J. MacN. WILSON.

SPRAYING BRUSH.

APPLICATION FILED OCT. 27, 1917.

1,333,146. Patented Mar. 9, 1920.

Fig. 1.

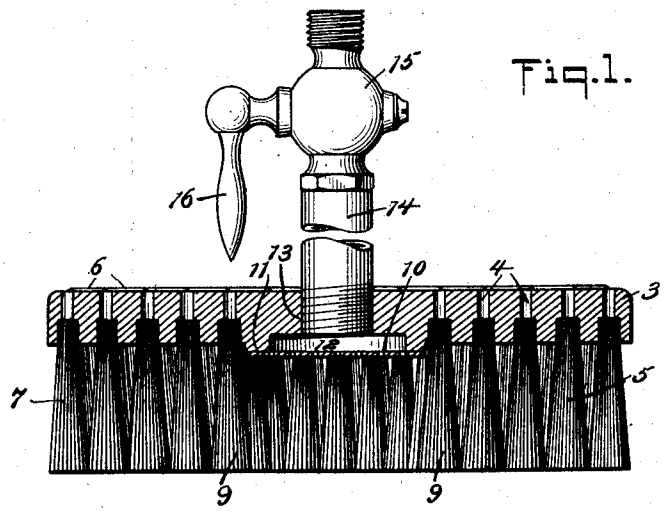
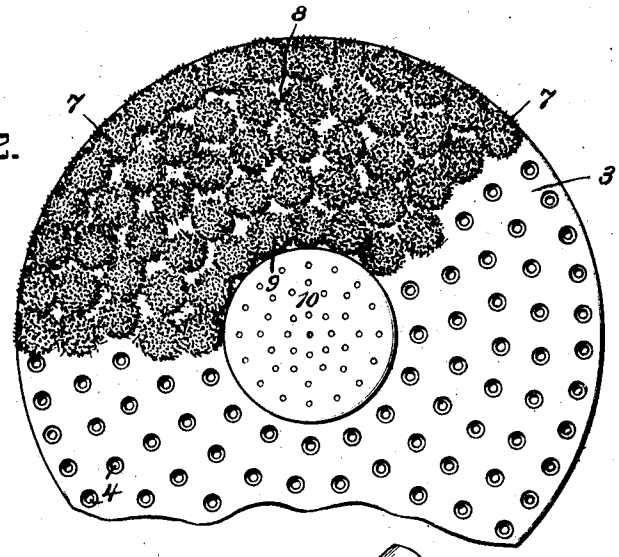


Fig. 2.



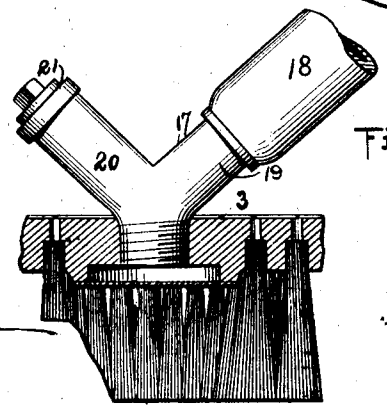


Fig. 3.

WITNESS:

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JOHN MacNAULL WILSON, OF MONTCLAIR, NEW JERSEY, ASSIGNOR TO WILSON-IMPERIAL COMPANY, OF NEWARK, NEW JERSEY, A CORPORATION OF DELAWARE.

SPRAYING-BRUSH.

1,333,146. Specification of Letters Patent. Patented Mar. 9, 1920.

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To all whom it may concern:

Be it known that I, JOHN MacNAULL WILSON, a citizen of the United States, and resident of Montclair, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Spraying-Brushes, of which the following is a specification.

My invention relates to an improvement in combined liquid distributing and spray brushes of general application and particularly designed for applying the acid and alkali cleansing solution usually used to loosen the dirt on car sides and the like.

In cleaning car sides with the usual strong acid solutions it is obvious that great care must be taken to minimize, if not entirely eliminate splash and drip and at the same time to insure a uniform coating of the cleansing solution over the surface treated with the least possible consumption of the expensive solution.

Accordingly, one of the objects of the invention is to provide a liquid distributing device which will distribute the liquid uniformly to all portions of the surface treated while working in either a vertical or horizontal direction and which will at the same time minimize, if not entirely eliminate, drip and splatter when used to treat a car side or similar vertical surface. Broadly I attain this object by using a brush which resembles somewhat the fountain brushes used in scrubbing but peculiarly designed for the particular use suggested. These fountain brushes now on the market could be employed, with but indifferent success for the solution would act on the bristles and particularly upon the fastenings of the bristles to the head and rapidly loosen the bristles therefrom. Further the uniform application on vertically inclined surfaces could not be attained with these old forms of brushes, primarily, because either the flow had to be reduced to such an extent that there was not a sufficient flow of the liquid to the bristles to uniformly cover the surface, or the flow had to be made so great as to cause a drip down the side of the cars or a splashing when the brush passed over bolts and other projections from the car sides.

Another object of the invention is to provide, in a single article, a liquid distributing brush of the character described and at the same time provide a device for applying a rinsing liquid to the surface after the cleansing material had been applied by means of the article when utilized as a distributing brush.

Still another object of the invention is to provide a device of the class described in which the destroyed bristles may be readily replaced within the drilled apertures in the back of the brush.

