

UNITED STATES PATENT OFFICE.

JAMES C. HILL, OF ALEXANDRIA, VIRGINIA.

IMPROVEMENT IN LININGS FOR METALLURGIC AND OTHER FURNACES.

Specification forming part of Letters Patent No. **133,446**, dated November 26, 1872.

To all whom it may concern:

Be it known that I, JAMES C. HILL, of Alexandria, in the county of Alexandria and in the State of Virginia, have invented certain new and useful Improvements in Fire-Proof Lining for Metallurgic Furnaces, &c.; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon making a part of this specification.

The nature of my invention consists in a lining for metallurgic and other furnaces or fire-facings, when made of a material the nature and character of which will be hereinafter described.

Fire-proof linings and facings heretofore used—whether artificial or natural, whether made of fire-brick, steatite, talc, or other material—have been found to be affected by the action of the intense heat, as also by sudden changes, while the material herein used not only stands intact the action of fire sufficiently intense to melt iron, copper, and many other metals, but withstands sudden changes, whether of air or water, without disintegration or visible effect. The material I use for such purposes is a natural stone. This stone is found in the State of Virginia, in Culpeper county, and in what is known as the Piedmont region. It is of a

bluish gray, and of specific gravity 2.652. It is composed of silica, 71.20; lime, 10.80; magnesia, .84; oxide of iron and alumina, 17.04; add loss, .12. The stone may be heated to a white heat and then plunged into water without breaking or bursting it and without there being any visible effect produced upon it. It has been subjected to a pressure of 48,000 pounds to the square inch and a quarter without crushing it. This stone is invaluable as a lining for stoves and furnaces of all kinds where great heat is required, as I have subjected it to heat greater than that to melt copper and iron and it was not visibly affected thereby. It can be used for safe-linings or for facing houses to make them fire-proof.

A great want has long been felt in obtaining a lining for metallurgic furnaces which would withstand heat and the action of fire. This is accomplished by the use of this stone.

What I claim is—

A lining for metallurgic or other furnaces or fire-proof facings made of the within-described stone, as is herein fully set forth.

In testimony that I claim the foregoing I have hereunto set my hand.

JAMES C. HILL.

Witnesses:

C. M. ALEXANDER,
A. N. MARR.