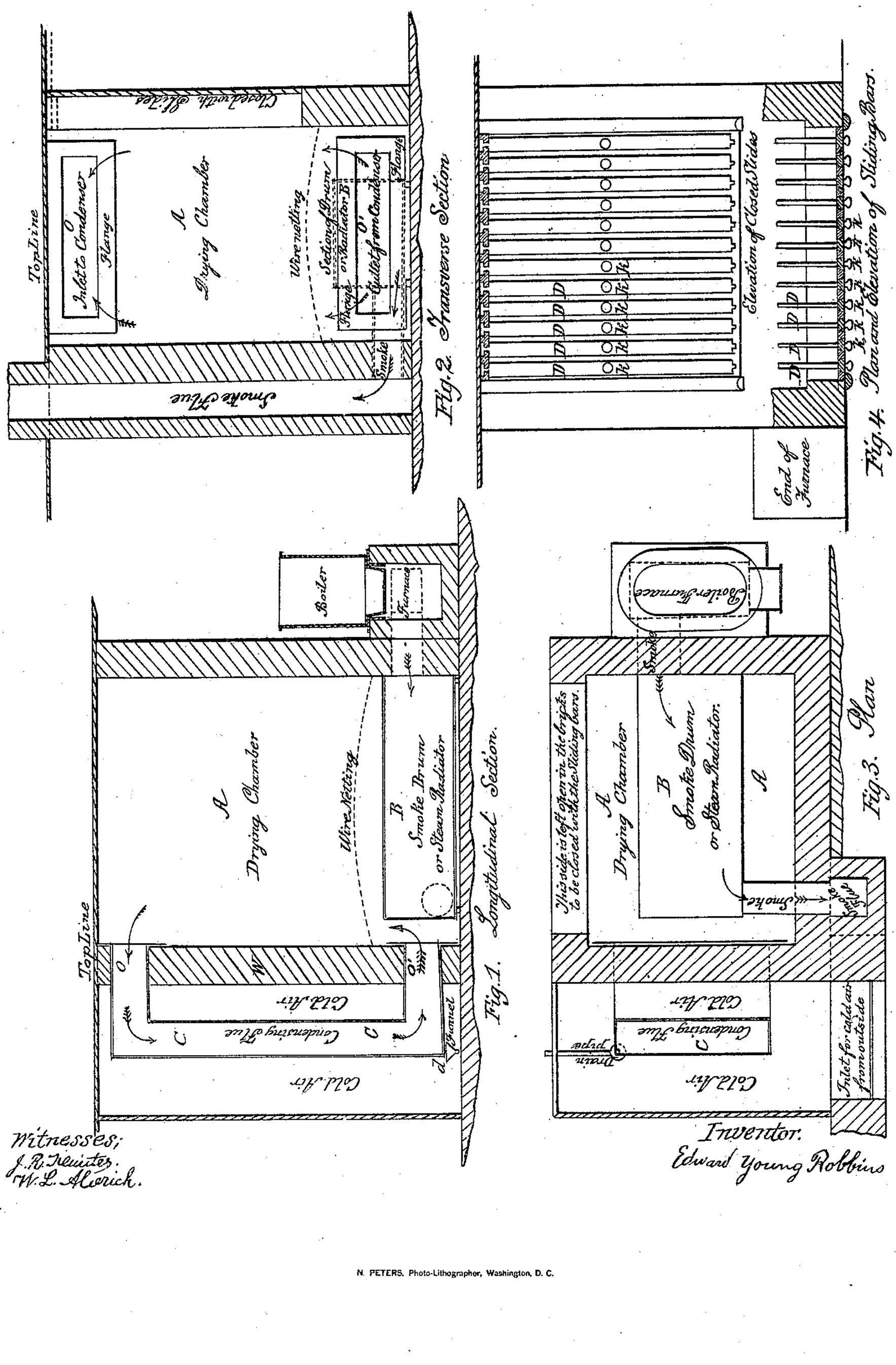
E. Y. ROBBINS.

Drying Apparatus.

No. 43,603. Patented July 19, 1864.



Witnesses;
J. R. Newitter.
W. L. Alvord.

Inventor.
Edward Young Robbins

UNITED STATES PATENT OFFICE.

