

No. 711,762.

Patented Oct. 21, 1902.

J. W. FORSTER.
GRINDING WHEEL.

(Application filed May 23, 1901.)

(No Model.)

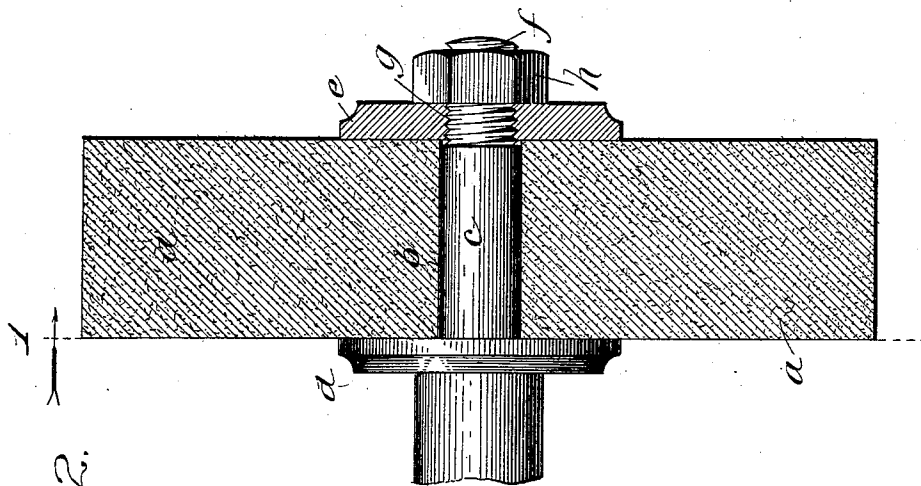


Fig. 2.

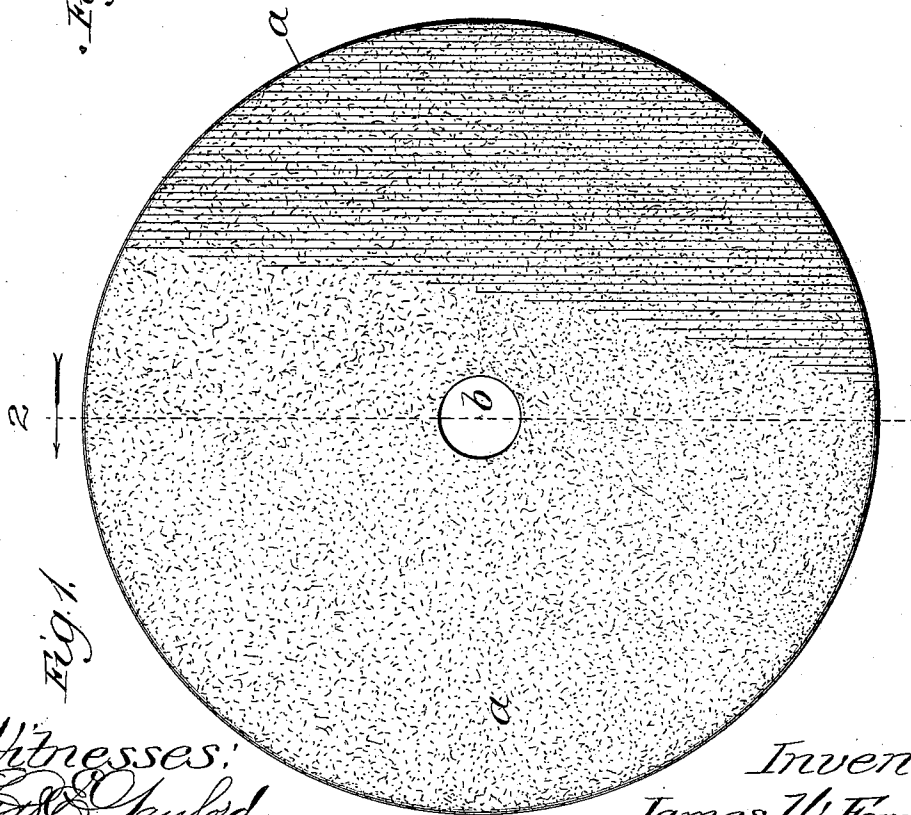


Fig. 1.

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UNITED STATES PATENT OFFICE.

JAMES W. FORSTER, OF CHICAGO, ILLINOIS.

