J. C. COULT.

Reducing Quicksilver Ore.

No. 70,321. Patented Oct. 29, 1867.

Fig. 1.

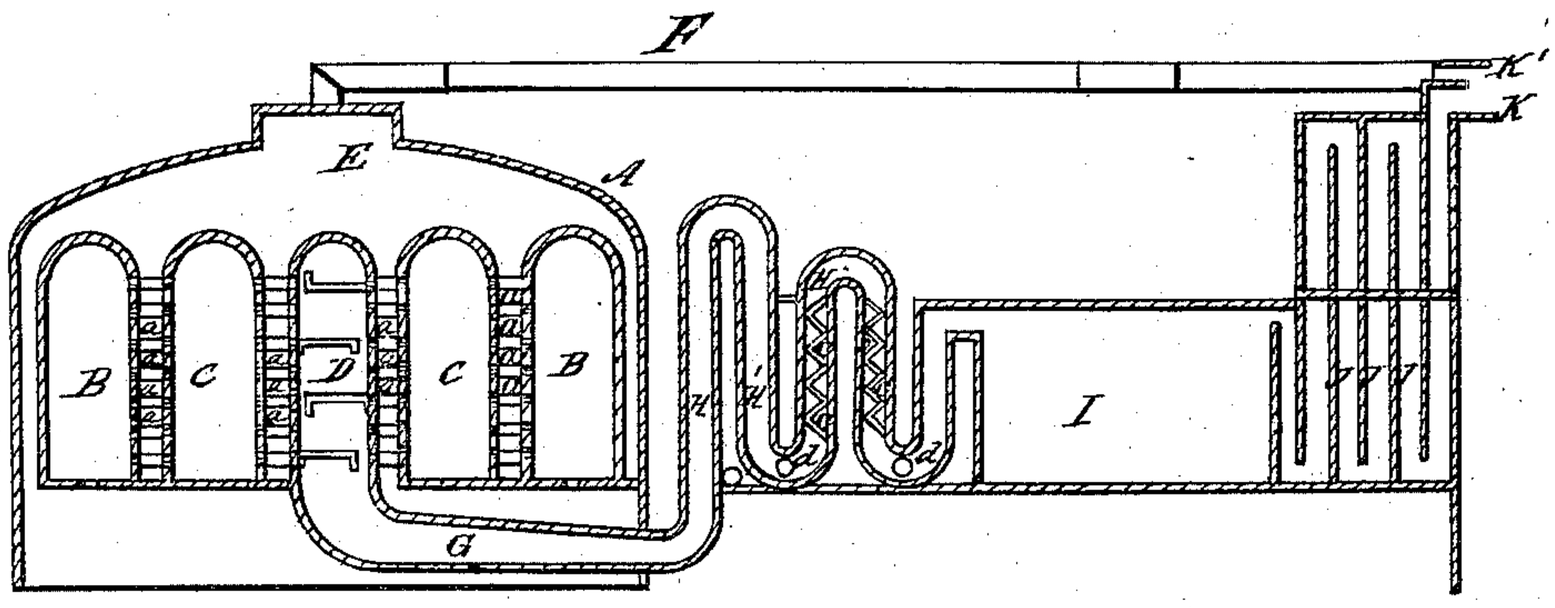
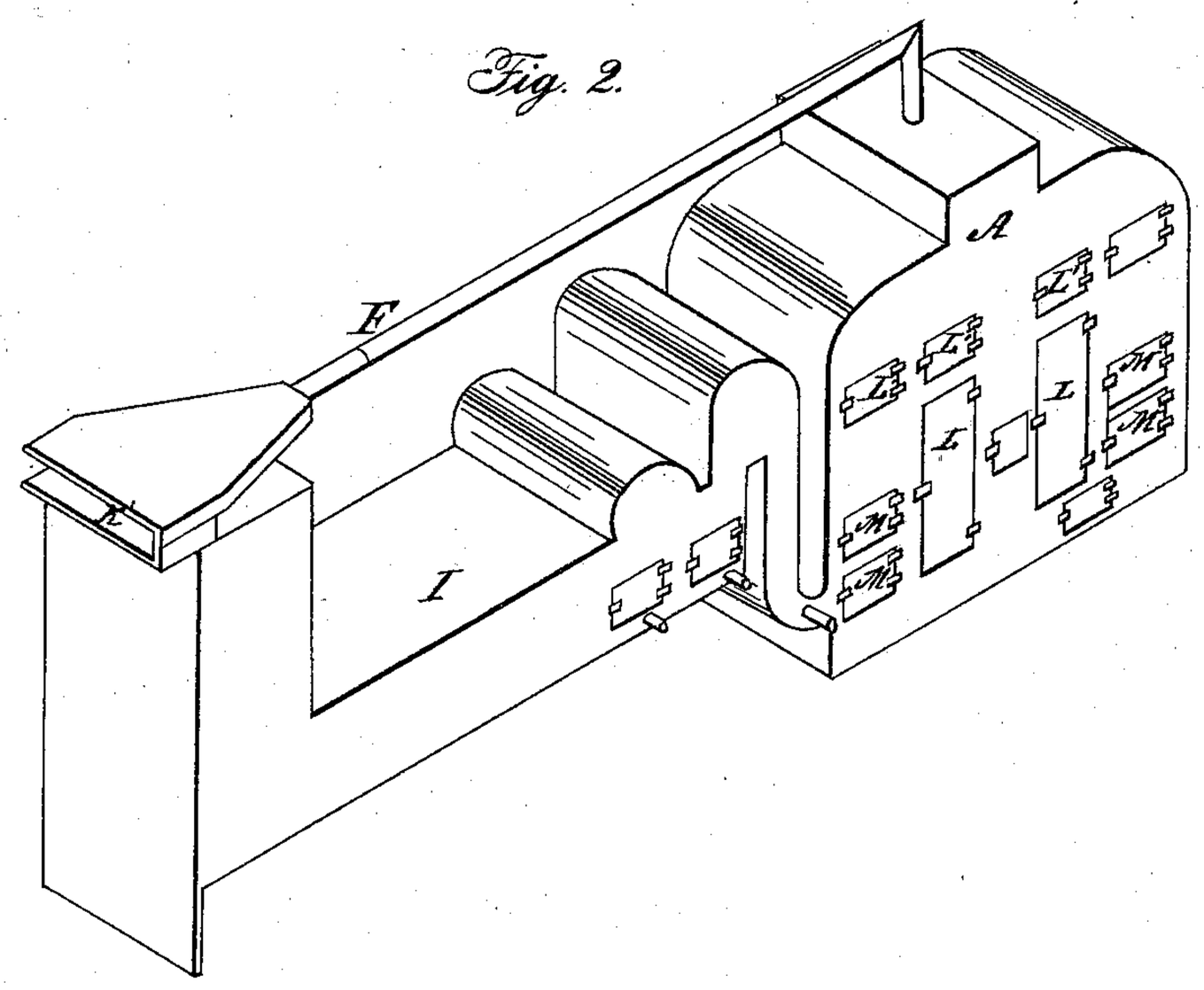


