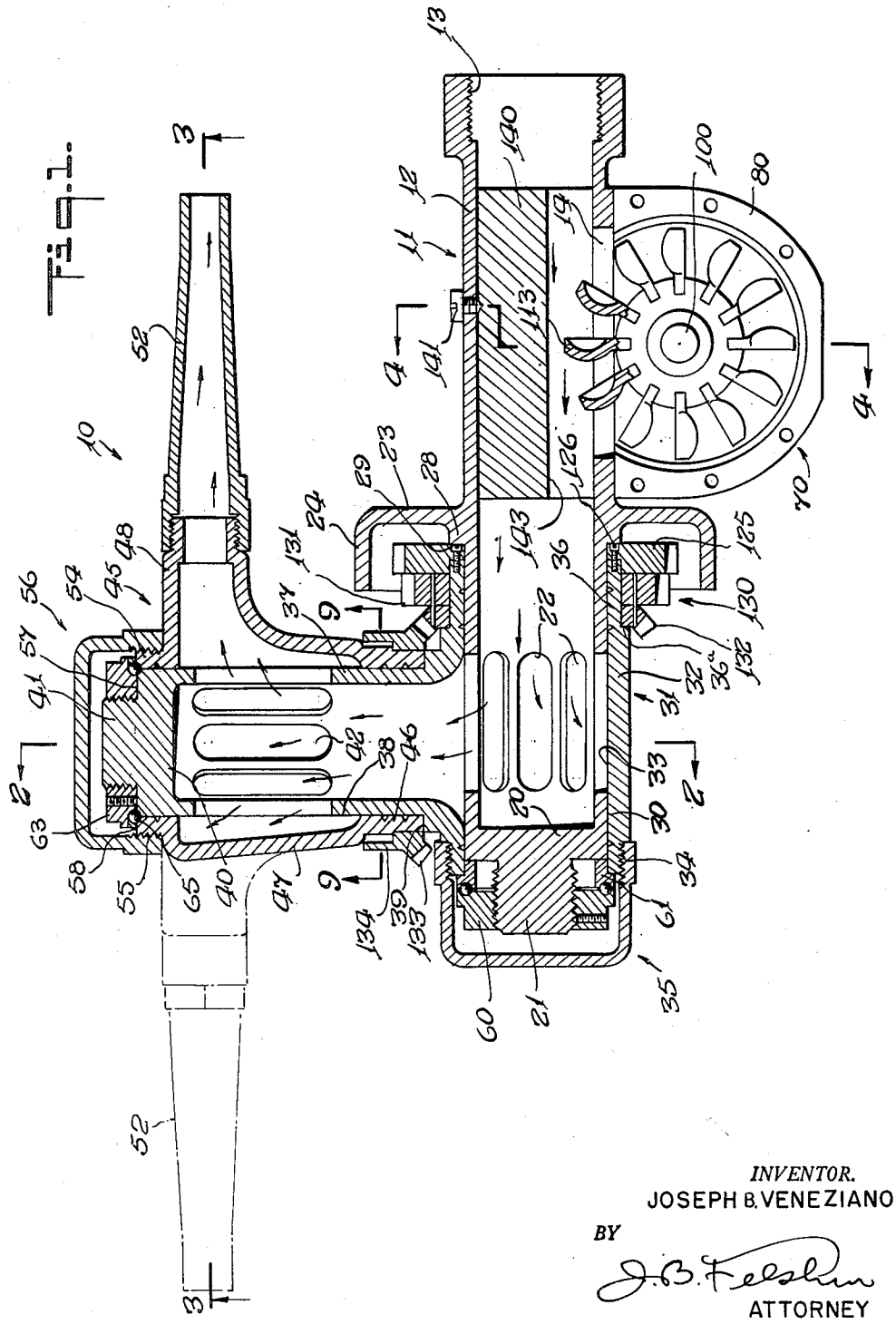
Dec. 1, 1953 J. B. VENEZIANO 2,661,241

DEVICE FOR WASHING OIL TANKS WITH WATER AND THE LIKE DEVICES

Filed Jan. 19, 1951 3 Sheets-Sheet 1

Fig. 1.



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DEVICE FOR WASHING OIL TANKS WITH WATER AND THE LIKE DEVICES

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Fig. 2.

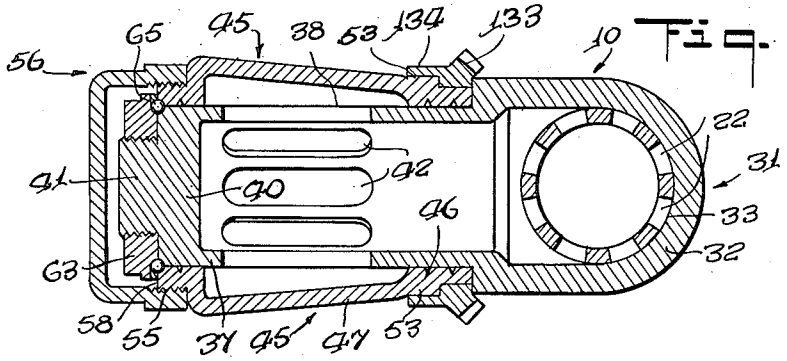


Fig. 10.

