

A. D. ARMSTRONG.
Driers for Lead.

No. 145,713.

Patented Dec. 23, 1873.

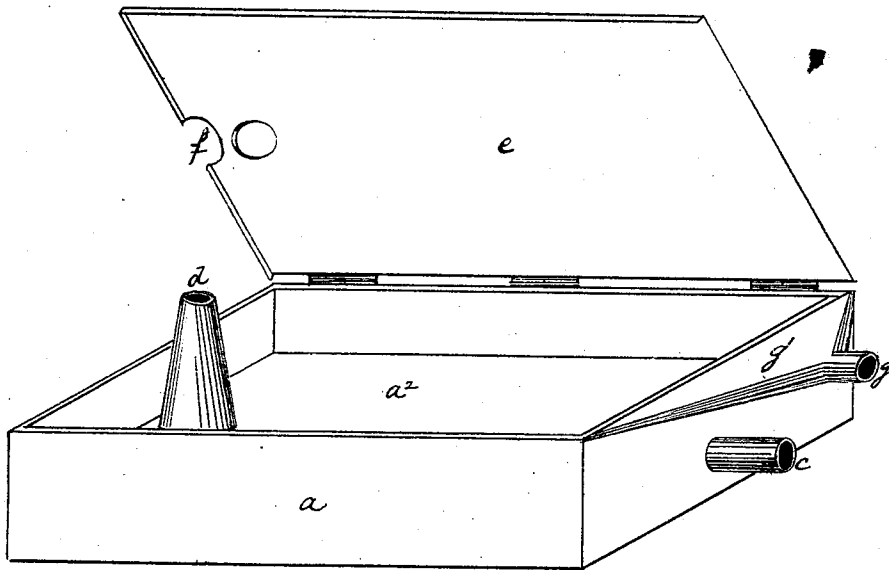


Fig. 1.

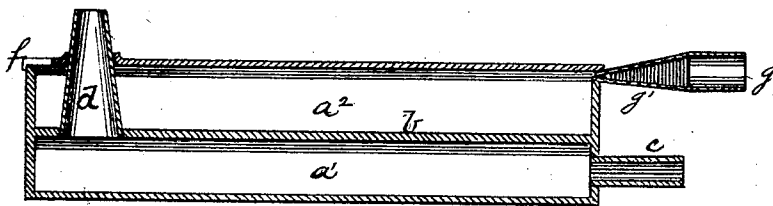


Fig. 2.

WITNESSES

R. C. Henderson
James L. Kay

INVENTOR

Andrew D. Armstrong
by Bakewell Smith, Clerk
his atty

UNITED STATES PATENT OFFICE.

ANDREW D. ARMSTRONG, OF ALLEGHENY CITY, ASSIGNOR TO ARMSTRONG, FAWCETT & McKELVY, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN DRIERS FOR LEAD.

Specification forming part of Letters Patent No. 145,713, dated December 23, 1873; application filed July 11, 1873.

To all whom it may concern:

Be it known that I, ANDREW D. ARMSTRONG, of Allegheny City, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Apparatus for Drying Lead; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing forming a part of this specification, in which—

Figure 1 is a perspective view of my improved drying apparatus, the cover of the same being opened; and Fig. 2 is a longitudinal section of the same.

Like letters of reference indicate like parts in each.

My invention consists in the construction of an improved drying-kiln, for the purpose of drying white lead, in which heat is applied to the lower side by means of a jet of steam, and to the surface of the lead by means of a blast of hot air.

Heretofore white lead has been dried by placing it in an open kiln, to the under side of which heat has been applied. This method requires several days for its completion.

To enable others skilled in the art to make and use my invention, I will describe its construction and mode of operation.

The carbonate of lead, or, as it is usually called, "white lead," having been previously prepared in the usual way, is in the form of a coarse mortar, and while in this condition is ground very fine by means of a burr, in the usual way. In the operation of grinding, water is supplied. After being ground the lead is run into a vat, in which it is allowed to stand until the lead is precipitated to the bottom, and then the water is drawn off by means of cocks, in the usual way. The lead is now in a plastic condition, and requires to be dried. I make a kiln or box, *a*, divided horizontally into two compartments by means of a partition, *b*. Connected with the lower compartment, *a'*, is a pipe, *c*, which is designed for the admission of steam, for the purpose of heat-

ing the upper compartment, *a''*. The steam escapes from the compartment *a'* through the pipe *d*. The upper compartment, *a''*, is provided with a cover, *e*, which fits down over the steam-pipe *d*, and which has an opening, *f*, at one end. Opening into the opposite end of the compartment *a''* is a hot-air pipe, *g*, the mouth *g'* of which extends across the entire end of the compartment *a''*. The lead is placed in the compartment *a''*, and the lid *e* shut down and secured; then a jet of steam is injected into the compartment *a'* through the pipe *c*, so as to heat the lower side of the compartment *a''*, while a blast of hot air is introduced into the compartment *a''*, so as to strike upon the face of the lead. The moisture from the compartment *a''* escapes through the opening *f* at the opposite end of the kiln. The steam and air are supplied until the operation of drying is complete.

By means of this apparatus applying the heat not only to the under side of the lead-chamber *a''*, but also directly to the surface of the lead, the operation of drying lead requires about fifteen hours, while the old method occupied at least three days, and frequently more.

In order to economize fuel, I so arrange the steam-pipe inside of a suitable box that it shall heat the air, which is supplied by means of the blast for drying the lead in the compartment *a''*. The manner in which this can be done is familiar to the skilled mechanic.

What I claim as my invention, and desire to secure by Letters Patent, is—

A stationary drying-tank, *a*, divided horizontally into two chambers, *a'* and *a''*, the first being fitted with steam supply and discharge pipes *c* and *d*, and the latter with a broad-mouthed blast-pipe, *g*, an exit, *f*, and a lid, *e*, substantially as described.

In testimony whereof I, the said ANDREW D. ARMSTRONG, have hereunto set my hand.

ANDREW D. ARMSTRONG.

Witnesses:

T. B. KERR,
JAMES I. KAY.