

UNITED STATES PATENT OFFICE.

CHRIST WESTERGARD, OF EVERETT, WASHINGTON.

PROCESS OF FORMING CEMENT BLOCKS.

1,063,899.

Specification of Letters Patent.

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No Drawing.

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18-47.5

To all whom it may concern:

Be it known that I, CHRIST WESTERGARD, a citizen of the United States, residing at Everett, in the county of Snohomish and State of Washington, have invented new and useful Improvements in Processes of Forming Cement Blocks, of which the following is a specification.

This invention relates to processes for constructing concrete building articles, such as blocks, bricks, tiles or the like and the object of the same is to render said articles impervious to water and to secure a close texture which will prevent the blocks from absorbing the moisture and prevent their crumbling under heavy weight.

Further objects of the invention will appear as the following specific description is read and the invention will be more particularly set forth in the appended claims.

In practice the invention consists in combining sand, asphaltum, Portland cement and sulfur treated in the following manner and molded to produce the desired articles.

First I take one cubic yard of sand sufficiently fine to pass through a screen having 20 wires to the inch. I then heat this sand until it is perfectly dry and add to the sand a cubic foot of asphaltum chopped in small pieces. The asphaltum is placed in the sand while hot and the whole thoroughly mixed with a hoe or any similar instrument until the sand is thoroughly coated and has the appearance of emery flour, the fire being continued beneath the same until the same is thoroughly coated. The sand should be so thoroughly coated that when being cooled it will stand in individual grains. This type of sand is used for fine facings, and for cement blocks or bricks, while coarser sand may be similarly coated for the same purpose but, as the pores are not filled as well, the fine sand is of course preferred. After the sand has been properly cooled there is added to the above mentioned mixture one cubic foot of the best quality of cement, such as Portland. Two parts of sand, sufficiently fine to pass through a screen having twelve threads or wires to the inch, is added to the above mixture, together with six pounds of sulfur. The whole is then dry mixed in a machine or by hand and a sufficient quantity of water added to produce a consistency substantially equal to molders' sand or so that it will stand like molders' sand and will work in a machine press or similar machine.

The material is now ready to go into a molding machine and, after being subjected to a twenty ton pressure or reduced to similar compactness by hand tamping, the brick or other article is removed from the mold or, more correctly speaking, the mold is removed from the article and the latter left upon the pallet and loaded upon a car. This car is removed to a curing shed where it is allowed to remain forty-eight hours being constantly dampened during this time. The articles are then lowered into a submerging tank where they remain one hour under water and are then placed in a steam curing room where they remain in steam about two hours. For the first hour and one-half the steam has substantially no pressure but during the last half hour the steam pressure may be applied up to five or seven pounds. Prior to this step in the process the sulfur and asphaltum have not been affected by the water when put into the mixture and therefore do not affect the setting of the cement. They simply lie undisturbed in the brick or other article until it comes to the steam curing. This steam curing melts the sulfur and asphaltum which acts to fill the pores and to vitrify the articles. Even after this the article will still take water and it is therefore sprinkled with water until it is from one to twelve days old, when it is properly cured and ready to go into the building or other construction where the article is to be used. The sulfur will add strength to the article and also prevent the same from absorbing moisture or from crumbling under heavy weight.

Where it is desired to bring the vitrification to the surface the articles are placed over a fire or subjected to a temperature of about 800° Fahrenheit. The articles are fed slowly over the fire or through this high temperature which will bring the vitrification to the face of the article and give it a glossy surface. The sulfur protects the cement during this stage of the process.

In place of the prepared sand and asphaltum, soap can be used to take the place of the latter article. In this form the same amount of sand and cement is used as before or three parts of sand and one of cement may be conveniently used with the same amount of sulfur. Instead of using the asphaltum two pounds of soap in thirty-two gallons of water are used and the article cured as before mentioned. The soap

will do practically the same work as the asphaltum where fine sand is used, but where coarse material is employed soap cannot be used to advantage as it will not close the pores sufficiently.

This process may be employed in the manufacture of cement bricks, cement blocks, tiles, copings, window sills, building cornices, sewer tiles, etc., and also the manufacture of building materials and construction.

If necessary the sand and asphaltum may be omitted from the compound and only the cement and sulfur used which makes the product waterproof. The same may be vitrified by passing it through the steam curing operation, as before described, and any color may be added to the mixture by using mineral mortar color.

The above described process may be carried out equally as well with lime and sand bricks, the same vitrification taking place.

Claims.

1. The process of producing building articles which consists in mixing heated sand with asphaltum, adding cement and sulfur, mixing water with the compound in suffi-

cient quantities to make a plastic mass, pressing the mass into molds to form the article, curing the molded article by sprinkling and submerging in water, treating the article to steam for a predetermined time and increasing the pressure, and intermittently sprinkling the same after steaming.

2. The process of producing building articles which consists in mixing heated sand with asphaltum, adding cement and sulfur, mixing water with the compound in sufficient quantities to make a plastic mass, pressing the mass into molds to form the article, curing the molded article by sprinkling and submerging in water, treating the article to steam for a predetermined time and increasing the pressure, intermittently sprinkling the same after steaming, and finally rapidly subjecting the articles to the action of a high temperature.

In testimony whereof I affix my signature in presence of two witnesses.

CHRIST WESTERGARD.

Witnesses:

LOUIS P. THOMPSON,

FRANCIS W. MANSFIELD.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."