F. FIEDLER & J. B. RANDOL.

Apparatus for Condensing Quicksilver.

No. 153,479. Patented July 28, 1874.

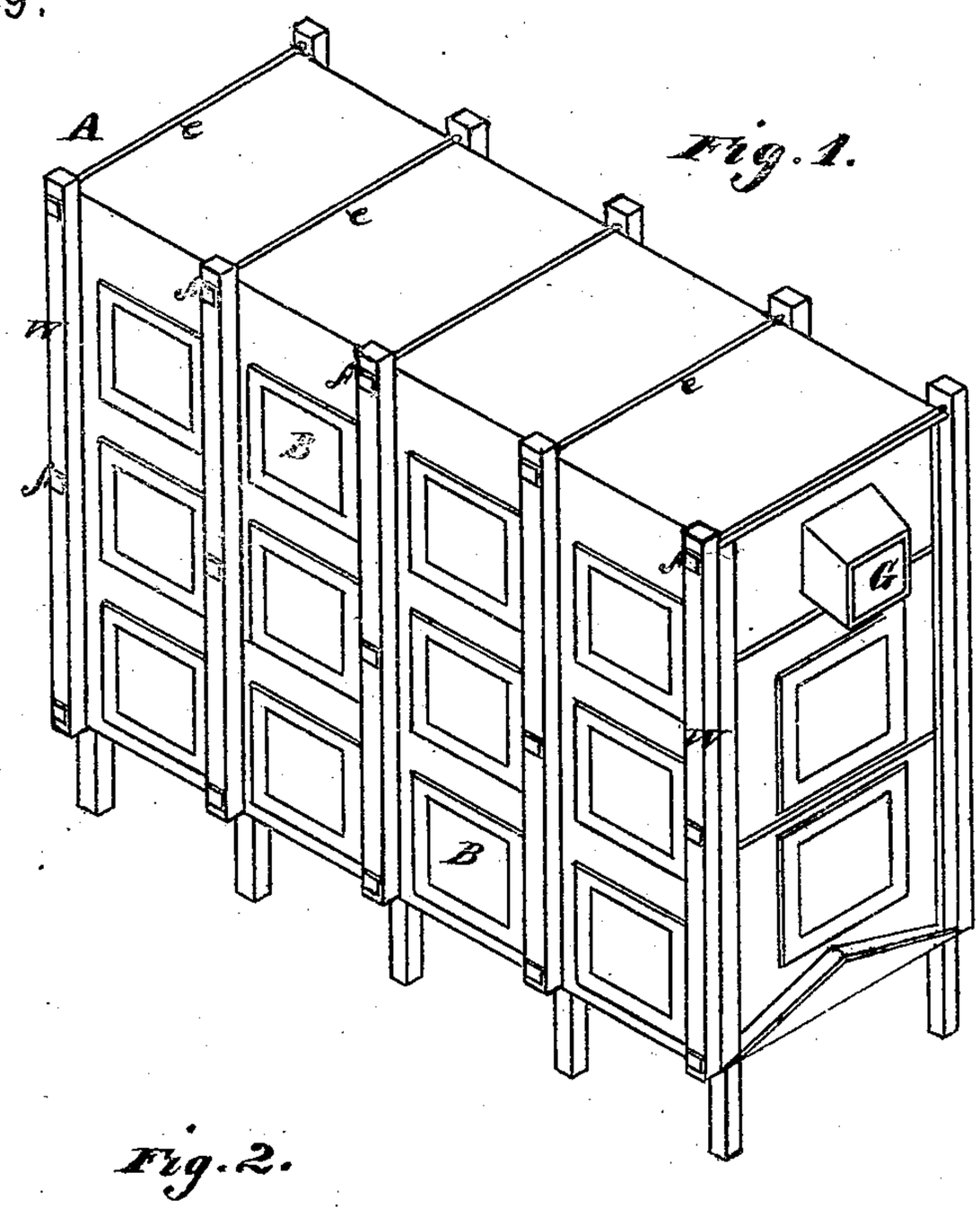


Fig. 1.

Fig. 2.

