

No. 79,601.

PATENTED JULY 7, 1868.

F. O. ROGERS.
PRESERVING COMPOSITION ROOFS.

Fig. 1

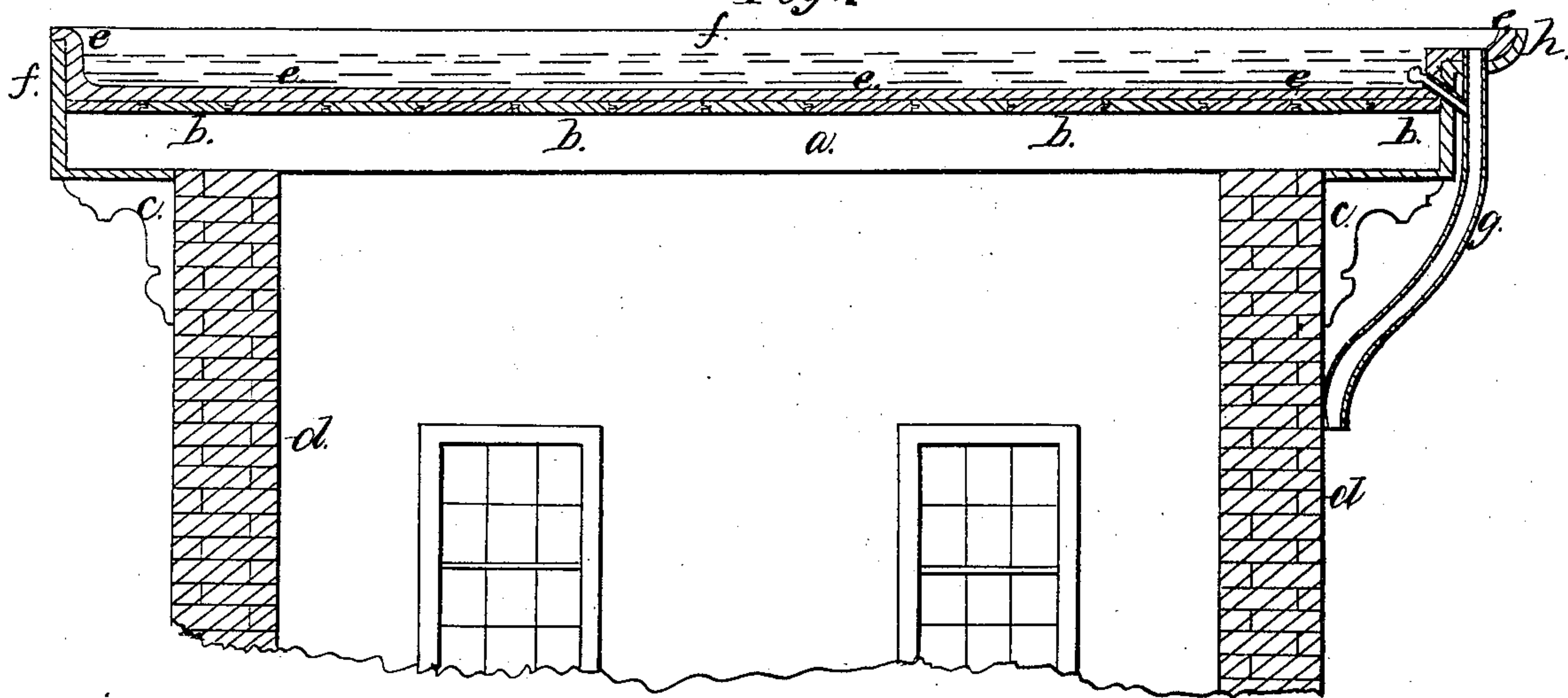
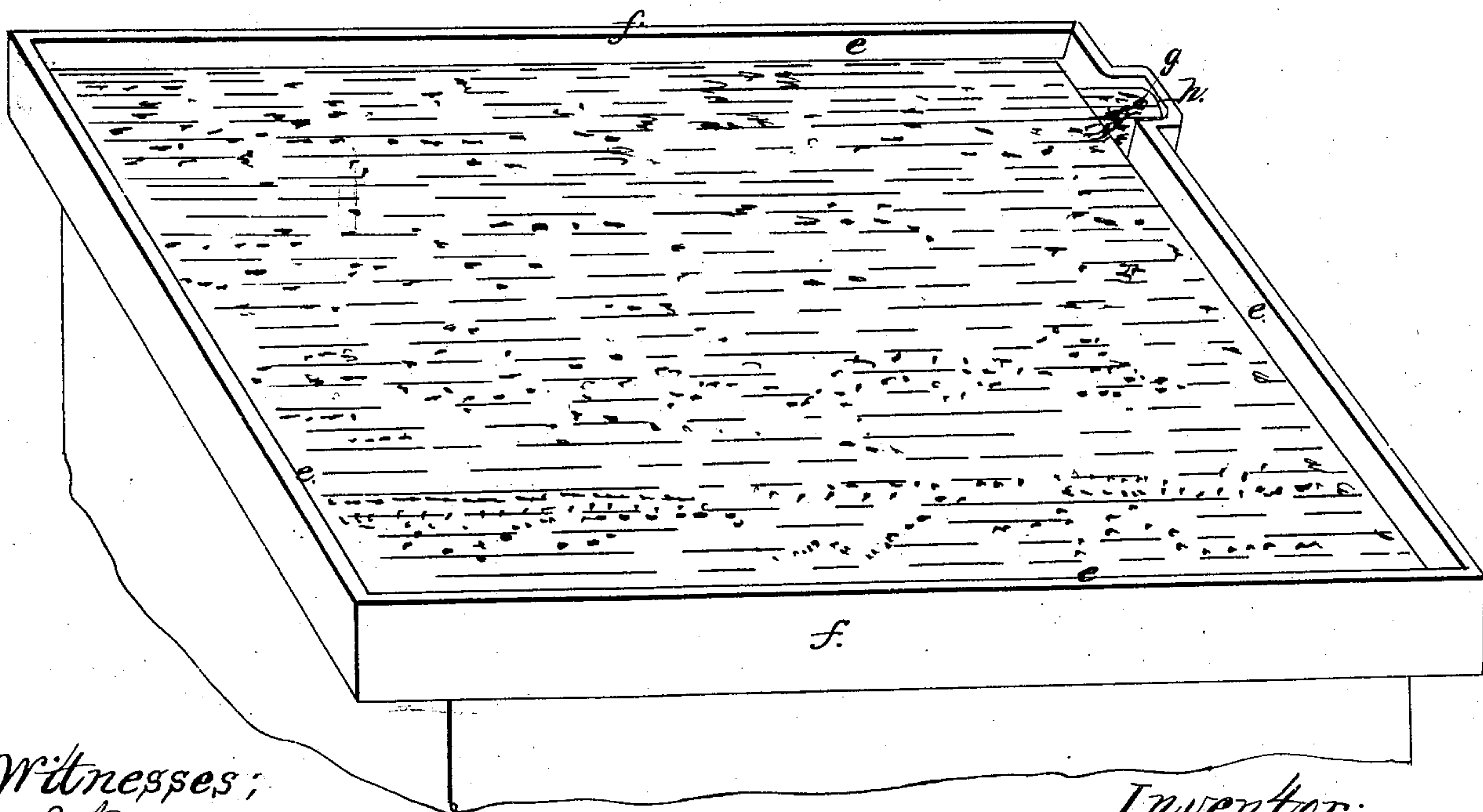


