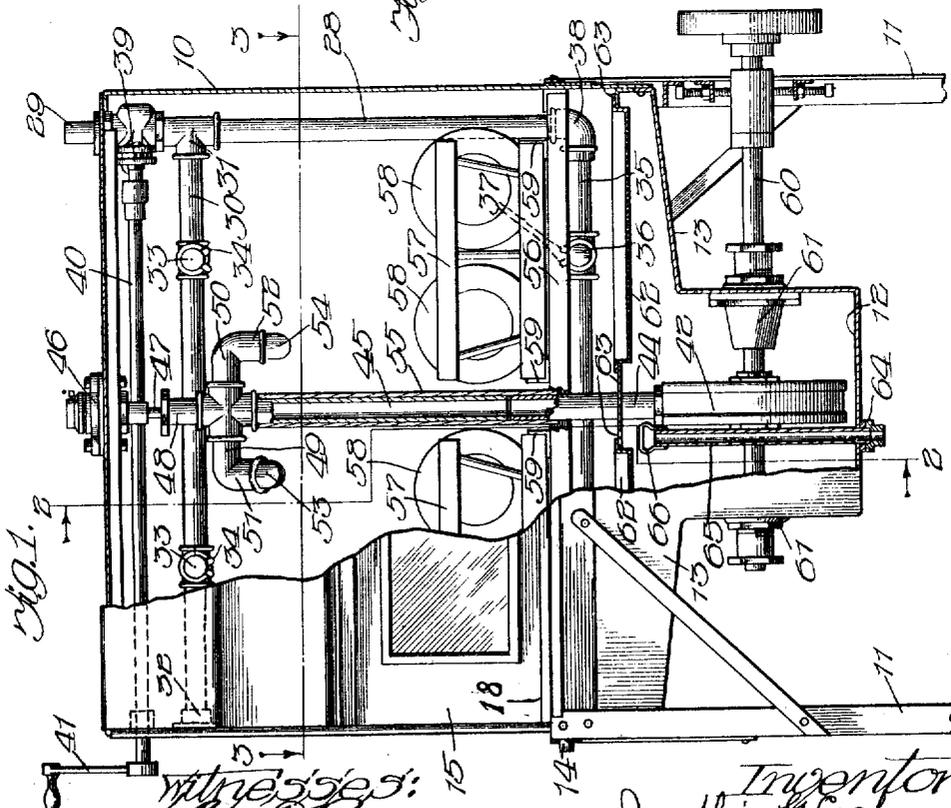
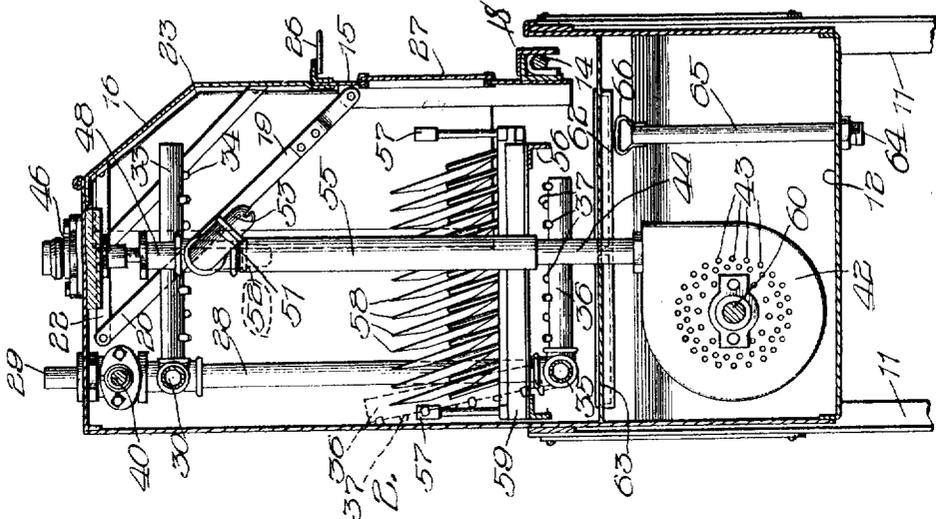


J. G. COCHRANE.
 DISH WASHING MACHINE.
 APPLICATION FILED MAY 22, 1909.

1,009,223.

Patented Nov. 21, 1911.

