

G. DARBY.
Hot Air Furnace.

No. 19,239.

Patented Feb. 2, 1858.

Fig. 1.

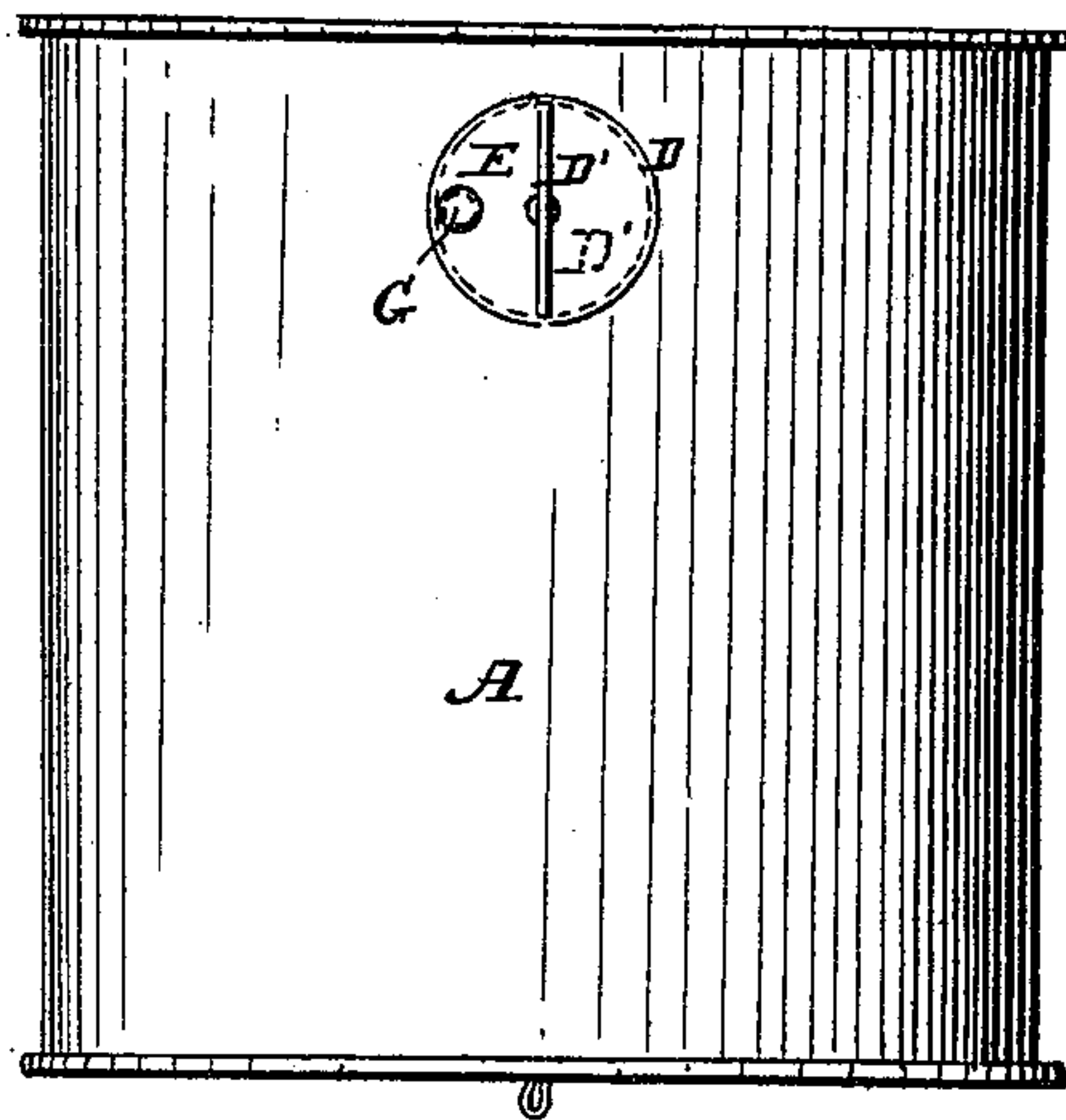


Fig. 2.