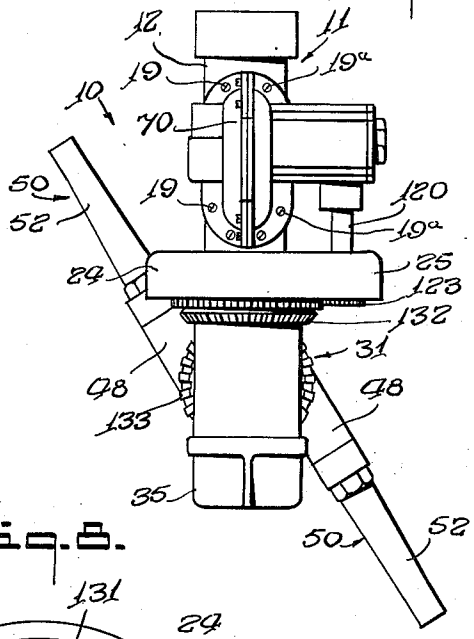


Fig. 3.

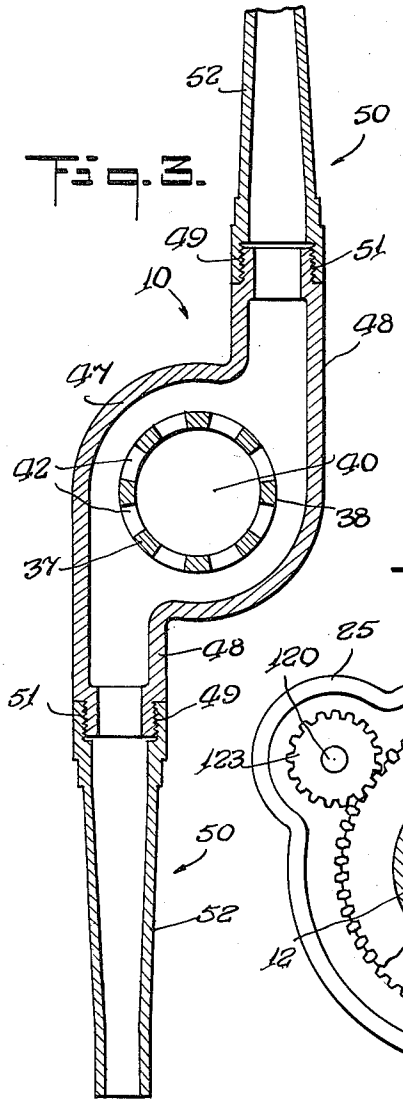
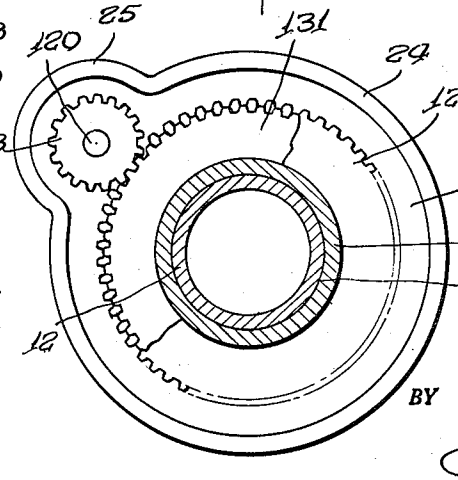


Fig. 8.



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DEVICE FOR WASHING OIL TANKS WITH WATER AND THE LIKE DEVICES

Filed Jan. 19, 1951 3 Sheets-Sheet 3

Fig. 4.

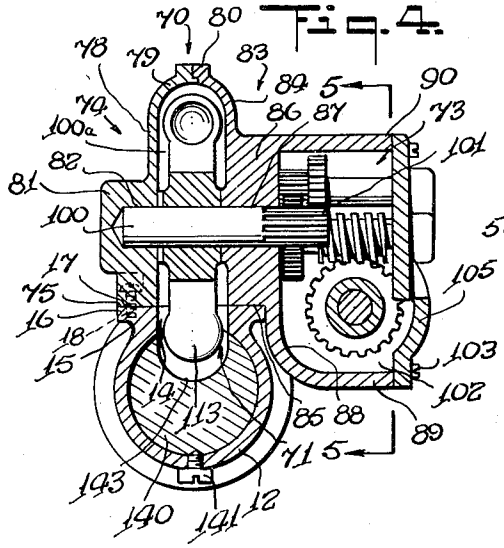


Fig. 8.

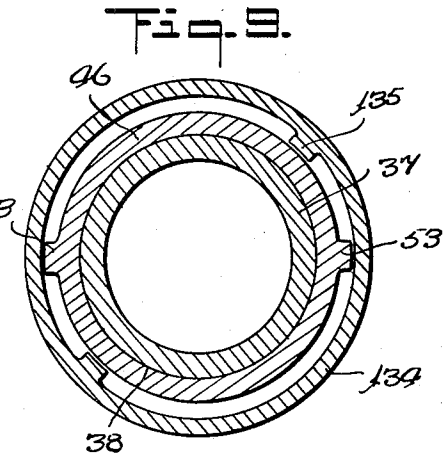


Fig. 6.

