J. K. DIMMICK.

FIRE-PLACE HEATER.

No. 186,320. Patented Jan. 16, 1877.

Fig. 1

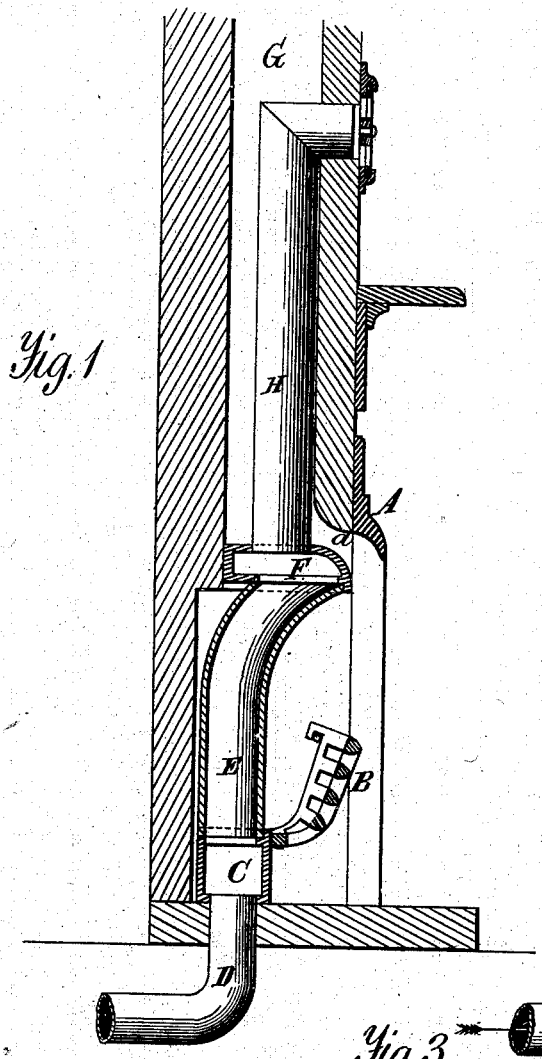


Fig. 2.

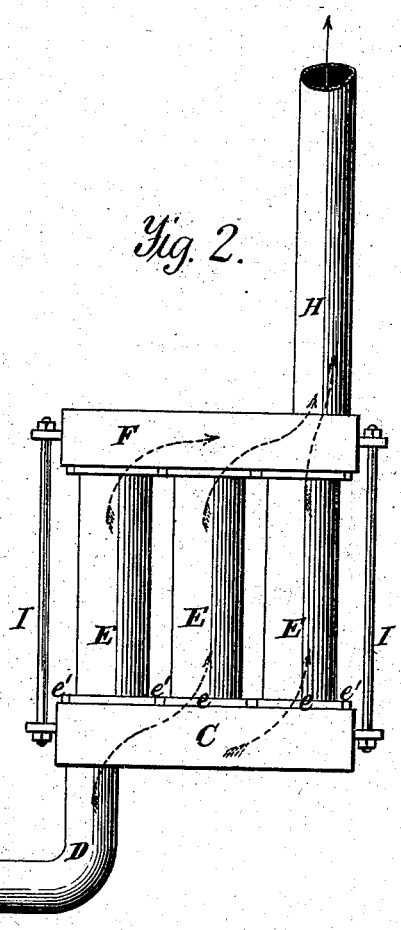
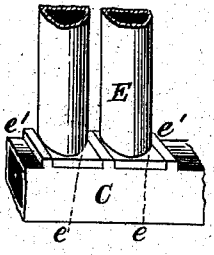


Fig. 3.



Witnesses.
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UNITED STATES PATENT OFFICE.

JACOB K. DIMMICK, OF CINCINNATI, OHIO, ASSIGNOR TO HIMSELF AND FREDERICK A. STINE, OF SAME PLACE.

IMPROVEMENT IN FIRE-PLACE HEATERS.

Specification forming part of Letters Patent No. **186,320**, dated January 16, 1877; application filed December 18, 1875.

