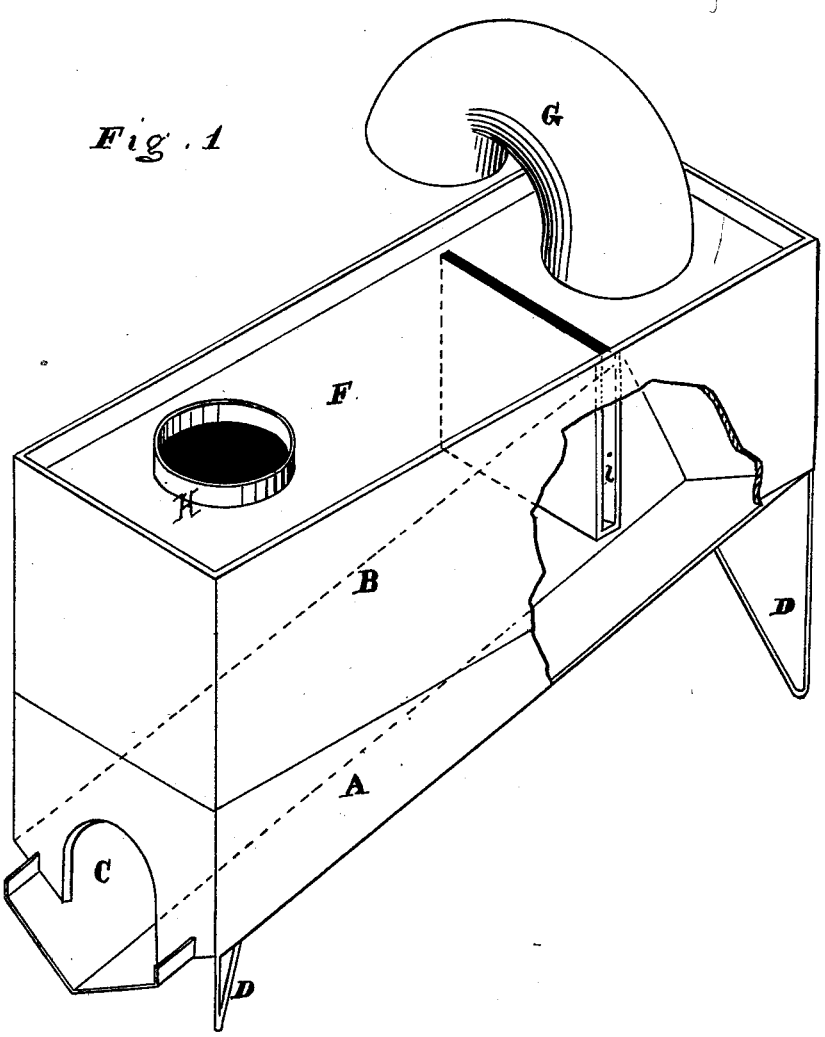
R. F. KNOX.

QUICKSILVER-CONDENSER.

No. 191,687. Patented June 5, 1877.

Fig. 1



Witnesses

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UNITED STATES PATENT OFFICE.

RICHARD F. KNOX, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN QUICKSILVER-CONDENSERS.

Specification forming part of Letters Patent No. **191,687**, dated June 5, 1877; application filed September 9, 1876.

To all whom it may concern:

Be it known that I, RICHARD F. KNOX, of the city and county of San Francisco, and State of California, have invented an Improved Quicksilver-Condenser; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings.

My invention relates to such condensers as are used in connection with quicksilver and other furnaces for condensing the fumes or vapors which are generated in the furnace.

My improvement consists, first, in constructing the condenser in two parts, the upper part being made of copper, and the lower part or base of cast-iron.

Referring to the accompanying drawings, Figure 1 is a perspective view of my condenser.

A represents the cast-iron base, and B the upper or copper portion of the condenser.

The base A I cast in one piece, and its bottom or floor I make in the form of a **V**, as described, so as to form a middle channel and inclined sides leading into it along the entire length of the condenser bottom, so that the condensed product will flow down the inclined sides into the middle channel.

The bottom or floor of the base A I also construct on an incline, lengthwise of the condenser, so that the quicksilver or other condensed material which collects in the middle channel will flow to the lower end of the bottom, where it can be removed through a door or trap, C, which, during operation, is kept closed. This base I support upon suitable legs or supports D D, the length of which will be regulated by the pitch of the inclined floor.

The upper part B of the condenser I make, as above specified, of sheet-copper, a metal which will not be affected as readily as iron by the sulphurous acid which always accompanies, to a greater or less extent, quicksilver fumes produced from the raw ore, and which soon destroys iron condensers. Either the iron base or copper upper portion of the furnace can be removed when necessary, and thus produce a considerable saving in the cost of condensers, and the thinness of sheet-copper also renders the condenser more effective, because it allows the heat to pass off more readily than it would through a thick material such as is necessary in the construction of iron condensers.

The upper part of this condenser I make square, as represented, and provide it with the pan top F, for holding water, described and claimed in the Letters Patent No. 104,323, which were issued to Knox & Osborne on the 14th of June, 1870.

G is the connecting-pipe which connects one end of the condenser with another condenser of similar construction when a series of condensers are used, and H is the opening in the opposite end of the top through which the fumes are introduced into the condenser.

In addition to the pan top for holding water I make a well or hollow partition, *i*, across the condenser, near the opening, through which the fumes pass out of the chamber, and this partition extends down inside of the chamber to within a short distance of the bottom, so that the fumes must pass under it before they can pass out through the exit-opening. This water partition or well communicates with the pan top, so that it is kept filled with water, and as the water in it becomes heated it will rise to the surface of the pan and flow off, while the cool water takes its place. This partition enables me to draw off the coolest vapors first, as the vapor in the condenser will settle to the bottom as it becomes reduced in temperature, and will thus first pass under the partition.

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

A quicksilver-condensing tank, the base of which is of iron and the body of copper, whereby the deleterious action of the fumes is prevented, substantially as set forth.

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

RICHARD F. KNOX. [L. S.]

Witnesses:

J. L. BOONE,

O. T. STACY.