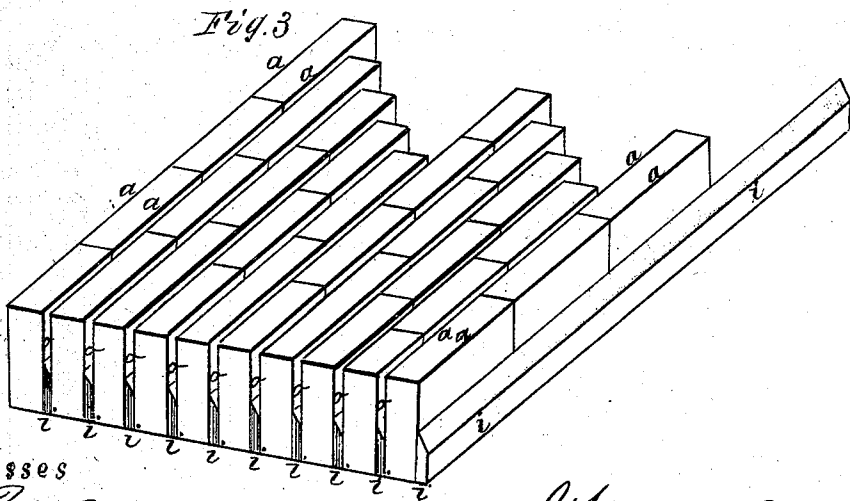
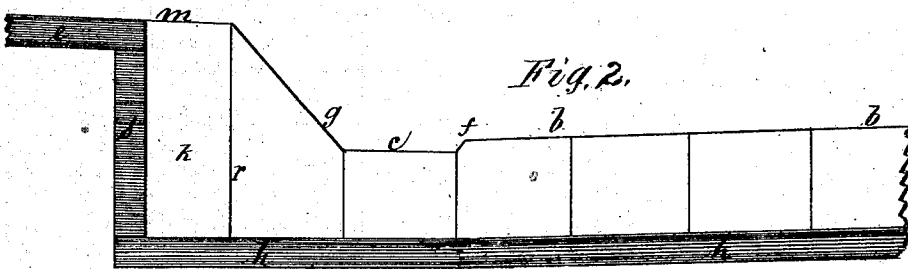
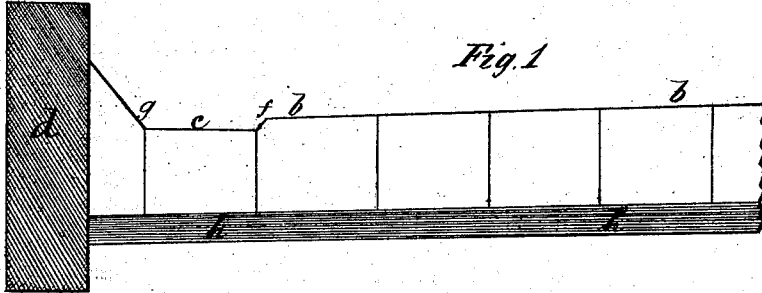


J. W. Brown,

Wood Pavement.

No. 104,551.

Patented June 21, 1870.



Witnesses

J. M. Babson
J. H. Soule

J. Warren Brown
Inventor

UNITED STATES PATENT OFFICE.

J. WARREN BROWN, OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVEMENT IN COMBINED WOOD AND CONCRETE PAVEMENTS.

Specification forming part of Letters Patent No. **104,551**, dated June 21, 1870.

To all whom it may concern:

Be it known that I, J. WARREN BROWN, of Washington, in the District of Columbia, have invented a new Improved and Combined Wood and Concrete Pavement; and I do hereby declare that the following is a full description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in a new method of constructing pavements, by using a new concrete compound in combination with wood, and as a foundation on which to put blocks, pieces, or strips of wood of convenient form and size, thereby to give firmness and durability to the pavement, secure the wood from the dampness and moisture of the earth, and, in conjunction with another means of preserving the wood, as hereinafter set forth, to assist in preventing its decay.

To make the concrete, take one barrel of crude coal-tar and one barrel of rectified coal-tar, in combination, and add thereto three pounds of gum-shellac; or, to one barrel of pine-tar and one barrel of rectified coal-tar, in combination, add two and one-half pounds of gum-shellac; to one barrel of crude coal-tar and one barrel of pine-tar, in combination, add one barrel of rectified coal-tar and five pounds of gum-shellac; or, to one barrel of crude coal-tar and one barrel of virgin or common turpentine, in combination, add one barrel of rectified coal-tar and four pounds of gum-shellac.

The rectified coal-tar and gum-shellac can be dissolved in either tar or turpentine, separate or combined, by heat, and the proportions can be changed or varied as the locality or any special purpose may require.

Take broken stones, stone spalls, cinders, gravel, ashes, sharp sand, or any flinty substance of suitable size, separately or combined, in full or in part, and in piles of from one foot to two or three feet high, or in any convenient quantity, and when the tar or turpentine, separate or combined, is hot, and the rectified coal-tar and gum-shellac are added and dissolved, and the solution so formed is uniformly combined, pour it onto the piles in small quantities, and at the same time shovel, rake, or in like manner move by mechanical appliance, the mass so formed, until the surface of

each piece of stone, gravel, or particle of other material used is covered with the solution.

