

# UNITED STATES PATENT OFFICE.

ELLERSLIE E. LUTHER AND WILLIAM H. VOLCK, OF WATSONVILLE, CALIFORNIA.

MANUFACTURE OF LEAD ARSENATE.

No. 329,962.

Specification of Letters Patent.

Patented Aug. 3, 1909.

Application filed August 15, 1907. Serial No. 388,711.

To all whom it may concern:

Be it known that we, ELLERSLIE E. LUTHER and WILLIAM H. VOLCK, both citizens of the United States, residing at Watsonville, in the county of Santa Cruz and State of California, have invented new and useful Improvements in the Manufacture of Lead Arsenates, of which the following is a specification.

Our invention relates to improvements in the manufacture of lead arsenates.

It consists in the process and method which will be more fully explained in the following specification.

Our process consists in the formation of lead arsenates, by roasting the combined parts in the presence of oxygen.

The ordinary process for the manufacture of lead arsenates is a precipitation process; where soluble salt and sodium arsenate are brought together in their proper combining weights, and this process may be properly divided into three stages; first, the manufacture of lead acetate; secondly, the manufacture of sodium arsenate; and finally, the reaction between the foregoing parts.

Our process may be carried out in slightly different ways. Thus, we may form lead arsenite and oxidize it to lead arsenate by roasting in the presence of oxygen. The lead arsenite is produced by heating white arsenic ( $As_2O_3$ ) with lead or oxid of lead ( $PbO$ ), and the further roasting will result in the lead arsenate. The arsenate may also be formed by a mixture of lead arsenite and lead arsenate, by heating red lead ( $Pb_3O_4$ ) with white arsenic, and its subsequent oxidation by roasting in the presence of oxygen. Or the lead arsenate may be formed directly by roasting white arsenic ( $As_2O_3$ ) with lead peroxide ( $PbO_2$ ) or lead nitrate ( $Pb(NO_3)_2$ ), or with one of the lower oxids of lead with an oxidizing agent.

Combining weights of white arsenic and the lead compound then react upon each other, in the presence of oxygen, either derived from the air or otherwise supplied, and by the action of the heat applied.

Various temperatures may be found efficient, under different conditions, but we have found that for the production of arsenate of lead, which is the particular metallic arsenate here described, a temperature of between 300 and 400 degrees centigrade is very effective.

By this process we are enabled to produce the arsenate at a single operation, and at a considerably reduced cost.

Having thus described our invention, what we claim and desire to secure by Letters Patent is—

1. The process of producing lead arsenates, the same consisting in roasting combining weights of white arsenic and lead compound in the presence of oxygen.

2. The process of producing lead arsenates in a single operation, said method consisting in heating white arsenic in contact with a suitable lead compound, and continuing the heating and roasting the combined material in the presence of oxygen.

3. The process of producing lead arsenates, the same consisting in heating a lead compound and white arsenic together, and continuing the heating and roasting the combined materials in the presence of an oxidizing agent.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

ELLERSLIE E. LUTHER.  
WILLIAM H. VOLCK.

Witnesses:

W. A. BUCKHART,  
THOS. W. FIRBY.