

UNITED STATES PATENT OFFICE.

HEINRICH DRESLER, OF CREUZTHAL, GERMANY.

MANUFACTURE OF BRICKS, SHAPED STONES, OR BLOCKS, TUBES, TILES, AND THE LIKE.

No. 903,062.

Specification of Letters Patent.

Patented Nov. 3, 1908.

Application filed September 23, 1908. Serial No. 454,353.

To all whom it may concern:

Be it known that I, HEINRICH DRESLER, director of the Cöln Müsener Bergwerks Oecien Verein, of Creuzthal, Westphalia, Germany, a subject of the German Emperor, and resident of Creuzthal, Westphalia, Germany, have invented a new and useful Improved Manufacture of Bricks, Shaped Stones, or Blocks, Tubes, Tiles, and the Like, of which the following is a specification.

Slag stones, or blocks hardened by means of carbonic acid, have been hitherto manufactured from either water-granulated slag or ground slag solidified in the open air.

This invention relates to the manufacture of bricks, stones, pipes, tiles and the like from slag with the action of carbonic acid, or gases containing carbonic acid, on the molded or shaped articles, with or without addition of lime, the novelty of this process being that the manufacture of the moldings is effected not, as hitherto, from a single slag material, but from a mixture of slags prepared in different manners. Thus, for instance, slag granulated by means of water, is mixed with slag solidified in the open air and reduced or grounded or in a decomposed state. By slag solidified in the open air is meant slag which is cooled in the air from the hot liquid state and solidified. In practice it is also called "block" or "piece" slag.

In the following description the aforementioned mixture is moistened with water in the manner usual in the case of slag blocks or moldings, and compressed into molds or forms which are then exposed to the action of carbonic acid under pressure. This process has the advantage over similar well known processes that the weight of the blocks etc. can be considerably reduced, without affecting the required strength of the same. The blocks or products obtained are of beautiful appearance as the slag grains and the slag powder appear to have melted or blended therein into one mass. For increasing the strength, it may be advisable in certain cases to add a small percentage of lime. The experiments of the applicants have shown however that a mixture of 50% of slag powder or meal, and 50% of slag sand, even without addition of lime, gives a product which can resist a pressure of over 4500 pounds per square centimeter. This strength is sufficient for all purposes, and the reduction of weight referred to enables

the blocks etc. to be shipped to greater distances than would be economically possible with stones made of slag solidified in the air, alone. As moreover the grinding of slag is more expensive than mixing and as with the same output of blocks the grinding is reduced by the process according to this invention, the cost of manufacture according to this process is considerably reduced, which means an important technical advantage.

The blocks prepared by the new process are porous, which, without affecting their strength, has the advantage that the mortar adheres well to their surface. Moldings which are made only from air-solidified slag, easily crack during compression, and on the removal of the press die adhere to the die, so that a great deal of waste is caused. If, however, a mixture of slag is used, according to this invention, the compression of the moldings takes place easily and without any waste. The hardening in vessels by carbonic acid requires by this invention much less time, and, owing to the greater porosity, the acid penetrates deeper into the articles. The greater porosity of the blocks obtained by the process according to this invention, has the further advantage that the blocks dry more quickly, and thus buildings are rendered more healthy.

The process is preferably carried out in such manner that the two kinds of slag are mixed together, and the moldings are prepared from the said mixture without the use of any binding material. They are introduced then into an air tight closed tank, into which carbonic acid is admitted, and are thus caused to harden. In order to increase the action of the carbonic acid to a still greater extent, the tank in which the hardening takes place, is first entirely or partly pumped free from air after the introduction of the moldings, and before the admission of the carbonic acid. Gases containing carbonic acid could however be also passed through the vessel which is then closed, a partial vacuum being automatically produced by the absorption of the carbonic acid.

Claims.

1. The process of manufacturing bricks and similar articles, which consists in mixing water granulated slag with ground slag that has been solidified in the open air, molding the mixture, and subjecting the molded product to the action of carbonic acid gas under pressure for the purpose of acting on any

free lime that may be present, substantially as described.

2. A composition of matter forming bricks and similar articles, consisting of a mixture
5 of slag solidified in the open air and pulverized, and of slag granulated in water, molded together and hardened under pressure of carbonic acid gas, substantially as described.

3. A composition of matter forming
10 bricks and similar articles, consisting of a mixture of slag solidified in the open air and pulverized and of slag granulated in

water, molded together in substantially equal parts and hardened by carbonic acid gas, substantially as described.

In testimony, that I claim the foregoing
as my invention, I have signed my name in
presence of two witnesses, this 9th day of
September 1908.

HEINRICH DRESLER.

Witnesses:

LOUIS VANDORN,
H. STELZER.