

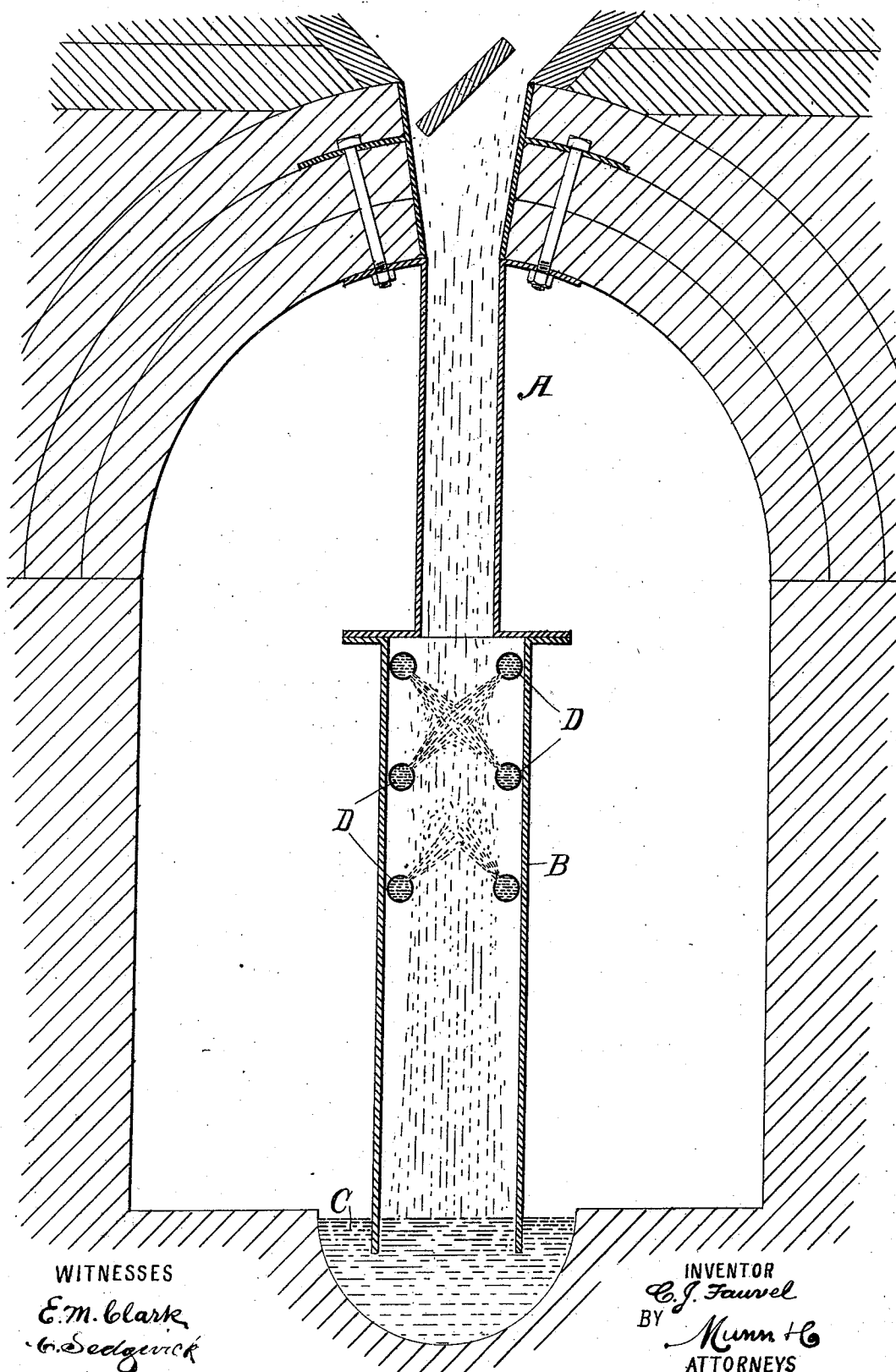
(No Model.)

C. J. FAUVEL.

METHOD OF TREATING REFRACTORY ORES.

No. 502,181.

Patented July 25, 1893.



WITNESSES

E. M. Clark  
C. Sedgwick

INVENTOR

C. J. Fauvel  
BY Munn & Co.  
ATTORNEYS

# UNITED STATES PATENT OFFICE.

CHARLES JAMES FAUVEL, OF LONDON, ENGLAND.

## METHOD OF TREATING REFRACTORY ORES.

SPECIFICATION forming part of Letters Patent No. 502,181, dated July 25, 1893.

Application filed November 14, 1892. Serial No. 451,911. (No specimens.)

*To all whom it may concern:*

Be it known that I, CHARLES JAMES FAUVEL, assayer and mining-engineer, of 15 George Street, Mansion House, in the city of London, England, have invented a new and useful Improved Method of Treating Refractory Ores, of which the following is a full, clear, and exact description.

This invention relates to a method of breaking up and removing any adherent skin of iron oxide from the particles of precious metal contained in freshly-roasted rebellious or refractory ores which have been subjected to the oxidizing and sweetening operation by exposure to a highly heated current of air uncontaminated by any products of combustion.

This improved method consists in causing the oxidized particles while in an incandescent condition to fall through jets of cold water in a vertical spout dipping into a running stream of cold water which seals the mouth of the spout against the admission of cold air. By causing the particles to fall through jets of water playing upon them in their fall, they are thoroughly quenched and split up and the water into which they are received is kept in a sufficiently turbulent condition to insure their immediate and complete immersion therein instead of being caused to float thereon by the bubbles of steam generated. The sudden cooling of the glowing particles and the disruptive effect produced by the flashing of the water into steam causes the particles of ore and any glaze-like coating of oxide of a base metal which may be adherent thereto, to be split up as above mentioned, thus freeing the noble metal of impurities which would be detrimental to the subsequent amalgamating or other metal-saving operation.

The invention is principally designed for use in connection with the furnace for roasting refractory ores forming the subject of another application for Letters Patent dated the 25th day of April, 1892, Serial No. 430,429, but is not necessarily limited thereto, and will be described with reference to the accompanying drawing, forming part of this specification, which is a central vertical section showing

the invention applied in connection with the settling chamber at the foot of the oxidizing tower of the said furnace.

A is the settling chamber in which the incandescent particles are received after falling through the tower and being subjected to the oxidizing action of the hot air therein.

B is a vertical discharge spout opening from the bottom of the hopper-like chamber A and dipping into a trough C containing running water which seals the pipe against the admission of cold air.

D are inwardly and upwardly directed jets of cold water issuing from perforated pipes at opposite sides of the spout B which may extend the full width of the chamber A. The incandescent particles in falling through the spout must necessarily traverse the streams of water and become quenched and broken up thereby.

I am aware that it has been proposed to allow the desulphurized ore as it comes from the hearth to fall into a stream of water whereby to carry it to other apparatus for further treatment and I do not therefore lay any claim thereto.

I claim—

In the treatment of refractory ores of the precious metals, the herein described method of breaking up the particles of freshly roasted ore and removing any adherent oxides of the base metals, which consists in causing said ores to fall as a stream of incandescent particles, in subjecting the falling stream of particles to the action of jets of water crossing said stream at an angle, and finally causing the said particles to fall into a running stream of water, the particles of ore being kept out of contact with air after they have been quenched by the said jets of water, as specified.

Dated this 29th day of July, 1892.

CHARLES JAMES FAUVEL.

Witnesses:

BAYARD C. DIXON,  
53 Chancery Lane, London, Clerk.

T. F. BARNES,  
17 Gracechurch Street, London, E. C., Notary's Clerk.