No. 735,632. PATENTED AUG. 4, 1903.

H. A. WEBSTER.

ROTARY BRUSH OR CUSHIONED ROLL.

APPLICATION FILED NOV. 20, 1902.

NO MODEL. 2 SHEETS—SHEET 1

Fig. 1.

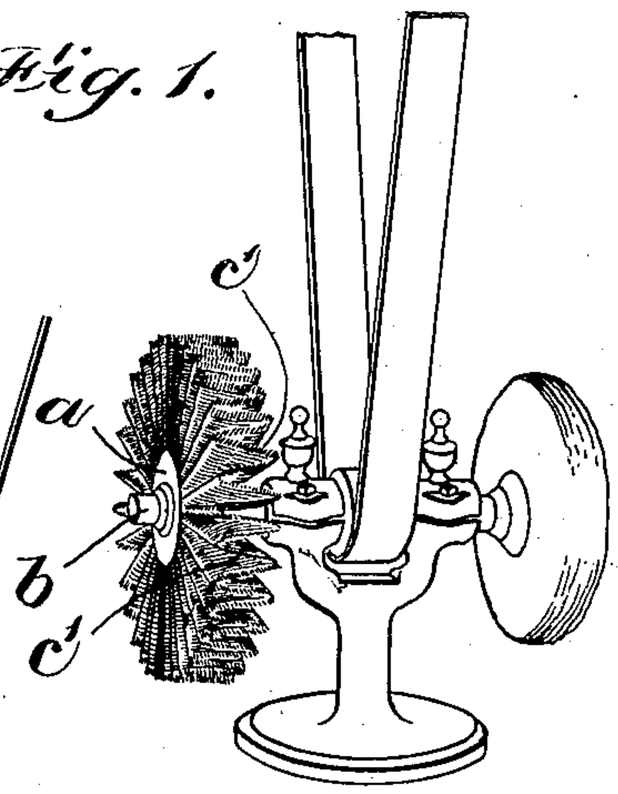

Fig. 2.