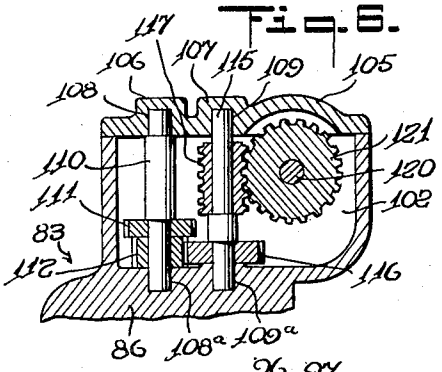


Fig. 5.

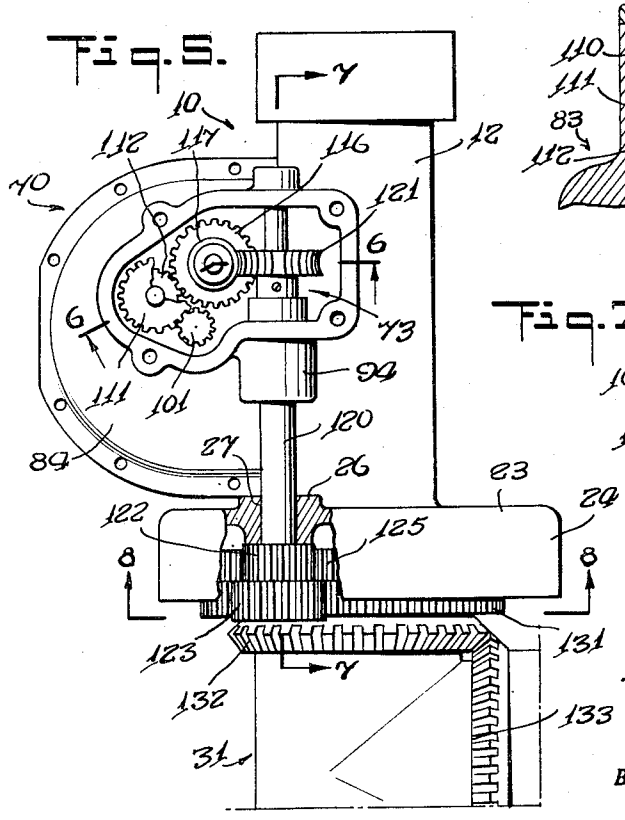
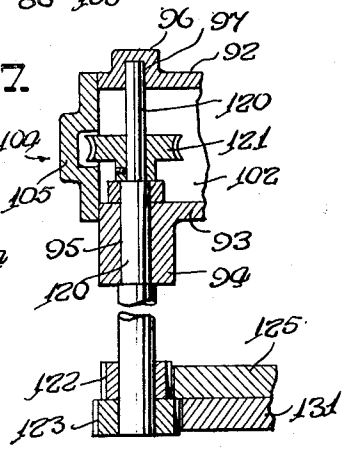


Fig. 7.



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2,661,241

UNITED STATES PATENT OFFICE

2,661,241

DEVICE FOR WASHING OIL TANKS WITH WATER AND THE LIKE DEVICES

Joseph B. Veneziano, Brooklyn, N. Y.

Application January 19, 1951, Serial No. 206,823

12 Claims. (Cl. 299—67)

1

This invention relates to washing devices, particularly to devices for cleaning tanks with liquids, and the like devices.

An object of this invention is to provide a device of the character described comprising a member provided with a pair of oppositely extending nozzles and means activated by the pressure of the liquid passing through the nozzles to simultaneously rotate said member about its axis and about an axis perpendicular to its axis.

Yet another object of this invention is to provide a device of the character described provided with a water wheel rotatable by liquid pressure and said water wheel being removable as a unit from said device for cleaning or replacement. The construction of the drive is positive, it is gear driven throughout and there are no springs to get out of order thereby cutting maintenance to a minimum. Main body casting is provided with means to control the volume of water, or liquid passing through. Bottom of rotating body and end of nozzle body are sealed with caps to reduce leakage to a minimum, thereby cutting down amount of water to be pumped out of bottom of tanks or compartments.

Still another object of this invention is to provide a device of the character described which will operate under a relatively large range of liquid pressures, either high or low pressures.

A still further object of this invention is to provide a device of the character described comprising a member rotatable about an axis perpendicular to its axis, a second member rotatable on the first member about the axis of the latter and provided with oppositely extending nozzles, means to rotate said first member about an axis perpendicular to its own axis, means to rotate the second member about the axis of the first member, and means to permit limited free movement of the second member about the axis of the first member. The rotation of the nozzle member is at a rate different than that of the body so as to permit progressive change in point of contact of liquid against compartment or tank.

Yet another object of this invention is to provide a device of the character described comprising a liquid inlet body adapted to receive liquid under pressure, a housing attached to said inlet body and said body being formed with an opening communicating with said housing, a water wheel mounted for rotation in said housing and projecting through said opening into said body, a second body mounted for rotation about the axis of the first body and extending at right angles thereto and communicating with the first body,

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a member mounted for rotation about the axis of the second body and provided with oppositely extending nozzles and reduction gearing connected to the water wheel for rotating the second body about the axis of the first body and for simultaneously rotating said nozzled member about the axis of the second body.