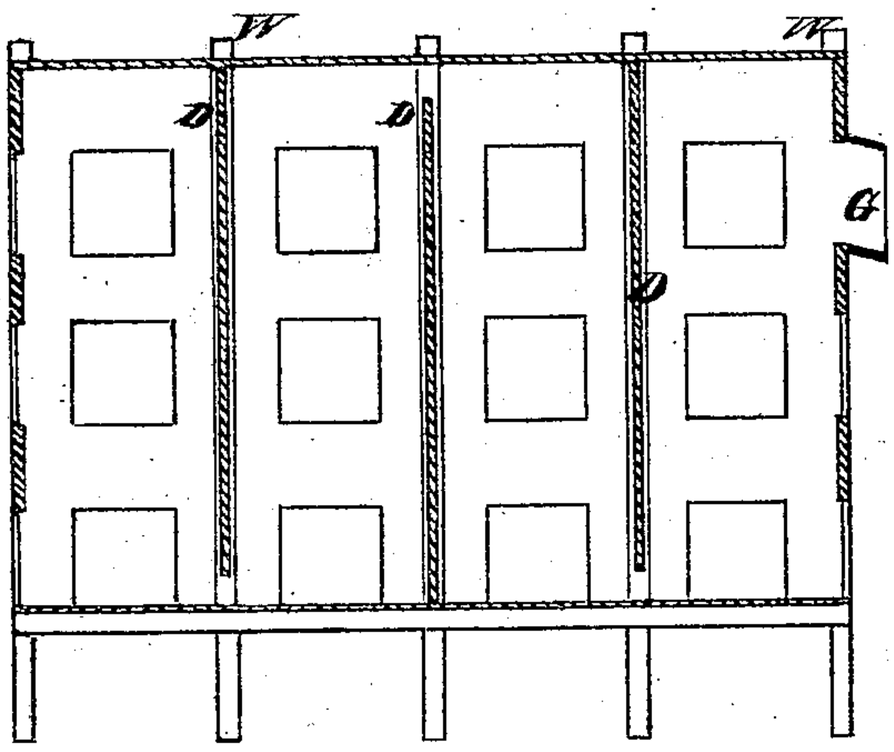


Fig. 3.

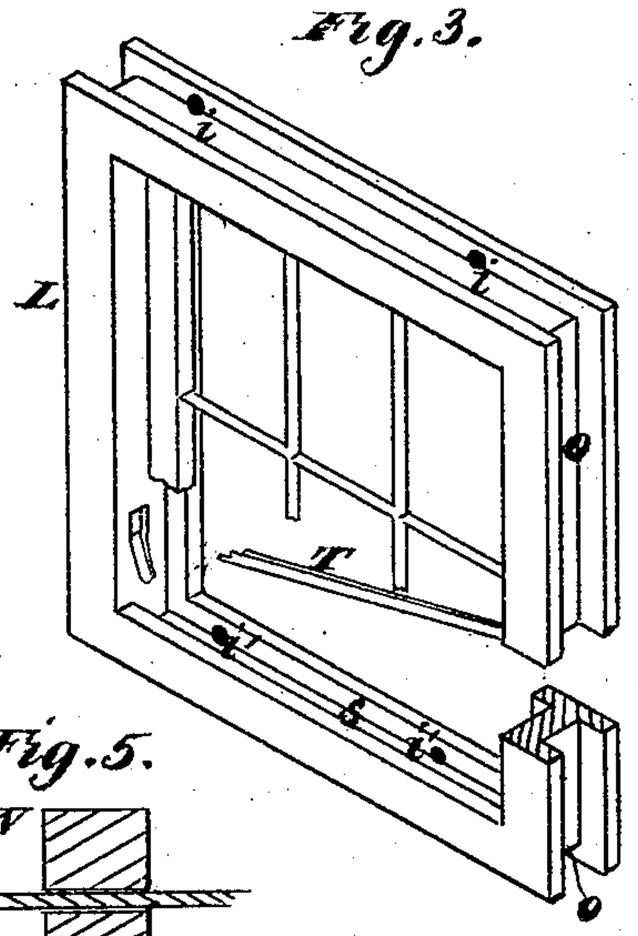


Fig. 4.

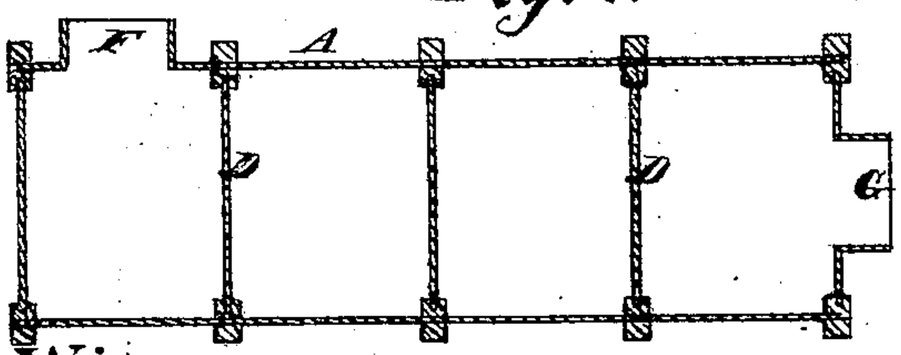
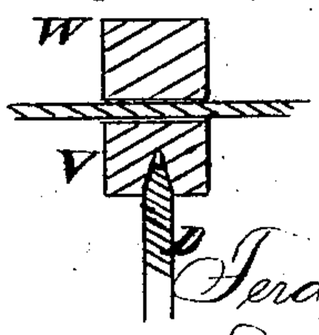


Fig. 5.



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UNITED STATES PATENT OFFICE.

FERDINAND FIEDLER AND JAMES B. RANDOL, OF NEW ALMADEN, CAL.

