No. 667,273. Patented Feb. 5, 1901.

# H. A. WEBSTER.

## ROTARY CUSHIONED ROLL AND COVER THEREFOR.

(Application filed Aug. 23, 1900.)

(No Model.)

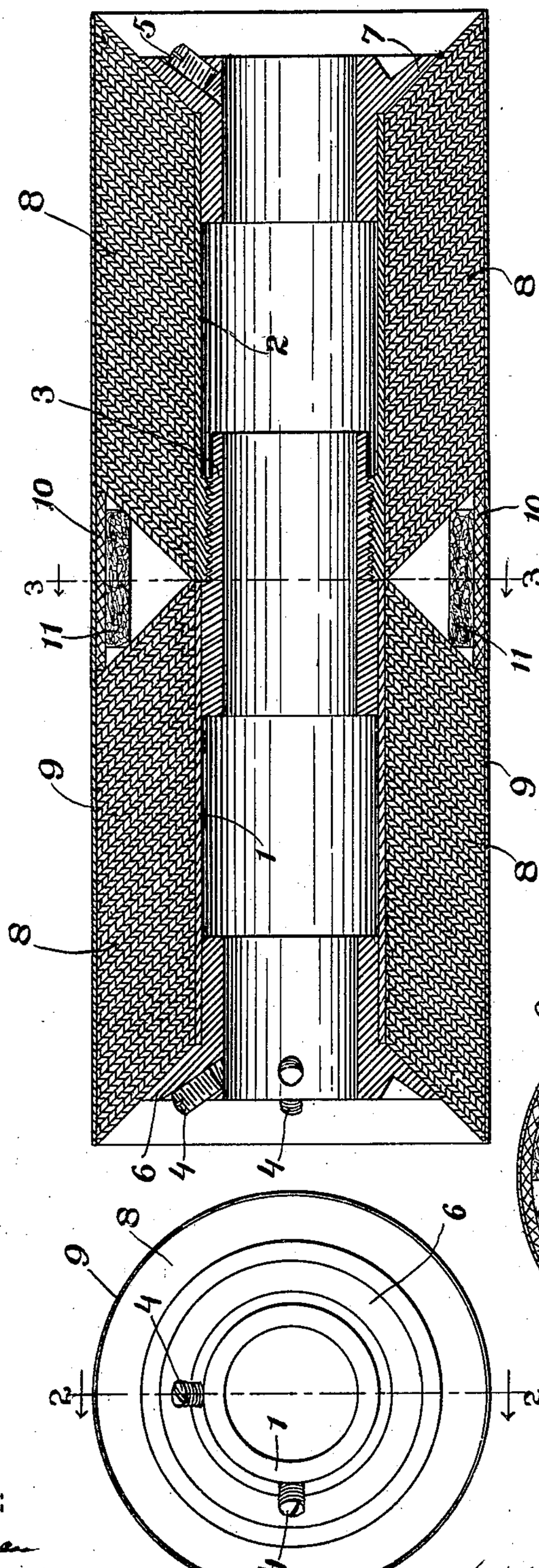


FIG. 2.

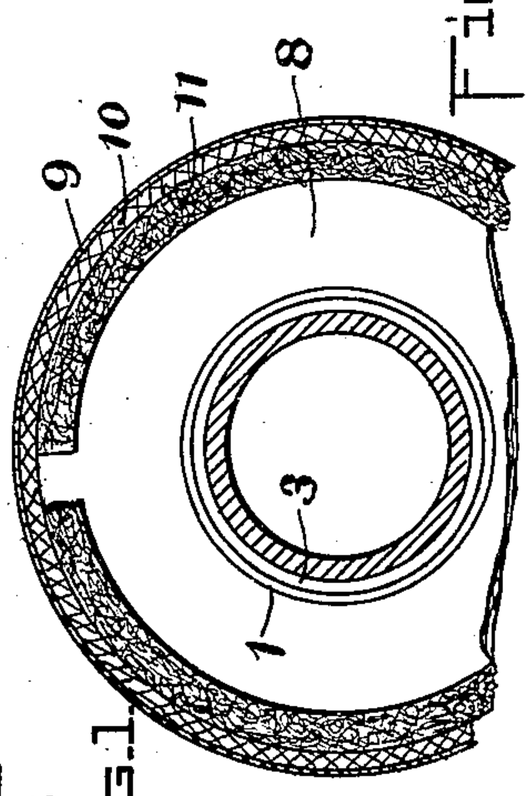


FIG. 3.

FIG. 1.

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# UNITED STATES PATENT OFFICE.

HAROLD A. WEBSTER, OF HAVERHILL, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO HERBERT B. NEWTON, OF SAME PLACE.

## ROTARY CUSHIONED ROLL AND COVER THEREFOR.

SPECIFICATION forming part of Letters Patent No. 667,273, dated February 5, 1901.

Application filed August 23, 1900. Serial No. 27,790. (No model.)

*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 Rotary Cushioned Rolls and Covers Therefor, of which the following is a specification.

This invention relates to rotary appliances for acting on surfaces of boots and shoes and other articles, and may be embodied in a buffing-roll for abrading bottoms of soles and heels.

The invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, Figure 1 represents an end elevation of the buffing-roll embodying my invention. Fig. 2 represents a longitudinal section on the line 2 2 of Fig. 1. Fig. 3 represents a cross-section on the line 3 3 of Fig. 2.

The same reference characters designate the same parts in all the figures.

