Aug. 31, 1926.

1,598,352

J. J. KEHOE, JR., ET AL

WATER DISCHARGING DEVICE

Filed July 5, 1923

2 Sheets-Sheet 1

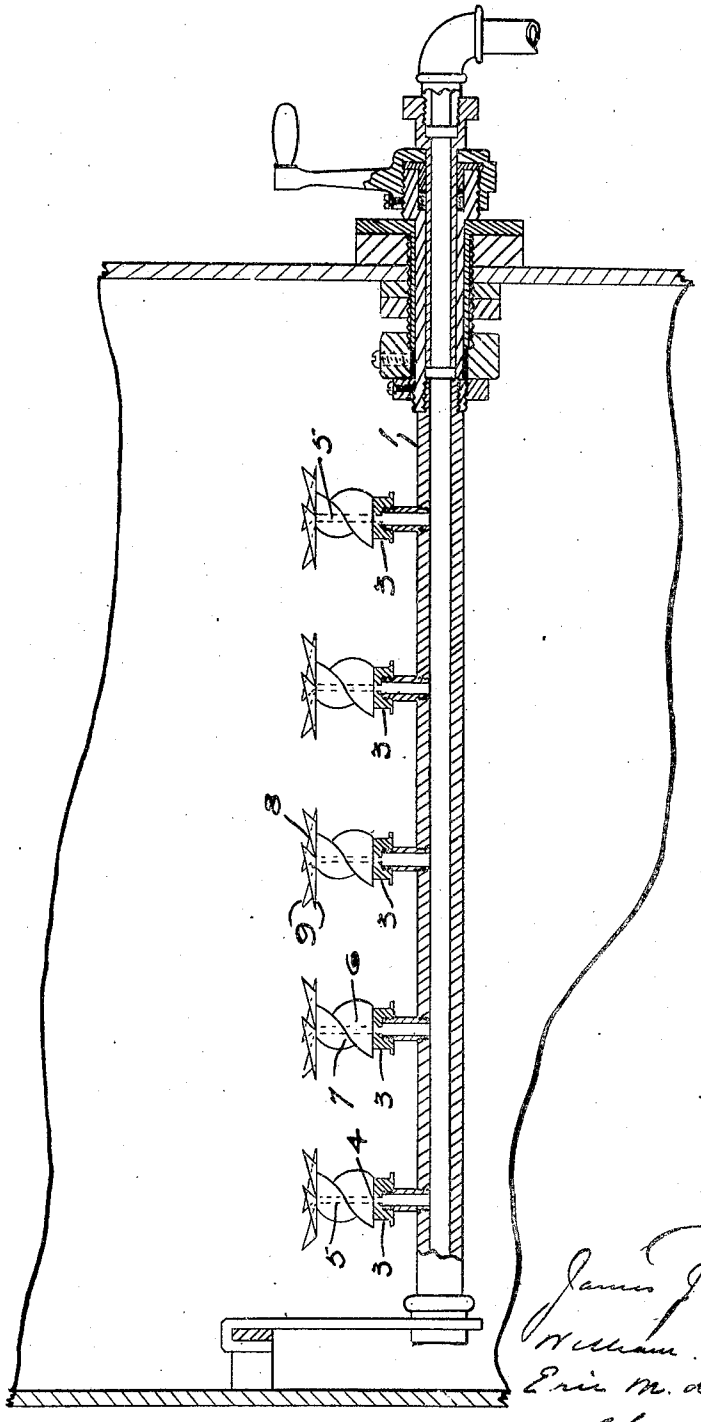


Fig. 1.

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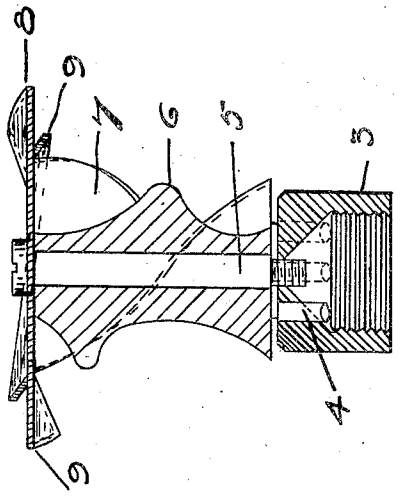


Fig. 4.

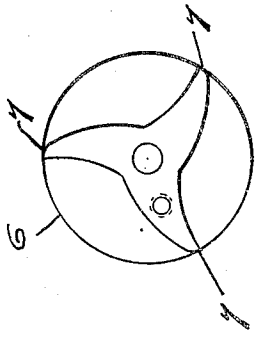


Fig. 3.

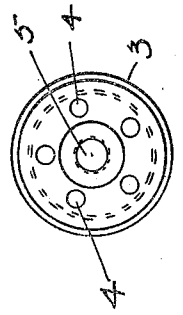


Fig. 5.

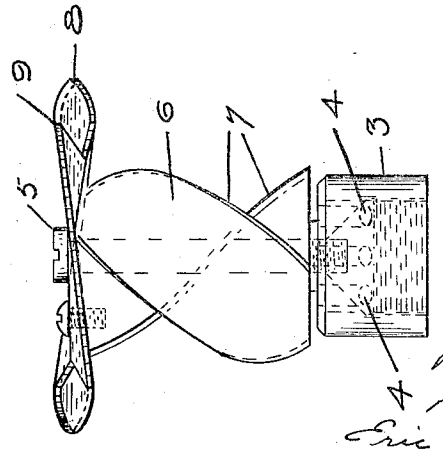


Fig. 2.