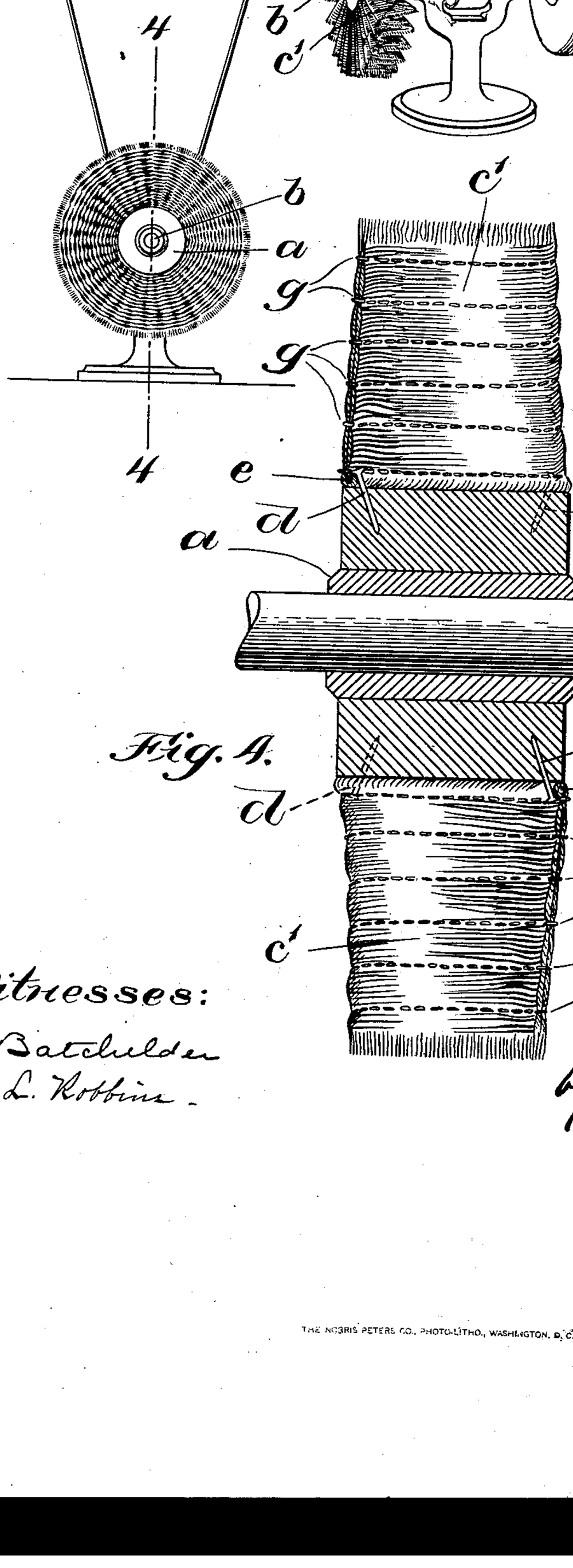

Fig. 3.

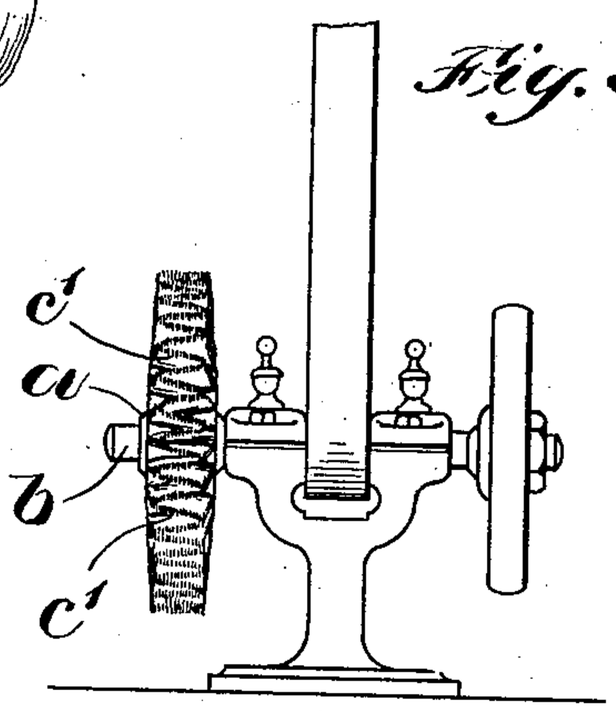

Fig. 4.

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NO MODEL. 2 SHEETS—SHEET 2

Fig. 5.

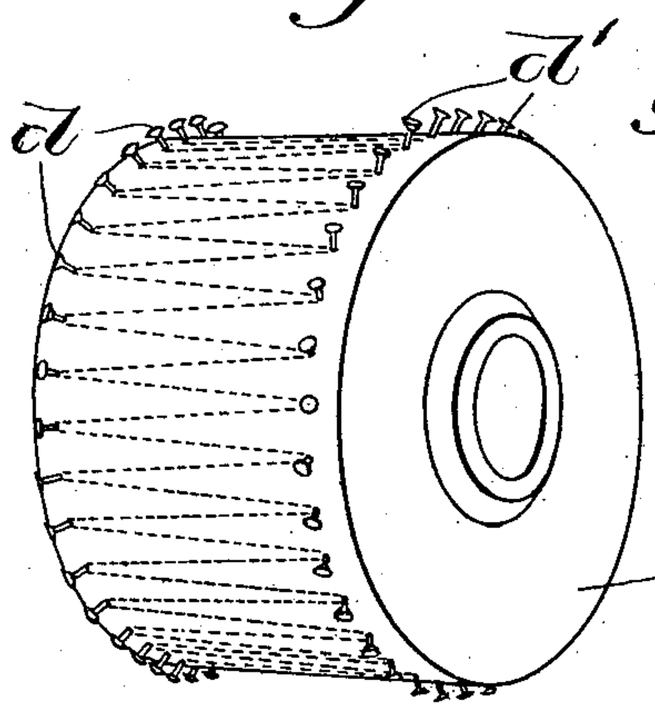


Fig. 6.

