C. E. LIVERMORE.
Mercury Condenser.

No. 200,069. Patented Feb. 5, 1878.

Fig. 1.

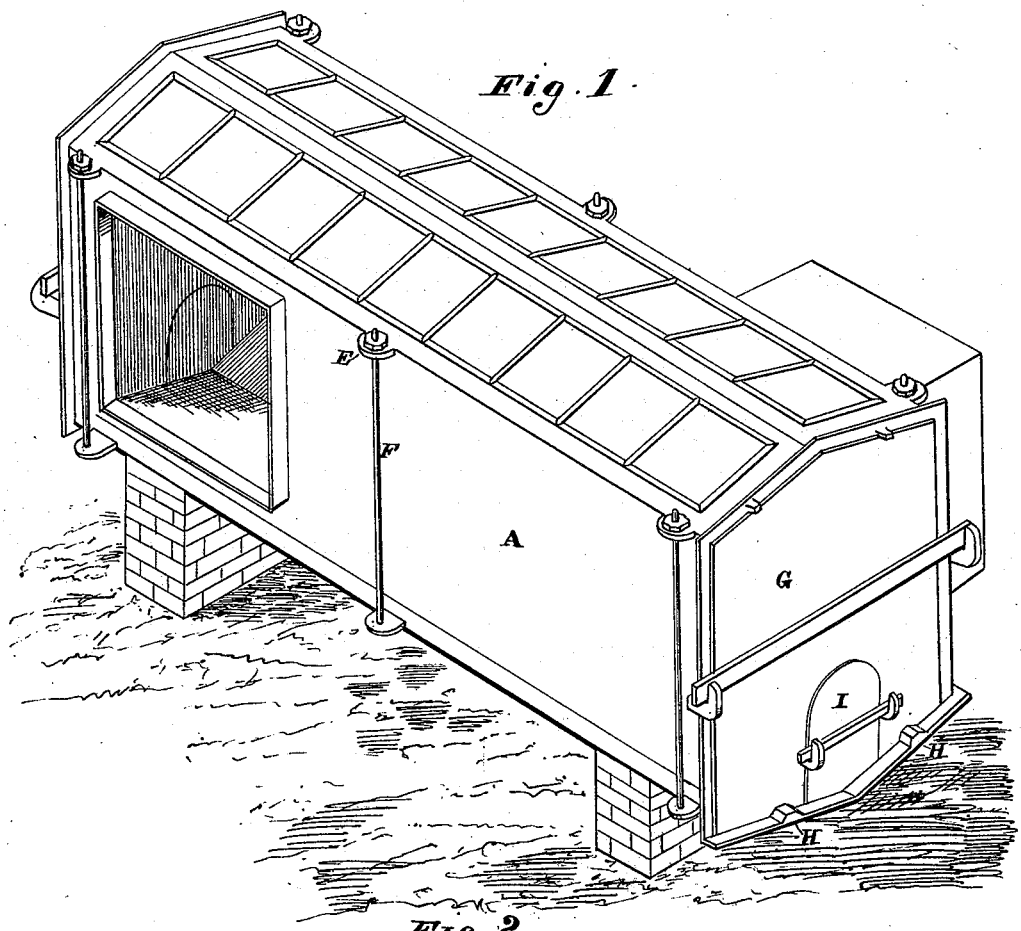
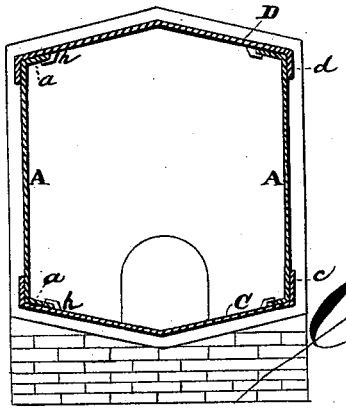


Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

CHARLES E. LIVERMORE, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN MERCURY-CONDENSERS.

Specification forming part of Letters Patent No. **200,069**, dated February 5, 1878; application filed November 21, 1877.