GRINDING-WHEEL.

SPECIFICATION forming part of Letters Patent No. 711,762, dated October 21, 1902.

Application filed May 23, 1901. Serial No. 61,819. (No model.)

To all whom it may concern:

Be it known that I, JAMES W. FORSTER, 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 Grinding-Wheels, of which the following is a specification.

This invention relates to those articles of manufacture classed as "grinding-wheels" which are made of artificial cutting substances—such as emery, corundum, and, in fact, a large number of pulverized or granulated materials which are combined with other surfaces for the purpose of grinding, polishing, or smoothing different kinds of material, as iron, brass, steel, or the like.

The invention has more particular relation to the composition of matter from which the article of manufacture is made, which will be more fully hereinafter described.

The principal object of the invention is to provide a simple, economical, and efficient grinding-wheel composed of supporting binding materials combined with the desired grinding material, all of which will more fully hereinafter appear.

The invention consists of a grinding-wheel composed of pulp or similar material formed of rags, wood fiber, shoddy, and the like mixed with a suitable grinding material, such as metal, corundum, whiting, or a mixture of all.

The invention consists, further and finally, in the article of manufacture hereinafter described and claimed.

In the art to which this invention relates it has long been known that it is highly desirable to use some supporting material for the grinding material which will not break or chip off readily, but which will maintain its integrity and only wear off as the grinding material is worn away. To accomplish this end, therefore, is the object of my invention.

Figure 1 of the drawings is a side elevation of a grinding-wheel constructed in accordance with my improvements; and Fig. 2 a cross-section thereof, taken on line 2 of Fig. 1.

In Fig. 1, *a* is a grinding-wheel, and *b* is the perforation in the center thereof, by means of which the wheel is mounted on the arbor *c*, to which it is firmly attached by means of washers *d* and *e*. A threaded nut *h* is also provided and

mounted upon the end of the arbor in contact with the washer *e*, serving as a lock-nut to hold the parts in position. Although I consider it necessary in order to accomplish the purposes of my invention to mount the wheel upon a shaft, so as to be rotatable therewith and thereby, the shaft or arbor and means for fastening the wheel thereto form no part of my invention, but are shown and described for the purpose of clearly disclosing the mode of operation and purposes of the invention. It will of course be understood that the arbor is rotatably mounted in the usual manner in journals, (not shown,) but which are in common use in connection with grinding-wheels and well known in the art.

In constructing a grinding-wheel in accordance with these improvements I make a pulp of wood fiber, or of cloth or paper fiber, or a cloth or paper pulp or shoddy, or a combination of all of these materials, which is made of the desired consistency by being intermixed with a sufficient amount of liquid to produce a composition of about the consistency of paste. With this mass of pulp I mix a desired grade of grinding material—such as fine emery or corundum or fine whiting in a powder-like form or a mixture of all three. I then agitate the mass, so as to make a homogeneous mixture. I next take the mixture, which is in a plastic condition, and place it in the mold, compress it, and then bake or dry it, which renders it fit for use.

It will be seen that the grinding-wheel thus produced is not a mere mass of cutting material the particles of which are glued together. The hardened pulp forms a fibrous body, into which the particles of cutting material are set, and this body of pulp not being glued to the grinding material does not fill the spaces between the cutting edges, while it does serve to hold such cutting edges constantly exposed as the wheel is gradually worn away by use, always presenting a clean-cut cutting-surface.

The advantages of a grinding-wheel constructed in accordance with these improvements are many and will be readily appreciated by those skilled in the art, one being the tenacity with which the binding material holds the grinding material in position for

use and another that it does not chip off as readily as the ordinary grinding-wheel, which is always liable to destruction during shipment or handling.

- 5 Another advantage which results from the use of a composition consisting of a sustaining or binding material of fibrous pulp intermixed with the grinding material is that as such composition wears away the surface presented is not gummed or packed, so as to destroy its cutting quality; but the cutting edges of the grinding material stand out clean-cut and undimmed by the binding material, there being no glutinous or gummy substance therein to fill the spaces between
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the minute cutting edges presented upon the cutting-surface of the wheel.

I claim—

As a new article of manufacture, a grinding-wheel formed of a base of fibrous pulp arranged and adapted to hold particles of grinding material without glue or other adhesive, and a finely-divided grinding material formed of emery and whiting mixed therewith and held thereby, substantially as described.

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