C. RITCHIE.

APPARATUS FOR HEATING AND LIGHTING.

No. 194,373. Patented Aug. 21, 1877.

Fig. 1a

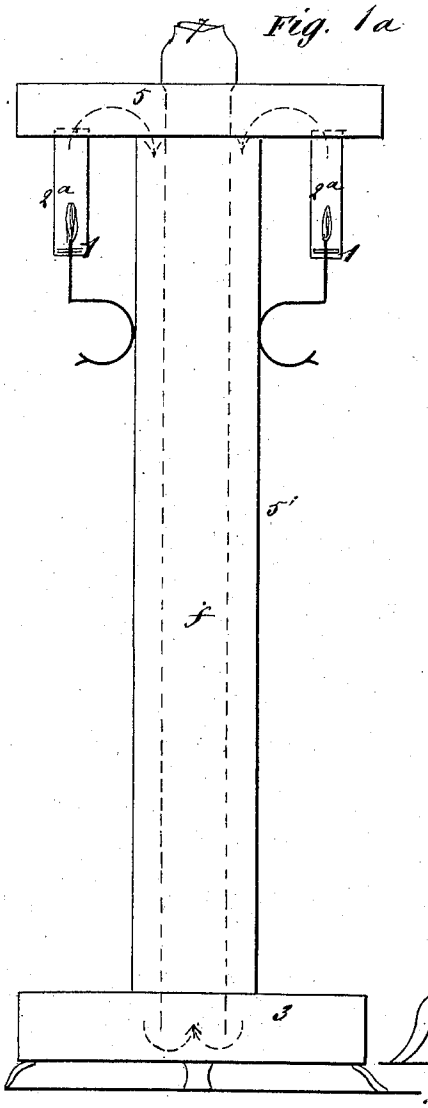


Fig. 1c

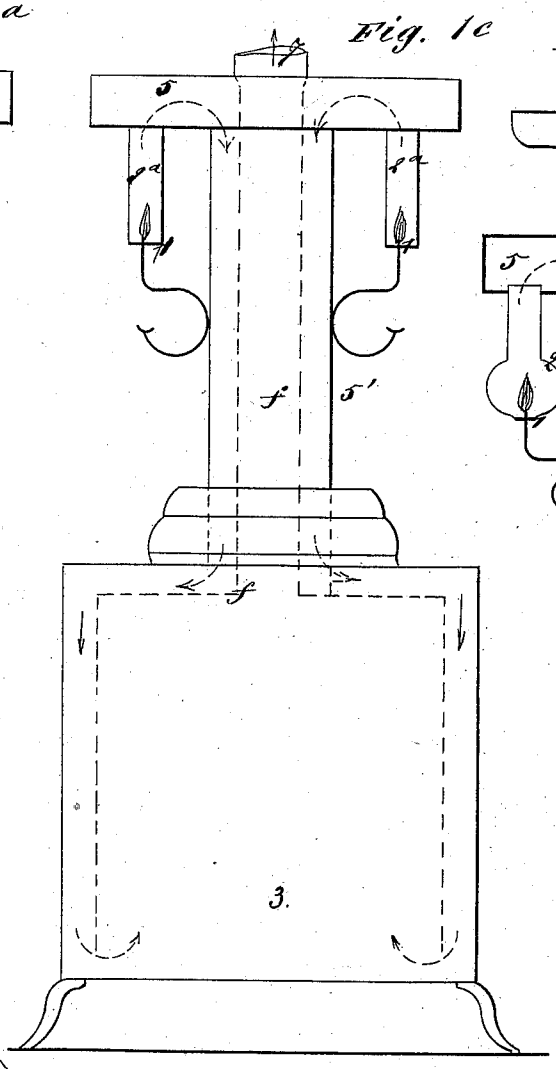


Fig 1d

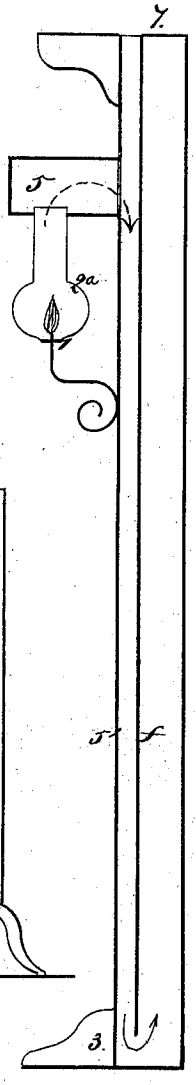
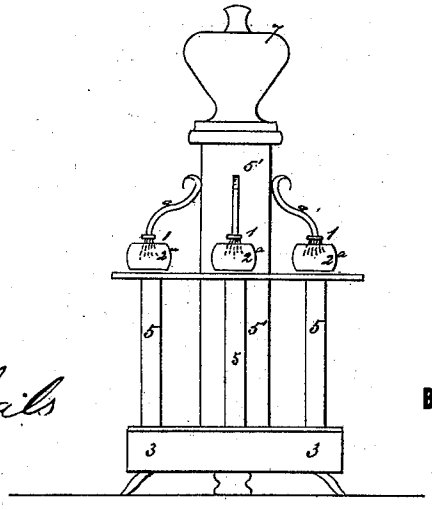


Fig. 1e



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UNITED STATES PATENT OFFICE.

CHARLES RITCHIE, OF BRIXTON, ENGLAND.

IMPROVEMENT IN APPARATUS FOR HEATING AND LIGHTING.

Specification forming part of Letters Patent No. **194,373**, dated August 21, 1877; application filed June 24, 1876.

To all whom it may concern:

Be it known that I, CHARLES RITCHIE, of Brixton, in the county of Surrey, England, have invented a new and Improved Heating and Illuminating Device; and I do hereby declare that the following is a full, clear, and exact description of the same.

The vapors arising from the combustion of coal-gas are highly injurious to health, and greater in volume than is generally supposed, exceeding, as they do, when condensed into liquid form, a half ounce to every foot of gas that is burned. These vapors contain sulphurous acid, carbon, and other deleterious matters, which, especially the sulphurous compounds, have great affinity for water, and may hence be gotten rid of by condensation.

The object of my invention is to condense the vapors and separate them so far as possible from other products of combustion; also, to heat and ventilate the apartment in which the gas is burned for illuminating purposes.

To these ends I employ an apparatus constructed as shown (under various details) in the accompanying drawings.

Referring particularly to Figures 1^a and 1^c, the gas-burners 1 are shown inserted or inclosed in the lower ends of glass tubes 2^a, which are pendent from the horizontal head 5. This head is supported upon a standard, 5′, resting upon a hollow base, 3. A tube, *f*, is placed within the standard 5′, and extends also through the head 