3 SHEETS-SHEET 1.



Witnesses:
J. G. Cochran & Co.

Inventor:
Josephine G. Cochran
By [Signature]

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3 SHEETS-SHEET 2.

Fig. 3.

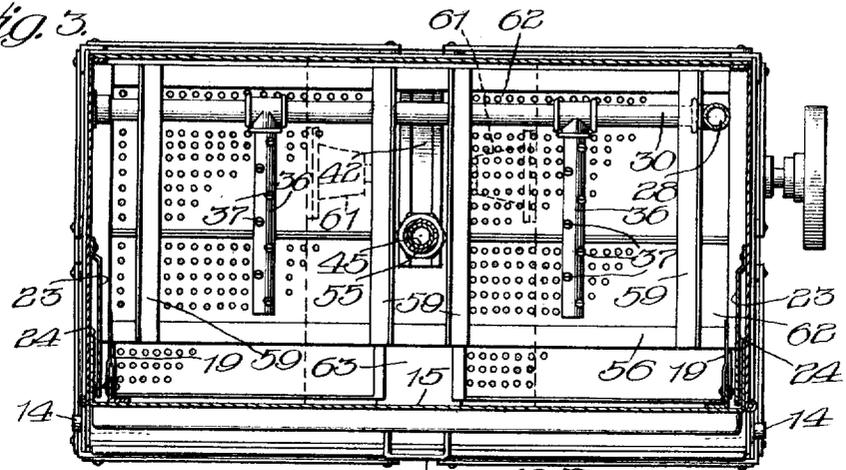


Fig. 4.

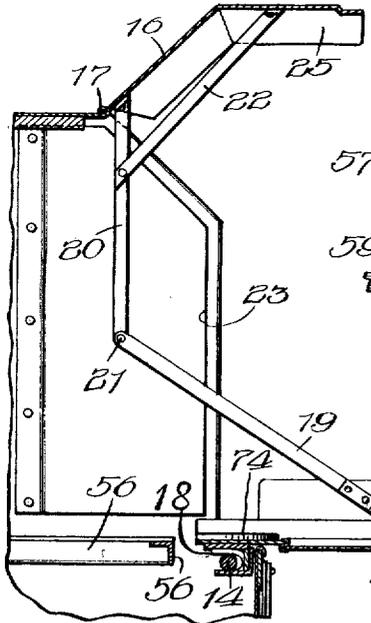


Fig. 5.

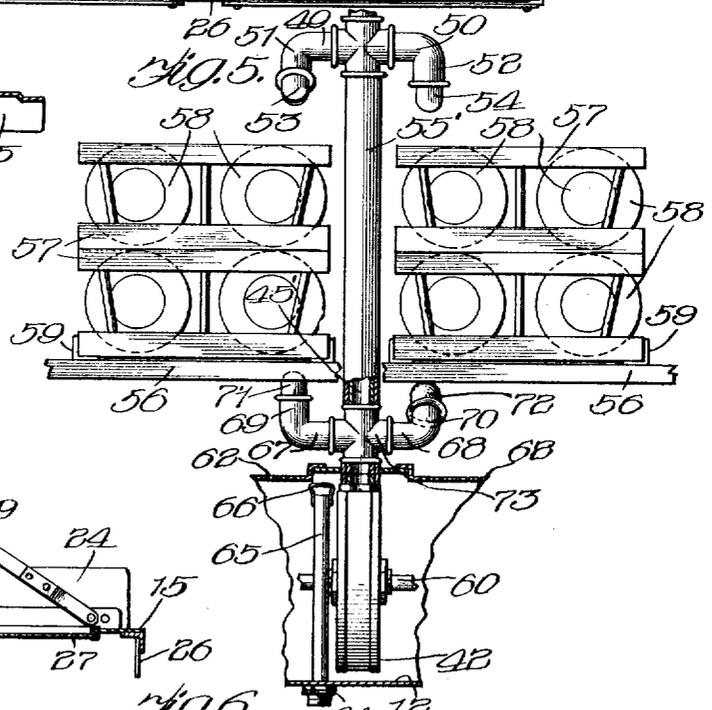
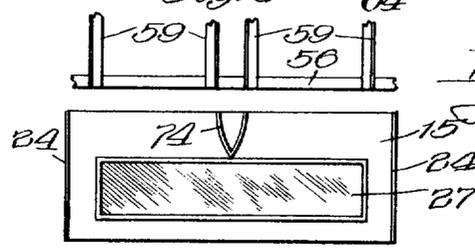


Fig. 6.



