

UNITED STATES PATENT OFFICE.

DENNIS SHEEDY, OF DENVER, COLORADO.

METHOD OF TREATING ARSENICAL ORES.

SPECIFICATION forming part of Letters Patent No. 558,745, dated April 21, 1896.

Application filed June 27, 1894. Serial No. 515,884. (No specimens.)

To all whom it may concern:

Be it known that I, DENNIS SHEEDY, a citizen of the United States, residing at Denver, in the county of Arapahoe, in the State of Colorado, have invented a new and useful Improvement in the Methods of Eliminating Arsenic and Saving Valuable Metals in Arsenical Ores and Compounds, of which the following is a true and exact description.

My invention relates to the treatment of arsenical ores and compounds, particularly what is known as "speiss," with a view of eliminating the arsenic and saving valuable metals incorporated in the ore or compound in condition for reduction or extraction by subsequent metallurgical treatment.

Generally speaking, my process consists in breaking up the arsenical compound, the finer the better, and then spreading the crushed mineral on the top of a bed of lead-fume, such as is secured by screening the smoke of argentiferous lead-smelters. The arsenical compound being spread on the fume-bed, I ignite the fume, which burns slowly, but with sufficient heat to drive off the arsenic in the ore or compound, while the valuable metals in the ore are cemented to the lead sulphate, which, by the heat of combustion, is more or less agglomerated and brought to a convenient physical condition for handling and charging into a blast-furnace.

In treating speiss, such as is frequently formed in blast-furnaces used in smelting precious ores, and for which substance my process is especially adapted, the speiss is run out of the furnace with the matte and will separate with the matte from slag in ordinary matte-separators. The speiss is, however, of

different specific gravity from the matte and I separate the two substances by allowing them to settle and harden in a matte or slag pot, after which the speiss will be found in a layer or cone-shaped disk, which can be readily broken away from the matte. In practice I then break up the disks of speiss by a hammer to such size that the fragments will pass a ring of two or three inches in diameter. This roughly-crushed product is then run through a crusher and its product screened to separate metallic particles. I prefer to use a screen of from twelve to sixteen meshes to the inch, as the finer the crushing the better the results obtained, and after screening I pass the product through a Cornish roll. After this thorough crushing of the speiss I proceed, as above described, to spread it on the bed of lead-sulphid fume and to drive off arsenic and to save the valuable and precious metals contained in the speiss by the ignition of the fume.

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

The method of eliminating arsenic from speiss formed in blast-furnaces, which consists in separating the speiss from the matte product of such furnaces, crushing the speiss, spreading the crushed speiss over a bed of fume, and igniting the fume to drive off the arsenic and center the fume and valuable metallic constituents of the speiss.

DENNIS SHEEDY.

Witnesses:

MALVERN W. ILES,
JOHN S. WILLIAMS.