E. C. ROBINSON.

Stove.

No. 49,652.

Patented Aug. 29, 1865.

Fig: 1.

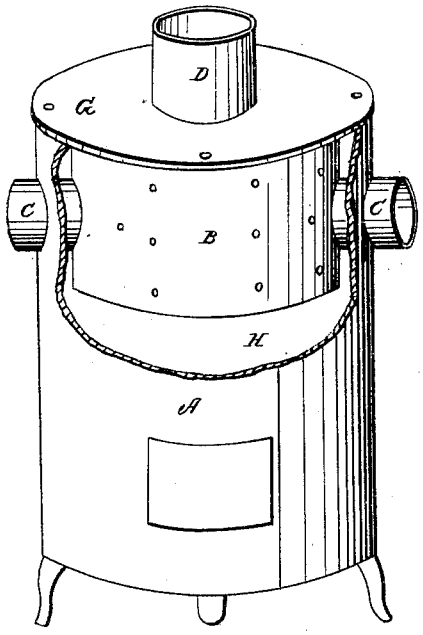
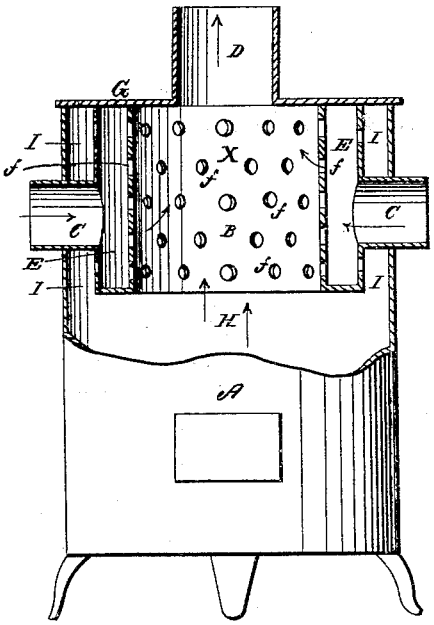


Fig: 2.



Witnesses:

J. J. Farnye

J. L. Ostrum

Inventor:

Eli C Robinson.

UNITED STATES PATENT OFFICE.

ELI C. ROBINSON, OF TROY, NEW YORK.

IMPROVEMENT IN HEATERS.

Specification forming part of Letters Patent No. **49,652**, dated August 29, 1865; antedated August 18, 1865.

To all whom it may concern:

Be it known that I, ELI C. ROBINSON, of Troy, in the county of Rensselaer and State of New York, have invented a new and useful Improvement on Stoves; and I do hereby declare that the following is a full and exact description of the same, reference being had to the annexed drawings, and to the letters of reference marked thereon, forming part of this specification, in which—

Figure 1 is a perspective view, and Fig. 2 is a vertical sectional view, the same letters having reference to like parts in each figure.

The nature of my invention consists in arranging and employing, in combination with the fire or combustion chamber of stoves, an annular-formed air-heating apparatus, or its equivalent device, having perforations in its walls or sides, and also being provided with one or more supply pipes or passages, to admit within said annular-formed chamber a free supply of external air. This air-heating apparatus is suspended within the fire or combustion chamber of stoves in the manner substantially as hereinafter fully described and shown, and for the purpose of supplying an air draft or feed, which, intermingling with the heated gases arising from the burning fuel, produces a more perfect combustion of the same, which would otherwise pass off to a great extent unconsumed.

To enable others to make and use my invention, I will now fully describe it, as follows, viz:

A represents a stove of the ordinary cylindrical construction.

B is an air-heating device or apparatus, constructed in an annular or hollow ring form, and producing the annular chamber E, thereby gaining a large amount of heating-surface. Through the internal wall or shell of this chamber are made apertures *f f f*, and also, when desired or deemed necessary, apertures may be made in the external shell of said chamber.

C C are supply-pipes, there being one or more, as may be necessary, for the purpose of supplying this chamber with external or cold air. The supply of air to the air-heating apparatus may be regulated by dampers or registers placed within the pipe C. This air-heating apparatus is suspended within the fire or combustion chamber H of the stove from the top plate, G, substantially as shown in Fig. 2, or below the top plate, for I do not confine myself strictly to the position of the air heating and supplying apparatus B as herein shown, but place said apparatus so that the throat or passage-way X, through which must pass all of the gaseous products of combustion on their way to the exit-pipe of the stove, may be in an inclined or in a horizontal position, in order to better conform to the construction of the stove and the position of its exit or smoke pipe.

D is the smoke-pipe.

The air-heating apparatus is to be so arranged that there shall be a sufficiency of space, I, between said apparatus and the external plate, shell, or flue of the stove as to admit of heat or flame circulating freely around the external shell of the said apparatus.

The throat or passage-way X, as seen in Fig. 2, through the air-heating apparatus B, for the passage of the gaseous products of combustion, is to be so proportioned in size relatively to the combustion-chamber of the stove that said gases, after heating and expanding within said combustion-chamber, will be more or less concentrated or condensed in their passage through the relatively smaller passage-way or throat X, thereby bringing the combustible gases in contact with the air-feed while in a more hot, condensed, and inflammable form or condition than would be if said relative proportions were not observed.

The operation of this air-heating and air-supplying apparatus B is as follows: Fire having been lighted in the stove, the heat and flame thereof, arising up to and circulating in contact with and around the shells of said apparatus heat the air within said annular chamber, which, issuing from thence through the apertures *f f*, as shown by the arrows, in impinging jets, which, intermingling with the heated and condensed gases arising from the burning fuel, causes the combustible portions of said gases to readily inflame and be consumed, thereby producing a more perfect com-

bustion of the fuel and promoting greater economy in its use.

Having fully described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

The annular-formed air-supplying apparatus B, or its equivalent device, constructed and arranged substantially as hereinbefore described, in combination with the fire or combustion chamber of stoves, in the manner substantially and for the purpose as herein set forth.

ELI C. ROBINSON.

Witnesses:
J. J. SAVAGE,
J. L. OSTRAM.