To all whom it may concern:

Be it known that I, JACOB K. DIMMICK, of Cincinnati, in the county of Hamilton and State of Ohio, have invented a certain Improvement in Fire-Place Heaters, of which the following is a specification:

This invention relates to that class of heating apparatus which utilize the waste heat of a grate-fire to warm other compartments of a house, and it has for its object such a construction of the heater that it will form the backing of the grate, expose to the fire and hot gases a great extent of surface for the absorption of heat, and embody an admirable provision for connecting its several parts, designed not only to permit expansion and contraction, but also to facilitate the setting up of the heater, its taking apart for repairs, and its convenient packing for shipment.

My improvement consists, first, in constructing the heater of a cold-air receiver placed directly in rear of and below the grate to utilize in great measure the downwardly-reflected heat of the bed of coal; a series of upright pipes slightly separated from one another, and leading from the cold-air receiver at the base of the grate to a hot-air receiver above, the upper ends of the pipes being curved forward, so as to arch over the grate to such an extent that the front lower edge of the hot-air receiver will be about vertically above the top bar of the grate, in consequence of which the pipes and hot-air receiver will utilize and in part reflect into the room the direct rays of heat from the bed of coal, as well as the heat of the escaping hot gases circulating around the pipes and hot-air receiver. The heater thus made is set in the fire-place, leaving between the pipes and the brick-work behind a small space for circulation, which space is, however, closed on top by so building the brick-work that the back of the hot-air receiver will abut against it. Thus the hot gases may circulate around the pipes, but they are eventually compelled to pass forward under the hot-air receiver, and escape past the front and over the top of it into the chimney above. Second, in connecting the cold-air receiver, pipes, and hot-air receiver by rods, in such a manner as to provide for contraction and expansion, and a convenient detachment of the parts.

In the annexed drawings, Figure 1 is a vertical transverse section of my improved fire-place and heater. Fig. 2 is a front elevation of the heater detached. Fig. 3 illustrates the manner of joining the pipes and receivers.

The same letters of reference are used in all the figures in the designation of identical parts.

The fire-place is provided with the ordinary face-plate A and grate B. The cold-air receiver C is placed directly below the grate in rear of it, receiving air through a pipe, D, from a point inside or outside of the building, as may be preferred. A series of pipes, E, rise from the cold-air receiver behind the grate, leading up into the bottom of the hot-air receiver F, arranged lengthwise of the fire-place, in such a manner that its lower front edge will be about vertically above the top bar of the grate. The upper ends of the pipes E are curved so as to arch over the grate to the front edge of the hot-air receiver. The pipes stand a small distance from the brick-work behind, but the back of the hot-air receiver is in close contact therewith, as clearly shown. The gases, after circulating around the pipes, are forced to pass under the hot-air receiver, and past the front thereof, to reach the throat or flue *a* at the front of the fire-place, whence they escape into the chimney G, first passing partially over the top of the hot-air receiver. The hot air is distributed by a pipe, H. A suitable damper may be arranged in the throat *a*, to regulate the draft.

The pipes E are preferably semicircular in cross-section, as shown in Fig. 3, and they are provided with flanges *e* to fit between projections or flanges *e'* on the receivers. These projections or flanges serve to keep the pipes laterally in position, while the binding-rods I secure the entire system of pipes and receivers, in such a manner as to provide for expansion and contraction, and convenience in shipping and repairing the heater.

It will be observed that the pipes E extend down to the bottom of the grate, receiving thus the full benefit of the heat radiated from the bed of coals.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, substantially as specified, of the grate, the cold-air receiver, the upright pipes forming the grate-backing, and curved to arch over to about the front line of the grate, and the hot-air receiver forming the roof of the fire-place.

2. The combination, substantially as specified, of the flanged air-receivers, the flanged pipes, and the binding-rods.

In testimony of which invention I hereunto set my hand.

JACOB K. DIMMICK.

Witnesses:

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F. A. BUCHANAN.