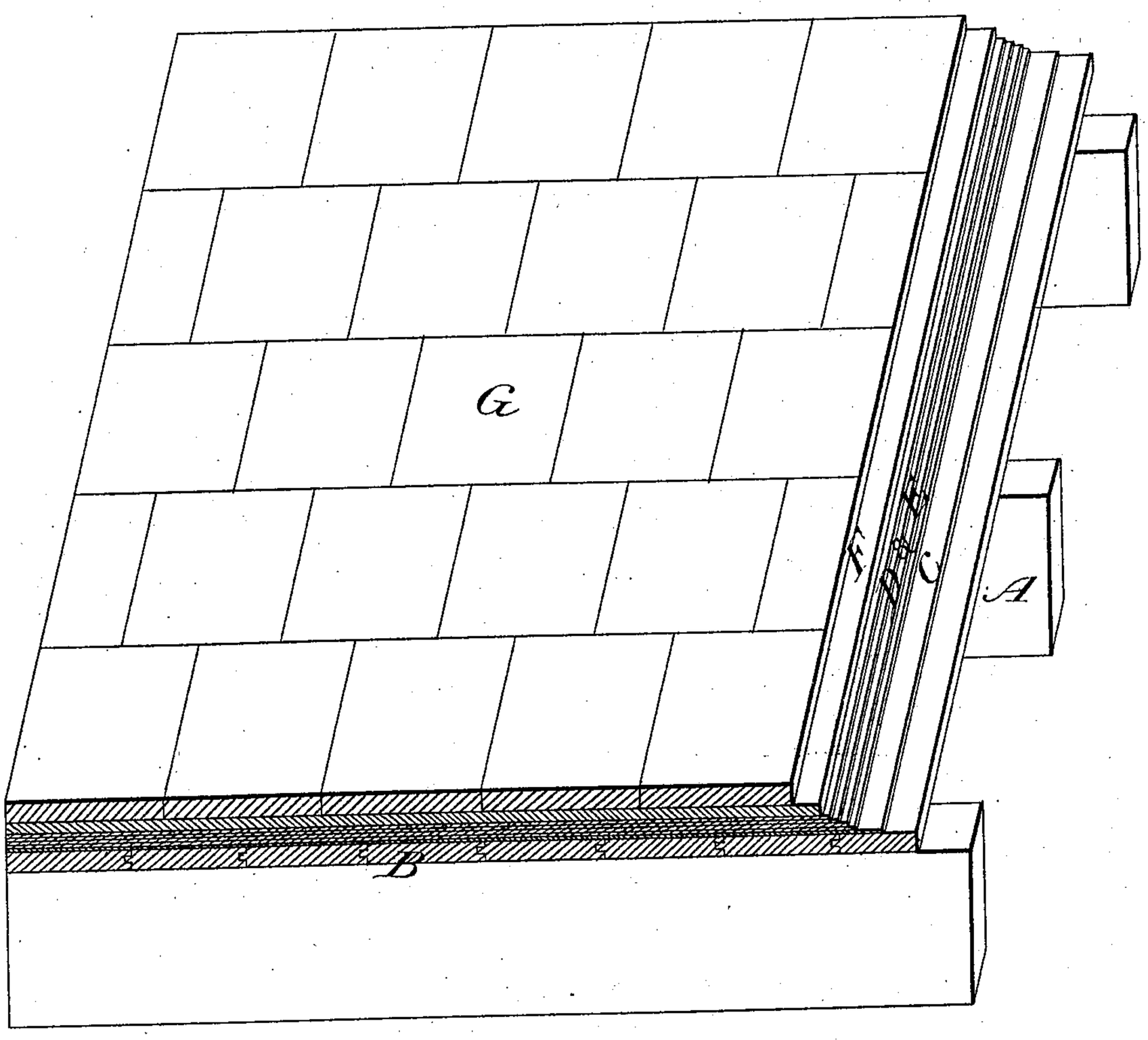
T. NEW.

Fire and Water Proof Roof.

No. 209,131. Patented Oct. 22, 1878.

Fig. 1.



Attest:

Nathan Duff
L. W. Harrington

Inventor.

Tobias. New

UNITED STATES PATENT OFFICE.

TOBIAS NEW, OF NEW YORK, N. Y.

IMPROVEMENT IN FIRE AND WATER PROOF ROOFS.

Specification forming part of Letters Patent No. **209,131**, dated October 22, 1878; application filed October 4, 1878.

To all whom it may concern:

Be it known that I, TOBIAS NEW, of the city of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Fire-Proof and Water-Proof Roof-Pavement; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which the figure is a section of a roof.

The invention relates to means whereby may be constructed a roof that is at the same time water-proof, fire-proof, and adapted to convenient use for walking, for domestic or for business uses.

My invention is substantially described in the following description; but I do not limit myself to the particular description given, as the same may be varied without departing from the spirit of my invention.