Witnesses:
Edw. Kemp
J. G. Cochran

Inventor:
Josephus G. Cochran
 By
Samuel H. P. P. P.
Att'y

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3 SHEETS—SHEET 3.

Fig. 7.

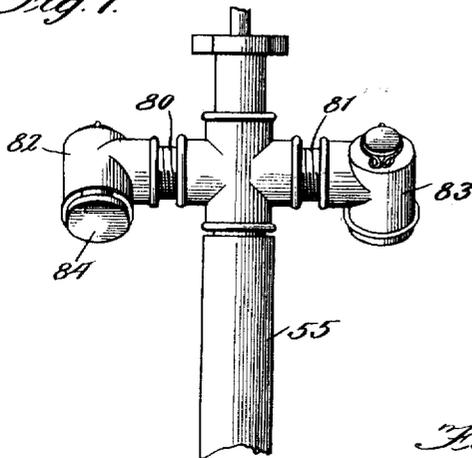


Fig. 8.

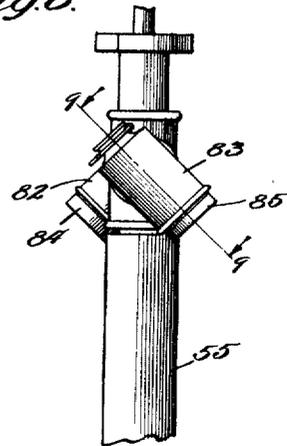


Fig. 10.

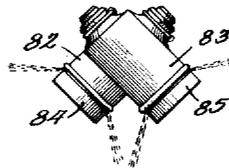
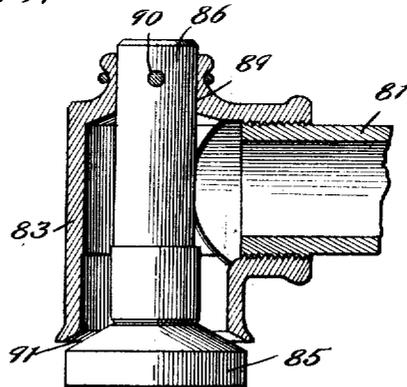


Fig. 9.



Witnesses:

W. D. Perry
W. Knight.

Inventor:
Josephine G. Cochrane
By B. W. H. P. M.

J. G. C.

UNITED STATES PATENT OFFICE.

JOSEPHINE G. COCHRANE, OF CHICAGO, ILLINOIS.

DISH-WASHING MACHINE.

1,009,223.

Specification of Letters Patent. Patented Nov. 21, 1911.

Application filed May 22, 1909. Serial No. 497,587.

To all whom it may concern:

Be it known that I, JOSEPHINE G. COCHRANE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Dish-Washing Machines, of which the following is a specification.

This invention relates to improvements in dish washing machines, and one of the objects of the same is to provide improved means for spraying or delivering the water into the machine both from above and below the dishes.

A further object is to provide an improved rotatable spraying or water delivering nozzle.

A further object is to provide improved means for protecting the dishes from being injured by the rotatable nozzle.

A further object is to provide improved means for delivering the water into the machine, which may be adjusted to permit the insertion or removal of some of the parts of the machine.

A further object is to provide an improved sectional closure for the machine and improved means whereby the operation of one of the sections will simultaneously operate the other section to open or close the same.

A further object is to provide an improved sectional closure, one of the sections of which is readily detachable from the machine, and improved means for directing the dish racks into the machine.

A further object is to provide an improved machine of this character which will be simple, durable and cheap in construction and effective and efficient in operation.

