J. B. KOHLER.

Heating Stove.

No. 17,510. Patented June 9, 1857.

Fig. 1.

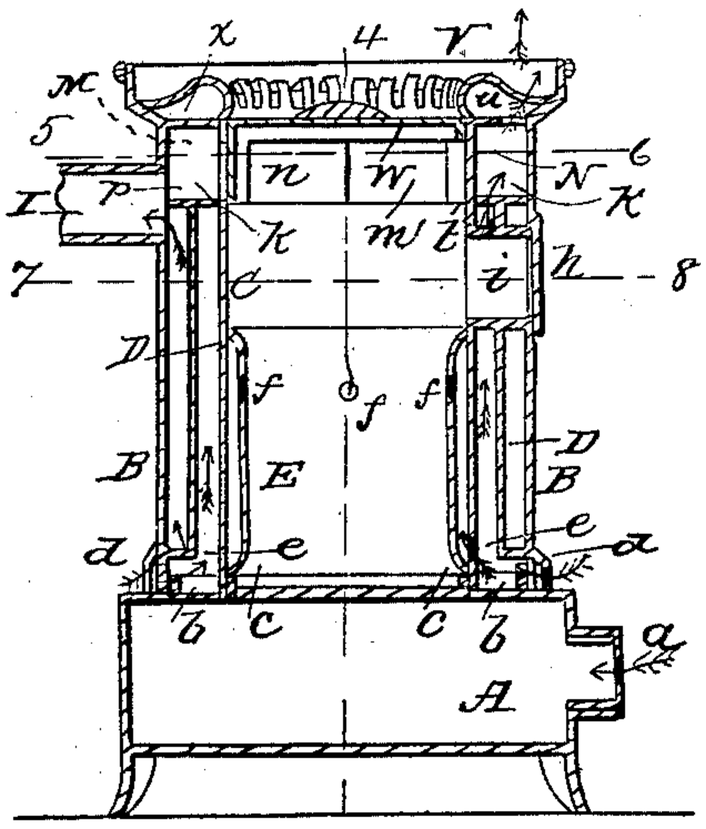


Fig. 2.

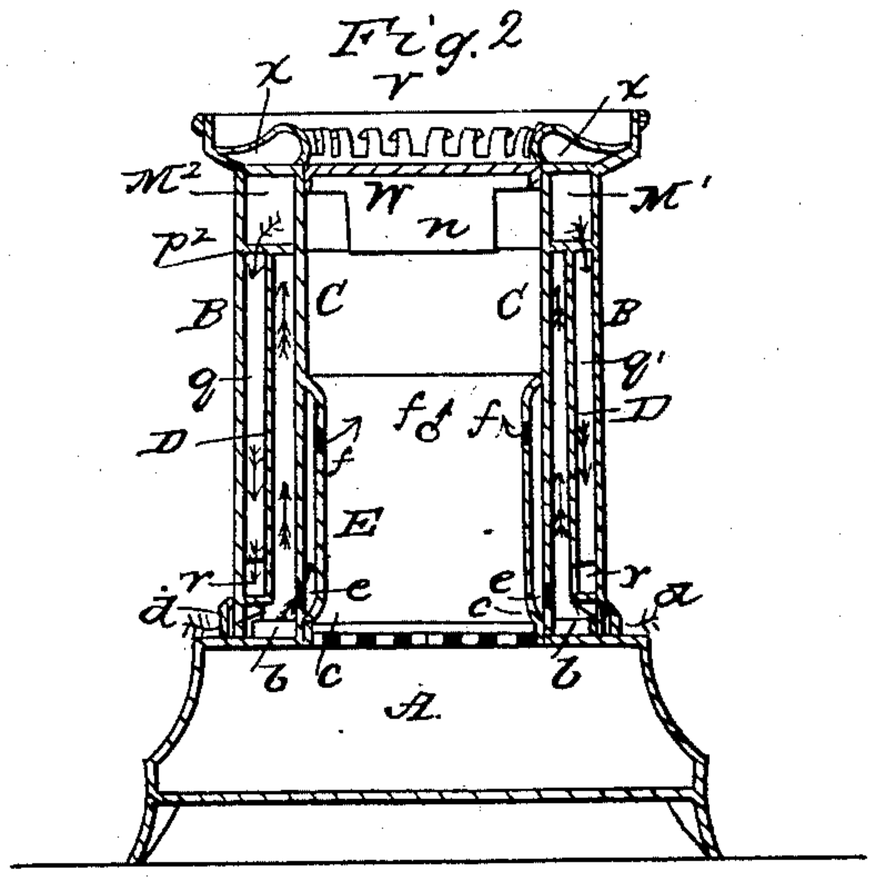


Fig. 3.