Yet a further object of this invention is to provide a strong, rugged and durable device of the character described which shall be relatively inexpensive to manufacture, sure and positive in operation, easy to manipulate, and yet practical and efficient to a high degree in use.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements, and arrangement of parts, which will be exemplified in the construction hereinafter described, and of which the scope of invention will be indicated in the following claims.

In the accompanying drawings in which is shown various illustrative embodiments of this invention,

Fig. 1 is a longitudinal cross-sectional view through the device for cleaning oil tanks with liquids and embodying the invention;

Fig. 2 is a cross-sectional view taken on line 2—2 of Fig. 1;

Fig. 3 is a cross-sectional view taken on line 3—3 of Fig. 1;

Fig. 4 is a cross-sectional view taken on line 4—4 of Fig. 1;

Fig. 5 is a cross-sectional view taken on line 5—5 of Fig. 4;

Fig. 6 is a cross-sectional view taken on line 6—6 of Fig. 5;

Fig. 7 is a cross-sectional view taken on line 7—7 of Fig. 5;

Fig. 8 is a cross-sectional view taken on line 8—8 of Fig. 5;

Fig. 9 is a cross-sectional view taken on line 9—9 of Fig. 1; and

Fig. 10 is a bottom plan view of the device embodying the invention.

Referring now in detail to the drawing, 10 designates a device for cleaning oil tanks or compartments with liquids, and embodying the invention. The same comprises a water inlet member 11, which may be a casting, having a pipe portion 12. Said pipe portion 12 is formed adjacent one end with an enlarged internally screw threaded coupling portion 13 to which one end of a hose may be screwed for feeding hot or cold liquids to said member 11. Said member 11 is

formed with a longitudinal slot 14 adjacent its inlet end, and with an offset extension 15 surrounding said slot 14 and formed with an outwardly extending annular flange 16 provided with a flat upper surface 17. The flange 16 is formed with a plurality of spaced screw threaded openings 18 receiving the threaded shanks of screws 19, 19a as will appear hereinafter.

At the opposite end of member 11 is an end wall from which there extends a reduced externally screw threaded axial stud 21. Said pipe portion 12 is formed adjacent the end wall 20 with a circular row of longitudinal openings or slots 22. Surrounding the pipe portion 12 and disposed between the opening 14 and the slots 22 is a flat integral flange 23 disposed in a plane perpendicular to the axis of member 11, and extending from said flange 23 toward the stud end of member 11 is a part-cylindrical flange 24 provided with a smaller offset part-cylindrical flange portion 25. Said wall 23 is formed with a boss 26 surrounding the axis of the offset portion 25 and extending through said boss is a longitudinal through opening 27 parallel to the axis of pipe portion 12. Extending from wall 23 concentrically with the pipe portion 12 is a thickened annular flange 28 having an inner machined shoulder surface 29. The outer surface 30 of the pipe portion 12 between the shoulder 29 and the outer end of said pipe portion 12 is likewise machined.

Mounted for rotation on the surface 30 for movement about the axis of member 11 is a T-shaped outlet member 31. Said outlet member 31 comprises a sleeve portion 32 surrounding surface 30. Said sleeve portion 32 has an inner machined surface 33 engaging said surface 30. At one end of the sleeve portion 32 is a reduced externally screw threaded portion 34 to which is screwed a cap 35. At the opposite end of sleeve portion 32 is a reduced sleeve portion 36 the end of which is spaced from the annular shoulder surface 29. Extending radially from the sleeve portion 32 is a pipe portion 37 having a machined external surface 38 and formed adjacent its lower end with an annular machined shoulder surface 39. At the upper end of pipe portion 37 is an end wall 40 and extending therefrom is a central externally screw threaded stud portion 41. The pipe portion 37 is formed, inwardly of said end wall 40, with a plurality of longitudinal slots 42. It will be noted that the pipe portion 37 communicates with pipe portion 12 through the slots 22 so that water entering pipe portion 12 may move through the slots 22 into the pipe portion 37.

Rotatably mounted on the machined surface 38 of the pipe portion 37 is a chambered member 45. Said chambered member 45 comprises a lower sleeve portion 46, the lower end of which rests on the shouldered surface 39, and the inner surface of which has a rotary fit on said surface 38. Extending upwardly from the sleeve portion 46 is a tapered or enlarged portion 47 surrounding pipe portion 37 and spaced therefrom. Extending from said portion 47 in opposite directions are short parallel sleeves 48. The axis of said sleeve portions 48 are parallel to each other and disposed on opposite sides of the axis of member 45. Sleeves 48 communicate with the interior of pipe 37 through the slots 42. The distance between the longitudinal axes of sleeves 48 is substantially equal to the external diameter of the pipe portion 37. At the outer ends of the sleeves 48 are reduced externally threaded

screw threaded nipples 49 and screwed to said nipples are nozzle members 50. The nozzle members 50 have internal screw threaded coupling portions 51 at their inner ends engaging the nipples 49, and said nozzles have tapered shanks 52.

