

# UNITED STATES PATENT OFFICE.

JOSEPH LYON, OF POTTSVILLE, PENNSYLVANIA.

IMPROVEMENT IN THE MODE OF SMELTING IRON ORES BY THE EMPLOYMENT OF A COMPOSITION OF ANTHRACITE AND CLAY AS A FUEL.

Specification forming part of Letters Patent No. 332, dated July 31, 1837.

*To all whom it may concern:*

Be it known that I, JOSEPH LYON, of Pottsville, in the county of Schuylkill and State of Pennsylvania, collier, have invented or discovered an Improved Mode of Smelting Iron Ores by the Employment of a Mixture or Composition of Anthracite and Clay as a Fuel, which I call "Clay Coals;" and I do hereby declare that the following is a full and exact description of the same.

My improvement consists in reducing anthracite to a coarse powder or screenings and mixing or mingling it either by hand or machinery with such portions of clay and water as may be requisite to bring the mass or aggregate to a consistence that may be readily made into balls or be taken up by hand or machinery in portions of any shape or size. When these clay coals are dried they can be used as fuel in the manner that coke or charcoal are commonly used in the reduction of iron ores. I

intend to mingle portions of the limestone or other fluxes in the composition of this mixture, and also some of the finer portions of the ore, when either or both of these additions may be considered useful.

I do not claim the discovery or invention of combustible balls composed of coal and clay, for these have long been known and used for divers purposes; but

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

The preparation of anthracite or the composition of clay coals, as herein set forth, to be used as a substitute for coke, charcoal, or other fuel in its application to the purpose of smelting iron ores.

JOSEPH LYON.

Witnesses:

I. R. BURDEN,  
JOSEPH BURDEN.