

UNITED STATES PATENT OFFICE.

ROBERT ROWLAND, OF NEW YORK, N. Y.

IMPROVEMENT IN THE MANUFACTURE OF GLUCOSE AND WHITE LEAD.

Specification forming part of Letters Patent No. **48,099**, dated June 6, 1865.

To all whom it may concern:

Be it known that I, ROBERT ROWLAND, of the city, county, and State of New York, have invented a new and useful process consisting in the Combined Manufacture of White Lead and Glucose or Grape-Sugar; and I do hereby that the following is a full, clear, and exact description of my said process.

My invention consists in utilizing the waste steam and gases arising from the manufacture of glucose or grape-sugar for the manufacture of white lead, thus combining the two operations and greatly reducing their cost.

In the manufacture of glucose or grape-sugar from starch, sawdust, fruit, &c., water is boiled in a boiler with the addition of about two per cent. of sulphuric acid, to which is then added starch, sawdust, &c., in certain quantities. When a sufficient quantity of starch, &c., has been added, so as to obtain the desired test of the liquid, the latter is drawn off into a vessel and is neutralized therein by carbonate of lime. These two operations are conducted in two separate vessels or boilers, from the first of which an acidulated vapor arises which contains sulphuric acid and oxygen, while from the second boiler will arise carbonic-acid gas, generated by the neutralization of sulphuric acid by carbonate of lime. In closing said two boilers by means of air-tight covers, and extending pipes from said covers, which can be opened and closed by means of stop-cocks, I am enabled to utilize the vaporous sulphuric acid and the gaseous carbonic acid for converting lead into white lead. This may be effected by means of any apparatus used in the manufacture of white lead. By the action of the vapor arising from the first boiler the lead is converted into sugar of lead and partly basic carbonate of lead, as through the boiling of sulphuric acid and decomposed starch, &c., not only sulphuric-acid vapor, but also considerable oxygen, is generated, whereby the corrosion of the lead is accelerated. The acetate of lead is completely converted into carbonate of lead by the action of carbonic acid generated in the second boiler by the neutralization of sulphuric acid

by carbonate of lime, and said gas is conducted upon the lead by a separate pipe. The conversion of the lead into carbonate of lead is thus complete; but the entire process is conducted by means of the gases and vapor arising from the manufacture of glucose or grape-sugar, and which gases have heretofore been wasted. I thus save the cost of the material which has been employed heretofore in generating these or similar gases for corroding the lead in the manufacture of white lead, and materially reduce the cost of the article without impeding in the least the manufacture of either of them, as each is carried on independently of the other. To do this effectually I provide the boilers used in this process with try-cocks, for the purpose of testing the liquid in its various stages, and I provide the pipes leading from said boilers into the lead-chamber with stop-cocks to regulate the flow of the gases, or to cut it off entirely when necessary.

The lead-compartment to be used in this process may be constructed in any well-known manner. To distribute the gases uniformly over the whole corroding-chamber, it may be so constructed that the entire compartment revolves, in which case the pipes may be introduced through the bottom. The entire construction of the chamber must be modified, though according to the locality and the nature of lead to be used.

Having thus fully described the nature of my invention, what I claim herein as new, and desire to secure by Letters Patent, is—

The combined manufacture of glucose or grape-sugar and white lead in such a manner that both articles are manufactured independently of each other, but that the waste gases and vapor arising from the manufacture of the former are used for the conversion of lead into white lead, substantially in the manner herein described.

ROBERT ROWLAND.

Witnesses:

AUGUST RUSS,
FRANCIS B. BICKETT.