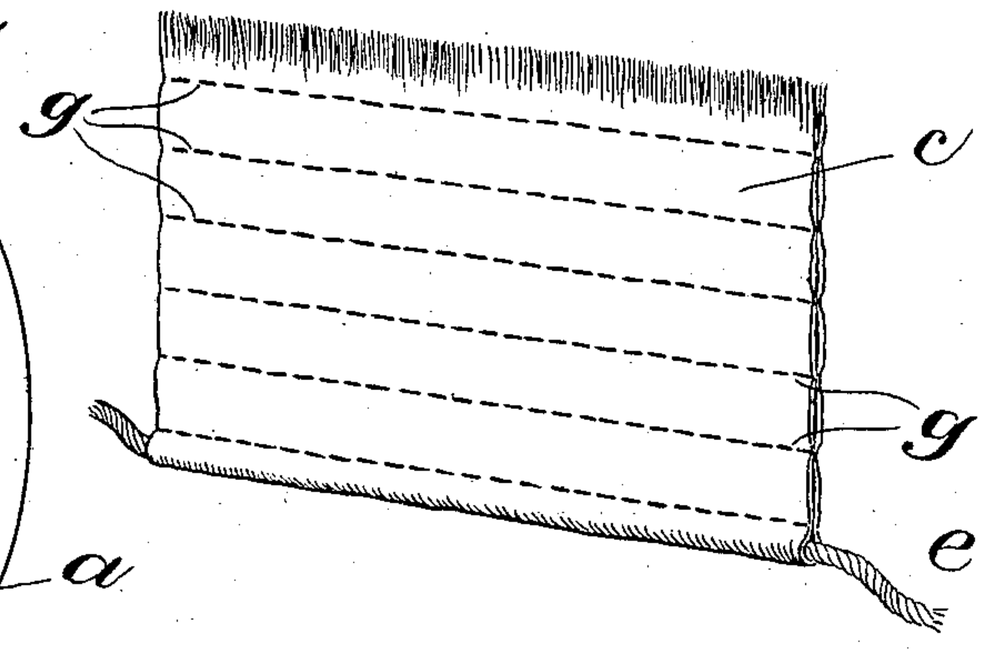
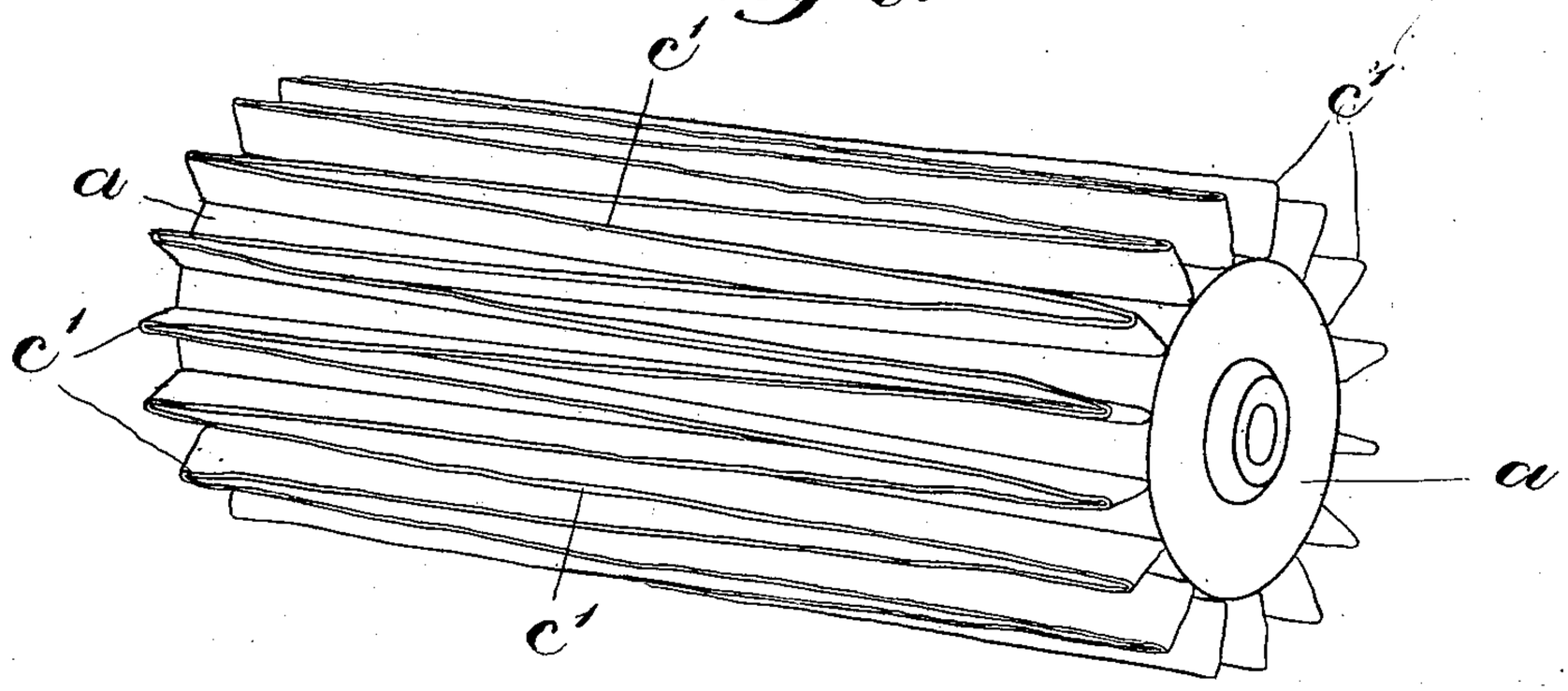