I prefer to use, and ordinarily do use, in making and laying a roof according to the principles of my invention, the following materials in the following manner, viz: The materials employed are plain felt, saturated roofing-felt, bituminous composition, and brick, tile, slate, stone, or metal, or equivalent materials, and I use and lay them preferably as follows: A represents the roof-beam, with the planks B or other foundation.

If my improved roof is laid upon wood, I lay first a layer or layers of dry felt, C, in order to prevent the smell of the saturated felt and bituminous composition from penetrating below into the building. Upon this layer or layers of dry felt I place alternate layers of saturated felt paper D and bitumen or bituminous composition E, preferably four or five of each. Upon this water-proof lining or equivalent material I place a layer, F, consisting of a composition of bituminous cement and sand, preferably in about the proportion of three parts of sand to four parts of bituminous cement. While this composition of cement and sand is hot and in a plastic state I place bricks, tile, slate, stone, metal or other rigid material, G, filling the joints with the same composition. I may also (though I do not prefer to) cover the surface of the roof with the same composition or any other similar suitable material.

This composition, composed of bituminous cement and sand, binds the water-proof lining below to the tile or other rigid substance above, forming a water-proof and fire-proof roof and pavement.

The dry felt first laid not only prevents the smell of the bituminous material from penetrating below, but acts as an absorbent to receive and retain the filtrations from above.

Upon fire-proof structures in which the roof is placed on concrete or other similar foundation, a layer of bituminous cement would first be placed on such foundation, and then the first layer of saturated felt placed upon that, dispensing with dry felt and carrying up the remainder of the roof, as above provided.

This layer of composition of cement and sand is an important feature of my invention, and will be described hereinafter.

I am aware of the patent issued to Mills & Smith, No. 40,542, dated November 3, 1863; but that patent does not provide for a complete or practical roof. It has no intermediate layers of bituminous composition or of saturated felt, the roof does not afford adequate protection, and will become brittle and crumble. Mills & Smith also use asphalt, pitch, or coal-tar distilled, upon which to place their tile, slate, &c., which, in that condition, is very perceptibly affected by the sun and easily softened, and adheres to the feet in warm weather, when roofs are most resorted to, and by its escape leaves the roof more or less exposed to the rain and weather, and by melting forms an uneven deposit, and leaves the outer surface of the roof uneven, ragged, and impracticable for walking on.

By mixing sand or other equivalent material with bituminous matter, I am enabled to make a kind of mortar which does not by adhesion to the feet or in any degree prevent walking on the roof, does not escape by melting and flowing, but forms a more rigid bed or deposit than mere bitumen or asphalt, in which it holds immovably the tiles, slate, brick, or other material, and secures a permanently even surface to the roof for walking and other social, domestic, and business purposes.

My invention, as herein described, can be discriminated from a former invention for which Letters Patent No 8,414 were reissued to me September 10, 1878. In that patent I relied on a layer of Portland cement imposed upon the water-proof materials below and holding embedded the brick or tiles, &c., above, and I now regard that contrivance as the better for certain uses, but it is more expensive.

My present contrivance enables me to dispense entirely with the layer of hydraulic-cement mortar which, in my reissued patent No. 8,414, is described to be placed upon the water-proof materials, and upon which is placed the brick, &c., and by the use of sand or equivalent material to utilize the heavy coat of asphaltic cement or equivalent water-proof materials directly. By this admixture of sand I am enabled to make a substance practically of an entirely different character from pure bitumen or asphalt, and of a kind indispensable for combining the features of a good roof and firm practicable pavement. While this roof is not as perfect a paved roof as the roof in Reissue No. 8,414, it makes a practicable good working paved roof, and permits of greater economy, requiring fewer materials and less labor and less skilled labor than the paved roof in Reissue No. 8,414.

I do not claim as new the use of bitumen or bituminous composition, or of saturated roofing-felt; but I apply the same, in combination with an interposed layer of bituminous cement and sand or equivalent materials, between the water-proof materials of felt and bituminous composition and the outer materials for a pavement, such as brick, tile, slate, &c.

I do not limit myself, however, to the particular materials or combinations hereinbefore described, as I may use any foundation whatever on which to lay my materials, and I may use saturated felt only, and in one or more thicknesses, and I may use alphaltic cement or equivalent water-proof material only, and I may use them together in any relation whatever to each other or to the layer of cement and sand above described, provided that the same is not the substantial layer or bed on which the tile or other materials are placed. I may use additional layers of cement and sand or similar material in other relations to the combination than I have described, taking care always to have such layer immediately beneath the tile, brick, &c., as the bed in and on which the same rest; but such is not my invention.

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

The combination of the planking B or other foundation with the dry felt C and layers of saturated felt paper D and bitumen or bituminous composition E, with the layer of cement and sand F and the superimposed tile, brick, slate G, or other similar material, substantially as above set forth.

TOBIAS NEW.

Witnesses:

R. B. POWELL,

L. W. HARRINGTON.