

UNITED STATES PATENT OFFICE.

ORLANDO M. THOWLESS, OF NEWARK, NEW JERSEY.

PROCESS OF OBTAINING SODIUM, &c.

SPECIFICATION forming part of Letters Patent No. 380,775, dated April 10, 1888.

Application filed November 5, 1887. Serial No. 254,423. (No specimens.)

To all whom it may concern:

Be it known that I, ORLANDO M. THOWLESS, a subject of the Queen of Great Britain, residing at Newark, Essex county, New Jersey, have invented a new and useful Process for Producing Sodium or Potassium, of which the following is a specification.

My invention relates to the production of sodium or potassium, and has for its objects to obtain a larger yield of metal than is afforded by the processes heretofore adopted, to reduce the cost of production of the sodium or potassium, and to shorten the process.

Heretofore it has been customary to mix the sodium compound or potassium compound with carbonaceous material and to subject the mixture to intense heat in order to effect the required reduction and distillation. In the production of sodium or potassium in this manner chemical combinations are liable to be formed which are detrimental to the proper working of the process, so that the quantity of sodium or potassium obtained is considerably less than the percentage thereof contained in the charge.

Now an important feature of my present invention consists in the heating of the substance containing the sodium or potassium and bringing it, while still in a heated condition, into contact with the heated carbonaceous material. The effect produced when the sodium or potassium compound (whether heated or not) is brought into contact with the highly-heated carbonaceous material is somewhat similar to that produced when water comes in contact with highly-heated metal—that is to say, the sodium or potassium compound is very rapidly decomposed or broken up and sodium vapor or potassium vapor given off. Any chemical combinations which might interfere with or prevent the proper working of the process are thus avoided.

In carrying on my process I employ a pot or retort placed in a furnace and containing coke or other suitable carbonaceous or other reducing material, which is heated. I introduce caustic soda or other suitable sodium compound from a second retort or receptacle, preferably while in a heated condition, into this retort, so that it will come in contact with the carbonaceous or other reducing material therein. The vapors evolved are conducted to condensers such as are ordinarily used in the produc-

tion of sodium or potassium. It is obvious that any suitable number of condensers may be used in combination with one retort, or two or more retorts may be used with one condenser. The retort may advantageously be lined with plum-bago, gas-carbon, or other suitable refractory material. The caustic soda or other sodium compound, after being heated in a chamber exposed to the products of combustion of the furnace for heating the main retort, passes or is fed gradually into the main retort, and, coming into contact with the heated reducing material therein, is rapidly decomposed or broken up, so that sodium vapor is evolved. This vapor passes through a pipe into the condenser.

The introduction of the sodium compound into the main retort should be so regulated as to permit the required chemical reactions to take place continuously and effectively. If desired, I can employ suitable means for feeding the said material regularly into the said retort.

For the production of potassium the process is the same as that above described, caustic potash or other suitable potassium compound being substituted for the sodium compound.

It is obvious that I may, if desired, add lime, iron, or other suitable substances or any combinations or compounds of these substances to the carbonaceous material without departing from the nature of my said invention.

Having described my invention, what I claim is—

1. The process of obtaining sodium or potassium which consists in heating a carbonaceous or other suitable reducing material, gradually supplying caustic soda or caustic potash or other suitable compound of sodium or potassium thereto, and then condensing the vapor evolved, substantially as described.

2. The process of obtaining sodium or potassium which consists in heating a carbonaceous or other suitable reducing material, gradually supplying heated caustic soda or caustic potash or other suitable compound of sodium or potassium thereto, and then condensing the vapor evolved, substantially as described.

In testimony whereof I have hereunto subscribed my name.

ORLANDO M. THOWLESS.

Witnesses:

C. C. HERRICK,
A. J. MITCHEL.