

UNITED STATES PATENT OFFICE.

ALFRED E. BATES, OF MONROE, MICHIGAN.

IMPROVEMENT IN COMPOSITIONS FOR LINING FURNACES, CRUCIBLES, &c.

Specification forming part of Letters Patent No. **145,326**, dated December 9, 1873; application filed October 27, 1873.

To all whom it may concern:

Be it known that I, ALFRED E. BATES, of the city and county of Monroe, Michigan, have invented a new and Improved Fire-Proof Composition, suitable for the manufacture of tuyeres used in the process of making Bessemer steel, and that may be used as fire-brick and in the manufacture of crucibles, glass-pots, &c., or for making or lining other vessels used for receiving and holding molten metals or minerals, of which the following is a specification:

The object of my invention is to secure a material suitable for the purposes above named, more durable than any heretofore used, and one possessing qualities that will more effectually enable it to resist the high temperature of heat that articles of that character are subjected to, and the action of powerful acids, and the combined action of both; and it consists in a composition composed of three parts ground or crushed soap-stone, two parts of ordinary fire-clay, and one part of fire-sand. These component parts should be thoroughly mixed with water, and, after being molded in any required shape, are burned in a cupola in the ordinary way fire-brick are

now burned—a process well known. I do not deem it of vital importance that the fire-sand should be used, as a mixture of crushed or ground soap-stone, or its equivalent, and fire-clay, in about equal parts, will, as I have ascertained by experiment, make a valuable and useful substitute for fire-brick, for the purposes hereinbefore named, and one much better adapted to stand the high degree of heat they are constantly subjected to; yet, in some instances, I have found that fire-sand may be used to advantage in connection with the other ingredients, in about the same proportion above named.

What I claim as my invention, and desire to secure by Letters Patent, is—

A fire-proof composition consisting of about three (3) parts ground or crushed soap-stone, two (2) parts fire-clay, and one (1) part fire-sand, as herein set forth.

In testimony whereof I have hereunto set my hand this 13th day of October, A.D. 1873.

ALFRED E. BATES.

Witnesses:

J. W. ALGER,
JOHN J. HASSETT.