

UNITED STATES PATENT OFFICE.

SYLVESTER SPARLING, OF HAMMOND, INDIANA.

PRODUCTION OF POTASH.

No. 896,168.

Specification of Letters Patent.

Patented Aug. 18, 1908.

Application filed February 27, 1908. Serial No. 418,052.

To all whom it may concern:

Be it known that I, SYLVESTER SPARLING, a citizen of the United States, residing at Hammond, in the county of Lake and State of Indiana, have invented certain new and useful Improvements in the Production of Potash, of which the following is a specification.

My invention relates to producing potash, and the primary object is to convert the alkali of the various varieties of *Artemisia*, popularly known as sage-brush, into potash.

Another object is to provide a new and improved process for the conversion of the alkali of sage brush or other suitable wood into potash.

With these objects in view the invention consists in the matters hereinafter set forth and then pointed out in the appended claims.

In carrying out the primary object of my invention of converting the alkali of the various varieties of *Artemisia*, commonly known as sage brush, into potash, I treat the sage brush by reducing it to ashes and then extract the potash from the ashes by any suitable method, as by lixiviation and evaporation of the water employed in lixiviating. As the preferred method of converting the alkali of sage brush into potash illustrates and embodies my method of converting the alkali of any suitable wood into potash, a description of one will fully exemplify and disclose the other.

For the purposes in view I place a charge of sage-brush in a closed furnace or retort of any suitable character, and slowly char it at as low temperature as possible until it has been reduced to charcoal or until all volatile matters are liberated, it being of course understood that the volatile gases may be condensed and saved for by-products if desired. After the volatile matters are liberated, a flue is opened in the top or at other suitable point in the retort, and enough air is admitted through suitable draft-openings at or near the bottom of the retort to burn the charge of charcoal after it has been ignited, only enough air being admitted to cause the charge to burn at a dull glow, and this slow combustion is continued until the charge is completely reduced to ashes.

The initial reduction of the wood to charcoal and the final reduction of the charcoal

to ashes may be accomplished in the same retort or in different retorts as desired. The potash is then extracted from the ashes by any suitable method; for example, the resulting ashes may be dumped into a vat and lixiviated with water to which lime has been added, preferably one pound of lime to one thousand gallons of water, the contents of the vat being agitated for about ten minutes preferably with steam and then transferred to another vat the bottom of which is perforated with holes and covered with straw and sand, and the liquor which filters through is further agitated in a suitable vat preferably with steam and after standing until any suspended matter settles is siphoned off into evaporating pans where the water is evaporated, leaving the potash. The potash remaining after the water has been driven off may be further purified by roasting in a reverberatory furnace if desired.

It is to be understood that the extraction of the potash from the ashes may be accomplished in any manner and by any means suitable therefor, and that the salient feature of my invention relates to the reduction of the sage brush or other wood to ashes in substantially the manner described.

While I prefer to use sage brush it is of course understood that other vines, plants or woods may be employed and that my process in its broad aspect contemplates the conversion of the alkali of any suitable plant, wood, or vine by charring, preferably in a suitable retort or furnace, to drive off all volatile matters or so that charcoal results, and then (either in the same or another retort) by burning the charcoal by slow combustion, with as little heat as may be necessary to burn it at a dull glow, to reduce it to ashes, from which the potash is suitably extracted.

This method is highly efficient as shown by practical tests; for example, I have demonstrated that whereas a ton of wood burned by ordinary methods of combustion yields 140 pounds of ashes having 21% of potash, a ton of the same wood treated by my method yields practically the same weight of ashes but having 61% potash.

Having described my invention, I claim:

1. The conversion of the alkali of wood, plants or vines into potash by reducing the same to charcoal at a comparatively low tem-

perature, burning the charcoal by slow combustion at a dull glow until reduced to ashes, and extracting the potash from the ashes.

2. The conversion of *Artemisia* into pot-
5 ash by charring the same at a comparatively low temperature until the volatile matters are liberated, burning the charge, after the volatile matters are liberated, at a dull glow

until the charge is reduced to ashes, and extracting the potash from the ashes. 10

In testimony whereof I affix my signature in presence of two witnesses.

SYLVESTER SPARLING.

Witnesses:

GEORGE R. HARBAUGH,
J. McROBERTS.