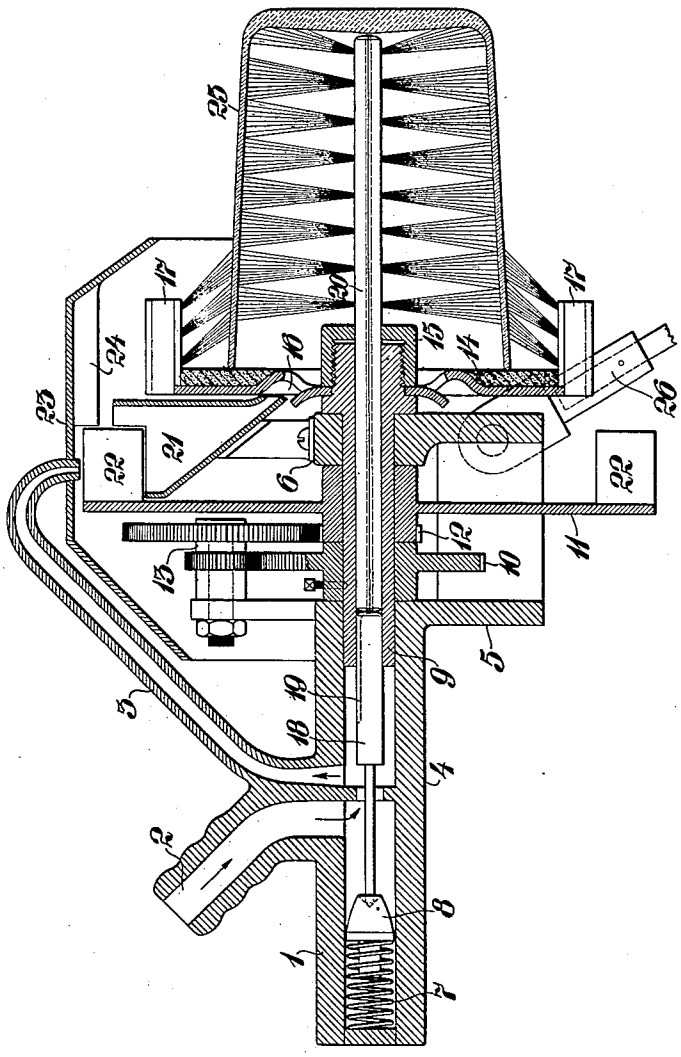
March 19, 1929. K. SCHMIDT 1,706,189

AUTOMATIC GLASS WASHING DEVICE

Filed Nov. 25, 1927



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Patented Mar. 19, 1929. 1,706,189

UNITED STATES PATENT OFFICE.

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AUTOMATIC GLASS-WASHING DEVICE.

Application filed November 25, 1927, Serial No. 235,712, and in Germany November 29, 1926.

Automatic glass washing devices are known in which the pressing of a drinking glass into position turns on a supply of washing water the pressure whereof drives rotary interior and outside brushes through the medium of a turbine wheel.

The present invention provides an improved device of this general character the preferred form of which differs from the known devices principally in that the rotation of a turbine wheel is transmitted to a horizontally mounted brush shaft through a countershaft, and in that the washing water is forced into and over the vessel to be cleansed, by the blades of the wheel and through a funnel and baffle plate. The device is primarily intended for use in licensed retail premises to facilitate and accelerate the cleaning of glasses and to save water.

A constructional form of the device is illustrated, by way of example, on the accompanying drawing the single figure of which represents a longitudinal section through the device.

The device includes a feed pipe 2 and an injection pipe 3 arranged at the top of a valve casing 1 the lower part whereof is made rectangular so that the surface 4 may rest on the edge of a water tank or sink while the surface 5 bears against the inside wall of same. The rear end of the valve casing houses a spiral spring 7 and a conical valve 8, and a hollow shaft 9 is rotatably mounted in its forward portion. On this shaft is a large pinion 10 and a water wheel 11, the former being fixed to the shaft but the latter being arranged to run idly thereon and being integrally connected with a smaller pinion 12. A countershaft 13 is disposed above both pinions 10, 12 and has idler pinions in mesh therewith as shown.

