2 Sheets—Sheet 1.

H. W. AUSTIN & W. B. HOSFORD.

FURNACE.

No. 191,746. Patented June 12, 1877.

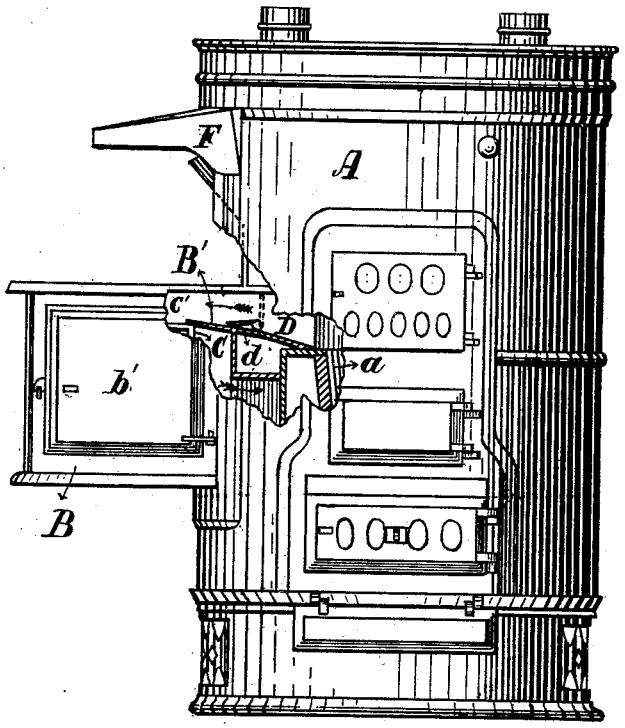

Fig. 1.

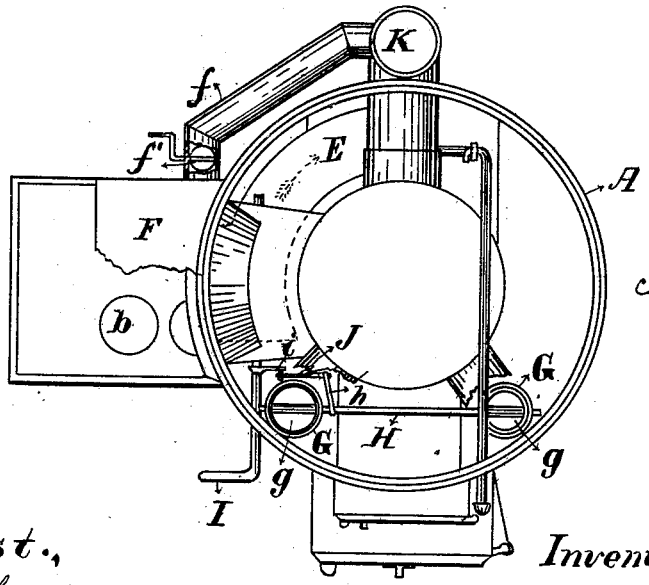

Fig. 2.

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2 Sheets—Sheet 2.

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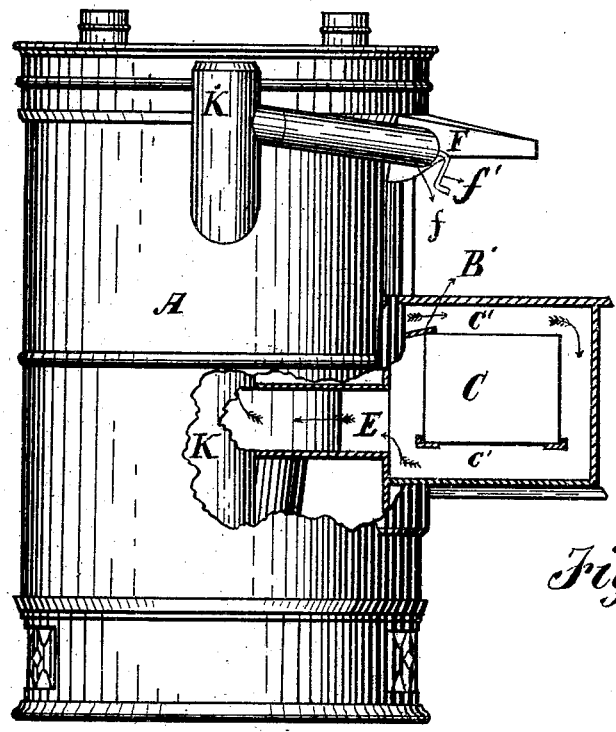


Fig. 3.

Fig. 4.

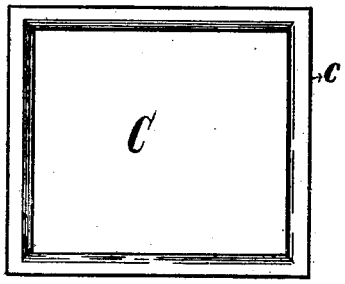
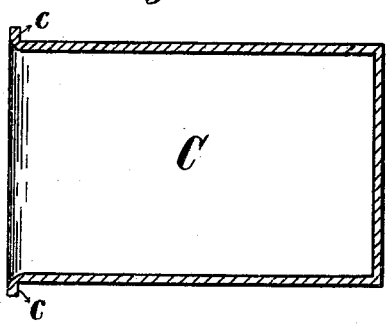


Fig. 5.



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UNITED STATES PATENT OFFICE.

HENRY W. AUSTIN AND WILLIAM B. HOSFORD, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN FURNACES.

Specification forming part of Letters Patent No. **191,746**, dated June 12, 1877; application filed March 12, 1877.

