

UNITED STATES PATENT OFFICE.

WALTER S. WILKINSON, OF BALTIMORE, MARYLAND, AND CHARLES H. BURCHINAL, OF PITTSBURG, PENNSYLVANIA.

ASPHALTIC PAVING MIXTURE OR COMPOSITION.

SPECIFICATION forming part of Letters Patent No. 705,803, dated July 29, 1902.

Application filed August 16, 1901. Serial No. 72,230. (No specimens.)

To all whom it may concern:

Be it known that we, WALTER S. WILKINSON, residing at Baltimore, in the State of Maryland, and CHARLES H. BURCHINAL, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, citizens of the United States, have invented an Improvement in Asphaltic Paving Mixture or Composition, of which the following is a specification.

Our invention relates to bituminous paving or pavement mixtures or compositions.

Prior to our invention bituminous paving or pavement mixtures or compositions have been commonly made from crushed rock, sand, and other calcareous or non-calcareous materials mixed in suitable quantities with an asphaltic cement, usually an asphaltic compound, containing, say, from ten per centum to fifteen per centum of residuum of petroleum or other flux mixed while heated, the entire mixture being afterward tamped, rolled, or compressed for use. Such paving or pavement mixtures or compositions being well known in the markets of the present day and their construction and mode of manufacture being thoroughly understood by those skilled in the art, no further description thereof is required herein.

In our efforts to provide a bituminous paving or pavement mixture or composition that would be more durable and more permanent than any yet produced we have discovered that a small percentage of comminuted copper if properly distributed throughout the mass of mixture or composition adds greatly to the life of the pavement. We have found one-half of one per centum to three per centum of copper to produce excellent results.

If the conditions require the use of a larger proportion of dust or fines than results from the crushing of the rock itself or than is found mixed with the finely-comminuted rock or sand, such dust or fines in desired quantity may be supplied from other sources and would be perhaps most suitably of a calcareous nature. This crushed rock or sand, copper, and limestone or other dust or fines are or may be mixed in usual manner with an asphaltic compound or cement such as now

commonly known in the art. We have found the following to produce excellent results under average conditions—namely, body material of crushed rock, sand, or stony material, sixty per centum to seventy-one per centum in weight of the whole; comminuted copper, one-half of one per centum to three per centum of such body material; calcareous or other dust or fines, fifteen per centum to twenty-five per centum of the whole, and asphaltic cement, ten per centum to twenty per centum of the whole. These proportions or some of them may vary according to circumstances—such, for instance, as the maximum coarseness and grading of the stony material and the character of the asphalt employed in making the cement. The coarser stony material requires less cement, and the cement must contain more asphalt when Trinidad or other asphalts containing a relatively large proportion of earthy matter are employed. This mixture is preferably made while all the materials are in a heated condition, say, from 250° to 350° Fahrenheit, and preferably after the asphaltic cement has been freed in usual manner from any water that may have been contained in it. After having been thoroughly mixed and while still in a heated condition the mass is tamped, rolled, or compressed in usual manner and with usual appliances, after which it is cooled or permitted to cool, when it is ready for use.

An asphaltic or bituminous paving or pavement mixture or composition containing in accordance with our invention a relatively small per centum of copper produces a pavement that will outwear any heretofore known to us.

We have found the copper to be most conveniently and economically introduced into the mixture or composition by employing a crushed and partly-pulverized conglomerate rock containing native copper and commonly known as "copper sands." Such copper sands are obtainable in the vicinities of the conglomerate-rock copper-mines and contain a fairly-uniform distribution of copper varying in quantity ordinarily from three-quarters of one per centum to one and one-half per centum.

The copper sands are better and more eco-

nomical to use than copper otherwise introduced into the mixture or composition, as we believe, because the particles of copper are more firmly held in position to resist wear by
5 the surrounding rock than when mixed with and held by the asphaltic cement.

Obviously the materials and the mode of manufacturing or manipulating the same in the production of a paving or pavement mixture or composition may be varied as required or suggested by those skilled in the art to which our invention relates and to suit the
10 varying conditions and requirements of use.

Having described our invention and without limiting ourselves to details, what we
15 claim, and desire to secure by Letters Patent, is—

1. A bituminous paving or pavement mixture or composition wherein the body material is crushed rock or sand, said mixture or
20 composition containing a small percentage of comminuted copper in amount not exceeding three per cent. of the body material, and a bituminous cement.

25 2. An asphaltic paving or pavement mixture or composition wherein the body material is crushed conglomerate rock bearing a small percentage of copper; and an asphaltic cement.

3. An asphaltic paving or pavement mixture or composition consisting of crushed conglomerate rock bearing one-half of one per centum to one and one-half per centum of native copper; fines; and an asphaltic cement.

4. As a new article of manufacture, a paving block or tile made from crushed conglomerate rock bearing from one-half of one per centum to one and one-half per centum of native copper, calcareous fines of substantially the condition of an impalpable powder,
35 and an asphaltic cement.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

WALTER S. WILKINSON.

CHARLES H. BURCHINAL.

Witnesses:

FREDERICK L. EMERY,

W. V. BURNS.