

UNITED STATES PATENT OFFICE.

WILLIAM PATTERSON AND ELIAS GROAT, OF SAN FRANCISCO, CALIFORNIA,
ASSIGNORS TO THE CALIFORNIA BITUMINOUS BLOCK MANUFACTURING
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BITUMINOUS SAND-ROCK FOR PAVING, ROOFING, AND BUILDING PURPOSES.

SPECIFICATION forming part of Letters Patent No. 409,493, dated August 20, 1889.

Application filed June 21, 1888. Serial No. 277,822. (No specimens.)

To all whom it may concern:

Be it known that we, WILLIAM PATTERSON and ELIAS GROAT, citizens of the United States, residing at San Francisco, in the
5 county of San Francisco and State of California, have invented or described a certain new and useful Process of Treating Bituminous Sand-Rock for Paving, Roofing, and Building Purposes, of which the following is
10 a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

Our invention has for its object the reduction of bituminous-bearing rock in a cold or natural state and utilizing the product for paving and building purposes.

Heretofore "bituminous sand-rock" has been reduced to a plastic or semi-liquid state
20 by means of heat applied to the substance in open vessels or by steam in a closed vessel or tank. In either of these methods of treatment, however, an earth or mineral substance is added to or incorporated with the melted
25 product to give it body or density for spreading over the surface to be paved or forming into bricks or blocks of the desired size. In treating the substance in this manner, however, by heat or steam, the natural cohesion
30 and tenacity are destroyed, and nothing but sand is left as a residuum, which can never be united or restored in as thorough or homogeneous manner as before such treatment, if even bitumen be added to the melted product
35 to enrich it and it be subjected to great mechanical pressure.

Hence our invention has for its object the production of a paving, roofing, and building material from the natural product known as
40 bituminous sand-rock or bituminous lime-rock in a cold or natural state, without the aid of heat.

To manufacture our paving, roofing, and building compound we take this natural product—bituminous sand-rock or bituminous lime-rock—worthless in its natural state for lack of sufficient bitumen to make it profitable to reduce it to an asphaltum product of commerce or extracting the small percentage
50 of hydrocarbon which it contains—and pass it

through a reducing or grinding mill or machine to disintegrate or break up the cohesion of the substance wrought upon. When this step is accomplished, the condition of the product will be a sort of spongy, homogeneous mass, in
55 which cold condition it is spread in a course or layer of suitable thickness over the surface to be paved or roofed, and then rolled down by pressure until the particles have become reunited and readherent and the surface firm
60 and smooth. The surface, however, will be elastic and wear a great length of time without any material disintegration or diminution. For building purposes and one class of paving, however, we place the product in
65 molds in its granulated and semi-plastic cold states, as it comes from the reducing-machine, and subject it to hydraulic pressure in the molds, thus forming bricks or blocks of great density and firmness, yet with a semi-elastic
70 face, of great duration, which can be used for paving and building purposes, as by this pressure the particles are reunited in a more tenacious and compact form than is found in the substance in its natural state or condition. These bricks or blocks can be transported from the mine or place of manufacture to any point of using by sprinkling the surface with powdered lime or steatite, in
80 case it is found necessary to prevent adhesion in placing one slab upon another for shipment.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

The process of treating bituminous sand-rock, which consists in disintegrating or separating the particles thereof by crushing or grinding and reuniting them by pressure, without the aid of heat other than the latent
90 heat developed by crushing and pressure, substantially as and for the purpose set forth.

In testimony that we claim the foregoing we have hereunto set our hands and seals.

WILLIAM PATTERSON. [L. S.]
ELIAS GROAT. [L. S.]

Witnesses:

C. W. M. SMITH,
LEE D. CRAIG.