

# UNITED STATES PATENT OFFICE.

LUKE HOUZE, OF MONTEREY, CALIFORNIA, ASSIGNOR OF FOURTEEN-SIXTIETHS TO CHARLES F. NIKLAUS, FOURTEEN-SIXTIETHS TO R. H. WILLEY, AND ONE-SIXTIETH TO ARTHUR BRANQUART, ALL OF MONTEREY, CALIFORNIA.

## COMPOSITION OF MATTER FOR USE IN FIRE-BRICK AND THE LIKE AND PROCESS OF PRODUCING THE SAME.

No. 921,838.

Specification of Letters Patent.

Patented May 18, 1909.

Application filed August 27, 1906, Serial No. 332,287. Renewed March 30, 1909. Serial No. 486,816.

*To all whom it may concern:*

Be it known that I, LUKE HOUZE, a citizen of the United States, residing at Monterey, county of Monterey, and State of California, have invented a new and useful Fire-Brick and Composition and Process for Producing the Same.

The main object of this invention is to produce a composition for use in fire brick or for other purposes which will be extremely resistant to heat, without warping, running, vitrifying or shrinking.

Another object of the invention is to produce a composition of matter which will produce a fire brick of less weight than the ordinary brick.

In making the brick two ingredients are used, referred to herein as the binder and the filler. The binder consists of any suitable fire clay, and the filler consists of a rock of approximately the following analysis:—

	Silica .....	87.76
	Iron and aluminum oxid ...	2.44
	Calcium oxid .....	.50
25	Magnesium .....	Trace.
	Loss on ignition .....	6.54
	Undetermined, (alkalies and chlorin) .....	2.76
30		100.00

This material is found as a natural rock (hydrophane, a variety of opal silica) in Monterey county, California, and presumably elsewhere. The hydrophane rock is subjected to a preliminary roast before mixing with the fire clay. The rock is a coherent mass which is crushed to a state of coarse division, for example, about one eighth inch mesh.

The two ingredients are used in proportions of 21 to 30 of fire clay and 79 to 70 of the filler, and are blended with suitable quantity of moisture to render them sufficiently adherent to enable molding and pressing, and the resultant bricks are burned in a kiln, at a temperature of about 3000 degrees F. There

is thereby produced a fire brick which is more resistant to heat than the ordinary English or German fire brick and having still greater superiority over the American brick. The brick so produced is also firmer and stronger than the English, German or American fire brick and its weight is only about one-half the weight of any one of such ordinary brick.

This material herein used as a filler is found to have great strength, and greater heat resistance than the grog or crushed brick heretofore used as a filler, and while its high preparation of silica renders it extremely refractory to heat, it contains enough of the aluminum and iron oxids to bind it together. The material may be made by compounding the constituents, or it may be obtained from natural deposits.

The fire clay used is that known as Santa Cruz fire clay from Santa Cruz county, California, or fire clay of the same properties.

What I claim is:—

1. A composition for use in a fire brick consisting of about twenty-one parts of fire clay binder with about seventy-nine parts of a filler consisting of hydrophane which is roasted and crushed to a state of coarse division.

2. A composition for use in a fire brick consisting of about twenty-one parts of fire clay binder with about seventy-nine parts of a filler consisting of a rock of substantially the composition stated which is roasted and crushed to a state of coarse division.

3. The method of making fire brick which consists in roasting hydrophane, crushing the product to a state of coarse division, mixing the same with fire clay, and then molding and burning the mixture.

4. The method of making fire brick which consists in roasting a rock of substantially the composition stated, crushing the product to a state of coarse division, mixing the same with fire clay, and then molding and burning the mixture.

5. A fire brick consisting of a filler of hy-

drophane, roasted and crushed to a state of coarse division, and a binder of fire clay.

6. A fire brick consisting of about twenty-one parts of fire clay binder with, about  
5 seventy-nine parts of a filler consisting of hydrophane roasted and crushed to a state of coarse division.

In testimony whereof, I have hereunto set my hand at Monterey California this 14th day of Aug. 1906.

LUKE HOUZE.

In presence of—

H. D. SEVERANCE,

C. V. HOWE.