

# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN GRINDING AND POLISHING WHEELS.

Specification forming part of Letters Patent No. **151,837**, dated June 9, 1874; application filed May 16, 1874.

*To all whom it may concern:*

Be it known that I, ISAAC BUTTERFIELD, of Weissport, in the county of Carbon and State of Pennsylvania, have invented a new and Improved Composition for Emery-Wheels and Whetstones; and I do hereby declare that the following is a full, clear, and exact description of the same.

The object of this invention is to provide a composition of minerals and cementing material which, when properly mixed and subjected to a sufficient degree of pressure and heat, will make a stone for emery-wheels and whetstones of great durability and efficient cutting-power. My invention consists in the use of the ashes of tan-bark or other organic matter, in combination with ground emery and a cohesive substance; and to enable others to make use of my invention, I give the following as one of the most approved formulas for compounding and manufacturing the same.

Dissolve in one-half pint of alcohol one-half pound of gum-shellac, and stir the solution well. To this add four pounds of ground emery and one pound of ashes, adding these ingredients alternately, and a little at a time, stirring the composition constantly to reduce it to a uniform consistency. As soon as the full amount of all the ingredients has been added, the composition will have assumed a

half-plastic and half-friable condition, in which state it is allowed to dry. The composition is then placed in a hydraulic press, in which the plates which communicate with the molds are perforated by steam-cavities. The steam is then turned on, which melts the cementing material, and the power of the press applied, which compresses the composition to a sufficient degree of density. The steam is then turned off and water admitted, by means of which the compressed material is allowed gradually to cool in the molds.

The function which the ashes perform in this composition is purely a mechanical one. In the wear of the stone, the ashes falling out of the small interstices, by reason of its friable nature, and leaving a sharp cutting-grit of emery, which, for efficiency, has been demonstrated by experiment to be unsurpassed.

Having thus described my invention, what I claim as new is—

In a composition for grinding and polishing wheels, ashes of bark, in combination with a cutting-grit and a cementing material, as and for the purpose set forth.

ISAAC BUTTERFIELD.

Witnesses:

EDWD. W. BYRN,

EDWARD V. BENTON.