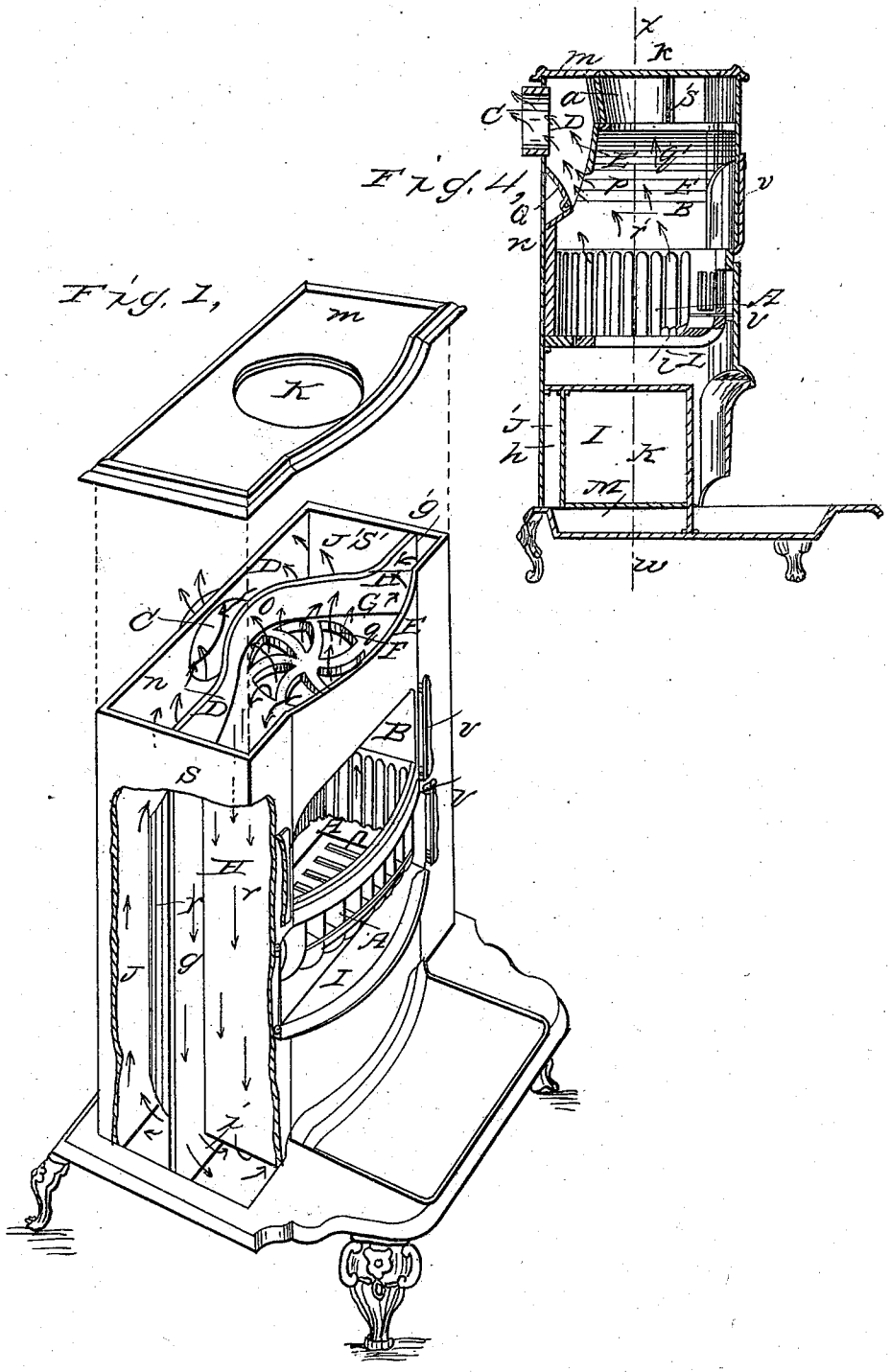
2 Sheets—Sheet 1.

