106. COMPOSITIONS, COATING OR PLASTIC.

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Cross Reference

25

155

Examiner

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COMPOSITION FOR CONCRETE BLOCKS AND METHOD OF USING THE SAME

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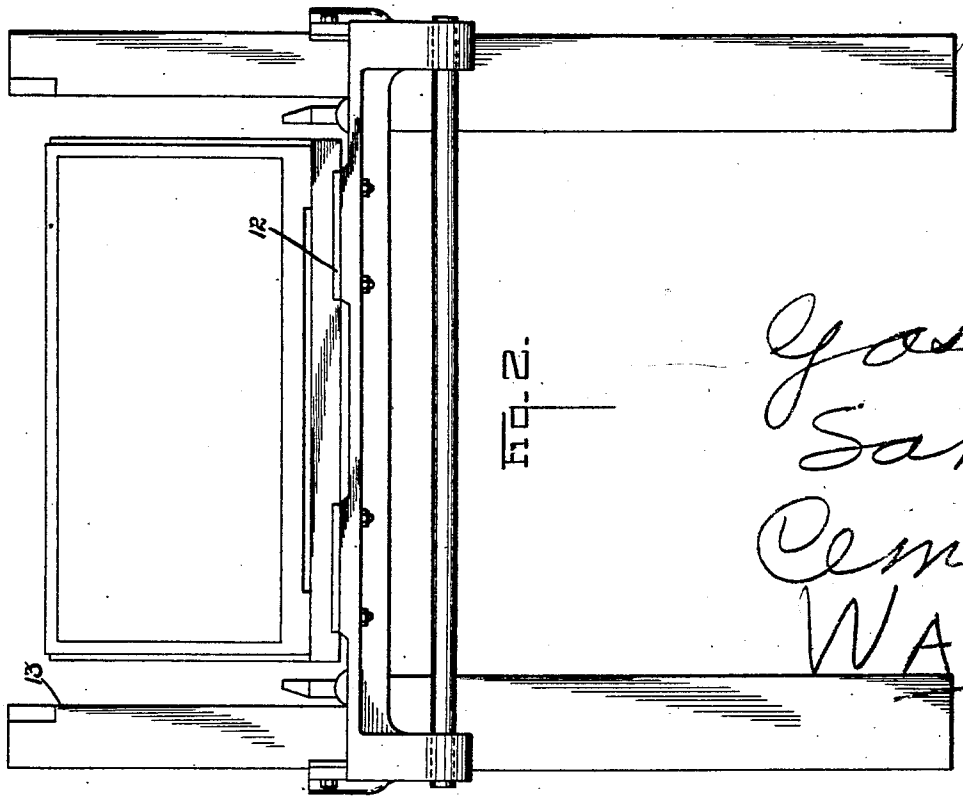


Fig. 2.

Gravel
Sand
Cement
WATER

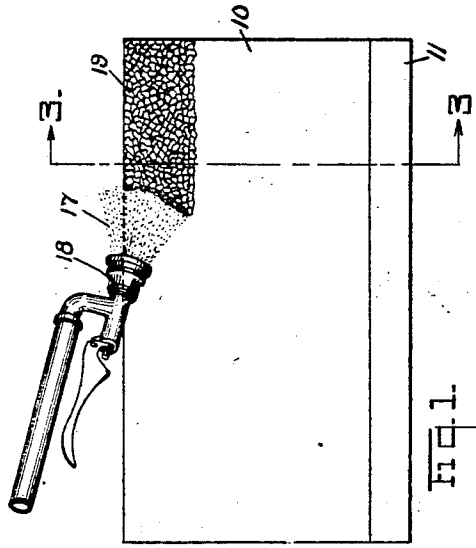


Fig. 1.

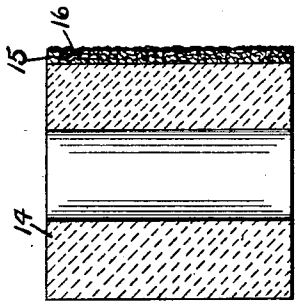


Fig. 3.

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UNITED STATES PATENT OFFICE.

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COMPOSITION FOR CONCRETE BLOCKS AND METHOD OF USING THE SAME.

Application filed September 5, 1925. Serial No. 54,627. 25-155

My invention relates to a composition for concrete blocks and a method of using the same.

My invention more particularly relates to the production of cement blocks having faces exposing ornamental aggregate.

In the production of cement blocks where the matter of appearance was of importance, it has been customary to make the face of the block of different material from the body, or to give it an ornamental appearance. A block of this character, having a face with embedded ornamental aggregate and having the particles of aggregate exposed, has a very desirable appearance and many attempts have been made to produce such blocks, with varying success. While some features of my process might be usable for other purposes, I will describe the process as applied to making a block of this character.

In the accompanying drawings, Figure 1 shows a cement block 10 resting upon a pallet 11, which has just been removed from the pallet support 12 in the block machine 13, shown somewhat diagrammatically in Fig. 2. As shown in Fig. 3, this block is made of a body portion 14 and a facing 15. When the block comes from the machine the particles of aggregate 16 in the facing 15 are covered by cementitious material. This cementitious material is removed by a spray 17 from a nozzle 18, leaving the particles of aggregate in the facing exposed, as shown at 19 in Fig. 1. The exposed faces of the particles of aggregate treated in this manner may be sufficiently clean for practical purposes, and exposure in the wall will further clean these exposed faces. Where a brilliant surface on the exposed particles is desired at once, the faces may be treated with acid.

