(No Model.)

G. F. HIGGINS.

STOVE.

No. 437,692. Patented Oct. 7, 1890.

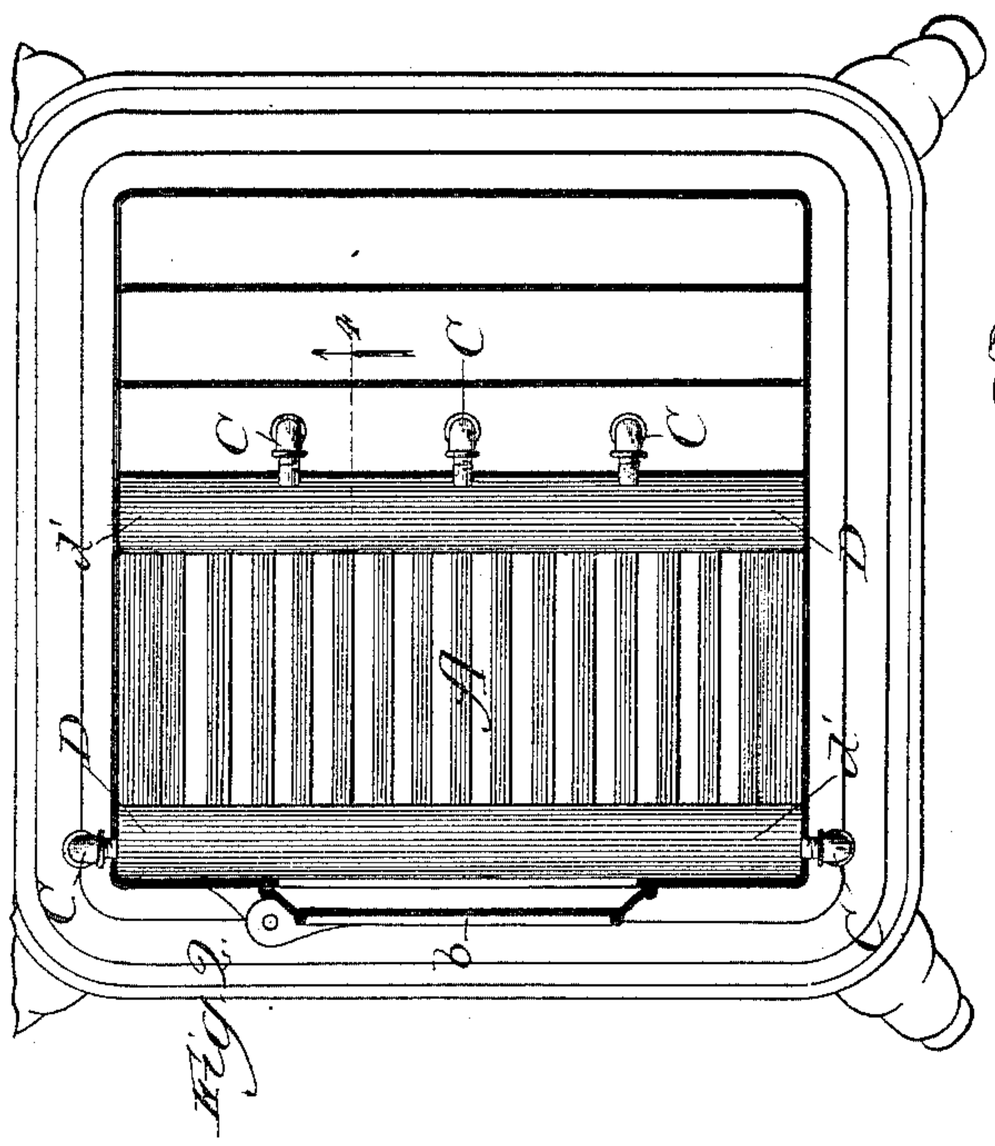

Fig. 4.

