E. KUNZENDORF.

Fire-Proof Roofing Composition.

No. 161,689. Patented April 6, 1875.

161,689. FIRE-PROOF ROOFING COMPOSITIONS. Emil Kunzendorf, Newark, N. J. [Filed Mar. 10, 1875.]

Brief.—A composition of one part lime, six parts carbonate of lime, ten parts sand or powdered stone, and sufficient water-glass to produce a mass of the consistency of mortar. This mastic is then spread on the roof-boards, which are preferably narrow strips, and before the mastic sets or becomes hard, nails may be driven through the mastic, and partially into the roof-boards.

The composition of lime, carbonate of lime, sand, and water-glass, substantially as and in the proportions set forth.

Witnesses:

A. Moraga.

F. v. Briesen

Inventor:

E. Kunzendorf

by his attorney

A. v. Briesen

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

161,689

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54 Covering Roofing, &c.
Composition.

161,689

UNITED STATES PATENT OFFICE.

EMIL KUNZENDORF, OF NEWARK, NEW JERSEY.

IMPROVEMENT IN FIRE-PROOF ROOFING COMPOSITIONS.

Specification forming part of Letters Patent No. **161,689**, dated April 6, 1875; application filed March 10, 1875.

To all whom it may concern:

Be it known that I, EMIL KUNZENDORF, of Newark, in the county of Essex and State of New Jersey, have invented a new and Improved Fire-Proof Roofing Composition, of which the following is a specification:

The drawing represents a vertical section of a roof covered with my improved composition.

This invention relates to a new composition for covering roofs and rendering them secure against the attack of fire, and against the injurious influences of the atmosphere, and which will, when applied, allow the whole surface of the roof to be one continuous mass, though capable of being applied in blocks or sections of suitable size and shape.

My improved composition consists of the following ingredients, in about the proportions set forth, to wit: One part of lime, six parts of carbonate of lime, ten parts of sand or powdered stone, and sufficient water-glass (soluble alkaline silicate of potassa) to produce a mass of the consistency of plastic cement. The lime and the carbonate of lime are first finely powdered, and are then mixed with the sand, which must also be finely sifted, or with the finely-powdered rock, and then these solid ingredients are mixed with the water-glass, and the mixture stirred to equally distribute the ingredients. This mixture can then be applied to the surface of a wooden roof, preferably to a roof constructed of narrow boards, *a*, which will not be likely to shrink or warp, and the entire roof may be covered with a continuous covering, *b*, because, although the mass at the edges dries very rapidly, adhesion will still take place when the plastic mass is applied to dried portions. The thickness of the covering need not exceed, for an ordinary roof, three-eighths of one inch.

I find that the water-glass, although soluble in water, combines with the carbonate of lime of my mixture in such a way that my composition, when dry, will no longer be soluble in water, and for this reason particularly my invention is of great utility, because, though using a cheap solvent—to wit, water—it is no longer affected by the same solvent after it has once become hard.

The composition may also be formed into blocks or sections, of suitable size and shape, in molds, and then applied to the roof or other surface which it is intended to cover, and may be used not only on roofs, but also as a coating for walls of houses or other structures. While the covering is still plastic nails *c* may be driven through it into the wood, as shown. The composition renders a roof or wall practically fire-proof, and also proof against the attacks of the atmosphere, leaving the same, however, sufficiently strong for all ordinary purposes. The proportion of the carbonate of lime may be increased to about eight parts, to attain greater hardness; or the quantity of sand or powdered rock may be increased to fourteen parts, to obtain more body. Instead of sand or rock, slag from iron-furnaces can be used.

I claim as my invention—

The composition of lime, carbonate of lime, sand, and water-glass, substantially as and in the proportions set forth.

EMIL KUNZENDORF.

Witnesses:
E. C. WEBB,
F. V. BRIESEN.