J. C. SANBORN.

SHOE POLISHING BRUSH.

APPLICATION FILED JAN. 31, 1913.

1,118,153.

Patented Nov. 24, 1914.

FIG. 1.

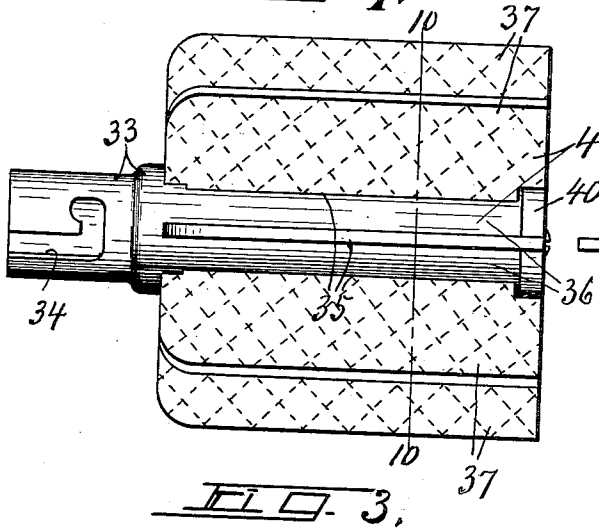


FIG. 2.

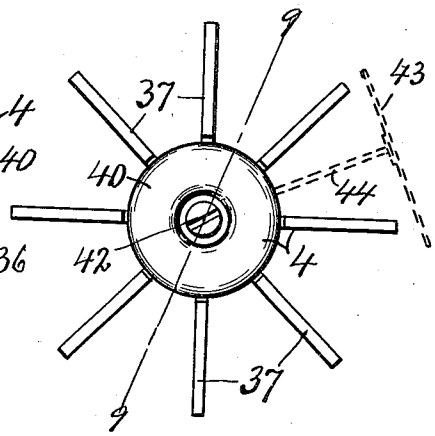


FIG. 3.

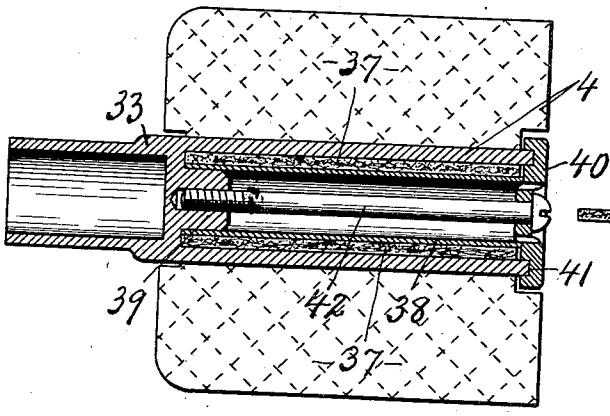


FIG. 4.

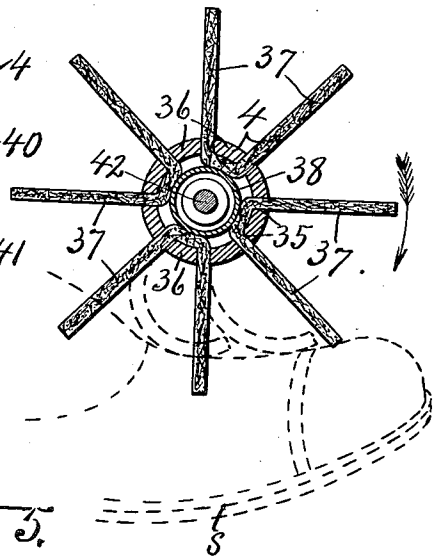
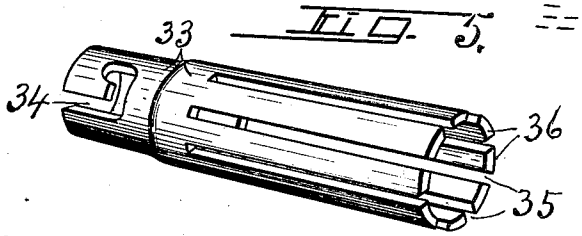


FIG. 5.



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SHOE-POLISHING BRUSH.

1,118,153. Specification of Letters Patent. Patented Nov. 24, 1914.

Application filed January 31, 1913. Serial No. 745,353.

To all whom it may concern:

Be it known that I, JOSEPH C. SANBORN, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Shoe-Polishing Brushes, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to certain improvements in polishing brushes for shoes, boots and other articles requiring a high degree of finish or polish without liability of marring or scratching the polished surface.

