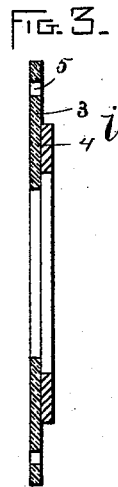
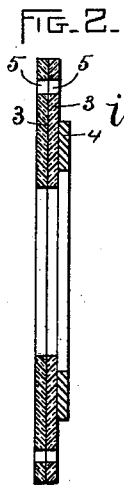
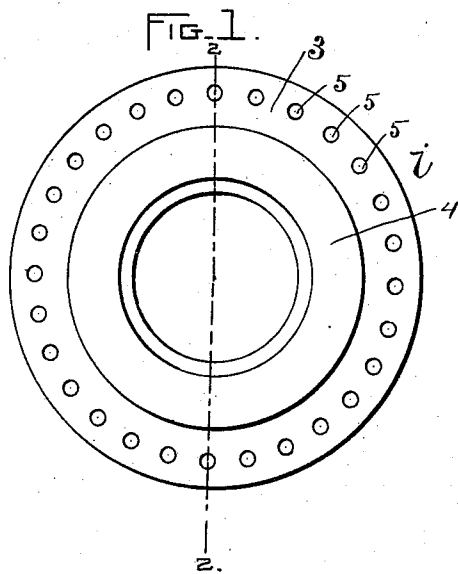
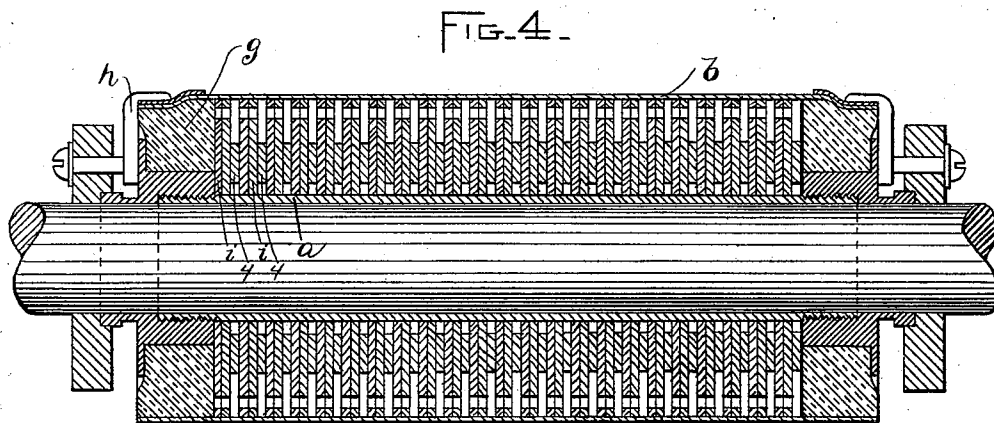


(No Model.)

H. A. WEBSTER.
BUFFING OR POLISHING DEVICE.

No. 590,714.

Patented Sept. 28, 1897.



Witnesses:

A. D. Hanson.

A. D. Adams.

Inventor:

H. A. Webster

by Knight Brown & Quincy
Atty.

UNITED STATES PATENT OFFICE.

HAROLD A. WEBSTER, OF HAVERHILL, MASSACHUSETTS, ASSIGNOR TO
G. H. P. FLAGG, TRUSTEE, OF BOSTON, MASSACHUSETTS.

BUFFING OR POLISHING DEVICE.

SPECIFICATION forming part of Letters Patent No. 590,714, dated September 28, 1897.

Application filed March 9, 1896. Serial No. 582,314. (No model.) Patented in England June 13, 1896, No. 13,116; in France June 18, 1896, No. 257,339, and in Canada July 27, 1897, No. 56,807.

To all whom it may concern:

Be it known that I, HAROLD A. WEBSTER, of Haverhill, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Buffing or Polishing Devices, (for which Letters Patent of Canada No. 56,807 were granted to me July 27, 1897; Letters Patent of Great Britain No. 13,116, dated June 13, 1896, were granted to Henry Harris Lake, as a communication from G. H. P. Flagg, and Letters Patent of France No. 257,339, dated June 18, 1896, were granted to G. H. P. Flagg,) of which the following is a specification.

This invention relates to a yielding-surfaced cylindrical cushion or roll which is supported by a rotary hub or holder and supports a flexible band or cover, the whole constituting a rotary buffing device or a rotary polishing device, according to the nature of the cover, which is of sandpaper or other abrasive material for buffing and of some non-abrasive material, such as silesia, for polishing.

In Letters Patent No. 550,062, dated November 19, 1895, I show an appliance of this class comprising a series of strips of limp flexible material extending lengthwise of the hub, the strips radiating from the hub and being free at their outer edges, so that they constitute a cushion the surface of which is supported by centrifugal force when the hub is rapidly rotated, the strips being adapted to yield to the pressure of the article pressed against the cover.