On the front portion of the hollow shaft 9 is a collar against which a disk 14 is screwed by a cap nut 15. The disc 14 is cut through (except for a pair of spokes) so as to leave a substantially annular opening close round the collar and provide a passage 16 open towards the turbine wheel. Said disc is also covered on the front side with felt and carries, on its rim, one or more pairs of outside brushes 17 whose bristles project obliquely forward.

A pressure member 18, having a reduced portion facing the valve 8 and provided with a groove 19, is displaceably mounted inside the hollow shaft 9, as is also a stem 20 carrying interior brushes.

Between the turbine wheel 11 (the blades 22 of which are open above, below and in the forward direction) and the disc 14 a funnel 21 is so arranged that the exhaust pressure water is compelled to flow into the passage 16 whence it is guided into the interior of the glass 25 to be cleaned. Moreover, above the moving parts is disposed a hood 23, inside the top of which is mounted a baffle plate 24 for the purpose of directing some of the exhaust pressure water from the turbine wheel over the outer surface of the glass 25. The stem 20 supporting the interior brushes is non-circular and the nut 15 is provided with a corresponding hole so that relative longitudinal movement (but not relative rotation) is possible between the stem and the shaft 9. The stem is bored right through to the end in order that the bottom of the drinking glass can also be swilled with water.

When the device is to be used, the feed pipe 2 is connected with a water pipe by means of a rubber tube. The drinking glass 25 is then slipped over the interior brushes and pressed until its rim bears against the felt covered disc 14 whereupon the stem 20 and interior brushes recede and push back the pressure member 18, thereby opening the valve 8. Water now flows through the pipe 3, impinging against the blades 22 of the turbine wheel 11 and setting the latter in rotation, rotary motion being thus imparted to the shaft 9, the stem 20 and the interior and exterior brushes through the pinion 12, the pinions on the countershaft 13 and the shaft pinion 10. Some of said water is delivered from the turbine through the funnel 21 and passage 16 to the interior of the glass where it is brushed against the interior surface by the rotating interior brushes; and some of said water is deflected by the baffle 24 to the exterior surface of the glass against which it is brushed by the rotating exterior brushes. At the same time water passes from the main by way of the slot 19 and the bore of the stem 20 to the interior bottom of the glass. Consequently, the glass is quickly and efficiently cleaned.

When the glass 25 is withdrawn the valve 8 closes automatically to cut off the water supply and stop the operation of the device.

The pinion countershaft 13 reduces the speed to the desired value and intensifies the

effect since, in the absence of said countershaft, the pressure from the water pipe would not be sufficient.

It will be seen that the pressure member 18 is slotted in such a manner that it is only after the valve 8 has been opened and the turbine is already running that the slot 19 is freed and a small portion of the pressure water is injected through the hollow stem 20 into the interior of the drinking glass at the bottom thereof.

A sufficient clearance is provided, in rear of the valve, to enable even very short glasses to be pressed into position until the rim makes contact with the felt covered disc. The long springing of the valve and the long reach of the interior brushes serve the additional purpose that the valve is already open and the turbine running before the actual work (especially of the outside brushes) begins.

Another important point is that the device does not require any fastening, but can be simply placed on the rim of the water sink with which nearly every bar is fitted, and supported by two adjustable stays 26 which bear against the sides of the sink or rest on the bottom.

Although one preferred form of my glass washing device has been described it will be apparent that modifications may be made and I therefore intend no limitations in the scope of my invention other than those imposed by the appended claims.

Having now fully described my invention, what I claim and desire to secure by Letters Patent is:—

1. In a glass washing device, the combination with a water supply casing, a rotatably mounted turbine wheel, a brush and means whereby the pressing of the glass to be cleaned into position over the brush opens the water supply casing, of countershaft gearing operatively connecting the turbine wheel and brush, and means for guiding and injecting the water issuing from the turbine wheel into and over the glass.

2. In a glass washing device, the combination with a water supply casing, a rotatably mounted turbine wheel, a brush having a stem and means whereby the pressing of the glass to be cleaned into position over the brush opens the water supply casing, of countershaft gearing operatively connecting the turbine wheel and brush, means for guiding and injecting the water issuing from the turbine wheel into and over the glass, and means for supplying a separate jet of water to the tip of the brush stem.