Various other objects and advantages of the invention will be in part obvious from an inspection of the accompanying drawings and in part will be more fully set forth in the following particular description of one form of mechanism embodying my invention, and the invention also consists in certain new and novel features of construction and combination of parts hereinafter set forth and claimed.

In the accompanying drawings:

Figure 1 is a vertical sectional view taken centrally through a preferred embodiment of my invention;

Fig. 2 is a plan view of the bristle side of the brush with certain sets of the bristles removed; and

Fig. 3 is an enlarged sectional view of a modified form of piping attachment to the brush.

The brush includes a back 3, in the form of a flat circular disk, drilled therethrough with bristle openings 4 arranged in concentric circles. Sets of bristles 5 are mounted in the openings and extend for some material distance to one side of the back. The bristles are of stiff, hard-wearing type preferably formed of Tampico or similar Mexican fiber set in the openings 4 and held in position by wire loops 6 preferably of some form of non-corrosive wire. This form of bristle possesses lasting qualities under the hard usage to which such devices are subjected and do not "lay down" like ordinary bristles. Further this fiber has a peculiar agitating effect on the surface treated and acts somewhat like pumice, except that it does not scratch the surface.

The back illustrated is formed of celluloid as this substance is found to be cheap, light, and not affected by heat or cold nor the acid or alkali solutions with which the device is intended to be used. This material

does not shrink, crack or split in use as is common with the wooden-back brushes and as the bristles become deteriorated or worn down, any worn sets may be quickly removed and the brush refilled at small expense, thus economizing in the final cost of the device.

The sets of bristles are so arranged that the outer circle 7 constitutes a thickly formed wall which permits little, if any, of the liquid passing off the brush when the same is in use in its vertical working position, as shown in Fig. 2. The bristles forming the inner of the concentric circles are not positioned as closely as the outer circle of bristles, thereby forming tortuous passageways 8 which slightly retard the free flow of the liquid from the center of the brush diametrically toward its outer edge.

The innermost circle of bristles 9 define a spraying space centrally of the brush in which space there are no bristles thus permitting a clear opening from the outside to the back of the base 3 at the center thereof. A spraying rose 10 is positioned on the back within this space. As the solution would attack any fastening means for securing this rose in place it is formed integrally with the base. In the device disclosed the rose is formed of a thin disk of celluloid mounted in position by dissolving the face of the ring 11 projecting from the base 3 (preferably by the use of a solvent such as alcohol) and then pressing the rose-forming disk into position on the softened ring, so that when resolidified the rose forms an integral portion of the base. Another way to form the rose illustrated is to bore the back to within one-sixteenth of an inch, thus leaving a plate 10 integral with the back and perforate the plate so formed.

Prior to mounting the rose in place, the back of the base is drilled to provide a recess 12, and counter drilled to provide an opening 13, into which is threaded the end of a pipe 14 for conducting the liquid to the space 12. The portion of the pipe fitted in the opening 13 is of such a length that the pipe is securely braced in place so that it may be used as a handle for manipulating the brush. The flow of liquid to the brush is controlled by means of a valve 15 of any suitable construction, provided with a handle 16 disposed relatively close to the back of the brush so that the supply of liquid is immediately available at the brush as soon as the valve 15 is opened and so that when the valve is shut off, the minimum amount of liquid will be contained in the brush.

In the form of the piping attachment shown in Fig. 3 a Y 17 is substituted for the pipe 14 and a long hollow handle 18 is threaded onto the arm 19 of the Y. This handle is designed to be connected to the source of rinsing water or to the cleansing liquid as desired, and this handle obviously may be provided with a valve similar to the valve 15. The other arm 20 of the Y may be closed by means of a plug 21.

By means of a device of this character, it is possible to manipulate the handle 16 so that the requisite amount of liquid will be sprayed from the rose, just sufficient to cover the surface uniformly, without any surplus drip. When used as a brush the liquid is sprayed from the small apertures in the rose and most of the liquid is directed onto the surface treated. Some of the liquid is diffused laterally and is passed from one set of bristles to another across the face of the brush all tending to distribute the liquid over the entire face of the brush. While the liquid is thus permitted to travel diametrically across the face of the brush, the outer thickly bristled circle of bristles will act to retard the discharge of the liquid off the side edge of the brush.

In practice it is usual to disconnect this brush from its supply of cleansing material and connect it to a water supply. During this use with water the brush may be used as a scrubbing brush or it may be withdrawn from contact with the surface being cleaned and the device used simply as a spraying device with the rose acting to distribute the cleansing water in forcefully ejected fine sprays.

While I have shown and described, and have pointed out in the annexed claims, certain novel features of my invention, it will be understood that various omissions, substitutions and changes in the form and details of the device illustrated and in its operation may be made by those skilled in the art without departing from the spirit of the invention.

Having thus described my invention, I claim:

A combined liquid distributing and spraying brush, including a base portion, a liquid discharge opening in the base portion a plurality of bristle sets extending from one face of said base portion, said sets being arranged about the discharge opening the bristles constituting the outer set being packed close together to form a continuous outer wall of bristles to minimize the drip from the brush, and the bristles constituting the inner sets being spaced apart to form tortuous channels to partially obstruct the free passage of the liquid moving diametrically from the discharge opening.

Signed this 16th day of October, A. D. 1917.

JOHN MacNAULL WILSON.