

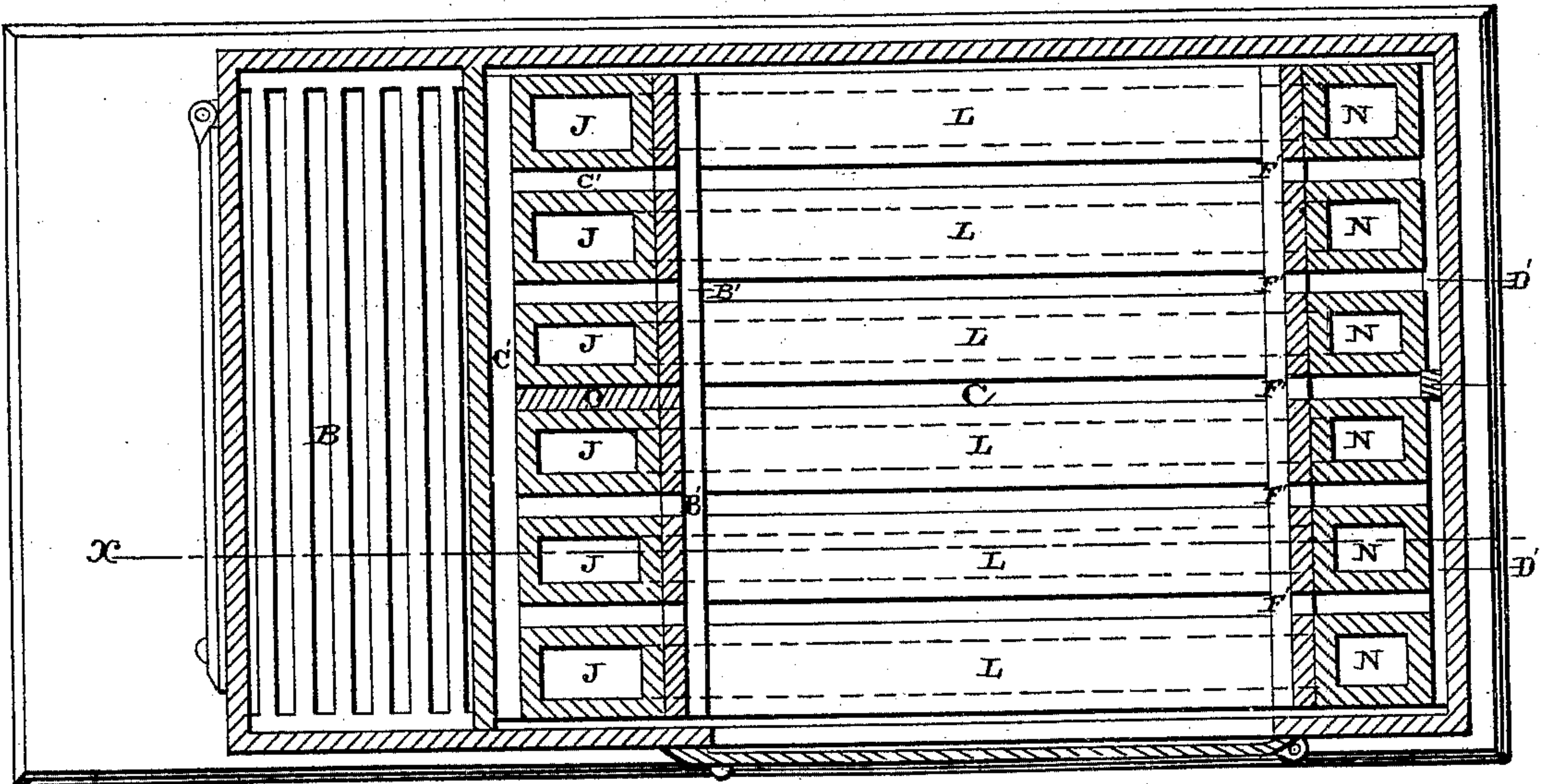