It will now be understood that water passing through the inlet member 11 may pass through the slots 22, pipe portion 37, slots 42, sleeves 48 and through the nozzles 50.

The sleeve portion 46 of member 45 is formed with a pair of diametrically disposed outwardly extending lugs 53 for the purpose hereinafter appearing. Said member 45 is furthermore formed with a top sleeve portion 54 rotatably receiving the upper end of the pipe portion 37. Said sleeve 54 has an externally screw threaded portion 55 and screwed thereto is a cap 56. It will be noted that the outer surface 57 of the end wall 40 is substantially flush with the outer end 58 of the sleeve 54.

Screwed to the stud portion 21 is a nut 60 and interposed between the nut 60 and the end wall 20 is a thrust ball bearing 61. Screwed to the stud 41 is a nut 63 and interposed between said nut and the junction between the sleeve 54 and end wall 40 is a thrust ball bearing 65.

Means is provided to rotate member 37 about the axis of the inlet member 11 and for simultaneously rotating member 45 about the axis of said T-shaped member 31. To this end there is fixed to the flange 18 by means of said screw 17 a housing 70 for a water wheel or motor 71 and for reduction gearing 73. The housing 70 comprises a part 74 having a flange 75 provided with an undersurface contacting surface 17 of flange 16 and surrounding one longitudinal half of the opening 14. The flange 75 is formed with through openings to receive the screws 19 which serve to attach the housing part 74 to member 11. Said housing part 74 is formed with a wall 78 having a U-shaped flange 79 of semicircular cross-section and provided with a flanged rim 80. Said wall 78 is formed with an axial hub 81 formed with a blind opening 82 disposed on an axis perpendicular to the axis of the pipe portion 12 and spaced therefrom. The housing 70 comprises a second part 83 having a U-shaped flange 84 complementary to the flange 79.

Flange 84 is formed with a rim complementary to and having lapped engagement with the flanged rim 80 of housing part 74. The housing part 83 has a surface 85 contacting the remaining half of the surface 17 and it is attached thereto by the screws 19a. Housing part 83 comprises a thickened wall 86 formed with a through opening 87 coaxial with the opening 82. Extending from said wall 86 is a curved substantially quarter annular wall 88 from which extends a flat wall portion 89. Also extending from wall 86 is a wall portion 90 parallel to wall portion 89. Interconnecting the walls 86, 88, 89 and 90 are side walls 92 and 93. Said wall 93 is formed with a sleeve extension 94 formed with a through opening 95. Wall 92 is formed with a recessed hub 96 formed with a blind opening 97 coaxial with the opening 95 but of smaller diameter.

Extending through the openings 82, 87 and traversing the space between walls 78 and 86 is a shaft 100, one end of which is received in the opening 82. The shaft 100 passes entirely through the through opening 87 in the wall 86 and it is formed at its outer end with an external gear 101 projecting into the chamber 102 formed

by walls 86, 88, 89, 90, 92 and 93. Attached to the outer edges of said walls 89, 90, 92, 93 by means of screws 103 or in any other suitable manner, is a closure cap 104 closing the chamber 102. The cap 104 is formed with an outwardly recessed part-cylindrical wall 105 offset from the axis of the shaft 100. It is also formed with a pair of outwardly recessed hubs 106 and 107 formed with blind openings 108 and 109 respectively, parallel to one another and to the shaft 100, but offset therefrom.

Wall 86 of housing member 83 is formed with a pair of blind openings 108*a* and 109*a* aligned with the openings 108 and 109 respectively. Traversing chamber 102 is a shaft 110. Journaled in the openings 108, 108*a* and fixed thereto is a pinion 111 meshing with the gear portion 101. Fixed to the pinion 111 for rotation therewith is a smaller pinion 112. Fixed to the shaft 100 and disposed within the chamber 100*a* formed by walls 78, 79, 84 and 86 is the water wheel or motor 71. Said water wheel comprises vanes 113 projecting through the opening 14 and into the inlet pipe 12. The vanes 113 are in the form of cups and they are so positioned to receive the impact of water passing through the pipe portion 12. The vanes project to a position below the axis of the pipe portion 12 so that part of the water pressure rotates the water wheel while permitting the water to pass through the pipe portion 12 to the slots 22.

Journaled in the openings 109, 109*a* is a shaft 115. Fixed thereon, in any suitable manner is a pinion 116 meshing with the pinion 112. Also fixed on said shaft 115 is a worm 117. Journaled in the openings 97 and 95 of walls 92, 93 respectively, is a shaft 120. The shaft 120 is also journaled in the opening 27 of member 11. Fixed on the shaft 120 and disposed within the chamber 102 is a worm wheel 121 meshing with the worm 117. Worm wheel 121 projects into recess 105. Fixed to the shaft 120 is a pinion 122 contacting the inner end of the hub 26. Also on said shaft and adjacent the pinion 122 is a second pinion 123 of somewhat larger diameter. The pinion 123 is likewise fixed to the shaft 120.

