United States Patent Office.

A. VAN CAMP, OF WASHINGTON, DISTRICT OF COLUMBIA, AND M. M. HODGMAN, OF ST. LOUIS, MISSOURI.

Letters Patent No. 100,954, *dated March* 15, 1870.

IMPROVED COMPOSITION FOR CONCRETE PAVEMENTS, WALKS, &c.

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

To all whom it may concern:

Be it known that we, A. VAN CAMP, of Washington city, and District of Columbia, and M. M. HODGMAN, of St. Louis, in the county of St. Louis, and State of Missouri, have invented certain new and useful Improvements in Concrete Compositions; and we do hereby declare that the following is a full, clear, and exact description of the same.

The object of our invention is to provide a concrete that is cheap, durable, entirely impervious to moisture, and that will remain entirely unaffected in all temperatures, no matter how intense the degree of cold or heat may be to which it is subjected, and, therefore, not only most admirably suited for pavements, roadways, walks, and roofing, but also adapted for the construction of pipes, sewers, tunnels, culverts, arches, &c.

We are familiar with the numerous compositions now before the public, popularly, but often improperly termed concrete, and well know that practical experience has fully attested the fact that in nearly all these compositions, that positive and permanent coalition of the different particles or ingredients with each other which is absolutely requisite to produce concrete, does not take place.

As stated in our patent dated July 27, 1869, many reasons might be assigned why, in the compositions referred to, concretion does not take place. As there stated, the most prominent reason is that the smooth surface of the gravel, bowlders, or pebbles used, does not afford sufficient resisting-surface for the cementing ingredient used to adhere to, and, therefore, in the concrete embraced in and covered by our patent before alluded to, the stones, gravel, or pebbles, to overcome this difficulty are broken or crushed, not for the purpose of reducing them to the desired dimensions, for we are well aware that in this there would be no invention, but for the purpose of destroying their smooth surfaces, so that a rough, uneven surface—one having numerous interstices for the asphaltum to imbed itself in—might be afforded in each and every piece; consequently the small gravel or pieces of stone are broken the same as the large bowlders.

Our present invention involves precisely the same principle, and consists in substituting brick for stone or gravel; as in many sections where it is desirable to use concrete, stone or gravel is scarce, while clay abounds in abundance, the expense of producing the concrete is much reduced, as any old refuse brick can be used. Of course it is preferable that the bricks used should be thoroughly burned or pressed, so as to make them as hard or as near the consistency of rock as possible.

To enable others skilled in the art to make and use our invention, we will now proceed to describe its construction and operation.

We take hard brick, or refuse pieces of the sam and, by any suitable process, crush or pulverize th same. This crushing or pulverizing process shoula be continued until the natural or smooth surface of each and every piece is destroyed, so that when the ingredients are thoroughly mixed, a rough, uneven, and irregular surface shall be presented by the particles of brick, for the asphaltum to adhere to.

The brick thus prepared I mix with asphaltum or the residuum of coal-tar or pitch, using the ingredients in about the following proportion:

Brick, seven parts.

Asphaltum, &c., one part.

This formula has been found to work admirably, but, of course, can be varied at pleasure, without in any manner affecting our invention.

These ingredients are placed in an open pan or vessel, and subjected to a heat, say from 120° to 130°, care being taken that the mass is constantly agitated or stirred during the entire heating process.

Sharp sand may be added, but the same is left optional. In some cases, such as roofing, for instance, its use is advantageous. So soon as the composition is thoroughly mixed, it is laid hot and thoroughly rammed or packed by hot rollers or hot tamps.

It will be observed that the process of mixing, as well as spreading and laying, is exactly similar to that described in our patent before referred to.

We are familiar with the patent of R. B. Stevenson, of January 1, 1867, for a paste or cement for roofing. His composition consists of brick-dust and asphaltum. This, of course, we do not claim. Bricks, when ground to a powder or dust, would not at all answer our purpose. We simply desire to so crush the brick that it will be of convenient size for use, care being taken that the brick shall be so crushed that no smooth surface shall be left, but, on the contrary, the entire surface of each and every particle shall be rough or uneven.

Having thus fully described our invention,

What we claim therein as new, and desire to secure by Letters Patent of the United States, is—

A composition for pavement, walk, pipe, sewer, or culvert, of brick and asphaltum, when the brick has been so crushed that the entire surface of each particle used is rendered rough and uneven, substantially as described, as and for the purpose specified.

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

A. VAN CAMP.
M. M. HODGMAN.

Witnesses:
N. D. ROGERS,
PH. W. SCHNEIDER.