C. O. FOLEY.

Stove.

No. 21,191. Patented Aug. 17, 1858.



2 Sheets—Sheet 2.

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Fig. 3,

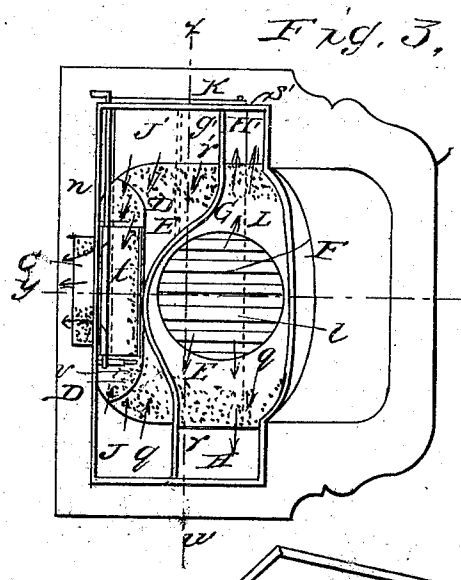


Fig. 5,

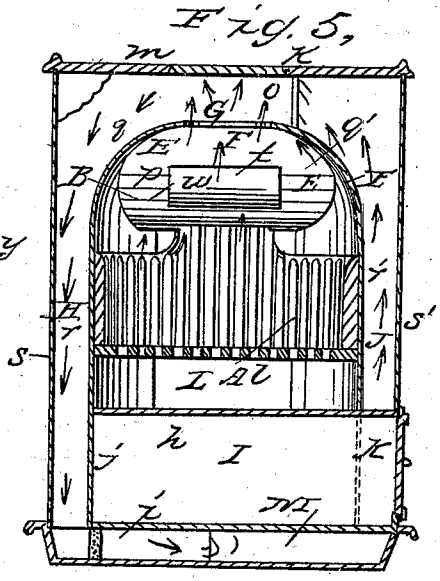


Fig. 2,

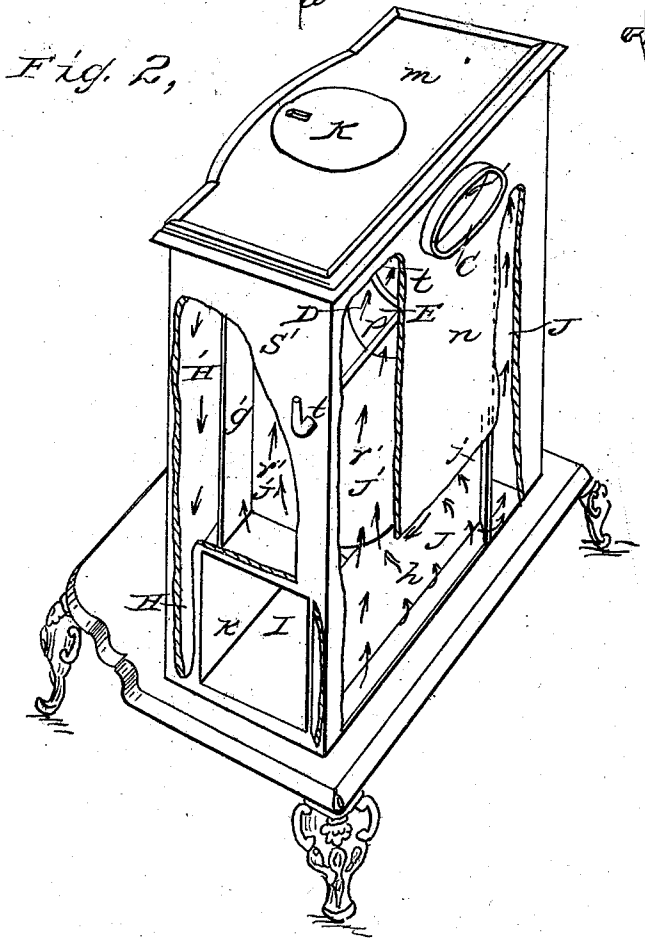
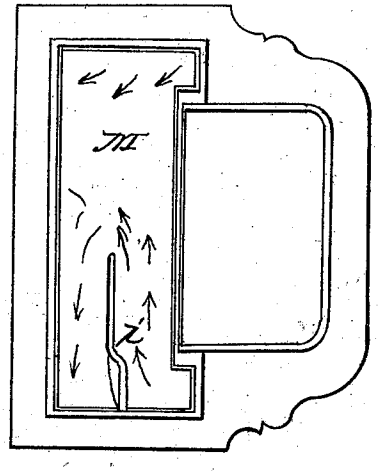