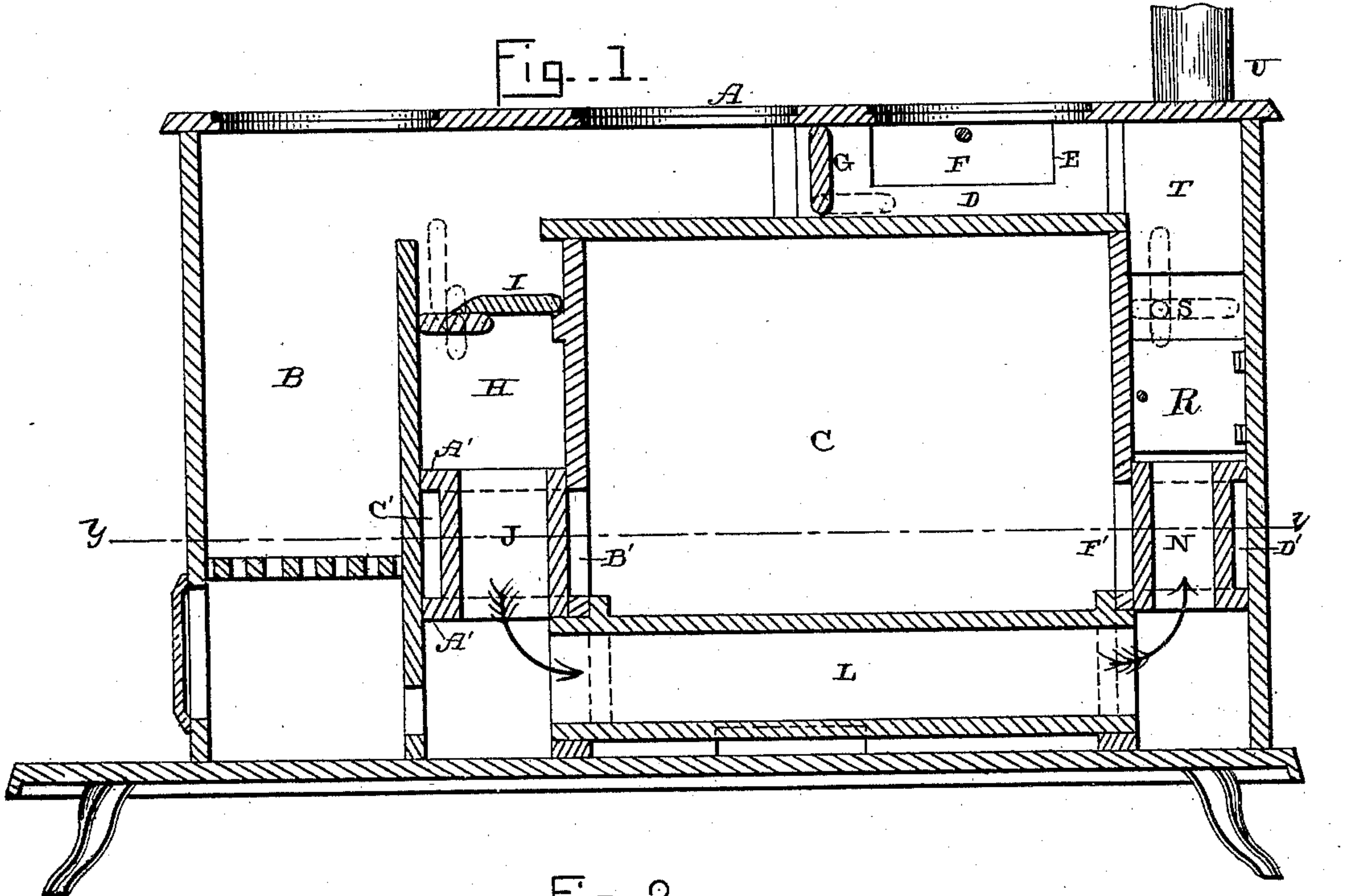
(No Model.)