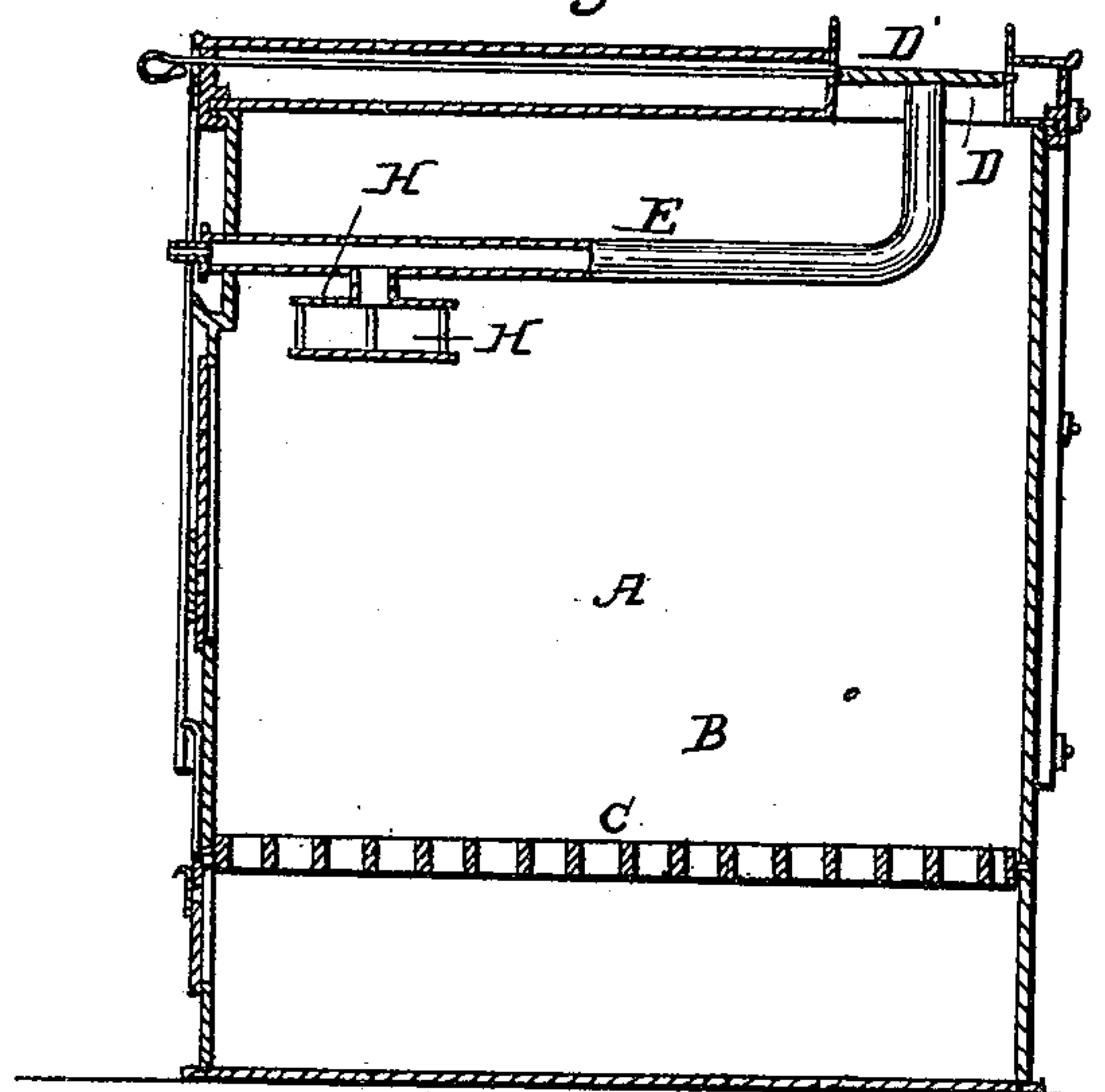
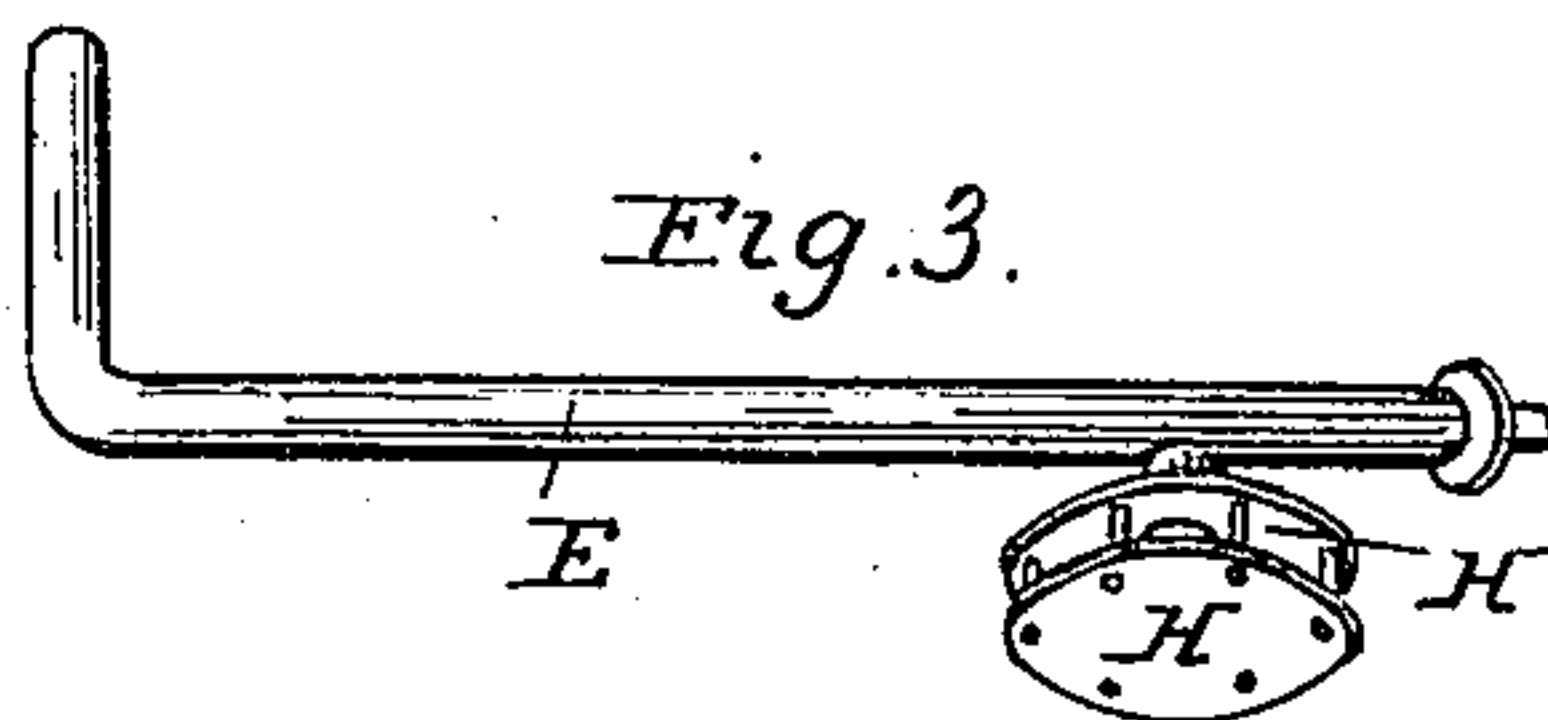


