(No Model.) 2 Sheets—Sheet 1.

F. L. SHEPPARD.

AIR HEATING DEVICE FOR STOVES OR RANGES.

No. 494,388. Patented Mar. 28, 1893.

FIG. 1.

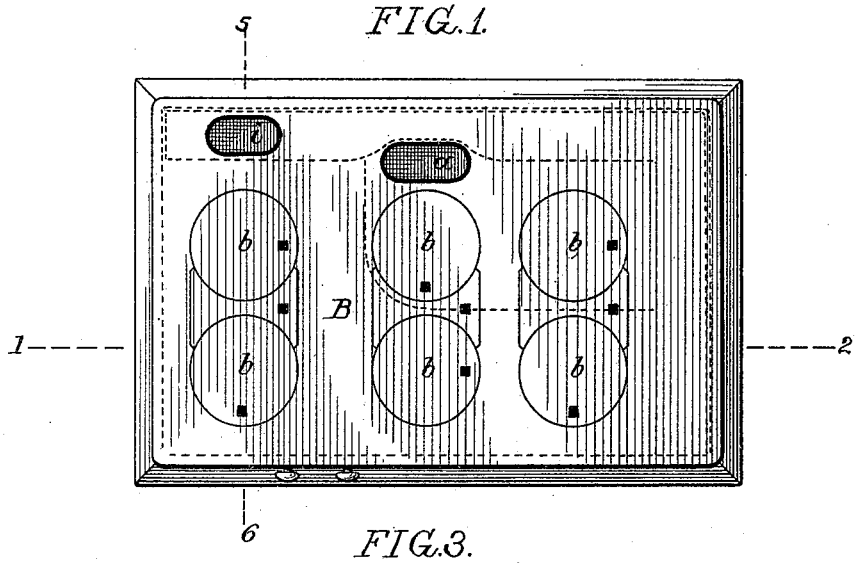


FIG. 3.

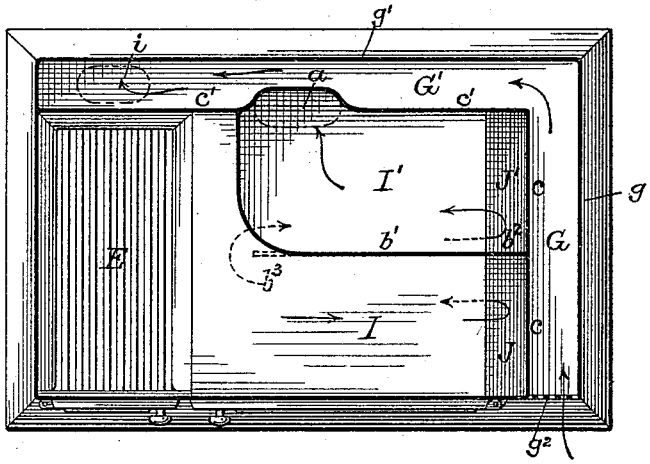
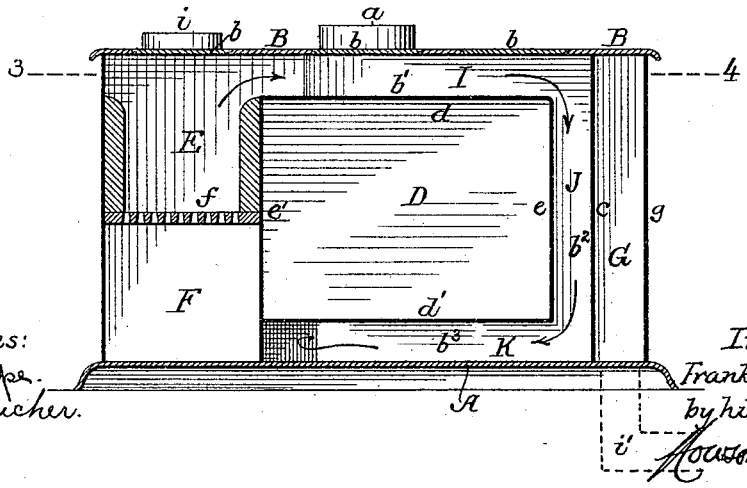


FIG. 2.



Witnesses:
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R. Schleicher.

Inventor:
Franklin L. Sheppard
by his Attorneys
Howson & Howson

(No Model.) 2 Sheets—Sheet 2.

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FIG. 4.

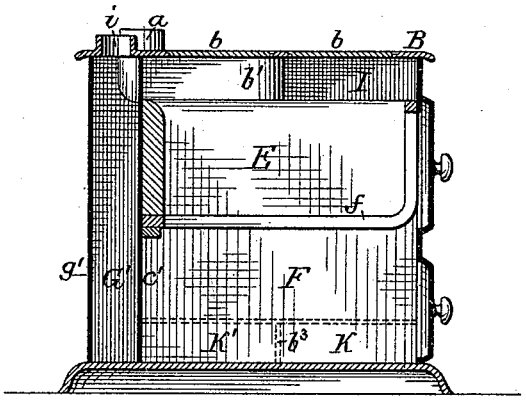
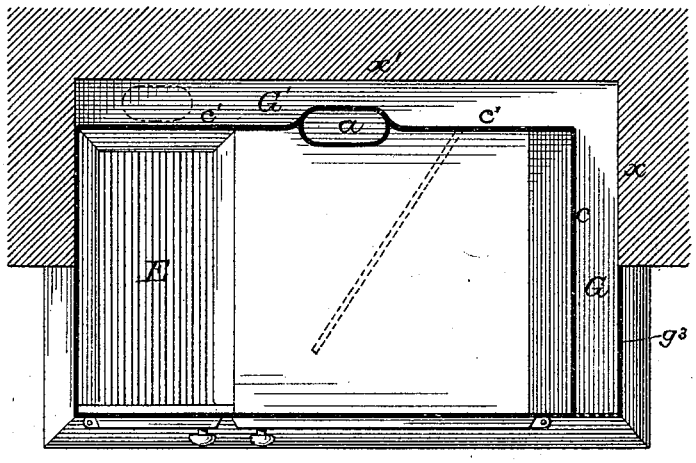