The main object is to render the cleaning and polishing of shoes and similar articles more efficient, expeditious and sanitary than has heretofore been practised by placing the power-driven brush under the voluntary control of the operator so that it may be easily and freely manipulated at any angle and in any direction to conform to the contour of the shoe or other article operated upon.

A further object is to provide the brush with radial flexible polishing webs or wings elongated axially and spaced equi-distant but some distance apart circumferentially so as to obtain a wide range of infinitesimally graded wiping pressures from minimum to maximum as controlled by the operator, and at the same time to cause the active webs to bend one toward the other to form intervening air cushions which affords a gradually increasing but yielding resistance to the bending of the webs and yet enables such webs to conform closely to the varying contours of different portions of the shoe.

Another object is to enable the brush-webs to be easily and quickly removed and replaced by new ones when soiled or otherwise impaired.

Other objects and uses will be brought out in the following description.

In the drawings—Figures 1 and 2 are respectively an enlarged side elevation and an end view of the polishing brush. Figs. 3 and 4 are respectively an enlarged sectional view and a transverse sectional of the same brush taken on lines 3—3, Fig. 2, and 4—4, Fig. 1. Fig. 5 is a perspective view of the detached web-supporting hub of the brush, showing more particularly the slots for receiving the folded webs.

The brush as —4—, forming the principal feature of my invention, comprises a tubular hub —33— having one end provided with an annular slot —34— constituting a part of a bayonet lock by which the hub may be detachably secured to a corresponding connection on the adjacent end of the revoluble section of the flexible shaft —3— by which rotary motion is transmitted from the motor to the hub.

The opposite end of the hub, which supports the brush, may be of any desired length and is provided with a series of radial slots —35— extending inwardly from said end for forming a corresponding series of web-supporting arms —36— around which are folded a plurality of radial webs —37— of felt or other comparatively thick flexible fabric, said webs being arranged in pairs, those of each pair being folded intermediate their longitudinal edges around their corresponding arms —36— so that the opposite webs of each pair extend radially through the slots —35— a considerable distance beyond the periphery of the hub to allow them to bend circumferentially under pressure upon the surface of a shoe as —*s*— as shown more clearly in Fig. 4. The outer edges of the wings are spaced apart a distance greater than half the radial width of the wings beyond the hub so as to allow said free edges to bend circumferentially to points approximately midway between the hub and outer edge of the next adjacent wing before contacting therewith.

A tubular sleeve —38— is inserted coaxially within the slotted end of the hub —33— and has its inner end closely fitted upon a central boss —39— which forms an integral part of the hub, said tubular sleeve being spaced apart from the inner surface of the adjacent portion of the hub a sufficient distance to receive the inner united ends of the webs of each pair and to form a bearing therefor to hold the webs against inward displacement and also against relative shifting movement on their respective supporting arms —36—.

The outer end of the tube —38— is enlarged to form an annular flange —40— which is provided with an annular groove —41— receiving the adjacent ends of the arms —36— to hold the tube and arms in exact concentricity with the axis of the hub, the enlarged end of the tube —38— having a central apertured web for receiving an

axially extending clamping bolt —42— tapped in a central threaded socket in the boss —39— to hold the tubular sleeve —38— and hub in fixed relative position.

The webs —37— extend radially from the hub and are spaced equi-distant but some distance apart circumferentially so as to allow infinite degrees of bending action of each web relatively to the adjacent webs or, as shown more clearly in Fig. 4, it permits the free edges of the active webs to bend one toward the other to form intervening air cushions which tend to increase the resistance to the flexing action of the webs as the pressure upon the surface of the article to be polished increases and, at the same time, allows all portions of the web to flex at any point to conform to the varying contours of the shoe or other article to which the webs are applied through the polishing operation. The webs are preferably of uniform radial width but are elongated longitudinally and their free edges are preferably straight and parallel with the axis of the hub so as to more readily conform to and contact with the surface or surfaces of the article operated upon. It is now evident that by making these webs of felt or similar highly flexible but tenacious material and connecting the brush in the manner described to the end of a flexible shaft having a non-rotatable handle close to the brush, the edges and sides of the webs may be applied to the surface of the shoe or other article with infinitely small gradations of pressure as controlled by the operator, thereby permitting the operator to apply the lightest possible brushing or wiping pressure to the surface of the shoe for high finishing, polishing or the pressure may be gradually increased at the will of the operator with the assurance that the contact of the webs with the surface of the shoe or other article to be polished will produce a smooth wiping effect under the yielding pressure afforded by the air cushions in addition to the flexing action of the webs *per se*.