EDWARD Y. ROBBINS, OF CINCINNATI, OHIO, ASSIGNOR TO WM. PENN NIXON, OF SAME PLACE.

IMPROVEMENT IN DRYING APPARATUS.

Specification forming part of Letters Patent No. **43,603**, dated July 19, 1864.

To all whom it may concern:

Be it known that I, EDWARD YOUNG ROBBINS, of the city of Cincinnati, county of Hamilton, and State of Ohio, have invented a new and Improved Drying Apparatus; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in attaching to a drying chamber a condenser, made of sheet-iron or other thin material of good conducting qualities, which condenser, being exposed on its exterior surface to the action of the external air or other cooling agent or agents, condenses the moisture which the warm or heated air carries up from the clothes or other articles to be dried and allows it to run into a vessel or drain pipe below, and thus renders the same air capable, when returned to the bottom of the drying-chamber, of taking up another load of moisture, so that the same air may be used over and over again, thus preventing the necessity of admitting within the drying-chamber other air, which is often filled with soot, smoke, or other dirt which would soil or discolor the clothes or other articles being dried, while the steam from the clothes, &c., being condensed is carried off in a liquid form and not permitted to wet the walls and ceiling.

The drying-chamber A may be constructed of any desired size and shape, with drawers, slides, or other device, D, Fig. 4, for sustaining the articles to be dried, and it may be warmed by a flue or by steam-pipes or radiator B, or by any means most convenient. On one side of the drying-chamber, and opening into it at top and bottom, I place a condenser, C, Figs. 1 and 3, made of sheet-iron or other thin material of good conducting qualities, being a pipe or flue, square or round, or of any other desired shape, and of two, three, or four square feet sectional area, or more or less; or it may consist of several separate pipes or flues of the above construction enlarging or multiplying the same in proportion to the size of the drying-chamber. This condenser is exposed to the cooling action of the external air by being placed near an open window, or between two open windows, or by being placed entirely out of doors, the two openings into the drying chamber at top and bottom, O and O′, Figs. 1 and 2, being built through the wall of the house W, Fig. 1, the wall of the drying-chamber being in this case also the wall of the house. The area of these openings or spaces of communication between the drying-chamber and the condenser O and O′, Figs. 1 and 2, may be enlarged or reduced, as may be found most convenient. The air in the lower part of the drying-chamber becoming heated or warmed rises up among the clothes, (or whatever may be in process of drying,) carrying up the moisture from them, passes over into the condenser at the upper opening, O, Figs. 1 and 2, and the moisture is condensed and runs out through an orifice at *d*, Fig. 1, while the air itself, being thus relieved of its superabundant moisture, flows again into the drying-chamber through the lower opening, O′, Figs. 1 and 2, and is again heated and ascends, to carry up another load of moisture, and thus it continues to circulate round and round. The superiority claimed for this over other drying apparatuses consists in this, that others dry by change of air, involving a certain amount of discoloration which the smoke, soot, or other dirt brought in contact with the clothes or other articles being dried by the air in its constant current through the drying-chamber must necessarily produce, while in this apparatus, on the contrary, the moisture being condensed and the same air used over and over again, no new air, and consequently no smoke or dirt, need be introduced, but the drying-chamber and condenser may be made air-tight and yet allow the drying process to go on rapidly, at the same time preserving the walls and ceiling of the house from the effects of steam, which in other apparatuses is allowed to escape from the drying-chamber. Further, its superiority over other apparatuses is claimed in this, that it dries more rapidly than others. Other apparatuses allowing the warm air to escape at the top, the upward current must overcome the inertia of the body of air above it in order to effect its escape, and thus the rapidity of its upward flow is retarded, while in this apparatus the upward flow of the heated air, instead of being retarded by having to overcome the inertia of the body of air above, is accelerated by the falling column

of cooled air in the condenser and is hurried out of the drying-chamber to fill the vacuum which it is the constant tendency of the descent of the cooled air to create.

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

The application of a condenser to a drying-chamber as above described or any other arrangement substantially the same, and which will produce the intended effect.

EDWARD YOUNG ROBBINS.

Witnesses:

J. R. HUNTER,

W. L. ALDRICH.