To the attainment of these ends and the accomplishment of other new and useful objects as will appear, the invention consists in the features of novelty in the construction, combination and arrangement of the several parts hereinafter more fully described and claimed, and shown in the accompanying drawings illustrating an embodiment of the invention, and in which—

Figure 1 is a vertical sectional view partly in elevation of an improved machine of this character, constructed in accordance with the principles of this invention. Fig. 2 is a sectional view on line 2—2 of Fig. 1. Fig. 3 is a sectional view on line 3—3 of Fig. 1. Fig. 4 is a detail sectional view of a portion of the casing and closure therefor, showing

the closures in an open position. Fig. 5 is a detail elevation partly in section showing a modified form of the spraying nozzle. Fig. 6 is a diagrammatic plan view of a portion of the mechanism and one of the sections of the closures showing the manner in which the dish racks may be directed or guided into the machine. Fig. 7 is a detail elevation of another modification of the spraying nozzle. Fig. 8 is a side elevation of the modification shown in Fig. 7. Fig. 9 is a section on the line 9—9 of Fig. 8. Fig. 10 is a diagrammatic view showing the spraying effect of the modified form of the nozzle shown in Figs. 7, 8 and 9.

Referring more particularly to the drawings, and in the present exemplification of the invention, the numeral 10 designates generally a casing which is supported by suitable uprights 11. This casing may be of any desired height and configuration, and the bottom thereof is provided with a depressed portion or well 12 located substantially at the center thereof, and the portion of the bottom above the well inclines downwardly from the sides of the case toward the well to cause the water which falls upon the bottom 13 to be directed into the well or depression. The front of the upper portion of the casing is cut away to form an opening through which the dishes may be inserted into and removed from the casing, and extending across the casing adjacent the front and below the offset or cut away portion is a supporting bar or member 14 which is spaced slightly from the front of the casing.

A closure comprising two sections 15, 16 is provided for the open portion. One of these sections 16 is hinged as at 17 to the top of the casing, and the other section 15 is provided with a substantially U shaped portion 18 secured to the lower edge thereof which opens toward the adjacent edge of the section and is adapted to stand astride of the bar or member 14 whereby the latter will form a hinge for the section 15, and the said section may be readily detached from the casing for the purpose of cleaning, or for any other desired purpose.

Secured to the sections 15, 16 respectively are links 19, 20 arranged at each side of the respective sections. These links are secured by one end to the sections, and their free ends are pivotally connected as at 21, whereby the movement of one of the sections of the closure about its point of pivotal

support will simultaneously operate the other section to open and close the same. If desired, suitable braces 22 may be provided, and which are secured to the link 20 and a portion of the section 16 beyond its pivot for bracing the same.

Arranged within the casing and spaced from the side walls thereof are members 23 (see Fig. 3) into which flanges 24, 25 on the edges of the respective closure sections are adapted to enter when the closures are in a closed position. One of these sections, preferably the section 15, is provided with a handle 26 by means of which the closures may be operated, and if desired, suitable transparent portions 27 in the form of windows may be provided in the section 15 through which the interior of the casing may be seen.

A supply pipe 28 is arranged within the casing, preferably in one corner thereof and adjacent the back, and this pipe 28 preferably extends through the top of the casing to form a projecting portion 29 to which any suitable supply pipe may be connected for supplying water to the pipe 28. A pipe 30 is also arranged within the casing adjacent the back thereof and preferably in proximity to the top of the casing. This pipe has connection with the pipe 28 through the medium of a connecting joint 31, and the other extremity of the pipe 30 is supported in a suitable bearing 32 on the opposite side of the casing. Extending from and having communication with the pipe 30 are a plurality of forwardly projecting branches 33, which latter extend toward and terminate short of the front of the casing, and are provided with downwardly projecting nozzles 34 for discharging the water which enters the pipe 30 and branches 33 on to the dishes from above. A pipe 35 similar to pipe 30 also has communication with the pipe 28, preferably below the dish rack support, and extending forwardly from and communicating with the pipe 35 are branches 36 similar to the branches 34, and which are provided with upwardly projecting nozzles 37 adapted to spray the dishes from below.

The connecting joint 38 of the pipe 35 with the pipe 28 may be of any desired or suitable construction which will permit the pipe 35 to be axially rotated to raise the branches 36 from the position shown in full lines in Fig. 2, and the position shown in dotted lines in said figure, for a purpose to be set forth.

A suitable controlling valve designated generally by the reference numeral 39 is provided in the pipe 28 at any suitable or convenient point, preferably adjacent the top thereof, and this valve is provided with an operating stem 40 which extends through the side of the casing, and a handle 41 is secured to the projecting extremity of the

stem by means of which the valve 39 may be readily controlled.

