J. F. BUCHANAN AND C. E. WHITE.

CLEANING DEVICE.

APPLICATION FILED MAR. 1, 1917.

1,355,385. Patented Oct. 12, 1920.

Fig. 1.

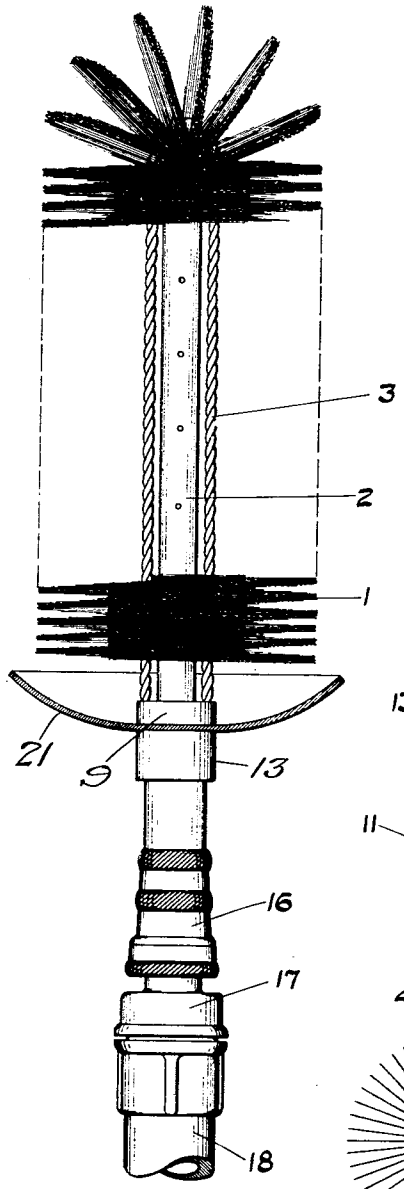


Fig. 3.

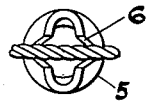


Fig. 4.

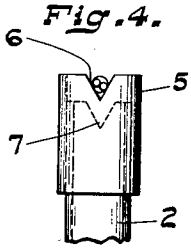


Fig. 5.

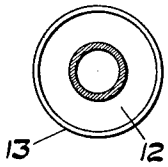


Fig. 6.

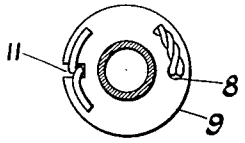


Fig. 7.

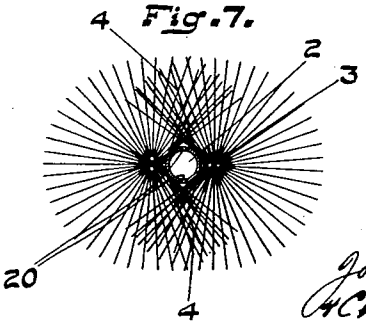
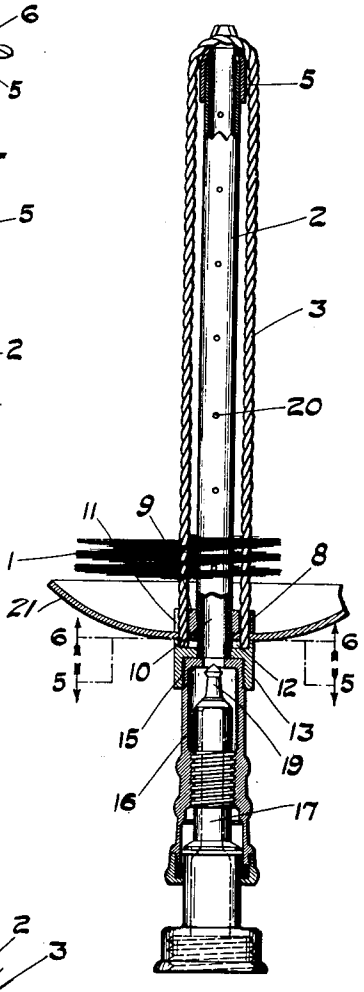


Fig. 2.



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UNITED STATES PATENT OFFICE.

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CLEANING DEVICE.

1,355,385. Specification of Letters Patent. Patented Oct. 12, 1920.

