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635,221

UNITED STATES PATENT OFFICE.

JOSEPH H. AMIES, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-THIRD TO CHARLES FREMONT TAYLOR, OF SAME PLACE.

CEMENT-CONCRETE PAVEMENT.

SPECIFICATION forming part of Letters Patent No. 635,221, dated October 17, 1899.

Application filed February 27, 1899. Serial No. 707,052. (No specimens.)

To all whom it may concern:

Be it known that I, JOSEPH H. AMIES, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented new and useful Improvements in Cement-Concrete Pavements, of which the following is a specification.

My invention relates to cement-concrete pavements, floors, roadways, and sidewalks; and its object is to provide a new method of constructing the same by which they shall possess superior advantages with respect to efficiency in use.

The invention consists in the novel method and the construction hereinafter fully described and claimed.

Before proceeding to describe my invention in detail I would say that a cement-concrete pavement or roadway, if properly constructed, is practically indestructible, but owing to the fact that as at present constructed they are laid in blocks with joints or spaces therebetween to allow of contraction in cold weather and expansion in hot weather water is liable to run into these spaces and freeze, which would result in the breaking up of the blocks and a speedy destruction of the pavement. In addition to this it is an expensive and laborious method.

I have found by experiment that if cement be mixed with water, sand, gravel, and paper or other fibers in a certain manner and a pavement be constructed therefrom in a single sheet the defects inherent in such pavements will be obviated and a durable, elastic, and efficient pavement be produced.

In carrying my invention into effect I take ordinary hydraulic cement and sand, gravel, or other light material and thoroughly mix them and then dampen with water and form a semiplastic mass. I then take paper, sawdust, or fibers of any kind which are abundant and cheap and thoroughly mix them with mineral matters—such, for instance, as iron-fillings—and dampen with water and then incorporate and mix with the cement-concrete. The composition thus produced is now laid on the roadway, but the cement, gravel, stone, and sand forming the concrete

do not unite with the paper or other fibers, which, being elastic, allow the mass to contract and expand without liability of breaking up or disintegrating. In some instances it is desirable to waterproof the fibers and paper. This I accomplish by mixing therewith a suitable quantity of suitable oils, tars, resin, glues, or other viscid materials which will be absorbed by said fibers and paper. I have also waterproofed the pavement by pouring thereon a suitable thin oil—such, for instance, as crude petroleum—which will readily run in freezing weather. The concrete is still quite wet when this oil is poured thereon, the result being that the oil will break into very small globules and divide and spread over the wet surface. When the pavement has become dry, these globules reunite, and a perfect distribution is effected, forming a thin coating on the surface of the pavement, a portion of the oil being also absorbed by the paper and fiber.

A pavement constructed as described will be elastic, so as to counteract the effects of contraction and expansion, will be waterproof, thereby promoting its efficiency, and will also be very durable and efficient in use. The pavement being laid in a single sheet, there will be no joints for water to enter and freeze, as in the ordinary block concrete pavements.

Having thus fully described my invention, what I claim is—

1. A pavement consisting of cement, gravel, sand, fibers and oil intimately mixed and laid in a continuous sheet on a bed or roadway, substantially as described.

2. The method herein described of making concrete pavements which consists in mixing together cement, gravel and sand with water forming a semiplastic mass, then mixing therewith water and fibers and oil and finally laying the pavement in a single sheet, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOSEPH H. AMIES

Witnesses:

H. R. KNEASS,
MARY I. BRADLEY