UNITED STATES PATENT OFFICE.

ALEXANDER L. SCOTT, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF PART TO HIMSELF, WILLIAM H. ADDICKS, AND WILLIAM HOWARD BAKER, OF SAME PLACE.

ARTIFICIAL PAVING AND BUILDING MATERIAL.

SPECIFICATION forming part of Letters Patent No. 262,133, dated August 1, 1882.

Application filed May 15, 1882. (No specimens.)

To all whom it may concern:

Be it known that I, ALEXANDER L. SCOTT, of the city and county of Philadelphia and State of Pennsylvania, have invented a new and useful composition of matter, consisting of an artificial conglomerate-rock compound capable of being formed while in a plastic state into paving-blocks, building-bricks, or smooth road-surfaces, or the like structures, of which the following is a specification.

My invention has for its object the production of an artificial conglomerate rock or stone compound which, after being molded into blocks or bricks or laid as a surface covering, shall be capable of resisting disintegrating influences of heat and moisture and the wear and tear of the travel and pressure to which it may be subjected in its several uses.

It consists of a composition of matter of the following ingredients, combined in the proportions named, to wit: three and one-half per cent. of native Trinidad asphaltum, two and one-half per cent of coal-tar pitch, one per cent. of crude asbestus, one per cent. of oxide of lead, one per cent. of crude commercial litharge or alum, sixteen per cent. of refuse foundry-sand or its equivalent, and seventy-five per cent. of broken granite or other similar rock of a hard flinty nature, one-third of said rock being reduced to grains and two-thirds thereof being broken into various small sizes, as may be required.

In manufacturing or compounding the elements of my compound I follow substantially this process: I first place the three and one-half per cent. of native Trinidad asphaltum in a jacketed reducing-kettle heated to a sufficient temperature by superheated steam introduced into the steam-jacket at a point at or near the bottom of the kettle, and, by the heat so applied reduce the asphaltum to a fluid state. I also place in a separate jacketed kettle of similar construction, heated in like manner, the two and one-half per cent. of coal-tar pitch, which I also raise to a sufficient temperature to reduce it to a fluid state. I then remove the liquid asphaltum and pitch from the reducing-kettles and place them together in a horizontal steam-jacketed mixer of suitable construction, heated by steam from a superheater. While they are being treated in this mixer I add to the fluid compound one per cent. of crude asbestus, one per cent. of oxide of lead, and one per cent of crude commercial litharge or alum, and treat the mass in the mixer until the ingredients are thoroughly integrated. While this process is being carried out I place in another mixer, (for which I prefer a cylindrical construction,) which is heated from a fire-box suitably constructed beneath the same, the sixteen per cent. of refuse foundry-sand, together with the seventy-five per cent. of broken granite or other rock of a similar hard and flinty nature, of which one-third has been reduced to a pulverized or sandy condition and the other two-thirds broken to small and suitable sizes. I then heat this mixture of rock and sand while in the mixer to a temperature not exceeding 200° Fahrenheit, and when sufficiently treated in the manner described to drive out moisture and thoroughly mix the materials, the sand and rock, while warm, are removed to a horizontal steam-mixer containing the fluid compound of asphaltum, coal-tar pitch, oxide of lead, and litharge or alum, as above described. I then treat the whole mass in this mixer until it is thoroughly compounded and integrated, and while in a plastic state it may be removed to be molded into forms or laid upon surfaces. When molded into forms such as paving-blocks or building-bricks, it is placed in suitable molds and formed under sufficient pressure into the shapes desired. While the compound is still warm and yet in the molds I remove the molds containing the blocks or forms and subject them to a bath of heated dilute sulphuric acid, or heated dilute sulphuric acid in which leather scraps have been steeped. This bath has the effect of shrinking the blocks or forms so as to permit their removal from the molds with certainty of retaining perfection of form and outline, and it also toughens the material of which the block is compounded, and at the same time cleanses its surface from all the superfluous oils and other matters which have been brought to the surfaces during the process of pressure while in the molds, and serves to give to the surfaces

an appearance suitable for immediate use, and to partially or wholly vulcanize the same.

When it is desired to use this compound to form pavements or surfaces of other than block formation it is taken directly from the mixer while in a plastic state and placed upon a firm gravel or other foundation of a sufficient thickness, rolled under sufficient pressure, and immediately thereafter treated with the acid washing hereinbefore described.

When the composition is used for the manufacture of bricks or other building material the color may be controlled by the addition of suitable coloring-matters while the compound is passing through the steam-jacketed mixer.

Having fully described my invention, I claim—

1. As a new composition of matter, the artificial conglomerate-rock compound formed of a combination of native Trinidad asphaltum, coal-tar pitch, oxide of lead, asbestus, litharge or alum, refuse foundry-sand or its equivalent, and pulverized and broken granite or rock of a similar flinty nature, in the proportions and substantially in the manner hereinbefore set forth, and for the purposes specified.

2. The method hereinbefore described of treating asphaltic, bituminous, or composite blocks or surfaces for paving and other uses by subjecting the same to a bath or wash of warm dilute sulphuric acid in which leather scraps have been steeped, immediately after the application of pressure, substantially as described, and for the purposes specified.

3. The method hereinbefore described of treating asphaltic, bituminous, or composite blocks or surfaces for paving and other uses by subjecting the same to a bath or wash of warm dilute sulphuric acid immediately after the application of pressure, substantially as described, and for the purposes specified.

ALEXANDER L. SCOTT.

Witnesses:
S. G. WILSON,
J. H. DIXON.