No. 793,657. PATENTED JULY 4, 1905.

L. W. HARDY.

PNEUMATIC BRUSH.

APPLICATION FILED JUNE 5, 1902.

2 SHEETS—SHEET 1.

Fig. 1.

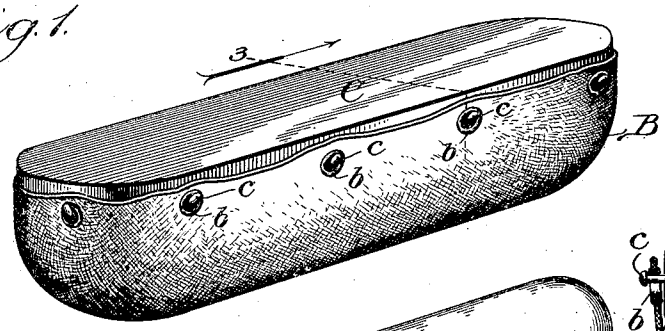


Fig. 2.

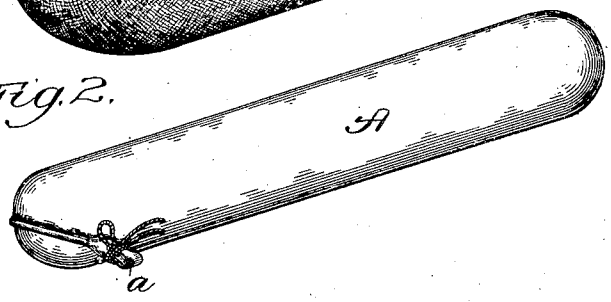


Fig. 3.

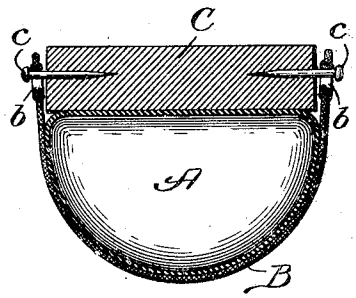


Fig. 4.

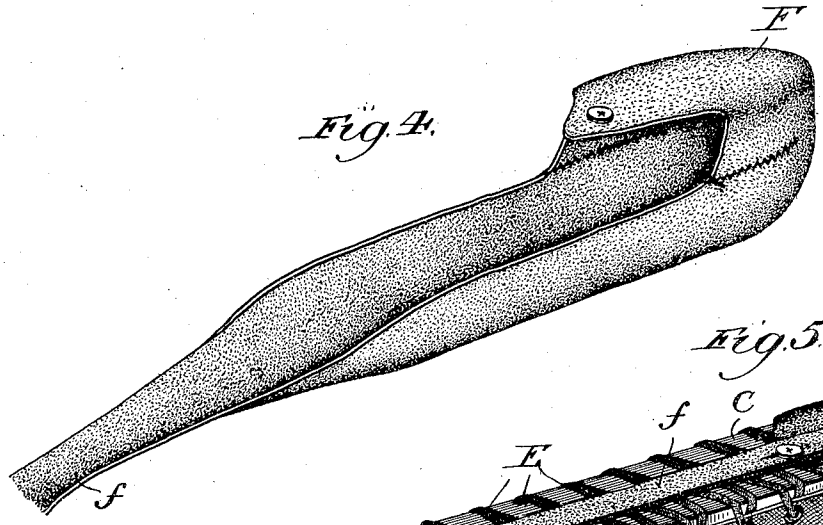
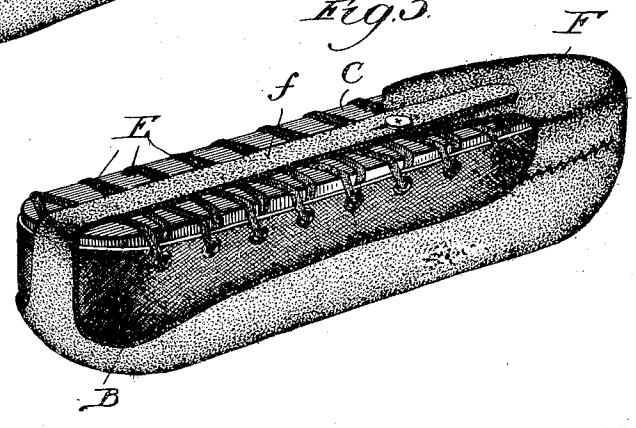


Fig. 5.



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2 SHEETS—SHEET 2.

Fig. 6.