5. The products of combustion and an induced current of heated air pass from the transparent tubes 2^a through head 5, and down the annular passage between the standard 5′ and tube *f* into base 3 and around the sides thereof, whence they escape up the tube *f* into the apartment, as indicated by arrows.

Fig. 1^d shows a modification in which the apparatus is adapted to be placed against or fitted into a wall. Fig. 1^e shows another modification, in which the gas-burners are pendent within glass globes 2^a, fixed on the upper ends of tubes 5, that rest upon and communicate with the base 3. The standard 5′ and its contained tube *f* connect with the base, as shown in Figs. 1^a 1^c.

Siphonic action results naturally from the arrangement of passages or flues, so that the combined currents of heated air, vapors, and products of combustion from the gas-flames at burners 1 are curved downward and then upward through a long circuitous route, whereby the heat becomes mostly radiated or absorbed from the traveling vapors, and the vapors and gases being rendered heavier than the air, fall to the bottom of the apparatus, where condensation takes place. The noxious substances are thereby eliminated, and the heated air and certain light products of combustion pass on into the apartment at 7. The apartment is ventilated by the constant change of air without the delivery of noxious matters into the same.

I thus produce a simple but efficient and economical apparatus for illuminating, heating, and ventilating apartments.

What I claim is—

The improved apparatus for lighting, heating, and ventilating apartments, consisting of gas-burners 1, transparent tubes or globes 2^a, the communicating-tubes 5, hollow base, and a vertical tube connecting with the base, all combined and arranged as shown and described, to operate as specified.

The above specification signed by me this 24th day of April, 1876.

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