

UNITED STATES PATENT OFFICE.

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COMPOSITION FOR EMERY-WHEELS.

SPECIFICATION forming part of Letters Patent No. 534,847, dated February 26, 1895.

Application filed August 26, 1891. Serial No. 403,812. (Specimens.)

To all whom it may concern:

Be it known that we, ELMER E. TOWLE, LAWRENCE G. CLAREY, and EDWIN H. COOLIDGE, of Sterling, county of Worcester, State of Massachusetts, have invented an Improvement in Composition for Emery-Wheels, of which the following description is a specification.

In the manufacture of emery wheels, the emery mixed with several other ingredients, and molded into desired shape, is placed in a kiln and burned in order to harden it to withstand the severe work to which it is subjected.

Various grades of wheels or articles differing in degrees of hardness, are required for various kinds of work, and it is only by burning the articles different periods of time, that some may be made harder than others. In this operation of burning, it is exceedingly difficult to determine whether or not a wheel has been burned long enough to give it the required hardness, and frequently the wheels are overburned and ruined, because they are not suitable for use as hard wheels, which require a composition differing somewhat in its proportions from the soft wheels. To obviate this as far as possible, it is customary to place the softer wheels on the interior of the stack or pile within the kiln, in order that they may not be subjected to such intense heat, but this does not prevent overburning.

This invention has for its object to produce a composition for emery wheels, whereby the exact degree of hardness may be previously determined, irrespective of the length of time or the temperature to which they may be subjected in the baking or burning kiln.

In accordance with this invention, the emery or abradant in a ground or pulverized state, is mixed with a composition including substantially the following ingredients, viz:—whitelead, twenty pounds; fusible clay, thirty pounds; sand, fifteen pounds, and infusible clay or kaolin, two pounds. The above are mixed together in substantially the proportions named, and when of the proper consistency, the emery is added in about the propor-

tion of fourteen ounces of the composition, to twenty pounds of the emery, and when thoroughly mixed, is molded into the desired form and placed in a dry room to dry, during which time it will preferably be smoothed or shaped. The molded article is thereafter placed in a kiln or furnace and burned, after which it is in condition for use.

Infusible or fire clay or kaolin, the latter being herein understood as a species of infusible clay may be burned to a certain degree only, and by varying the amount of infusible or fire clay in any composition, the hardness of the article after burning, may be accurately determined previous to burning. The greater the proportion of the infusible clay or kaolin, or both, the softer will be the article after burning, because the presence of the infusible clay will, more or less, prevent the article from absorbing the heat beyond a certain degree.

By using white fusible clay instead of the usual red fusible clay, greater strength is secured and greater freedom from glazing, and by employing white lead instead of litharge, and white sand instead of common sand, now commonly used, still greater strength is secured and greater freedom from glazing.

We do not limit our invention to the exact proportions herein presented, as the same will be varied according to the grade of wheel to be produced, but we desire to cover broadly the use of infusible or fire clay, or kaolin, in a composition for emery wheels or other like articles, for by its use articles may be subjected to the same heat for the same length of time, and still possess varying degrees of hardness.

White quartz may be employed in place of the white sand if desired, and litharge in place of white lead.

We desire it to be understood that this invention includes the substitution of corundum or other abrading substance, for emery.

Excellent results may be obtained, and a wheel much stronger than any now in use may be produced by employing white lead, white clay and white sand, without the in-

fusible clay in substantially the proportions herein named.

We claim—

5 The herein described composition for emery articles or wheels, comprising an abradant white lead, white fusible clay, white sand and infusible clay, substantially as described.

In testimony whereof we have signed our

names to this specification in the presence of 10 two subscribing witnesses.

ELMER E. TOWLE.
LAWRENCE G. CLAREY.
EDWIN H. COOLIDGE.

Witnesses:

FREDERICK L. EMERY,
ANNIE S. WIEGAND.