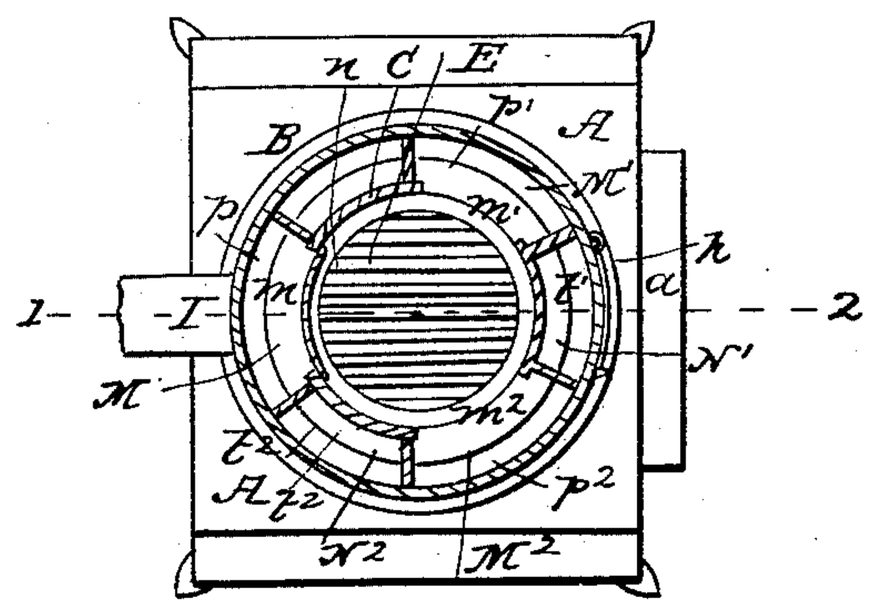
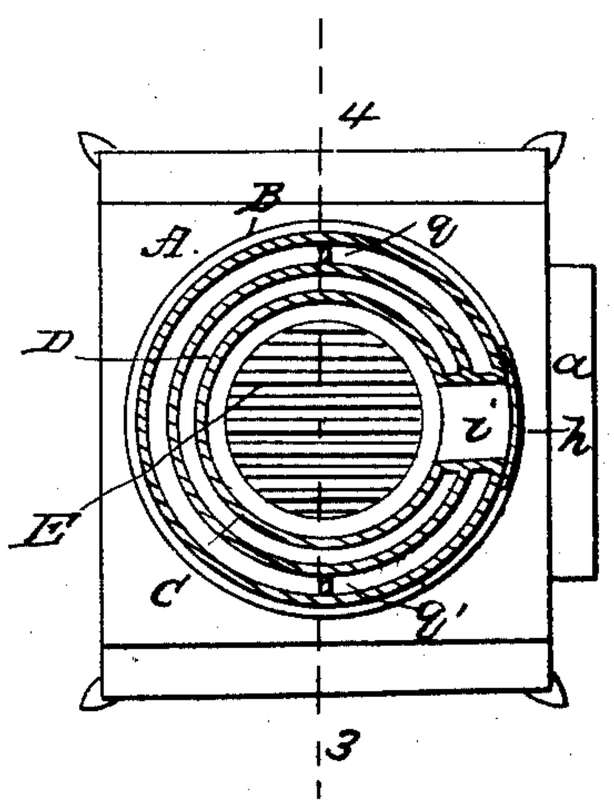


Fig. 4.



UNITED STATES PATENT OFFICE.

JOHN B. KOHLER, OF PHILADELPHIA, PENNSYLVANIA.

COAL-STOVE.

Specification of Letters Patent No. 17,510, dated June 9, 1857.

To all whom it may concern:

Be it known that I, JOHN B. KOHLER, of the city of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Heating Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing and to the letters of reference marked thereon.

My invention consists in constructing the body of the heating apparatus with three casings, forming two spaces, one for the circulation of the products of combustion, the other for the passage of the air to be heated. Above these spaces are a series of chambers, some communicating with the above mentioned air space, and, through openings at the top of the heater, with the interior of the apartment, others communicating with the space for the passage of the products of combustion, with the fire-place and with the chimney. In connection with one of the latter chambers is a valve (fully described hereafter) by operating which the products of combustion may be either allowed to escape direct from the fireplace to the chimney or caused to circulate in the above mentioned space. The whole is arranged and designed for the purpose of producing a uniform supply of pure heated air, and that at the expense of a small amount of fuel, and for the purpose of regulating the heat to any required temperature.

