

# UNITED STATES PATENT OFFICE.

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

## ARTIFICIAL PAVEMENT.

SPECIFICATION forming part of Letters Patent No. 684,739, dated October 15, 1901.

Application filed January 23, 1901. Serial No. 44,348. (No specimens.)

*To all whom it may concern:*

Be it known that I, JOSEPH HAY AMIES, a citizen of the United States of America, and a resident of Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented certain new and useful Improvements in Artificial Pavements, of which the following is a specification.

My invention relates to the composition of artificial pavements, particularly those in which asphalt is an ingredient.

I have discovered a new method of treating asphalt which enables it to be in a measure prepared in a mill where the necessary power is provided and in the condition of granulation without admixture with sand or other materials used in making such pavements, carried cold any distance to the place where the pavement is to be made, and laid.

Describing my method, I put asphalt in a grinding or pulverizing mill and reduce it to a coarse powder, about as fine as common sand. Any worker in asphalt knows that under ordinary conditions asphalt cannot be ground or pulverized, because such action upon it produces a paste or thick gummy product, which clogs the mill and defies granulation. To overcome this difficulty, I grind or reduce it in water, preferably by constantly spraying upon the asphalt when in the mill streams of water. The action of the water upon it is to harden or crystallize it and prevent it becoming a paste or gummy. I ship it in sufficient water to hold it in a granulated condition and prevent it becoming viscid again and cohering, and because of the water I preferably put it in closed vessels for shipment, or it may be mixed in the proper proportions with sand and the whole well dampened; but this latter method, if the distance it has to be carried is considerable, may be costly for freight or cartage. Circumstances will determine the better method of shipping it. Having my prepared asphalt at the point where the pavement is to be laid, I next make a heap of sand in the roadway and thoroughly mix the wet granulated asphalt in the proper proportions with it. Then I pour over the pile a quantity of residuum or some other like oil, and then again on top of it a quantity of naphtha or benzin as an agent for quickly firing the mass, and I then set it on fire. The fire is continued until the whole mass becomes hot enough to cause the asphalt and the sand

to unite and become concrete and closely associated. I may turn the mass over and over while it is being heated through in the manner described, maintaining the fire by additions of naphtha as required. The presence of the water in the mass prevents the asphalt from being scorched, which is an important point. The water is gradually evaporated in the process. While the mass is still hot and plastic, a quantity of carbonate of lime may be worked into it. The mass is then leveled to the grade, rolled or tamped, and the pavement is ready for use.

My object in so making my pavement is to compound it when and where it is to be laid down, and so render it possible to put asphalt pavements in country and outlying districts without first creating an expensive plant to melt the asphalt and mix it hot with the hot sand and then cart said mixture in a heated condition to the place where it is to be used, as the present method requires. My method saves all these expenses, which are a very large proportion of the cost of making asphalt pavements, and produces a pavement equal to the finest now in use.

It will be observed that the asphalt is granulated cold. The sand is also cold, and the first and only place where heat is applied is at the spot where the pavement is to be laid, and the heat is produced by firing an oily fluid poured over the mixture of sand and asphalt. This, with the exception of the grinding-mill, is all done without machinery, furnaces, and kilns.

I am aware that resins and tars have heretofore been ground in cold water. I therefore do not broadly claim said process.

What I claim is—

The within-described method of compounding a composite pavement, which consists in granulating asphalt in cold water, and maintaining it granulated in cold water, mixing it with sand, adding oil as a fuel to the composition, then firing same to produce heat sufficient to cause the whole mass to unite and become concrete, then while still plastic adding carbonate of lime, substantially as described.

Signed at Philadelphia this 22d day of January, 1901.

JOS. H. AMIES.

Witnesses:

JOHN W. SCHANDEIN,  
JOS. W. ROBERTSON.