124,964

UNITED STATES PATENT OFFICE.

MORRIS B. MANWARING, OF NEW YORK, N. Y, AND R. DE WITT BIRCH, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN THE MANUFACTURE OF POTASH AND PHOSPHATE OF LIME.

Specification forming part of Letters Patent No. 124,964, dated March 26, 1872.

To all whom it may concern:

Be it known that we, MORRIS B. MANWARING, of the city, county, and State of New York, and R. DE WITT BIRCH, of the city and county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in the Manufacture of Potash and Phosphate of Lime; and we do hereby declare the following to be a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to practice our invention.

Our said invention consists in the manufacture of potash, also of phosphate of lime, from the hull of the cotton-seed or from the ashes thereof. In making oil from cotton-seed the hull has heretofore been treated as mere refuse, usually burned for fuel and the ashes thrown away. These ashes contain a large percentage of potash, (principally in the form of phosphate thereof;) and our invention consists in utilizing them by extracting the potash therefrom, and also in producing phosphate of lime by the addition of lime in the process of lixiviating the said ashes.

The method which we prefer to employ in the practice of our invention is as follows: We take the hulls of cotton-seeds and burn them in any convenient manner (or we take the ashes thereof from the factory) and put the ashes into an open vessel, together with from eight to ten times their weight of water, and boil for about two hours. We then add gradually to the boiled solution a quantity of slaked lime, usually about half the weight of the ash; but sometimes not more than one-third, as those ashes which contain least phosphoric acid will require least lime. The proper quantity may in all cases be determined by testing the solution, and when it is free from phosphoric acid no more lime need be added. The solution is then allowed to settle, and the clear liquid is drawn off and evaporated in any suitable manner. The residue is put into a percolator and exhausted with water, and the first washing or solution thus first exhausted is added to the clear liquid and both together evaporated to dryness, after which the potash is fused and run into drums or other suitable molds. The process of exhaustion with water is repeated, and the subsequent washings are used to dissolve the next batch of ash and to slake the lime. The residue in the percolators usually contains about fifty per cent. of phosphate of lime, and is therefore exceedingly valuable as a fertilizer, needing only to be dried to prepare it for the market. If desired, sulphuric acid may be added before drying it.

What we claim as our invention, and desire to secure by Letters Patent of the United States, is—

1. The manufacture of potash from the hull of the cotton-seed or from the ashes thereof.

2. The process of extracting potash from ashes of cotton-seed hulls by boiling said ashes in water and adding lime thereto, substantially as above described.

3. The manufacture of phosphate of lime from cotton-seed hulls or the ashes thereof, substantially in the manner above described.

M. B. MANWARING.
R. DE WITT BIRCH.

Witnesses:
E. H. BAILEY,
THOS. A. BURTT.