The process thus far outlined has been previously attempted, and my improvement relates to a modification of this process which renders it more successful.

It is customary to pack the concrete into molds comparatively dry, and to tamp this damp, rather than wet, concrete very hard, in order to make it retain its shape when removed from the mold. When a spray is turned upon a block formed in this manner, it is found very difficult to wash the surface to any appreciable extent without the water seeping back into the block and wetting it so that it sags out of shape, if the spraying is done before the block is set. If the block is allowed to set before spraying is attempted, then the cementitious material is stuck to the surfaces of the particles of aggregate so that it cannot be cleaned off successfully.

In an attempt to avoid this difficulty, water-proofing material has been mixed with the facing material so as to prevent the water from seeping back into the block, but this has given rise to three other difficulties. In the first place, the water-proofing material customarily employed causes the block to stick to the mold so that it is very difficult to release the block from the mold without having a part of the material stick to the face of the mold. In the next place, it is difficult to wash the ordinary water-proofing material from the exposed surfaces of the particles of aggregate, and in the third place, the ordinary water-proofing materials weaken the cementitious bond so that the block is not as strong as it would be without this water-proofing material.

I have discovered that all of these difficulties may be obviated by using a volatile material repellent to water, such as gasoline. The desired qualities of this material are that it shall be light and therefore easily washed from the surface of the particles; that it shall be repellent to water sufficiently to prevent the spray from soaking back into the block; and it shall be volatile so that in the course of a short time, or after the preliminary set of block, the material will disappear and allow water to enter the facing material to facilitate the final hardening.

While the exact substances may be varied to a considerable extent and the proportions are capable of wide variation, I have found that a facing material made up of 10 pounds of lime, 100 pounds of Portland cement and from 2 to 4 quarts of gasoline mixed with aggregate in the proportion of 3 to 1, and sufficient water to give the desired consistency, gives very satisfactory results. Less than 2 quarts of gasoline in the above described mixture will be beneficial and more than 4 quarts appears to do no harm. The more gasoline there is in the mixture the stronger spray may be used upon the block, up to about 4 quarts in the above described mixture.

A block with a facing made of the above described composition parts from the mold cleanly without any trouble, the facing is

400 = Cement and aggregate
10% Seale P. 173
20 qt. water required

sufficiently water-repellent so that a light spray may be turned directly against the facing immediately upon removal of the block from the mold, and the exposed surfaces of the particles of aggregate may be thoroughly washed without affecting the inner portion of the block. The gasoline disappears in a short time by evaporation and leaves the mixture in the same condition it would have been in if no water-repellent material had been used, and any further water needed for final hardening is absorbed in the same manner as though no gasoline had been used. Additional water may be sprayed on the surface of the block from time to time during the final setting period, or the facing may be allowed to absorb water from the body of the block.

I have tried mixing the gasoline with the other material before adding water; adding the gasoline and water at the same time and mixing all of the ingredients at once; and mixing up all of the other ingredients and mixing in the gasoline as the final step. Each of the three methods gives good results. It is a little easier to get a uniform mixture by the first method, it requires the least extra work to follow the second method, while the third method affords the least opportunity for the evaporation of gasoline after it is poured into the mixture and before it performs its desired function.

Where ornamental aggregate is not used, or it is not desired to wash the face of the block, a volatile liquid such as gasoline, may be included in the mixture to facilitate the release of the block from the mold.

It will be readily apparent to those skilled in the art that many variations may be made in the above described composition and its method of use, and the specific description is by way of illustration only, the scope of my invention being defined in the appended claims.

What I claim is:

1. A composition comprising cementitious material, an aggregate, and a water-repellent volatile liquid.

2. A composition of matter comprising hydraulic cement, an ornamental aggregate, and a volatile water-repellent material.

3. A composition of matter comprising cementitious material, an aggregate, and gasoline.

4. A composition of matter comprising hydraulic cement, an ornamental aggregate, and gasoline.

5. A process which consists in forming a concrete mixture including a volatile water-repellent material, molding the mixture, and washing the face of the molded mixture before the volatile material has evaporated.

6. A process which consists in mixing with hydraulic cement and an ornamental aggregate, a volatile water-repellent material, molding the composition into desired shape, removing the molded material from the mold, and washing the cementitious material from the exposed surfaces of the ornamental aggregate before the volatile material has evaporated.

7. A process which consists in mixing with hydraulic cement and an aggregate, a volatile water-repellent material, molding the composition into desired shape, removing the molded material from the mold, washing the cementitious material from the exposed surfaces of the ornamental aggregate before the volatile material has evaporated, and moistening the composition to produce the final set after the volatile material has evaporated.

8. A process which consists in forming a concrete mixture containing hydraulic cement and gasoline, molding the mixture and washing the face of the molded concrete before the gasoline has evaporated.

9. A process which consists in forming a mixture containing hydraulic cement, an ornamental aggregate and gasoline, molding an article with said mixture on the face thereof, and washing said face before the gasoline has evaporated.

10. A process which consists in forming a block having an absorbent body and a face rendered temporarily non-absorbent by the admixture of volatile material and washing the face while it retains enough of said material to prevent deleterious absorption of the washing fluid.

11. A process of molding concrete which comprises mixing with the concrete material a volatile liquid capable of facilitating the freeing of the block from the mold, molding the mixture and freeing the block from the mold before the volatile substance has evaporated.

In testimony whereof I have hereunto signed my name to this specification.

ERNEST A. KNAPP.