It will now be understood that when water under pressure passes into the inlet pipe 11, the water wheel or motor 71 will be rotated, thereby rotating shaft 100 and pinion 101, which in turn will rotate pinions 111 and 112, and hence pinion 116 and shaft 115. Rotation of shaft 115 will rotate the worm wheel 121 through the worm 117. Shaft 120 and pinions 122, 123 will therefore likewise be rotated. The gearing 73 described herein, it will be noted, is a speed reduction gearing.

Fixed to the outer end of the sleeve portion 36 of member 31 is a gear 125 meshing with the pinion 122. Gear 125 is countersunk to receive the outer end of the sleeve 36 and is fixed thereto by means of screws 126. Said gear contacts surface 29. Rotatably mounted on said sleeve 36 and interposed between the gear 125 and the shoulder 36*a* formed at the inner end of sleeve 36 is a gear set 130 comprising a gear 131 meshing with the gear 125 and a bevel gear 132 fixed to said gear 131. Rotatably mounted on sleeve portion 46 is a bevel gear 133 meshing with the bevel gear 132. Extending upwardly from the bevel gear 133 is a sleeve 134 surrounding the upper portion of sleeve 46 and spaced therefrom, and provided with a pair of diametrically disposed radial inwardly extending lugs 135, disposed in the circular path of the lugs 53 on said sleeve 46.

It will now be understood that rotation of shaft 120 and pinions 122, 123 will cause rotation of gear 125 and the gear set 130. Rotation of the gear 125 will cause rotation of T member 31 and chambered member 45 together about the axis of member 11. Rotation of the gear set 130 will simultaneously cause rotation of member 45 about the axis of pipe portion 37. It will be noted that rotation of the bevel gear 133 will cause the lugs 135 to engage the lugs 53 to rotate member 45 about the axis of said pipe portion 37. There is substantially 180° free rotation between member 45 and pipe portion 37, to permit alignment of the nozzles 52 for small opening in the compartment through which the nozzled member is to be passed and to facilitate removal of the nozzled member from the compartment.

It will now be understood that water under pressure entering the inlet member 11 will pass from the nozzles and the water will at the same time turn the water wheel to cause rotation of the nozzles about the axis of the nozzle member 45, and also at the same time about the axis of the inlet member 11.

The rotation of the nozzle member is at a different rate of speed than the speed of rotation of the body, so as to permit a progressive changing of point of contact of the liquid against the compartment or tank. For this purpose bevel gears 132 and 133 have different number of teeth.

It will be further noted that the entire housing 70 together with the water wheel and the reduction gearing 73 may be removed as a unit by first removing the screws 19, 19*a* and slipping the gears 122, 123 off the shaft 120.

Inserted into the inlet body portion 12 is a flow control member 140 held in place by a set screw 141 screwed within a threaded opening 142 in said body 12. Said member 140 is formed with a longitudinal slot 143 into which the rotating vanes 113 project. The flow control member 140 cuts down the amount of water which passes through the cleaning device. The control member 140 has a cylindrical outer surface so as to fit within the body 12.

It will thus be seen that there is provided a device in which the several objects of this invention are achieved and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention I claim as new and desire to secure by Letters Patent:

1. A device of the character described comprising a longitudinal inlet pipe having an inlet opening at one end and provided with an end wall at its opposite end and being formed with an opening adjacent the closed end, said inlet pipe being formed with a longitudinal slot adjacent its inlet end, a T-shaped member having a sleeve portion rotatably mounted on the first pipe, a second pipe extending from said sleeve portion radially relative to the first pipe and communicating therewith, said second pipe having an outer end wall and being formed with an opening adjacent thereto, a chambered member rotatably mounted on the second pipe and being provided with a noz-

zle communicating with the second pipe through said opening therein, a casing attached to the first pipe and having a chamber communicating therewith through said longitudinal slot, a water wheel mounted for rotation in said chamber and projecting through said slot and into said first pipe; a gear fixed to said sleeve portion, a second gear mounted for rotation on said sleeve portion, reduction gearing connecting said water wheel with said pair of gears for rotating the latter when the water wheel is rotated, a bevel gear fixed to said second gear, and a bevel gear on said chambered member meshing with the first bevel gear.

2. A device of the character described comprising a longitudinal inlet pipe having an inlet opening at one end and provided with an end wall at its opposite end and being formed with an opening adjacent the closed end, said inlet pipe being formed wtih a longitudinal slot adjacent its inlet end, a T-shaped member having a sleeve portion rotatably mounted on the first pipe; a second pipe extending from said sleeve portion radially relative to the first pipe and communicating therewith, said second pipe having an outer end wall and being formed with an opening adjacent thereto, a chambered member rotatably mounted on the second pipe and being provided with a nozzle communicating with the second pipe through said opening therein, a casing attached to the first pipe and having a chamber communicating therewith through said longitudinal slot, a water wheel mounted for rotation in said chamber and projecting through said slot and into said first pipe, a gear fixed to said sleeve portion, a second gear mounted for rotation on said sleeve portion, reduction gearing connecting said water wheel with said pair of gears for rotating the latter when the water wheel is rotated, a bevel gear fixed to said second gear, a bevel gear on said chambered member meshing with the first bevel gear, and a lost motion connection being provided between said second bevel gear and said chambered member.