To all whom it may concern:

Be it known that we, HENRY W. AUSTIN and WILLIAM B. HOSFORD, both of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Furnaces, which is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a front elevation of a furnace with our improvement attached, a portion of the casing being broken away; Fig. 2, a plan view of the same, the top being removed; Fig. 3, a rear elevation of the same, with the cooking attachment in section; and Figs. 4 and 5, front and sectional views, respectively, of the removable oven.

The object of our invention is to provide a cooking attachment for furnaces, so that the furnace-fire may be utilized for cooking and other purposes without materially lessening the heating capacity of the furnace.

The invention consists in a cook-stove attachment fixed upon one side of the furnace, and provided with a passage communicating directly with the combustion-chamber of the latter, and also with the back pipe of the furnace, whereby a circulation of heated gases is secured around the oven of the cooking attachment, regulated by suitable dampers.

The invention also consists in various devices and combinations of devices, all of which will be hereinafter more fully set forth.

In the drawings, A represents a furnace, which, in all of its main features, may be of any ordinary construction, and does not require particular description here. At one side of this furnace is a cooking attachment, B, which is secured to a plate similar to the front plate, which, in turn, is fastened to the furnace like the latter. This cooking attachment, in its general features, is made like an ordinary cook-stove. In the top are ordinary boiler-holes *b*. At one end is a door, *b'*, and within is an oven, C, which is constructed so that it may be readily removed through the door *b'*, and is provided with a flange, *c*, fitting closely around the casing in front. The oven C is considerably smaller than the interior casing B, and is arranged within the latter, so that there will be a passage, *c'*, entirely around it, as shown in Fig. 3 of the drawings.

The furnace is constructed with a passage, D, leading directly from the combustion-chamber *a* to the upper part of the passage *c'* in the cooking attachment B, a plate from the furnace extending over the passage at the back of the oven, to prevent communication between it and passage D. In the passage D is placed a damper, *d*, by means of which the communication between the cooking attachment and combustion-chamber of the furnace may be opened and closed, and regulated as desired. At the lower part of the attachment B the passage *c'* opens directly into a flue, E, which passes around within the casing of the furnace, and communicates with the back pipe K. It will thus be seen that, whenever the damper *d* is turned so as to open the flue D, there will be a circulation of the heated products of combustion from the furnace directly into the cooking attachment, around the oven therein, and out into the back pipe; and by this means all necessary heat is obtained in the attachment B for ordinary cooking purposes.

Over the cooking arrangement is a hood, F, which is fastened to the furnace, and is provided with a pipe or flue, *f*, leading around the back side of the furnace, where it also connects with the back pipe, into which it opens. This hood is for the purpose of collecting the vapors arising from the cook-stove and conducting them away to the back pipe. The pipe *f* is provided with a damper, *f'*, for opening and closing communication between the hood and back pipe.

If desired, the pipe *f* may be carried away from the furnace and connected to some other discharge-flue in the room instead of the back pipe.

The furnace illustrated by the drawings is constructed with diving-flues G, and in furnaces of this kind the dampers *g* in the diving-flues are to be connected with the damper *d*, so that the movement of the latter will also turn the former. To accomplish this result the shaft H, on which the dampers *g* are placed, is provided with an arm, *h*, and the shaft I, on which is the dampers *d*, has a similar arm, *i*, and the two are connected by a link, J. These dampers, shafts, and arms are so arranged that, when the shaft I is turned to open the damper *d*, the dampers *g* will be

closed through the operation of the link J and arms *h* and *i*, and vice versa.

Of course, the furnace is to be supplied with the ordinary damper for controlling the escape of the products of combustion into the main exit-flue, which is common to all furnaces, and needs no further description here.

The location of the flue E is such that it cannot be reached except when the oven C is removed; but by making the latter removable the interior of the flue is easily reached, so that it may be readily cleaned out whenever desired; and the entire interior of the stove attachment is also easily cleaned by removing the oven.

We do not limit ourselves to the construction of the furnace shown in the drawings, as the cook-stove attachment may be made to a furnace of any construction, either portable or permanent.

The furnace shown and described is pro vided with diving-flues; but our arrangement of dampers can be applied to a furnace with direct draft without material change, the damper in the inlet-pipe D being in such case connected to the damper in the direct flue, so that the two may be moved together, as described, with dampers in diving-flues.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A cooking attachment, B, provided with a passage for the circulation of heated gases, in combination with a furnace, to the side of which it is attached, a passage or flue, D, leading directly from the combustion-chamber of the furnace into the cook-stove attachment, and a regulating-damper, *d*, arranged in the inlet-flue D, substantially as and for the purpose set forth.

2. A furnace, A, in combination with a cooking attachment, B, constructed with a circulation-passage, *c'*, around the oven, a passage or flue, D, forming direct communication between the combustion-chamber of the furnace and the passage *c'* in the stove, and a flue, E, connecting the other extremity of the circulation-passage with the back pipe K, substantially as and for the purpose set forth.

3. The cook-stove attachment B, provided with a removable oven, C, in combination with the flue E, leading from the attachment to the back pipe K, subtantially as and for the purpose set forth.

4. The damper *d*, placed within the inlet-flue D, in combination with the dampers *g*, the shafts H and I, provided with arms *h* and *i*, and the connecting-link J, substantially as and for the purpose set forth.

5. The hood F, arranged over the cooking attachment B, in combination with the discharge-pipe *f* connected to the hood, substantially as and for the purpose set forth.

HENRY W. AUSTIN.
WILLIAM B. HOSFORD.

Witnesses:
L. A. BUNTING,
E. S. LLOYD.