

R. GARDNER.  
 ABRADING WHEEL.  
 APPLICATION FILED AUG. 6, 1911.

1,027,536.

Patented May 28, 1912.

2 SHEETS—SHEET 1.

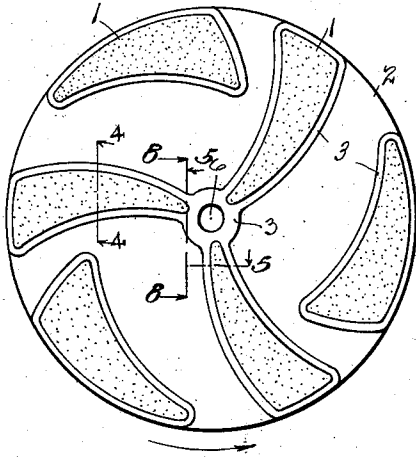


FIG. 1.

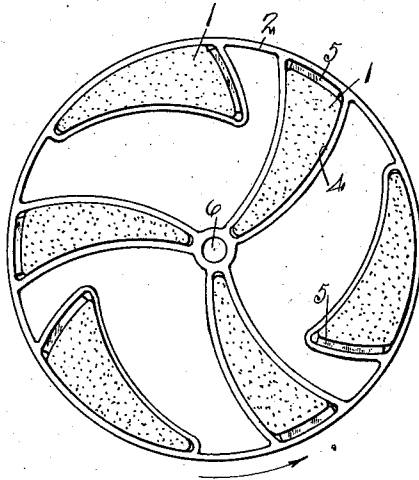


FIG. 2.

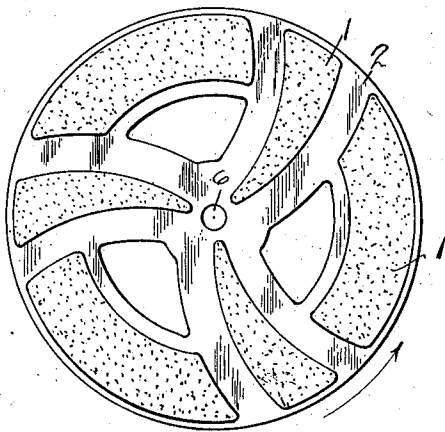


FIG. 3.

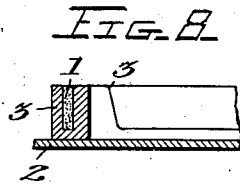


FIG. 4A

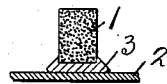


FIG. 4.

Witnesses.  
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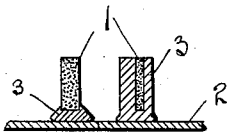


FIG. 5.

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2 SHEETS—SHEET 2.

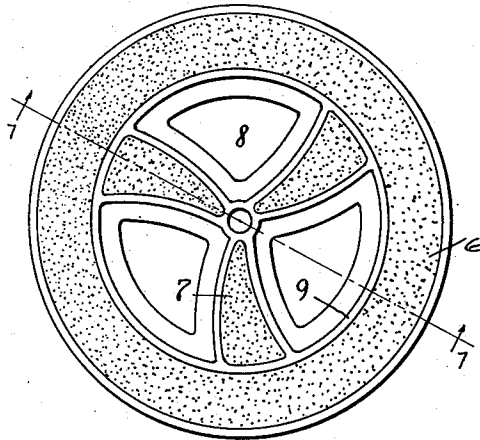


FIG. 6.

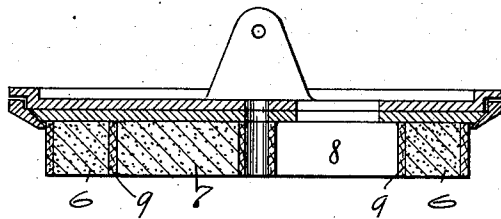


FIG. 7.

Witnesses:  
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# UNITED STATES PATENT OFFICE.

ROLAND GARDNER, OF CLEVELAND, OHIO.

## ABRADING-WHEEL.

1,027,536.

Specification of Letters Patent.

Patented May 28, 1912.

Application filed August 5, 1911. Serial No. 642,504.

*To all whom it may concern:*

Be it known that I, ROLAND GARDNER, a subject of the King of Great Britain and Ireland, and a resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Abrading-Wheels, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

The present invention relates generally to abrading wheels of that type which is used for the purpose of grinding and polishing marble, other stones, and similar materials.

One of the objects of the invention is the provision of an abrading block of such form that it will perform its work in an effective way, and another object of the invention is the provision of an improved means for mounting the improved block.

