C. H. STEPHAN.

TOOL FOR DRESSING EMERY WHEELS.

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953,445.

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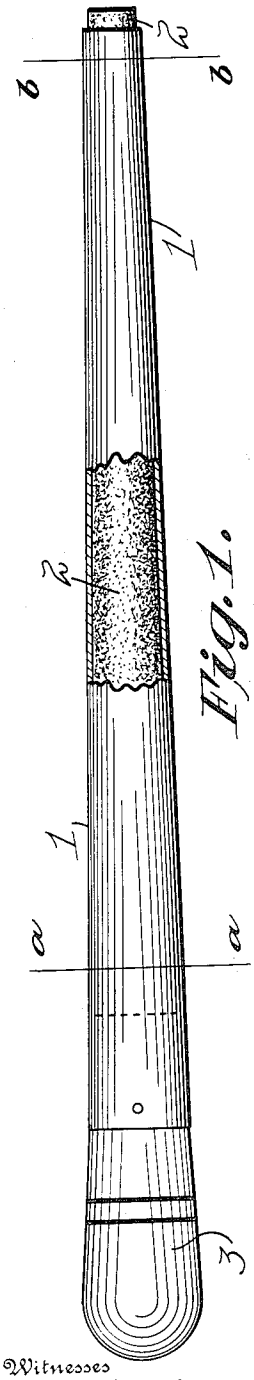

Fig. 1.

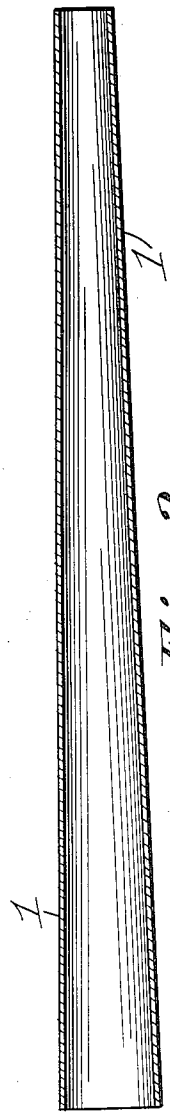

Fig. 2.

Fig. 3.

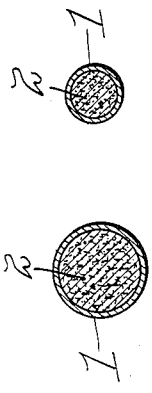

Fig. 4. Fig. 5.

Witnesses

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UNITED STATES PATENT OFFICE.

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TOOL FOR DRESSING EMERY-WHEELS.

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To all whom it may concern:

Be it known that I, CHARLES H. STEPHAN, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Tools for Dressing Emery-Wheels; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to a tool for grinding emery wheels.

The invention consists in the method of making the dressing tool and by means of which method a finished article is produced having the features hereinafter described and claimed.

The object of the invention is to produce the abrasive material in the hardest possible form or in such a vitrified condition as to meet the requirements. In other words, the abrasive substance is capable of dressing an emery wheel in the hardest possible form in which it can be produced and the life of such abrasive substance is greatly lengthened by being thus produced in the most intense vitrified condition.

It is essential that the abrasive substance be incased in a metallic casing after it has been formed and baked or vitrified in order that the stick so formed shall be preserved and prevented from breaking while in actual use. Heretofore, it has been the common method to tamp the abrasive substance into a metallic tube and to then subject the tube with the abrasive substance therein to the baking process; this, however, has been found undesirable for it is impossible to subject the material to a sufficient heat without at the same time endangering the tube itself to melting. It is also desirable that when the stick of abrasive substance is incased in the tube, that the two shall be so united or brought into such rigid contact as to practically constitute them one integral member for all practical purposes.

A further object of my invention is to provide a tool for dressing emery wheels which, owing to its formation, may be applied at one stage of its existence to smaller emery wheels, and at a later stage of its existence to be applied to the larger emery wheels. In other words, heretofore it has been the custom to provide these tools in different sizes to meet the requirements above indicated. With the present tool, such is not required.

Preceding a more detailed description of the invention, reference is made to the accompanying drawings, of which—

Figure 1, is a longitudinal elevation of my improved emery wheel dressing tool, a portion of the metallic casing being broken away to show the vitrified abrasive substance. Fig. 2, is a longitudinal sectional view of the metallic tube showing the same before the union with the stick of abrasive substance. Fig. 3, is a longitudinal elevation of the stick of vitrified abrasive material before its insertion in the metallic holder. Figs. 4 and 5, are cross sections on the lines *a a* and *b b* of Fig. 1.

In a detail description of the invention, similar reference characters indicate corresponding parts.

The abrasive substance is first formed and is baked to the proper vitrified condition before it is incased. The form of the material is that of a stick 2 which is tapered throughout its length from one end to the other; the tapered form of the stick of vitrified abrasive substance is essential as will presently appear. The holder for this vitrified stick of abrasive substance essentially conforms to the same tapered shape and consists of a metal tube 1 which is formed of sheet metal, preferably block tin or such other metal having the requisite strength to withstand the force applied to the stick of abrasive substance when the latter is inserted in said tapered holder. The stick of abrasive substance is formed substantially as shown in Fig. 3 and is in that condition subjected to the requisite amount of heat to produce one homogeneous stick of material. The stick so formed is placed in the tapered holder and the necessary pressure is exerted longitudinally on the larger end of the stick to drive the same into the tube in a wedge-like manner until the tube and the stick are most firmly and rigidly united. After the stick of abrasive material is so firmly and rigidly placed within the tapered holder, the wooden handle 3 is inserted in the larger end of the holder and united thereto. The smaller end of the stick

of abrasive substance projects out of the smaller end of the holder, and as the said end wears away by contact with the emery wheel, the end of the metallic holder is likewise worn away by the grinding operation or it may be removed by cutting the same to expose the end of the abrasive material.

It will be understood that the tool is serviceable for practical purposes as long as there is sufficient length to it. It will therefore be seen as the working end of said tool wears away, the abrasive stick becomes of greater diameter and is thus suitable for application upon larger emery wheels. As long as the tool remains substantially in its initial condition, the working end thereof is comparatively small as compared with the larger portions of the body of the tool, therefore the tool is adapted for dressing the smaller emery wheels until its length is reduced to the larger diameters when it becomes suitable for dressing the larger wheels. This obviates the necessity of constructing different sizes of tools, as it will be apparent from the foregoing description.

It will be understood that the abrasive material consists of any of the well-known materials, and a suitable binding by which the grinding material is solidified.

Having described my invention, I claim:

1. An improved article of manufacture comprising a dressing tool consisting of a stick of fused abrading material of tapered form, and a correspondingly shaped sheet metal casing inclosing said tapered stick of abrading material, within which said abrading material is compressed after fusing, the fusing point of said tapered stick of abrading material being at a degree of heat which exceeds the melting point of the metallic casing.

2. An improved article of manufacture comprising a dressing tool consisting of a stick of fused abrading material of tapered form, and a sheet metal casing of similar form inclosing said tapered stick of abrading material and within which tapered metal casing said stick of fused abrading material is compressed after fusing, and the larger end of said metallic casing having a handle portion fixed thereto.

In testimony whereof I affix my signature, in presence of two witnesses.

CHARLES H. STEPHAN.

Witnesses:
MATTHEW SIEBLER,
CAROLYN M. THEOBALD.