R. F. HATFIELD.

Making White Lead.

No. 109,125. Patented Nov. 8, 1870.

Fig. 2

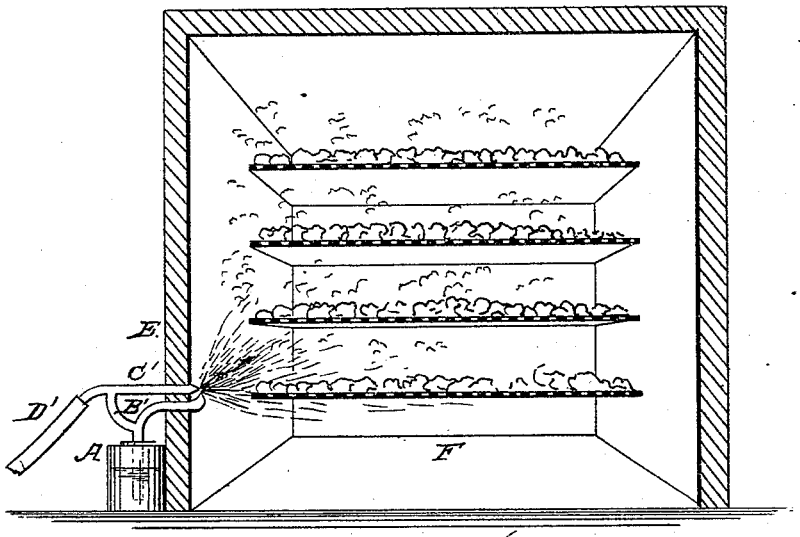
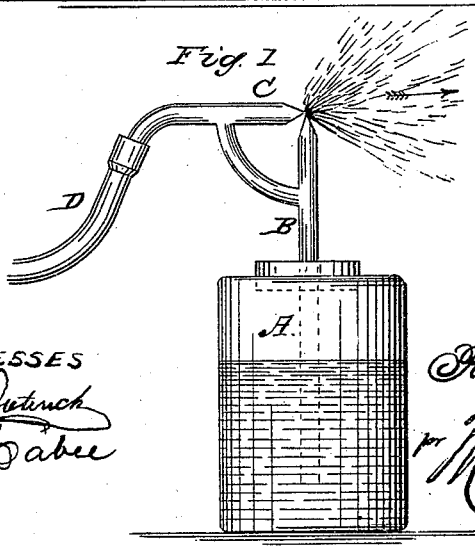


Fig. 1



WITNESSES
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UNITED STATES PATENT OFFICE.

ROBERT F. HATFIELD, OF NEW YORK, N. Y., ASSIGNOR TO HANNEN LEAD COMPANY, OF SAME PLACE.

IMPROVEMENT IN THE MANUFACTURE OF WHITE LEAD.

Specification forming part of Letters Patent No. **109,125**, dated November 8, 1870.

To all whom it may concern:

Be it known that I, ROBERT F. HATFIELD, of the city of New York, in the county and State of New York, have invented new and useful Improvements in the Manufacture of White Lead; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing, forming part of this specification.

This invention relates to those methods of manufacturing white lead in which the comminuted lead is deposited in gas-tight chambers, and therein submitted to the action of acetic acid and carbonic-acid gas.

Difficulties have been heretofore experienced in properly treating the lead with the acetic acid. The ordinary method is to sprinkle the acid upon the lead by means of perforated pipes or roses; but this method is faulty, as the acid is not divided with sufficient fineness, and it is impossible to make it penetrate every portion of the lead piles or drive it into contact with all parts of the lead surfaces.

My improvement consists in spraying the acetic acid by means of an air or gas jet, substantially as hereinafter described.

Figure 1 shows one form of a portable apparatus which may be employed for spraying the acetic acid. Fig. 2 shows a method of injecting the acetic-acid spray upon the lead without opening the lead-chamber.

Similar letters of reference indicate corresponding parts.

A, Fig. 1, is a portable vessel containing the acetic acid, from which rises a vertical tube, B, at the orifice of which, set horizontally, is an air or gas tube, C. The rear part of the tube C is provided with a flexible hose-pipe, D, which communicates with an air or gas pump, or reservoir containing compressed air or compressed gas.

When a strong current of air or gas is blown through tube C it causes the acetic acid to rise in tube B, and discharges the acid in the direction of the arrow in the form of a fine mist or spray.

By means of this instrument the lead may be quickly bathed with a fine spray of acetic acid, which, owing to its light and vaporized condition, will penetrate the lead mass and quickly reach all its exposed parts.

When it is desired to inject the acid-spray without opening the lead-chamber, the pipes B′ C′ are passed through the partition E of such chambers F, where the lead is arranged on shelves, in the usual manner, as shown in Fig. 2.

The pipes C′ D′ may be made movable, if desired, so as to change the direction of the injection at will.

The carbonic-acid gas required to convert the lead may be used to produce the spraying of the acetic acid, the gas being driven through the pipe C, as above described, and the said gas, or any other gas or air used for the purpose of spraying, may be heated to the desired temperature before it is passed through the pipe C. Two operations—that of spraying and of supplying the necessary carbonic-acid gas—may be thus simultaneously carried on.

The acetic acid may be heated before spraying to any desired temperature.

Besides acetic acid, any other liquid chemical substances or solutions may be sprayed or vaporized and applied to the lead or within the lead chamber, as hereinbefore described.

I do not limit or confine myself to the particular parts or form of spraying apparatus. These may be varied in many ways without departing from my invention.

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

1. The process above described of applying acetic acid to comminuted lead deposited in the bottom of gas-tight chambers for making white lead, which consists in subdividing and spraying the acetic acid on the lead by forcing therethrough a current of air or gas.

2. In the manufacture of white lead, the process above described of spraying acetic acid upon lead by impinging upon it a counter-current of air or gas, for the purpose of distributing it in the form of a fine mist about the comminuted particles of lead.

3. The process of simultaneously applying carbonic-acid gas and acetic acid by forcing them together in counter-currents upon the subdivided lead in an air-tight chamber, as described.

4. The combination of an acid-pipe, B, and a gas-pipe, C, having their discharging-channels at right angles to each other, as and for the purpose described.

R. F. HATFIELD.

Witnesses:

GEO. W. MABEE,

ALEX. F. ROBERTS.