(No Model.)

W. WARWICK & W. BERNARD.

GRINDING OR POLISHING WHEEL.

No. 304,588. Patented Sept. 2, 1884.

Fig. 1.

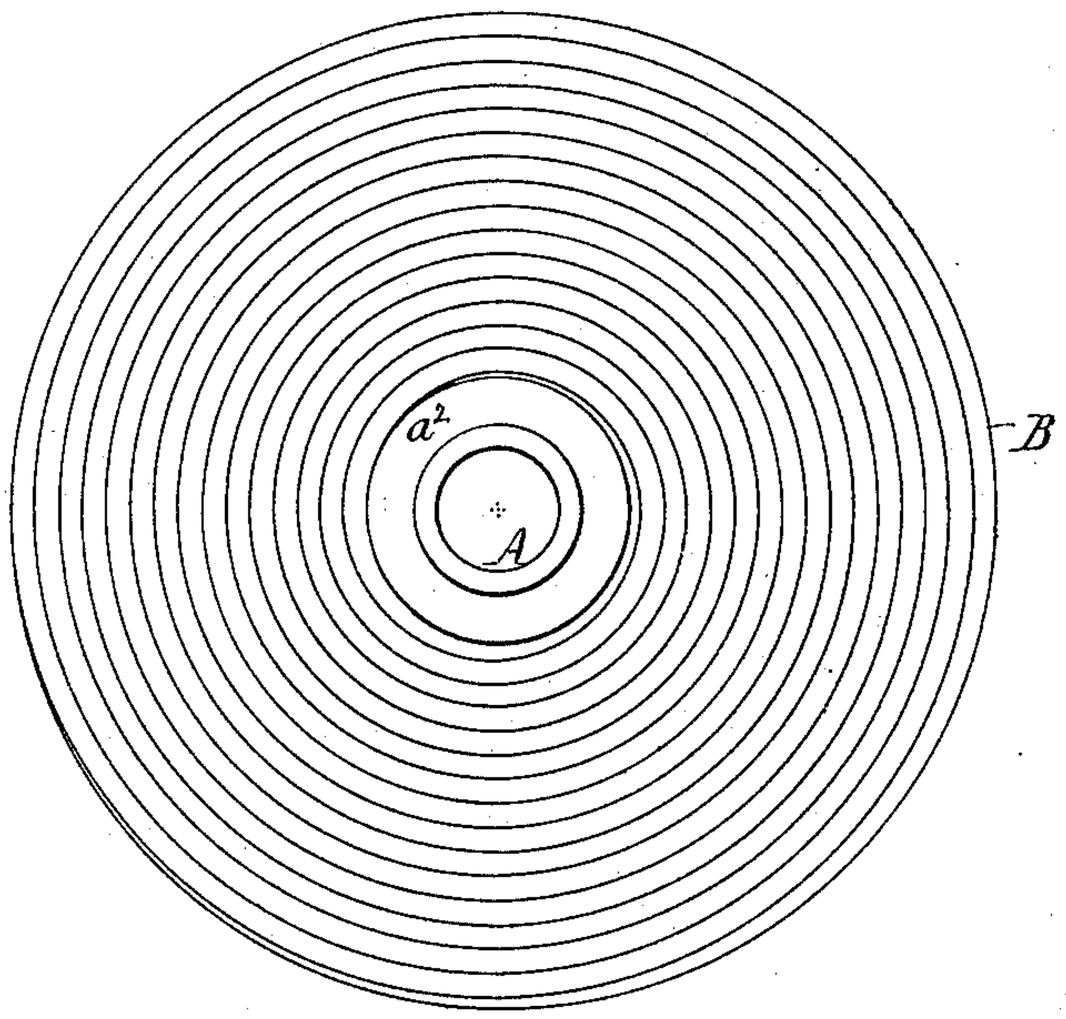


Fig. 2.

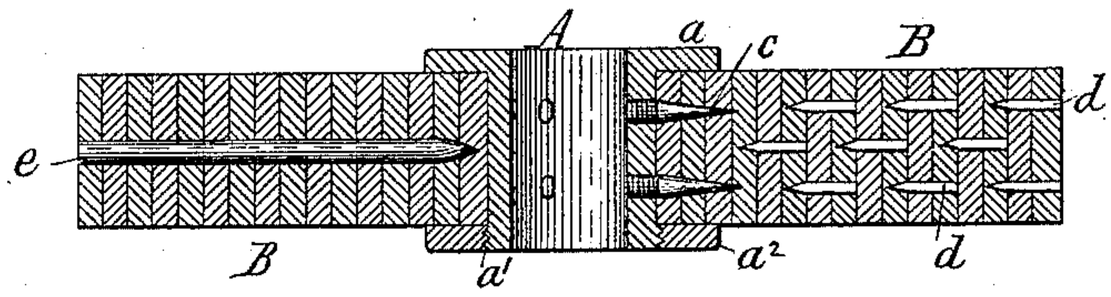


Fig. 3.

