UNITED STATES PATENT OFFICE.

ROBERT C. STUBBS, OF DALLAS, TEXAS.

PROCESS OF SOLIDIFYING MORTAR AND CONCRETE FORMATIONS.

No. 918,388. Specification of Letters Patent. Patented April 13, 1909.

Application filed September 1, 1908. Serial No. 451,243.

To all whom it may concern:

Be it known that I, ROBERT C. STUBBS, a citizen of the United States, residing at Dallas, Texas, have invented a Process of Solidifying Mortar and Concrete Formations, of which the following is a specification.

My invention relates to the making of concrete or artificial stone structures, and the object is to make blocks, slabs, walls, and other structures of extreme hardness and density.

Air and moisture prevent the making of very hard or substantial artificial stone or concrete. I have provided a method of removing all air bubbles and practically all excess moisture from the mixed composition before it becomes hard or set. It is apparent that if water or moisture is left in considerable quantities in the composition, the composition will in time become more or less porous and it cannot be very firm or substantial. The same is true if air is left in appreciable quantities in the composition.

Reference is had to the accompanying drawing which forms a part of this application.

The drawing shows a section of a concrete formation and a weighted electric vibrator resting on the formation.

The improved process is applicable for making building blocks or slabs or walls or any other structure of similar consistency.

The composition is prepared as usual by mixing the proper quantities of cement, sand, and stone or other ingredients with suitable quantities of water. The composition is then placed in a mold which is absolutely fixed and not subject to oscillating or vibratory movement. For many structures the composition is placed where it is to be located, such as walls, streets, or sidewalks, and like structures. A weighted vibrator, such as shown in the drawing, is then placed on top of the composition and set to vibrating and caused to vibrate until the desired result is accomplished. When structures which are to be moved to other places are to be made, molds, are used which may be rigid and firm and unshakable while the operation of vibrating the composition is going on. The vibration or vibratory motion is applied to the top of the formation. Thus a vibrating pressure is applied to the surface of the concrete, and a continual application of the vibrating pressure will so increase the solidity and density of the composition that the vibrations will be transmitted throughout the mass of the concrete. The pressure and the vibration cooperate to remove all collected air and excess moisture.

It is apparent that this process is applicable to any construction in which mortars or concrete are to be used.

In applying pressure to the composition, sufficient pressure must be applied along with the vibrating motion to force the vibrations to but not beyond the limits of the mass of the composition. The process is vibration with pressure and not agitation.

This application is a continuation of my application filed in the Patent Office on January 12, 1907, and is made in response to the decision of the Examiners-in-Chief.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is,—

1. The herein described process of solidifying mortar and concrete formations consisting of mixing ingredients to the desired consistency in a fixed location and applying a vibrating pressure to the surface of the composition.

2. The herein described process of solidifying artificial stone formations consisting of mixing ingredients to a suitable consistency, placing the same in unshakable molds and applying pressure and vibratory motion to the surface of the composition simultaneously.

3. The herein described process of solidifying mortar and artificial stone formations consisting of mixing ingredients to a suitable consistency in an unshakable receptacle, applying vibratory motion to the composition, and applying pressure to the surface of the composition until the vibrations cease.

4. The herein described process of making artificial stone formations consisting of mixing ingredients to a suitable consistency, putting the composition in receptacles fixed against shaking and vibratory motion, applying a vibratory motion to the composition, and applying pressure to the surface of the composition while being vibrated to render the material solid and compact and to drive out moisture and air.

5. The herein described process of solidifying artificial stone formations consisting of mixing ingredients to a suitable consistency, placing the composition in molds which are

fixed against shaking or agitating motion, applying a continual vibratory motion to the surface of the composition, and at the same time applying enough pressure on the composition to force the vibration substantially to the limits of the mass.

In testimony whereof, I set my hand in the presence of two witnesses, this 11th day of August, 1908.

ROBT. C. STUBBS.

Witnesses:
A. L. JACKSON,
J. W. STETT.