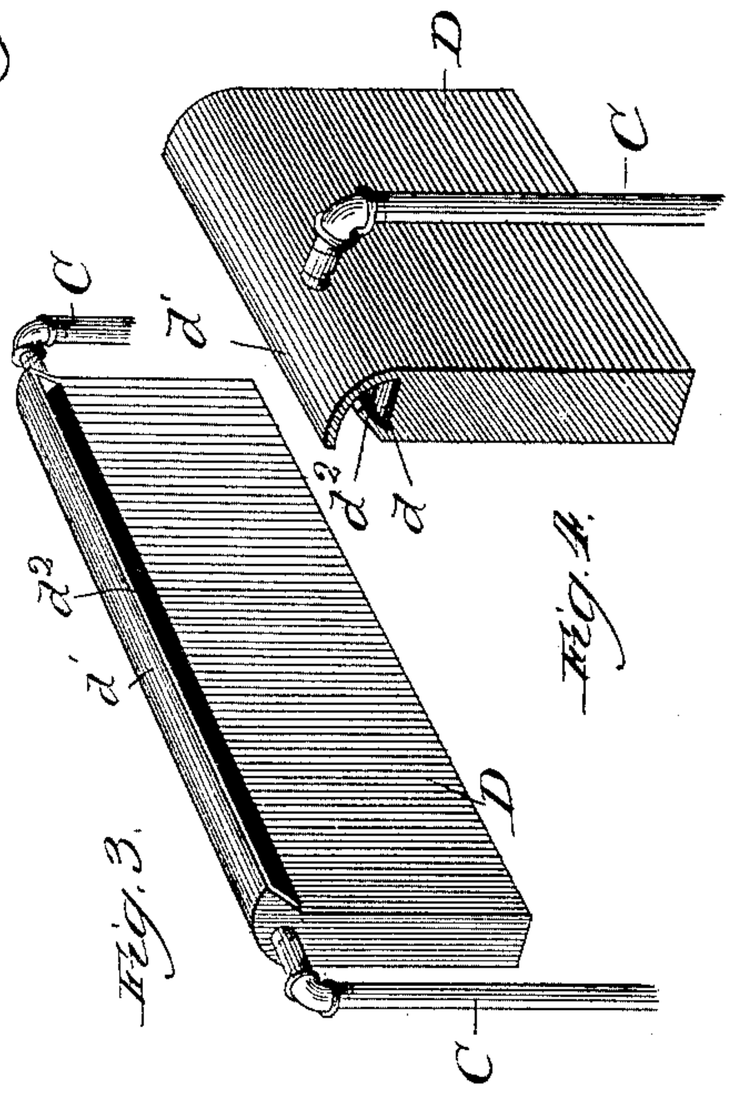

Fig. 3.

