A. W. PUFFER.

GRINDING WHEEL.

APPLICATION FILED MAR. 16, 1908.

927,164. Patented July 6, 1909.

Fig. 1.

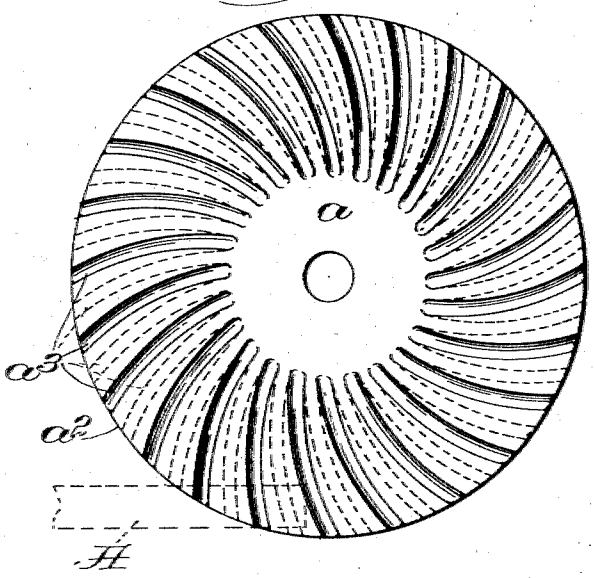
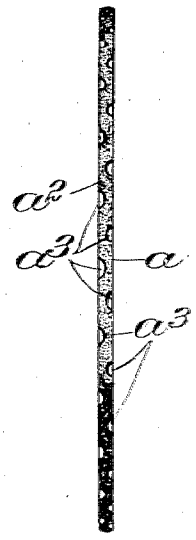


Fig. 2.



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UNITED STATES PATENT OFFICE.

ALVIN W. PUFFER, OF MEDFORD, MASSACHUSETTS, ASSIGNOR TO PUFFER MANUFACTURING COMPANY, A CORPORATION OF MAINE.

GRINDING-WHEEL.

No. 927,164. Specification of Letters Patent. Patented July 6, 1909.

Application filed March 16, 1908. Serial No. 421,344.

To all whom it may concern:

Be it known that I, ALVIN W. PUFFER, a citizen of the United States, residing in Medford, in the county of Middlesex and State of Massachusetts, have invented an Improvement in Grinding-Wheels, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

The present invention relates to a grinding wheel, and is embodied in a carborundum wheel especially intended for use in cutting or grinding marble. I have discovered that marble can be rapidly cut away by the peripheral action of a carborundum wheel rotated at high speed, it being necessary, however, to keep the wheel cool in order to prevent the material used as a bond for the carborundum from disintegrating.

In cutting through a slab of marble, or in grinding down one edge of such a slab, the grinding action takes place entirely along the periphery of the wheel, and it is necessary, therefore, to dissipate the heat along that part of the periphery which is in actual grinding contact, in order to keep the grinding stone intact. Furthermore, in cutting through a slab of marble, it is obvious that the periphery of the wheel is embedded in the marble as soon as the wheel begins to cut, so that it is desirable to conduct a cooling medium, such as cold water, to the bottom of the channel where it will carry off the heat as fast as generated. For this purpose, the wheel embodying the invention is provided with means for conducting water continually to the working surface, the wheel being provided with channels leading from a portion of the wheel away from the part in grinding contact, where a stream of water can be steadily supplied, to the said part in grinding contact, which is below the surface of the material being cut.

Figure 1 is a side elevation of a wheel embodying the invention, and Fig. 2 is an end view of the same.

Referring to Fig. 1, the wheel a is shown as a comparatively thin disk adapted mainly for the purpose of cutting through a slab of marble, or similar material, where the slab is to be divided into two pieces. In this operation, the principal grinding or cutting is performed by the peripheral portion a^2 of the wheel which becomes embedded in the material operated upon (indicated in dotted lines, Fig. 1, and designated by the reference character A).

In order to keep that portion of the periphery a^2 which is in actual grinding contact from becoming overheated, the wheel is provided with means for conducting a cooling medium such as cold water to the part of the wheel which is in grinding contact with the material A, the wheel being shown as provided for this purpose with channels a^3 cut on the opposite sides of the wheel, the said channels beginning at a point near the middle of the wheel and terminating at the periphery thereof. The channels are arranged alternately at opposite sides, so as to feed as many streams of water as possible toward the bottom of the cut, without unduly weakening the material of which the wheel is made. By curving the channels, as indicated in Fig. 1, the rotation of the wheel tends to throw the water in the direction of rotation thereof, this configuration thus assisting in forcing the stream of water into the cut where the actual grinding operation is taking place.

As best shown in Fig. 2, the staggered or alternate arrangement of the channels at opposite sides admits of the cutting of the channels approximately half way through the wheel without unduly weakening the same, so that the water distributing space afforded by the channels at opposite sides extends substantially wholly across the periphery of the wheel.

Claim.

A grinding wheel having curved channels on opposite sides, said channels on one side alternating in position with those on the opposite side, the channels being formed in the surface of the wheel and extending from points near the middle of the wheel to the periphery thereof.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

ALVIN W. PUFFER.

Witnesses:

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