To facilitate the process of mixing, the gravel or other material may be heated before the solution is poured upon it, and by keeping it warm, or by reheating after it is mixed, will facilitate the process of laying or using the concrete.

The earth should be excavated when necessary, and the surface given any desired convexity or form, and rolled to give it solidity. Then spread the concrete upon it to the depth of from one inch to any desired depth; and if more than three inches in thickness is required, it should be put down in layers of not more than three inches thick, and each layer should be well rolled to make it compact and firm.

When the foundation of concrete is formed in the manner set forth, then put upon it blocks, pieces, or strips of hard or soft wood, of any desired form and size, so that when placed in rows or courses across the street or place to be paved the lines of the sides of each row or course will be parallel, (see drawings, Fig. 3, lines *a a*,) with a uniformity and evenness of the upper surface-line, (see Figs. 1 and 2, lines *b b*,) and the blocks, pieces, or strips used in forming the courses or rows should break joints longitudinally. (See drawings, Fig. 3.)

The gutters or water-courses *cc*, Figs. 1 and 2, should be formed by making their surfaces from one inch to one and one-half inch below the adjoining surface-line of the pavement, and from eight inches to fourteen inches in width. They should be level from side to side, with a space of not less than four inches wide between the inner line and the curb-stone *d*. (See Fig. 1.)

The surface-line *g*, Fig. 1, should rise from the inner line of the gutter *c* to the curb-stone *d*, at about the angle of forty-five degrees, or of a sufficient height to turn the water and prevent drainage between the curb-stone and pavement to adjacent cellars or underground rooms.

The line *f*, Figs. 1 and 2, should rise from the outer line of the gutter *c* to the surface-line of the pavement at about the angle of sixty degrees.

Where curb-stones are not used and wood

is substituted, the space *g*, Fig. 2, between the inner line of the gutter *c* and the outer curb-line, *r*, should not be less than about seven or eight inches, and the surface-line of the space *g*, Fig. 2, should rise from the gutter-line at about the angle of forty-five degrees, or at any desired angle or curve, to the proper elevation of the curb-line surface *m*, Fig. 2.

The upper surface-line, *m*, Fig. 2, of the line of wood *k* (substituted for the curb-stone *d*, Fig. 1) should be on a proper angle to form a junction with the surface-line of the sidewalk *e*, Fig. 2; and the space *s*, Fig. 2, between the wood *k* and the earth should be well filled with concrete and closely packed, so that it will give stability and firmness to the wood forming the curb, and protect it from the moisture of the earth.

The strips or pieces of board *i i*, Fig. 3, to be put between the rows or courses of blocks, pieces, or strips of wood before mentioned should be placed on edge close to the foundation, and should be about three and one-half inches wide on one side, and so beveled on the upper edge that the other side will be about two inches wide.

The crevices or spaces *o*, Fig. 3, above the strips or pieces of board *i i* will be wedge-shaped, so that the concrete that is to be packed into them, as hereinafter set forth, will give a greater binding force and an increased firmness and solidity, from whatever pressure there may be incident to the travel over the pavement.

The concrete for filling the crevices or spaces *o*, Fig. 3, can be prepared in the manner first described, excluding all large or coarse material, and it should be hot when it is packed into the crevices; or they can be filled in the following manner, to wit: Prepare the solution by the method first set forth for mixing concrete; then heat clean gravel, fine and medium-sized combined, and fill the crevices with it, and while the gravel is warm the hot solution should be poured on in quantities suffi-

cient to saturate the amount of gravel used; then drive it down closely, and repeat the process until the crevices are entirely and firmly filled.

To make the pavement noiseless, spread upon the concrete foundation a layer of fine gravel, ashes, sand, or any other analogous material, of from one inch to three or four inches in depth; then put upon it the wood-work, as before described, and roll or ram it down firmly and evenly to an unyielding bed.

As a special means to prevent the wood from decaying, the entire surface of each block, piece, or strip used should be well covered with a hot solution of crude coal-tar, rectified coal-tar, and gum-shellac, prepared and well combined in the manner hereinbefore set forth for making concrete.

I am aware that pavements were made many years ago of hard and of soft wood, of concrete, and in a certain manner of wood and concrete; but I have no knowledge, neither do I believe, that any pavement was ever made in the form, of the composition for concrete, using the material for preserving the wood, with the concrete foundation and the combination of its several parts, and with the desired qualities of cheapness and durability, as herein enunciated.

What I claim as my invention in the fabrication of pavements, and desire to secure by Letters Patent, is—

1. The composition for the concrete foundation, compounded substantially as set forth.
2. The treating of the wood to prevent its decay by using the composition specified therefor, substantially as enumerated.

In testimony whereof I hereunto sign my name in the presence of two subscribing witnesses.

J. WARREN BROWN.

Witnesses:

J. W. BABSON,
J. H. SOULÉ.