Arranged within the well or depressed portion 12 of the casing is a pump 42, the casing of which is provided with a plurality of apertures 43 through which the water in the well enters the pump. Projecting upwardly from the casing of the pump is an outlet pipe 44, and resting upon the extremity of this outlet pipe is a tubular member 45, the free extremity of which is journaled in a suitable bearing 46 through the medium of an axle 47 which is secured in any suitable manner to the closed free extremity 48 of the tubular member. This bearing 46 is preferably supported by the top of the casing. Projecting from and having communication with the tubular member 45 and preferably below the pipe 30 are arms 49, 50 having downwardly deflected portions 51, 52, and to the extremities of which portions are secured nozzles 53, 54.

The extremity of one of the arms, preferably the extremity 52 of the arm 50, is arranged parallel with the upright tubular member 45, as shown more clearly in dotted lines in Fig. 2 of the drawings, while the extremity 51 of the arm 49 is arranged in a plane inclined to the vertical, and to the upright tubular member 45, so that when the water is forced from the pump 42 through the tubular outlet 44 and into the tubular member 45, the water passing out of the nozzle 54 will be discharged directly downward, or in a substantially vertical plane, while the water being discharged from the nozzle 53 will be directed in an inclined plane, which will tend to rotate the tubular member 45, together with the arms 49, 50. These arms 49, 50, and the deflected extremities 51, 52, may be of any desired length, but are preferably of a length to stand within the space between the branches 33 of the pipe 30, and are located in close proximity to the pipe 30.

Surrounding the tubular member 45 with a turning fit and preferably supported by a close fitting contact with a portion of the tubular outlet pipe 44, is a sleeve 55 for a purpose to be set forth.

Arranged within the casing and above the branches 36 of the pipe 35, is a suitable plate rack support 56, upon which the racks 57 containing the dishes 58 are adapted to rest, and, if desired, these supports 56 may be provided with suitable guides or tracks 59.

When the racks are in the position shown in Fig. 1, and when the pump 42 is operated through the medium of the driving shaft 60, which latter may be driven in any desired or suitable manner, and which extends through suitable bearings 61, the water will be drawn into the casing 42 of the pump

through the apertures 43, and will be forced through the discharge pipe 44 into the tubular member 45 and sprayed upon the dishes in the manner already set forth, during which spraying, the nozzles 53, 54 will be rotated. It will thus be apparent that the tubular member 45 may be freely rotated within the sleeve 55. The sleeve 55 being held stationary by reason of its tight connection with the outlet pipe 44, permits the dishes 58 to be disposed in close proximity to the tubular member 45 without being ground or chipped by said tubular member 45. The sleeve 55 thus performs the function of a shield for the dishes.

When the valve 39 is open to permit the water to enter the pipe 28, it will pass from the pipe 28 into the pipes 30, 35, and from these pipes into the respective branches 33, 36 to be delivered to the dishes both from above and below, and by the rotating nozzles 53, 54, the water will also be thrown upon all of the dishes, thereby thoroughly washing the same.

Arranged below the pipe 35 and the branches 36 are strainers 62, which are removably supported by means of suitable supports 63. These strainers are preferably constructed in sections, as shown more clearly in Fig. 3 of the drawings, and are adapted to catch all of the crumbs and particles which are washed from the dishes, and which were not removed from the dishes before being placed into the machine.

The water discharged through the various nozzles will enter the well or depressed portion 12 in the bottom of the casing and accumulate therein.

A suitable outlet 64 is provided in the bottom of the well 12, and a removable outlet pipe 65 has communication with the outlet 64 and projects into the casing. This outlet pipe 65 may be of any desired height, according to the height to which it is desired to accumulate the water in the base of the machine, but is preferably of a height slightly higher than the top of the casing 42 of the pump, so that the water may be allowed to accumulate in the base of the machine during which accumulation the grease will rise to the top of the water and will pass over the top of the pipe 65 and out of the discharge pipe, thereby separating the grease from the water and preventing the grease from being forced through the pump to be sprayed upon the dishes. When it is desired to discharge all of the water from the casing, the outlet pipe 65 may be readily removed by means of the handle 66.

After the dishes have been washed and the racks 57 removed from the machine, the branches 36 of the pipe 35 may be raised to the position shown in dotted lines in Fig. 2, which movement will axially rotate the pipe 35 to permit such movement of the

branches 36. When the branches 36 have been thus raised, the strainers 62 may be readily removed from the casing, and may be as readily re-inserted. When the strainers have been replaced, the branches 36 of the pipe 35 may be again lowered into operative position.