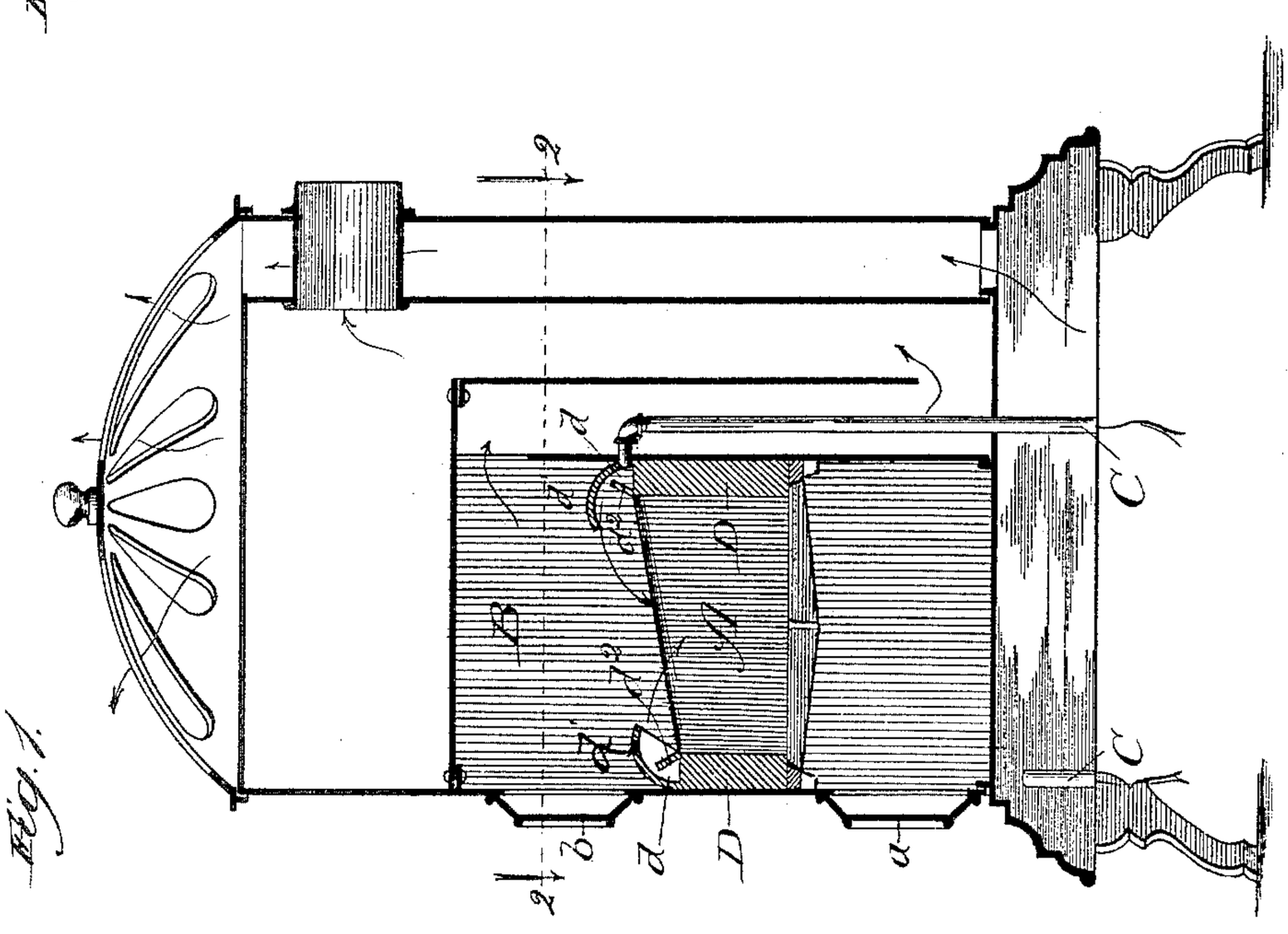

Fig. 1.

Witnesses:
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UNITED STATES PATENT OFFICE.

GEORGE FRANKLIN HIGGINS, OF CHICAGO, ILLINOIS.

STOVE.

SPECIFICATION forming part of Letters Patent No. 437,692, dated October 7, 1890.

Application filed October 8, 1889. Serial No. 326,315. (No model.)

To all whom it may concern:

Be it known that I, GEORGE FRANKLIN HIGGINS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Stoves, of which the following is a specification.

The object of my invention is to provide a surface-burning stove for either hard or soft coal, with means for heating the atmospheric air as it is introduced into the combustion-chamber; and the invention consists in the features and combinations hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a vertical section of my improved stove; Fig. 2, a cross-section, taken in line 2 2 of Fig. 1; Fig. 3, a perspective view of the front lining and air-chamber, and Fig. 4 a perspective view of a portion of the back lining and air-chamber.

A is the fire-box, and *a* the ash-door therein; B, the combustion-chamber, and *b* the fuel-door therein; C, inlets for atmospheric air communicating with the combustion-chamber; D, the back and front lining of the fire-box; *d*, the air-chamber therein; *d'*, a cap or lip, forming the top of the air-chamber and extending over inwardly, and *d''* a flange extending upwardly and outwardly toward the cap.

In constructing my improved stove I provide a suitable lining for some part of the fire-box, preferably for both its back and front sides, and in the upper part of this lining I make an air-chamber, preferably by extending the flange *d''* upwardly and outwardly and the cap *d'* upwardly and inwardly over the flange *d''* toward the fire-box, thus forming a flaring opening in the side of the chamber, through which the air passes into the combustion-chamber, such air being directed by means of the cap *d'* across the surface of the fuel, thus enabling it to become thoroughly mixed with the products of combustion. The atmospheric air coming in from the base of the stove through the inlet C comes directly into this air-chamber, which in ordinary use is very hot, and in this way it is superheated or heated to a high temperature before its final introduction into the combustion-chamber. This of course greatly increases its efficiency in promoting and sustaining combustion. By actual tests I have found that at the same degree of heat a given amount of fuel—say ten pounds of soft coal—will last about five times as long when the air is thus heated before its introduction into the combustion-chamber as it will when the air is introduced directly without any preliminary heating. In addition to thus saving fuel, this superheating of the air before its introduction into the combustion-chamber causes the smoke to be burned or consumed, so that a stove containing my improvements is an almost perfect smoke-consumer. The arrangement of the cap of the air-chamber also prevents the fuel getting into or choking the inlets for introducing atmospheric air into the combustion-chamber.

I claim—

1. In a surface-burning stove, a lining inside the walls of the fire-box provided with an air-chamber at its top, such chamber having an inlet for the admission of air at one side and a flaring opening at the other, whereby the air as it leaves the chamber is directed across the surface of the fuel, substantially as described.

2. In a surface-burning stove, a lining inside the walls of the fire-box provided with an air-chamber at its top formed by a flange *d''*, extending upwardly and outwardly from the inner edge of the lining, and a cap *d'*, extending upwardly and inwardly over the flange from the outer side of the lining and forming a flaring opening at one side of the chamber, and an air-inlet extending from the base of the stove and communicating with such chamber, whereby the air may be heated and discharged across the surface of the fuel, substantially as described.

GEORGE FRANKLIN HIGGINS.

Witnesses:

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