Application filed March 1, 1917. Serial No. 151,768.

To all whom it may concern:

Be it known that we, JOHN F. BUCHANAN, a citizen of the United States, residing at Indianapolis, Marion county, and State of Indiana, and CHANTILLA E. WHITE, a citizen of the United States, residing at Indianapolis, Marion county, and State of Indiana, have invented and discovered certain new and useful Improvements in Cleaning Devices, of which the following is a specification.

Our invention relates to cleaning devices and particularly to devices of this class adapted to clean automobiles.

The objects of the invention are to provide a brush capable of being applied to the surface of the automobile or similar object to be cleaned and also of being readily inserted through openings and between the spokes, particularly wire spokes, in association with means to produce a flow of water from the center of the brush radially outward; to provide means immediately adjacent the brush for enabling the same to be grasped and at the same time enabling the regulation of the flow of water to be obtained; to provide means for effectively breaking up the water into a spray as it passes through the brush; to provide means to guard the metallic supporting part of the brush against contact with the surface of the body that is being cleaned; to provide means of an effective character for securing the brush bristles to their support; to provide means for obtaining a secure connection between the brush support and the gripping and water regulating member and to provide convenient means for mounting a protecting shield on the device.

With these objects and others in view, our invention is embodied in preferable form in the construction and arrangement hereinafter described and illustrated in the accompanying drawings.

In these drawings, Figure 1 is a plan view of the device; Fig. 2, a vertical section with most of the brush bristles removed; Fig. 3, a detail end view of the protecting guard for the outer end of the brush, Fig. 4, a detail side view of the same element, Fig. 5, a detail top plan view of the coupling member; Fig. 6, a detail bottom plan view of the wire securing member and Fig. 7, a cross section through the brush.

Referring to the drawings, 1 indicates the brush which is made of a series of bristles adapted to extend outwardly from a central supporting tube 2 and which bristles are held within the spirals of a twisted wire brush attaching member 3. This member 3 is formed of two wires twisted together spirally. It is adapted to be doubled over the outer end of the central supporting and water distributing tube 2. The two limbs of this securing member extend parallel to the tube 2, and lie on opposite sides thereof. Each limb carries a series of tufts of bristles, and owing to the disposition of said limbs of the wire, the contour of the brush is elliptical with opposite flattened portions and rounded sections connecting such portions. Those bristles of the two groups which project out at right angles to the plane of the two limbs of the wire member, will lie closely against one another and intermingle and overlap, forming a thicker body of the brush on opposite sides at right angles to such plane than in the remaining portion of the brush. Owing to this arrangement the thicker portions of the brush are in the flattened sections thereof, which sections are subjected to most wear owing to the fact that such parts are adapted readily for application to flat surfaces. In conjunction with means for admitting water into the brush at the base of these thickened portions, as hereinafter described, the latter also serve to effectively break up and spray the water admitted to the interior of the brush.

In the drawings these diametrically opposite thickened and flattened portions of the body of the brush are indicated at 4.

A rubber guard cap 5 is interposed between the wire supporting member 3 and the end of the tube and is adapted to project beyond the end of the tube in order to protect the surface of the body being cleaned, from contact with the metallic tube and also with the end of the wire, and to this end such rubber guard is made in tubular form and is adapted to slip over the end of the metallic tube and is provided with opposite notches 6 in which are seated the ends of the wire member, whereby the outer portion of the guard will project beyond the wire and will also be drawn inwardly so as to more effectually cover the wire and will present a projecting guard tip at the extremity of the metallic portion

of the brush. The end of the tube is provided with corresponding seating notches 7

The two limbs of the wire member are carried down parallel to the tube and one limb passes through a hole 8 formed in a threaded collar 9 carried on the threaded stem 10 formed at the end of the tube, and the other limb passes through an open slot 11 cut in the periphery of said collar. The terminations of both limbs enter a chamber or annular recess 12 formed in a threaded coupling member 13 and the end of the limb which passes through the hole 8 in the collar is bent horizontally and is adapted to be seated against the bottom of the chamber in said member. The ends of the two wires forming the other limb are separated and bent at angles to one another and are also seated in the chamber in the coupling member. By this arrangement when it is desired to remove the brush supporting member for the purpose of replacing the brush, it is merely necessary to unscrew the coupling member and bend up the separated ends of the limb of the wire which passes through the slot or notch 11 and projects beyond the plane surface of the collar and then remove such limb from engagement with the collar by passing the limb out through the said notch whereupon the wire may be removed from engagement with the outer end of the tube, and the other end of the limb may be then readily cut, permitting the replacement of the brush and wire supporting member by a new brush, with its attaching wires.