2 Sheets—Sheet 1.

E. C. FROST.
COOKING STOVE.

No. 426,496.

Patented Apr. 29, 1890.



Witnesses:
E. P. Ellis,
Att. Bright.

Inventor:
Eli C. Frost,
per
F. A. Lehmann,
att'y.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

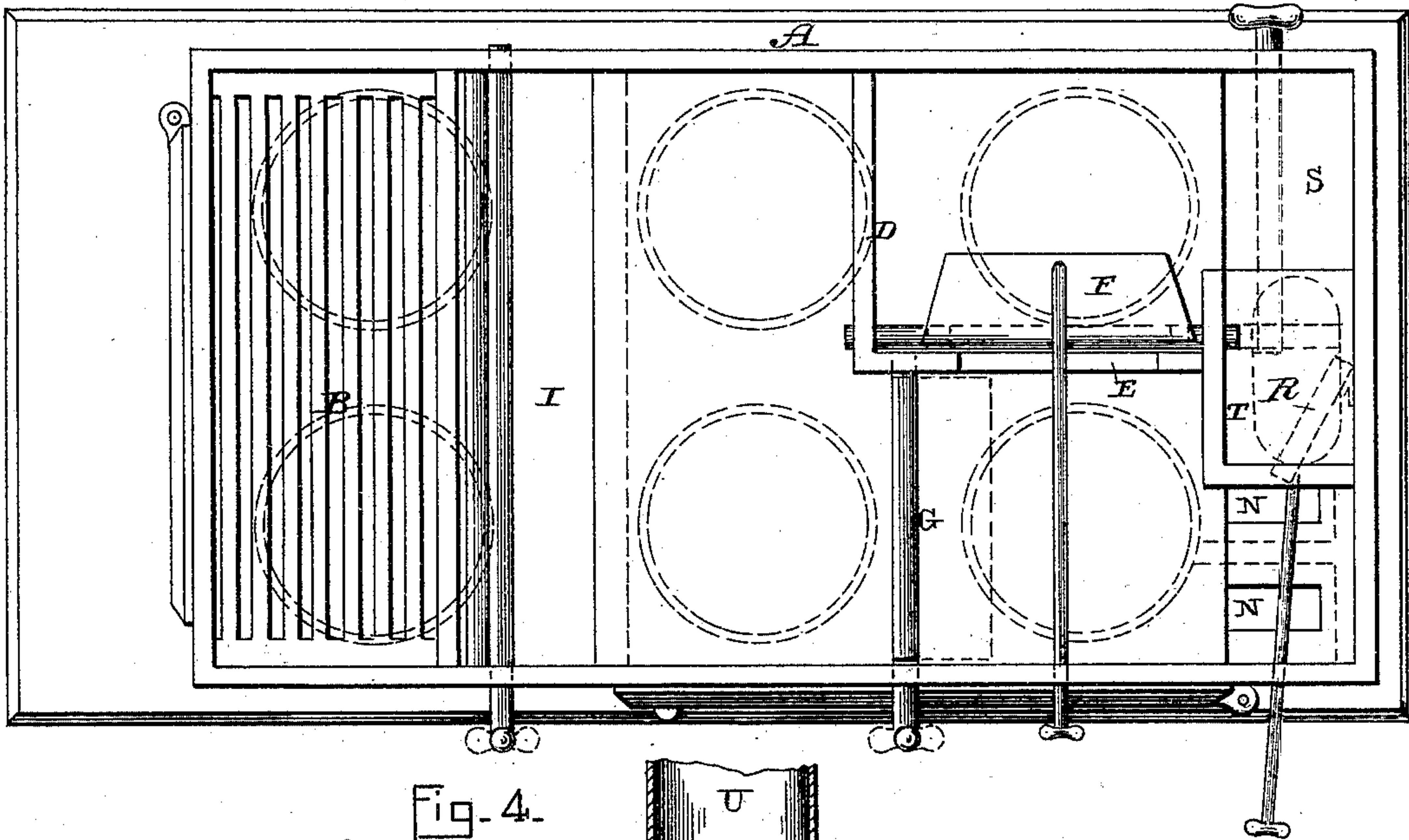
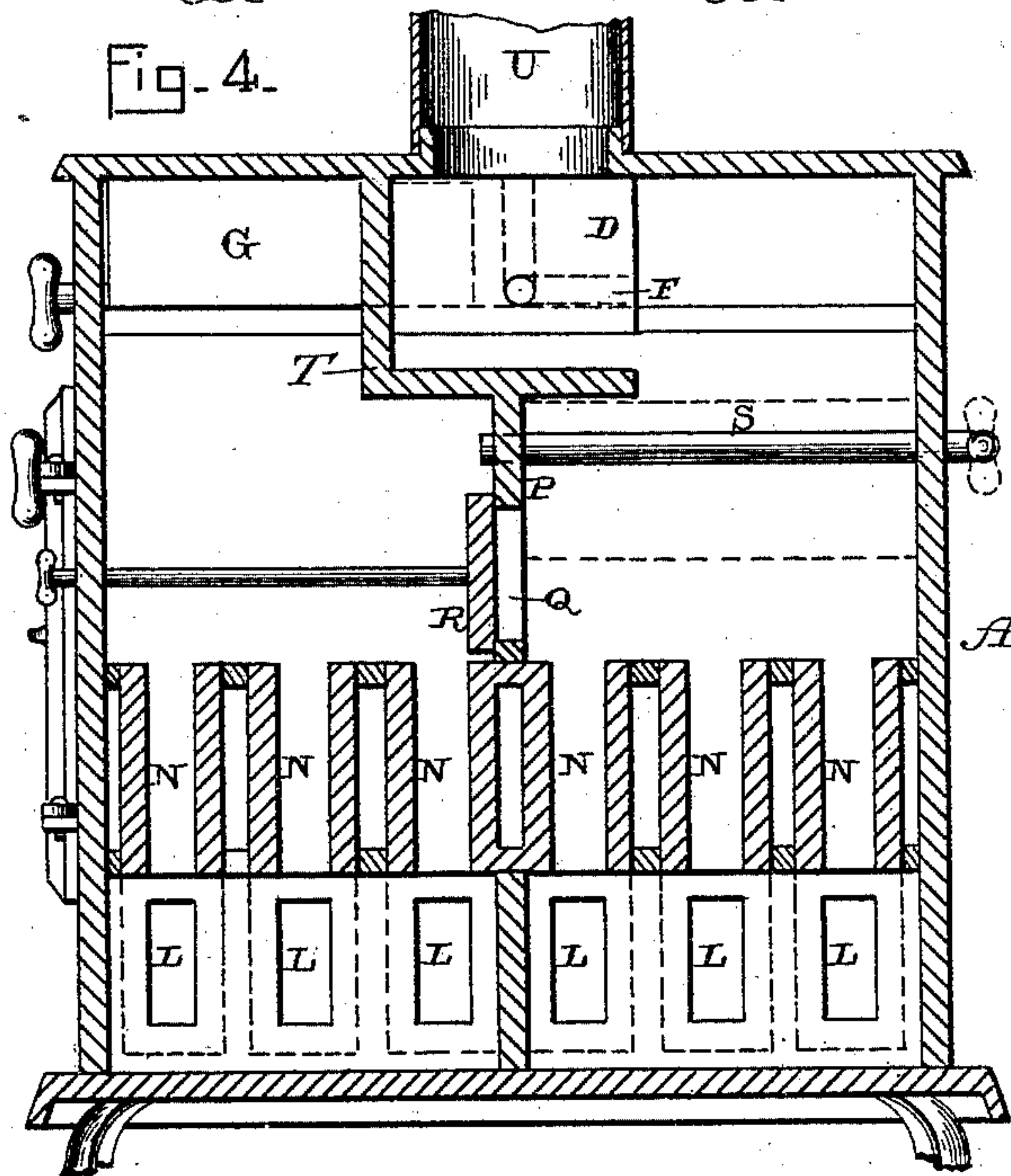


