

July 3, 1923.

S. C. BOUGHER

1,460,883

ROTARY BRUSH

Filed March 13, 1922

Fig. 1.

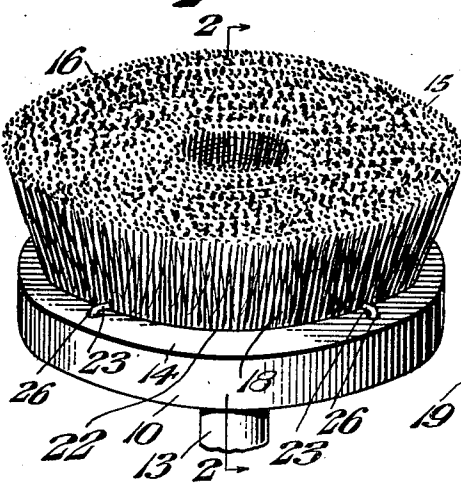


Fig. 2.

ON LINE 2-2, FIG. 1.

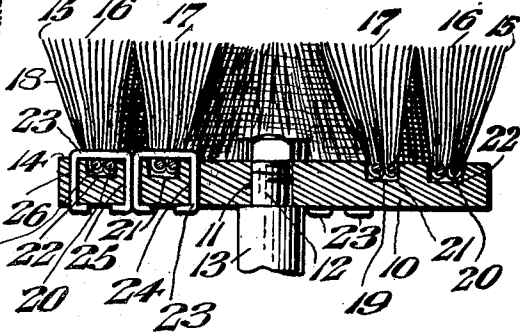


Fig. 3.

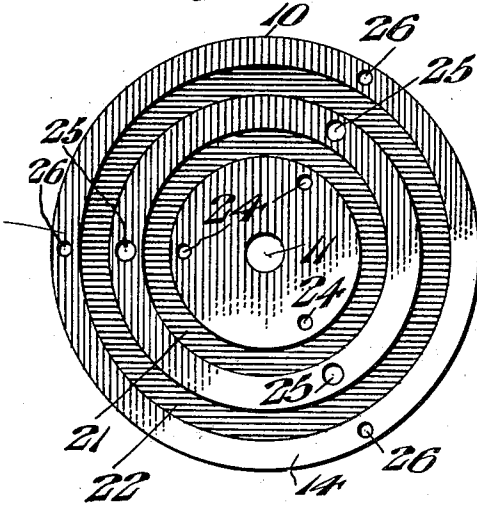


Fig. 4.

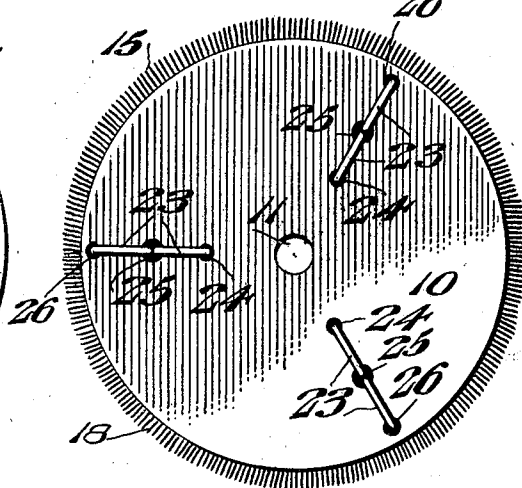
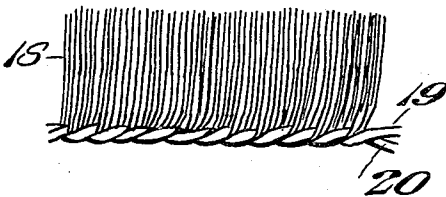


Fig. 5.



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UNITED STATES PATENT OFFICE.

SAMUEL C. BOUGHER, OF PHILADELPHIA, PENNSYLVANIA.

ROTARY BRUSH.

Application filed March 13, 1922. Serial No. 543,185.

To all whom it may concern:

Be it known that I, SAMUEL C. BOUGHER, a citizen of the United States, and a resident of Philadelphia, county of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Rotary Brushes, of which the following is a specification.

Some of the objects of the present invention are to provide an improved rotary wire brush; to provide a brush particularly adapted for cleaning, scouring, or polishing at high speeds; to provide a brush having strands so arranged and mounted as to clean effectively at high speed without breaking, loosening or displacing the strands; to provide a brush formed of annular brush units rigidly fastened to a rotatable base; and to provide other improvements as will hereinafter appear.