Fig. 7.



Witnesses;

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No. 735,632. Patented August 4, 1903.

UNITED STATES PATENT OFFICE.

HAROLD A. WEBSTER, OF HAVERHILL, MASSACHUSETTS, ASSIGNOR TO WEBSTER SHOE MACHINE COMPANY, OF HAVERHILL, MASSACHUSETTS, A CORPORATION OF MAINE.

ROTARY BRUSH OR CUSHIONED ROLL.

SPECIFICATION forming part of Letters Patent No. 735,632, dated August 4, 1903.

Application filed November 20, 1902. Serial No. 132,049. (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 Brushes or Cushioned Rolls, of which the following is a specification.

This invention relates chiefly to rotary brushes used for cleaning and polishing parts of boots and shoes, and particularly for removing from the uppers of boots and shoes the stains, finger-marks, &c., which they acquire in the factory where they are manufactured.

The invention may also be embodied in a cushioned roll for supporting a working cover of abrasive material, such as sandpaper, or of cleaning or polishing material, such as cloth.

The invention has for its object, first, to provide a rotary brush adapted when in operation to cause such a circulation of air as to prevent the possibility of injuring by frictional heat the article presented to the brush.

The invention also has for its object to provide a rotary brush or cushion of such construction that the cost of making the flexible brush or cushion material and of applying and securing it to the rigid hub which supports and rotates it shall be reduced or minimized.

The invention consists in 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 perspective view of a rotary brush embodying my invention. Fig. 2 represents a side view, and Fig. 3 an edge view, of the same. Fig. 4 represents a section on line 4 4 of Fig. 2. Fig. 5 represents a perspective view of the hub, the brush or cushion material being detached. Fig. 6 represents a perspective view of a portion of the strip from which the brush or cushion is formed. Fig. 7 represents a perspective view of a rotary cushioned roll embodying my invention.

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

In the drawings, *a* represents a rigid hub, which is preferably of cylindrical form and is adapted to be attached to a shaft *b*.

c, Fig. 6, represents a strip of any suitable flexible material, preferably textile fabric, affixed at its inner edge to the periphery of the hub and extending in a series of oblique stretches *c'* around the hub and substantially from end to end thereof, the strip projecting edgewise outwardly from the periphery of the hub and presenting an outer edge composed of a corresponding series of oblique stretches. Said outer edge forms the acting surface or perimeter of a brush adapted to clean and polish leather, or of a cushion adapted to support a working cover of abrasive material, such as sandpaper, or of cleaning or polishing material, such as cloth. When the appliance is intended for use as a brush, the hub and the stretches *c'* are preferably relatively short as compared with the width of the flexible strip, as shown in Figs. 1, 2, 3, 4, and 5, and when the appliance is intended for use as a cushioned roll to support a working cover the hub and the stretches *c'* are preferably relatively long, as shown in Fig. 7.