3. In a glass washing device, the combination with a water supply casing, a rotatably mounted turbine wheel, a brush having a stem and means whereby the pressing of the glass to be cleaned into position over the brush opens the water supply casing, of countershaft gearing operatively connecting the turbine wheel and brush, means for guiding and injecting the water issuing from the turbine wheel into and over the glass, means for supplying a separate jet of water to the tip of the brush stem, and means controlling the water supply through the casing so as to ensure the formation of said separate jet only after the turbine wheel has commenced running.

4. In a glass washing device, the combination with a water supply casing, a rotatably mounted turbine wheel, and a brush, of countershaft gearing operatively connecting the brush with the turbine wheel, an apertured disc between the turbine wheel and the brush, a funnel for guiding some of the water issuing from the turbine wheel through the apertures in the disc to the brush, a baffle for deflecting some of the water issuing from the turbine wheel inwardly over the periphery of the disc, and means whereby the pressing of a glass against the disc opens the water supply through the casing to the turbine wheel.

5. In a glass washing device, the combination with a water supply casing, a rotatably mounted turbine wheel, and a brush having a stem, of countershaft gearing operatively connecting the brush with the turbine wheel, an apertured disc between the turbine wheel and the brush, a funnel for guiding some of the water issuing from the turbine wheel through the apertures in the disc to the brush, a baffle for deflecting some of the water issuing from the turbine wheel inwardly over the periphery of the disc, means for supplying a separate jet of water to the tip of the brush stem, and means whereby the pressing of a glass against the disc opens the water supply through the casing to the turbine wheel and to the brush stem.

6. In a glass washing device, the combination with a water supply casing, a rotatably mounted turbine wheel, and a brush having a stem, of countershaft gearing operatively connecting the brush with the turbine wheel, an apertured disc between the turbine wheel and the brush, a funnel for guiding some of the water issuing from the turbine wheel through the apertures in the disc to the brush, a baffle for deflecting some of the water issuing from the turbine inwardly over the periphery of the disc, means for supplying a separate jet of water to the tip of the brush stem, and means whereby the pressing of a glass against the disc opens the water supply through the casing so as to ensure the formation of said separate jet only after the turbine wheel has commenced running.

7. A glass washing device comprising a water supply casing having an inlet branch and an injection branch, a turbine wheel rotatably mounted at the forward end of the casing, an interior brush having its stem slidable along the axis of the turbine wheel,

countershaft gearing connecting the brush stem for rotation from the turbine wheel under the action of water admitted to said injection branch of the casing, a spring controlled valve for said inlet branch of the casing operatively connected with the brush stem so that the pressure of a glass against the latter opens the valve, an outer brush rotatable from the turbine, and means for deflecting the water issuing from the turbine blades some to the interior brush and some to the outer brush.

8. A glass washing device comprising a water supply casing having an inlet branch and an injection branch, a turbine wheel rotatably mounted at the forward end of the casing, an interior brush having a bored stem slidable along the axis of the turbine wheel, countershaft gearing connecting the brush stem for rotation from the turbine wheel under the action of water admitted to said injection branch of the casing, a spring controlled valve for said inlet branch of the casing operatively connected with the brush stem so that the pressure of a glass against the latter opens the valve, an outer brush rotatable from the turbine wheel, means for deflecting the water issuing from the turbine blades some to the interior brush and some to the outer brush, and means operably arranged between the control valve and the interior brush stem whereby water is allowed to pass through the bore of the interior brush stem after the turbine wheel has commenced running.

9. A glass washing device comprising a water supply casing having an inlet branch and an injection branch, a turbine wheel rotatably mounted at the forward end of the casing, an interior brush having its stem slidable along the axis of the turbine wheel, countershaft gearing connecting the brush stem for rotation from the turbine wheel under the action of water admitted to said injection branch of the casing, an apertured disc between the turbine wheel and the interior brush, an outer brush carried by the disc, a spring controlled valve for said inlet branch of the casing operatively connected with the interior brush stem so that the pressing of a glass over the latter and against said disc opens the valve, a funnel for guiding some of the water issuing from the turbine wheel through the apertures in the disc to the interior brush, and baffle means for deflecting some of the water issuing from the turbine wheel to the outer brush.

