

UNITED STATES PATENT OFFICE.

HENRY S. OSBORN, OF BELVIDERE, NEW JERSEY.

IMPROVEMENT IN THE PREPARATION OF NITRATE OF POTASSA.

Specification forming part of Letters Patent No. 47,562, dated May 2, 1865.

To all whom it may concern:

Be it known that I, HENRY S. OSBORN, of Belvidere, in the county of Warren, in the State of New Jersey, have discovered a new and Improved Mode of Forming Perfectly Pure Nitrate of Potassa; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying sample of the composition.

The nature of my discovery consists in preparing the lixivium of wood ashes that nitric acid of a certain density will take up only that potassa as its base (without combining to an injurious degree with either the lime or chloride of sodium) which was in the ashes and may also be in the lixivium to a degree.

To enable others skilled in the art to make and use my discovery I will proceed to describe the process.

I lixivate the ashes with river or rain-water always at a temperature below 60° Fahrenheit. This dissolves the potassa as a base of the nitrate without much lime, and the lixivium is to a degree free. The lixivium must now be raised by concentration to 24° Baumé's hydrometer, and while hot from the copper bath be immediately transferred from the copper vats to vats made or lined entirely with lead. The heated lixivium thus transferred must remain in the vat until perfectly cold. Upon testing it will now be found that the chloride of sodium has almost ceased to exist as chloride of sodium and become chloride of lead, which either adheres to the side or is precipitated. Now, decant the liquor. If required perfectly free from chlorine, and it is not so at the first cooling, a sheet of lead extra must be run through the vat. The de-

canted liquor must now be treated with commercial nitric acid, in small quantity, thus previously prepared, namely: Add to nitric acid water from the river, or rain-water caught at not less than forty miles from the ocean, to avoid chloride of sodium; add a quantity of this water to reduce the acid to 19°, or near that density, Baumé. At this point arrest dilution instantly and proceed, after thorough commixture, to pass the nitric acid through a leaden tube or gutter into the lixivium, testing with litmus to slight acid reaction, then cease. A vast cloud of crystals immediately begins to fall, and will continue, if the case is treated properly, for some time. These crystals may be left after decanting and the residue of the mother-liquor slightly evaporated until nearly all the liquor produces nearly perfectly pure nitrate of potassa.

This plan of forming nitrate of potassa your petitioner believes to be incomparably above the plan of forming from potash of commerce, as it is pure immediately after it is taken from the lixivium, a result which has never been arrived at yet by purification from caves, by formation from the nitrified residium and efflorescence of foundations, or from the potash of commerce, or by any other attempt upon ashes, if it ever has been made.

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

The manufacture of nitrate of potash from the lixivium of wood ashes, in the manner substantially as described.

H. S. OSBORN.

Witnesses.

CHAS. E. PARKER,
A. S. DEICHMAN.