J. C. Cochrane,

Cook Stove.

No. 52,535. Patented Feb. 13. 1866.

Fig. 2.

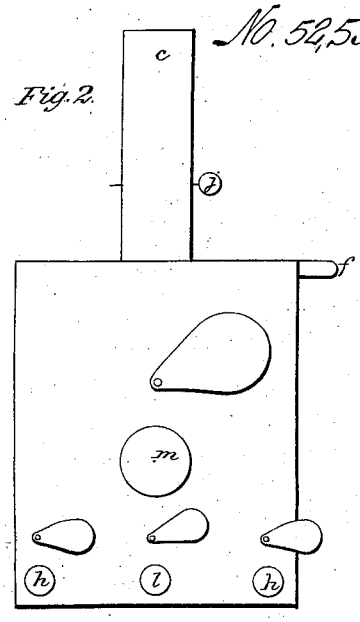


Fig. 1.

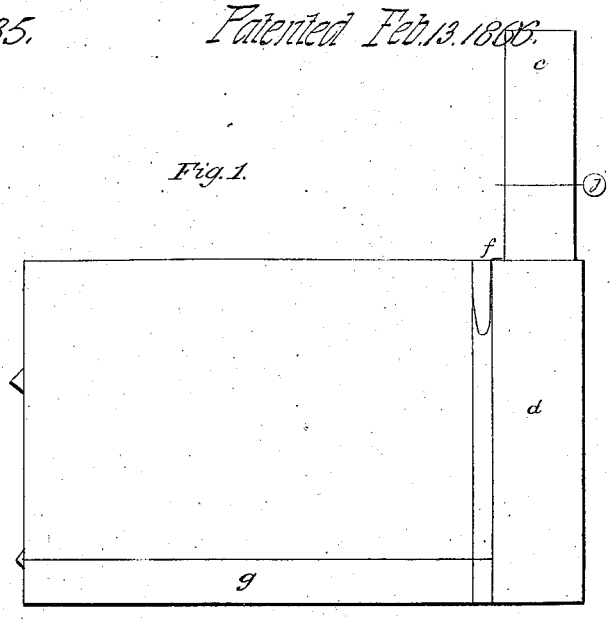


Fig. 3.

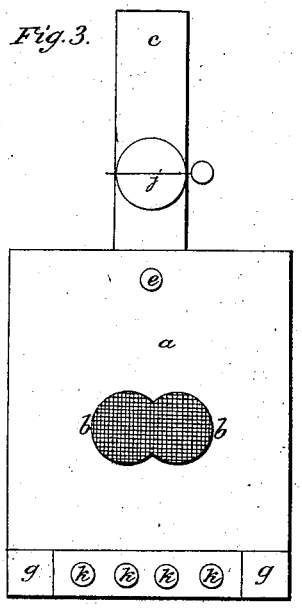
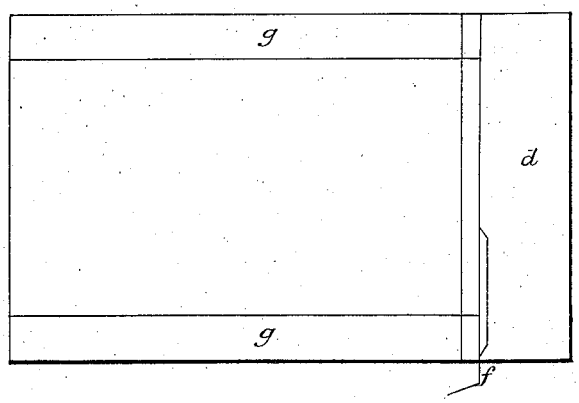


Fig. 4.



Witnesses.

N. E. Cochsane.

J Cochrane.

Inventor.

J. C. Cochrane.

UNITED STATES PATENT OFFICE.

JAMES C. COCHRANE, OF ROCHESTER, NEW YORK.

HEATING-STOVE.

Specification forming part of Letters Patent No. **52,535**, dated February 13, 1866.

To all whom it may concern:

Be it known that I, JAMES C. COCHRANE, of the city of Rochester, county of Monroe and State of New York, have invented a new and improved method of causing a more perfect combustion in stoves, furnaces, and grates, and of retaining the heat therein; 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 invention I style the "Solartype."

In the fire-chamber of the stove, furnace, or grate, beyond the fire and so near it that the fire will ignite the gas passing through, I construct a partition, *a*, between the fire and the flue, and in an aperture of this partition, *b*, I insert one or more thicknesses of wire-cloth or finely-perforated metal. If the fire-chamber is not too large, the partition may be wholly constructed of this material; but if so large that the gas would escape without burning, then the partition should be in part of solid material. The space thus partitioned off communicates with the flue or chimney *c*, so that the draft from the fire in passing to the flue goes through the perforated metal.

The flame pressed against the wire and drawn partially through by the air-current is retained by the wire and the gases carried with the air into the flames are consumed instead of escaping up the chimney.

Above the wire-cloth, (or, if the partition is wholly of this material, in the upper part thereof,) and communicating with the space partitioned off, *d*, which I call the air-chamber, I have an aperture, *e*, closing with a damper, *f*, to be used when a greater draft is desired than that passing through the wire. The texture of the wire-cloth will depend upon the draft, size of the furnace, &c., but should be close enough to prevent the body of the flame from passing through.

The air-chamber thus partitioned off descends to the bottom of the stove, communicating with two horizontal flues, G G, extending under and at each side of the fire, opening to the air at the front and closed with slides *h h*. These flues may have a higher relative position, if desired, and there may be one or more of them, and instead of being horizontal they may rise perpendicularly at the side of the air-chamber communicating with it at the bottom, the object being to have a current of air flowing in upon the fire, passing through the wire-cloth into the air-chamber and from the air-chamber into the room. It is better to have the air go from the bottom of the air-chamber rather than the top, as it will be purer.

There is also a damper in the pipe or chimney *j*.

Now, when the fire is so burning as to consume all the gases with the damper *f* closed, close also the damper in the chimney *j* and open the slides of the horizontal flues *h h*. There will then be a current of air flowing in upon the fire, passing through the wire into the air-chamber, and circulating through the flues, all the heat being retained in the room and none passing up the chimney. This can only be used in the way described in connection with the first-described invention and as a dependent part thereof; but the first may be used with or without the last arrangement.

I construct the fire-bed in the ordinary way so as to allow a free passage of air under and through the fire, and also construct air-passages beyond the fire between it and the wire *k k k k*, so that the air will rise up at the side of the wire and supply the flame; but I claim nothing for this or the fire-bed.

l is an opening for the passage of air under the fire. *m* is the door.

What I claim as my invention, and desire to secure by Letters Patent, is the following improvements:

The air-chamber, with wire-cloth or perforated metal facing the fire and so near it that gas passing through will be ignited, and through which the draft from the fire will pass, and with horizontal or perpendicular flues communicating between the air-chamber and the air of the room, the whole constructed as and for the purposes above described.

Dated at Rochester July 27, 1865.

JAMES C. COCHRANE.

Witnesses:

JOSEPH DEVERELL,

LEWIS BROOKS.