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UNITED STATES PATENT OFFICE.

JAMES JOSEPH KEHOE, JR., WILLIAM CHARLES TREW MORSON, AND ERIC MICHAEL DE SHERBININ, OF TORONTO, ONTARIO, CANADA, ASSIGNORS, BY MESNE ASSIGNMENTS, TO PARAGON DISHWASHER SYNDICATE INCORPORATED, A CORPORATION OF NEW YORK.

WATER-DISCHARGING DEVICE.

Application filed July 5, 1923. Serial No. 649,542.

Our invention relates to a rotatable nozzle for washing and cleansing apparatus in which the water streams are spread over relatively large areas or surfaces. In this class of apparatus the water streams are discharged under pressure from one or more conduits within the cabinet and these streams, if delivered in a direct axial line would impinge only on a limited area of the surface and the removal of the adherent matter would depend to a large extent on the possibility or chance of some of the water spreading into the vicinity of that part of the surface to which the adherent matter happened to be attached.

In the case of our present invention we propose to provide the discharge outlets of the pipes with rotary devices, that will change the direction and shape of the water streams and impart to them a rotary motion in a direction angularly to that of their discharge from the conduits, and scatter this water with direct force against the surfaces to be cleansed.

In the preferred construction we use one or more revolubly adjustable discharge pipes each fitted with a plurality of discharge nozzles for simultaneously delivering a corresponding number of water streams under pressure. Each of these discharge nozzles is formed with a plurality of relatively small discharge apertures and is provided with an axial pin on which is revolubly mounted a spirally formed spinner or turbine having a disk shaped member at its outer end consisting of a plurality of segments each set at an angle to the plane of rotation. The water discharged through the nozzle apertures, impinging on the spinner or turbine, sets it in motion and coming into contact with the disk shaped member is spread or scattered in a sheet like form angularly to the direction of the discharge through the perforations. The discharge pressure of the water streams through the nozzle outlets causes the spinner or turbine and the disk shaped member to revolve at a comparatively high rate of speed and impel the water with a considerable force against the objects in its path.

In dish washing machines the utensils to be cleansed are placed in racks, baskets, or trays, with one or more discharge pipes above and below each rack, etcetera, and these pipes are set for the direct discharge of the water against their contents, and as the pipes revolve, sweep or spread the water over the entire surfaces of the dishes at different angles of impingement.

In the drawings:—

Fig. 1 is a sectional elevation of a discharge pipe fitted with nozzles constructed according to the present invention,

Fig. 2 is an enlarged elevational view of one of the nozzles, turbine and disk,

Fig. 3 is an end view of the turbine detached from the nozzle, and

Fig. 4 is a vertical section through the construction shown in Fig. 2.

Fig. 5 is a plan view of the nozzle.

Like characters of reference refer to like parts throughout the specification and drawings.

The discharge pipe 1 is fitted with a plurality of nozzles for the outlet of the water streams under pressure. Each of these nozzles comprises a cap 3 having a plurality of diminutive orifices or outlets 4 formed concentrically about its axis. Extending axially from the cap 3 is a pin 5 and rotatable on the pin 5 is a spinner or turbine 6 having spirally formed vanes 7 against which the water streams from the outlets 4 impinge.

Overlying the outer end of the spinner or turbine 6 is a disk like member 8 composed of a plurality of segments 9 each set at an angle to the plane of rotation. The segments are formed by a plurality of cuts extending radially inward from the periphery and the segments of the disc are curved outwardly from the turbine on one side and inwardly towards the turbine on the other side, the adjacent segments being so arranged as to allow the water from the turbine being discharged between them for scattering the water in a circular direction and imparting to it depth gradually increasing from the center of rotation to the place of impact. The disk-like member 8 throws the water in a sheet-like form and this water sheet has, in addition to its circular plane, a depth or thickness that increases gradually from the

center of rotation to the place of impact. This depth has the effect of subjecting the entire face of the dish to the force of the discharge and results in the adhering substances being forcibly removed. The greater the angle of the segments to the plane of rotation the greater will be the depth of the water sheet scattered by the disk.

The water flowing through the outlets 4 impinging on the vanes 7 revolves the spinners or turbines 6 at a speed corresponding to the discharge pressure and coming into contact with the disk 8 is converted from a stream into a sheet like form. The revolution of the inclined segments scatters the water at an angle to the discharge through the outlets and spreads it over a considerable circular area with a force corresponding to that of its discharge, and the revoluble adjustment of the water pipe or conduit changes the angle of the direct force of the water as the pipe or conduit revolves.

Having thus fully described our invention, what we claim as new and desire to secure by Letters Patent is:—

A water discharging device comprising a nozzle having a plurality of small apertures formed concentrically about its axis, a turbine mounted on the nozzle axially above and adapted to be rotated by the impulse of water from said apertures, said turbine having a disc-shaped member at its outer end provided with a plurality of cuts extending radially inward from the periphery forming segments, the segments of the disc being curved outwardly from the turbine on one side and inwardly toward the turbine on the other side, the adjacent segments being so arranged as to allow the water from the turbine to be discharged between them for scattering the water in a circular direction and imparting to it depth gradually increasing from the center of rotation to the place of impact.

Dated at the said city of Toronto, this 30th day of May, A. D., 1923.

JAMES JOSEPH KEHOE, Jr.
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