10. A glass washing device comprising a water supply casing having an inlet branch and an injection branch, a turbine wheel rotatably mounted at the forward end of the casing, an interior brush having a hollow stem slidable along the axis of the turbine wheel, countershaft gearing connecting the brush stem for rotation from the turbine wheel under the action of water admitted to said injection branch of the casing, an apertured disc between the turbine wheel and the interior brush, an outer brush carried by the disc, a spring controlled valve for said inlet branch of the casing operatively connected with the interior brush stem so that the pressing of a glass over the latter and against said disc opens the valve, a funnel for guiding some of the water issuing from the turbine wheel through the apertures in the disc to the interior brush, baffle means for deflecting some of the water issuing from the turbine wheel to the outer brush, and means operably arranged between the control valve and the interior brush stem whereby water is allowed to pass through the bore of the interior brush stem after the turbine wheel has commenced running.

11. A glass washing device comprising a water supply casing having its under part rectangular to rest on and against the edge of a sink or water tank, struts pivoted to the forward end of the casing to support it horizontally in that position, an inlet branch and an injection branch on the upper part of the casing, a turbine wheel rotatably mounted at the forward end of the casing, an interior brush having its stem slidable along the axis of the turbine wheel, countershaft gearing connecting the brush stem for rotation from the turbine wheel under the action of water admitted to said injection branch of the casing, a spring controlled valve for said inlet branch of the casing operatively connected with the brush stem so that the pressure of a glass against the latter opens the valve, an outer brush rotatable from the turbine wheel, and means for deflecting the water issuing from the turbine blades some to the interior brush and some to the outer brush.

12. A glass washing device comprising a water supply casing having its under part rectangular to rest on and against the edge of a sink or water tank, struts pivoted to the forward end of the casing to support it horizontally in that position, an inlet branch and an injection branch on the upper part of the casing, a turbine wheel rotatably mounted at the forward end of the casing, an interior brush having a bored stem slidable along the axis of the turbine wheel, countershaft gearing connecting the brush stem for rotation from the turbine wheel under the action of water admitted to said injection branch of the casing, a spring controlled valve for said inlet branch of the casing operatively connected with the brush stem so that the pressure of a glass against the latter opens the valve, an outer brush rotatable from the turbine wheel, means for deflecting the water issuing from the turbine blades some to the interior brush and some to the outer brush, and means operably arranged between the control valve and the in-

terior brush stem whereby water is allowed to pass through the bore of the interior brush stem after the turbine wheel has commenced running.

13. A glass washing device comprising a water supply casing having its under part rectangular to rest on and against the edge of a sink or water tank, struts pivoted to the forward end of the casing to support it horizontally in that position, an inlet branch and an injection branch on the upper part of the casing, a turbine wheel rotatably mounted at the forward end of the casing, an interior brush having its stem slidable along the axis of the turbine wheel, counter shaft gearing connecting the brush stem for rotation from the turbine wheel under the action of water admitted to said injection branch of the casing, an apertured disc between the turbine wheel and the interior brush, an outer brush carried by the disc, a spring controlled valve for said inlet branch of the casing operatively connected with the interior brush stem so that the pressing of a glass over the latter and against said disc opens the valve, a funnel for guiding some of the water issuing from the turbine wheel through the apertures in the disc to the interior brush, and a baffle for deflecting some of the water issuing from the turbine wheel to the outer brush.

14. A glass washing device comprising a water supply casing having its under part rectangular to rest on and against the edge of a sink or water tank, struts pivoted to the forward end of the casing to support it horizontally in that position, an inlet branch and an injection branch on the upper part of the casing, a turbine wheel rotatably mounted at the forward end of the casing, an interior brush having a hollow stem slidable along the axis of the turbine wheel, countershaft gearing connecting the brush stem for rotation from the turbine wheel under the action of water admitted to said injection branch of the casing, an apertured disc between the turbine wheel and the interior brush, an outer brush carried by the disc, a spring controlled valve for said inlet branch of the casing operatively connected with the interior brush stem so that the pressing of a glass over the latter and against said disc opens the valve, a funnel for guiding some of the water issuing from the turbine wheel through the apertures in the disc to the interior brush, a baffle for deflecting some of the water issuing from the turbine wheel to the outer brush, and means operably arranged between the control valve and the interior brush stem whereby water is allowed to pass through the bore of the interior brush stem after the turbine wheel has commenced running.

In testimony whereof I affix my signature.

KARL SCHMIDT.