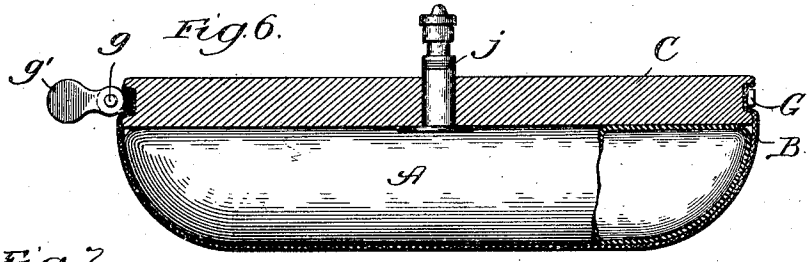


Fig. 7.

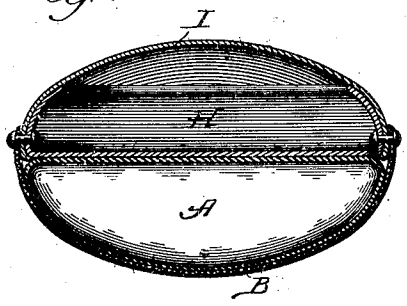


Fig. 9.

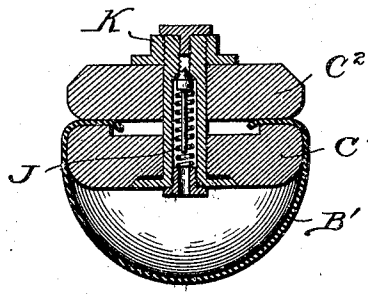


Fig. 8.

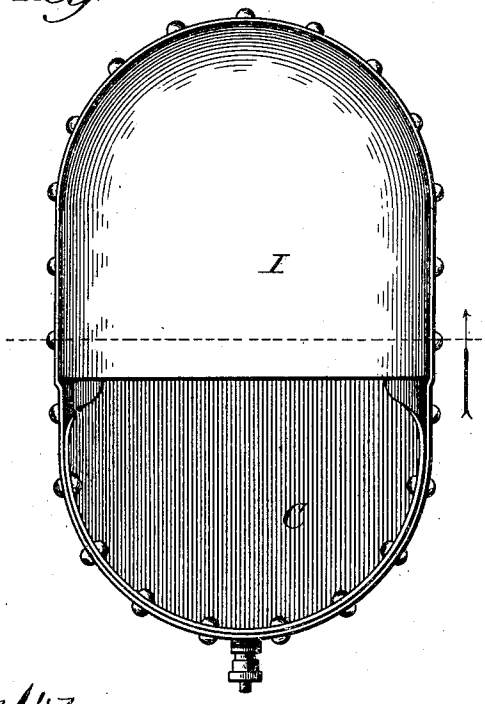
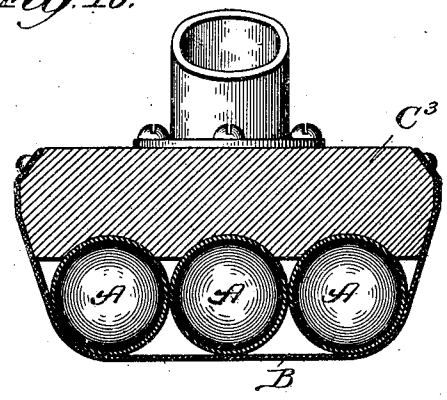


Fig. 10.



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No. 793,657. Patented July 4, 1905.

UNITED STATES PATENT OFFICE.

LEWIS W. HARDY, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO HERMAN W. STILLMAN, OF CHICAGO, ILLINOIS.

PNEUMATIC BRUSH.

SPECIFICATION forming part of Letters Patent No. 793,657, dated July 4, 1905.

Application filed June 5, 1902. Serial No. 110,301.

To all whom it may concern:

Be it known that I, LEWIS W. HARDY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Pneumatic Brushes, of which the following is a specification.

My invention relates to improvements in brushes, more especially those adapted for polishing purposes, such as the polishing of shoes, furniture, jewelry, floors, &c.

One object of my invention is to provide as a new article of manufacture such a brush in which the polishing-surface shall be yieldingly backed by a pneumatic cushion.

Another object of my invention is to provide such a brush which may be readily handled, cheaply constructed, and easily assembled.

A further object of my invention is to provide such a brush with a readily-removable polishing-cover, so that the brush may be readily used interchangeably with covers providing polishing-surfaces for various different purposes.

These and such other objects as may hereinafter appear are attained by the devices illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the preferred form of my brush completely assembled. Fig. 2 is a perspective view of a simple form of pneumatic cushion. Fig. 3 is a transverse sectional view on the line 3 of Fig. 1. Fig. 4 is a perspective view of one form of interchangeable cover. Fig. 5 shows a modified construction of my improved brush fitted with the cover shown in Fig. 4. Fig. 6 is a longitudinal section of another modification of my invention. Fig. 7 is a transverse sectional view of the modified form of my brush shown in plan in Fig. 8. Fig. 8 is a top plan view of the modified form of construction illustrated in section in Fig. 7, and Figs. 9 and 10 are transverse sectional views of other modifications of my device.