Fig. 6,



UNITED STATES PATENT OFFICE.

C. O. FOLEY, OF TROY, NEW YORK.

STOVE.

Specification of Letters Patent No. 21,191, dated August 17, 1858.

To all whom it may concern:

Be it known that I, CORNELIUS O. FOLEY, of the city of Troy, in the county of Rensselaer and State of New York, have invented a new and useful Improvement in Diving-Flue Franklin 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, making a part of this specification, in which—

Figure 1 is a perspective view, showing the front, one end, and the top of an open front or Franklin stove which embraces my improvement, (the stove being provided with an oven under the fire-grate, the top-plate being shown as lifted up from the stove, and a part of the end-plate broken away to show the flues within. Fig. 2 is a perspective view of the stove, showing the top, back, and one end thereof,—a part of the outer end and back-plates being broken away to show the flues within. Fig. 3 is a plan of the stove, the top-plate being removed. Fig. 4 is a vertical section of the stove from front to rear at the line *z y* in Fig. 3. Fig. 5 is a vertical section of the stove from end to end at the line *x w* in Figs. 3 and 4. Fig. 6 is a plan of the bottom plate of the stove.

The same letters refer to like parts in all the figures; and the arrows therein indicate the course of the gaseous products of combustion through the stove.

My invention consists in the hereinafter described construction and arrangement of the flue-plates, openings, chambers and diving and ascending flues along or through which the gases of combustion circulate within the outer casing of the stove, whereby an open front or "Franklin stove" is made a good radiator with a strong draft.

A is the grated fire-box, and B is the combustion chamber over it, both being open, or only provided with doors in front as indicated at *v*.

C is the exit pipe.

At *u* there is an opening provided with a damper *t*. When the damper *t* is open as shown in Fig. 4 the gases of combustion pass directly from the chamber B through the opening *u* across the chamber D into and out through the escape-pipe C. But when the damper *t* is turned down over the opening *u* all the gases of combustion rise to the top of the chamber B and pass through the opening F, into the chamber G which is over the front part of the top of the chamber B. From the chamber G the gases of combustion divide into two parts and pass down the flues H and H′ which occupy the front portions of the spaces at the ends of the stove between the outer plates *s s′* and the inner ones *r r′* to the bottom of the stove. Then the gases of combustion pass under the oven I, (if one is arranged in the stove,) and up through the two flues, J J′, which occupy the back or remaining portions of the spaces between the end plates *r r′* of the combustion chamber and the outer plates *s s′* of the ends of the stove. From the flues J J′ the gases pass into the chamber D which is located over and back of the after upper portion of the combustion chamber B, and from the chamber D into the exit pipe C.

I construct the plates E which separate the chambers G and D from the combustion chamber, B, substantially in the form and relatively to those chambers, as represented by the drawings; the parts *q q′* on each side of the opening F being beveled or arched over the fire box as shown in Fig. 5, and the back portion *p*, being beveled or curved from the flue strip *o* which separates the chamber G from the one D, down over the after portion of the combustion chamber to the back plate *n* of the stove at a line below the smoke pipe hole C, as shown in Fig. 4.

