J. K. MacRAE.

BRUSH.

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1,372,308.

Patented Mar. 22, 1921.

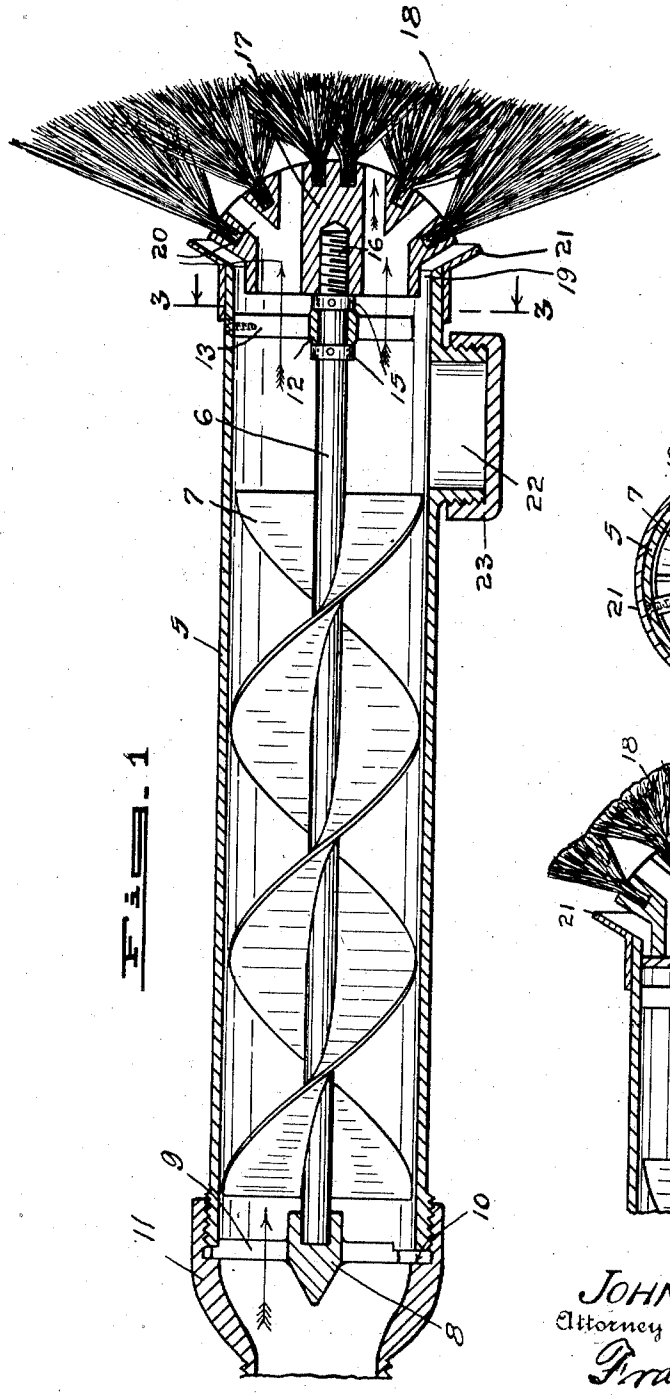


Fig. 1.

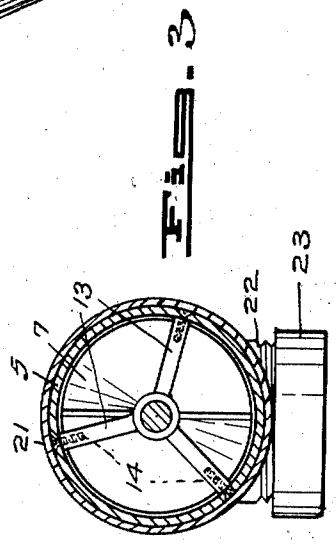


Fig. 3.

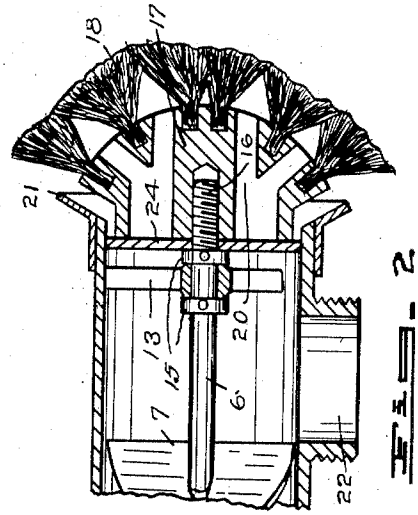


Fig. 2.

Inventor

JOHN K. MAC RAE

Attorney

Frank Warren

UNITED STATES PATENT OFFICE.

JOHN K. MACRAE, OF SEATTLE, WASHINGTON.

BRUSH.

