

UNITED STATES PATENT OFFICE.

THOMAS MATHIESON THOM, OF WOODLANDS, CHESHUNT, ENGLAND, ASSIGNOR TO THE BRITISH STONE AND MARBLE COMPANY LIMITED, OF LONDON, ENGLAND, A CORPORATION OF GREAT BRITAIN.

MANUFACTURE OF LITHOGRAPHIC STONE ARTIFICIALLY.

No. 927,822.

Specification of Letters Patent.

Patented July 13, 1909.

Application filed June 12, 1908. Serial No. 438,206.

To all whom it may concern:

Be it known that I, THOMAS MATHIESON THOM, a subject of the King of Great Britain, and resident of Woodlands, Cheshunt, in the county of Hertford, England, lithographer, have invented new and useful Improvements in the Manufacture of Lithographic Stone Artificially, of which the following is a specification.

10 Lithographic stones such as are usually employed for printing are natural products derived from certain special quarries and when large and of good quality are very expensive. It has been proposed to make litho-
15 graphic stones artificially by taking the waste chips and debris from the quarries and stone yards, where such stones are hewn and grinding up the same into fine powder, mixing the same with lime, slaking the
20 mixture and molding it into slabs which when dry, are hardened by means of carbonic acid gas. These reconstructed lithographic stones, when properly made are found admirable. I have now discovered that ex-
25 cellent lithographic stones can be made from the waste material known as slag in a somewhat similar way, with or without the addition of natural stone. This material (slag) has already been ground up and used in
30 making cement, tiles, bricks and as an ingredient in a variety of articles which contain slaked lime and are hardened by carbon dioxid, but has not been used in the manufacture of lithographic stone, the prop-
35 erties of which are peculiar and have not hitherto been satisfactorily reproduced or imitated except by the reconstruction of the debris of the natural stone as above mentioned.

40 In manufacturing lithographic stone according to my present invention I take blast furnace or granulated slag and reduce the same to a condition of powder, by means of any suitable grinding apparatus. The pow-
45 dered slag is mixed with a suitable proportion of lime and the mixture is slaked with water. While in a plastic state the mixture of slag powder and lime is molded in dies under considerable compression into slabs of

a suitable size and thickness to form litho- 50 graphic stones. When taken from the dies the slabs are dried and introduced into closed vessels into which carbonic acid gas is admitted or forced gradually until the lime is converted into carbonate and will absorb 55 no more gas. Slabs thus produced from slag fulfil every requirement of lithographic stones and in many respects they are superior to the natural article.

I may remark that to the ground slag may 60 be added powdered natural stone, dolomite, silica, alumina, or marble obtained from the quarries or yards if desired.

The carbonating of the slabs may be effect- 65 ed by any of the known methods, by means of which the thorough induration of the same is insured, for instance, the slabs having been molded and dried and placed in a closed vessel, the air is exhausted from the latter and carbonic acid gas is allowed to 70 enter. The carbonic acid gas is gradually absorbed by the slabs and fresh gas is from time to time supplied but for a time not in sufficient quantity to reach atmospheric pres- 75 sure, subsequently however for completing the carbonation actual pressure is necessary which will vary according to the thickness and density of the stone. For the largest stones used, pressure amounting to some 80 300-400 lbs. to the square inch may be required.

What I claim as my invention and desire to secure by Letters Patent, is:—

The process of manufacturing litho- 85 graphic stone consisting in powdering slag, mixing it with lime, molding the mixture into slabs and submitting the molded slabs to the action of carbonic acid gas gradually admitted thereto until the entire mass is 90 hardened.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

THOMAS MATHIESON THOM.

Witnesses:

U. J. TILMAN,
A. S. BISHOP.