I have found by actual experiment that the use of this brush produces a hard and highly polished surface and enables the operator to perform his work expeditionsly and without annoyance or irritation to the foot of the wearer of the shoe, thus permitting the polishing of a far greater number of shoes within a given period of time than has heretofore been possible.

One of the objects of making the webs of the brush of felt or equivalent material is to afford an absorbent support for any oleaginous or pasty substance for direct application to the surface of the article which is being polished so that this substance may be applied to such surfaces simultaneously with the polish and, in some instances, I may prefer to apply to the webs a rouge, pumice stone or similar paste having more or less abrasive properties. Another important advantage in the use of this type of polishing brush is that the rotary action of the webs under high speed produces a constant centrifugal action of air which operates to quickly dry and, therefore, to rapidly harden the polished surface so that the highly hardened polished surface will throw off moisture more readily and, therefore, maintains a gloss for a longer period of time than is possible when polished in the usual manner. It will also be observed that, in Figs. 1, 2 and 3, the webs are slightly reinforced by quilting or stitching, preferably diagonally, but does not interfere materially with the free flexing action of such webs at all points, the only object of the cross-stitching being to prevent excessive fraying of the edges of the felt.

The air cushion previously referred to as tending to resist the flexing of the webs of the brush when rotating in contact with the shoe is produced by the centrifugal action of the air which is thrown by centrifugal force against the overhanging portion of the wings, thereby bowing the intermediate portions of said wings which may flex toward the direction of rotation and in actual practice, it is observed that while the brush is being rotated at the high speed imparted to it by its motor, this centrifugal pressure of the air under the wings tends to resist the flexing of the free ends of the wings against the succeeding wings. That is, the air tends to escape centrifugally from between the free edge of one flexed wing and the adjacent wing and this is what is meant by the air cushion, the centrifugal pressure of the air tending to escape between the free edge of one of the flexed active wings and the adjacent face of the next succeeding wing, thereby producing what may be termed a wiping effect of the outgoing air across the surface of the shoe or other article which is being polished.

The wiping effect of the wings of the brush and also that of the centrifugally actuated air tending to escape at the free edge of the flexed wings not only produces a high gloss within a very short period of time but incidentally dries the paste or other liquid blacking which is employed and tends to produce a harder finish than is possible by the usual method or by the use of a bristle brush or any other brush in which the wings are close together.

It will be observed upon reference to the drawings that the wings of the brush are of considerably greater length than the radial width and that the outer free edges of the wings are spaced apart centrifugally a distance at least equal to or greater than the radial width of the wings beyond the periphery of the hub, the object of which is to

allow a greater volume of air to be operated upon centrifugally between the wings and to prevent contact of said wings except at their extreme outer edges, but, as previously stated, under the light pressure with which the brush is usually applied to the shoe, the free edges of the wings scarcely ever touch because of the rush of the air by centrifugal force from the hub outwardly between the wings.

What I claim is:

1. In a rotary shoe-polishing brush, a hub and wings of felt projecting radially from the hub in spaced relation uniform distances apart circumferentially and having their inner edges secured to the hub against movement relatively to their securing means, the distance between the free outer edges of adjacent wings being greater than half the radial width of the wings so as to permit said free edge of each wing to bend freely to a point approximately midway the radial width of the next adjacent wing before contacting therewith when circumferential pressure is applied to said free edge as in the operation of polishing a shoe.

2. A shoe polishing brush having a hub and radially projecting flexible wings secured against movement at the hub, the said wings being of greater length than their radial width and their outer free edges spaced apart circumferentially a distance greater than half the radial projection of the wings beyond the hub to prevent the wings from lying flatwise one against the other when applied to the surface to be polished.

3. A brush comprising a hub, and radially-projecting flat wings of flexible material secured to the hub against relative movement therewith and spaced uniformly apart around the hub, the wings having a width and being so spaced that when circumferential pressure is applied thereto to bend the wings the free edge of each wing engages the adjacent wing and forms a pocket, the wings being free at all times from flat-wise engagement with each other.

In witness whereof I have hereunto set my hand this 25th day of January 1913.

JOSEPH C. SANBORN.

Witnesses:

H. E. CHASE,

EVA E. GREENLEAF.