

UNITED STATES PATENT OFFICE.

CHARLES MUELLER, OF WARREN, MASSACHUSETTS.

IMPROVEMENT IN ROOFING COMPOSITIONS.

Specification forming part of Letters Patent No. **140,945**, dated July 15, 1873; application filed February 17, 1873.

To all whom it may concern:

Be it known that I, CHARLES MUELLER, of Warren, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Fire and Water Proof Roofing, of which the following is a specification:

This invention relates to the formation of a fire and water proof roofing from substances compounded and applied in the manner hereinafter described.

The first step necessary for the production of a water-proof roof consists in applying to the boards constituting the roof a solution of silicate of soda or other analogous material, which has the tendency of perfectly closing the pores of the wood to produce a surface impenetrable to moisture. After the roof has been suitably prepared, as above stated, I apply to the same (but not invariably) a layer of tarred paper or pasteboard secured by means of tacks or nails, and subsequently covered with liquid coal-tar, which receives a layer of hot sharp sand and then another coating of coal-tar. These steps accomplished, a mixture of clay or other aluminous earths and cut straw, or hair or sea-grass, with the addition of sifted sand, well intermingled, is brought to a homogeneous mass, is spread on the prepared surface, generally to the depth of an inch, and beaten to a compact mass, and evenly distributed through the medium of corrugated mallets or rollers. After this, as soon as the covering, applied as above, is sufficiently dry, a thin layer of slaked lime is spread on the same, and then the entire roof is subsequently covered with a suitable cement, such as Portland or Rosedale, or other calcareous or argillaceous substances impenetrable to fire and moisture. The cement is rubbed or rolled, producing a smooth and glass-like surface, which is susceptible of being ornamented by painting or coloring, thus enhancing or beautifying the aspect of the same.

To the sides and ends of the roof I, in certain cases, apply strips of tin or metal in such a manner as to leave a space between the roofing boards and strips, which is likewise designed for the reception of the composition above stated.

The pasteboard and coal-tar are only necessary where the roof or casing is not fully dry, or where cracks in it are to be apprehended; otherwise upon old casings and thoroughly-seasoned boards the pasteboard is not necessary, the fire-proof composition being applied directly to the casing. In the latter case it will be necessary for securing the composition in position, when applied to steep or Mansard roofs, to employ a series of wires traversing the roof in opposite directions, and held stationary by fastening-hooks, for offering a firm support to the composition.

A roofing compound prepared and applied as described possesses the desired qualities of being water and fire repellent, durable, and comparatively inexpensive. Another advantage derived from a roof prepared as above is its adaptability to receive a layer or stratum of earth for forming a garden designed for the cultivation of flowers and plants, the composition comprising the covering of the roof offering an effectual barrier to moisture.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

A fire and water proof roofing made as described—that is, a layer of clay or other aluminous earth, cut straw or hair, and sand, a layer of slaked lime, and a layer of cement, all applied in the manner herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 4th day of February, 1873.

CHARLES MUELLER.

Witnesses:

LOUIS DANKOFF,
CHARLES JOHN.