3. A device of the character described comprising a longitudinal inlet pipe having an inlet opening at one end and provided with an end wall at its opposite end and being formed with an opening adjacent the closed end, said inlet pipe being formed with a longitudinal slot adjacent its inlet end, a T-shaped member having a sleeve portion rotatably mounted on the first pipe, a second pipe extending from said sleeve portion radially relative to the first pipe and communicating therewith, said second pipe having an outer end wall and being formed with an opening adjacent thereto, a chambered member rotatably mounted on the second pipe and being provided with a nozzle communicating with the second pipe through said opening therein, a casing attached to the first pipe and having a chamber communicating therewith through said longitudinal slot, a water wheel mounted for rotation in said chamber and projecting through said slot and into said first pipe, a gear fixed to said sleeve portion, a second gear mounted for rotation on said sleeve portion, reduction gearing connecting said water wheel with said pair of gears for rotating the latter when the water wheel is rotated, a bevel gear fixed to said second gear, and a bevel gear on said chambered member meshing with the first bevel gear, a stud extending from the end wall of the inlet pipe, a nut screwed thereto, and thrust bearing means interposed between said nut and the adjacent end of the sleeve portion of said T-shaped member, and annular shoulder means on said inlet pipe to limit movement of the sleeve portion on said inlet pipe.

4. A device of the character described comprising a longitudinal inlet pipe having an inlet opening at one end and provided with an end wall at its opposite end and being formed with an opening adjacent the closed end, said inlet pipe being formed with a longitudinal slot adjacent its inlet end, a T-shaped member having a sleeve portion rotatably mounted on the first pipe, a second pipe extending from said sleeve portion radially relative to the first pipe and communicating therewith, said second pipe having an outer end wall and being formed with an opening adjacent thereto, a chambered member rotatably mounted on the second pipe and being provided with a nozzle communicating with the second pipe through said opening therein, a casing attached to the first pipe and having a chamber communicating therewith through said longitudinal slot, a water wheel mounted for rotation in said chamber and projecting through said slot and into said first pipe, a gear fixed to said sleeve portion, a second gear mounted for rotation on said sleeve portion, reduction gearing connecting said water wheel with said pair of gears for rotating the latter when the water wheel is rotated, a bevel gear fixed to said second gear, and a bevel gear on said chambered member meshing with the first bevel gear, a stud extending from the end wall of the inlet pipe, a nut screwed thereto, and thrust bearing means interposed between said nut and the adjacent end of the sleeve portion of said T-shaped member, and annular shoulder means on said inlet pipe to limit movement of the sleeve portion on said inlet pipe, a stud extending from the end wall of the second pipe and a nut on said stud, and thrust means cooperating with the nut to retain the chambered member on said second pipe.

5. A device of the character described comprising a longitudinal inlet pipe having an inlet opening at one end and provided with an end well at its opposite end and being formed with an opening adjacent the closed end, said inlet pipe being formed with a longitudinal slot adjacent its inlet end, a T-shaped member having a sleeve portion rotatably mounted on the first pipe, a second pipe extending from said sleeve portion radially relative to the first pipe and communicating therewith, said second pipe having an outer end wall and being formed with an opening adjacent thereto, a chambered member rotatably mounted on the second pipe and being provided with a nozzle communicating with the second pipe through said opening therein, a casing attached to the first pipe and having a chamber communicating with the second pipe through said opening therein, a casing attached to the first pipe and having a chamber communicating therewith through said longitudinal slot, a water wheel mounted for rotation in said chamber and projecting through said slot and into said first pipe, a gear fixed to said sleeve portion, a second gear mounted for rotation on said sleeve portion, reduction gearing connecting said water wheel with said pair of gears for rotating the latter when the water wheel is rotated, a bevel gear fixed to said second gear, and a bevel gear on said chambered member meshing with the first bevel gear, said chambered member having sleeve portions rotatably engaging said second pipe at opposite sides of the opening therein.

6. A device of the character described comprising an inlet pipe formed with a longitudinal slot, a casing removably mounted on said pipe, said casing comprising a chamber communicating with said pipe through said slot, a water wheel rotatably mounted in said chamber and projecting through said slot and into said inlet pipe, said casing comprising a second chamber, reduction gearing in the second chamber connected to said water wheel, said reduction gearing including a shaft extending from said second chamber, a T-shaped member comprising a sleeve portion rotatably mounted on the inlet pipe, said T-shaped member having a pipe portion extending radially from said sleeve, said inlet pipe having an opening communicating with said pipe portion of said T-shaped member, a chambered member rotatably mounted on said pipe portion of said T-shaped member and communicating therewith, a pair of oppositely extending nozzle nipples on said chambered member, nozzles screwed to said nipples, an annular flange on said inlet pipe formed with a bearing, said shaft passing through said bearing, a gear fixed to one end of said sleeve portion, a pinion on said shaft meshing with said gear, a second gear mounted for rotation on said sleeve portion, a second pinion on said shaft meshing with said second gear, a bevel gear fixed to the second gear, and a second bevel gear on said chambered member and meshing with the first bevel gear.