Fig. 2.



Witnesses:

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per

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AM. PHOTO-LITHO. CO. N.Y. (OSBORNE'S PROCESS.)

United States Patent Office.

JOSEPH C. COULT, OF SAN FRANCISCO, CALIFORNIA.

Letters Patent No. 70,321, *dated October* 29, 1867.

IMPROVED APPARATUS FOR REDUCING QUICKSILVER ORES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, JOSEPH C. COULT, of the city and county of San Francisco, and State of California, have invented certain new and useful Improvements in Furnaces for Working Quicksilver Ores and other volatile substances; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

In the annexed drawings, making part of this specification, A represents the frame of this furnace, which is constructed substantially in the form represented. Within this frame are two fire-chambers B B, two ore-chambers C C, and a central vapor and ore-chamber D. The smoke pipe G connects with the bottom of the centre chamber D, and serves not only to carry away the smoke, &c., from the fire, but also the vapor of the ore in the chambers C C. As the fire-chambers are placed on the outside of the ore-chambers, and the draught is from the centre chamber D, the heat is drawn through the ore for the purpose of reducing it. Above the chambers B C D is placed a steam-vessel, which has connected to it a pipe, F, which leads off and has an orifice, K′, so arranged as to act in conjunction with the orifice of the flue leading from the fire and ore-chambers, for the purpose of creating and continuing a strong blast or current. The flue G leads into the condensing-flues H H′ H″. These condensing-flues are so constructed and arranged as to be surrounded with water for cooling and condensing the vapors from the ore. Within the flue H″ are placed a series of cross-sieves, which are formed of silver wires or other wires silvered. The vapors and smoke pass through these sieves. The sieves serve to divide and break the fumes, and at the same time to catch the finer portions of mercury. As the mercury is condensed, and falls to the bottom of the flues H H′ H″, it is drawn off through the holes *d d* at the bottoms of said flues. The flue H″ leads into a tank of water at I, and from this tank the blast leads into a box, which is provided with a series of partitions, J J. There is a passage around the ends of the partitions, each alternate partition being joined to the top and bottom of the box, as seen. K represents the orifice where the blast or current escapes from the box. The vapor, in passing over the water and around the partitions J J, is still further condensed, and particles of mercury are deposited, which are properly collected after the charge of ore has been subjected to sufficient heat to discharge all of its mercury. The chamber D is provided, as seen, with a series of pans, which may be filled with dust or finer particles of ore, which cannot be properly treated in the chambers C C. The heat passes through the connecting pipes *a a* into chambers C C and D. The pans are so arranged that there is a space left between each alternate pan and the wall of its chamber, so that the heat will freely circulate from top to bottom of the chamber, and around and through the pans.

What I claim as new, and desire to secure by Letters Patent, is—

1. The fire-chambers B B, ore-chambers C C, and vapor-chamber D, arranged together, and with a steam-tank above them, as and for the purpose set forth.

2. The arrangement of the pans within the chamber D, with alternate spaces between their sides and the walls of the chamber, as and for the purpose set forth.

3. The silvered-wire screens *c c c* in the condensing-flue H″, used as and for the purpose set forth.

4. The arrangement of the flues H H′ H″, water-tank I, and partitions J J, substantially as and for the purpose set forth.

5. The arrangement of the steam pipe F and its orifice, K′, with the orifice K, for creating a draught, as and for the purpose set forth.

JOSEPH C. COULT.

Witnesses:

HENRY HAIGHT,

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