At K, is a pot-hole, in the top-plate *m* of the stove, directly over the opening F.

I sometimes locate an oven I beneath the space L under the grate *l*, as represented in the drawings; but my improvement is not confined to a Franklin stove with an oven under the grate. When I make my improved open-front stove with the oven, one end, *k*, of the oven extends to one end *s′* of the stove where the door is; so that the flues H′ and J′ are there separated from each other by the oven, and contracted in width as shown by Figs. 2, 3 and 5. The other end, *j*, of the oven extends only to the flues H and J, as shown by Figs. 1, 3 and 5, which flues are, by the flue-strip *i*, extended under that end of the oven, as shown by Fig. 6, into the chamber M, the same that the flue H′ then leads into, and from which the flue J′ extends upward in a sheet over the whole or nearly the whole back side *h* of the oven, as shown by Fig. 2. But when no oven is in the stove, the flues H′, J′, have the same construction throughout as the flues H, J.

The stove is made of cast-iron plates, mounted in the usual way of setting up similar stoves.

As the pot-hole K is directly over the opening F, culinary vessels can be quickly heated therein. The chamber G, being directly over the fire, is highly heated and acts as a trap to the gases of combustion which enter through the opening F, so that they do not return into the chamber B but rather descend in the flues H H′. And as the flues H J and H′ J′, occupy the entire distance from front to rear of the ends of the stove,—the flues being separated merely by the partitions *g g′*,—the flues J J′ are consequently heated in advance by the descending ones, and the latter also by contact, help the draft of the former, so that the draft is much better through those flues than if they were set outside of the body of the stove, or were separated by an intervening space, or confined to the corners of the stove. And as the chamber D is over the combustion chamber, the heat of the gases is thereby increased just before they enter the smoke-pipe to promote the draft through the latter. Although I presume that each of these features have heretofore existed, separately, in "Franklin stoves," yet I am not aware that they have all been united in one open-front stove in the manner hereinbefore described.

I give the plates E of my improved stove the form or construction herein described in order to enlarge the upper ends of the descending flues so as to promote the downward draft and also to give more room in the chamber G, so that the gases can enter it more freely through the opening F, and also to enlarge and bring the chamber D nearer to the ignited fuel so that the gases will receive more heat just before they enter the smoke or exit pipe to insure a better draft through the latter and prevent gusts of wind from blowing down the chimney and exit pipe *c* and puffing the gases back into the room. This construction of the plates E also gives such shape to the ends, back and top of the combustion chamber that they direct the rising gases through the opening F; but I presume that it is not new to make the interior surface of the back, top, and end parts of a fire-place or combustion chamber B in substantially the shape herein described. The second part of my invention consists in enlarging the chambers G and D and bringing them nearer to the ignited fuel, and increasing the capacity of the upper portions of the flues H, H′, and J, J′, of the stove, and thereby improving the draft through the opening F, flues, and smoke-pipe; by simply constructing and arranging the division plate or plates E as hereinbefore fully described and represented in the annexed drawings.

Having thus set forth the construction and operation of my improvement, what I claim as my invention and desire to secure by Letters Patent is—

1. The arrangement, within the outer casing of the stove, of the chambers G, D, descending and ascending flues H, H′, J, J′, and exit pipe C, with the open-front combustion chamber, B, provided with the opening F, as herein described, whereby what is known as the "Franklin stove" is made a good radiator without materially impeding its draft, as herein set forth.

2. And I also claim the division-plates, E, furnished with the opening F, and constructed and arranged in combination with the chambers G, D, flues H, H′, J, J′, smoke-pipe, C, and fire-chamber, B, in the stove, substantially as, and for the purpose, herein set forth.

CORNELIUS O. FOLEY.

Witnesses:
I. S. BARNEY,
A. F. PARK.