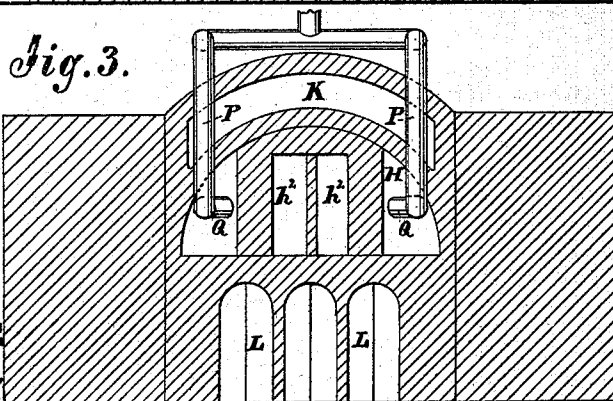
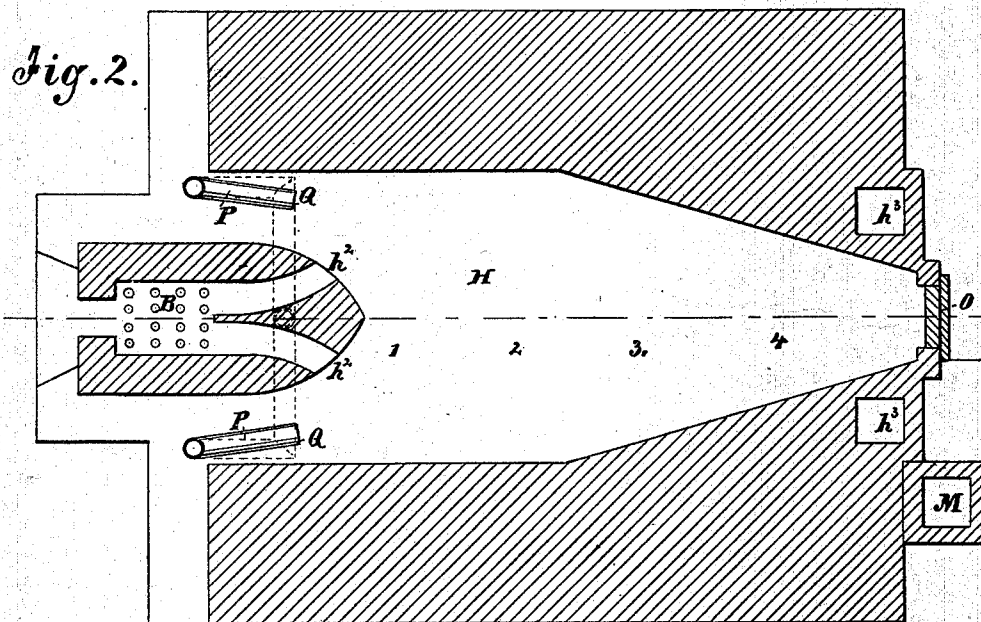
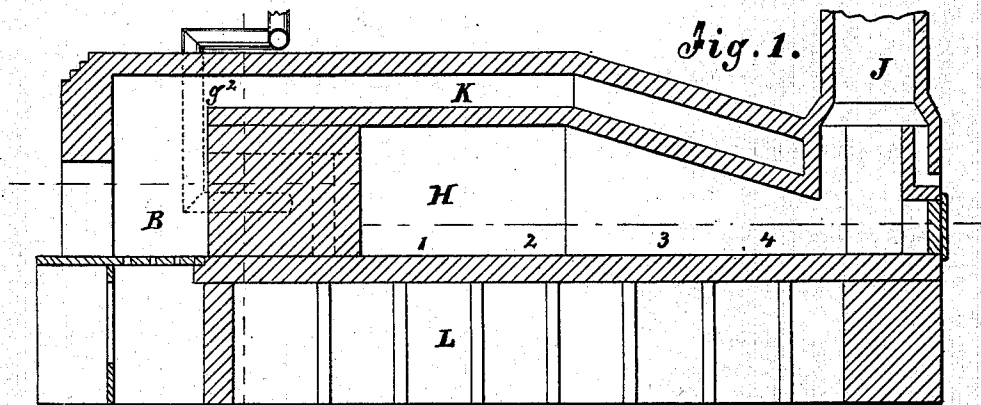


N. BARTLETT.
 Manufacture of Zinc-White.

No. 139,701.

Patented June 10, 1873.



Witnesses:
A. Bernheimdorff
D. Sedgwick

Per

Inventor:
N. Bartlett
 Attorneys.

UNITED STATES PATENT OFFICE.

NATHAN BARTLETT, OF BAYONNE CITY, ASSIGNOR TO HIMSELF AND SAMUEL C. WEST, OF ELIZABETH, NEW JERSEY.

IMPROVEMENT IN THE MANUFACTURE OF ZINC-WHITE.

Specification forming part of Letters Patent No. **139,701**, dated June 10, 1873; application filed April 19, 1873.

To all whom it may concern:

Be it known that I, NATHAN BARTLETT, of Bayonne city, in the county of Hudson and State of New Jersey, have invented a new and Improved Furnace for Zinc-White, of which the following is a specification:

My invention relates to furnaces for zinc-oxide white, of the kind for which a patent was granted, March 28, 1854, to Jonathan G. Trotter.

The invention consists in the improvement of furnaces, as hereinafter described and pointed out in the claims.

Figure 1 is a longitudinal sectional elevation of the aforesaid furnace constructed according to my improvements. Fig. 2 is a horizontal section, and Fig. 3 is a transverse sectional elevation.

Similar letters of reference indicate corresponding parts.

The furnace has three chambers, an upper one, K, middle one, H, and lower one, L. The fire is built at one end, B, and delivers the lighter vapor into the upper chamber and the heavier into the middle chamber, the latter vapor passing out at the chimney J, while the former, after traversing the length of the furnace, descends in two passages, h^2 , to the lower chamber, where, after having twice traversed the whole length, it enters the discharge-chimney M.

My improvement in the arrangement of the furnace consists in making the middle chamber H funnel-shaped, or approximately so, as represented in Figs. 1 and 2, by which to concentrate the heat, as before stated, and thus work out the oxide from the ore much cleaner than it has ever been done before, and thus increase the percentage of gain.

In carrying out my improved mode of working the furnace, I have the chamber H in four imaginary sections, as indicated by the

Figs. 1, 2, 3, and 4, and when fully heated and charged I remove the batch 4 of the residuum at the opening O, shift the other batches along one stage, and apply a fresh batch at 1, thus working the ore along intermittingly as the reduction proceeds, and at the same time supplying the fresh ore and removing the refuse without cooling the furnace down or losing the time now lost by discharging at the mouth of the furnace and re-charging again, the doors remaining open the while, so that much heat is lost.

For introducing the oxygen to combine with the gases evolved from the coal in the furnace, also the vapors of the ore, and thus insure more perfect combustion, I have the two blast-pipes P discharging into the chamber H at Q, so that the air, which is forced in by any suitable blower, unites with the gases as they emerge from the passages h^2 , and burns intensely. I use cold air. By these improvements in the aforesaid furnace I save about one-third of the fuel heretofore used, also about half the labor of working it, and secure such thorough reduction of the ores that the amount of zinc lost is less than two per cent. Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The chamber H, made widest at the mouth and tapering to the escape, as and for the purpose described.

2. The mode of working zinc-oxide furnaces by supplying the ore at the front from time to time, and shifting that contained in the furnace along toward the rear and removing the residuum thereat, as described.

NATHAN BARTLETT.

Witnesses:

T. B. MOSHER,
ALEX. F. ROBERTS.