In the accompanying drawings, Fig. 1 represents a perspective of a rotary brush embodying one form of the present invention; Fig. 2 represents a section on line 2—2 of Fig. 1; Fig. 3 represents a face plan of the base of the brush; Fig. 4 represents the back of the brush; and Fig. 5 represents a side elevation of the brush elements mounted ready for assembling with the base or support.

Referring to the drawings, one form of the present invention comprises a base 10 of fibre or any other suitable material capable of withstanding working pressure at high speeds and having an axial opening 11 to receive the reduced end 12 of a spindle 13 which is arranged to be driven at a relatively high speed by suitable power means (not shown). A nut 14 serves to rigidly secure the base 10 to the spindle 13, though any well known means may be employed for the purpose.

The base 10 is arranged to carry on its outer face 14 brush elements 15 consisting, in the present instance, of two annular, concentrically arranged brush units, 16 and 17, each of which is formed of a plurality of substantially V-shaped steel strands 18 assembled upon and held by a body in the form of two twisted wires 19 and 20. Initially the two wires 19 and 20 are lineally arranged and twisted together in such a manner as to interweave the wire strands 18 so that all the strands extend in substantial alignment throughout the length of the intertwisted wires, to form a continuous brush,

the respective strands of which diverge from a common axis. The linear length or length of the brushes so formed is predetermined in accordance with the size of the brush desired, and in the present construction the length of each brush is such as to form ring brushes of a selected diameter.

For the purpose of shaping the brush of the present invention and rigidly securing it to the base 10, a plurality of circular grooves 21 and 22 are cut in the face 14 of the base 10, having respectively a depth and width sufficient to receive the brush retaining wires 19 and 20. As here shown, there are two such grooves arranged concentric with respect to the axis of rotation of the brush, though this arrangement can be varied without departing from the invention. The respective brush units 16 and 17 are bent to circular form and assembled upon the base face 14 by seating the bonding twisted wires in the respective grooves 21 and 22 where each is rigidly fastened by staples 23 which pass transversely through the strands over the twisted wires and then through the base 10, to be clinched upon the back thereof. These staples 23 are preferably uniformly spaced angularly about the base 10 and are readily placed by the provision of through holes 24, 25 and 26 in the base, which are arranged in radially disposed sets having two holes 24 and 26 of a size to receive one leg of a staple 23, and one hole 25 to receive two staple legs. Thus in assembling, a staple 23 of the outer brush unit 16 has its legs passing respectively through the openings 25 and 26 of the base 10, and a staple 23 of the inner brush unit 17 has its legs passing respectively through the openings 24 and 25, both staples then being clinched on the base 10.

It will be noted that the strands of the respective units diverge respectively with a sufficient flare to project circumferentially beyond the periphery of the base 10 so that the brush edge can be used to clean corners or other angular locations which are not ordinarily accessible to the face of the brush.

From the foregoing it will be apparent that a complete unitary brush structure has been devised, particularly adapted for rotary high speed cleaning purposes, wherein flexible, stiff wire strands are employed for brushing, scouring, polishing and scrubbing purposes, and are so constructed as to be firmly held by the base to which the power

spindle is attached. Furthermore while brush strands of wire are here specifically described, it is to be understood that any other material may be employed within the spirit of the invention which is adapted to act as an efficient polishing or cleaning agent, when arranged in a holder of the type here shown, and capable of standing up under the hard usage incident to high speed work.

While but one form in which this invention may be embodied has been shown, it is to be understood that the invention is not limited to any specific constructions but might be embodied or applied in various forms without departing from the spirit of the invention or the scope of the appended claims.

Having thus described my invention, I claim:

1. As a new article of manufacture, a base having a plurality of concentrically arranged grooves and sets of through openings, the openings of each set being spaced by said grooves, brush units comprising circularly formed twisted body wires carrying

projecting metal brush strands, said units seating respectively in said grooves, and fastening staples passing through said through openings to clamp said units to said base.

2. As a new article of manufacture, a base having a plurality of concentrically arranged circular grooves, and sets of radially located through openings, each pair of said openings being spaced by one of said grooves and one of said openings being larger than the others in a set, brush units comprising circularly formed twisted body wires carrying projecting metal brush strands, said units seating respectively in said grooves, and staples arranged to clinch with said base to clamp said units in place, said staples being assembled in pairs with one leg of each staple passing through a large through opening and the other leg of each staple passing through separate openings.

Signed at Philadelphia, in the county of Philadelphia and State of Pennsylvania, this 10th day of March, 1922.

SAMUEL C. BOUGHER.