlling the open/close operation of the first open/close valve and the second open/close valve.

13. The container washing apparatus according to claim **7**, wherein

the nozzle body has a double tubular structure, the first nozzle is in fluid communication with a first nozzle body inside the double tubular structure, the second nozzle is in fluid communication with a second nozzle body outside the double tubular structure,

the supply portion supplies the fluid to the first nozzle body via a first flow passage and supplies the fluid to the second nozzle body via a second flow passage,

the container washing apparatus further comprising:

a first open/close valve for opening/closing the first flow passage; a second open/close valve for opening/closing the second flow passage; and a control unit for controlling the open/close operation of the first open/close valve and the second open/close valve.

14. The container washing apparatus according to claim **8**, wherein

the nozzle body has a double tubular structure, the first nozzle is in fluid communication with a first nozzle body inside the double tubular structure, the second nozzle is in fluid communication with a second nozzle body outside the double tubular structure,

the supply portion supplies the fluid to the first nozzle body via a first flow passage and supplies the fluid to the second nozzle body via a second flow passage,

the container washing apparatus further comprising:

a first open/close valve for opening/closing the first flow passage; a second open/close valve for opening/closing the second flow passage; and a control unit for controlling the open/close operation of the first open/close valve and the second open/close valve.

15. The container washing apparatus according to claim **3**, the apparatus further comprising a tank for reserving a rain water,

wherein the supply portion supplies the rain water as the fluid cleaned by a filter and reserved in the tank to the nozzle body.

16. The container washing apparatus according to claim **4**, the apparatus further comprising a tank for reserving a rain water,

wherein the supply portion supplies the rain water as the fluid cleaned by a filter and reserved in the tank to the nozzle body.

17. The container washing apparatus according to claim **5**, the apparatus further comprising a tank for reserving a rain water,

wherein the supply portion supplies the rain water as the fluid cleaned by a filter and reserved in the tank to the nozzle body.

18. The container washing apparatus according to claim **6**, the apparatus further comprising a tank for reserving a rain water,

wherein the supply portion supplies the rain water as the fluid cleaned by a filter and reserved in the tank to the nozzle body.

19. The container washing apparatus according to claim **7**, the apparatus further comprising a tank for reserving a rain water,

wherein the supply portion supplies the rain water as the fluid cleaned by a filter and reserved in the tank to the nozzle body.

20. The container washing apparatus according to claim **8**, the apparatus further comprising a tank for reserving a rain water,

wherein the supply portion supplies the rain water as the fluid cleaned by a filter and reserved in the tank to the nozzle body.

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