My present invention has for its object to provide a cushion which, while to a certain extent yielding and acted on by centrifugal force, so that it will conform freely to the surface to be acted on and will not be liable to develop a burning friction thereon, shall prevent said article from sinking into the cushion sufficiently to present more than the desired part of its surface to the cover. For example, in buffing the bottom face of a shoe sole or heel it is desirable to have the cushion sufficiently yielding to conform to the undulations and inequalities of the said face and of such character that an injurious or burning friction will not be developed, and it is at the same time desirable that the edge

adjoining the said face shall not come in contact with the cover. I attain this object by the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a side view of one of the sections of my improved cushion. Fig. 2 represents a section on line 2 2 of Fig. 1. Fig. 3 represents a view similar to Fig. 2, showing the section composed of one flexible member. Fig. 4 represents a longitudinal sectional view of a buffing appliance embodying my invention.

The same letters of reference indicate the same parts in all the figures.

In the drawings, *a* represents the rigid hub or holder of the yielding cushion, said hub being here shown as a tube adapted to be placed on the shaft which rotates the appliance of which the cushion forms a part. The hub is preferably provided at its ends with suitable means for grasping and supporting the ends of the flexible cover *b*, the same means being here shown that are set forth in the above-mentioned patent—namely, collars *g g*, of felt or other suitable yielding material, affixed to the hub, and clamping-fingers *h*, which project over the peripheries of said cushions and are adjustably connected with the hub, so that they may be forced inwardly upon the end portions of the cover, pressing the latter into the yielding surfaces of the collars *g*. My present improvements are not dependent on these particular devices and may be used in connection with any other suitable means for connecting the end portions of the cover *b* with the hub *a* or without such means.

In carrying out my invention I provide the hub *a* with a centrifugally-maintained yielding cushion composed of a series of annular flexible or limp sections *i*, strung upon the hub *a*, their outer edges constituting a series of flexible or limp cover-bearings surrounding the hub and adapted to yield at all points. The said sections are preferably composed of limp or flabby leather having comparatively little inherent stiffness, kid, sheepskin, and other similar kinds of leather being suitable. It is essential that the sections be spaced

or separated to permit the free circulation of air behind the cover, thus preventing injurious or burning friction on the work, and to give the bearing edge of each section freedom to sway or bend sidewise to some extent, this freedom also enabling the bearing edges to sink inwardly toward the hub.

Each section may be composed of two annular flexible disks or members 3 3, as shown in Fig. 2, said members being cemented or otherwise firmly secured together at their inner portions, while their outer portions are disconnected and separable. In Fig. 3 I show a section composed of but one flexible disk.

To insure adequate spacing between the sections, I provide spacing-pieces 4, which are preferably rings or washers, of leather-board or other comparatively stiff material, one of these being preferably cemented or otherwise secured to each section.

It will be seen that the sections thus constructed are adapted to be assembled upon the hub to form a cushion of any desired length, the cushion being made more or less yielding by decreasing or increasing the number of sections, the spaces between the bearing edges being increased by decreasing the number of sections.

I prefer to weaken the marginal portions of the sections to make the bearing edges more yielding. This is best accomplished by cutting out small pieces of the material, thus forming apertures 5 in the flexible portions of the sections.

When the cushion is rapidly rotated, the bearing edges of the sections are yieldingly held by centrifugal force at their maximum distance from the axis of rotation. The spaces between the sections permit a free circulation of air behind the cover and permit the bearing edges to sink under the pressure of the work against the cover *b* sufficiently to conform to the inequalities and curves of the work. At the same time the continuity of each bearing edge around the hub and the comparatively close proximity of said bearing edges to each other (as compared with the bearing edges of strips extending lengthwise of the hub and radiating therefrom) make the cushion sufficiently firm to prevent a piece of work, such as a heel, from sinking into the cushion far enough to subject the edge of the heel to contact with the cover when the bottom or tread surface is in position to be buffed.

I prefer to fit the sections so loosely to the hub that they are capable of turning independently thereon, so that their rotation may

be retarded to some extent by the tangential pressure against their bearing edges resulting from the rotation of the device and the pressure of the work against it.

A section of the described construction constitutes an article of manufacture and may be sold as such.

I am aware that it is not new to make a cylindrical cushion by assembling a series of annular disks side by side upon a hub, but such disks have heretofore been clamped closely together to form a periphery which is practically continuous from one end of the cushion to the other and is not provided with intermediate spaces between the bearing edges of the sections.

I claim—

1. In a buffing or polishing device, the combination of a series of disks or rings of collapsible material; means for supporting and retaining the same spaced apart, said disks or rings projecting sufficiently far from each other and from their means of support, and being sufficiently pliable and small in cross-section, to be held extended by centrifugal force and to collapse when pressure is brought to bear thereon; and an abrading band or material supported upon said disks, substantially as described.

2. An appliance of the character specified, comprising a rotary hub, a cushion composed of limp annular sections surrounding the hub and separated at their bearing edges, a flexible cover supported by said bearing edges, and means for securing the end portions of the cover to the hub.

3. An appliance of the character specified, comprising a rotary hub, and a cushion composed of annular sections surrounding the hub and weakened at their marginal portions.

4. An appliance of the character specified, comprising a rotary hub, a cushion composed of a series of limp annular sections mounted to turn loosely thereon and separated at their bearing edges.

5. In an appliance of the character specified, a cushion-section composed of an annular disk having a limp outer margin, and a spacing-piece secured to the disk within the margin.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 5th day of March, A. D. 1896.

HAROLD A. WEBSTER.

Witnesses:

C. F. BROWN,
A. D. HARRISON.