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To all whom it may concern:

Be it known that I, JOHN K. MACRAE, a citizen of the United States, residing in Seattle, in the county of King and State of Washington, have invented a certain new and useful Improvement in Brushes, of which the following is a specification.

My invention relates to improvements in hydraulically operated rotary brushes and the object of my invention is to provide a brush which embodies a water motor that is adapted to be driven by water from a water service pipe said water motor having a brush connected therewith for rotation, the discharged water from said water motor being adapted to pass outwardly through said brush to wash articles upon which the brush is being used.

A further object of my invention is to provide a brush of this class, embodying a water motor in the form of a worm blade disposed within a cylindrical tube and having a brush connected with one end of said worm in such manner that water under pressure may flow through said tube thereby rotating said worm and said brush and then may be discharged through said brush.

A still further object of my invention is to provide means for preventing the discharge of water through said brush and directing said water outwardly through an auxiliary water outlet near the discharge end of the casing.

I accomplish these objects by devices illustrated in the accompanying drawings, wherein—

Figure 1 is a view in longitudinal midsection of a brush constructed in accordance with my invention;

Fig. 2 is a fragmentary sectional view of my invention illustrating one means for preventing the water from flowing outwardly through the brush; and

Fig. 3 is a view in cross-section on section line 3, 3 of Fig. 1.

Referring to the drawings, throughout which like reference numerals indicate like parts, the numeral 5 designates a tubular casing within which is disposed an axially arranged shaft 6 having a worm blade or screw 7 secured thereon.

The shaft 6 is journaled adjacent the inlet end of the casing 5 in a journal boxing 8 supported by a spider 9 that is adapted to be securely clamped between the end of the casing 5 and a shoulder 10 on a fitting 11 that screws on to the end of the casing 5 and such shaft 6 is journaled adjacent the discharge end of the casing 5 within a bearing 12 supported by an integral spider 13, as shown in Fig. 3, that is secured to the walls of the casing 5 by screws 14.

The shaft 6 is preferably provided on each side of the bearing 12 with collars 15 which prevent it from moving endwise within the tube 5.

The outer end of the shaft 6 is threaded as at 16 and is adapted to have the base or body portion 17 of a brush screwed thereon so that when the shaft 6 is rotated the brush will be rotated therewith.

The body portion 17 of the brush is provided in a well known manner with a plurality of tufts of bristles 18 that form the brush proper and such body portion is further provided at frequent intervals between the tufts of bristles 18 with perforations 20 through which water from the casing 5 may be discharged.

The perforations 20 are preferably large and located at frequent intervals to give a great discharge area, thereby avoiding any back pressure in the casing 5.

The periphery of the body portion 17 may be made smaller than the internal diameter of the casing 5 to allow an annular passageway 19 for water therebetween and the end of the tube 5 may be provided with a water guard 21 to direct the discharged water that passes outwardly around the periphery of the body portion 17 toward the brush.

The coupling member 11 at the inlet end of the casing 5 is adapted to be connected with an ordinary hose connection, not shown, which may in turn be connected with water service pipes, not shown, through which water under pressure may flow.

The casing 5 is provided near the discharge end with an auxiliary water outlet 22 that is normally adapted to be closed by a cap 23. When it is desired to prevent the discharge of water through the brush body 17 the cap 23 is removed, the brush body 17 is unscrewed from the end of the shaft 6, a metal disk 24 making a close fit within the interior of the casing 5 is placed on the end of the shaft 6 against the outer collar 15 and the brush body 17 is then replaced on the end of the shaft 6.

When thus arranged the water will be discharged through the outlet 22 and the metal disk 24 will prevent any water from pass-

ing outwardly through the brush thus making it possible to use the rotary brush for cleaning without the use of water.

If desired a hose may be connected with the outlet 22 to convey the discharged water.

My brush is especially well adapted for washing automobiles and vehicles of various kinds whereon it is desired to apply water at the same time that the rubbing with the brush takes place.

It will be understood that the esential feature of the body portion 17 of the brush is that it shall permit the water to pass freely therethrough and that a brush body of open form other than the body herein shown may be devised. It will also be understood that various other changes in the form of construction and arrangement of various parts of my invention may be resorted to within the scope of the following claim:

A device of the class described comprising in combination with a casing having a shaft journaled for rotation axially thereof, a brush secured to said shaft at the discharge end of said casing, said brush comprising a body portion having a curved outer face and receding tapered side wall, the body portion of said brush being perforated whereby water may be discharged therethrough, said brush extending into said casing and disposed to permit the circulation of water thereabout, and an outwardly flaring guard carried by the outlet end of the casing and surrounding the receding wall of the brush to provide an outwardly flaring annular chamber, with the face of the receding wall and guard arranged in parallelism.

In witness whereof, I hereunto subscribe my name this 18th day of November A. D. 1918.

JOHN K. MACRAE.