Fig. 3.



UNITED STATES PATENT OFFICE.

GEORGE DARBY, OF AUGUSTA, MAINE.

HOT-AIR FURNACE.

Specification of Letters Patent No. 19,239, dated February 2, 1858.

To all whom it may concern:

Be it known that I, GEORGE DARBY, of Augusta, in the county of Kennebec and State of Maine, have invented a new and useful Improvement in Hot-Air Furnaces; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1, is a plan or top view. Fig. 2, is a vertical central section. Fig. 3, is a detached perspective view of a portion of the same.

Similar letters of reference in each of the several figures indicate corresponding parts.

The nature of my invention consists in the combination of a hollow cold air, auxiliary draft flue, two deflecting, radiating plates, and a pivoted perforated damper; all arranged and operating in the manner and for the purpose hereinafter specified.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A, represents the furnace, constructed with a single fire chamber B. C, is the fire grate, D, the chimney flue and D', the damper of the same.

E, is the cold air pipe, it communicates by its front end, which passes through the front of the furnace, with the open atmosphere, and by its rear end, which is bent up at right angles, with the draft or pipe-flue D, as shown in Figs. 1 and 2. This pipe serves a double office, to wit; 1st, for admitting cold air or oxygen above the grate, or at the point where the unconsumed gases collect, and it is most needed in order to insure perfect combustion of the same. 2nd, as a draft flue for conducting off the smoke when the main flue D, is closed by the damper D', as shown in Figs. 1 and 2. Thus having a simple pipe serve these two offices is one novelty of my arrangement. And having the damper pivoted so as to lie horizontal or stand vertical, as occasion requires, and furnished with an opening G, so as to allow the escape of the smoke when the main flue is shut off by it as shown in Figs. 1 and 2, also

forms another feature of novelty in my arrangement.

H, H, are two deflecting, radiating plates, connected together by vertical bolts so as to stand one above the other, and leave an open space between them for the flame and heated gases to circulate through, and escape into the cold air auxiliary flue, as shown in Figs. 2 and 3. These plates and the space between them being connected with the cold air, auxiliary draft flue by a short vertical tube at a point not far from the front of the furnace. By having the plates thus located the heated gases which rise along the back of the furnace are compelled by the draft of the auxiliary flue to pass toward the front of the stove, and thus are kept longer in the fire chamber and the loss from having the gases pass off immediately, and but partially consumed, is avoided, as the plates also deflect and spread the heated gases and thus disturb and break up the harmony existing between them, and while thus separated a supply of oxygen is admitted to and caused to mingle with the same in a manner to almost effect a perfect combustion of the gases. Thus combining two deflecting radiating plates, and arranging the same on the cold air, auxiliary draft flue, which has a perforated, pivoted damper, in the position stated, within the fire chamber, constitutes the third feature of novelty in my arrangement, and the three features combined as shown, I believe form a combination more simple and effective than any other heretofore produced.

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

The combination of a hollow cold air auxiliary draft flue E, two deflecting radiating plates H, H, and a pivoted perforated damper D'; all arranged, and operating substantially as and for the purposes herein set forth.

The above specification of my improvement in hot air furnaces signed by me.

GEORGE DARBY.

Witnesses:

E. H. CRAIG,
E. HERMANS.