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DIAMOND WHEEL DRESSER

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Fig. 1.

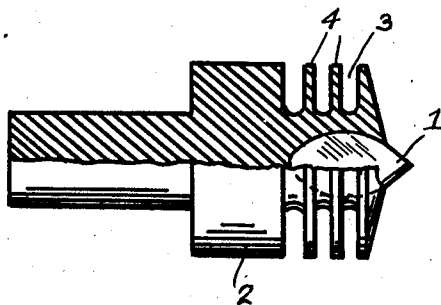
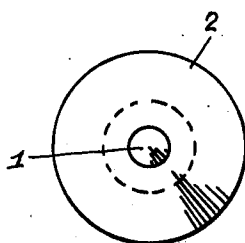


Fig. 2.



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DIAMOND WHEEL DRESSER

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3 Claims. (Cl. 125—11)

This invention has reference to dressing tools but more especially to a diamond wheel dresser of the type used to cut the surface of a grinding wheel.

5 The object of the invention is to provide for quickly dissipating the frictional heat generated by the wheel and, by reason of the prompt cooling action, to reduce the repeated expansions and contractions of the diamond and thereby preventing minute flaws in the gem which usually extend into serious fractures.

The above object is attained by the novel construction, arrangement and combination of parts hereinafter more fully described with reference to the accompanying drawing wherein:—

15 Figure 1 is a side view partly in section of a diamond wheel dresser constructed in accordance with the invention and

Figure 2 is a front end view thereof.

20 A diamond wheel dresser is a tool composed of a diamond imbedded in the end of a steel rod. The diameter of the rod is much larger than the diamond so that there is a relatively large body of steel outside the diamond. When using this tool to cut the surface of a grinding wheel frictional heat often makes the diamond red hot. A small stream of water is provided for the purpose of carrying away this frictional heat.

30 The flow of water is, however, not sufficiently cooling in effect to prevent the diamond from being raised to a high heat in the process of truing the wheel. The diamond wheel dresser forming the subject matter of the present invention is, therefore, so designed that it will dissipate the frictional heat more rapidly. To accomplish this, several grooves are cut in the metal surrounding the diamond. The resultant design is illustrated in Figure 1 of the drawing wherein 1 indicates the diamond of the tool imbedded in the end of a steel rod 2. The several grooves are indicated at 3 and as shown are annular. These grooves permit air and water to flow through the head of metal, as it were, and apply the cooling means very close to the diamond and, hence, at the center of heat generation.

45 The head of metal surrounding the diamond is so cut as to provide thin radiating walls or fins 4 between the grooves 3 and tend to quickly dissipate the frictional heat generated by the wheel since it is a well known fact that heat radiates rapidly from a body of metal when its outside surface is formed into thin partitions, fins, etc.

In the case of former designs of these tools, the solid head of metal more or less diverges the stream of water and allows a high degree of heat to reside within the body of metal from which it is unable to radiate fast enough to keep the diamond cool. The cooling effect of the grooves and the fins maintains the more even temperature of the wheel dresser and prolongs the life of the diamond.

5 The beneficial result of this increased radiation in this tool by both air and water is obvious. The repeated cycle of expansion and contraction within the diamond tends to develop cracks and flaws which immediately reduce the value of the diamond, and shortens its useful life as well as decreasing its power to resist the abrasive effects of the grinding wheel. The second serious effect of an overheated diamond is that it frequently melts or softens the metal matrix holding the diamond in place resulting in its possible loss from the tool.

10 From the foregoing it is apparent that the grooved and finned design of the herein designed tool constitutes an important and material improvement in the economy of these tools by reason of overcoming in large degree those faults common to old design.

Having thus described the invention, what is claimed is:—

1. A wheel dresser composed of a steel rod and a diamond imbedded in the end of the steel rod, said rod having annular grooves concentric with and surrounding the diamond for applying a coolant close to the diamond.

2. A diamond wheel dresser comprising a diamond and a head with the diamond set therein, the material of the head surrounding the diamond being cut away to provide annular grooves separated by thin fins, the grooves serving to carry water close enough to cool the diamond and the fins tending quickly to dissipate the frictional heat generated by the wheel.

3. A diamond wheel dresser comprising a metal rod having a head and a diamond set in the end of the head, the metal of said head being cut away to provide a plurality of deep grooves separated by thin fins between the back and the front of the diamond for directing air, water or any other coolant close enough to the diamond in order to dissipate any frictional heat therein.

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