In the exemplification of the invention shown in Fig. 5 of the drawings, the tubular member 45' is provided with branches 67, 68 similar to the branches 49, 50, and which are preferably located below the plate rack support, and above the screens 62. The extremities of these branches 67, 68 are deflected upwardly, as at 69, 70, and nozzles 71, 72, similar to the nozzles 54, 53, are provided for the deflected portions. The deflected portion 69 of the branch 67 is preferably arranged in an upright plane parallel to the axis of the tubular member 45', and similar to the extremity 52 of the branch 50, while the portion 70 of the branch 68 is arranged in a plane inclined to the portion 69 in a manner similar to the portion 51 of the branch 49, and the inclined portions of the respective nozzles are arranged with respect to each other so that one of the nozzles which is arranged in a vertical plane will be opposed to the deflected portion of the opposite nozzle, whereby the pressure of the water as it is discharged from the nozzles will be uniformly exerted upon the tubular member 45' to cause the same to be steadily rotated.

If desired, the nozzle designated generally by the reference numeral 73 in Fig. 5 of the drawings may be employed with the branches 36 of the pipe 35, or the branches 36 may be omitted and the nozzle alone employed.

When the section 16 of the casing closure is opened to the position shown in Fig. 4, it will rest upon the edge of the casing and be supported thereby to form a ledge or support for the racks as they are drawn from the machine, or are being inserted within the machine, and if desired, a suitable guide 74 may be provided upon the section 15, which serves as a means for directing the racks within the tracks or guides 59 which are secured to the support 56. If desired, and as shown in Fig. 5 of the drawings, one or more racks 57 may be superposed before being placed in the machine, and by providing the nozzles which spray the dishes from above and below, it will be apparent that the dishes in each of the superposed racks will be thoroughly washed.

When it is desired to clean the machine, the section 15 of the closure may be readily detached from the supporting rod 14 and may be allowed to hang down against the front of the casing, it being supported by the links 19, 20, and by the removal of this section, it will be apparent that the operator

may stand in close proximity to the casing, thereby affording better access thereto for cleaning.

Referring to the embodiment of the spraying nozzle shown in Figs. 7, 8, 9 and 10, the elbows 49, 50 employed in the previously described embodiments, are removed and in place thereof, are inserted the couplings 80 and 81 to the outer ends of which are secured the angular sprayer sockets 82 and 83, each of which is provided above with a circular opening 89 (see Fig. 9). Suspended centrally within the socket 83 is a plug conically enlarged at the bottom 85. Said plug is reduced in size at its upper end 86, and mounted with a sliding fit in the opening 89 of the socket casing 83. The cotter 90 serves to hold the plug in position. Socket 83 at the bottom and the lower end 85 of the plug, are so shaped and positioned as to provide a narrow conical passage for the water by means of which the nozzles 82 and 83 give off a double conical spray as shown in Fig. 10. By means of this arrangement the water is projected in every direction and reaches every desired point in the machine.

In order that the invention might be fully understood, the details of the foregoing embodiment thereof have been thus specifically described, but

What I claim as new is:

1. In a dish washing machine, the combination of a casing provided with a support for the articles to be washed, an upright

rotatable pipe, a discharge nozzle at each end of said pipe, said nozzles being supported by and having communication with the pipe respectively above and below said article support, and means for forcing the water into the pipe and the nozzles.

2. In a dish washing machine, the combination of a casing for the dishes to be washed, a supply pipe, discharge nozzles in communication with said pipe, said nozzles being spaced from each other longitudinally of the pipe, means for holding the articles to be washed between said nozzles, and means for forcing water through the nozzles, said pipe and nozzles being rotated by the water discharged from said nozzles.

3. In a dish washing machine, the combination of a casing for the dishes, a pipe, a plurality of pairs of rotatable nozzles connected with said pipe, said pairs of nozzles being spaced from each other longitudinally of the pipe, and means for forcing water through the nozzles, one nozzle of each pair being arranged to discharge parallel with the upright pipe and the other nozzle of each pair being arranged to discharge at an inclination to the vertical.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 20th day of October, A. D. 1908.

JOSEPHINE G. COCHRANE.

Witnesses:

C. H. SEEM,

J. H. JOCHUM, Jr.