Like letters of reference indicate the same parts in the several figures of the drawings.

My improvement consists, primarily, of a brush comprising an air cushion or chamber A, preferably constructed of soft rubber and confined by a cover B of comparatively inelastic material, which is suitably secured to a firm or comparatively solid handpiece or back C. In some of the modifications of my device it is obviously possible to dispense with the air-cushion A if the cover B is so treated as to be practically impervious to air. Ordinarily, however, it will be found simpler and more practical to use a separate rubber air-cushion, in which event, owing, primarily, to the elasticity of the air-cushion, it must be confined by the comparatively inelastic cover B, while the firm back C permits the application of a substantially uniform pressure to the back of the yielding cushion A and forms a convenient handpiece where the brush is used as a hand-brush.

In the simple form shown in Figs. 1, 2, and 3 the air-cushion A is provided with a tube *a*, through which the cushion may be inflated in any suitable manner, the air being retained in any convenient manner, such as by bending the tube upon itself and securing it in this position or by any usual form of valve. The cover B is provided with a plurality of eyelets *b*, which should be preferably metal-bound and which are of sufficient size to fit over the heads of the studs *c*, which project slightly from the edge of the back-piece C, the elasticity of the inflated air-cushion A serving to hold the eyelets *b* tightly against and behind the heads of the studs *c*, so as to prevent the accidental detachment of the cover B, while at the same time yielding sufficiently to permit the eyelets *b* to be fitted over the heads of the studs *c*. Where there is objection to a construction embodying projecting studs *c*, the cover B may be adjustably secured in place by lacings E, as shown in Fig. 5, or in any other manner.

Although the cover B may obviously be made of material which will serve to furnish a polishing-surface, yet this cover is intended, primarily, to confine and protect the air-cushion A, so that in practice I prefer to provide the polishing-surface by the use of a separable cover, such as the cover F, shown in Figs. 4 and 5. This cover may be attached by means of eyelets and studs, the same as the

cover B, or by means of lacings, such as E; but as it is desirable that the cover may be quickly attached and detached and as it may be undesirable to increase the distance to which the studs *c* project from the handle C in order to provide room for attaching another cover thereto I prefer some such form of detachable cover as that shown in Figs. 4 and 5, comprising a pocket into which one end of the brush may be fitted, and a strap *f*, adapted to be carried over the back of the brush and to be attached to the pocket by means of a button and buttonhole or in any other suitable manner.

In the modification shown in Fig. 6 the cover B is secured to the back C by means of a strap G, which fits entirely around the back-piece C in a groove formed in the edge of the back C. The ends of the strap are clamped together by a brush *g* and may be allowed to project to form the cleaning-point *g'*.

In the modification shown in Figs. 7 and 8 the back C is provided with a pocket H, formed by the cover I, which extends across the back C for a portion of its length and furnishes a recess for the fingers of the user.

In the modification shown in Fig. 9 the back consists of two pieces C' and C², between which the edges of the cover B' are clamped by means of bolts J and nuts K. With this construction the separate air-chamber A may be dispensed with, provided the cover B' is made impervious to air, and one of the bolts J may be hollow and so constructed as to contain the air-valve, so that the air-cushion may be inflated by means of any suitable pump. In Fig. 6 I have shown an air-valve at *j*.

In Fig. 10 I have shown how several air-chambers may be used so as to provide a wide flat yielding surface for large brushes, such as floor-brushes, in which event the back C³ is preferably grooved to furnish seats for each of the air-cushions A, so as to prevent their displacement when the brush is in use.

While I have referred to the working surface of my device as a brush or polishing-surface, it will be understood that such surface may be composed of sandpaper, emery-cloth, or any other abrasive material or corrugated rubber, or of any material or substance which is applied or used by a rubbing movement, and my invention contemplates any and all of these various uses of my device.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. As a new article of manufacture, a brush comprising a rigid back, a cover having its upper edges provided with eyelets, a securing means engaging said eyelets for securing the cover to said back, and an inflatable bag inclosed by said cover and engaging the lower face of said back.

2. A brush comprising a back, an inflatable bag, means for securing said bag in position, and a covering entirely inclosing one end and adjacent portions of the sides of the brush.

3. A brush comprising a back, an inflatable bag, a cover attached to said back and inclosing said bag, and a second cover fitted over said first-named cover and having its ends secured together at a point above the brush-back.

4. A brush comprising a back, an inflatable bag, a cover inclosing said bag for securing the same to the back, a second cover having its one end entirely inclosing one end of the brush, and a strap secured to the opposite end of said cover and extending over the back of the brush and secured to the opposite end thereof.

5. A brush comprising a back, studs secured to the edges of said back, an inflatable bag, and a cover inclosing said bag and having its edges provided with eyelets adapted to normally receive said studs.

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