To the accomplishment of these and related ends, said invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims.

The annexed drawings and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings: Figure 1 is a plan view of my improved abrading wheel; Figs. 2, 3, and 6 show alternate forms which I have used; Fig. 4 is a section on the line 4—4, Fig. 1, showing my improved method of mounting the abrading blocks; Fig. 5 is a section on the line 5—5 Fig. 1, Fig. 7 is a central section on the line 7—7, Fig. 6, and Fig. 8 is a section on the line 8—8 in Fig. 1.

In Fig. 1 the abrading blocks 1 are shown of concavo-convex form and are disposed symmetrically on the surface of the carrier plate 2, being attached thereto by a cement 3, as for example, plaster of paris, which slightly overlaps the sides of the blocks, (see Fig. 4) and forms a tight and very secure mounting for the blocks. This cementitious material extends up the sides only slightly as shown in Fig. 4 but at the center of the plate, I prefer to extend the cement to the same level as the cutting face of the block, as shown in Fig. 5, in order to protect the narrow ends of the blocks from

becoming chipped or broken. The cement does not interfere with the action of the abrading blocks since by reason of being softer it wears away faster than the abrading material.

In Fig. 2 I show the pockets 4 adapted to receive the abrading blocks 1 which are then held in place by the wedges 5 which may be removed when the blocks must be adjusted on account of wear. In Fig. 3 the blocks are of slightly different shape and are secured to the carrier-plate by shellac which does not extend up the sides of the blocks as does the cement used in Fig. 1.

I prefer to make the abrading blocks of the size and shape, shown in Fig. 3 and to dispose them as in the same figure. This shape of blocks disposed as shown, I have found to give extremely good results, being even-grinding and very economical. They may, of course, have the inner ends reinforced as shown in Fig. 5 if desired.

The carrier plate is provided with a central aperture 6 for the better introduction of water or other fluids to the abrading surface and means for attaching the plate to a shaft may be provided. These means are not illustrated being in themselves no part of my invention but may take the usual form of lugs or ears.

In Fig. 8 the arrangement of the cementitious material used in Fig. 1 is shown. This material 3 is shown to be flush with the operating face of the abrading material at the center of the block, and to then shade off very rapidly as the distance from the center of the carrier plate increases.

In Fig. 6 I show an alternate construction which I may use, comprising a circular strip of abrading material 6 disposed adjacent to the periphery of the plate, radially disposed blocks 7, apertures 8 for the introduction of lubricant to the face of the blocks, and cement filling 9, which may be a plaster of some sort adapted to wear at a more rapid rate than the abrading material of course. As will be seen in Fig. 7, in the above described modification I may extend the use of the cement by completely filling the space between the blocks of abrading material, except for the apertures 8 of course, in this way providing a wholly solid plate with the exceptions already noted. Such construction may be used although the preferred form which my in-

vention will probably take has been shown in Fig. 3.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

10 I therefore particularly point out and distinctly claim as my invention:—

1. In an abrasive tool, a carrier plate, blocks of abrading material, certain of said blocks being disposed radially on said plate and certain others circumferentially thereon, and cementitious material for attaching said blocks to said plate.

2. In an abrasive tool, a carrier plate, blocks of abrading material of tapering form and having concavo-convex sides, certain of said blocks being disposed radially on said plate and certain others circumferentially thereon, means for attaching said blocks to said plate, and other means for protecting the inner ends of such radially disposed blocks.

3. In an abrasive tool, a carrier-plate, blocks of abrading material of tapering form and having concavo-convex sides, certain of said blocks being disposed radially on said plate and certain others, circumferentially thereon, such radially disposed blocks having the narrow ends near the

center of the plate and diverging from the center to the circumference, means for attaching said blocks to said plate, comprising a cementitious material adapted partially to inclose the side walls of said blocks, and other cementitious material disposed around the narrow inner ends of said blocks, said other cementitious material being flush with the operative face of the inner ends of said blocks.

4. In an abrasive tool, a carrier-plate, blocks of abrading material, having concavo-convex sides, some of said blocks being disposed radially on said plate and others circumferentially thereon, such circumferentially disposed blocks having the convex side concentric with the periphery of said plate, said radial and circumferential blocks being disposed alternately around said plate, cementitious material on said plate adapted partially to inclose the side walls of said blocks and securely to retain the same, and other cementitious material disposed around the narrow inner ends of said blocks, said other cementitious material being flush with the operative side of the inner ends of said blocks.

Signed by me this 4th day of August, 1911.

ROLAND GARDNER.

Attested by—

HORACE B. FAY,  
D. T. DAVIES.