IMPROVEMENT IN APPARATUS FOR CONDENSING QUICKSILVER.

Specification forming part of Letters Patent No. **153,479**, dated July 28, 1874; application filed May 20, 1874.

To all whom it may concern:

Be it known that we, FERDINAND FIEDLER and JAMES B. RANDOL, of New Almaden, Santa Clara county, State of California, have invented an Improved Quicksilver-Condenser; and we 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 our said invention or improvement without further invention or experiment.

Our invention relates to an improved tank or vessel for condensing the fumes of quicksilver after they have been taken from the retorts or furnace in which they are produced. Our improvement consists in constructing the condensing-tank of wood and glass, as hereinafter described.

Referring to the accompanying drawings forming a part of this specification, Figure 1 is a perspective view of our furnace. Fig. 2 is a side sectional elevation. Fig. 3 is a view of a sash. Fig. 4 is a horizontal section. Fig. 5 is a view showing the manner of securing the transverse partitions.

A represents a tank or vessel in the form of a parallelogram, but any desired outside form or size will answer. This tank or vessel we construct of wood, leaving numerous openings in its sides and ends, which are covered with windows, or panes, or plates of glass set in a frame. We prefer to construct an elongated box-shaped tank, as this form is the most convenient, and presents a better window surface; but our invention can be carried out in a tank of almost any shape. The openings B, all except those in immediate contact with the floor of the condenser, are constructed in the following manner: A frame, L, is constructed of a size large enough to receive the window-sash or plates of glass. The four outside edges of this frame are grooved, as at O, to receive the planks which form the siding of the condenser, thus strengthening the condenser, and preventing the planks from warping. The upper rail of said frame has one or more openings, *i*, leading from the groove to the inside of the condenser, thus providing a roadway for the quicksilver which condenses on the inner side of the tank, and which will naturally follow down the wall and drop through said openings to the floor of the tank. The inner edges of this frame have on their upper and side edges a flange, against which the window-sash, or plate, or pane of glass rests, and into the upper edge of the lower sill of the frame a groove, S, is cut, in which the window-sash sits. This groove has one or more openings, *i'*, similar and for the same purpose as the openings *i* above described. A cross-bar, T, which is secured on one side of the frame by an open mortise, and on the opposite side by a similar mortise, with the side of the frame beveled to make said bar slide easily, fastens the window-sash in its place; or any other suitable fastening can be used.

The frames which rest on the floor of the condenser are constructed in the same manner as those already described, with the exception that the lower rail or sill of the frame is left out, and the window-sash rests directly on the floor of the condenser. The lower edge of the sash is perforated with two or more openings, through which the quicksilver condensed in the tank makes its exit into a suitable gutter, which conducts it to the receiving-tank. The floor of the tank is built on an incline, having its apex in the center of the same, and sloping to both sides an inclination which should not be less than two (2) inches to the foot. The tank is provided with interior wooden partitions D D, which are so arranged as to provide alternate openings or passages above and below, in the ordinary manner of arranging the partitions of a condenser. The outside edges of the partitions and end sidings of the tank are fitted into upright grooved timbers V, and if tongue and grooved boards are used for forming the partitions and ends of the tank, the rails which fasten them together are driven into the tongue of each plank and covered by the groove of the next or succeeding plank. The sides of the condensing-tank are fastened to the outer edge of the grooved timbers V, and the whole is bound together by strong scantling W, placed vertically against the different divisions or partitions outside of the tank, and secured by metallic rods or bolts *e* and nuts *f*. The bolts or rods pass transversely across the tank from side to side through each partition, and are protected from the action of the fumes by a grooved timber, through

which they pass, and which is covered again by the plank of the partition. The rods which secure the corner timbers pass along the outside of the ends of the tank. F is the inlet-passage at one end, and through which the fumes enter the tank; and G, the outlet-passage at the opposite end, through which they may pass to another tank, or to the other condensing apparatus.

We have discovered that condensation of the mercurial fumes is accelerated where they are brought in contact with the inside of a glass plate, when the opposite side of the plate is exposed to the outside atmosphere, and the wooden tank will last longer than a metal tank, as the fumes do not act upon or destroy it.

A condensing-tank of this kind can be constructed at a small cost when compared with the metallic tanks now in use; besides, the condensation is more thoroughly accomplished in it, without the necessity of using water as a bath or cooling agent.

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

1. A wooden condensing-tank, A, provided with windows, panes, or plates of glass B B, substantially as and for the purpose described.

2. The combination of the windows, having perforated sash, with the frames of the condensing-chamber, as and for the purpose set forth.

3. In the condensing-tank A, the bolts or rods *e*, which bind the walls together, concealed by passing them through in grooved timber, which again is covered by the partitions D D, for the purpose specified.

In witness whereof we hereunto set our hands and seals.

FERDINAND FIEDLER. [L. S.]
JAMES B. RANDOL. [L. S.]

Witnesses:
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