The coupling member 13 is interiorly threaded at its outer end to engage the threaded stem 10 of the tube 2 and is also provided with a larger threaded bore at 15 to engage the outer threaded end of a tubular handle-forming and flow regulating member 16, which is threaded upon a conduit and nozzle member 17, that is provided at its end with a threaded sleeve adapted to receive the coupling member of a flexible water conveying hose 18. The outer end of the member 16 is provided with a graduated tapered nozzle valve 19 of the usual form employed in hose nozzles and which is adapted to regulate the flow of water through the opening in the member 16. The tube 2 is provided with two longitudinal series of perforations 20, said series being on diametrically opposite sides of the tube, between the two limbs of the wire, so that the water emerging from such openings will enter the thicker portions 4 of the body of the brush, whereby the water will be effectively broken up and sprayed by its passage through the brush.

Adapted to be clamped between the collar 9 and the coupling member 13 is a cup-shaped shield 21 preferably formed of rubber and adapted to prevent the water from flowing back from the brush up the sleeve of the user.

In the use of the device, water is admitted through the hose 18 into the hose nozzle and will then flow past the nozzle valve into the central supporting and distributing tube 2. The water passes out radially from the center of the brush through the openings, substantially parallel to the lengths of the bristles, and through said thicker portions of the brush from whence it is distributed over the remaining part thereof, thus serving to wet the brush and facilitate the cleaning operation. The device is readily grasped by the cylindrical handle provided by the members 16 and 17. To regulate the flow of the water through the brush, it is merely necessary to turn the member 16, together with the brush, relatively to the valve-carrying member 17 to increase or decrease the size of the opening through the end of the member 16. It will thus be seen that the regulation is effected by a rotary movement of the brush and its handle, as in the ordinary hose nozzle, and hence the necessity of employing a valve having a projecting body or handle which would offer an obstruction to the insertion of the brush between parts of the automobile which are close together, is avoided and also danger of breaking off the valve construction, is obviated. This form of regulating means also enables the same to be mounted immediately adjacent the brush, thus avoiding the necessity of regulating the flow by adjusting a valve at the other end of the hose. The nozzle valve also enables a fine regulation of the flow of the water from the center of the brush outwardly.

Owing to the contour of the brush and the closely adjacent parallel disposition of the limbs of the supporting wire member relative to the central tube, the brush may be readily inserted between spokes of the wheel of the vehicle and into crevices for the purpose of cleaning.

If desired, the brush may be detached and the nozzle employed to project a stream or spray of water directly upon the surface to be cleaned.

Having thus described our invention, what we claim is:

1. A cleaning device comprising a brush, a hollow perforated central supporting member extending into said brush and having a threaded inner end, a wire brush holding member engaging the outer end of said central member, a collar on said inner threaded end of the central hollow member having means to receive and retain the ends of said wire member, a coupling member having a hollow seat to receive the ends of said wire member, and a flow regulating valved nozzle member engaging with said coupling member, substantially as set forth.

2. A cleaning device having a hollow water conveying handle, a perforated water conveying tube detachably connected to the end of said handle, a wire retaining device on the outer end of said tube, a collar on the inner end of said tube, a brush holding wire connected with the wire holding device on the outer end of said tube with its ends passing through and clenched on the inside of the collar on the inner end of said tube, and a coupling member threaded on the outer end of the handle into which the inner end of said tube is secured, substantially as set forth.

In witness whereof, we have hereunto set our hands and seals at Indianapolis, Indiana, this 24th day of February, A. D. nineteen hundred and seventeen.

JOHN F. BUCHANAN, [L. S.]
CHANTILLA E. WHITE. [L. S.]

Witnesses:
A. C. RICE,
H. P. DOOLITTLE.