Fig. 2



Witnesses;
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UNITED STATES PATENT OFFICE.

F. O. ROGERS, OF NILES, MICHIGAN.

IMPROVEMENT IN PRESERVING COMPOSITION ROOFS.

Specification forming part of Letters Patent No. 79,601, dated July 7, 1868.

To all whom it may concern:

Be it known that I, FREDERICK O. ROGERS, of Niles, in the county of Berrien and State of Michigan, have invented a new and Improved Method of Preserving Composition Roofs; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 is a sectional view, and Fig. 2 a perspective view, of a composition roof prepared and applied in accordance with my system of preservation.

Like letters designate corresponding parts in both figures.

My invention relates to the preservation of such roofs as are covered with water-proof compositions or cements, in which pitch, tar, asphaltum, or other bituminous substances form an essential element. Roofs of this class are impervious to water, if properly applied, while new, but are not durable, remaining tight in our climate but a short time. I have discovered that the cause of this want of durability is due to the heat of the sun acting upon the bituminous ingredients under the influence of dryness of the atmosphere and of the roof itself—in other words, that a condition of dryness and heat speedily impairs such roofs, while moisture and coolness preserve them and insure their longevity.

The melting heat of a summer sun dissipates the volatile portions of the bitumen or other pitch by evaporation, and the oily portions, or such as become fluid under solar heat, are absorbed by the felt, boards, or other underlying porous substances, aided by capillary attraction. This process, continued for some time, deprives the composition of its softness and pliability, and it becomes rigid and brittle, fracturing, under its contraction at cold temperatures, and leakage results, necessitating a renewal of the composition or cement.

By maintaining a condition in which moisture and protection from the intense heat of the sun's rays are combined the bituminous parts of these roofing compounds will be retained for a great length of time, insuring elasticity sufficient to enable ordinary expansion and contraction to take place without cracking, and keep the pores closed and the roof impervious to moisture. In order to in-

sure this condition, I treat composition roofs in the following manner:

Previous to applying the composition the boarding or other foundation should be prepared on a level or nearly level plane, with no more inclination than is sufficient to drain water to the conductor-pipe or point of discharge. At the outer edge of the roof a ledge or barrier should be raised to a height of several inches, and under some conditions considerably more. The cement or composition should then be applied in the usual manner to the whole surface of the roof, and continued up the sides and upon the top or edge of the surrounding wall or barrier, so that the whole shall be rendered impervious to water. The space thus formed over the whole area of the roof forms a retaining-reservoir for such materials as are required to maintain the conditions of humidity and low and uniform temperature to effect the preservation of the composition covering. Protection is then insured by covering the entire roof with porous materials, kept saturated with water, or other porous matter which will absorb, attract, and retain water or moisture and intercept the extreme heat of the sun, thus maintaining in a considerable degree an equable temperature. For this purpose any material of sufficient porosity of structure which is most readily procured in the locality may be employed—as sawdust, ground and spent tan-bark, pulverized stone, sand or gravel, and many kinds of earth or soil, or vegetable products, as sea-grass, moss, greensward, hemp, tow, sponge, or other fibrous or porous substances not subject to decay; or, in situations where it is expedient, water alone may be used by flooding the roof to a depth of a few inches. These means or agents serve to insure the required protection against the absorption of heat, rendering the rooms beneath more tenantable in extreme weather, and maintain coolness and equality of temperature, prevent the evaporations and melting of the bituminous ingredients and insure the preservation of the roof, while conflagrations are almost entirely prevented from occurring at the roof—a portion of the building which is generally the most exposed.

As represented in the drawings, *a*, Fig. 1, shows the rafters or joists supporting the roof-boarding *b b*, *c c* being brackets attached to

the outer walls, *d d*, for supporting projecting portions of the roof. *e* is the cement or composition covering of the roof, extending up the sides of the elevated barrier *f f*, which surrounds the edges of the roof. The overflow-pipe *g* starts from an extension, *h*, of the wall or barrier *f*, at a point sufficiently elevated above the plane of the roof to retain as much water as is requisite to keep the moisture-retaining materials saturated. This water may be that which is retained by the described formation from rain or snow that falls or melts thereon, or, in dry seasons and in localities where rain does not fall in sufficient quantities, it may be supplied by mechanical means from the most convenient source.

In crowded cities the roofs of buildings may be turned to useful account by their owners, by the culture of such vegetation as will thrive in water or moist soil. By these means the roofs of buildings may be rendered ornamental and attractive and useful as lawns, flower and plant beds, the vegetation flourishing better than in shaded situations and exerting a purifying influence on the atmosphere.

The principle of my invention admits of the employment, for preserving this class of roofs, of chemical agents which attract moist-

ure from the atmosphere, and by retaining it serve the purpose of maintaining the requisite humidity and low temperature. To this end hygrometric salts and like substances may be advantageously employed in situations where a supply of water cannot be easily obtained by ordinary methods.

A pipe and cock should be provided in the barrier *f* at the lowest point in the plane of the roof proper, to enable the moisture to be drawn off for examination and repairs of the roof, or during winter, when in northern climates protection is not essential.

The elevated wall *f* serves as a protection to the fibrous or porous substances used upon the roof against the action of the wind, which might otherwise, if exposed at the edges, be blown off at times.

What I claim as my invention, and desire to secure by Letters Patent, is—

The within-described method of preserving cement and composition roofs, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

F. O. ROGERS.

Witnesses:

J. FRASER,

P. F. LARNER.