

UNITED STATES PATENT OFFICE.

JAMES DUFFY, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN PROCESSES OF ROASTING, SMELTING, AND CALCINING ORES.

Specification forming part of Letters Patent No. **181,322**, dated August 22, 1876; application filed May 16, 1876.

To all whom it may concern:

Be it known that I, JAMES DUFFY, of the city and county of San Francisco, State of California, have invented an Improved Process for Treating Ores; and I do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention or discovery without further invention or experiment.

My invention relates to an improved process for roasting, smelting, and calcining ores.

My invention consists in saturating or intermixing with the ores to be treated petroleum or other highly-combustible oil, and then placing the ores in a suitable furnace and setting fire to the mass, so that the heat generated by the combustion of the oil will roast, smelt, or calcine the ores.

Usually the ore will require to be pulverized before being intermixed with the oil; but where it is porous and friable it will absorb sufficient oil for the purpose, and the pulverization can be dispensed with.

This process will be especially applicable for treating cinnabar and sulphur ores from which it is desired to remove the valuable portion in the shape of fumes; but I can treat all classes of ore in the same way, and not only save in the expense of the fuel used, but can obtain better results, as the oil will penetrate and reach every particle of the ore, so that the roasting will be more thoroughly accomplished.

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

The process of roasting, smelting, or calcining ores by saturating or intermixing the ores with a highly-combustible liquid, as described, and then treating it in a furnace, substantially as above specified.

In witness whereof I have hereunto set my hand and seal.

J. DUFFY. [L. S.]

Witnesses:

OLWYN T. STACY,
CHAS. G. PAGE.