7. A device of the character described comprising an inlet pipe formed with a longitudinal slot, a casing removably mounted on said pipe, said casing comprising a chamber communicating with said pipe through said slot, a water wheel rotatably mounted in said chamber and projecting through said slot and into said inlet pipe, said casing comprising a second chamber, reduction gearing in the second chamber connected to said water wheel, said reduction gearing including a shaft extending from said second chamber, a T-shaped member comprising a sleeve portion rotatably mounted on the inlet pipe, said T-shaped member having a pipe portion extending radially from said sleeve, said inlet pipe having an opening communicating with said pipe portion of said T-shaped member, a chambered member rotatably mounted on said pipe portion of said T-shaped member and communicating therewith, a pair of oppositely extending nozzle nipples on said chambered member, nozzles screwed to said nipples, an annular flange on said inlet pipe formed with a bearing, said shaft passing through said bearing, a gear fixed to one end of said sleeve portion, a pinion on said shaft meshing with said gear, a second gear mounted for rotation on said sleeve portion, a second pinion on said shaft meshing with said second gear, a bevel gear fixed to the second gear, and a second bevel gear on said chambered member and meshing with the first bevel gear, said chambered member having limited free rotation relative to said second bevel gear.

8. A device of the character described comprising an inlet pipe formed with a longitudinal slot, a casing removably mounted on said pipe, said casing comprising a chamber communicating with said pipe through said slot, a water wheel rotatably mounted in said chamber and projecting through said slot and into said inlet pipe, said casing comprising a second chamber, reduction gearing in the second chamber connected to said water wheel, said reduction gearing including a shaft extending from said second chamber, a T-shaped member comprising a sleeve portion rotatably mounted on the inlet pipe, said T-shaped member having a pipe portion extending radially from said sleeve, said inlet pipe having an opening communicating with said pipe portion of said T-shaped member, a chambered member rotatably mounted on said pipe portion of said T-shaped member and communicating therewith, a pair of oppositely extending nozzle nipples on said chambered member, nozzles screwed to said nipples, an annular flange on said inlet pipe formed with a bearing, said shaft passing through said bearing, a gear fixed to one end of said sleeve portion, a pinion on said shaft meshing with said gear, a second gear mounted for rotation on said sleeve portion, a second pinion on said shaft meshing with said second gear, a bevel gear fixed to the second gear, and a second bevel gear on said chambered member and meshing with the first bevel gear, said chambered member having limited free rotation relative to said second bevel gear, means on said inlet pipe to retain said T-shaped member against sliding movement relative to said inlet pipe, and means on said pipe portion of said T-shaped member to retain said chambered member against sliding movement relative to said pipe portion.

9. A cleaning device comprising an inlet pipe, a member rotatable on the first pipe and having a pipe extending at right angles thereto and communicating with the first pipe, a chambered member rotatable on the second pipe about the axis of the latter and communicating therewith and provided with a nozzle communicating with the interior of the second pipe, a water wheel projecting into the first pipe, and means controlled by movement of the water wheel to simultaneously cause the second pipe to rotate about the axis of the first pipe and the chambered member to rotate about the axis of the second pipe, and a flow control member within the inlet pipe, said flow control member being formed with a longitudinal slot and said water wheel projecting into said slot.

10. A cleaning device comprising an inlet pipe with a longitudinal slot therein, a member rotatable on the first pipe and having a pipe extending at right angles thereto and communicating with the first pipe, a chambered member rotatable on the second pipe about the axis of the latter and communicating therewith and provided on opposite sides of its vertical axis with nozzles perpendicular to said second pipe with their center lines parallel to but offset from each other, communicating with the interior of the second pipe, a water wheel projecting into the first pipe through said slot, and means controlled by movement of the water wheel to simultaneously cause the second pipe to rotate about the axis of the first pipe, and the chambered member to rotate about the axis of the second pipe, and a flow control member within the inlet pipe, said flow control member being formed with a longitudinal slot and said water wheel projecting into said slot.

11. The combination of claim 10, and a casing removably mounted on said inlet pipe, said casing comprising a chamber communicating with said pipe through said slot, said water wheel rotatably mounted in said chamber and projecting through said slot and into said inlet pipe, reduction gearing to interconnect said water wheel to said second pipe in order to cause the same to rotate about the axis of the first pipe, a bevel gear driven

by said reduction gearing and another bevel gear attached to said chambered member and meshing with the first bevel gear so as to cause said chambered member to rotate about the axis of the second pipe.

12. The combination of claim 11, with said inlet pipe having a circular row of longitudinal openings wherein it communicates with said second pipe, and with said second pipe having a circular row of longitudinal openings or slots wherein it communicates with the chambered member that rotates about said second pipe.

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References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
610,926	Suetterle	Sept. 20, 1898
928,376	Johnson	July 20, 1909
1,876,607	Butterworth	Sept. 13, 1932
2,078,566	Fletcher	Apr. 27, 1937
2,105,458	Johnson	Jan. 11, 1938
2,120,784	Howald	June 14, 1938