Fig. 4.



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Inventor:

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UNITED STATES PATENT OFFICE.

ELI C. FROST, OF ELMIRA, NEW YORK.

COOKING-STOVE.

SPECIFICATION forming part of Letters Patent No. 426,496, dated April 29, 1890.

Application filed September 19, 1887. Serial No. 250,144. (No model.)

To all whom it may concern:

Be it known that I, ELI C. FROST, a citizen of the United States, residing at Elmira, in the county of Chemung and State of New York, have invented a new and useful Cooking-Stove, of which the following is a specification.

My invention relates to an improvement in cooking stoves and ranges; and it consists in the combination, with the oven, of a series of separate flues placed at the front and rear sides of the oven, and a series of flues which pass through the bottom of the oven and suitable dampers, as will be more fully described hereinafter.

The object of my invention is to provide the ovens of cooking stoves and ranges with a series of flues at their front and rear ends, and a third series which pass through the bottom of the oven, whereby the products of combustion are made to pass directly through the oven and heat it in a less time and to a higher degree with the same amount of fuel than can be done in stoves or ranges of the ordinary construction.

Figure 1 is a longitudinal vertical section of a stove embodying my invention, taken upon the line X X of Fig. 2. Fig. 2 is a horizontal section taken upon the line Y Y of Fig. 1. Fig. 3 is a plan view of the stove with the top removed. Fig. 4 is a vertical section taken through the rear end of the stove, looking toward its front.

A represents an ordinary range or stove of any desired construction, which is provided with the fire-pot B and the oven C in the usual manner. Between the top of the oven and the top of the stove is formed the vertical partition D, through which is made an opening E, which is controlled by the damper F. Between this partition and the side of the stove is placed a damper G. Between the rear side of the fire-pot and the front of the oven is formed a vertical flue H, which is provided with the damper I at its upper end. In the lower portion of this flue H are formed a number of small vertical flues J, which are entirely separate from each other, as shown in Fig. 2. As shown in Figs. 1 and 2, these small vertical flues J have air spaces or passages around them, and these spaces or passages are closed at their upper and lower ends by the pieces

A', which serve to prevent the products of combustion from passing down between the flues J and to prevent the heat radiated from the flues from escaping in any other direction than through the opening B' directly into the oven. By inclosing the flues as here shown all of the heat which radiates from them passes into the chamber C', and from this chamber C' it escapes into the oven, so that none of the heat is lost. Extending horizontally through the bottom of the oven is a series of flues L, which are also separate from each other, and which form the bottom of the oven. These flues correspond in number to the flues J, are raised above the bottom of the stove, so as to allow the heat to be radiated through their bottoms, and are separated just far enough apart to allow heat from all of their sides to rise freely into the oven C. As each flue L radiates heat from every side directly into the oven, it will readily be seen that the oven can be heated to a greater degree and in a less time with the same amount of fuel than can be done where no separate flues are passed through the oven.

In the rear of the stove between the rear end of the oven and the rear plate of the stove is placed a series of vertical flues N, which correspond in number to the flues J L, and which are separated from each other, as shown in Fig. 4. These flues N are also separated like the ones J, and are surrounded by a chamber D', from which the heat passes through the openings F' directly into the oven. Were these chambers F' C' not used, the heat from the flues J N would only be transmitted to the walls of the stove and oven without producing any material effect. With this construction all the heat from the products of combustion is utilized in heating the oven, thus making a much smaller amount of fuel necessary than would otherwise be the case. A vertical division-plate O is placed at the center of the flues J, and a second division-plate P is placed above the top of the flues N, and through this division-plate P is formed an opening Q for the products of combustion, and this opening is controlled by the damper R. Above one-half of the flues N and between the partition P and side of the stove is placed a damper S. In the rear upper portion of the stove and forming a part of the

partition D is a partition T, and above this partition is the stove-pipe U.

When the dampers G and F are open, the products of combustion pass directly up the pipe U. When the dampers G and F are closed and the one I is opened, the products of combustion pass down through the flues L, which form the bottom of the oven C, and then up through the flues N to the pipe U. When the dampers I, R, and S are closed, the products of combustion pass over the top of the oven, down through one side of the flue N, forward through one half of the flues L, and up through one half of the flues J, and then back through the other half of the flues to the pipe.

Suitable arrangements are made for cleaning out the flues of the stoves at suitable points in the usual manner.

Having thus described my invention, I claim—

1. In a cooking-stove, a series of vertical

flues J, which are separated from each other and arranged between the fire-pot and the front of the oven, with the oven having a suitable opening or openings through its front end, and which communicates with the spaces between the flues, substantially as shown.

2. In a cooking-stove, the combination of the fire-pot, the oven, and a series of flues J L N with suitable dampers for controlling the passage of the products of combustion, substantially as specified.

3. In a cooking-stove, the combination of the fire-pot and the oven with the flues J L N, suitable division-plates for separating the flues into two parts, and suitable dampers for controlling the passage of the products of combustion, substantially as shown.

ELI C. FROST.

Witnesses:

WAT. PARK,
GEO. W. DOYLE.