

# UNITED STATES PATENT OFFICE.

JAMES W. BYRNES, OF WASHINGTON, DISTRICT OF COLUMBIA.

## IMPROVED COMPOSITION PAVEMENTS FOR STREETS.

*Specification forming part of Letters Patent No. 75,855, dated March 24, 1868.*

*To all whom it may concern :*

Be it known that I, JAMES W. BYRNES, of Washington, in the District of Columbia, have invented a new and useful Improvement in Composition Pavements for Streets, &c.; and I do hereby declare that the following is a full, clear, and exact description of the same.

My improvement consists in the construction of a pavement by the combination of concrete and cobble-stone or quarried stone, as follows:

The ground being first properly prepared to receive the pavement, I first lay a bed of concrete, composed as hereinafter described, to the depth of, say, three or four inches. It must be deep enough to form a bed for the stone. I then tar the stones, using coal-tar, and lay the bed of stone in the ordinary manner. I prefer cobble-stone generally, as being cheaper, but quarried stone may be used when it is cheaper, the stone being broken into blocks of the ordinary size used in paving streets, and laid in the usual manner. I then cover the stone pavement with concrete enough to fill the spaces between the stones and make an even surface over the whole. The concrete should then be rolled with a heavy roller or tamped, so as to pack it closely and make a smooth surface.

The concrete is compounded as follows: I mix sand, gravel, and coal-ashes in equal quantities, with about one-twentieth part of cement. I also mix coal-tar, pine-tar, and the residuum of crude coal-oil in about the proportions of one part of the pine-tar, two parts of coal-tar, and one part of the residuum of crude coal-oil. These proportions cannot, however, be

definitely stated, for they must be varied according to the climate. The above proportions are what I would use in the latitude of Washington; in a colder climate the quantity of pine-tar may be reduced; in a warmer climate the quantity should be increased. The tar-mixture is made from the cold ingredients in hot weather; in cold weather they should be warmed. The tar-mixture and the mixture of sand, &c., are then combined, using forty gallons of the former to each cubic yard of the latter.

Instead of the pine-tar and the residuum of crude coal-oil, hereinbefore mentioned, crude turpentine may be employed, using the same quantity of the latter as hereinbefore stated for both the pine-tar and residuum of crude coal-oil—that is, I use equal quantities of coal-tar and of crude turpentine mixed, with heat enough to cause the ingredients to incorporate.

Having fully described the mode of constructing my improved pavement, what I claim as my invention, and desire to secure by Letters Patent, is—

Concrete compounded from the ingredients named, and used in combination with stone in the construction of pavements, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

J. W. BYRNES.

Witnesses:

CHAS. F. CLAUSEN,  
D. P. HOLLOWAY.