In order to enable others skilled in the art to make and use my invention I will now proceed to describe its construction and operation.

On reference to the drawing which forms a part of this specification, Figure 1 is a sectional elevation on the line 1, 2 (Fig. 3); Fig. 2, a sectional elevation on the lines 3, 4 (Figs. 1 and 4); Fig. 3, a sectional plan on the line 5, 6, (Fig. 1,) and Fig. 4 a sectional plan on the line 7, 8 (Fig. 1).

Similar letters refer to similar parts throughout.

A is a box forming the base and ash-pit of the heating apparatus, *a* a cover for the entrance to the same, with perforations for the admission of air. The top of the box or ash pit is furnished with annular flanges *b* and *c* to the former of which is connected the outer-casing B and to the latter the inner casing C. Between the two is situated another cylindrical casing D, the bottom of which is attached to the inside of the outer casing B in such a manner that air may be admitted through orifices *d* into the space between the casings C, and D.

E is the fireplace attached to the interior of the inner casing C with a space between the two, and communicating with this space are any convenient number of openings *e* at the bottom and a series of openings *f* at the top so that the air from the exterior atmosphere may be admitted through the orifices *d* into the space between the casings C and D, thence through the orifices *e* into the chamber between the fireplace and inner casing C and thence through the orifices *f*. The fireplace is supplied with fuel through an opening *i*, which is furnished with the usual door *h*.

The intermediate plate D terminates at the plate *k*, between which and the upper plate *x* are the three chambers M, M′ and M² and the three chambers N, N′ and N². The former communicate with the fireplace through openings *m*, *m′* and *m²* and with the space between the casings B and D through openings *p*, *p′* and *p²*. The chambers N, N′ and N² communicate with the space between the casings D and C through openings *t*, *t′* and *t²* and with the apartment through corresponding openings *u*.

W is a metal disk serving as the cover of the fireplace and capable of being easily turned around. This disk is furnished with a projecting lip *n* so arranged as to obstruct the passage *m* to the chamber M and to the chimney when necessary.

It will be seen on reference to Figs. 2 and 4 that the space between the casings B and D is divided by the two partitions *q*, *q′*. The latter extend to the plate *k* at the top but terminate at the bottom a short distance from the point where the intermediate casing is attached to the outer casing, in order that openings *r* may be formed for the passage of the products of combustion.

Operation:—When the opening *m* is closed by the lip *n* on the disk W the products of combustion must pass through the openings *m′* and *m²* into the chambers M′ and M², thence through openings *p′* and *p²* into the space between the casings B and D on one side of the partitions *q*, *q*, thence through the orifices *r*, *r*, returning through the space between the same casings but on the opposite side of the partitions to the chimney I. When the projection *n* is re-

moved from the opening *m* the products of combustion instead of taking the circuitous route above mentioned will pass off direct to the chimney. The air to be heated passes through orifices *d* into the space between the casings C and D, thence through openings *t*, *t'* and *t*² into the chambers N, N' and N², thence through corresponding openings *u* and through a grating V to the apartment. Independent of the air passing through the usual openings in the cover *a* of the ash-pit to support combustion, it is allowed to pass through the orifices *d* and *e* into the space between the casing C and fireplace F and thence through openings *f* in order that the gas from the fuel may be more effectually consumed before it passes to the chimney. Inasmuch as the inner casing C is exposed to the direct action of the fire and the intermediate and outer casing to the action of the circulating products of combustion it is evident that independent of the heat produced from the outer case by radiation a supply of pure heated air is discharged at the top of the apparatus. It is evident too that the heat may be regulated to the greatest nicety as regards temperature by allowing more or less of the products of combustion to escape direct to the chimney.

I claim and desire to secure by Letters Patent—

The three cases B, C, D, the flue chambers M, M' and M² and their respective openings the air chambers N, N' and N², with their openings and the partitions *q* and *q'* when the whole is arranged and constructed substantially in the manner and for the purpose herein set forth.

In testimony whereof, I have signed my name to this specification before two subscribing witnesses.

JOHN B. KOHLER.

Witnesses:

HENRY HOWSON,

CONSTANT MILDEN.