Referring to the drawings, the hub of the rotary cushioned roll hereinafter described is formed in two parts or sections 1 and 2, which are joined together by a projection 3, attached to the part 1, which projects into the part 2. The two parts may be held together by friction, but are preferably connected by screw-threads formed thereon, as shown in Fig. 2. The parts 1 and 2 are preferably equal in length. The hub may be made in any desired shape and of any suitable material; but I prefer to give it the form of a metal tube formed in two parts, as described, with a projection on one of its parts fitting into the other part and provided at its ends with flanges 6 and 7 and set-screws 4 and 5, which secure the hub to a rotating spindle or shaft.

To the hub are secured cushion members 8, which are dished or frusto-conical rings of leather, rubber, or other tough and flexible material and are arranged in two groups or series, each forming a cushion-section adapted to be distended by centrifugal force and to support a tubular working cover 9, which may be made of abrasive material, such as sand or emery paper, when the appliance is used for buffing. The dished supporting members 8 are so placed on the hub as to incline in opposite directions from the longitudinal center of the hub, the disks on each of the parts 1 and 2 being compactly nested together and the outer edges of those disks on the ends of the hub extending beyond the flanges 6 and 7, as is clearly shown in Fig. 2. By this arrangement a V-shaped opening surrounding the hub is left between the two sets of members 8, while the projecting portions of the end disks allow the roll to operate in corners, as that between the shank-bottom and the breast of a heel.

On the interior surface of the tubular cover 9, opposite the V-shaped space, is fastened a projection 10, which may be a strip of suitable material, such as cloth or cord, and bears against the inner ends of the cushion-sections, said ends and the projection constituting stop members to prevent displacement of the cover in either direction. Within the strip 10 is placed loosely an intermediate centrifugally-distensible cushion 11, which may be a strip of felt, and acts as a reinforcement to prevent the cover 9 from yielding too freely in that portion of its surface which is not supported by the cushion members 8.

I do not confine myself to the use of the rings 8 as the members of the end cushion-sections, as in place of the disks on either portion of the hub I can use a continuous band wound helically about the hub and inclined outwardly in the same manner as are the disks.

In putting the cover 9 on its support one part of the hub and the cushion member thereon are removed from the other part, the latter remaining in place on the shaft. The cover is then moved endwise onto the section supported by the shaft and left thereon with one end vacant. The other cushion-section is then inserted into the cover and secured to its companion.

When the device is set in operation, the centrifugal force due to rotation throws the strip 11 and the outer edges of the disks outwardly, causing the disks to assume a position more nearly perpendicular to the axis of the roll than they hold when at rest. Thus an outward pressure is exerted in all directions on the cover, causing it to be sufficiently firm to do the required work, and said pressure

being at the same time sufficiently yielding to enable the cover to accommodate itself to the curved surfaces on which it is required to act. The yielding nature of the cover-support also prevents an injurious pressure on the work and keeps the friction, and consequently the heating effect, within proper limits.

The screw-thread connection between the sections of the hub enables the length of the roll to be varied, if desired.

The tubular cover, with its internal stop member, may be made and sold as an article of manufacture.

In another application, filed by me June 4, 1900, Serial No. 18,953, I have shown a rotary cushioned roll, comprising a hub and two cushion-sections surrounding it, so constructed that there may be some centrifugal distention of such sections, the said two sections being separated from each other by a filling of felt; but in that case the space between the two sections has no function except to contain the permanent felt cushion, while in the present application the space between the two cushion-sections is open to a sufficient extent to enable the ends of the said sections to form stop members coöperating with a stop in the interior of the working cover.

I claim—

1. A rotary cushioned roll, comprising a hub and two centrifugally-distensible cushion-sections surrounding the hub, and having their adjacent ends separated by a space surrounding the hub.

2. A rotary cushioned roll comprising a hub and two centrifugally-distensible cushion-sections surrounding the hub and having their adjacent ends separated by a space surrounding the hub, each section being composed of dished flexible members, the members of each section being inclined outwardly from the longitudinal central portion of the roll.

3. A rotary appliance of the character specified, composed of a hub, two centrifugally-distensible cushion-sections surrounding the hub and having their adjacent ends separated by a space surrounding the hub, and a tubular working cover having on its inner surface a projection located in said space, the said projection and the inner ends of the cushion-sections constituting stop members to prevent endwise displacement of the working cover.

4. A rotary appliance of the character specified, composed of a hub, two centrifugally-distensible cushion-sections surrounding the hub and having their adjacent ends separated by a space surrounding the hub, a tubular working cover inclosing said sections and space, and an intermediate centrifugally-distensible cushion-section located in said space.

5. A rotary appliance of the character specified, comprising a hub, two centrifugally-distensible cushion-sections each composed of dished flexible members affixed to the hub, and a tubular working cover inclosing the cushion-sections, one of said sections being separable from the other, whereby the cover may be applied to one section and left projecting from one end thereof to receive the other section of the cushion.

6. A rotary appliance of the character specified, comprising a hub, two centrifugally-distensible cushion-sections each composed of dished flexible members affixed to the hub, and a tubular working cover inclosing the cushion-sections, the hub being constructed in sections which are adjustably connected to permit the length to be varied.

7. As an article of manufacture, a tubular working cover having an internal stop member.

In testimony whereof I have affixed my signature in presence of two witnesses.

HAROLD A. WEBSTER.

Witnesses:

H. B. NEWTON,

C. F. BROWN.