March 18, 1952 W. A. BELCHER, JR 2,589,661

GRINDING WHEEL

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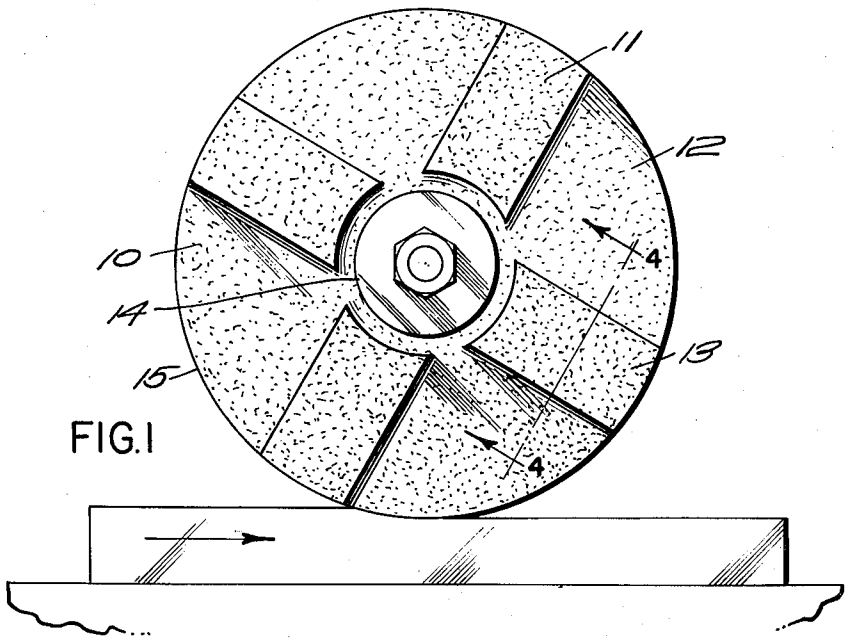


FIG.1

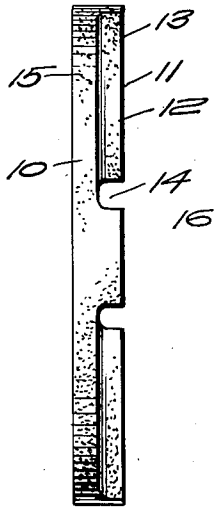


FIG.2

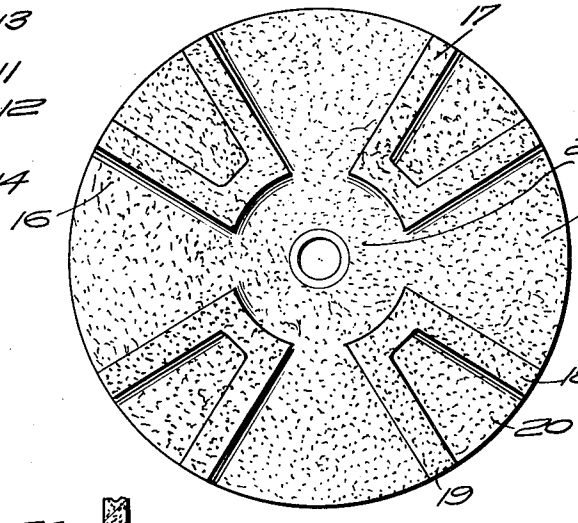


FIG.3

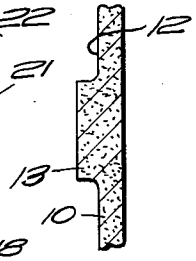


FIG.4

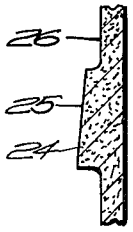


FIG.5

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GRINDING WHEEL

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2 Claims. (Cl. 51—206)

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The present invention relates to the grinding and polishing art, and has particular reference to a novel construction for a grinding wheel.

The principal object of the invention is to provide an improved grinding wheel.

Another object of the invention is to provide a grinding wheel construction which imparts an improved surface finish to the work being ground.

A further object of the invention is to provide a grinding wheel which has a very long effective life up to six or nine times the effective life of the grinding wheel heretofore used.

An additional object of the invention is to provide a grinding wheel which does not excessively heat up during the grinding operation.

With the above and other objects and advantageous features in view, the invention consists of a novel arrangement of parts more fully disclosed in the detailed description following, in conjunction with the accompanying drawings, and more specifically defined in the claims appended thereto.

In the drawings,

Fig. 1 is a side view of a grinding wheel embodying the invention;

Fig. 2 is an edge view thereof;

Fig. 3 is a side view of a modified construction;

Fig. 4 is a section on the line 4—4 of Fig. 1; and

Fig. 5 is a view similar to Fig. 4, showing a modified formation for the cutting elements.

It has been found desirable to improve the construction of a grinding wheel, and thus increase its effective life and the smoothness and quality of the grinding action. I have found that grinding wheels of standard types produce a distortion of the work, especially when grinding cold rolled steel, and that the surface of larger pieces is not finished smoothly and uniformly. I have therefore devised a grinding wheel which has spaced grinding sections and an annular follow-up surface, whereby the spaced grinding sections provide a smooth grinding action which is then completed by the annular follow-up surface. This construction produces a smooth cut without heating up, the life of the wheel being greatly increased and the quality of the work being improved.

Referring to the drawings, the grinding wheel 10 is of the usual molded grinding material; the grinding side 11 which is presented to the work is recessed as indicated at 12 to provide a number of spaced grinding elements 13, the inner portions of the elements being recessed as indicated at 14 to provide clearance passages in conjunction with the recesses 12. The remainder of the wheel rim surface provides a follow-up annular section 15.

When the grinding wheel is applied to work to be ground, as indicated in Fig. 1, the cutting sections 13 engage the work. The recesses 12 and 14 receive the ground-off particles and dust, thus keeping the ground surfaces clean, and the annular section 15 cleans and polishes the ground surface.

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Any suitable arrangement for recessing the grinding side to provide spaced grinding elements may be used, such as for example shown in Fig. 3, wherein the wheel 16 has grinding elements 17 formed with two parts 18, 19 separated by a recess 20, the elements 17 being separated by wider recesses 21 communicating with a central cutaway area 22.

Since some metals require clearance, it may be desirable for such work to rearwardly taper or bevel the cutting elements as illustrated in Fig. 5, the grinding wheel 23 having grinding elements 24 which are tapered rearwardly of the direction of rotation of the wheel as indicated at 25 and are separated by recesses 26.

If desired, the wheel may be balanced for smooth running by forming recesses on the other side corresponding in volume with the recesses on the work engaging side.

The above described constructions thus provide a cool running grinding wheel which has a plurality of spaced cutting elements with intermediate recesses, and an annular finishing surface, the grinding wheel being formed as an integral unit.

Although I have described specific constructional embodiments of my invention, it is obvious that changes in the size, shape, and arrangement of the parts may be made to meet requirements for different grinding operations, without departing from the spirit and the scope of the invention as defined in the appended claims.

I claim:

1. A grinding wheel construction having a continuous annular finish grinding edge, one side of the wheel having spaced substantially radial grinding elements and intermediate recesses, the inner portions of the grinding elements being recessed and providing clearance passages in conjunction with the intermediate recesses.

2. A grinding wheel construction having a continuous annular finish grinding edge, one side of the wheel having spaced substantially radial grinding elements and intermediate recesses, the inner portions of the grinding elements being recessed and providing clearance passages in conjunction with the intermediate recesses, said grinding elements being tapered rearwardly of the direction of rotation of the wheel to provide clearance.

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