To all whom it may concern:

Be it known that I, CHAS. E. LIVERMORE, of the city and county of San Francisco, in the State of California, have invented an Improved Condenser; 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 without further invention or experiment.

My invention relates to certain improvements in apparatus for condensing volatile fumes; and I have constructed it especially so as to be applied for the condensation of mercurial fumes arising from the reduction of the ore.

It consists in a peculiar formation of the top and bottom of the condenser, which are made alike, and by which I am enabled to use these two parts interchangeably, or to reverse the condenser, if desired.

It also consists in constructing the sides, ends, top, and bottom in separate pieces, so that the parts may be easily transported and afterward set up, and so that when either part becomes worn or destroyed by the acid-fumes it may be easily replaced without taking out the whole condenser. The end doors are fitted, by means of lugs or flanges, so that they will always come into position, and may be easily and quickly closed and luted.

In the accompanying drawings, Figure 1 is a perspective view of my condenser. Fig. 2 is a transverse section.

A A are the side walls of my condenser, which may be made of iron; or, if desired, they may be made of wood, for lightness, and because wood will better resist the action of the fumes. The bottom plate C is in the form of two meeting inclines, which give a central channel for the concentration of the mercury and to allow it to flow off. The top D is made of the same shape, so that when made of metal it can be easily substituted for the bottom plate; or the condenser may be entirely reversed in the ordinary construction of condensers, which are formed in one piece. The action of the acid and other fumes will wear holes in certain portions which are the most exposed, and the whole condenser must then be thrown away; but by my construction I am enabled either to reverse the position of the parts when worn thin, or to replace such parts, without removing or destroying the remainder. As before stated, I can also build the sides and top of different materials, and make them thinner and lighter, if desired, so that the cooling and condensing can be more readily effected. The shape of the roof or top and sides is such that the water which is caused to flow over the roof will pass down and cling to the sides, so as to increase the condensing effects. The sides being exactly alike, it will be possible to fit the condenser into any place or position which will be most convenient. The top and bottom are formed with lugs E, so that the rods F may be passed through them, and the whole condenser will then be easily set up and firmly held together.

In the drawing, A A represent the sides of my condenser, formed with the notched flanges *a a*, so bent as to fit the incline of the top and bottom plates D C. The notches in the flanges *a a* are so made as to fit around the lugs or projections *h* on the top and bottom plates, and thus the side walls are held steadily and firmly in position. The top and bottom plates are also provided with the flanges *d c*, fitting snugly against the side walls A A, as shown in Fig. 2, thus securing close joints for the condenser when the parts are put together.

The end doors G are made of the full size of the condenser, and are notched so as to fit upon projections H, which are formed upon the face against which the doors fit. This is for the purpose of allowing the condenser to be thoroughly cleaned out when necessary; and when the doors are again replaced they are rapidly fitted and can be luted at once. The small doors I serve for any ordinary cleaning.

My condensers are set upon brick or other standards, so as to allow a circulation of air around them, and they have the proper slope to discharge the product into a trough at the front. They are united by the proper-sized passages at alternate ends, so that as many may be used as needed.

By my construction I am enabled to form

the top or roof of the condenser of glass when they are far enough from the furnace so that the heat will not affect such a top.

Having thus described my invention, I do not claim, broadly, the forming of a box or case with independent sides which are united together by rods or bolts; but

What I desire to secure by Letters Patent is—

1. In a quicksilver-condenser, the combination of the sides A A, having inclined flanges *a*, and the flanged top and bottom plates D C, substantially as and for the purpose specified.

2. In a quicksilver-condenser, the double inclined top and bottom plates D C, having projecting flanges *d*, substantially as and for the purpose herein shown and described.

3. The doors G of a quicksilver-condenser, having the notches fitted to the corresponding lugs H, for the purpose of guiding and replacing the doors, substantially as herein described.

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

CHARLES EDWARD LIVERMORE. [L. S.]

Witnesses:
GEO. H. STRONG,
FRANK A. BROOKS.