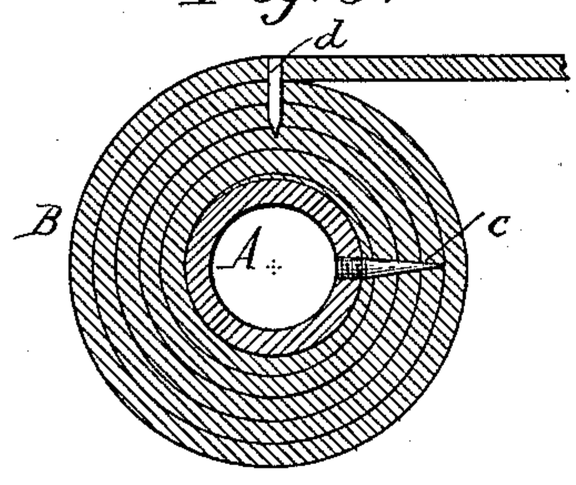
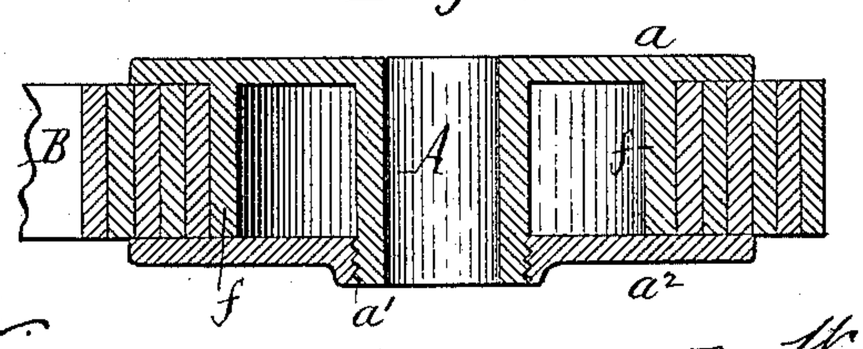


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM WARWICK AND WILLIAM BERNARD, OF BUFFALO, NEW YORK.

GRINDING OR POLISHING WHEEL.

SPECIFICATION forming part of Letters Patent No. 304,588, dated September 2, 1884.

Application filed October 20, 1883. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM WARWICK and WILLIAM BERNARD, both of the city of Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Grinding or Polishing or Buffing Wheels, of which the following is a specification.

This invention relates to an improvement in that class of grinding or polishing or buffing wheels which are composed of layers of paper or paper-board; and the object of our invention is to produce a wheel which is light, strong, and durable, and which can be produced at comparatively small expense, and which can be used until the body of the wheel has been nearly worn away.

Our invention consists to that end of a grinding or polishing or buffing wheel, the body of which is composed wholly of convolutions of paper or paper-board wound or coiled around the hub or mandrel of the wheel, and adhesively secured at their adjacent faces, as will be hereinafter fully set forth, and pointed out in the claim.

In the accompanying drawings, Figure 1 is a side elevation of our improved polishing or buffing wheel. Fig. 2 represents a cross-section of the same. Fig. 3 is a sectional elevation of the central part of the wheel, illustrating the manner in which the body is covered around the hub. Fig. 4 is a cross-section showing a modified construction of the hub.

Like letters of reference refer to like parts in the several figures.

A represents the hub or central sleeve, constructed of cast-iron or other suitable metal and provided at one end with a flange, *a*, and at the other end with a screw-thread, *a'*, to which a threaded collar or nut, a^2, is applied.

B represents the body of the wheel, consisting of a web of paper-board wound upon the hub until a wheel of the desired diameter has been produced. The body of the wheel is formed of a continuous web, one end of which is fastened to the hub A by projecting pins *c*, with which the hub is provided. Before winding the web around the hub the web is passed through a vat or receptacle containing glue or other suitable cement, whereby the various layers or coils of the web are firmly secured together. As an additional fastening, pegs *d* may be driven through several layers of the web from time to time in building up the wheel. The web is held under the proper tension while being wound around the hub, whereby a solid wheel is produced without requiring the application of pressure after the body has been formed. If desired, dowel-pins *e* may be driven radially through the body B, in order to secure the several layers or coils of the body more firmly together. When the web is not long enough to complete the body of the wheel its end is chamfered off and secured by driving-pegs through the same into the body of the wheel, and another web with its end chamfered off in the same manner is secured by pegs over the beveled end of the first web, when the process of winding is continued until the wheel is completed or the web is exhausted, when a third web is added, if necessary. When the wheel is used as a grinding-wheel, the periphery or face of the wheel may be coated with emery in a well-known manner. The web employed in constructing the body of the wheel is made as wide as the wheel, and there is consequently no waste of material in constructing the wheel. As the body has the same structure from the periphery to the hub the wheel can be used as it gradually wears away until the hub is almost reached. When the central sleeve is too small to permit the central portion of the wheel adjacent to the hub to be used, when the outer portion of the wheel has been worn off the hub may be provided with a surrounding sleeve or collar, *f*, as represented in Fig. 4, upon which the web of the body is coiled. The body may be wound upon a mandrel and then be secured to the hub by cement, when the same hub may be used successively with a number of bodies.

The body of the wheel is preferably constructed of paper or paper-board, and when the wheel is designed to be used as a buffing or finishing wheel the outer surface or periphery of the wheel is preferably covered with a layer of felt or other soft material.

We are aware that cone-pulleys having an oblique face composed of the edges of a series

of convolutions of tapered strips have been made, and also that emery-wheels have been made of single coils or cylinders of sand-paper fixed upon wooden or metallic arbors, and do not therefore wish to be understood as claiming any such constructions; but

We claim as our invention—

A buffing or polishing wheel comprising a central hub and a body composed of convolutions of a strip or strips of flexible material having substantially parallel edges wound upon said hub and secured together at their faces by adhesive material, whereby the face or body of said wheel is capable of use until the several convolutions have been worn away nearly to said hub, substantially as hereinbefore set forth.

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