The inner edge of the strip *c* may be attached to the hub by any suitable means. In Figs. 4 and 5 I show the hub provided with two series of strip-engaging members *d d'*, which may be headed pins or studs affixed to the body of the hub near the ends thereof, the series of studs *d* being at one end of the hub, while the series of studs *d'* are at the other end and alternate in position with the studs *d*, as shown in Fig. 5, so that the inner edge of the strip *c* may extend between the two series of studs in a zigzag line, as indicated by dotted lines in Fig. 5, the strip being bent partly around each stud. The inner edge of the strip is preferably reinforced by a continuous ligature *e*, which may be composed of cord or wire, said ligature being practically inextensible and inserted under the heads of the studs, as shown in Fig. 4. The inner portion of the strip incloses the ligature, as shown in Figs. 4 and 6, the strip being preferably folded over the ligature, so that it is composed of a plurality of plies or layers. The inner

edges of the stretches of the strip may be additionally secured to the hub between the studs d d' by glue or cement.

When my invention is embodied in a rotary brush, the plies of the strip c are preferably quilted together by lines of stitches g, arranged substantially parallel with the outer edge of the strip, said stitches serving to stiffen the strip and prevent its outer edge from being frayed out too rapidly. As the outer edge of the strip is worn away the lines of stitching successively disappear. The frayed-out portion of the strip constitutes the acting portion of the brush, the width of this portion being limited by the said lines of stitching. This feature of my invention—namely, a series of stretches of textile fabric each extending from end to end of a rotary hub and radiating edgewise from the hub, each stretch being composed of a plurality of plies united by lines of stitching arranged substantially parallel with the outer edge of the stretch—is not limited to a brush or cushion in which the stretches form parts of a continuous strip arranged as above described, and may be embodied in a structure in which the stretches are independent of each other.

The space between any two adjacent stretches c' is open at one end of the hub and closed at the other end of the hub by the bend of the strip connecting the two stretches. This closed end, in connection with the oblique arrangement of the stretches, causes the stretches when used for brushing purposes to force air outwardly or radially from the brush with sufficient force to prevent the friction developed by the contact of the stretches c' with the article being brushed from injuriously heating said article. This cooling or ventilating action is the most important advantage resulting from the improved construction so far as its application to a brush is concerned.

It will be seen that the continuous strip arranged to form a connected series of oblique stretches enables the described brush or cushion to be expeditiously formed with less expenditure of time and labor than would be required if the stretches were independent of each other and independently attached to the hub. Hence the cost of manufacture of a rotary brush or a rotary cushioned roll of the character described is materially reduced by my invention. Moreover, the angles formed by the bends of the strip at the ends of the stretches stiffen the brush or cushion and prevent the stretches from collapsing or falling over sidewise when not in motion, the brush or cushion having sufficient inherent stiffness to support it in substantially or approximately its predetermined form without the aid of centrifugal force.

My invention is not limited to the details of construction here shown and described, and these may be variously modified, particularly so far as they relate to the connection between the strip and the hub, without departing from the spirit of my invention. The improved structure may also be employed for any other uses to which it may be found applicable.

I claim—

1. A rotary appliance of the character stated, comprising a hub, and a series of stretches of flexible material attached obliquely to the periphery of the hub and separated by spaces which are open at one end of the hub and closed at the other end.

2. A rotary appliance of the character stated, comprising a rigid hub, and a flexible strip secured at its inner edge to the periphery of the hub and extending around the hub in a series of oblique stretches, the outer edge of the strip standing out from the hub and being disposed in a corresponding series of oblique stretches.

3. A rotary appliance of the character stated, comprising a rigid hub having two series of fastening members projecting from its periphery near its ends, the members of one series alternating with the members of the other series, and a continuous flexible strip having its inner edge engaged with said fastening members, the strip extending around the hub in a series of oblique stretches.

4. A rotary appliance of the character stated, comprising a rigid hub having two series of fastening members projecting from its periphery near its ends, the members of one series alternating with the members of the other series, and a continuous flexible strip having a reinforcing-ligature at its inner edge extending in a series of oblique stretches around the hub, said ligature being engaged as described with the two series of fastening members.

5. The combination of a rotary hub, and a series of stretches of textile fabric attached at their inner edges thereto, each stretch extending endwise of the hub and radiating crosswise or edgewise therefrom, each stretch being composed of a plurality of plies united by lines of stitching arranged substantially parallel with the outer edges of the stretches.

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

HAROLD A. WEBSTER.

Witnesses:
C. F. BROWN,
E. BATCHELDER.