FIG. 5.



Witnesses:
A. V. Groupe.
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Inventor:
Franklin L. Sheppard
by his Attorneys
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UNITED STATES PATENT OFFICE.

FRANKLIN L. SHEPPARD, OF PHILADELPHIA, PENNSYLVANIA.

AIR-HEATING DEVICE FOR STOVES OR RANGES.

SPECIFICATION forming part of Letters Patent No. 494,388, dated March 28, 1893.

Application filed May 21, 1891. Serial No. 393,635. (No model.)

To all whom it may concern:

Be it known that I, FRANKLIN L. SHEPPARD, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented certain Improvements in Air-Heating Devices for Stoves or Ranges, of which the following is a specification.

The object of my invention is to provide a cooking stove or range with means by which air can be heated more effectively than at present for the purpose of heating apartments other than that in which the stove or range is located. This object I attain in the following manner, reference being had to the accompanying drawings, in which:—

Figure 1, is a plan view of a cooking stove with my improved air heating flues. Fig. 2, is a longitudinal section on the line 1—2, Fig. 1. Fig. 3, is a sectional plan on the line 3—4, Fig. 2. Fig. 4, is a transverse section on the line 5—6, Fig. 1; and Fig. 5, is a view showing the application of my invention to a range of somewhat different character adapted to a recess or fire place, or to a brick setting.

Heretofore in cooking stoves or ranges, especially those which are set out in a room independent of any brick work, and which have vertical flues at the end opposite the fire pot, as shown in the drawings, the end plate becomes highly heated and this heat is ordinarily wasted in heating the room in which the stove or range is situated.

It is for the purpose of utilizing the waste heat in this construction of stove or range that my invention has been devised.

Referring to the drawings, A represents the base plate of the stove, B the top plate provided with the usual lids *b b*, D the oven, having top and bottom plates *d d'* and end plates *e e'*, E the fire box provided with a grate *f* and F the ash pit. Above the oven are the flues I I', separated by the partition plate *b'*, and communicating respectively with the descending flue J and ascending flue J' at the end of the oven, these flues being separated by the partition plate b^2 but communicating, respectively, with the flues K K' beneath the oven, these latter flues being separated throughout the greater portion of their length, by the partition plate b^3, but communicating with each other at the ends nearest the fire box, so that the products of combustion follow the course indicated by the arrows and escape at the pipe outlet *a*.

It will be noticed on referring to Figs. 2 and 3, that the greater portion of the heat strikes the end plate *c*, which, with the end plate *e* of the oven, incloses the ascending and descending flues J J'. This plate *c* becomes extremely hot, and in order to utilize this heat to advantage, and also the heat radiated from the back plate *c'* of the stove or range, I form a hot air flue G G' by means of plates *g g'*, Fig. 3, in connection with the end plate *c* and the back plate *c'*. The plate *g* extends the full width of the stove, and the plate *g'* extends the full length of the stove, and air is admitted to the flue G preferably through a perforated plate g^2 at the front of the stove and after traversing the flues G G' passes up through the outlet opening *i* to the apartment to be heated. Thus a constant current of air, which is highly heated in its passage, is carried to the apartment above that in which the stove or range is situated.

In some instances, where available, the cold air may be admitted to the flue G through a pipe *i'*, shown by dotted lines in Fig. 2, from the outside, or from an adjoining room, so that the fumes of the cooking will not be conveyed to the apartment to be heated.

The flues G G' may have division plates so that the air will traverse a circuitous path to the outlet and thereby become more highly heated.

In Fig. 5 I have shown a cooking stove set in a fire place, in which instance the walls *x x'* of the fire place form the equivalents of the plates *g g'* inclosing the flues G G', an additional plate g^3 however, being added so as to carry the flue G to the front of the range. In this range also the flues for the products of combustion are somewhat modified, that is to say there is a single top flue and a single end flue, the bottom flue has an incline partition plate and the discharge pipe *a* extends down to said bottom flue.

I claim as my invention—

The combination in a cooking stove or range, of the fire box and oven situated side by side, double top flues I, I', ascending and descending end flues J, J', double bottom flues K, K',

an outlet from the flue I′ for the products of combustion, end and back plates for the stove, so situated as to form air heating flues between the end flues J, J′ and the end plate of the stove, and between the back plate of the oven and the back plate of the stove, an inlet for the air to be heated and an outlet for the heated air, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANKLIN L. SHEPPARD.

Witnesses:
EUGENE ELTERICH,
HARRY SMITH.