

# United States Patent Office.

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CALIFORNIA.

*Letters Patent No. 80,856, dated August 11, 1868.*

## IMPROVEMENT IN STREET-PAVEMENTS.

*The Schedule referred to in these Letters Patent and making part of the same.*

### TO WHOM IT MAY CONCERN:

Be it known that we, PHILIP CADUC, of the city and county of San Francisco, and W. H. DE VALIN, of the city and county of Sacramento, in the State of California, have invented a certain new and improved Composition for Pavements, Walks, &c., and method of applying the same; and we hereby declare the following to be a full, clear, and exact description of the same.

The composition we employ is formed of asphaltum, sulphur, sand, and gravel or broken stone.

The asphaltum being boiled to the proper consistency, a proportion of about twenty-five per cent. of sulphur is added, and as much heated sand and gravel or broken stone is mixed in as will reduce the mass to a semi-liquid consistency.

The asphalt renders the composition impervious to moisture, and sufficiently elastic to prevent breaking. The sulphur imparts to it sufficient hardness to resist heat, and the sand and gravel fit it to sustain weight, and give it not only solidity, but roughness sufficient to prevent it from being slippery.

The above-described composition may be used for floors, roofs, and walks, but is specially adapted for street-pavements. One method of applying it to the latter use is as follows:

An ordinary cobble-stone pavement is laid in the usual manner, and after being thoroughly rammed, is swept clean, so as to remove the sand from the interstices or spaces between the tops of the cobbles. The composition above described is then spread over the cobbles, so as to enter and fill these spaces, and is then covered with hot sand and rolled, so as to thoroughly pack the joints between the stones.

A pavement thus made will be noiseless, smooth, and durable, and can easily be kept clean. The composition forms an elastic cement, which prevents water from passing through and softening the foundation, while the cobble-stones protect the asphalt and other ingredients from excessive wear.

It will of course be understood that the composition may be applied with equal facility either to a cobble-stone pavement which has already been in use, or to one newly laid.

In many instances we prefer, however, to form the pavement, walk, or floor, of moulded blocks of this composition. These blocks are formed by running the composition into a mould, of a size to make a block which may be conveniently handled, say about one foot long, six inches wide, and from two to six inches thick, according to the weight the block will be required to sustain.

The mould is made with bevelled or inclined sides and ends, being widest at the top, and gradually contracting as it approaches the bottom. As the composition when poured into the mould is in a semi-liquid state, the hot sand and gravel gather at or towards the bottom of the mould, the lighter and oily portions remaining on top. The block is left in the mould until sufficiently cool for handling, after which it is removed therefrom.

In forming a pavement of these tapering blocks, the ground is first prepared by rolling and tamping, and is smoothed to the proper grade. The blocks are then laid in a reverse position from that occupied by them in the mould; that is to say, they are laid with the small face upward, and with their lower and extended edges in contact, thus creating wedge-shaped or tapering spaces between them. These spaces are filled with the heated composition, which, when cold, unites all the blocks in a firm and uniform mass. The surface of the pavement thus made is then covered with hot sand or fine gravel, a part of which will adhere to the pavement, and the remaining portion may afterwards be swept off, if desired.

The method of moulding the composition into blocks has numerous advantages to recommend it, for not only can such blocks be conveniently prepared and rapidly laid, thus obstructing street-travel for but comparatively a short time, but as the sand and gravel settle in the mould to that part of the block which is laid uppermost in the street, the hardest and most solid part of the pavement is on top, to resist wear, while the more yielding portion is beneath, assisting to sustain the weight, with less liability to be broken and injured.

The blocks may, if desired, be laid upon a wooden or brick foundation, in the same manner as above described.

In case of the employment of the latter foundation, the joints between the brick should be packed tightly with earth or sand.

Having now described our invention, and the manner in which the same is or may be carried into effect, what we claim, and desire to secure by Letters Patent, is—

1. The application, to a cobble-stone pavement or walk, of the herein-described composition, substantially in the manner set forth.

2. The tapering or inclined-sided blocks, moulded and formed from the composition herein described, in the manner set forth.

3. A pavement or walk made of composition-blocks, moulded and formed as set forth, and united or cemented together after being laid or placed in position, in the manner specified.

In testimony whereof, we have signed our names to this specification before two subscribing witnesses.

P. CADUC,  
W. H. DE VALIN.

Witnesses:

JAMES ANTHONY,  
EDW. CADWALADER.